Overcoming the Barriers Experienced by Non-English-Speaking Background (NESB) Communities in Accessing Australian Government Information Systems—The NESB Model

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Dedication

I dedicate this thesis to my parents Abdel-Fattah and Zainab for their love and prayers throughout the years, and to my wife Vivian and my children Omar, Malik, Yousef, Jaida and Bilal for their love, patience and moral support throughout my journey.
Statement of Authentication

(Candidate Certificate)

The work presented in this thesis is, to the best of my knowledge and belief, original, except as acknowledged in the text. I hereby declare that I have not submitted this material, either in full or in part, for a degree at this or any other institution.

..................................................

(Signature)

Mohammad Mohammad

March 2013
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# Contents

Dedication ...........................................................................................................................................ii
Statement of Authentication.................................................................................................................. iii
Acknowledgements............................................................................................................................... iv
Contents ....................................................................................................................................................... v
List of Figures ........................................................................................................................................... vii
List of Tables ............................................................................................................................................... viii
List of Abbreviations ................................................................................................................................ ix

**Abstract** ........................................................................................................................................... xi

**Chapter 1: Introduction** ........................................................................................................................ 1
  1.1 Background to the Research Problem .............................................................................................. 1
  1.2 Scope of the Study .......................................................................................................................... 3
  1.3 Research Questions ....................................................................................................................... 4
  1.4 Research Aims and Objectives .................................................................................................... 5
  1.5 Research Significance and Motivation ....................................................................................... 6
  1.6 Research Methodology .............................................................................................................. 8
  1.7 Research Implications .................................................................................................................. 9
  1.8 Thesis Outline ............................................................................................................................10
  1.9 Problem Formulation .................................................................................................................. 11

**Chapter 2: Literature Review** ........................................................................................................... 13
  2.1 Historical Context and Function of English in Australian Settlement ........................................... 13
    2.1.1 The NESB Community ........................................................................................................ 15
    2.1.2 NESB in Australia .............................................................................................................. 18
  2.2 E-Government ................................................................................................................................ 21
  2.3 Critical Accessibility Success Factors ......................................................................................... 30
    2.3.1 Technology Acceptance Theory .......................................................................................... 33
    2.3.2 Reasoned Action Theory ..................................................................................................... 34
    2.3.3 Planned Behaviour/Structural Behaviour Theory (PB/SBT) ................................................ 36
  2.4 Barriers to Success of Access ...................................................................................................... 39
  2.5 Perception and Perceived Barriers as Meta-Barriers to Access .................................................. 44
  2.6 Historical Context of IS Implementation ..................................................................................... 50
    2.6.1 IS Implementation ............................................................................................................... 51
  2.7 Summary ........................................................................................................................................ 55

**Chapter 3: Methodology** .................................................................................................................... 57
  3.1 Theoretical Framework for Research .......................................................................................... 57
    3.1.1 Barriers .................................................................................................................................. 59
    3.1.2 Fit ........................................................................................................................................... 60
    3.1.3 Usability ............................................................................................................................... 60
    3.1.4 Needs ...................................................................................................................................... 61
    3.1.5 Computer/Internet skills ...................................................................................................... 62
  3.2 Data Collection Method .............................................................................................................. 66
  3.3 Justification of Research Methodology ....................................................................................... 70
  3.4 Selection of Respondents ............................................................................................................ 71
  3.5 Philosophy of Research Model .................................................................................................... 72
  3.6 Ethical Issues .............................................................................................................................. 72
  3.7 Summary ...................................................................................................................................... 73
Chapter 4: NESB Case Studies: Demographics, Settings and Control

Responses .................................................................................................................74

4.1 Case Study—City of Plenty, Melbourne ..............................................................76
4.2 Characteristics of the NESB User: Socioeconomic Outlines .........................79
4.3 Exemplary NESB Users .....................................................................................82
4.4 Summarised Responses to the Shortcomings of Australian Government IT by NESB Users ..................................................................................84

Chapter 5: Results and Discussion ...........................................................................87

5.1 Recruitment Process ...........................................................................................87
5.2 Data Collection ....................................................................................................88
5.3 Theme: Barrier/Barrier to Access .......................................................................89
5.4 Theme: Fit ..........................................................................................................93
5.5 Theme: Usability ...............................................................................................95
5.6 Theme: Needs ...................................................................................................98
5.7 Theme: Computer and Internet Skills .................................................................100
5.8 Theme: Language Use (Arabic) ..........................................................................103
5.9 Review of Research Questions ............................................................................105

Chapter 6: Inquiry, Definition and New Suggestions for Inclusive Australian Government IT Systems (the NESB Model) .................................................................110

6.1 Defining the NESB Model ..................................................................................110
6.2 What the MIS of the Government of Australia Can Ask in the Context of New Technology Potential (Sample Forms for Public Service Improvement) .........................................................112
6.3 Redefining NESB User Needs (New Critical Success Factors) and Government IT Requirements (According to New CSFs) .................................................117
6.3.1 SWOT of the NESB Model ........................................................................127
6.3.1.1 Strengths ................................................................................................128
6.3.1.2 Weaknesses ...........................................................................................128
6.3.1.3 Opportunities .........................................................................................129
6.3.1.4 Threats ................................................................................................129
6.4 Recommendations ..........................................................................................129

Chapter 7: Conclusion ...........................................................................................133

7.1 Chapter Overview .............................................................................................133
7.2 Achievement of Research Aims ........................................................................133
7.2.1 Answering the Main Research Questions ......................................................133
7.2.2 Answering the Secondary Research Questions .............................................136
7.3 Contributions to Body of Knowledge .................................................................140
7.3.1 Contribution to NESB Literature ................................................................140
7.3.2 Contribution to E-government Literature ......................................................143
7.3.3 Implications for Practice—The NESB Model ...............................................144
7.4 Limitations of Research ..................................................................................149
7.5 Future Research Opportunities ........................................................................150
7.6 Conclusion .......................................................................................................151

References .............................................................................................................155

Appendix A: Questions Asked of Participants .........................................................176

Appendix B: Contact Letter ...................................................................................177

Appendix D: List of Publications ............................................................................210
List of Figures

Figure 1.1: Outline of the current study ................................................................. 10
Figure 2.1: Hypothesis Framework of the TAM ....................................................... 34
Figure 2.2: Reasoned Action Theory (Source: Fishbein & Ajzen, 1980) ................. 36
Figure 2.3: PB/SBT Model (Adapted from Reeve & Assor, 2011) ......................... 37
Figure 3.1: Theoretical framework for the research .............................................. 63
Figure 5.1: Node Cluster ....................................................................................... 89
Figure 5.2: Coding of ‘Barrier’ ............................................................................... 91
Figure 5.3: Coding of ‘Fit’ ..................................................................................... 94
Figure 5.4: Coding of ‘Usability’ ........................................................................... 96
Figure 5.5: Coding of ‘Needs’ ............................................................................. 98
Figure 5.6: Three Primary Needs of the Arabic Community in Accessing Government Online Services ......................................................... 100
Figure 6.1: Relations between SDI Components ................................................... 119
Figure 6.2: E-government Strategy Model ............................................................. 120
Figure 6.3: Spread of Languages on the Internet from 2000–2011 (getsponge.com, 2012) .............................................................................................................. 132
List of Tables

Table 2.1: Top Ten Languages Spoken at Home ............................................................ 16
Table 2.2: Birthplace by country of birth and spoken English ....................................... 21
Table 2.3: List of ICTs* .................................................................................................. 27
Table 2.4: Australia’s E-Government Services by Government Level ........................... 29
Table 2.5: Optimum IS User Predictors/Requisites According to Theory ...................... 38
Table 2.6: Internal and External Barriers to Critical Success Factors (CSFs) ............... 45
Table 5.1: Percentage Coverage for Barriers to Access ............................................. 90
Table 5.2: Language Skills ............................................................................................ 91
Table 5.3: Barriers in Accessing the Local Government Online Services ...................... 92
Table 5.4: Usability ......................................................................................................... 96
Table 5.5: Experiences in Accessing Local Government Online Services ..................... 97
Table 5.6: Level of Proficiency in the Use of Computers ............................................. 103
Table 5.7: Interview Comments Regarding the Use of Arabic ..................................... 104
Table 5.8: Suggestions to Improve Online Services ..................................................... 105
Table 6.1: Objectives and Goals of Electronic Service Delivery (based on City Portal, 2011) .................................................................................................................................................. 113
Table 6.2: SWOT for NESB Model .............................................................................. 128
Table 7.1: Relationship Between NESB Model and Study’s Themes ........................... 142
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Attitude</td>
</tr>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>AEDDM</td>
<td>Australians Ethnically Diverse and Different from the Majority</td>
</tr>
<tr>
<td>AGIMO</td>
<td>Australian Government Information Management Office</td>
</tr>
<tr>
<td>AGOSP</td>
<td>Australian Government Online Service Point</td>
</tr>
<tr>
<td>ANAO</td>
<td>Australian National Audit Office</td>
</tr>
<tr>
<td>ATC</td>
<td>Australian Trade Commission</td>
</tr>
<tr>
<td>BI</td>
<td>Behavioural Intention</td>
</tr>
<tr>
<td>CALD</td>
<td>Culturally and Linguistically Diverse</td>
</tr>
<tr>
<td>CASE</td>
<td>Computer Assisted Software Engineer</td>
</tr>
<tr>
<td>CCF</td>
<td>Community Futures Project</td>
</tr>
<tr>
<td>CSFs</td>
<td>Critical Success Factors</td>
</tr>
<tr>
<td>DFD</td>
<td>Department of Finance and Deregulation</td>
</tr>
<tr>
<td>DIAC</td>
<td>Department of Immigration and Citizenship</td>
</tr>
<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
</tr>
<tr>
<td>ESL</td>
<td>English as a Second Language</td>
</tr>
<tr>
<td>FMA</td>
<td>Finance Ministry and Accountability Act</td>
</tr>
<tr>
<td>G2C</td>
<td>Government-to-Customer</td>
</tr>
<tr>
<td>G2B</td>
<td>Government-to-Business</td>
</tr>
<tr>
<td>G2G</td>
<td>Government-to-Government</td>
</tr>
<tr>
<td>G2E</td>
<td>Government-to-Employee</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>IS</td>
<td>Information Systems</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>MIS</td>
<td>Information Systems Management</td>
</tr>
<tr>
<td>MRP</td>
<td>Materials Requirements Planning</td>
</tr>
<tr>
<td>NBN</td>
<td>National Broadband Network</td>
</tr>
<tr>
<td>NEDA</td>
<td>National Ethnic Disability Alliance</td>
</tr>
<tr>
<td>NESB</td>
<td>non-English-speaking background</td>
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NGOs  Non-Governmental Organisations
NOIE  National Office of Information Economy
OECD  Organisation for Economic Co-operation and Development
PBC  Perceived Behavioural Control
PB/SBT  Planned Behaviour/Structural Behaviour Theory
RAT  Reasoned Action Theory
RBV  Resource-Based View
SDI  Spatial Data Infrastructure
SN  Subjective Norm
SSR  State Social Responsibility
TAT  Technology Acceptance Theory
Abstract

Australia is one of the most culturally diverse and prosperous societies in the world, and such heterogeneity or pluralism has both advantages and challenges. The Australian government must provide support to and for the integration of migrants, especially among those with a non-English-speaking background (NESB). Investments in information systems (IS) have resulted in the use of information and communication technology (ICT) to raise public awareness of the country’s policies, programmes and services. However, communication issues have recently emerged between the government’s online IS and the NESB migrants and their communities. Based on their increasing significance in Australia’s socio-economic and political landscape, it is necessary not only to identify and understand the needs of NESB migrants, but also to determine the barriers (both perceived and actual) that NESB migrants experience with regard to government online services (otherwise termed ‘e-government’).

The key findings of this study are as follows: There were three primary needs mentioned most often by the Arabic community members that participated in this study. These primary needs are: 1) greater usability of all online services; 2) simplified design of website, including basic instructions; and 3) provide online services in Arabic rather than just in English. Specific barriers to accessing the government online services have been identified by means of this research, including: the perceived complexity of the language (English) used for the online services, language use (services need to be provided in Arabic), age of users (older users tend to be less likely to use online services) and lack of trust in the online services (fear of others obtaining private information). The issue of usability was critical in the context of this study, as the assumption is that the government is not currently providing online services that are sufficiently usable by a majority of the non-English-speaking Arabic community. The respondents were clear that the barriers preventing them from successfully accessing the local government online services made it difficult to gain full benefits from those services.
By developing a new theoretical framework directed at eliminating the barriers for online government service usage by NESB community members, an NESB model that emphasises user-centricity is proposed. The framework combines several key themes: barriers to access, fit, usability, needs and computer/Internet skills. Interview findings involving several Arab migrants revealed that language and low computer skills are among the reasons why many NESB immigrants are discouraged or do not initially use government online services. The study recommends that heterogeneous countries such as Australia need to implement ICT-based or e-government policies, programmes and services that reflect culture and language sensitivity in order to effect meaningful and effective migrant integration. Further research implications are also cited.
Chapter 1: Introduction

This chapter lays the groundwork for the study, beginning with a background to the research problem. Additionally, it establishes the scope of the study, the research questions, research aims and objectives, significance and motivation, methodology and implications. Finally, the chapter provides an outline of the entire study.

1.1 Background to the Research Problem

Studies focusing on the topics of e-government, government information systems (IS), and government management information systems (MIS) (Gottschalk, 1999; Salazar Alvarez, 2003; Sharma & Yetton, 2007; Zhang et al., 2008) are becoming increasingly available and informative, in addition to studies of specific governmental MIS implementation in select regions or nations (Cao, 2010; Shoib & Nandhakumar, 2003; Zhang et al., 2008). Nevertheless, there is a scarcity of research investigating cultural, social and political factors in the context of e-government—especially how those factors may influence communities of certain subcultures in their use of government-sponsored IS. Further, little research addresses how different culture or language groups are affected by the phenomenon of government implementation of IT and IS in socially and economically disadvantaged areas. For the current study, the community of interest was the non-English-speaking background (NESB) community—especially the Arab community—and how the MIS implemented by local governments in Australia affect this group.

Thus, of special significance to the present study is the problem of prohibitive barriers to NESB adoption and the successful use of Australian government IS at both the local and national levels. These restrictive barriers include cultural barriers, such as language differences (low proficiency in Standard Australian English), and social, cultural and political barriers, such as NESB user expectation and perception of government IT/IS, as well as barriers to accessing these services. Two issues are particularly important in this context: barriers related to actual accessibility (or, more precisely, lack of accessibility) (Cao, 2010; Muscatello & Chen, 2008; Sharma & Yetton, 2007; Shoib &
Nandhakumar, 2003; Zhang et al., 2008) and perceived barriers (Chen, Sun, Helms & Jih, 2009; Salazar Alvarez, 2003; Sharma & Yetton, 2007; Shoib & Nandhakumar, 2003; Zhang et al., 2008).

In some cases, barriers to access in the NESB community, whether they are real or perceived, may result in insufficient access to information (such as education information management) and subsequently a reduction in, or absence of, educational opportunity. Additionally, other critical services to the NESB community are limited or weakened, such as employment information management and poor health information management; the latter issue will result in poor health and well-being. With respect to perception and perceived barriers as meta-barriers to access, the feelings, motivations, attitudes and beliefs of this marginalised subculture are known in holistic terms as ‘user’ perception. In such a context, perceived usefulness, ease of use and usability (or ‘fit’) (Zhang et al., 2008) of government IS by and within the NESB communities in Australia characterise a lack of willingness to adopt the existing IS as much as the community perceives limited accessibility to these systems.

Moreover, several recent studies have investigated and subsequently challenged the dominant theoretical models of decision-making in IT implementation in the business domain (Chen et al., 2009; Gottschalk, 1999; Muscatello & Chen, 2008; Salazar Alvarez, 2003; Sharma & Yetton, 2007; Shoib & Nandhakumar, 2003; Zhang et al., 2008). One such model is the rational model and its normative status with its prescriptive undertones (Shoib & Nandhakumar, 2003). The authors listed above questioned the internal organisational elements and practices of IT implementation, revealing the problems therein (Salazar Alvarez, 2003). Additional researchers have uncovered the effects of IT organisational factors on performance and competitive strategy as they benefit the business itself (Apte et al., 1990; Cao, 2010; Gottschalk, 1999; Niehaves et al., 2009; Tavakolian, 1989). Nonetheless, few studies have necessarily implicated those internal problems as external to the community being studied. Fewer researchers still have focused as heartily on the theoretical conceptualisation of and for government services as they affect the socio-cultural aspirations of NESB communities. Moreover, few studies have investigated the implementation of government MIS contingencies in particular regions—contingencies that lend to the barriers-to-access theory and that prompt best-approach perspectives.
Due in large part to the previous research and the gaps outlined above, this research proposes to fill the gap in the current literature. In particular, barriers need to be addressed and perceptions of existing information systems and barriers need to be understood. In addition, a strategy that best affords accessibility for NESB communities needs to be suggested for implementation. The current study sets out to fill these needs and to investigate a relatively neglected issue of accessibility—in the context of strategic implementation as informed by a composite theory.

Three existing theories are consulted to develop a new theoretical framework focusing on NESB communities: 1) Technology Acceptance; 2) Reasoned Action; and 3) Planned Behaviour/Structural Behaviour (Chen et al., 2009; Gottschalk, 1999; Labovitz & Hagedorn, 1975; Muscatello & Chen, 2008; Pavlou & Fygenson, 2006; Salazar Alvarez, 2003; Sharma & Yetton, 2007; Shoib & Nandhakumar, 2003; Zhang et al., 2008). However, this study develops a new theoretical framework that moves beyond the concepts expressed by these three existing theories. Importantly, the theoretical framework developed for this study addresses the need for more qualitative measures of accessibility that acknowledge the distinction of NESB communities as needful, aspiring government IS users, with the intent of optimising, or liberalising (Australian Institute of Health and Welfare [AIHW], 2006), access for the NESB communities of Australia to government IS services.

1.2 Scope of the Study

The aim of this study is to investigate causality and causal relationships among actual barriers, perceived barriers, strategic management intervention strategies and government IS outcomes related to the NESB community’s (especially the Arabic community’s) access to such services. In the business world, as Cao (2010) asserted, ‘access is one of the seven primary practices necessary to productivity’ (p. 268). As mentioned earlier, the study is influenced by three user theories based on three major components concerning IS/IT accessibility: 1) Technology Acceptance Theory; 2) Reasoned Action Theory; and 3) Planned Behaviour/Structural Behaviour Theory. These theories provide a basic understanding of critical accessibility success factors,
barriers to access and user perception as an actual or perceived barrier to access. However, this study departs from these three theories due to their limitations, and it develops a new framework to analyse NESB community phenomena within the context of theoretical assertions that a) access is influenced by behaviour; b) behaviour is driven by motivation, expectation/needs and perception; and c) perception in turn affects action.

There were 30 participants in this study, and they were categorised into two main groups: users (15) and non-users (15) of government IS facilities or services being studied; it did not include providers of those services. Specifically, the interviews were conducted with individuals aged 18–55 years within the NESB Arabic community. Interviews took place with two specific groups within that demographic: 1) people in the Arabic community who use the local council online services; and 2) people in the Arabic community who do not use the local council online services. The participants comprised 12 females (40%) and 18 males (60%).

1.3 Research Questions

According to the AIHW (2006), ‘...people who speak English as a second language [and those who speak Aboriginal English, a separate dialect from Standard Australian English] often experience difficulty in approaching [government] services’ (p. 8). In the context of IS, these community members fail to access many services that are otherwise available to them. Consequently, prompted by theoretical models that interpret and explain technology acceptance, reasoned action and planned behaviour, this study attempts to answer eight specific questions. By means of these questions, the present study seeks to inform future efforts to liberalise government IS access for NESB communities in Australia. In addition, the study attempts to identify, interpret and explain fundamental issues facing the NESB Arabic community in order to reconcile IS user perception and behaviour/action. To accomplish these goals, the following research questions (RQ) were formulated:

- **RQ1**: What specific needs of the NESB population may be met by the implementation of a new model—called the NESB Model—that focuses on IS users?
• **RQ2**: What prevailing barriers to the access of government IS exist as prohibitive elements to the NESB community’s ability to obtain services or training via government-provided IS?

• **RQ3**: What are the perceptions of IS users (and potential users) with respect to the usefulness of Government IS?

• **RQ4**: What are the perceptions of IS users (and potential users) with respect to the usability of Government IS?

• **RQ5**: What are the perceptions of IS users (and potential users) with respect to the fit of Government IS?

• **RQ6**: What are the perceptions of IS users (and potential users) with respect to the types of barriers to access to Government IS?

• **RQ7**: What are the perceptions of IS users (and potential users) with respect to the consequences of barriers to access to Government IS?

• **RQ8**: Would a new NESB model for government IS be beneficial for the NESB community?

### 1.4 Research Aims and Objectives

This study attempts to initiate the process of taking apart barriers by way of qualitative measures that investigate causality and causal relationships among barriers, perceived barriers, strategic management intervention strategies and government IS outcomes. One significant factor in barriers to government IS access/accessibility is found in the dynamic of control and power—with the organisation or institution issuing or implementing the system having the greatest amount of control (Fichman, 2004; Gold et al., 2001; Ling & Yen, 2001; Sharpanskykh, 2008). In such a context, it is implied that as a business with its own objective of serving itself first, the ego-centrism of the organisation trumps the end user’s (or consumer’s) needs, wants and aspirations.

With respect to this study, the institution under consideration is the Australian government, which is technically a business—ostensibly doing said business as a [parliamentary] democracy, and ostensibly with the Commonwealth’s interests as its priority. In addition, the government is also technically a policy-building institution with the governing body’s needs, interests and mission goals taking primacy.
Considering the four types of e-government systems (Zhang et al., 2008)—government-to-customer [G2C], government-to-business [G2B], government-to-government [G2G] and government-to-employee [G2E] (p. 53, citing Siau & Long, 2006)—the G2C system is appropriately applied in this study as a business organisation. In this context, the ‘customers’ are the members of the NESB Arabic community.

It is therefore the primary endeavour of this study to redirect the emphasis to a user-centred approach so that the aforementioned objectives are exacted. What this effort more specifically entails was identified by Gable et al. (2002) as the relatively newly recognised approach of ‘virtual organisation’ (p. 348)—a conceptualisation focusing on ‘knowledge and intellect as creating value’ (p. 348). In this manner, it is suggested that Australian government IS can implement protocols and procedures that will ‘overcome traditional decision-making strategy and communication’ (which thus far has proven to more negatively affect NESB communities/users) as well as the ‘classical understanding of rules for inclusion and exclusion…’ (Gable et al., 2002, p. 348, citing Sandhoff, 1999).

1.5 Research Significance and Motivation

The proposed hybrid model (NESB Model) maintains the key objective of building a composite theory of NESB user accessibility to government IS by combining lines of reasoning initially derived from the three models already listed—Technology Acceptance Theory, Reasoned Action Theory and Planned Behaviour/Structural Behaviour Theory—but expanding upon these concepts in order to develop the present theoretical framework.

The justification for this approach is threefold. First, the Technology Acceptance model is informed by one of the often-espoused theories of behavioural intention(s) and IT usage (Chen et al., 2009). Moreover, with this theoretical model, perception is the operative whereby perceived usefulness and perceived ease of use are ‘most relevant in explaining the behavioural intention to use IS’ (Davis, 1989, cited in Chen et al., 2009, p. 36). In addition to the Technology Acceptance model, the Flexibility model (Chen et al., 2009), formed by related concepts, identifies ‘perceived risk[s] and interpretive
flexibility’ (p. 33). In the current study, these two perception constructs are used as introductory theories to form part of the theoretical framework used to examine the factors influencing NESB user barriers to government IS. In this respect, this study’s proposed model combines lines of reasoning to include perceived control, which is based on the singular related notion that IS control ‘originates from limited opportunities offered by the application system’ (Chen et al., 2009, p. 40). Thus, one part of the theoretical framework is assessing NESB users’ familiarity and comfort with an online environment, which is essential to access government services.

Second, the Theory of Reasoned Action, as it provides for a model of rationality (Shoib & Nandhakumar, 2003), discerns purposeful action as that interpreted by Rational Choice theory. This theory is also used as a guideline for the present study, as these approaches have been consistently validated by empirical and clinical/field studies to explain not only usage intention, but also variance in usage and intention (Zhang et al., 2008)—perhaps compensating in quantitative terms for the purely qualitative methodology used herein to explain the specific phenomena. In particular, the current theoretical framework includes qualitative methods for determining NESB users’ reasons for either using or rejecting online government services.

Third, the Theory of Planned Behaviour—a behavioural paradigm of the Rationality model (Shoib & Nandhakumar (2003) and a tandem theory to Structural Behaviour theory (Labovitz & Hagedorn, 1975; Pavlou & Fygenson, 2006)—extends to the arena of IT/IS to explain and predict user process. This third, two-pronged approach is useful to the present study by helping to form rational methods of investigation from orientation, intention and choice to behavioural attitudes, patterns and control (Labovitz & Hagedorn, 1975; Pavlou & Fygenson, 2006). The addition of constructs of the Contingency model, which comprise strategic fit/fitness and functional integration (Cao, 2010), also supports this study’s investigation into, and the conceptualisation of, the following components: a) the needs, aspirations and expectations of NESB users; b) the structure and strategy behind government IS; and c) the alignment or misalignment of the needs, aspirations and expectations (also in Cao, 2010, p. 269) of NESB users to the structure and strategy of government IS, as resulting in barriers to accessibility. Therefore, this third element of the theoretical framework for this study consists of additional qualitative methods that allow the interpretation of attitudinal values and
motivation as important correlatives in this study of perception, access and use of government IS.

1.6 Research Methodology

The data collection method utilised for this qualitative study is semi-structured, open-ended questions asked during face-to-face interviews with respondents from the NESB Arab community. In-depth interviewing—especially with the use of open-ended questions—allows the individuals being interviewed to essentially shape their own interviews (Horrocks & King, 2010). With no direct questions being asked, the discussions were allowed to proceed in such a way as to permit free expression by the participants regarding personal feelings and experiences. This method was deemed ideal for collecting detailed information about individuals’ thoughts and behaviours. Additionally, the interview method typically provides a more relaxed atmosphere for respondents and often results in better participation (Horrocks & King, 2010). This was the case with the participants in this study.

The interviews were 40 minutes to one hour in duration. However, based on the level of information received from each interviewee, in some cases it proved beneficial to conduct follow-up interviews. All follow-up interviews were based on the willingness of the participant and the expected level of benefit that could be achieved from any additional time spent. All interviews focused on the research questions and the objectives provided earlier in this chapter. The interview protocol followed a basic pattern: participants were interviewed in random order, with an assurance of confidentiality at the start of each session. An inductive approach was used, with only two or three open-ended questions utilised initially (unless these did not elicit sufficient conversations), and the same open-ended questions were used for all participants. Indicative questions included: How has a lack of access to information systems affected your ability to find employment? What assistance has the Australian government [IS programme] provided to assist you?

The community centres were contacted in person to set up the interviews. As the purpose of this study is a more successful implementation of government IS within
NESB communities, only qualitative research was indicated, and it was conducted with face-to-face interviews. Qualitative research is more useful than quantitative methods in attempting to understand the attitudes, behaviours, motivations and concerns of a targeted research group (Babbie & Benaquisto, 2009)—in this case, the NESB Arabic community.

1.7 Research Implications

First, investigating (beyond issues of location and economic status as scarcity barriers) the problematic barriers to accessibility as comprising language differences as cultural barriers at one level, and then identifying users’ perceptions and expectations as social, cultural and political barriers at a more overarching level, this research considers human behaviour(s), attitudes and beliefs fundamental to the theoretical understanding of the problems of accessing government IS. The first-level barriers of access primarily affect NESB users. Further, it relates to how NESB users’ perceived accessibility and perceived barriers to accessibility are affected. Second, the theoretical framework used in this study suggests that NESB users’ motivations, desires and needs contribute to a conceptualisation of user behaviour and aspirations that could solve, or at least limit, these problems and perhaps overcome these barriers.

Further intended is a suggestion not only for governmental and organisational efforts to extend beyond internal strategy to external intervention, but also for proactive organisational and governmental support of autonomous IS/IT adoption and use by NESB communities as a solution for overcoming said accessibility barriers. That is, previous studies have emphasised a lack of IS training, a lack of technical knowledge or overwhelming technological complexity (Jin, 1993; Muscatello & Chen, 2008; Sharma & Yetton, 2007) as having the most significant effect on users. These linguistic-to-technical-knowledge barriers are confronted by such solutions as organisational intervention or enhanced strategic implementation.

This study does not intend to impugn such approaches. Rather, the study suggests that it is the perceived barriers—such as knowledge barriers, technological complexity reticence and fear barriers, and NESB users’ linguistic distinctiveness barriers—that
require diversity attention and enhancement at the individual, rather than just, and in combination with, organisational assistance levels. Second, it is at the human behavioural rather than just the IT/IS management level that end users of government IS need attention, so that addressing user attitudes towards, and beliefs about, government IS will perhaps help IT/IS systems evolve from barriers to benefits.

1.8 Thesis Outline

Figure 1.1 provides an outline of the study.

![Outline of the study](image.png)
1.9 Problem Formulation

To summarise, researchers have investigated and challenged many of the present theoretical models of decision-making in IT implementation (see Baumgarten & Chui, 2009) in the business domain and government (such as the rational model and its normative status with its prescriptive undertones), and they have questioned the internal organisational elements and practices of IT implementation, revealing real problems (see, e.g., Cao, 2010; Chi et al., 2009; Muscatello & Chen, 2008; Zhang et al., 2008). Nevertheless, few studies exist that correlate those internal problems as also being external to the surrounding community (Durieux-Paillard & Loutan, 2005; McLachlan & Waldenstrom, 2005; Sawrikar & Katz, 2008). Indeed, there is a significant lack of theoretical conceptualisation of how the government affects the socio-cultural aspirations of NESB communities (Diab, 2003; Sawrikar & Katz, 2008; Seifkashani, 2003). In addition, there has not been a significant investigation related to government MIS implementation contingencies in particular regions, despite the fact that such contingencies lend to barriers-to-access theory and prompt best-approach perspectives (e.g., Sawrikar & Katz, 2008). For example, in spite of data published by ABS (2012) and a study by Wooden et al. (1994) related to the predominance of the NESB community to speak languages other than English at home, there is a considerable lack of research directed to this problem in the context of usage of online government services.

The proposed NESB Model establishes communication between the NESB individuals, coordinators (government agents), IT experts, research centres and NESB communities by means of improved IS technology and instruction. The NESB Model ensures that all communications that take place (or that need to take place) between all stakeholders are mutual, productive and result in an assessment of what is working and what needs adjustment. Most importantly, the information provided by the NESB Model must be based on the specific needs of the NESB communities. Of course, the Internet is used as a platform to engage the advanced government information to all Australian communities, including the NESB communities. It is therefore critical that even
residents of NESB communities who are unskilled in Internet or computer usage are able to benefit from the NESB Model.

By developing a new theoretical framework directed at eliminating the barriers for online government service usage by NESB community members, an NESB model that emphasises user-centricity is proposed. The study recommends that Australia needs to implement ICT-based or e-government policies, programmes and services that reflect culture and language sensitivity in order to effect meaningful and effective migrant integration. This can only be accomplished by removing the real or perceived barriers to the use of online services. This study accomplishes these goals by examining each perceived barrier—determining the existing literature related to that barrier—and closing the gap in the literature related to each barrier by proposing new and specific suggestions for eliminating these barriers.
Chapter 2: Literature Review

The purpose of this chapter is to examine the current literature related to the topic under discussion in this study—the provision of government services by means of the Internet and how these services are perceived and/or utilised by the NESB community in Australia. Previous literature is critically reviewed in order to identify the concepts and principles that form the framework for this study. In addition, this review reveals a gap in published articles as well as a comprehensive model related to the specific needs of NESB communities and their access to government IS services. Specifically, Section 2.1 addresses the historical context and function of English in Australian settlement, Section 2.2 discusses critical accessibility success factors, Section 2.3 examines barriers to the success of access, Section 2.4 addresses perception and perceived barriers as meta-barriers to access, Section 2.5 examines the historical context of IS implementation, and Section 2.6 summarises the chapter.

2.1 Historical Context and Function of English in Australian Settlement

The significance of using English in the settlement of NESB immigrants in Australia is well documented (e.g., Baker, 2003; Chadwick & May, 2003; O’Toole, 2007; Segovia et al., 2009). Previous research on Australian immigration studies referred to ‘virtual unanimity’ regarding the importance of English language proficiency to successful settlement (Wooden et al., 1994). The Report of the Committee of Review of the Adult Migrant Education Program noted ‘the essentiality of English language within an effective settlement process’ and the ‘overwhelming evidence’ in the submissions and official literature supporting this view (Campbell Report, 1985). A similar understanding is evident in all major government reviews, including the Galbally Report (1978), Participation (Ethnic Affairs Commission of New South Wales, 1978), Evaluation of Post-arrival Programs and Services (AIMA, 1982), the Review of Migrant and Multicultural Programs and Services (Jupp Report, 1986), the National Policy on Languages (Lo Bianco, 1987) and Australia’s Language: The Australian Language and Literacy Policy (DEET, 1991).
Earlier studies (Abu-Duhou et al., 1993; Fincher et al., 1994) have shown the importance of English in Australian settlement. Most studies of the settlement process find the language barrier to be a major factor associated with many difficulties and anxieties (Shergold & Nicolaou, 1986). Although the circumstances of individual immigrants were associated with English language proficiency, there has been a tendency to attribute all difficulties in settlement to inadequate proficiency on the part of the immigrant (Burnett, 1998).

Learning English has always been regarded as central to settlement in Australia, and government policy has always closely associated language and settlement issues (Tait et al., 1990). Wooden et al. (1994) stated that language services are ‘theoretically compatible with both assimilationist and multicultural policy objectives’ (p. 326). According to Ozolins (1993), learning English during the earliest days of post-war immigration was essential for social cohesion (Ozolins, 1993). The expansion of the Commonwealth Employment Service (CES) largely constituted the Commonwealth government’s response to immigration (Martin, 1978, p. 28), and provisions for English was a response to the fear of the development of national groupings in the subsequent rationale of the Office of Education in 1950.

If these newcomers were to become ‘new Australians’, knowledge of the English language would be essential, for without the ability to speak and understand the language, the newcomers would be forced into their own national (or ethnic) groups. They would become pockets of foreigners among Australians whom they did not understand and with whom they could not integrate socially nor work effectively because of the language barrier (Buchanan, 1950, as cited in Ozolins 1993, p. 70).

As such, proficiency in English and its replacement of the immigrant’s first language was taken to be a key measure of assimilation (McRobbie & Jupp, 1992, p. 13). English was taught by the ‘direct method’, which used ‘English exclusively in the classroom and eschewed any bilingual approach’ (McRobbie & Jupp, 1992, p. 13). Ozolins (1993) stated that ‘it was expected that the immigrant’s first language would be replaced by English’ (p. 70). In the first major study of immigrant children in Australia, the *First Report on the Progress and Assimilation of Migrant Children* (the Dovey Report of
1960) stressed the ‘primacy of English language learning vis-à-vis the migrant child’s mother tongue’ (Ozolins, 1993, p. 77). Immigrant parents were criticised for retaining their language in the home, as it was believed it could lead to educational disadvantage and problems for their children (Dovey, 1960, quoted in Ozolins 1993, p. 77).

However, the importance of English proficiency in the settlement process has not been matched by the provision of English as a Second Language (ESL) programs. The early provision was confined to shipboard and hostel programs, with correspondence and radio programs also available. While there were limited part-time programs in 1951, it was not until 1969 that intensive programs were established for professionally qualified immigrants. Major changes did not occur until the release of the Galbally Report in 1978, which was the first official report to locate language policy issues ‘within the totality of government services for migrants’ (Ozolins, 1993, p. 77).

Inadequate language proficiency was identified as the major problem facing immigrants and the source of many other difficulties (Galbally, 1978). The report recommended a greater provision of English language programs with an emphasis on services for recently arrived immigrants. It further recommended that programs include information provision and counselling. However, the provision was still inadequate in terms of reaching the large numbers of non-English-speaking immigrants who had not had access to classes at all in the past, and in terms of continuing access to programs. By 1984, the Campbell Report (1985, p. 1) identified an enormous backlog of need, with 300,000 immigrants speaking English poorly or not at all.

2.1.1 The NESB Community

The term NESB typically refers to an individual whose native language is not English or whose cultural background originates from a non–English-speaking tradition (Victorian Government Department of Human Services, 2004, p. 7). Additionally, the National Ethnic Disability Alliance stated that NESB individuals include people:

- who were born overseas
- where one or both parents were born overseas
• who may be descendants of people born overseas, but where cultural traditions—whether through customs, language, religion or spirituality—are upheld in their upbringing (Kaczorek, 2009, p. 2).

At the time of the 2011 Census, the NESB population was approximately 5.3 million, which represents 27% of the total population of Australia (Australian Bureau of Statistics [ABS], 2012). According to the ABS (2012), ‘almost half (49%) of longer-standing migrants and 67% of recent arrivals spoke a language other than English at home’.

Australia has a relatively large proportion of immigrants when compared with many other countries (see Table 1). In 2011, the Census revealed that ‘over a quarter (26%) of Australia’s population was born overseas and a further one fifth (20%) had at least one overseas-born parent’ (ABS, 2012), and one out of four of that group was from Asia. Historically, the majority of migration has come from Europe; however, increasingly, there are more Australians who were born in Asia and other parts of the world. This pattern of migration is evident in the make-up of the richly diverse society, which was recorded in the 2011 Census (ABS, 2012). Just as the various Asian regions are distinguished by significant economic, cultural and social diversity, Australians born in Asia are a similarly diverse group whose contributions reflect their varied backgrounds and cultures (Feldman, 2008).

### Table 2.1: Top Ten Languages Spoken at Home

<table>
<thead>
<tr>
<th>Language spoken at home</th>
<th>Persons</th>
<th>Proportion of total population %</th>
<th>Proportion who speak English very well %</th>
<th>Proportion born in Australia %</th>
</tr>
</thead>
<tbody>
<tr>
<td>English only</td>
<td>15,394,700</td>
<td>80.7</td>
<td>0</td>
<td>83.8</td>
</tr>
<tr>
<td>Mandarin</td>
<td>319,500</td>
<td>1.7</td>
<td>37.5</td>
<td>9.0</td>
</tr>
<tr>
<td>Italian</td>
<td>295,000</td>
<td>1.5</td>
<td>62.1</td>
<td>43.2</td>
</tr>
<tr>
<td>Arabic</td>
<td>264,400</td>
<td>1.4</td>
<td>61.9</td>
<td>38.5</td>
</tr>
<tr>
<td>Cantonese</td>
<td>254,700</td>
<td>1.3</td>
<td>46.4</td>
<td>19.9</td>
</tr>
<tr>
<td>Greek</td>
<td>243,300</td>
<td>1.3</td>
<td>65.0</td>
<td>54.1</td>
</tr>
<tr>
<td>Vietnamese</td>
<td>219,800</td>
<td>1.2</td>
<td>39.5</td>
<td>27.9</td>
</tr>
<tr>
<td>Spanish</td>
<td>111,400</td>
<td>0.6</td>
<td>62.1</td>
<td>21.9</td>
</tr>
<tr>
<td>Hindi</td>
<td>104,900</td>
<td>0.5</td>
<td>80.2</td>
<td>9.8</td>
</tr>
<tr>
<td>Tagalog</td>
<td>79,000</td>
<td>0.4</td>
<td>66.9</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Source: ABS (2012)
According to Durieux-Paillard & Loutan (2005), it is widely reported that many members of NESB communities have trouble accessing needed services. For example, women who are in need of health services are less likely to receive specific services after they move to another country (Durieux-Paillard & Loutan, 2005). In fact, it is widely understood that Asian NESB communities often have unequal access to health care in host countries (Durieux-Paillard & Loutan, 2005). Some of these services are of critical importance to women, such as maternity care services, reproductive health issues, breast self-examination and breastfeeding instruction. In addition, these women are less likely to take advantage of parenting classes or post-natal exercise groups than non-Asian women (Firdous & Bhopal, 1989).

In a more detailed report, McLachlan & Waldenstrom (2005) reported that Vietnamese women were less likely to use pain relief, and they reported a greater level of pain during childbirth. As a result, women in this NESB community expressed a more negative view of childbirth than Australian-born women. Small et al. (2002) added that ‘What immigrant women wanted from their maternity care proved to be extremely similar to what Australian-born women—and women the world over—want. Unfortunately, immigrant women were much less likely to experience care that gave them what they wanted’ (p. 266). These issues raise the question: ‘what prevents women in these NESB communities from accessing adequate and appropriate health care in Australia?’

While not exclusive to NESB communities, many of the practical barriers that negatively affect the availability of services, seem to affect such communities to a greater degree. These barriers include low-income and living in rural and/or remote areas of the country (Sawrikar & Katz, 2008). For example, physical location is a significant factor regarding access to services. If the location of the service outlet is not accessible without difficulty, or if access to the services requires fees, then service accessibility is compromised for NESB communities. In many cases, NESB communities are located in remote areas (Sawrikar & Katz, 2008).

Sawrikar & Katz (2008) further commented that members of NESB communities who perceive that the skills, support and advice they are receiving from governmental services are based on individualistic norms—that is, norms based on the needs of non-
NESB individuals—it is likely that they will consider such services inappropriate for their cultural needs or issues. As a result, Sawrikar & Katz (2008) acknowledged a legitimate need to provide tailored and culturally appropriate service delivery for NESB communities—especially for preventative or universal services.

Perhaps more importantly, if NESB individuals have had a negative experience when attempting to obtain services, or if the services were not perceived as beneficial to them, they may be reluctant to engage with services when there is a crisis and service provision is necessary. Consequently, failure on the part of members of an NESB community to perceive that the culturally appropriate delivery of preventative services is available can result in negative effects on these communities (Sawrikar & Katz, 2008).

2.1.2 NESB in Australia

The term ‘NESB’ is intended to capture those residing in Australia from non-Anglo-Celtic backgrounds—particularly those with first- or second-generation migrant or refugee heritage. The term has a number of understood ‘fuzzy’ boundaries. Migrants or refugees from non-Anglo-Celtic cultures who have a strong English-speaking heritage are usually regarded as part of the ‘NESB’ cohort, despite the contraindication of the name. Meanwhile, Aboriginal and Torres Strait Islander people are usually not considered ‘NESB’, even if Indigenous cultures are clearly associated with a non-English-speaking heritage. Thus, it is acknowledged that ‘NESB’ is an imprecise term and, like other terminology used to capture ethnic minorities, it is open to discussion and debate within a research context. Australian social policy discourse has a varied history in terms of how non-Anglo-Celtic cultural, ethnic and religious population groups are described. Until 1996, ethnic minority groups in Australia were identified using the term ‘NESB’ in social policy and research. The Howard government introduced the term ‘Culturally and Linguistically Diverse’ (CALD), which became the norm in government and social policy documentation, but was not necessarily universal within research.

There is ongoing debate and discussion around terminology relating to ethnic minorities and the inadequacy of existing terminology in an Australian context. For example,
Sawrikar & Katz (2008) recently challenged the use of both NESB and CALD, arguing that ‘CALD, like NESB, has developed negative connotations because it also has many (more) conflicting definitions, and it continues to group together people who are relatively advantaged and disadvantaged’ (p. 2). Sawrikar & Katz (2008) described the term ‘Australians Ethnically Diverse and Different from the Majority (AEDDM)’ and discussed the weaknesses and strengths of this new terminology. They made a positive contribution in identifying culture, language and ethnic differences within the Australian context.

The work of Milsom Henry-Waring (2008) might also prove useful for the NESB community in an Australian context. Focusing on the concept of ‘visibility’, Henry-Waring (2008) argued that bodily difference remains a key differentiator of opportunity in Australia, despite the rhetoric of multiculturalism, which suggests formal equality. Henry-Waring (2008) noted that “skin colour is one of the most visible markers of difference and along with ethnicity, religion, language and culture, forms a key part of how society includes and excludes” (p. 34). Linking social policy discourse with critical race perspectives might also prove effective in creating a new discourse around cultural and language differences; for example, in understanding how perceived race difference remains a powerful force for shaping social inequalities in a range of spheres, including telecommunications.

The terminology in Australia is different from that used in international research investigating cultural and ethnic diversity. For example, US researchers have used clear ‘racial’ identifiers—such as white, black, Hispanic and Asian—rather than cultural or language identification. This approach has problems in dealing with complexity such as questions of language variation, English proficiency and cultural variation. It has the advantage of simplicity and a capacity to identify structural forms of racial segmentation in a clear way. Similarly, a portion of the literature examines culturally diverse groups as ‘minorities’ (or ‘ethnic minorities’).

This approach has both advantages and disadvantages. International human rights frameworks include the consideration of minority rights (e.g. Article 27 of the International Covenant on Civil and Political Rights) that might be usefully applied to forms of service and social good distribution. However, ‘minority’ has a negative
implication, including a connotation of a lesser or inferior claim to access for these groups. As such, the constitution of an ‘ethnic’ grouping is itself open to contestation, and there is a tendency for geographic location and racialised categories to dominate how we might think ‘ethnicity’ is framed, meaning that the claims of some minority groups that might otherwise be identified as ‘ethnic’ groupings are not considered in the same way.

Minorities who use sign language (such as deaf people) could indeed be conceptualised as constituting an ethnic minority. Lane (2005) argued that insofar as manual–visual sign language users share common norms for behaviour, knowledge, social values, language and community arts, “the Deaf-World in the United States today meets the criteria put forth for ethnic groups” (p. 294). Lane (2005) suggested that “the Deaf-World should enjoy the rights and protections accorded other ethnic groups under international law and treaties, such as the United Nations Declaration of the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities” (p. 294).

Australia’s population is strongly shaped by a history of migration, with approximately 45% of all Australians born overseas or having at least one parent who was born overseas (Department of Immigration and Citizenship [DIAC], 2009). This means that almost half of all Australians have some direct experience with migration themselves or through a parent. Australia is relatively culturally and linguistically diverse. A recent ABS (2010) release finds that “there are approximately 22 million Australians, speaking almost 400 languages, including Indigenous languages, identifying with more than 270 ancestries and observing a wide variety of cultural and religious traditions” (p. 4).

Table 2.2 shows that approximately 15% of Australians are born in a country other than a main English-speaking country, and around 18% of people in Australia speak a language other than English at home. The ABS Census of Population and Housing collected an ancestry question in 2006; excluding people with a main English-speaking heritage (American, British, Irish, New Zealand or Welsh), approximately 27% of people surveyed answered that they had one or both parents born overseas.
Table 2.2: Birthplace by country of birth and spoken English

<table>
<thead>
<tr>
<th>Country of birth</th>
<th>Australia</th>
<th>Overseas</th>
<th>All persons</th>
<th>English spoken at home</th>
<th>Born in main English-speaking countries</th>
<th>Born in other than main English-speaking countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>14073.2</td>
<td>496.2</td>
<td>14569.3</td>
<td>13421.4</td>
<td>389.5</td>
<td>106.7</td>
</tr>
<tr>
<td>Overseas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oceania and Antarctica</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North-West Europe</td>
<td>..</td>
<td>1356.2</td>
<td>1356.2</td>
<td>1211.8</td>
<td>1088.4</td>
<td>267.8</td>
</tr>
<tr>
<td>Southern and Eastern Europe</td>
<td>..</td>
<td>721.7</td>
<td>721.7</td>
<td>133.2</td>
<td>..</td>
<td>721.7</td>
</tr>
<tr>
<td>North Africa and the Middle East</td>
<td>..</td>
<td>250.6</td>
<td>250.6</td>
<td>28.4</td>
<td>..</td>
<td>250.6</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>..</td>
<td>552.6</td>
<td>552.6</td>
<td>112.6</td>
<td>..</td>
<td>552.6</td>
</tr>
<tr>
<td>North-East Asia</td>
<td>..</td>
<td>388.6</td>
<td>388.6</td>
<td>28.1</td>
<td>..</td>
<td>388.6</td>
</tr>
<tr>
<td>Southern and Central Asia</td>
<td>..</td>
<td>267.5</td>
<td>267.5</td>
<td>77.4</td>
<td>..</td>
<td>267.5</td>
</tr>
<tr>
<td>Americas</td>
<td>..</td>
<td>180.0</td>
<td>180.0</td>
<td>102.7</td>
<td>93.3</td>
<td>86.7</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>..</td>
<td>191.8</td>
<td>191.8</td>
<td>124.4</td>
<td>104.1</td>
<td>87.7</td>
</tr>
<tr>
<td>Total</td>
<td>14073.2</td>
<td>4405.2</td>
<td>18478.4</td>
<td>15240.0</td>
<td>1675.3</td>
<td>2729.9</td>
</tr>
</tbody>
</table>


2.2 E-Government

An increasing number of studies are related to the use of various features of ICT to aid governments in providing necessary services to the public. The government’s use of the Internet to provide access to services is referred to as e-government, or government MIS (Chan et al., 2011; Irani et al., 2007; Sharma & Yetton, 2007; Zhang et al., 2008). Research includes e-government processes in specific regions, as well as the use of ICT in the public sector (Cao, 2010; Zhang et al., 2008). Included in this increasing literature are studies directly related to Australia’s e-government efforts (Australian Government Information Management Office [AGIMO], 2007, 2009, 2010; Budde et al., 2011; Gibson et al., 2008; Kuppusamy et al., 2008; Martin & Rice, 2011; Limwiriyakul, 2009; Saha, 2008, 2010; Singh et al., 2008).
To ensure that e-government is developed properly, there is a need for government agencies that are typically focused inwards (i.e. considering primarily internal functionality) to become more customer-centric. This will allow government agencies to effectively communicate, share information and cooperate to enhance services across government agencies and levels (McDaniel, 2003). The individuals taking the lead in providing access to e-government services should identify potential barriers in operative frameworks and ensure that essential collaboration strategies are prepared to aid and promote the development of e-government (GSA, 2002; Organisation for Economic Co-operation and Development [OECD], 2003).

Tan et al. (2010) observed that the unique nature of some services provided by e-government (especially those that allow for one-time and recurring transactions) complicates a complete assessment of overall quality of service. Tan et al. (2010) outlined these recurring transactions as including monthly payments for city services (e.g. gas, water) or annual filing of taxes. Transactions that are not (necessarily) recurring include paying a traffic fine or applying for a building permit. As Tan et al. (2010) described:

The presence of these two categories of governmental transactions thus adds a layer of predictability to citizens’ frequency of accessing public e-services, which in turn may aid in explaining and predicting how service quality is evaluated by citizens for e-government websites catering to frequent versus infrequent transactional activities (p. 2).

The proliferation of e-government is also seen as a potential tool for government administrative reform (Helbig et al., 2005). Some of the benefits observed from its use include lowering operating costs, improving service quality and enabling a more effective execution of government policies (Helbig et al., 2005). Nevertheless, a number of researchers who are familiar with e-government have expressed the opinion that it is not as efficient and effective as it is advertised to be (e.g. Heeks, 2003). Indeed, Heeks estimated that e-government may be successful in meeting its goals just 15% of the time. However, Helbig et al. (2005) argued that part of this perceived lack of success might be related to confusion between research on e-government and similar research on the digital divide. Helbig et al. (2005) suggested that e-government and the digital divide in both research and practice are linked; consequently, an improved
understanding can be gained if scholars start analysing them as complementary social phenomena.

Research also confirmed that online services are ineffective if they fail to meet the transactional requirements of customers (van Riel et al., 2001). Similarly, Homburg et al. (2002) reported that customers’ attitudes towards Internet-based services are determined primarily on the level of service offerings. Another assessment of the ability of online service providers to meet the needs and desires of users was made by Cenfetelli et al. (2008), who concluded that the provision of continuous assistance from pre- to post-transactional stages of e-services is promising in online environments, especially with regards to the ability to produce personalised service experiences. Accordingly, as long as they are able to meet the needs of customers, online services provide functional capabilities that are often infeasible through physical media (Barnes & Vidgen, 2001).

Helbig et al. (2005) acknowledged that e-government can only be successful as long as both providers and users are believers in the new ‘knowledge economy’. However, according to Helbig et al. (2005), e-government often fails in reaching its goals due to a failure to appreciate (and address) users’ needs. With that inconsistency in mind, Lamb & Kling (2003) recently encouraged a shift in research direction ‘from a user concept to a concept of the social actor in IS research’ (p. 197). For e-government to truly benefit all stakeholders, Helbig et al. (2005) suggested including pertinent elements of the digital divide as an integral part of analysing the success and/or failure of e-government services (Helbig et al., 2005).

Gil-Garcia & Helbig (2007) noted that government interest in providing online services is based on a desire to become more customer-orientated. If set up properly, e-government services have the potential to deliver enhanced services to citizens that are customers. Conversely, Garson (2004) observed that some problems of access and use lessen this potential. Specifically, the problems relate to the fact that different social groups are unable to gain the full benefits from such services for various reasons (Mariscal, 2003; Mossberger et al., 2003; Norris, 2001; Warschauer, 2003). In many cases, e-government tries to provide an outlet for economic development (Castells, 2000; Cresswell et al., 2001). Moreover, Gil-Garcia & Helbig (2007) suggested that
issues with unequal access might be resolved by using multiple online channels to deliver public services.

According to Baumgarten & Chui (2009), three obstacles have limited the effect of e-government efforts: ineffective governance, lack of web-related capabilities and reluctance to allow user participation in the creation of applications and content. The leading source of the last issue stems from a desire to maintain complete control over content. However, as users become accustomed to online participatory experiences, the government's failure to embrace improvements such as Web 2.0 threatens to reinforce the public’s perception that e-government offers a vastly diminished experience.

A number of benefits can accrue from successfully implementing e-government services, including improved efficiencies, greater access to services, greater accountability, transparency and citizen empowerment (Lam, 2005; Tung & Rieck, 2005), lowered costs and time for services (Bhatnagar, 2000; Gilbert et al., 2004). In addition, several strategic advantages are obtained, including improved decision making through streamlining of information, enhanced knowledge sharing and organisational learning, improved interactions with citizens, other government organisations and businesses and industry, leveraging market forces for better relationships between government and private sectors, and greater ability to effect organisational change management (Grant & Chau, 2005; Tung & Rieck, 2005; Zhang et al., 2008). According to Tolbert & Mossberger (2006), benefits for governments in providing useful e-government services include a higher level of trust in local government and a positive attitude towards e-government processes in general.

In a review of current literature on e-government, Morgeson III et al., (2010) described a growing connection between the public’s trust in government and the ability of local governments to provide useful and readily accessible online services. Indeed, the review by Morgeson III et al. (2010) indicated increased potential from governments to develop e-government services into a transformational medium that could dramatically improve citizens’ perceptions of government service delivery. Finally, while Morgeson III et al.’s (2010) findings provided mostly positive insights into e-government, they also suggested that such positive results are not yet widespread and that more work is needed.
In order to reach its full potential, Allen et al. (2005) noted that e-government must be built on a collaborative governance system that is constantly adapting and thus is able to respond to various challenges in the public sector, including: ‘1) new opportunities to link agencies through online applications; 2) policy challenges demanding a growing level of coordination across all levels of government and sectors; and 3) an emphasis on performance requiring external alignment and internal integration and cooperation’ (cited in Kim et al., 2008, p. 37). Therefore, successful development of e-government relies on a government agency with a customer-centric focus and a willingness to communicate, share information and cooperate to enhance services across government agencies and levels (Holden et al., 2003; McDaniel, 2003). Perhaps the first step in accomplishing this goal is for government agencies to become educated in the potential barriers that exist in the provision of government services (GSA, 2002; OECD, 2003).

In order to establish customer-focused local e-government, e-government leaders pay attention to managing e-government systems within a common framework to ensure interoperability, develop a sustainable e-government funding program, maximise implementation efficiency and avoid duplication across different levels of government (Anderson & Henriksen, 2006; IDeA & Socitm, 2002). Infrastructure needs and legal requirements should be assessed against the background of requirements for, and desired results of, planned e-government development (Fountain, 2001; GSA, 2002). E-government development also requires growing coordination and collaboration across functional units within a government. Interagency collaboration concerns information and knowledge sharing across functional units as well as data sharing across heterogeneous IS within the government in order to foster citizen-focused e-government applications (Kim et al., 2008).

Several studies have investigated e-government use nationally and internationally (Ciborra, 2005; Holliday & Yep, 2005; La Porte et al., 2001; Reddick, 2004; Siau & Long, 2006; West, 2004). For example, West (2004) investigated United States (US) federal and state e-government websites in an effort to determine how effective they were in a number of critical areas, including providing information, level of services, extent of privacy and security, access for disabled users, support for users with foreign language needs and democratic outreach. The results indicated an improvement in the
level of e-government services over the previous year, with 77% of state and federal
government websites having fully executable services—up from 56% in 2004 (West,
2004), while only 25% of the websites examined offered services that were fully
executable online in 2001 (West, 2004). Based on these results, US federal government
websites did a better job of offering information and services to citizens than the state
government websites, while significant improvements overall were seen at both levels
over years. However, although West’s studies provided a good description of e-
government development status at federal and state levels, they did not explore
determining factors that drove such development.

Similar to West (2004), La Porte et al. (2001) evaluated nearly 2,000 government
websites of over 120 countries for their organisational transparency, interactivity and
openness using WAES evaluation system. They found that a nation’s wealth explains
around 30% of the variation in the number of websites across national ministries. Other
factors, such as integration with world economy and computers and Internet hosts
weakly supported e-Government openness. Based on economic growth (Hacche, 1979)
and regional development (Dawkins, 2003) theories, Siau & Long (2006) proved that
income level, development status and region are three key factors that differentiate e-
Government development in various countries. Reddick (2004) examined the
development of public-sector e-commerce at the state level with a focus on financial
management. He found that information technology (IT) management capacity and
social services IT capacity were significant in explaining e-commerce development at
the state level; however, the traditional factor used to explain technology diffusion—
state wealth—was not found to be statistically significant.
2.2.1 E-government in Australia

This study’s definition of e-government is similar to the meaning set by the Department of Finance and Deregulation (DFD)’s AGIMO (2007) in its *Use of and Satisfaction with E-Government Services*. However, the study pertains to ICTs in general; thus, the researcher basically viewed e-government as the process of using ICTs to efficiently deliver government services that are important to people living in Australia. AGIMO (2005) notes the use of multiple channels and technologies of information and communication by the governments. Table 2.3 features a list of ICT facilities and devices, while Table 2.4 offers a list of e-government services by level of government (Singh et al., 2008).

Table 2.3: List of ICTs*

<table>
<thead>
<tr>
<th>* List provided by Brenda Lee (2011, p. 2) of the Department of Transport and Main Roads.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers and laptops, including palm and handheld devices</td>
</tr>
<tr>
<td>Mobiles and portable handheld devices (Blackberry, iPhone, iPad)</td>
</tr>
<tr>
<td>Removable media, including USB devices, SD Cards, memory keys and external hard drives</td>
</tr>
<tr>
<td>Radios or other high-frequency communication devices</td>
</tr>
<tr>
<td>Television sets</td>
</tr>
<tr>
<td>Digital or analogue recorders, including DVD and video</td>
</tr>
<tr>
<td>Cameras</td>
</tr>
<tr>
<td>Photocopiers</td>
</tr>
<tr>
<td>Facsimile machines</td>
</tr>
<tr>
<td>Printers, scanners, multifunctional devices and other imaging equipment</td>
</tr>
<tr>
<td>Electronic networks, Internet</td>
</tr>
<tr>
<td>Email, instant messaging</td>
</tr>
<tr>
<td>Webmail</td>
</tr>
<tr>
<td>Fee-based web services</td>
</tr>
<tr>
<td>Social</td>
</tr>
</tbody>
</table>

The earliest attempts at developing successful e-government have resulted in both positive and less-than positive results for most local governments in Australia (O’Toole, 2007). Positively, nearly every local government in the country has a website, but actual e-government services vary widely, with some being impressive and others failing to meet the basic needs of users (O’Toole, 2007). In the Australian Local Government Association’s (2004) report entitled *A Directional Roadmap for the Use of Electronic Technology by Councils*, the structured use of electronic technology is discussed to pursue the traditional goals of government in areas such as:

- interface with government
- service relationships with people and businesses
- commercial relationships with business partners
- implementing sectoral and community-based policy
- enhancing the role of citizens in democratic processes (i.e. e-democracy)
- interacting with other public institutions

As mentioned previously, the theme of trust in government is recurring in much of the literature related to e-government, and this will affect the effectiveness of these efforts (Gefen et al., 2002; Tan et al., 2010; Warkentin et al., 2002). Significantly, Segovia et al. (2009) suggested that providing para-lingual web designs in areas where there are many bi- and multi-lingual users could alleviate many of the trust issues in the public regarding the use of e-government services. By enabling these users to more readily access important services, the end result could be a wider acceptance of e-government. The research conducted by Segovia et al. (2009) provided a starting point for future e-government developers who have a desire to meet the needs of a multi-lingual community more fully, beginning with an improved level of trust and a greater desire to use available e-government services.

Improving trust in government and, by extension, e-government, is a significant issue. This was made clear in a study conducted by Viewpoint Learning (Rosell et al., 2005), in which citizens expressed an intense desire to find constructive solutions to problems facing the state.
Table 2.4: Australia’s E-Government Services by Government Level

<table>
<thead>
<tr>
<th>Level of Government</th>
<th>E-Government Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>E-tax</td>
</tr>
<tr>
<td></td>
<td>Postcode search</td>
</tr>
<tr>
<td></td>
<td>Travel and Australian passport</td>
</tr>
<tr>
<td>State</td>
<td>Driver’s certification</td>
</tr>
<tr>
<td></td>
<td>Jobs</td>
</tr>
<tr>
<td></td>
<td>Australian Broadcasting Network (ABN)</td>
</tr>
<tr>
<td></td>
<td>Medicare</td>
</tr>
<tr>
<td></td>
<td>Job search</td>
</tr>
<tr>
<td></td>
<td>Super seeker</td>
</tr>
<tr>
<td></td>
<td>Tax file number</td>
</tr>
<tr>
<td></td>
<td>Public transport fines</td>
</tr>
<tr>
<td></td>
<td>Electoral roll</td>
</tr>
<tr>
<td></td>
<td>Senior citizen cards</td>
</tr>
<tr>
<td></td>
<td>Do not call register</td>
</tr>
<tr>
<td></td>
<td>Birth certificate</td>
</tr>
<tr>
<td>Local</td>
<td>Recreation services</td>
</tr>
<tr>
<td></td>
<td>Community Services</td>
</tr>
<tr>
<td></td>
<td>Local laws</td>
</tr>
<tr>
<td></td>
<td>Roads management</td>
</tr>
<tr>
<td></td>
<td>Waste management</td>
</tr>
<tr>
<td></td>
<td>Planning permits</td>
</tr>
<tr>
<td></td>
<td>Rates</td>
</tr>
</tbody>
</table>

The use of e-government services in local areas that have a high population of non-English speakers can be improved by ensuring that these potential users are comfortable with the level of access available to them, which is exactly what businesses have accomplished in the pursuit of e-commerce. Rosell et al. (2005) noted that the likelihood of completing a sale increased in direct proportion to the provision of services in a consumer’s own language. Consequently, when planning how to develop effective e-government services, the primary focus must be on the needs of the end users, which is a process that can help a site build trust with users (Schneider, 2003). In addition, Gassert (2004) suggested building trust through increased knowledge by using ICT for better education and information, including e-government. These studies seem to indicate a favourable effect for well-developed e-government services.

Australia has 721 local government bodies (Rao & Gupta, 2011). During 2010, Australia implemented specific plans for e-government encompassed within the Data Centre Strategy (Australia Government Data Centre Strategy, 2010) through the Ministry of Finance and Deregulation for the purpose of providing a data storage facility for the ICT industry. The agencies under the jurisdiction of the Finance Ministry and Accountability Act (FMA) are typically supportive of government programs that provide services to citizens and businesses. As that is the case, the circumstances are positive for any efforts that may come for future data centre requirements. This includes government-initiated schemes and actions designed to achieve $1 billion in savings, as well as building up infrastructure for the ICT industry for the next 10–15 years to take
Australia to a top position in the world ranking for e-readiness and e-governance (Rao & Gupta, 2011).

The National Office of Information Economy (NOIE) is one of the primary motivators for moving e-government forward in Australia. In effect, the NOIE provides leadership related to all of the government MIS in the country, including overseeing policy, defining specifications and offering guidelines for brand new initiatives. In a recent ranking published in *The Economist* and made under the E-Readiness Rankings, Australia was listed fourth in the global top 10 most e-ready countries worldwide, following the US, Hong Kong and the Netherlands (Rao & Gupta, 2011). Every country, including Australia, that experiences a lower degree of online participation by its citizens considers that situation a challenge. The reasons for the situation may include a lack of direct online consultation by governments at various levels and a weak online presence of elected representatives and political parties (Bruns & Wilson, 2009). This trend requires assertive methods to be implemented along with an increasing trend in net-capable citizens networking among themselves to represent government gaps with location independence and demand for transparency. Lack of trust in using the Internet is a definite factor for less participation in e-government, as confirmed by several researchers (Colesca & Dobrica, 2009; Das et al., 2008).

### 2.3 Critical Accessibility Success Factors

The literature shows that ICT—especially the widespread use of computers and the Internet—is a significant resource for socio-economic advancement in the global community in both developed and developing countries (e.g. Ashraf et al., 2007; Ashton & Thorns, 2007; Kuriyan et al., 2008; Sey & Fellows, 2009). In light of the growing importance of the information age as a driver of the global economy, ICT resources are becoming even more valuable (Sey & Fellows, 2009). Sey & Fellows emphasised the effect of the Internet and other useful ICT tools on businesses and other organisations, including the ability to improve the quality of service and lower the costs. In effect, ICT has changed the nature of competition in all organisations (Sey & Fellows, 2009). Not only is the use of computers and the Internet a critical element in providing a competitive advantage, but these elements also contribute to the strategic plan of an
organisation. However, Sey & Fellows (2009) are quick to add that the benefits of ICT and the Internet are realised only if IS can be successfully developed and implemented.

While the importance of the Internet and ICT cannot be overstated, it must also be recognised that there are limits to its value in some countries, especially due to shared access as a result of resource constraints (Sey & Fellows, 2009). Businesses are not the only organisations to learn the value of using ICT to improve services because many governments and non-governmental organisations (NGOs) also effectively utilise these technological tools to provide necessary information and services to the public in countries around the world (Sey & Fellows, 2009). Realistically, public access to ICTs has experienced both impressive success and significant failure, depending on its location and context (Sey & Fellows, 2009). Consequently, there are conflicting claims regarding the use of ICT and the Internet, with some calling for expanding and strengthening its usage, and others believing that it is ineffective and should not be emphasised (Sey & Fellows, 2009).

Organisations seeking to implement complex IS require substantial investments of effort in developing new technical knowledge (Ko et al., 2005). The implementation of complex IS typically requires substantial changes both in the technology and the organisation, and it must often be learned through experience (Jones, 2011). Developing new technical knowledge is a slow and difficult learning process, particularly in NESB users. Of course, new technology is often complicated for typical English-speaking individuals, but this process can be even more overwhelming for members of the NESB community, especially when instructions or useful information is provided only in English. If this critical information is not provided in a language that the user feels comfortable with, it may be nearly impossible for members of these communities to learn how to use the services that are available to them.

According to the National Ethnic Disability Alliance of Sydney [NEDA], (2010, p. 8), several factors should be considered when examining how effectively information technologies are utilised in NESB communities:

- Australia’s migration context—in particular, the increasing representation of non-English-speaking migration since the middle of the twentieth century and
the diversity of the Australian population. This includes the use of non-English languages in nearly 20% of households.

- The communications context, including the increasing role of ICTs in mediating everyday communications and the potential for inequalities in access and availability to communications to create and perpetuate a ‘digital divide’.

- Communication technologies, insofar as they allow language to be transmitted, are key enablers of ethnicity and culture; multicultural societies such as Australia depend upon access to telecommunications to allow individuals to participate in the community and simultaneously (and dynamically) shape and communicate their identities.

- Inequalities in access to telecommunications may reflect underlying structural inequality and racism. Australia’s migration context includes a history of social exclusion for NESB migrants.

- A culturally competent telecommunications sector is possible: telecommunications technologies and services can be improved by increasing the competence of industry, government and consumer representatives in meeting the needs of NESB consumers.

English proficiency is a significant determinant of social and economic outcomes in Australia, as people with low English proficiency are more likely to be in low-income groups. Further, people with low English proficiency are less likely to participate in social and economic life: for example, Arkoudis et al. (2009) found that low English language proficiency is a contributor to lower comparative success in finding employment.

The lack of knowledge of the English language can also affect the use of IT. However, several studies have addressed the use of IT by non-English speaking academics and the obstacles facing them (Mouakket et al., 2007). For instance, in India, the problem relating to the use of computers starts at the keyboard, as there is a major difference between Indian languages and English when it comes to reading and writing on computers, which prevents thousands of potential Indian users from using this technology (Mouakket et al., 2007). A case study by Vehovar & Batagelj (1998) of Slovenia showed that the English language stands as a barrier to more intensive use of
the Internet. As the Arab world is considered a knowledge-based society, it is important to use the Arabic language as a means of accessing information (Accascina, 2006).

Some researchers suggested the development of multi-lingual domain names to eliminate the language barrier that prevents non-native English-speaking populations from using the Internet (Diab, 2003). By allowing the use of native languages, the Internet will be more accessible, thus enabling more people to use it and be exposed to the various opportunities it offers—especially textual resources. However, most of the reading resources on the Internet are provided in English. Language is thus a major barrier for many people who might want to read the material provided on the Internet. In the countries where English is the predominant language, there are generally minor barriers to using Internet resources (Seifkashani, 2003).

2.3.1 Technology Acceptance Theory

The literature teems with theoretical conceptualisations of what is required for optimum, effectual accessibility. For example, Fred Davis, Jr. originally developed Technology Acceptance Theory (TAT) in 1986 (Davis, 1986, 1989; Davis et al., 1989). It focuses on user attitudes and perceived utility, and TAT researchers identified the need for IT interpretive flexibility and (perceived) fit (Cao, 2010; Chi et al., 2009; Muscatello & Chen, 2008; Zhang et al., 2008). Interpretive flexibility concerns ‘the degree to which users of a technology are engaged in its construction (physically or socially) during its development’ (Chi et al., 2009, pp. 34–35), while a more general flexibility is also included as a factor (one of several) in the successful IT plan (Cao, 2010), as well as effectual IT planning and management teams (Muscatello & Chen, 2008). As a cognitive factor influencing IS adoption behaviour (Chi et al., 2009), which will be discussed more fully below, perceived fit is the extent to which accessibility is regarded as feasible for the individual perceiver.

As a construct of straight fitness, or what Cao (2010) identifies as resource complimentarity, fit is a concept of fit relationship applied in TAT as a requisite to accessibility. Fit is also a concept promoted by the resource-based view (RBV) and Contingency Theory (Cao, 2010), which agrees with the TAT to the extent that
relationship. *Fit* is defined as ‘the degree to which the needs, demands, goals, objectives, and/or structures of one component [here, the IS] are consistent with the needs, demands, goals, objectives, and/or structures of another component [here, the NESB community/user]’ (in Cao, 2010, p. 269). Accordingly, one of the functions of fitness is a two-pronged flexibility that requires that the IT/IS have what Chi et al. (2009) further explain as *IS flexibility for use*—whereby there is ‘a range of possibilities provided by [the] information system’ (p. 33)—and as *flexibility to change*—defined as ‘the potential adaptability for further changes of [the] given information system[s]’ (p. 33). The TAT is the basis of the Technology Acceptance Model (TAM), which is illustrated in Figure 2.1 (adapted from Davis, 1989).

**Figure 2.1: Hypothesis Framework of the TAM**

A principle purpose of the TAM is to provide a basis for examining the effect of external variables on internal beliefs, attitudes and intentions. The resulting hypothesis framework of Davis (1989) is illustrated in Figure 2.1. In Davis’ research, two main features are important in explaining system usage. Specifically:

- *‘Perceived ease of use’*: The degree to which a person believes that using a particular system would be free from effort.
- *‘Perceived usefulness’*: The degree to which a person believes that using a particular system would enhance his or her job performance.

### 2.3.2 Reasoned Action Theory

Reasoned Action Theory (RAT) focuses on user attitudes and intentions (intended goals) as well as *perceived* utility, perceived outcome and the more involved perceived other-perception (user belief about others’ beliefs). In this way, beyond the necessity of
such demanding technology as computer-based information commons (CBIC) (Mingione, 1990), accessibility relies on shared action/knowledge dynamics (Cao, 2010; Muscatello & Chen, 2008; Shoib & Nandhakumar, 2003; Zhang et al., 2008).

That is, according to RAT, for an optimum IS value (considered a business value in the business world), shared knowledge is imperative between IT/IS units (government service/s) and customer service units (community users), as well as between individual community users (Cao, 2010).

This intangibility is regarded by researchers as a manifold factor that gives impetus to user behaviour (Cao, 2010; Muscatello & Chen, 2008; Sharma & Yetton, 2007; Shoib & Nandhakumar, 2003; Zhang et al., 2008): first, the phenomena that characterise the shared nature, whereby shared goals make for shared or common tasks, efforts and labouring (Shoib & Nandhakumar, 2003); second, the end results, whereby shared values, making for shared goals and tasks, and indicating conduciveness to success (a theoretical conceptualisation empirically reinforced by the research of Shoib & Nandhakumar, 2003, among others in the field) as an indicator of accessibility success factors.

Thus, according to RAT, as Sharma & Yetton (2007) explain, shared knowledge requires such an imperative as transactive memory systems, which hold ‘external storage…as an extension of individual memory’ (p. 220), consisting of a) knowledge contained in the memories of individual group members and b) relevant communication processes among group members (pp. 220–221), which are key systems because they provide the essentials for the shared knowledge dynamic.

Such transactive member systems, say the authors, ‘provide knowledge encoded in the group members’ memories about [emphasis added] the knowledge held by other group members—the shared conceptualisation of “who knows what”’ (pp. 220–221), which is vital to communities accessing, in this case, government IS. Thus, as RAT contends, such imperative systems enable end users to ‘access a greater pool of relevant knowledge’ (p. 221), which ultimately ‘leads to greater efficiency, effectiveness, and coordination in the utilisation of knowledge’ (Sharma & Yetton, 2007, p. 221, citing Brandon & Hollingshead, 1987). The RAT, often referred to as the Theory of Reasoned Action (TRA), is illustrated in Figure 2.2. Fishbein & Ajzen (1975, 1980) developed the
TRA, which was derived from earlier research that started out as the theory of attitude, which subsequently resulted in the study of attitude and behaviour. The components of TRA are three general constructs: behavioural intention ($BI$), attitude ($A$), and subjective norm ($SN$). TRA suggests that a person’s behavioural intention depends on the person’s attitude towards the behaviour and subjective norms ($BI = A + SN$). If a person intends to conduct behaviour, it is likely that the person will conduct it.

![Fishbein-Aizen Theory of Reasoned Action](image)

**Figure 2.2: Reasoned Action Theory (Source: Fishbein & Ajzen, 1980)**

Importantly, according to Fishbein & Ajzen (1980), attitudes and norms may have different levels of importance in relation to predicting behaviour. Miller (2005) stated:

‘Indeed, depending on the individual and the situation, these factors might be very different effects on behavioral intention; thus a weight is associated with each of these factors in the predictive formula of the theory. For example, you might be the kind of person who cares little for what others think. If this is the case, the subjective norms would carry little weight in predicting your behavior’ (p. 127).

### 2.3.3 Planned Behaviour/Structural Behaviour Theory (PB/SBT)

Among the theories of critical success factors that are emphatically imperative in government IS are the oft-consulted and built-upon behavioural theories—Planned Behaviour Theory (PBT) and Structural Behaviour Theory (SBT)—both of which are contended by researchers (Tan et al., 2009; Yeoh & Koronios, 2010) as important not only to accessibility, but also to availability and usability. PBT and SBT are interpretivist approaches that are typically regarded as the parent theories, and they focus on user attitudes, intentions (both intended goals and intended behaviours) and
actual behaviours in combination with utility, perceived utility, believed outcome, perceived other perceptions of utility and beliefs of outcome, perceived control, subjective norms, perceived subjective norms and extent of compliance in accordance with all of the above.

Figure 2.3: PB/SBT Model (Adapted from Reeve & Assor, 2011)

Several studies showed the applicability of this theory to various domains and verified its ability to provide a valuable framework to explain and predict the acceptance of new IT (Hung et al., 2006). In this theory, the new construct referred to as Perceived Behavioural Control (PBC) was defined as ‘perception of ease or difficulty of performing the behaviour of interest’ (Azjen, 1991, p. 183). According to this theory, people’s behaviours are determined by their intentions to perform the behaviours as influenced by their attitudes, behaviours, subjective norms and perceived behavioural control (see Figure 2.3).

In these respects, behavioural theory ascribes to IS/IT implementation and integration as remedial for such criticalities, insisting on sustainable data quality and integrity (a given imperative), a flexible technical framework (Yeoh & Koronios, 2010) and, in the context of business-driven critical success factors that involve senior management
support, vendor relationship, corporate culture change, project governance and execution (Tan et al., 2009), and user-oriented change management.

Table 2.5: Optimum IS User Predictors/Requisites According to Theory

<table>
<thead>
<tr>
<th>Theory</th>
<th>Focus</th>
<th>General Predictors (Identified Influences/Needs)</th>
<th>Specific Outlined Imperative(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAT</td>
<td>User attitudes</td>
<td>Perceived usefulness Perceived ease of use Perceived fitness, IT flexibility, resource compatibility</td>
<td></td>
</tr>
<tr>
<td>RAT (aka TRA)</td>
<td>User attitudes User intentions (goals)</td>
<td>Perceived utility + individual believed outcome + perception of others’ (society/authority) believed outcome</td>
<td>Transactive memory systems, shared knowledge/shared action</td>
</tr>
<tr>
<td></td>
<td>Subjective norms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB/SBT</td>
<td>User attitudes User intentions/ User motivations (intended goals/ intended behaviours) User actual behaviours</td>
<td>Perceived utility + individual believed outcome + perception of others’ (society/authority) believed outcome + perception of behavioural control + extent of compliance with subjective norms</td>
<td>Mutually compliant + facilitative/situated behavioural/contextual systems</td>
</tr>
<tr>
<td>NESB Model</td>
<td>Identifies all factors of users’ behaviours, needs, intentions, perceptions and all imperative factors</td>
<td>Determines how internal aspects of Government IS affect the external successes (or failures) of access by NESB community users</td>
<td>Allows both the Government IS and the user interface to adapt and evolve in order to better serve the needs of the NESB user</td>
</tr>
</tbody>
</table>

Note: Each theory builds on the other, which indicates that RAT is an extension of TAT and PB/SBT is an extension of RAT. Thus, NESB is an extension of PB/SBT.

By integrating all of these factors into an NESB model, the information/knowledge that is required by the NESB migrant community will be constantly pursued, with determined efforts to equalise access persistently acted upon. As a result, users (NESB migrants) can be assured that any input they provide will be viewed as a valued external component of the government online system. Correspondingly, the greater the effort applied to strategic management/intervention, the greater the increase in governmental-intended outcomes.

Significantly, the proposed NESB Model is consistent with currently accepted theories—especially those related above. However, the advantage of this model is that it
expands upon those theories—especially by highlighting the deficit in accessibility of current government online services and ensuring that those deficits or barriers are eliminated wherever possible. As described in Table 2.5, the NESB Model incorporates all of the elements included in the three models noted above. The primary advantage of the NESB Model is that it will create a more integrated effort founded on a shared understanding of how to mitigate inequality and build capacity that will bridge the digital divide. Certainly, the NESB Model’s innovative features will only be effective as long as it is possible to integrate, coordinate and develop a client (NESB migrant) focus rather than an organisational (government) focus.

Uniquely, the NESB Model considers migrants’ individual attitudes, intentions, perceived utility and outcome in regards to access to government IS services. Further, the model accounts for actual behaviours, the role of shared knowledge and the extent of compliance based on subjective norms concerning government IS. Therefore, it is able to combine both individual and social factors that contribute to the decision to access government online services. Indeed, it allows both the Government IS and the user interface to adapt and evolve in order to better serve the needs of the NESB user.

2.4 Barriers to Success of Access

The Australian Government uses ICT for multiple purposes, including ensuring that all of its citizens have access to important services and agencies such as licensing, payment of fees and building permits. This is a primary critical success factor to ensure that all citizens can benefit from the services that are available. Additionally, there is an increasing emphasis on electronic democracy (or e-democracy), which underscores the values of social accountability, transparency and responsiveness, as well as efforts to stimulate greater citizen participation in leadership and policy decision-making processes (Gibson et al., 2008; Maier-Rabler & Huber, 2011). The efficient transmission of services, the integrity of those providing such services and effective stewardship are also primary governance principles and critical success factors.
Where the critical success factors (CSFs) mentioned in the two previous paragraphs falter or fail is where barriers to access to government IS by non-English-speaking Australian communities intrude. That is, it follows that where the above-described CSFs are lacking or where they fail to appear is where inversions as access barriers will be problematic. These include the briefly mentioned barriers such as location, which affects resource deficit, and it further involves factors as problems, including a) program/system technical complexity, b) information fragmentation issues, c) especially distinct differences in MIS strategies and d) training issues that, in their absence or lack, inform knowledge barriers.

In regards to the four factors listed above as barriers, the literature also reveals that such barriers often prevent e-government use as it is intended. Based on information collected by the AGIMO (2005), some of the most-cited barriers are: ‘Lack of awareness of services, preference to interact with a real person, perceived lack of accountability of Internet services, difficulty in using Internet-based services, lack of security when it comes to financial transactions, and residential proximity to a government office’ (AGIMO, 2005, pp. 38–39). Singh et al. (2008) added content problems to this list (e.g. incomplete information).

Sawrikar & Katz (2008) noted a number of barriers that negatively affect the availability of services in NESB communities. Based on where they live, higher fees may be placed on these migrants. Additionally, migrants typically disregard government services and programs that do not consider their NESB status. Further, just one negative experience while attempting to access online services may result in NESB migrants refusing to use such services in the future. The same may apply if a migrant hears about such an incident happening to an acquaintance (Sawrikar & Katz, 2008). Results could thus be tragic if such experiences prevent an individual from obtaining necessary services during an emergency. It makes sense, then, to structure government online services so they are sensitive to the culture and needs of NESB communities.

Researchers ascribing to the theoretical underpinnings of the Technology Acceptance theory explain how not all IT, such as software programs, meets the criteria for fit or resource complimentarity (Cao, 2010; Chi et al. 2009; Muscatello & Chen, 2008)—a problem that begins with the failure to exact fit during implementation (Chi et al., 2009;
Muscatello & Chen, 2008, p. 67). Although Jin (1993) offers research into barriers to IT/IS development and strategic implementation for the organisation per se, in the first instance, the explication of internal barriers implicates external barriers for users, and in the second instance, also tapping Contingency theory, Jin exposed the organisational obstacles, bureaucratic complexities and technical complexities that impose major constraints on the infrastructure and implicitly on the user communities.

Several researchers reiterate this complexity (Chen et al., 2009; Muscatello & Chen, 2008; Salazar Alvarez, 2003; Sharma & Yetton, 2003). Chen et al. (2009) definitively asserted how a critical success factor such as IS flexibility, for example, ‘comes at the price of complexity’ (p. 33), and they suggest the necessity of the organisation finding a successful balance between ‘IS rigidity and IS complexity’ (p. 33). More precisely, although producing IS that are capable of adapting to multiple users (including, for example, multiple language groups), which would certainly define flexibility in at least one context, is beneficial, that process cannot be accomplished without adding layers of complexity to the program. Having one computer console that can only be accessed by one language group is not flexible, but it is less complex, especially for NESB users who may be limited in their use of English.

Salazar Alvarez (2003), also working along interpretivist theoretical lines, reveals an triangulation of barriers to access in the specific context of organisational complexity, including ‘a paternalistic [implementation strategy] approach, that is too obsessed with technology; [systemic] culture clashes; and unresolved issues of customisation and integration’ (p. 243). Sharma & Yetton (2007), with a major emphasis on the Contingency model, more explicitly divulge a core issue for potential end users. Scott (1981) described Contingency theory thus: ‘The best way to organize depends on the nature of the environment to which the organization must relate’ (p. 114). The gist of the theory is that there is no perfect way to manage or organise any environment. Therefore, in the context of an NESB community attempting to utilise government IS services, the implication is that services must be tailored to the individual community.

Citing Rogers (1962, 1983), Attawell (1992), and Eveland & Tornotsky (1990), and explaining that, again, complexity is ‘one of the factors influencing the adoption of information systems] by end users’ (p. 223), Sharma & Yetton (2007) elaborated on
how end users are ‘more likely to reject innovations that are technically complex, require advanced skills for users, generate inconsistent outcomes, or need expert support’ (p. 223). Further citing Attawell (1992), Sharma & Yetton (2007) concluded that ‘complex technologies create knowledge barriers [emphasis added] that inhibit end-user adoption’ (p. 223).

Additionally, it was then revealed by Muscatello & Chen (2008) that, when implementing such systems as enterprise resource planning (ERP) in the service organisation, another insidious factor—information fragmentation—becomes an addition to the list of barriers to use. While these authors do not explain the phenomenon as it affects end users (rather, their research points towards the benefits of ERP to address the problem of fragmentation/lack of integration), other researchers provide further insights, even if in the context of integration, or the need for integration, as an implicit barrier to IS use where lacking (Sharma & Yetton, 2007; Zhang et al., 2008).

Gold et al. (2001) added to this indirectly by exploring organisations’ move from information management to knowledge management—the crucial factor identified by the authors as ‘absorptive capacity’ (p. 187)—which requires a system ‘using prior knowledge to recognize the value of the new information, assimilating it, and applying it to create new knowledge and capabilities’ (p. 187), and which makes for a criticality that affects external and internal personnel. Again, although not emphasising fragmentation or a lack of absorptive capacity as pertaining to end users, an insight into the variables that must be taken into consideration is necessary to inform the present study.

Regarding the PB/SBT model, behavioural intention and that which is behind behavioural intention (attitude towards, and/or perception of, determinant/control), is also significant to understanding causation. That being the case, the literature contains many examples that encompass all of the above factors. This includes the training, or rather the lack of training, of prospective users for IS technology use (Chen et al., 2009; Gottschalk, 1999; Muscatello & Chen, 2008; Sharma & Yetton, 2007; Shoib & Nandhakumar, 2003; Zhang et al., 2008) and the lack of application training (Chen et al., 2009) of internal personnel, where the lack ‘can be catastrophic and lead to outright
failure…’ (Muscatello & Chen, 2008, p. 66). As Gottschalk (1999) concluded, IT/IS user involvement ‘should include user training, understanding, participation, operation, development, and support’ (p. 116).

As Salazar Alvarez (2003) maintained, strategic management systems should involve personnel and management training (p. 236). Sharma & Yetton (2007) also applied contingency theory to reveal end-user training as a ‘critical intervention to support the successful implementation of information systems innovations’ (p. 219). It delivers results in three knowledge domains—application knowledge covering commands and tools embedded in IS applications; “business context knowledge covering the use of IS applications to effectively perform business tasks; and collaborative task knowledge covering how others use the applications in their tasks” (p. 220, citing Kang & Santhanam, 2003–04).

Synthesising the imperative logic and implying what a lack of training does to negatively affect prospective users (e.g. NESB community members) and create a substantive barrier, Kang & Santhanam (2003–04) clearly showed how ‘training enables end users to acquire knowledge in each of the three aforementioned domains (application knowledge, business context knowledge, and collaborative task knowledge) and, therefore, to overcome knowledge barriers to successful implementation’ (p. 220, citing Attawell, 1992). However, cognitive limitations and variance of the learning curve, organisational constraints, finitude of resources, generic character of training processes and use of English only for NESB communities have also contributed to a population remaining marginalised, computer illiterate, IT-resistant members who, in their reticence, might see computers as a burden. In addition, they perhaps rely on compensatory actions to replace the lack of training, and they might have added barriers resulting from a lack of diversity attention and necessary training in IS, a lack of experiential knowledge of computers, IT and IS, and low perceived ease-of-use attitudes.
2.5 Perception and Perceived Barriers as Meta-Barriers to Access

Meta-barriers, which are subjective barriers that present through user perception of barriers to access, affect user accessibility. Basing their research on the TAT, Chi et al. (2009) acknowledge the cognitive factors of perceived fit, perceived flexibility and perceived IS control as subjective influences on users’ approach to IS. As cognitive processes, implementation and adaptation are affected by the interpretive flexibility of users as much as they affect the users (Chi et al., 2009, p. 35). According to TAT, ‘perceived usefulness and perceived ease of use are most relevant in explaining behavioural intention to use IT’ (Davis, 1989, citing Chi et al., 2009, p. 36).

In agreement, Zhang et al. (2008) states that user-centrism is imperative. Applying a model focusing on the determinants of ‘end-user attitude toward government information systems, rather than on the linkage between attitude and behavioural intention’ (Zhang et al., 2008, p. 57), they also elaborate—defining how an innovation is perceived as fitting when it is ‘consistent with the existing values, past experiences, and client needs’ (p. 55, citing Rogers, 1995). In addition, the authors also adopt TAT’s two core variables: perceived usefulness, which is ‘the prospective user’s subjective probability that using a specific application system will increase his or her…performance within an organisational context’ (p. 56); and perceived ease of use, which is ‘the degree to which the prospective user expects the target to be free of effort’ (p. 56, citing Davis et al., 1999). These variables explain the assumption of determinant attitude intention, but also that which, in its negative, results in a spotlight on barriers, where the negative evaluation of IS is as detrimental to potential users and users as is any actual experiential barrier.

In a review of the IT and organisational learning literatures, Robey et al. (2000) described four general strategies that organisations use to overcome knowledge barriers: formal training, action research projects, providing a social context that encourages learning (e.g. communities of practice) and explicitly seeking external sources of knowledge. According to their study, formal training in enhanced communication between project teams and system users was supported as an intervention that improved
learning outcomes, although the direct effect was limited to individual- and group-level learning rather than organisation-level learning.

Table 2.6: Internal and External Barriers to Critical Success Factors (CSFs)

<table>
<thead>
<tr>
<th>Qualities</th>
<th>Theory</th>
<th>CSFs</th>
<th>Internal/External Origin</th>
<th>Barriers</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual, observable, quantitatively measurable</td>
<td>TAT</td>
<td>Flexibility</td>
<td>Internal</td>
<td>Complexity rigidity (knowledge barrier[s])</td>
<td>Davis, 1986, 1989; Davis et al., 1989; Cao, 2010; Chi et al., 2009; Muscatello &amp; Chen, 2008; Zhang et al., 2008</td>
</tr>
<tr>
<td>Actual, observable, quantitatively measurable</td>
<td>RAT</td>
<td>Application knowledge Business content knowledge Collaborative task knowledge sharing</td>
<td>Internal</td>
<td>Organisational constraints, information fragmentation; Generic, English-only training processes; [individual + interindividual cognitive limitations + variance of learning curve; Finitude of resources</td>
<td>Cao, 2010; Muscatello &amp; Chen, 2008; Zhang et al., 2008; Shoib &amp; Nandhakumar, 2003; Fishbein and Ajzen (1975, 1980); Sharma &amp; Yetton, 2007</td>
</tr>
<tr>
<td>Metaphysical, qualitatively measurable only</td>
<td>PB/SBT</td>
<td>[Perceived Accessibility] Perceived ease of use Perceived flexibility Perceived fit</td>
<td>External</td>
<td>[Perception (as barrier itself)]; Low perception of ease of use Low perception of flexibility Low perception of fit IT resistance and lack of trust Low perception of subjective norms = low perception of user control</td>
<td>Azjen 1991; Hung et al., 2006; Yeoh &amp; Koronios, 2010; Tan et al., 2009</td>
</tr>
</tbody>
</table>

In action research, the researcher tries to improve practice through systematic feedback on research observations to a client organisation. The strategy of changing the social context of learning is by nature an emergent strategy whereby learners change their own
work practices, organising structures and coordinating mechanisms. It occurs informally and often without approval. The main strategies for seeking external sources of knowledge were identified to be through benchmarking studies and the use of intermediaries such as consultants (Robey et al., 2000).

Emerging ICTs have also been identified as holding potential in terms of addressing language barriers (Jones, 2011). For many people, there are significant barriers to accessing Internet and broadband technology, which can severely impede the ability of people to connect and access information and services.

For people with low English proficiency, providing information in English is a significant barrier. The challenge of providing access to Internet sites and information that is multilingual to facilitate access to information and dialogue has been highlighted (Parham, 2004). People with low English proficiency have much lower rates of Internet access than people who are proficient in English. A contextual issue is the potentially low availability of information in particular languages, even if this language is spoken by a large number of people. Thus, as discussed by Cunliffe & Herring (2005), the ‘digital divide’ should be conceptualised in order to understand the uneven distribution of non-‘majority’ language information on the Internet:

A concept that is often invoked when discussing issues of marginalisation in information technology is the digital divide. Typically this is couched in terms of economic or educational barriers, or issues of physical access to the technology. While these aspects of the digital divide have obvious relevance for many minority language communities, other aspects should not be ignored. One that is particularly relevant is the divide between languages that are ‘information rich’ and languages that are ‘information poor’ with regard to online content and services (pp. 131–132).

Although people with low English proficiency are able to access the Internet, they are likely to be confronted by a lack of availability in relation to non-English language content. Cunliffe & Herring (2005) further noted that:

…even when minority language content is available on the Internet, the software used to create and access that content is often in English or the regional majority language, implicitly reinforcing the dominant status of those languages, both in the domain of information technology, and in general (p. 132).
However, for people who are recently arrived migrants or refugees, a combination of low levels of English proficiency and a lack of computing experience can act as barriers (Campbell, 2002; Chonia, 2002; Mitchell, 2002; van Dijk & Hacker, 2003). In a study of recently arrived migrants and their use of personal computers at work and home in New Zealand, participants reported having positive perceptions of the benefits of the Internet and computers; however, most of the participants lacked computing experience and felt that their lack of English was a significant barrier to access (Kabbar & Crump, 2006). Many of the people who had recently used computers used them in a limited capacity and mostly to communicate with friends and families.

The Kabbar & Crump (2006) study also highlighted differences in gender. Young male participants of the study with higher-education backgrounds were more likely to use ICT, including computers. Older females with little or no education were less likely to use the technology. The study did not highlight that physical access to ICT and networks was a barrier for Internet and computer use. Over half of the participants in the study who used a computer and the Internet indicated that they had access to computers and the Internet at home (Kabbar & Crump, 2006). One of the reasons given for placing such a high priority on Internet access at home by female participants was because female immigrants did not feel comfortable accessing the Internet and computers outside of the home.

Family and friends are major influencers of whether people use the Internet and computers. People reported that they first knew about computers from friends and family. The second major influencing factor was members of their larger community; recent immigrants reported that they followed the lead of their trusted ethnic community peers (Kabbar & Crump, 2006).

The challenges for refugees in detention in accessing computer technology are different to migrants and refugees living in the community. In a study of refugees’ access and use of ICT, including the Internet, the difficulties of accessing the Internet in detention were highlighted. Participants highlighted the importance of using the Internet as a way of gaining access to current affairs and other information in Australian society, accessing material in their own language, learning English and gaining computer skills. However, restricted access to computers appeared to limit their potential for learning by virtue of
the insufficient number of computers in detention and the need for persistence to use them (Leung et al., 2009).

The availability and access of different groups and communities to computers and Internet technology that is affordable is also important (Arkoudis et al., 2009). US research has highlighted a disparity or ‘racial divide’ in Internet access between African Americans, Whites and Hispanics in the US (Hoffman et al., 2001). In the analysis of Internet demographic data, among both African American and White Americans, web users were more likely to be university educated and on higher incomes (Hoffman et al., 2001). Gaps in access to the Internet are also influenced by whether people had access to a computer and the Internet at home, work, school or in the community (Hoffman et al., 2001).

Improving access to computers and the Internet may influence Internet usage rates. Race also influences connectivity to the Internet. In an analysis of 1998 data, households of Asian/Pacific Islander descent had the lead in computer penetration (55%) and Internet access rates (36%), followed by White households (44.6% and 29.8% respectively). Black and Hispanic households have far lower personal computer penetration levels (at 23.2% and 25.5%) and Internet access levels (11.2% and 12.6%) (National Telecommunication and Information Administration, 2001, p. 20).

In addition to the need for further research on why particular communities face barriers in accessing ICT, there is a strong need to understand how intersectional factors (such as class and race, or race and gender) might affect access to emerging telecommunications technologies. An example of research that explores the intersection of different factors is the work of Kvasny et al. (2009), who investigate the experiences of African American women in the US who are IT professionals or who are undertaking training in IT. The researchers interview women about their experiences, including how assumptions and discriminatory attitudes in relation to race and gender shape the experience of African American women in the IT labour force.

Kvasny et al. (2009) observed that the research has significant implications for understanding social inclusion, particularly unpicking the complexity of intersectional factors such as race and gender. The researchers noted that:
there is a place for positivist studies that serve to document social inclusion and ICT in tangible (and usually quantitative) terms. But there is also a need for interpretivist studies that help us to understand the subjective meanings behind those statistics and for critical studies that consider the roles that oppression and emancipation play (p. 114).

Arguably, there is a similarly strong case for such research in Australia, particularly in understanding the complex barriers faced by a culturally diverse population to accessing emerging ICTs. Age is also a factor affecting access and utilisation for people from diverse cultural backgrounds. The experience in Australia is that older people use the Internet at a lower rate than the rest of the population (ABS, 2006). However, ethnicity is also likely to contribute to lower rates of utilisation for older people, particularly for older people with low English proficiency. Jung et al. (2010) conducted a study involving multicultural seniors who were considering enrolling in computer training at a local cyber café that offered free access (Jung et al., 2010). The researchers found that addressing the training needs of immigrant computer users was important in assisting these consumers to overcome their anxieties concerning computer use:

…computer anxiety is a strong predictor for failure to enrol for low-income immigrant seniors. Even when they were provided with the opportunity of free enrolment and training in their native languages, only a small percentage of the seniors took advantage of this opportunity. It suggests that closing the gap of digital divide is not as easy as providing access. To enhance the success of senior centers implementing Internet training and access programs, a strong educational and recruitment campaign to address the fear of the seniors is important (p. 207).

Jung et al. (2010) suggested that computer literacy should be seen as a key to healthy ageing, as both an enabler of connection to social networks and to allow older people to access information. Finally, the researchers observed that both women and people with anxieties around the ageing process are unlikely to engage: it is argued that additional ‘attention to recruitment strategies that focus on demystifying the process, emphasizing an individualized pace of instruction geared to beginners, and communicating benefits of Internet use of particular interest to women’ (Jung et al., 2010, p. 208).

Privacy concerns may be relevant for some NESB consumers and present a barrier to access. For example, in Yao’s (2009) study of Filipino women and blogging, privacy and personal security were relevant framers of interactions. Yao (2009) observed that:

while blogs are useful and meaningful communicative spaces for migrant
women, the tensions between public performance and privacy draw limits to self-expression. Fear of the loss of privacy because of the public nature of blogs was a legitimate concern. To an extent, the participants were aware of their audience and knew the possible consequences of having publicly accessible information on the Internet. The participants consciously took steps to safeguard their anonymity to a degree that still allowed them to be comfortable enough to self-disclose personal and sometimes sensitive information”.

Once again, this appears to be an area where further research is necessary, particularly with respect to how different cultural groups might view privacy issues in relation to emerging ICTs.

2.6 Historical Context of IS Implementation

IS implementation research started in the 1960s with studies of technology transfer (Lai & Mahapatra, 1997) and of IS success and failure (Kwon & Zmud, 1987). In 1970, transaction-processing systems became widespread in organisations. A productive stream of research regarding IS implementation success factors emerged, which examined factors such as management support, individual user perceptions and system quality on implementation success (Lucas, 1978).

In the 1980s, the research focus broadened to include other types of IS; for example, MIS, decision support systems, expert systems and packaged software. Although success factor-based models continued to evolve (Lucas et al., 1988), the focus began to shift from individual acceptance as a dominant theme to an innovation agenda—in particular, ideas from adoption and diffusion theory. Kwon and Zmud (1987) proposed a diffusion of innovation theory (Rogers, 1983) as an overarching framework to unify hitherto fragmented models of IS implementation.

In the 1990s, IS implementation research became increasingly important as organisations increasingly relied on IS to support core business functions, and the value of IT investments climbed strongly (Lai & Mahapatra, 1997). Computer Assisted Software Engineer (CASE) tools, Materials Requirements Planning (MRP) systems and their successors, Enterprise Resource Planning (ERP) systems, became widespread, driving further activity in IS implementation research. ERP implementation research
emerged as a distinct research topic due to both widespread use and the complexity experienced during implementation (Robey et al., 2002).

In a review of IS research published in the journals *MIS Quarterly*, *IS Research*, *Journal of MIS* and *Management Science* between 2001 and 2006, Shuraida & Barki (2007) were surprised to find a relative paucity of research addressing IS implementation (approximately 4% in total) relative to the dominant themes of IT effects (17%) and IS use (15%). Despite a shift over the decades from in-house developed systems towards more standardised packages, implementation difficulties continue to plague IS practitioners (Markus & Tanis, 2000), thus motivating continued research on IS implementation dynamics and difficulties experienced during implementation.

### 2.6.1 IS Implementation

Ko et al. (2005) offer a perspective on the domain of knowledge that is relevant to IS research. In a study of complex enterprise IS implementation, the authors described the knowledge domain of the research as ‘commercial knowledge’—‘sets of rules, tools, and guidelines and ways to employ them that produce effective systems implementation’ (Ko et al., 2005, p. 60). They observed that, like ‘technical knowledge’, it is both tacit and explicit, and it is typical of knowledge required when implementing the demanding types of IS innovations (Swanson, 1994).

Attewell popularised the concept of ‘knowledge barriers’ in IS innovation research in the early 1990s. In a highly cited article (Attewell, 1992), the author characterised a knowledge barrier in an innovation context as the hurdle that an organisation faces due to the burden of organisational learning required to adopt an innovation. Over time, knowledge barriers would decline for a particular technology; for example, by suppliers ‘packaging’ the technology and mediating institutions with prior related knowledge entering the market. This dynamic provided an intriguing alternate hypothesis for the ‘S’ curve to the traditional diffusion of innovations theory explanation, which is based on the nature of communication networks and the characteristics of adopters.
Research on the conceptualisation of knowledge barriers in IS innovation exists, but for a long time it was considered fragmented (Robey et al., 2000). Further, most research on knowledge barriers has been theoretically derived and has not been empirically explored in organisations (Berthion-Antal et al., 2003). These observations were key motivators for the current research. Only in recent years have researchers begun to make efforts at a theoretical level to integrate research findings (Schilling & Kluge, 2009). Particular areas of need have been identified; for example, empirical research that sheds light on mechanisms of knowledge barrier operation and how firms might lower knowledge barriers in IS innovation (Fichman, 2000). Few such studies currently exist.

Kwon & Zmud (1987) drew on the innovation theory base in an effort to increase the coherence of IS implementation literature, and they called for researchers to reframe IS implementation as a process of technological innovation occurring in sequential stages in the same way that Rogers (1983) modelled the innovation process in organisations. They proposed a hybrid factor-process model of IS implementation incorporating concepts from both innovation process research and innovation characteristics research.

Cooper & Zmud (1990) built on this idea, adopting and extending the proposed IS implementation stage model. However, a key limitation of this line of research was the point-in-time data collection, which limited the researchers’ insights about the dynamics of the IS implementation process. Around the same time, the focus of innovation research was shifting from adoption and diffusion to implementation, and researchers were becoming more interested in how to study IS implementation as a process of innovation (Leonard-Barton, 1988; Van de Ven & Rogers, 1988).

Over the past two decades, IS researchers have exploited and further developed experience in process research applied to the study of IS implementation using a variety of theoretical lenses, including Structuration Theory (Barley, 1990; Volkoff, 1999), Actor Network Theory (Cho et al., 2008), Punctuated Socio-Technical Theory (Lyytinen, 2009; Lyytinen & Newman, 2008) and with no A-Priori Theory (Robey & Newman, 1996; Sabherwal & Robey, 1993). However, as Shuraida & Barki (2007) noted, it still represents a small fraction of total IS research.
An example of the process research approach applied to IS implementation is the empirical taxonomy of the IS implementation processes proposed by Sabherwal & Robey (1993). It demonstrated the use of ‘event sequence’ data in providing valuable insights about patterns in IS implementation processes. The study used data from 53 IS implementations and found six implementation process archetypes representing alternative courses of events that may be followed during an IS implementation process. Examples of distinguishing features between archetypes include the extent to which a formal project methodology was used, and the method and degree of external vendor engagement. While the adoption of e-government provides better services to citizens at lower costs, the acceptance and success of e-government relies on the willingness of users to adopt this new system (Carter & Belanger, 2005).

However, the federal government seemed reluctant ‘to embrace the transformational capacity of digital communications’ compared to local governments and communities (Geiselhart, 2004). Additionally, based on the Australia’s Digital Economy: Future Directions report (DBCDE, 2011), the government needs to embrace ‘open access to appropriate categories of information’, which enables ‘improved decision making by individuals, research agencies and private sector organisations’. The report suggested creating a network of digital ICTs that allows the ‘use and re-use of government information in novel ways that can produce economic benefits and promote social wellbeing’. This follows the Australian Government’s announcement in 2010 about its plan to invest $392 million in online health services that are meant to benefit non-city residents, as well as to establish the NBN, which is aimed at providing e-education and e-government services (Budde, 2011). Prior to this, the Australian Government Online Service Point (AGOSP) Program was launched in 2007 with a budget of A$42.4 million to improve the government’s australia.gov.au website in order for individuals to have ‘simple, convenient access to government information, messages and services’.

It should be noted that since its initial e-government efforts in the 1990s, the Australian Government has steadily increased its ICT expenditure not only for its own use, but also for the welfare of individuals, families, communities and enterprises. The Australian Trade Commission (ATC) notes that a liberalised telecommunications industry has made the country one of the top ICT markets not only in the Asia Pacific region, but also globally.
Kuppusamy et al. (2008) wrote about Australia’s intensifying ICT efforts that paved the way for a business climate that improved labour productivity and fuelled economic growth. The authors note that ICT spending was greater than other member countries of the OECD in terms of Australia’s gross domestic product (GDP) vis-à-vis ICT expenditure in 1992–1997, with a 15% annual growth rate in ICT investment (Kuppusamy et al., 2008, p. 1677). Different sectors likewise capitalised on ICT, along with an increase in Australian households that owned personal computers. From 1996–2001, ICT expenditure reached 10% a year, amounting to A$31 billion; there was also a significant investment in ICT research and development during the early 2000s (p. 1677). For the period 2003–2010, total ICT spending figured at over US$29.5 billion and up to more than US$57.8 billion, while around US$63.3 billion was projected for 2011 and US$66 billion for 2013 (ATC, 2011, p. 47).

Australia uses ICT for multiple purposes, including ensuring that all of its citizens have access to important services and agencies. Additionally, there is an increasing emphasis on electronic democracy (or e-democracy), which underscores the values of social accountability, transparency and responsiveness, as well as efforts to stimulate greater citizen participation in leadership and policy decision-making processes (Gibson et al., 2007; Maier-Rabler & Huber, 2011). According to the ANAO (2003), the efficient transmission of services, the integrity of those providing such services and effective stewardship are also primary governance principles.

Derived from the *Australia’s Digital Economy: Future Directions* report (DBCDE, 2011), there is a need for governments in the country to embrace ‘open access to appropriate categories of information’, which enable ‘improved decision making by individuals, research agencies and private sector organisations’. One of the more promising suggestions presented in the report is the creation of a network of digital ICTs that would enable the ‘use and re-use of government information in creative or unique ways that can produce economic benefits and promote social wellbeing’ (2011, p. 12).

The announcement by the Australian Government in 2010 about its plan to invest $392 million in online health services is another indication that the government is serious about improving its ability to benefit residents, as well as to establish an NBN aimed at
providing e-education and e-government services (Edwards, 2010). This is another step in the evolutionary process undertaken in Australia for improving online services. A previous element was the AGOSP Program, initiated in 2007, which provided over A$42 million to improve the website of the Australian government. The purpose was for individuals to have ‘simple, convenient access to government information, messages and services’.

Saha (2010) acknowledged that the Australian government has made consistent improvements in its efforts at e-government—an effort that was launched two decades ago. As the budget has increased for ICT-related programs, it has also directed more funds to the welfare of individuals, families, communities and enterprises.

2.7 Summary

This chapter examined the current literature related to the topic under discussion in this study—the provision of online government services through the Internet platform and how these services are perceived and/or utilised by the NESB community in Australia. Previous literature was critically reviewed in order to identify the concepts and principles that form the framework for this study. In addition, this review of the literature revealed a gap in published articles as well as the need for a new comprehensive model related to the specific needs of NESB communities and their access to government IS services.

The literature clearly shows that the government places significant importance on all immigrants to the country learning English. The significance of using English in the settlement of NESB immigrants in Australia is well documented (e.g. Baker, 2003; Chadwick & May, 2003; O’Toole, 2007; Segovia et al., 2009). Previous research on Australian immigration studies referred to ‘virtual unanimity’ regarding the importance of English language proficiency to successful settlement (Wooden et al., 1994). However, the importance of English proficiency in the settlement process has not been matched by the provision of ESL programs. Inadequate language proficiency was identified as the major problem facing immigrants and the source of many other difficulties.
The term ‘NESB’ typically refers to an individual whose native language is not English or whose cultural background originates from a non-English-speaking tradition (Victorian Government Department of Human Services, 2004, p. 7). At the time of the 2011 Census, the NESB population was approximately 5.3 million, which represents 27% of the total population of Australia (ABS, 2012). According to the ABS (2012), ‘almost half (49%) of longer-standing migrants and 67% of recent arrivals spoke a language other than English at home’.

It is widely reported that many members of NESB communities have trouble accessing needed services. While not exclusive to NESB communities, many of the practical barriers that negatively affect the availability of services seem to affect such communities to a greater degree. These include low incomes and living in rural and/or remote areas of the country. Perhaps more importantly, if NESB individuals have had a negative experience when attempting to obtain services, or if the services were not perceived as beneficial to them, they may be reluctant to engage with services when there is a crisis and service provision is necessary. Consequently, failure on the part of members of an NESB community to perceive that the culturally appropriate delivery of preventative services is available to them can result in negative effects on these communities.

Finally, any adjustments in online services brought about by the NESB Model must be based on the specific needs of NESB migrant communities and may be collected and subsequently conveyed through the use of ICTs such as Internet-based discussions, forums and consultations. The beauty of the NESB Model is that it will allow even unskilled computer users to gain the same type of access as those who are experienced Internet users. Thus, the goal is to combine an understanding of the needs and cultures of NESB migrants with the specific type of technology that will meet those needs. By developing a thorough understanding of why these individuals are reluctant to use (or are incapable of using) the available online government services, it will be possible to identify the meaning of technology in terms of the wider social performance of the proposed NESB Model.
Chapter 3: Methodology

This chapter details the qualitative methodology used for this study. In particular, 30 NESB migrants were interviewed. This method allowed the examination of the causality and causal relationships among barriers, perceived barriers, strategic management intervention strategy and government IS outcomes. The research design helps to develop a coherent substantive theory of user behaviour/action and perception to solve the accessibility barrier problem.

3.1 Theoretical Framework for Research

The NESB Model was developed in order to identify and then eliminate the barriers that prevent online government service usage by NESB community members. The proposed NESB Model emphasises user-centricity. As such, this framework combines several key themes: barriers to access, fit, usability, needs and computer/Internet skills. Interview findings involving several Arab residents also revealed that language and low computer skills are among the reasons why many NESB immigrants are either discouraged or do not initially use government online services.

As Zhang et al. (2009) pointed out, conceptually, IT/IS evaluation is closely related to adoption (p. 52); further, it is relevant to accessibility and actual use. The research design of the present research is based on a thorough IT/IS evaluation literature review, and it is informed by theoretical constructs rooted in relevant theory.

First, conceptual research models, as Gottschalk (1999) notes, suggest ‘a connection between implementation of IT strategy and the content of the strategy’ (p. 116), and with an emphasis on user involvement—descriptions of ‘user training, understanding, participation, operation, development, and support’ (p. 116).

Second, as Sharma & Yetton (2007) explained, the IS implementation success of contingency models ‘is contingent upon and a function of IS training as well as technical complexity and task interdependence’ (p. 219). Sharma & Yetton (2007) also
suggested that IT/IS implementation should be informed by the ‘development of convergent models of collaborative task knowledge’ (p. 221)—lending to ‘enabling coordination between group members and contributing to group and individual performance’ (p. 221).

Third, as proponents such as Salazar Alvarez (2003) maintain, process theory models provide analytical frameworks for such IS conceptualisation as structurisation theory, which ‘offers the means to explicitly link elements of social context to human action’ (p. 234). Therefore, the research design emphasis in the present study is on the articulation into a coherent substantive theory of user behaviour/action and perception as it affects accessibility and as it informs the potential reconciliation of behaviour/action and perception to solve the accessibility barrier problem.

According to Schwab (2005, p. 7), ‘empirical research involves three activities: measurement, design, and analysis’. Research design establishes procedures to obtain cases for study and to determine how scores will be obtained from those cases. This study may also be considered a field study, which Schwab (2005) described as ‘...a research design in which values of the independent variable(s) are characteristics of the cases studied and where cases are not randomly selected from some larger population’ (p. 69).

The theoretical framework was used to structure the research questions and direct the study. An organisation learning ‘view’ of the process that is involved with NESB community members either using or rejecting online government services is presented. While using some elements from existing theories, the framework is unique in that it addresses specific themes that are relevant to the NESB community in Australia—especially the Arabic community. As such, the framework applies some basic elements of existing theory that have been either hypothesised or empirically confirmed to influence the dynamics of online government service usage. The factor elements of the framework (as well as the NESB Model) seek to explain the initial trajectory of process dynamics, as an attempt was made to address an identified knowledge gap in the existing literature and in existing theories.
The framework presented in this research is the starting point of a developmental process. Following a step-by-step process that was conducted between the theory and data, the framework was revised to incorporate insights from the results and the discussion of empirical findings obtained from the research process. The purpose of developing a new theoretical framework as part of a research strategy, rather than seeking to confirm an existing theory or explore using a pure grounded theory approach, was significant for this study.

To address limitations of the existing theories related to online service usage identified in Chapter 2, this research focuses on specific elements of theories of organisational learning and knowledge to inform the conceptual development of barriers to acceptance and usage of online government services by NESB community members. Specifically, the literature review revealed that no single theory could accurately account for the lack of support for these services, and therefore a new theoretical framework that included elements of both variance and process-oriented concepts offered a promising approach to achieve coverage of both structural and process aspects of the minimal usage of online government services by the NESB community.

Following a review of literature on behaviours and attitudes in Chapter 2, it became clear that several themes are consistent when applied to the acceptance or rejection of technology or services, such as those provided by the government. In particular, five themes were identified and selected that would direct the research in this study: barriers, fit, usability, needs and computer/Internet skills. Therefore, the theoretical framework was based on these five themes, which helped shape the questions asked of the study participants and ultimately answer the research questions. The five themes are discussed in detail below.

3.1.1 Barriers

Predominantly, the barriers to access or barriers to using government online services may be related to perceived complexity of the language used for the online services. The framework takes this into consideration. This may especially be the case in regards to the Arabic NESB community, as information is not frequently provided in the Arabic language. Another barrier to access could be the differences between younger and older
potential users of online services. If there are distinct differences between age groups among potential users, some of the individuals in these groups may prefer the traditional approach, while younger individuals may be more comfortable using online services.

3.1.2 Fit

It is necessary to determine whether the current online services fit the needs of members of the NESB Arabic community, and the framework assisted in this process. The concept of fit may include issues such as the overly complicated nature of English phrases used on government websites and whether the website is unreliable or difficult to understand. Additionally, fit may be determined by technical problems directly related to the website. This is considered a problem with the ‘fit’ of the online services, as well as a significant ‘barrier’. Any ongoing technological issues or glitches in the system will make NESB users less desirous to believe that the online services can benefit them or help them to complete their tasks. Further, it is important to determine if NESB members are experienced or novice computer users, as this may determine whether they prefer off-line services due to these barriers. In addition, the lack of trust in online services in general, or any technology issues, as well as an inability to understand the website instructions, relates to the theme of fit.

3.1.3 Usability

The theme of usability is derived from an analysis of the literature and is included in the theoretical framework. Significantly, usability can only be determined by the end user of the service and not by the site designer or anyone else. The concept of usability is critical in the context of this study, as the assumption is that the government is not currently providing online services that are sufficiently usable by a majority of the non-English-speaking Arabic community. Indeed, even if the online services being provided are technologically precise, always available and readily accessible to all members of the Arab-speaking community, it will do them little good if they are unable to use the service due to language barriers or other barriers to access. In addition, if the online services have technology issues, usability will suffer even more. Further, based on the theoretical model proposed for this study, perception is the primary factor, so that
perceived usefulness and perceived ease of use are ‘most relevant in explaining the behavioural intention to use IS’ (Davis, 1989, cited in Chen et al., 2009, p. 36).

The framework directed the research to determine whether offline users perceived local government online services as risky compared to online users. Other codes that emerged from the category may include: confusing, advanced English, complex, not effective, requires a lot of training, incompatible, annoying and costly. According to Smith (2011), usability includes methods of measuring usability, such as needs analysis. If the government is truly concerned about providing online services for the NESB community (specifically, in the context of this study, the Arabic community), the first step should be to create a user-centred design process that first calls for understanding the user’s needs. Importantly, needs analysis is not limited to merely addressing the requirements of software (such as ensuring that the necessary forms are available from a website), but should also include allowing the most basic Internet user or novice to access online services.

3.1.4 Needs

Specifically, three primary needs of Arabic community members are addressed by the framework for this theme: 1) greater usability of all online services; 2) simplified design of website, including basic instructions; and 3) provide online services in Arabic rather than only in English. These needs must be considered by the local government in order to ensure that the online services—designed to benefit the community—can be fully accepted by most of the members of the NESB Arab-speaking community. The need to have the online service website provided in Arabic and to ensure that it is simplified for ease of use when English is used are fundamental needs that the participants have explained in their own words. In addition, the government should provide a means to inform the community of how to use these services as well as how they work.

The theoretical framework was developed in part to address one of the most critical perceived needs of members of the Arabic community—a need for the government to take their language and culture into consideration to better service the community. In effect, there is currently a disconnection between the needs of the Arabic community and what it is receiving. In reviewing the previous information, it became clear that
needs are different for various age groups in the Arabic community. The younger generations believe they would have a difficult time without the online services (language use and unreliability are other issues mentioned in the responses). An additional factor that may contribute to this feeling by younger members of the NESB community is the fact that most of them have a better grasp of the English language than many of the older community members. Conversely, older individuals may have a more difficult time with accessing online services due to their discomfort with new technology. This is another reason for simplifying the online services—so that once older people attempt to use the services, they will not be discouraged by the over-complicated nature of the website. The framework—especially through the adoption of the NESB Model—addresses this theme.

3.1.5 Computer/Internet skills

In light of the low numbers of users in the NESB community, the perception is that the majority are dissatisfied with current online services designed to be accessed by the Arabic community. The theoretical framework also attempts to determine whether level of education plays a factor in government online service usage among members of the NESB community. This may indicate a connection between education and acceptance of online technology. Regardless of education level, the main barriers for respondents may have little to do with computer skills, but they may involve other issues.

Specifically, Gottschalk (1999) declared that IT/IS user involvement ‘should include user training, understanding, participation, operation, development, and support’ (p. 116). In their application of contingency theory, Sharma & Yetton (2007) revealed end-user training as a ‘critical intervention to support successful implementation of information systems innovations’ (p. 219). In addition to the other themes addressed above, this forms the basis of the theoretical framework developed for this study.
Figure 3.1: Theoretical framework for the research

The five themes included in the theoretical framework (see Figure 3.1) are significant factors for developing the research questions for this study. Each theme is directly related to the successful adoption of online government services by the NESB community—especially the Arabic community, which was the focus of this research. In addition, each theme was addressed in the previous literature, and each theme was also apparent in the collection of primary data from the interviews with members of the Arabic community.

The problem to be solved in this study is to better understand the factors preventing NESB community members from more fully utilising government online services while also outlining methods to improve their access. The research needs a theory that can explain the observed phenomena. As there is currently little established theory to guide an empirical investigation of the limitations of NESB usage of online government services, this framework is developed by means of recognising the limitations of each previous theory and, while adopting some elements from them, developing a completely new theoretical framework. Integrating these perspectives allows the shift from merely the process domain and therefore offers an opportunity to discover new explanations of
how NESB community members interact with online government services; that is, focusing on what the end user needs rather than the theory claims they should need.

Thus, this study presents a framework that adapts and integrates previous research from both the structural and process perspectives of organisational knowledge and learning using the six themes as a guideline for directing the process. The framework shows how the six themes apply to NESB community members and how multiple barriers can be simultaneously related to each other.

Regardless of what the subject is, research expresses a set of fundamental philosophical assumptions about what represents ‘valid’ research, and therefore what kinds of research methods are appropriate. The branch of philosophy underlying the current research is broadly constructionist and is based on an interpretive theoretical perspective (Crotty, 1998). There are two broad schools of philosophy regarding research in this context: interpretive research and positivist research.

A researcher utilising an interpretive method assumes that reality can only be accessed through the social construction of shared meanings by human actors (Walsham, 2006). Consequently, reality cannot be understood, apart from the social actors who make sense of it. Interpretive research thus presupposes that the social world, unlike the physical world, is produced and reproduced by human action and interaction. While positivist research assumes that objective reality may be discovered, interpretive research assumes that social reality is subjective and can only be interpreted. In interpretative research, the researcher believes that social processes are not captured by hypotheses, deductions and numerical techniques, but ‘by getting inside the world of those generating it’ (Rosen, 1991). According to this belief, as reality is socially constructed, the interpretive researcher avoids imposing externally defined categories on phenomena and instead attempts to develop such constructs from the field of study. On the relationship between theory and practice, interpretive researchers believe that it is impossible to avoid making a value judgment regarding the topic under study. Instead, researchers’ assumptions, values and beliefs inevitably shape their investigations.
In contrast, positivist research assumes that an objective physical and social world exists that can be described in terms of existing and specified fixed relationships between concepts that are typically investigated with structured instruments. A one-to-one correspondence between constructs modelled and objective reality is assumed, and it is further accepted that constructs can be validly and reliably measured. Positivism searches for ways to generalise and discover universal principles and causal relationships, from which predictions can be made. The relationship between theory and practice is presumed to be independent, objective and value-free.

Therefore, this study is broadly informed by prior positivist research on the factors shown to influence the usage (or rejection) of online government services. Further, it is also influenced by interpretive research on the perceived barriers facing NESB community members and others in the decision-making process that causes individuals to either use or fail to use these services. Finally, the research perspective for this study is interpretive—towards the objectivist end of the field between constructionist and objectivist convictions. The study assumed that phenomena (such as NESB usage or the rejection of online government services) can be objectively measured, but also that measurement for the research questions posed requires measuring patterns of behaviour based on qualitative information gathered over time. To this end, the process research methodology was used. That is, the data changed and transformed the research model theoretically through the analysis of patterns and relationships between the coded incidents that formed the main unit of analysis in the research.

The research design for this study included the following steps (based on Cohen et al., 2007, p. 38):

- formulating operational questions
- deciding appropriate methodologies
- deciding which instruments to use for data collection
- deciding on the sample for the investigation
- addressing reliability and validity in investigation and instrumentation
- addressing ethical issues in conducting the investigation
- deciding on data analysis techniques.
3.2 Data Collection Method

The qualitative methodology is proposed for collecting primary data for this research. Initially, a questionnaire to obtain demographic background information (see Appendix A) was created for this study. The questionnaire was designed to provide descriptive information regarding various constructs believed to be important within the context of this study, such as cultural and language background. Therefore, the overall purpose of formulating the questionnaire was to gather demographic data as well as to serve as to construct descriptors. A questionnaire was considered valuable since each respondent received the same set of questions phrased in exactly the same way. Consequently, this collected data could yield data more comparable than information obtained through the additional interviews.

A qualitative method was deemed most suitable for this study given its focus on the perceptions of members of the NESB community related to use (or non-use) of online government services in Australia. Perceptions are, by their very nature, objective. In this regard, the methodology was decided upon in agreement with what Guba & Lincoln (1989, 1994; Guba, 1990; Lincoln & Guba, 1985) argued in a number of seminal works, specifically that reality is a social construction, not an objective truth, and that there exist ‘multiple realities’ associated with different groups and perspectives. Qualitative methods were selected, therefore, based upon a constructivist epistemology.

An instrument is a device or procedure for systematically collecting information (Wallen & Fraenkel, 2001). Common types of instruments include tests, questionnaires, rating scales, checklists and observation forms. Instrumentation refers not only to the instrument itself, but also to the conditions under which it is used, when it is to be used and by whom it is to be used. All of these factors can affect the instrumentation process, especially if the procedure is done incorrectly or by someone disliked by the respondents, if testing conditions are noisy or inhospitable, or if respondents are exhausted. Whenever possible, a researcher makes use of previously developed instruments (Wallen & Fraenkel, 2001).
Attitudes and perceptions ‘…form a whole constellation of working rules about the world and reactions to it’ (Sapsford, 1999, p. 141); therefore, the study of attitudes through survey research may be most effectively approached through the indirect questioning of respondents’ opinions, attitudes, perceptions and beliefs. ‘A straightforward question can all too easily evoke a rhetorical or ideological response, and this is often not what the research requires’ (1999, p. 106).

The primary data collection method for this qualitative study comprised semi-structured and open-ended questions that were asked during face-to-face interviews with respondents from the NESB community. In-depth interviewing, especially when the use of open-ended questions is included, essentially allowed the individuals being interviewed to shape their own interviews (Horrocks & King, 2010). With no direct questions being asked, the discussion was allowed to proceed in such a way as to permit free expression by the participants regarding personal feelings and experiences. This method is ideal for collecting detailed information about an individual’s thoughts and behaviours. Additionally, the interview method typically provides a more relaxed atmosphere for the respondents, often resulting in better participation (Horrocks & King, 2010).

The interviews, featuring semi-structured and open-ended questions, lasted a minimum of 40 minutes and a maximum of one hour in duration. However, based on the level of information received from each individual interviewee, it proved beneficial to conduct several follow-up interviews with certain participants. These follow-up interviews were based on the willingness of the participant, as well as the expected level of benefit achieved from any additional time spent. All interviews focused on the research questions and the objectives provided earlier. The interview protocol followed a basic pattern: participants were interviewed in random order, with an assurance of confidentiality at the start of each session. An inductive approach was used, with only two or three open-ended questions initially utilised (unless these failed to elicit sufficient conversations), and the same open-ended questions were used for all individual participants. Indicative questions included: How has a lack of access to IS affected your ability to find employment? What assistance has the Australian government [program] provided to assist you?
With the use of a qualitative data-gathering method, specifically by interviewing several NESB migrants, the researcher examined the causality and causal relationships among barriers, perceived barriers, strategic management intervention strategies and government IS outcomes.

With regard to conducting interviews (based on Horrocks & King, 2010), the following aspects were taken into consideration during these personal one-on-one interviews. The interview setting was comfortable and relaxed—especially for the respondent. It was preferable to audio record the interview rather than simply rely on taking notes. However, in line with the ethical considerations, the permission of the interviewee was required prior to any recording taking place. In the event that an interviewee refused to be recorded, written options were then employed and were made as detailed as possible. Nevertheless, notes were also taken during all interviews in case a technical failure occurred with the recording device. In addition, the interviewer made a concerted effort to build a rapport with each interviewee. No leading or complicated questions were asked, although it was necessary to ask somewhat probing questions. Once the interview was over, the researcher thanked the interviewee for his or her time and cooperation.

When examining qualitative research, its usefulness or value is best identified by examining its distinctive features. One of the strengths of qualitative research is the fact that the researcher is able to refine and fine-tune the preliminary research plans as the process unfolds. In contrast to a strictly experimental format, the qualitative researcher does not influence or adjust the setting, but simply attempts to observe and understand phenomena in natural settings (Cohen et al., 2007; Miles & Huberman, 1984).

Further, qualitative research features more inductive reasoning (Cohen et al., 2007). Miles & Huberman (1984) stated that data collected by means of qualitative methods are useful because they provide: ‘well-grounded, rich descriptions and explanations; preservations of time flows, chronologies, causality; serendipitous findings for new theory construction; and a quality of undeniability’ (p. 20).

Clearly, the significant sources from previous literature for this study will be gathered prior to the collection of primary data (by means of surveys and interviews). Sources for
secondary data included university library materials that are readily available and relevant to the search, as well as additional sources such as the EBSCO host, ERIC and Questia databases, which contain a wide variety of professional and peer-reviewed journals, books and research papers. Only sources deemed applicable for the current research were selected for inclusion.

Following the conclusion of the interviews, it was necessary to interpret the data collected by means of audio tapes and written notes. This requires being able to ‘make sense’ of a considerable amount of information, and this was accomplished by assembling the data into sections or groups of information, also known as themes or codes (Creswell, 2003, 2007). That is, as specific phrases, concepts or ideas were mentioned consistently by the individuals in the interviews, they were grouped together or ‘coded’ (Kvale, 2007).

An important element in analysing qualitative data was to ensure that potential inconsistencies in the data were examined and vigilantly explored. To accomplish that goal, Strauss & Corbin (1990) recommended using the process of inductive coding, which ‘represents the operations by which data are broken down, conceptualised, and put back together in new ways. It is the central process by which theories are built from data’ (p. 16). Once developed, codes for this research were grouped at abstract levels; this is called categorisation (Strauss & Corbin, 1990). These categories were then analysed in a similar manner as the groups of ideas or themes that were coded. In effect, once the categories were established, it was possible to integrate the proposed theory (Strauss & Corbin, 1990).

Specifically, the phrases, concepts or ideas that were searched for in the transcripts and notes from the interviews were those related directly to the research questions. For example, an effort was made to locate the following words and phrases (taken directly from the two primary research questions and the supporting questions): aspirations, needs, implementation, barrier to access, job acquisition, usefulness, usability, fit, types of barriers and consequences of barriers.

Further, the data collected from the interviews were analysed using NVivo software, which is ideal for analysing both text-based and recorded data, such as the data.
collected in qualitative studies (QSR International, 2008). The NVivo software was used to store and organise the themes and topics as they were located. In addition, it was used for searches and re-coding to help test various relationships in the data. Finally, NVivo was invaluable in not merely analysing the data, but also in the process of report writing. In fact, NVivo has an amazing ‘…capacity to store useful words, phrases, and dialogues that allow the researcher to visualize the data and move (or combine) information from one category to another category (as constructed by the researcher)’ (Soklaridis, 2009, p. 730).

3.3 Justification of Research Methodology

Wallen & Fraenkel (2001) noted that a cross-sectional survey collects information from a sample that has been drawn from a pre-determined population. Threats exist in the research environment. Although a field study or survey may not be as intrusive as an experiment or quasi-experiment, human participants nevertheless know that they are participating in a research study. Thus, there are demands on participants. Undeniably, this problem may be worsened in field and survey studies when participants provide responses on measures of both independent and dependent variables.

When a researcher conducts a survey, a written questionnaire, test or interview is administered either by mail or in person to one or more groups of subjects. No treatment is involved, nor is a relationship (usually) studied. The responses of the subjects to the questions are summarised, analysed and reported. The intent is to obtain a sizable amount of information about the characteristics of a particular group. The researcher is entitled to generalise the findings to a larger group if the surveyed sample was randomly selected from that group and not too many are ‘lost’ (Wallen & Fraenkel, 2001, p. 377).

The major purpose of surveys is to describe certain characteristics of a population. In essence, what researchers want to discover is how the members of a population distribute themselves on one or more variables (e.g. age, ethnicity, religious preference and attitudes towards school). As in other types of research, the population as a whole is rarely studied. Instead, a carefully selected sample of respondents is surveyed, and a
description of the population is inferred from what is discovered about the sample (Wallen & Fraenkel, 2001, p. 398).

Specific community centres were contacted in person to conduct the interviews. As the purpose of this study is the implementation of government IS in NESB communities, only qualitative research was indicated, and this was carried out using face-to-face interviews. The qualitative aspect of this research is more useful than the quantitative method in attempting to understand the attitudes, behaviours, motivations and concerns of a targeted research group (Babbie & Benaquisto, 2009). Indeed, quantitative methods were deemed inappropriate for this study.

### 3.4 Selection of Respondents

There were 30 participants in this study. They were either users (15) or non-users (15) of the facilities or services being studied, and the study did not include service providers. The number of users and non-users were equal in order not to bias the potential results by interviewing more members of one group over the other. Specifically, the interviews were conducted with individuals aged 18–55 years within the NESB Arabic community. This was achieved by sending letters of request for participation to the Junction Neighbourhood Centre (JNC), the Sydney Multicultural Community Services (SMCS), the Bowen Library/City Council and the Arab Council Australia (ACA). A phone call was made to each agency to request permission to send these letters and to inform them of the letters’ contents. These agencies then ensured that the letters reached the target groups.

Each participant was given a consent form to sign prior to the start of the interview. In addition, an information sheet was provided that contained detailed information regarding the purpose of the research, assurance of confidentiality and details regarding how the interview will be conducted. The researcher was conscientious in ensuring that all ethical principles and guidelines mentioned in Section 3.6 were adhered to.

A particular Arab community was selected based on ABS (2010) statistics that indicated that this group was among the highest population segments in this research’s categorising for Australians with non-English-speaking backgrounds. Therefore, the
respondents were selected from groups inhabiting and/or participating in areas offering public governmental services, such as the Maroubra Seniors Centre, the Sydney Multicultural Community Services (SMCS), the Junction Neighbourhood Centre (JNC), the Bowen Library/City Council and the ACA.

Demographic information, which was collected for this study using the questionnaire, sheds light on the diverse attributes of the participants, and it helps the reader to understand generalisability—how the study translates across a population. Nevertheless, the elements of validity just mentioned are essential to consider before assuming generalisability. Another type of validity, as described by Gall et al. (2003), is population validity, which implies the manner in which participants were selected so as to represent the population. Pragmatically, any study can be considered meaningful only if the participants are generalisable to a larger population.

3.5 Philosophy of Research Model

IT/IS adoption, implementation and use have generated interest, research and theoretical models to examine, interpret and discern, as Zhang et al. (2009) assert, ‘psychological and social mechanisms that potentially determine’ behavioural intentions and use (p. 51). The theoretical model proposed in this research posits that as a function of behavioural dynamics, perception determines a large part of the barriers to accessibility to government IS.

3.6 Ethical Issues

The concept of ethical behaviour on the part of the researcher is very important. Flick (2009) stated that ‘Codes of ethics are formulated to regulate the relations of researchers to the people and fields they intend to study. Principles of research ethics ask that researchers avoid harming participants involved in the process by respecting and taking into account their needs and interests’ (p. 37). The author uses the term ‘informed consent’, indicating that the participants are entitled to know any details about the research topic. It also indicates that the researcher must inform the participants about any detrimental effects that may come about due to participating in the study. Flick (2009) connected ethical theory with qualitative research. In regards to the current
qualitative study, the following issues are relevant. The researcher ensured that no negative effects would come to the participants for taking part in the research. The study also resulted in some form of positive advantage to the society and, if possible, to the participants. The opinions and values of the participants were given due respect. There was no form of discrimination with regard to gender, culture or race over the course of the study. This study and the interview questions have been through the National Ethics Approval process, and the Human Ethics Committee at the university endorses the study.

All study participants will remain anonymous. Additionally, the data collected through interviews will be stored in a password-protected computer and kept for five years. After five years, if the data are needed, the university will ask for an extension. In the event that the researcher is no longer connected with the university, the supervisor will acquire control of the data. If that supervisor leaves the university, the secure data will be passed on to the ethical coordinator.

3.7 Summary

This chapter provided details of the qualitative methodology used for this study. Specifically, interviews were conducted with 30 NESB migrants from the Arab community, and the researcher examined the causality and causal relationships among barriers, perceived barriers, strategic management intervention strategies and government IS outcomes. Additionally, the research design in the present study relates to the articulation into a coherent substantive theory of user behaviour/action and perception as it affects accessibility and informs the potential reconciliation of behaviour/action and perception to solve the accessibility barrier problem.

By developing a new theoretical framework directed at eliminating the barriers for online government service usage by NESB community members, a NESB Model that emphasises user-centricity is proposed. The framework combines several key themes: barriers to access, fit, usability, needs and computer/Internet skills. Interview findings involving several Arab residents also revealed that language and low computer skills are among the reasons why many NESB immigrants are either discouraged or do not initially use government online services.
Chapter 4: NESB Case Studies: Demographics, Settings and Control Responses

Based on—but developing a separate theoretical framework apart from—the three theories discussed in the literature review, the present study proposes that as an end goal, user-centricity is, and should be, of the utmost primacy, and that is exactly what the NESB Model accomplishes. In effect, this is at the core of the theoretical framework. Investigation into the benefits of the concept/practice of virtual organisation as an intended solution for the dismantling of barriers to access should provide the new evidence and suggestion for change that are thus far lacking in government IS operations. The theoretical contribution of the proposed NESB Model is therefore considerable. Specifically, the NESB Model: 1) identifies all factors of user behaviour, needs, intentions, perceptions and all imperative factors facilitating access to government IS; 2) the NESB Model determines how internal aspects of government IS affect the external successes (or failures) of access by NESB community users; and 3) the NESB Model allows both the government IS and the user interface to adapt and evolve in order to better serve the needs of NESB users.

Specifically, the NESB Model takes on the theoretical approach of taking several queues from current theoretical concepts and models but improving on those methods and creating something different by highlighting the deficit in accessibility and ensuring that those deficits or barriers are eliminated wherever possible. Thus, the theoretical framework used in this study does more than merely explain actions or attitudes, which is primarily what the aforementioned three theories do. Rather, it attempts to overcome the existing or perceived barriers to the acceptance of online government services to the benefit of NESB community members.

This expansion in theory, as represented by the NESB Model, then takes on the practical approach to filling these deficits by ‘mov[ing] away from the linear “waterfall” model of system development to a cyclical model…which allows for continuous revision…’ and which ultimately ‘moulds technology’ to fit user composite needs (Axup et al., 2004, p. 7). For example, from maintenance to enhancement, the virtual
organisation paradigm should: 1) have internal core capabilities for management and the maximisation of IS; 2) involve stakeholders (Gable et al., 2002) of all levels and strata, both internally and externally; and 3) have government/public liaisons, such as information (knowledge) managers or guides moving between the government and its system and the NESB community in need of, but with limited accessibility to, the system. This will ensure that valued information/knowledge is being consistently pursued and that concerted efforts to equalise access are being constantly acted on. In addition, it will ensure that user and user input/feedback are as valued external factors as inter-organisational or inter-governmental components—just as increased efforts towards strategic management/intervention will increase: a) governmental intended outcomes, such as b) increased information/knowledge and hence enhanced accessibility for the NESB user.

The argument advanced for the NESB Model is for the IS developer to act within a social relativistic paradigm by recognising plural, socially constructed realities incorporated into human factors. By so doing, NESB communities can be taken into consideration. Advancing this model, the developer (professional practitioner) would act as facilitator, enabling reflection, co-operation and experiential learning for all those involved with the system. Systems development would thus proceed from within, ‘…by improving human understanding and the rationality of human action through emancipation of suppressed interests and liberation from unwarranted natural and social constraints’ (Hirschheim & Klein, 1989).

Existing theories previously applied to e-government have failed to accomplish the basic task needed to improve NESB community usage of government online services—overcoming the barriers that prevent such usage. A more integrated effort that stems from a common intellectual framework and a shared understanding of how to mitigate inequality and build capacity would be a prerequisite for a more systematic assault on the digital divide. That is an advantage of the NESB Model; by developing a new theoretical framework directed at eliminating the barriers for online government service usage by NESB community members, an NESB Model that emphasises user-centricity is proposed. The framework combines several key themes: barriers to access, fit, usability, needs and computer/Internet skills. Interview findings involving several Arab residents also revealed that language and low computer skills are among the reasons...
why many NESB immigrants are either discouraged from, or are not initially using, government online services.

Intelligent investment is critical, and both governmental organisations and NGOs must determine how they can add value in an arena in which IT and markets are, in many instances, outpacing the ability to make sound investments in organisations and programs. Innovation through the NESB Model in the future will depend on the ability to integrate, coordinate and develop a client focus rather than an organisational one.

4.1 Case Study—City of Plenty, Melbourne

The concept of e-government and State Social Responsibility (SSR) was introduced in the City of Plenty in 1999 (Rao & Gupta, 2011). Many of the concepts and practices used in that city are applicable to this study, as well as the formation of the NESB Model. The over-riding theme of Civic Engagement was demonstrated, which presents citizens (customers) as the key stakeholders in cooperation with the other stakeholders. Under this broad umbrella, this case includes six primary elements that are also central to the NESB Model (funding, transparency, accountability, training, infrastructure development for e-government, knowledge and information dissemination).

Civic Engagement places the citizens—to whom the services are provided—as the most important stakeholders (including the community in general). In Plenty, the city leaders established a City Community Futures Project (CCF) that was committed to community participation in the goal of achieving the project outcomes and increasing the resilience of the community. To accomplish its goals, the city developed partnerships with more than 40 different groups, including human service agencies and community-based organisations, in addition to regional government agencies, which all cooperated to work on the project. In effect, the CCF partnership had a vision of creating a community that was connected and inclusive, especially through the development of innovative service models. The CCF in Plenty, which was launched in 2006, has earned a reputation as a strong partnership that continues to make progress and work towards meeting every goal (Rao & Gupta, 2011).
The project in Plenty obtains funding from federal e-government projects, state level projects and local sources (Rao & Gupta, 2011). Admittedly, on occasion it is necessary for local government agencies to handle all of the funding needs. This is primarily the result of the financial reality in Australia, where city and local governments do not always receive an adequate level of financial support for initiatives such as this. The experience of the city of Plenty indicates a need for both the Australian state and federal governments to increase the level of investment provided for initiatives designed to improve e-government access by citizens.

Transparency has improved over the years that the city has been building its e-government system—especially in the area of customer service. This has reduced the time it takes to obtain services in addition to providing a clearer understanding of the services that are available. Whenever there are delays now, it is possible to identify exactly what happened and why. The city council has also been able to introduce services that are often used by the community, including online payment provision of rates, parking penalties, registration fees for pets and fees for events. There is still some work to be done related to applying for, and receiving, planning permits online if the city’s e-government vision is to be considered a full success (Rao & Gupta, 2011).

The city counsel is determined to be answerable to the community it serves, and this results in the importance of accountability. Through a variety of interactive news bulletins and e-publications, the city has provided information that indicates a desire to be responsive to the needs and demands of the public. In fact, the city developed a strategic plan in 2004 that helped city leaders identify the gaps that existed in the delivery of various human services. Additionally, the plan identified community needs that had been unmet or areas that needed additional funding. The desire to remain accountable to the community resulted in a coordinated approach that included the entire community in order to improve services and facilities in Plenty by means of co-operative planning, infrastructure, program and policy development, and funding (Rao & Gupta, 2011).

Admittedly, in the initial stages of the city’s e-governance, it was not feasible to place much emphasis on training government employees or members of the community. During the opening stages of any re-structuring process, it is nearly impossible to
expand beyond the lean manpower status that is essential. To make the system work in its early stages, it was necessary to have staff members work in multiple departments, and to find casual workers who could fill in on an hourly basis. In fact, the city often struggled to know who to train and when. As permanent staff numbers were limited, and they had to care for their usual tasks, it was often necessary to recruit members from other departments to keep the e-government process moving forward. However, in time, the city council was able to establish a regular training program that was more in line with the goals for improving e-government access and services. The city was also able to provide free training for community stakeholders on the use of the Internet and the services provided by e-government (Rao & Gupta, 2011).

The city of Plenty succeeded in meeting the needs of its citizens, as it was able to invest in **infrastructure development** and install high-speed broadband access in the city’s outlying areas. This was accomplished by cooperative efforts with the Victorian State Government and the end users of the services (to ensure that they would utilise the services). Although Plenty is a relatively small city, its efforts towards improvements in infrastructure and e-government have been a symbol of what the rest of Australia should strive for—rapid advance from year to year in an attempt to be more innovative (Rao & Gupta, 2011).

**Knowledge and information** is disseminated on a regular basis and is supported by the city’s publishing of several electronic publications, including a quarterly e-magazine, news bulletin and online links to valuable information such as city events and weather forecasts. In the near future, the city plans to have online video links to city council meetings. As of 2008, Plenty was included in the 40% of Australian local councils that are capable of obtaining citizen feedback via their websites. In reality, the efforts of cities such as Plenty places pressure on other local governments across the country to provide a similar level of e-government services to their users (Rao & Gupta, 2011).

By partnering with the primary stakeholders in e-government—the members of the community—the city council of Plenty has developed significant momentum for participatory e-democracy in local regions of Australia. Thus, it seems likely that there is growing interest in SSR as it relates to e-government in many areas across Australia.
As this is the case, it is appropriate that the country considers a new focus on a broader acceptance of government services online by the NESB community.

4.2 Characteristics of the NESB User: Socioeconomic Outlines

Compared to the general population, the primary users of online public access services are young, male, comparatively well-educated, of a higher socio-economic status and usually have prior access to the Internet at another location (e.g. Adomi, 2007; Amariles et al., 2006; Chisenga, 2004; Etta & Parvyn–Wamahiu, 2003; Eve & Brophy, 2001; Gitta & Ikoja–Odongo, 2003; Haseloff, 2005; Hudson, 2001; Kumar & Best, 2006; Kuriyan et al., 2007; Mercer, 2006; Parkinson, 2005; Parkinson & Ramírez, 2006; Proenza et al., 2002; Robinson, 2004; Selwyn, 2003; Sey & Fellows, 2009; Stewart, 2000). This trend—a predominant use of online services by primarily younger users—is seen as troubling by some observers, but the fact that such services are viewed as beneficial seems to provide evidence that they have the potential to benefit other demographic groups as well (Haseloff, 2005).

Realistically, the effectiveness of online services may be more evident in some situations than in others (Bailey, 2009). This is observable in the time directly following a natural disaster—for example, when online services provide a wide variety of critical services to the affected communities. One example of this process was seen in Jamaica, when citizens used such services to seek aid and locate missing people following a severe storm (Bailey, 2009). Similar experiences were observed in the US (Bertot, 2006) and Africa (Etta & Parvyn–Wamahiu, 2003). In addition, during tax season, online services are used more often (Gibson, 2009).

Wang (2009) reported that, according to a 2008 Australian survey of e-government use, those with lower incomes are less likely to attempt to access government services using the Internet. The study also reported that higher rates of e-government usage correlated to higher education levels. Additionally, individuals living in regional areas are less likely to use e-government sources than residents of metropolitan areas (Wang, 2009). Finally, approximately 15% of adults would rather not do anything with the Internet.
It is acknowledged that Internet users often access federal government information and services—principally for taxes and vehicular registration and/or licences. However, according to Wang (2009), most users seeking information or a method of making payments prefer to deal with state and territory governments than the Australian Government.

In agreement with the case study data that will later be presented, the literature named convenience, lower costs, simplicity and speed of processing transactions as some predominant reasons for utilising e-government services (Wang, 2009). With regard to the positive outcomes of using e-government, the National Office for the Information Economy (NOIE)’s e-Government Benefits Study (2003) specified:

1. improved service delivery that involved lower communication costs between and among citizens and institutions, as well as increased resource efficiency
2. reduced consumer costs due to faster turn-around of information requests and access to documents and forms
3. social benefits due to convenient service, gaining knowledge and community skills, and having new business or employment (pp. 7–9).

Conversely, the literature also reveals a number of barriers that often prevent e-government use as it is intended. Based on information collected by AGIMO (2005), some of the most cited barriers are: ‘Lack of awareness of services, preference to interact with a real person, perceived lack of accountability of Internet services, difficulty in using Internet-based services, lack of security when it comes to financial transactions, and residential proximity to a government office’ (AGIMO, 2005, pp. 38–39). Singh et al. (2008) added content problems (e.g. incomplete information) to this list.

An ABS (2010) report indicated that 719,600 recent migrants were born overseas and aged 15 years or older when they arrived in Australia between 2000 and 2009. In addition, such individuals were neither ‘an Australian citizen or New Zealand citizen on arrival, do not hold New Zealand citizenship, and have permanent Australian resident status’ (pp. 2–3). This large NESB migrant cluster is a heterogeneous group whose contributions reflect their varied backgrounds (Feldman, 2008).
The People of Australia (2008) revealed that a vibrant cultural and linguistic diversity has emerged in the country, with ‘over 300 languages, practice more than 100 religions and originate from over 230 different countries’ (p. 69). NESB is a term used to identify migrants whose native language is not English or whose cultural background originates from a non-English-speaking tradition (Victorian Government Department of Human Services, 2004, p. 7). Additionally, the NEDA (2009) stated that NESB individuals include people:

- who were born overseas
- where one or both parents were born overseas
- who may be descendants of people born overseas, but where cultural traditions—whether through customs, language, religion, spirituality—are upheld in their upbringing (p. 2).

Certainly, NESB migrants are simply an additional segment of Australia’s existing multiculturalism and social diversity. Conversely, as the Department of Immigration and Citizenship (DIAC, 2011) elucidated, many NESB immigrants ‘remain confined to low skilled, low-paid employment’ (p. 4) primarily based on language and cultural barriers. The ABS (2010) report reiterates this information, with an unemployment rate of 8% among those born in other countries in contrast to 5% for those from English-speaking countries (p. 4). In addition, 9% of those who received state pensions and allowances were NESB migrants, compared to just 2% for those from English-speaking backgrounds (ABS, 2010, p. 6).

Edwards & Madden (2001, citing the House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs, 1993), stated that ‘…people who speak English as a second language (and those who speak Aboriginal English, a separate dialect from Standard Australian English) often experience difficulty in approaching [government] services…’ (p. 52). The theoretical approaches of TAT, RAT and PB/SBT can be used to identify the issues involved and to develop a new theory springing from these long-established theories.
4.3 Exemplary NESB Users

The qualities displayed by exemplary NESB users are contained within the concepts described within the three theories mentioned above, which form the groundwork for the proposed NESB Model presented in this study. As discussed previously, there is abundant literature on theories of optimum and effectual IS accessibility. It is necessary for users of online services of any type—including government services—to understand and accept the technology before they feel comfortable using it regularly. Indeed, that is where theories such as TAT highlight the attitudes and perceived utility towards new IS/IT from a user standpoint. Much of the research on this theory relates to the perception of flexibility and appropriateness of a specific IT (Bagozzi, 2007; Cao, 2010; Chi et al., 2009; Chuttur, 2009; King & He, 2006; Muscatello & Chen, 2008; Zhang et al., 2008).

From a user standpoint, appropriateness—or perceived fit—relates to behaviour to adopt a certain technology (or reject it) based on his or her personal assessment of such technology (Chi et al., 2009). However, the theoretical framework developed for this study, which is based on the NESB Model, underscores the reality that many NESB community members accept the technology but still fail to adopt usage of online government services. Therefore, this framework is not simply an extension of any previous theory—such as TAT—but an entirely new framework that merely utilises some of the concepts of these previous theories to develop a much more expansive and inclusive framework.

According to Cao (2010), it is impossible to obtain genuine accessibility without considering a product or service’s fit based on the user’s perception. It is also a concept promoted by the RBV and the Contingency Theory (Cao, 2010), which defines relationship fit as ‘the degree to which the needs, demands, goals, objectives, and/or structures of one component [the IS/IT] are consistent with the needs, demands, goals, objectives, and/or structures of another component [the NESB community/user]’ (Cao, 2010, p. 269). Accordingly, such fitness has a bilateral flexibility (Chi et al., 2009):

- **IS flexibility for use**—which pertains to the ‘range of possibilities provided by [the] information system’
• *flexibility to change*—which is defined as ‘the potential adaptability for further changes of [the] given information system[s]’ (p. 33).

Another theory, TRA, considers the attitudes and intended goals of a user. This also includes other related factors, such as perceived utility, outcome and views about what other people think or believe of a particular option. Therefore, decisions made regarding accessibility are determined, in large part, by shared action and social/collective consciousness or knowledge (Cao, 2010; Miller, 2005; Muscatello & Chen, 2008; Zhang et al., 2008). However, once again, this theory does not fully address the issue that is being studied here and cannot fully explain the lack of acceptance of government online services by NESB communities. In order for the Australian government to accomplish its goal of providing access to all of its e-government services, it is necessary for NESB migrants to obtain a shared knowledge of why these services are of benefit to them personally—and that knowledge should be shared by the majority of the community (Cao, 2010).

Indeed, without such knowledge acceptance, users will never overcome the perceived barriers to online government services (Cao, 2010; Muscatello & Chen, 2008; Sharma & Yetton, 2007; Zhang et al., 2008). This knowledge involves at least two critical factors, according to Masrek et al. (2011, p. 1) shared goals that inspire doing common tasks and efforts; and 2) the end results in which shared values can shape both shared goals and shared tasks. Again, this issue is not addressed in previous theories—such as TRA—but is addressed in this study’s theoretical framework.

For example, the shared knowledge demonstrated among NESB migrants is vital to the use of e-government systems to access needed information about public policies, programs and services. Thus, e-government systems enable users to ‘access a greater pool of relevant knowledge’ (Sharma & Yetton, 2007, p. 221), which ultimately ‘leads to greater efficiency, effectiveness, and coordination in the utilization of knowledge’ (2007, p. 221). However, if the NESB community members are not aware of these benefits, the services do them little good.

The theoretical framework developed for this study focuses attention on user attitudes and intentions, but also includes actual behaviours—in this context, behaviours of
government IT services. Researchers (e.g. Tan et al., 2009; Yeoh & Koronios, 2010) typically consider these concepts important not only to accessibility, but also to availability and usability. The third theory from which this study gleaned some beneficial information—PB/SBT—considers multiple factors such as utility, perceived utility, believed outcome, perceived other-perceptions of utility and beliefs of outcome, perceived control, subjective norms, perceived subjective norms and extent of compliance to these cited factors. These are all valuable elements to consider, but they do not go as far as the framework used in this study.

Consequently, behavioural theory credits IS/IT implementation and integration with the resolution of certain issues that are important to governments and their citizens. According to Tan et al. (2009), it insists on ‘sustainable data quality and integrity [a given imperative], a flexible technical framework and user-oriented change management’ (p. 49). This is especially true in the context of critical success factors involving senior management support, vendor relationship, corporate culture change, and project governance and execution. Consequently, the framework used here combines an understanding of why members of the NESB community behave in the ways they do, but it further attempts to address those feelings in order to overcome the barriers that prevent them from using online government services to the greatest extent possible.

### 4.4 Summarised Responses to the Shortcomings of Australian Government IT by NESB Users

According to Cao (2010), access ‘is one of the seven primary practices necessary to productivity’ in organisations (p. 268). Critical in the evolution of IS in general, and e-government services in particular, is finding ways to improve the communication between an IS sender and an IS receiver. However, it must be accepted that the determining factor in the successful access of information is not merely its availability; rather, agencies and governments must also be guided by the reasons behind the decision to access information and views or opinions about these technologies.
One of the primary assumptions of this study is that accessibility to e-government information and services among NESB migrants is influenced in large part by individual/personal behaviour towards IS/IT facilities. Additionally, such behaviour is affected by individual/personal motivations of NESB migrants, as well as their expectations/needs and perceptions. Certainly, perceptions are instrumental in the decision-making process during which a migrant will decide to access IS/IT-based public information and services or avoid them.

The proposed NESB Model of collaboration is the necessary corrective to the current market-exclusive framework of access to government IS. By developing a new theoretical framework directed at eliminating the barriers for online government service usage by NESB community members, an NESB Model that emphasises user-centricity is proposed. The framework combines several key themes: barriers to access, fit, usability, needs and computer/Internet skills. This framework presumes that it will require more than markets for the vast NESB community to achieve the threshold level of capacity to participate in an information society. An advantage of the NESB Model approach—assuming groups circulate and share resources, communicate outside of silos and plug into coordinated, integrated strategies—is that it springs from the unique and diverse experiences of organisations that take as their point of departure local needs, talents, contexts and participation.

The proposed NESB Model establishes communication between the NESB individuals, coordinators (government agents), IT experts, research centres and entire NESB communities by means of improved IS technology and instruction. The NESB Model ensures that all communication that takes place (or that needs to take place) between all stakeholders is mutual, productive and results in an assessment of what is working and what needs adjustment. Most importantly, the information provided by the NESB Model must be based on the specific needs of the NESB communities. Of course, the Internet is used as a facility to transfer advanced government information to all Australian communities, including the NESB communities. It is therefore critical that even residents of NESB communities who are unskilled in Internet or computer usage are still able to benefit from the NESB Model. In fact, as the literature review will confirm, a lack of skill and knowledge in IT is the main barrier that prevents residents
of the NESB community from using IS provided by the government, which could otherwise benefit them.

Another important element of the NESB Model is that one cannot assume homogeneity between people in NESB communities, and that one cannot assume homogeneity within peoples of any particular NESB community. However, the central point is that to understand the uptake of technology, one needs to know how technology fits, or might fit, within a specific NESB culture and with peoples’ lives. In short, people need to know the meaning of technology for people in NESB communities, and then they will be in a position to understand the meaning of technology in terms of wider social performance of the proposed NESB Model.

The accessibility of GIS by NESB migrants involves both strategic technological implementation (which the government has done well with) and recognition of cultures within Australia. Nonetheless, it is acknowledged that barriers to accessibility exist. To provide a system that is geared more towards the needs of NESB migrants, the merits of these concepts are incorporated into the final theoretical framework proposed in this thesis, centred on the NESB Model. These views are central in developing a more inclusive, user-centred approach involving NESB migrants towards gaining more access to current and future government IS/IT-based information. Edwards & Madden (2001, citing the House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs, 1993), stated that ‘…people who speak English as a second language (and those who speak Aboriginal English, a separate dialect from Standard Australian English) often experience difficulty in approaching [government] services…’ (p. 52). The theoretical framework developed for this study can be used to identify the issues involved and to develop a new theory based primarily on the needs of the NESB community. The theoretical framework underscores the role of individual and social factors in understanding human behaviour but, more importantly, it works towards eliminating the barriers that prevent community members from acting in their best interest. It is vital for the Australian government to determine the needs and the culture of NESB migrants in order to implement critical policies and programs and to deliver essential services with the use of ICT. Undoubtedly, access to these services (and an ability to overcome potential barriers to access) will affect their quality of life in Australia.
Chapter 5: Results and Discussion

5.1 Recruitment Process

Participants in this study were recruited by means of sending letters of request for participation to the JNC, the SMCS, the Bowen Library/City Council and the ACA. A phone call was made to each agency to request permission to send these letters to inform them of the purposes of the study. These agencies then ensured that the letters were distributed to the target groups.

Interviews took place with two specific groups within that demographic: 1) people in the Arabic community that use the local council online services; and 2) people in the Arabic community that do not use the local council online services. The 30 participants consisted of 12 females (40%) and 18 males (60%). Additionally, the use/non-use of three specific online services, which are among the most widely used in the general population and thus should be relatively easy to provide, was studied:

- Making a rate payment (people owning property in the local area; payments included property taxes, utilities)—five users and five non-users of online services were interviewed (10 total interviews).
- Enquiring about a development application (local builders)—five users and five non-users of online services were interviewed (10 total interviews).
- Submitting a service request (any local resident; requests included information for all local services that are available to residents, e.g. help finding employment, job training, health benefits, housing assistance, tax assistance, child care)—five users and five non-users of online services were interviewed (10 total interviews).

Importantly, the process to obtain a Development Application approval from the local counsel is very detailed and takes an extended period of time. Furthermore, there are several legal issues involved and council restrictions which the majority of people prefer to give to someone professional and familiar with the council’s regulations. As a result, many people are forced to go a through a professional builder to look after their
Development Application (DA). This is the primary reason why there are so many interviews with individuals with a background in Building and Construction (Trade).

### 5.2 Data Collection

The phrases, concepts and ideas searched for in the transcripts and notes from the interviews were those related directly to the research questions. For example, an effort was made to locate the following words and phrases (taken directly from the two primary research questions and the supporting questions): barrier(s), barrier to access, computer, fit, language use, needs, usability and usefulness.

Further, the data collected from interviews were analysed using NVivo software, which is ideal for the analysis of both text-based and recorded data, such as data collected in qualitative studies (QSR International, 2008). The NVivo software was used to store and organise the themes and topics discovered as they were located. In addition, it was used for searches and re-coding to help test various relationships in the data. Finally, NVivo was invaluable in not merely the analysis of data, but also in the process of report writing. In fact, NVivo has an amazing ‘…capacity to store useful words, phrases, and dialogues that allow the researcher to visualise the data and move (or combine) information from one category to another category (as constructed by the researcher)’ (Soklaridis, 2009, p. 730).

As this research included interviews, which allowed the respondents to answer the questions in their own words, it was unlikely that the specific words listed in the primary research questions (or sub-questions) would be mentioned very often (if at all). However, it was possible to develop themes related to those words as a result of the responses received. For example, Figure 5.1 shows the nodes developed within the NVivo analysis as well as their relationships to the interview questions. The figure indicates that there was a relationship in the respondent’s answers in key areas—such as needs and usability, barrier and computer, barrier to access and fit, and language use and many of the keywords that became themes.
5.3 Theme: Barrier/Barrier to Access

The theme of ‘barrier to access’ was mentioned by many of the 30 respondents, as indicated in Table 5.1. Few interviewees used the words ‘barrier’ or ‘barrier to access’, and they were not directed in any way to use those exact words. Therefore, the seemingly low percentage coverage in Table 5.1 should not be misunderstood to mean a lack of these themes being present in the responses. Rather, it is a positive sign that the percentage coverage is widely and equally spread across most of the respondents.

Predominantly, the barriers to access or to the respondents using the online services were related to perceived complexity of the language used for the online services—it was often mentioned that the English was too difficult to understand. For example, a typical response was provided by interviewee number two (I2), who stated, in response to the question about difficulties accessing government online services, ‘I have trouble understanding official specific terms and abbreviations in English language’. To eliminate the barriers, I2 suggested that the government ‘…can use simple English for people who are not from English background’.

This theme—'language use’—was a barrier for many of those interviewed, regardless of whether they currently used the online services. Some of the comments in this regard were: ‘There are language barriers. English is difficult for me’ (I3—an online user); ‘I do not understand the official English terminology...’ (I5—an online user); ‘I tried to use it once but the English was very advanced so I stopped trying’ (I9—not an online
user); ‘it is very tricky to understand the wordings used’ (I10—not an online user); ‘Barriers such as language acronyms and abbreviations used in English are confusing’ (I19—not an online user); ‘the English is difficult to understand’ (I23—an online user); ‘the language is complicated’ (I25—an online user); ‘The language is complicated and so there are more chances of making a mistake’ (I28—not an online user). Overall, the opinion of all respondents, regardless of whether they used the online services, was summarised by I27 (not an online user) who stated: ‘There is nothing better than native language’.

Table 5.1: Percentage Coverage for Barriers to Access

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</tr>
<tr>
<td>Participant_Twenty-Nine_InterviewTranscripts</td>
<td>13.32</td>
</tr>
<tr>
<td>Participant_Twenty-One_InterviewTranscripts</td>
<td>12.46</td>
</tr>
<tr>
<td>Participant_Twenty-Three_InterviewTranscripts</td>
<td>14.21</td>
</tr>
<tr>
<td>Participant_Two_InterviewTranscripts</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Similarly, the simplified theme ‘barrier(s)’ was found in many of the responses, as shown in Figure 5.2.
Five of the offline users and four of the online users described their language skills as novice. Conversely, seven of the offline users and eight of the online users described their language skills as good. Three respondents in each group (6 out of 10 participants) described their language skills as excellent. Table 5.2 contains a summary of the language skills of the sample.

<table>
<thead>
<tr>
<th>English Skills</th>
<th>N = 15 (Offline)</th>
<th>N = 15 (Online)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novice</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Good</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Excellent</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Barriers to access are listed in Table 5.3. Interestingly, as was the case with the majority of those who participated in this study, I2 did not consider using a computer a barrier to accessing online services, as he considered himself ‘good at using computer’. Rather, his primary issue with the current online services was that the ‘website it’s not easy to use and it’s not community focused as well’. His emphasis on a lack of community focus relates to forcing members of the Arabic community to use a website that is primarily written in English instead of taking into consideration the end users of those services.
Table 5.3: Barriers in Accessing the Local Government Online Services

<table>
<thead>
<tr>
<th>Codes</th>
<th># of participants to offer this experience</th>
<th>% of participants to offer this experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex English terminology/abbreviation</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>Difficult procedure</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Outdated training</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Consistent need for assistance</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Incompatible web browser</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Unreliability of services</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>None (satisfied)</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

All 30 interviewees agreed—although a few were less adamant in their opinion—that the government should provide online services in the language used by the Arabic community if it really wants the services to be effective. Indeed, I2 concluded by saying ‘...providing services in Arabic will be great for us and help builders within our community to use the service quite frequently’. In answer to the final question of the interview process, other typical responses were: ‘if content is in Arabic it will be easier for builders from Arabic community to do their tasks online’ (I1); ‘taking the Arabic language into consideration would influence the user’s interaction with the service’ (I3); ‘Arabic is going to help all the Arabic community and must be provided’ (I4); ‘maintain Arabic focus by providing websites support Arabic language and applications’ (I5); ‘there is a substantial need for Arabic language’ (I6); ‘Native language content will also make things easier’ (I9); ‘if the services are available in Arabic for the Arabic community, these will help people use the services’ (I13); ‘Arabic content will solve one of the major problems’ (I21); ‘the Arabic language for the Arabic community it’s really important’ (I23); ‘Arabic will help those who have trouble comprehending English and there is nothing more comfortable than native language’ (I30).

Another issue that was raised as a barrier to access in the interviews was the differences between younger and older potential users of online services. This barrier was noted specifically by the following statement: ‘The young people find it good while the old ones prefer paper methods’ (I15), but similar thoughts were expressed by other respondents as well. In reality, this is not a phenomenon unique to Australia or the NESB Arabic community; it appears to be a global trend that younger generations more readily accept the Internet as the online services that are available there, while older people are more comfortable with traditional methods for services.
This theme was mentioned in a number of responses, such as I4, who said ‘People don’t trust the website as much as they trust the office’; ‘I am so behind with technology and I have limited ability “computer knowledge”’ (I7); ‘For those who are in an age group where learning is tough please make services easier for’ (I9); ‘People in the age group of forty to sixty are not fond of these online services. They still prefer the paper method’ (I12); ‘I can use the computers well enough but not as good as kids’ (I14); ‘I and my group of friends mostly prefer the paper method’ (I16); ‘Many people in my age group are sceptical about sharing their enquiries or information using the online services’ (I26); ‘Youngsters who have good command on computer can easily use the service, its people like us who face all the trouble’ (I29).

There appeared to be a distinct difference in age between those who preferred the traditional approach and those who were comfortable using online services. Primarily, respondents in the 40–55 age group were more comfortable using traditional methods. In contrast, with a few exceptions (primarily those with lower English proficiency), the respondents in the 18–39 age group had fewer issues with the online services. At the same time, most of these latter participants still suggested the use of Arabic in future versions of online services.

### 5.4 Theme: Fit

Additionally, as indicated by the node cluster in Figure 5.1, ‘barrier to access’ and ‘fit’ were closely related themes, because the way that the current online services are provided are not viewed as a proper fit by the Arabic community. The lack of online services in Arabic and having to attempt to navigate through complex English instructions results in significant frustration on the part of large segments of the community for whom such services are intended. In addition, a roughly similar pattern of responses is indicated in Figure 5.3 (fit) and Figure 5.2 (barrier).
Most respondents stated that the current online services did not fit their needs, in large part due to the overly complicated nature of English phrases that were used, but also due to the website being unreliable and difficult to understand. As I1 stated, ‘pages are scrambled and the forms don’t submit’. This was despite the fact that this respondent was also skilled at using computers.

Another respondent (I4) commented that the ‘website service is not reliable because the service goes down quite often’. This was a common theme among several respondents.

Some typical comments in this regard were: ‘Sometimes the website is down’ (I15); ‘I don’t feel that government websites are reliable’ (I16); ‘...technology it is too unpredictable’ (I21); the participant expressed no problems except ‘...system service being down’ (I22); ‘The online services processes slow and inefficiency’ (I25); ‘I find the online service unreliable’ (I26); ‘I use my university computer which has limited access. The local services don’t work on it...’ (I27).

Therefore, it seems that many in the Arabic community who may want to use the online services are prevented from doing so by technical problems directly related to the website. This is considered a problem with the ‘fit’ of the online services, as well as a significant ‘barrier’, as many respondents were hesitant to use them in the first place, and any ongoing technological issues or glitches in the system will make them less believing that the online services can benefit them or even help them to complete their tasks. Further, it is important to re-emphasise the fact that most of the respondents...
whose statements are quoted above were experienced computer users, but most preferred off-line services due to these barriers.

The reasons expressed most often by the respondents who do not use the online services include the lack of trust in online services or the technology issues cited above, as well as an inability to understand the website instructions. The following are a few of the comments made regarding the latter, both by users and non-users of online services:

‘The government should aim to enhance their web site quality and accessibility’ (I16); ‘the website is too complicated’ and ‘online system is too complex’ (I5); ‘It is difficult to follow the procedure’ and ‘The process is complex’ (I6); ‘The online services seem complicated to me and it requires lots of training’ (I7); ‘I found it so difficult for me to navigate through the website to find a particular service’ and ‘It’s important to have clear instructions spelled out in details’ (I8); ‘this site is not easy to access available services’ (I10); ‘Make the process simple enough for everyone to understand’ (I28).

5.5 Theme: Usability

Usability was another theme derived from an analysis of the interview responses. As indicated in both Figure 5.4 and Table 5.3, the concept was mentioned in some way by many of the respondents. These results confirm Zhang et al.’s (2008) model focusing on the determinants of ‘end-user attitude toward government information systems, rather than on the linkage between attitude and behavioural intention’ (p. 57). Only the end user of the service can only determine usability.

For example, I1 and I2 both mentioned several aspects of usability; however, while I1’s primary usability issues were problems with the functionality of the website because all functions did not always work or were not always accessible, the other respondent was more concerned with language issues, as mentioned above. The concepts explained earlier for Table 5.3 also apply to Table 5.4, so it is clear that usability is a common theme across responses.
Figure 5.4: Coding of ‘Usability’

The concept of usability is a critical one in the context of this study, as the assumption is that the government is not currently providing online services that are sufficiently usable by a majority of the non-English-speaking Arabic community. Indeed, even if the online services being provided were technologically precise, always available and readily accessible to all members of the Arab-speaking community, it would do them little good if they were unable to use the service due to language barriers or other barriers to access.

Table 5.4: Usability

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant_Eighteen_InterviewTranscripts</td>
<td>17.34</td>
</tr>
<tr>
<td>Participant_Eleven_InterviewTranscripts</td>
<td>15.78</td>
</tr>
<tr>
<td>Participant_Five_InterviewTranscripts</td>
<td>14.46</td>
</tr>
<tr>
<td>Participant_Four_InterviewTranscripts</td>
<td>13.78</td>
</tr>
<tr>
<td>Participant_Nine_InterviewTranscripts</td>
<td>13.61</td>
</tr>
<tr>
<td>Participant_Nineteen_InterviewTranscripts</td>
<td>20.79</td>
</tr>
<tr>
<td>Participant_One_InterviewTranscripts</td>
<td>98.43</td>
</tr>
<tr>
<td>Participant_Seven_InterviewTranscripts</td>
<td>15.67</td>
</tr>
<tr>
<td>Participant_Seventeen_InterviewTranscripts</td>
<td>14.04</td>
</tr>
<tr>
<td>Participant_Six_InterviewTranscripts</td>
<td>15.36</td>
</tr>
<tr>
<td>Participant_Sixteen_InterviewTranscripts</td>
<td>14.63</td>
</tr>
<tr>
<td>Participant_Ten_InterviewTranscripts</td>
<td>18.64</td>
</tr>
<tr>
<td>Participant_Thirteen_InterviewTranscripts</td>
<td>15.36</td>
</tr>
<tr>
<td>Participant_Twenty-Eight_InterviewTranscripts</td>
<td>13.88</td>
</tr>
<tr>
<td>Participant_Twenty-Five_InterviewTranscripts</td>
<td>18.84</td>
</tr>
<tr>
<td>Participant_Twenty-Four_InterviewTranscripts</td>
<td>15.03</td>
</tr>
<tr>
<td>Participant_Twenty-Nine_InterviewTranscripts</td>
<td>13.32</td>
</tr>
<tr>
<td>Participant_Twenty-One_InterviewTranscripts</td>
<td>12.46</td>
</tr>
<tr>
<td>Participant_Twenty-Three_InterviewTranscripts</td>
<td>14.21</td>
</tr>
<tr>
<td>Participant_Two_InterviewTranscripts</td>
<td>100.00</td>
</tr>
</tbody>
</table>
As has already been shown, the online services have technology issues. Further, based on the theoretical model proposed for this study, perception is the primary factor, so that perceived usefulness and perceived ease of use are ‘most relevant in explaining the behavioural intention to use IS’ (Davis, 1989, cited in Chen et al., 2009, p. 36).

A majority of offline users perceived local government online services as risky compared to online users. Other codes that emerged from the category included: confusing, advanced English, complex, not effective, requires a lot of training, incompatible, annoying and costly.

Table 5.5 contains all of the codes that emerged from the category of experiences in accessing local government online services.

<table>
<thead>
<tr>
<th>Codes</th>
<th># of participants to offer this experience</th>
<th>% of participants to offer this experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confusing</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Advanced English</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Complex</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Not effective</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Requires lots of training</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Risky</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>Not compatible</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Annoying</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Costly</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>None (satisfied)</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

According to Smith (2011), usability includes methods of measuring usability such as needs analysis. If the government is truly concerned about providing online services for the NESB community (specifically, the Arabic community) the first step should be to create a user-centred design process that first calls for understanding users’ needs. Importantly, needs analysis is not limited to addressing the requirements of merely software (such as ensuring that the necessary forms are available from a website), but it
should also include allowing even the most basic Internet user to access online services. However, the results of the interviews indicated that even many experienced computer users have difficulty with the government’s online services.

5.6 Theme: Needs

As shown in Figure 5.1, ‘needs’ was one of the themes found by means of data analysis. In the 30 interviews, needs were mentioned 259 times by respondents. This is illustrated in Figure 5.5, which shows the NVivo coding of the term ‘needs’. As expected, the respondents—as members of the Arabic community—are fully aware of what is needed for them to gain better access to the online services. Primarily, the respondents indicated a need for the government to take their language and culture into consideration to better service the community. In effect, there is currently a disconnection between the needs of the Arabic community and what it is receiving.

The following is a presentation of some responses that reveal the respondents’ concerns relating to ‘needs’: As mentioned earlier, I1 was concerned with the unreliability of the website and its pages. Specifically, she said ‘I need to be able to use them anywhere’. I2 said, ‘The government needs to improve the relationship between citizens and the public sector by providing better access to information and services’. I4 stated, ‘Issues needs to be considered such as giving citizens greater access to the range of services and
greater security, faster delivery by providing faster more accurate service’, and ‘The online services needs more review’. I6 noted, ‘citizens they need to be comfort in using online services’ and ‘there is a substantial need for Arabic language’. I8 expressed the opinion that the government must ‘facilitate better services that are more relevant to their (the Arabic community’s) needs’. I13 said, ‘the government should identify and focus on citizen needs and community ownership’. According to I15, ‘Issues regarding privacy and security need to be improved’. I18 stated, ‘I need to have confidence in both the government and the technology’. In the words of I25, ‘I think the role of the government here to consider the citizens wants and needs’. I27 observed, ‘our community needs to improve two areas I think language and literacy’. Finally, the response of I29 is significant, as she observed that, if the online services are provided in Arabic, ‘we will not need help from outside’. That is certainly a worthwhile goal, and one that the government should take into consideration as a reason for adopting the NESB model.

In reviewing the previous information, it becomes clear that needs are different for various age groups in the Arabic community. The younger generations believe they would have a difficult time without the online services (language use and unreliability are other issues mentioned in the responses). An additional factor that may contribute to this feeling by younger participants is the fact that most of them had a much better grasp of the English language than many of the older participants. Conversely, older individuals reported having a more difficult time accessing the online services in large part due to their lack of comfort with new technology. This is another reason for simplifying the online services—so that older people, once they attempt to use the services, will not be discouraged by the over-complicated nature of the website.

Up to this point, the Arabic community, or at least respondents to this study, have consistently mentioned several specific themes related to the current status of online services and how these fail to meet their needs. These include greater usability of all online services; simplified design of website, including basic instructions; and provide online services in Arabic rather than just in English. Figure 5.6 provides an overview of the three most often cited needs within the NESB Arabic community based on the results of the interviews conducted for this study. There is little doubt from the data that the government has significant work ahead of it to meet these needs more fully. It is
also important to keep in mind the close connection between needs and perceived usability, as discussed earlier.

5.7 Theme: Computer and Internet Skills

A few respondents stated that they have few, if any, issues with the current online services. In relative terms, their opinions are in the extreme minority, as most respondents expressed definite dissatisfaction with current online services designed to be accessed by the Arabic community. One respondent stated, ‘...there are only few issues...’ (I12), specifically related to service reliability. In addition, I14 said, ‘I comfortably use the online services provided by the local Government’. I15 mentioned, ‘The services are fine, I only have problems if the services are unavailable’. This is similar to I22, who noted, ‘Not any significant issues faced except for the system service being down’. Finally, I24 made this comment: ‘Most of the people I know use these services easily’. Overall, just five out of the 30 participants expressed such opinions (16.7%).

The analysis of the preceding five respondents revealed that they were among the most highly educated of the 30 Arabic participants, with four possessing Masters degrees and one a Bachelor’s degree. While many other respondents have a similar level of education, it is significant that these five individuals are in that group, as it indicates a connection between education and acceptance of online technology. It may also be
significant that all five of these respondents received their degrees from Australian universities. Some comments received from participants who were not good at using computers may also be important. For example, the belief that they are not skilled with computers is in spite of the fact that they needed to demonstrate a certain level of computer use to obtain their degree. When asked about this discrepancy, all participants in this category stated that they simply were able to get by in order to pass the requirements. However, they still do not feel as comfortable using computers as many others are. As a result, they consider themselves not to be adept at using computers. In reality, these participants are probably as capable as the average computer user, but may simply hold themselves to a higher standard.

Additionally, as mentioned earlier, nearly all of the participants considered themselves as at least competent (if not skilled) in the use of computers and the Internet. Regardless of education level, the main barriers for the respondents had little to do with computer skills, but they involved other issues. Thus, regardless of what may seem to be a contradiction based on the previously discussed issues, the main point of this is that real (or perceived) lack of computer skills is not the primary reason for barriers to acceptance of online services.

The responses received in the interviews conducted in the Arabic community confirmed what Sawrikar & Katz (2008) noted, as reported in the literature review. Specifically, they said that an NESB community receiving services (online or otherwise) based on individualistic norms (i.e. norms that meet the needs of non-NESB communities) are likely to consider such services inappropriate for their cultural needs or issues. To counteract these poorly designed services, Sawrikar & Katz (2008) acknowledged a need to provide a tailored, culturally appropriate service delivery for NESB communities, and that is exactly what the participants in this study are requesting. When individuals in an NESB community attempt to access online services and have negative results—especially if those services are determined to be of little use to them personally—they may be reluctant to use similar services in the future, even if they are experiencing a crisis and service provision is necessary. In light of these results, the negative effect on NESB communities that Sawrikar & Katz (2008) referred to is clearly seen.
Undoubtedly, the various barriers experienced by the Arabic community respondents in attempting to use online services have left most of them unimpressed with the way the local government has set up the services. In fact, several comments were directed towards the local government agencies that are responsible for designing the online services. Of course, the penultimate question in the interview process was: ‘If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?’ Thus, each interviewee had the opportunity to provide input to the government regarding ways to improve online services that would more closely meet their usage needs.

These comments are revealing and indicate the precise types of service improvements that are needed within the NESB Arabic community included in this study and, by extension, other communities that may be experiencing similar barriers to access. For example, I2 stated that the ‘government should ensure services are delivered to all levels of society at the most convenient way’. That would certainly eliminate the barriers currently in place. In addition, I4 expressed the desire to see government ‘help citizens to interact with government’. This conforms to a suggestion made earlier in this study—that it is at the human behavioural level rather than just the IT/IS management level that end users of government IS need attention, so that addressing user attitudes towards, and beliefs about, government IS will help see such IT/IS systems themselves as evolving from barriers to benefits.

Twenty of the online users (67%) were very comfortable using computers. Only one participant (3%) from the offline sample was described as not inclined to use computers. Most of the online participants described themselves as very comfortable using computers. Table 5.6 contains all of the codes that emerged from the category of level of proficiency in the use of computers.
Table 5.6: Level of Proficiency in the Use of Computers

<table>
<thead>
<tr>
<th>Codes</th>
<th># of participants to offer this experience</th>
<th>% of participants to offer this experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very comfortable</td>
<td>20</td>
<td>67</td>
</tr>
<tr>
<td>Not comfortable</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Not inclined to use computers</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Basic</td>
<td>5</td>
<td>17</td>
</tr>
</tbody>
</table>

5.8 Theme: Language Use (Arabic)

While this theme has already been discussed at some length as part of other themes, as it appears to be the most widely addressed issue in the interviews, it will be further analysed here. Certainly, the lack of online services in the Arabic language was perceived as one of the most significant barriers to the acceptance of these services by the community.

Four people (13%) out of the 30 interviewees did not consider language an issue, and that was for reasons such as ‘*Since I am good in English, it won’t make a big difference but definitely it will help other(s)*’ (I18—who does not currently use the online services).

In contrast, 87% of respondents stated that they need to have online services provided in their native tongue if they are ever going to be able to use and take the advantage of the online services. Most of the comments regarding this need were cited in Section 5.3.

Table 5.7 illustrates the emphasis placed on the use of the Arabic language to improve the accessibility and ease of use of government online services. Twenty-six out of the 30 interviewees recognised a need for services to be provided in the native language of the community where services are being provided. Constructing websites completely in English are more than appropriate if the community being served consists solely of native English speakers. However, the communities involved in this study are NESB native Arabic speakers, and most of them have difficulty navigating a website that is written with a native English speaker (even at a remedial reading level) in mind.
### Table 5.7: Interview Comments Regarding the Use of Arabic

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1 (online user)</td>
<td>If content is in Arabic it will be easier…from Arabic community to do their tasks online</td>
</tr>
<tr>
<td>I2 (online user)</td>
<td>Providing services in Arabic will be great for us</td>
</tr>
<tr>
<td>I3 (online user)</td>
<td>Taking Arabic language into consideration would influence the user’s interaction with the service</td>
</tr>
<tr>
<td>I4 (online user)</td>
<td>Arabic is going to help all the Arabic community and must be provided</td>
</tr>
<tr>
<td>I5 (online user)</td>
<td>Maintain Arabic focus by providing websites support Arabic language and applications</td>
</tr>
<tr>
<td>I6 (offline user)</td>
<td>…substantial need for Arabic language due to the population of Arabic community in Australia</td>
</tr>
<tr>
<td>I7 (offline user)</td>
<td>Arabic language will also help</td>
</tr>
<tr>
<td>I9 (offline user)</td>
<td>Native language content will also make things easier</td>
</tr>
<tr>
<td>I10 (offline user)</td>
<td>Arabic language will help all the Arabic community to a great extent</td>
</tr>
<tr>
<td>I11 (online user)</td>
<td>People who are not from English communities…will really like it if there were simple interfaces done in Arabic</td>
</tr>
<tr>
<td>I12 (online user)</td>
<td>If it is in Arabic we can easily understand so many things</td>
</tr>
<tr>
<td>I13 (online user)</td>
<td>If the services are available in Arabic…these will help people use the services</td>
</tr>
<tr>
<td>I15 (online user)</td>
<td>There is nothing more comfortable than the native language</td>
</tr>
<tr>
<td>I16 (offline user)</td>
<td>Migrating the language to Arabic will help those who are not comfortable with English</td>
</tr>
<tr>
<td>I17 (offline user)</td>
<td>Arabic is our native language and we find it easier as compared to English</td>
</tr>
<tr>
<td>I19 (offline user)</td>
<td>Please provide us service in simple Arabic language so that we all can use it better</td>
</tr>
<tr>
<td>I20 (offline user)</td>
<td>It will be ideal if things are in Arabic</td>
</tr>
<tr>
<td>I21 (online user)</td>
<td>Arabic content will solve one of the major problems</td>
</tr>
<tr>
<td>I22 (online user)</td>
<td>If the site can be translated somehow in native languages, it will help many people in Arabic community</td>
</tr>
<tr>
<td>I23 (online user)</td>
<td>The Arabic language for the Arabic community it’s really important</td>
</tr>
<tr>
<td>I24 (online user)</td>
<td>If the content is in Arabic it will be a major help</td>
</tr>
<tr>
<td>I26 (offline user)</td>
<td>Using Arabic language will bring a sense of belonging and ease of use</td>
</tr>
<tr>
<td>I27 (offline user)</td>
<td>There is nothing better than native language</td>
</tr>
<tr>
<td>I28 (offline user)</td>
<td>Native language Arabic will help a great deal to people from our culture</td>
</tr>
<tr>
<td>I29 (offline user)</td>
<td>Arabic language is the best thing. Then we will not need help from outside</td>
</tr>
<tr>
<td>I30 (offline user)</td>
<td>Arabic will help those who have trouble comprehending English</td>
</tr>
</tbody>
</table>

This is not related to education level because, as mentioned previously, most of the participants in this study have advanced degrees (10 Bachelor’s degrees and nine Masters). Half of these degrees were obtained from Australian universities, while the other half were obtained in the native country of the respondent. Whether the level of secondary education provided to NESB students in Australian universities—especially regarding the assistance they may need in mastering English—is adequate is beyond the scope of this study. However, this may be a topic for future research.

The participants provided several suggestions to improve the local government online services. Simplification of language (12 out of 30 participants, 40%) and reliability of services (12 out of 30 participants, 33%) emerged as the most cited suggestions. Table
5.8 contains all of the codes that emerged from the thematic category of suggestions to improve local government online services.

### Table 5.8: Suggestions to Improve Online Services

<table>
<thead>
<tr>
<th>Codes</th>
<th># of participants to offer this experience</th>
<th>% of participants to offer this experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplification of language</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>Simplification of design/structure</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>DVD instruction</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Mobile assistance</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Advanced structure</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Web browser compatibility</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Multi-language pamphlets</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reliability of services</td>
<td>10</td>
<td>33</td>
</tr>
</tbody>
</table>

5.9 Review of Research Questions

This section revisits the research questions posed for this study and attempts to answer them based on the analysis of collected data.

**Predominant Questions**

*What specific needs of the NESB population may be met by the implementation of a new model that focuses on Information Services (IS) users?*

While a more detailed answer to this question and a complete explanation of the NESB Model is provided in the following chapter, the data collected from the interviews answers this question. Specifically, there were three primary needs mentioned most often by the Arabic community members that participated in this study. These primary needs are 1) greater usability of all online services; 2) simplified design of website, including basic instructions; and 3) provide online services in Arabic rather than just in English.
These needs must be considered by the local government in order to ensure that the online services, which are designed to benefit the community, can be fully accepted by most of the members of the NESB Arabic-speaking community. The need to have the online service website provided in Arabic and, when English is used, to ensure it is simplified for ease of use, are fundamental needs that the participants have discussed. In addition, the government should provide a means to inform the community of how to use these services and how they work, such as through public seminars or workshops.

This is a concept addressed in the literature and confirmed by the results of this study. Specifically, Gottschalk (1999) declared that IT/IS user involvement ‘should include user training, understanding, participation, operation, development, and support’ (p. 116). Sharma & Yetton (2007), in their application of contingency theory, revealed end-user training as a ‘critical intervention to support successful implementation of information systems innovations’ (p. 219).

Several respondents cited the need for training in the use of online services. For example, I2 stated, ‘I would also recommend interactive demonstrations may improve citizen’s ability to access e-services’. In addition, I6 noted, ‘There should be sufficient help for each section on the same platform’. Another pertinent comment was, ‘They can have some DVDs distributed to train us on the services provided’ (I7). Further, I8 said the government should, ‘review the instructions associated with each online service to improve website accessibility’. This theme was also mentioned by I20, who stated, ‘improve Internet skills for our citizens by sending them to training, so I assume one of important key elements is ease-of-use’. I21 confirmed, ‘We need easier systems or some training for the systems’. Finally, I27 explained, ‘I would recommend more Internet training packages programs should be provided to introduce the council’s (online services) to the community’. Therefore, this study confirms that the needs of the NESB Arabic population may be met by the implementation of a new model that focuses on IS users (the NESB Model).

What prevailing barriers to the access of government information systems exists as prohibitive elements to the NESB community’s ability to obtain services or training via Government-provided IS?
Specific barriers to accessing the government online services have been identified by means of this research, including: the perceived complexity of the language (English) used for the online services, language use (services need to be provided in Arabic), age of users (older users tend to be less likely to use online services) and lack of trust in the online services (fear of others obtaining private information). The lack of trust in online services and the reluctance of older users to utilise them confirm the literature’s discussion of TAT, which focuses on user attitudes and perceived utility. TAT researchers having identified the need for IT interpretive flexibility and perceived fit (Cao, 2010; Chen et al., 2009; Muscatello & Chen, 2008; Zhang et al., 2008).

These barriers were clearly identified in the NESB Arabic community included in this study, but the interviewees also expressed a hopeful attitude that, if the local government could overcome these barriers, the services could become more widely used by community members.

**Supporting Sub-questions**

*What are the perceptions of IS users (and potential users) with respect to usefulness of Government IS?*

Four (13%) of the respondents considered the local government’s online services, as they are currently constituted, useful, while the other 26 (87%) had doubts about the usefulness of those services. Without the removal of the current barriers that were consistently mentioned in the interviews, there is little potential for the majority of the NESB Arabic community to consider government IS useful.

*What are the perceptions of IS users (and potential users) with respect to usability of Government IS?*

The issue of usability was critical in the context of this study, as the assumption is that the government is not currently providing online services that are sufficiently usable for a majority of the non-English-speaking Arabic community. The results of the interview responses confirmed this opinion, and it is clear that many members of the Arabic community believe there are serious shortcomings regarding usability of online
services. Indeed, even if the online services being provided were technologically precise, always available and readily accessible to all members of the Arab-speaking community, it would do them little good if they were unable to use the service due to language barriers, not trusting government the website or instructions that are unclear to the user. As previously discussed, the online services have technology issues (which is definitely one of usability).

What are the perceptions of IS users (and potential users) with respect to fit of Government IS?

There is a notable lack of available online services provided in the Arabic language. This requires Arabic speakers to navigate websites written in English, which is often difficult for them to understand. Often, this results in frustration for these potential users who make up a large part of the Arabic community. Most respondents stated that the current online services did not fit their needs, in large part due to the overly complicated nature of English phrases that were used, but also due to the website being unreliable and difficult to understand.

What are the perceptions of IS users (and potential users) with respect to consequences of barriers to access of Government IS?

The respondents were clear that the barriers preventing them from successfully accessing the local government online services made it difficult to gain the full benefits from those services. Regarding a lack of technical reliability, many of the respondents expressed frustration with their inability to access the website whenever and wherever they needed to. In some cases, this results in NESB community members choosing to bypass the online services completely and complete their tasks offline.

The other dominant barrier—the use of complicated English and/or a lack of information in Arabic—results in many members of the NESB Arabic community being frustrated with the services. As many have no option but to use the online services, this no doubt creates negative feelings towards the local government, which has the responsibility to provide services to citizens in a way that benefits them.
Would a new, NESB model for Government IS be beneficial for the NESB community?

Based on the analysis of data collected from the 30 members of the NESB Arabic community in this study, it seems clear that the community would benefit significantly from the NESB Model. In the following chapter, the NESB Model that is developed and proposed in this study is explained in detail.

The majority of participants clearly indicated that the current method of designing websites and online services for the NESB community is not effective. The use of the NESB Model is likely to be more successful when it augments, rather than replaces, existing locally developed education or training systems related to government online services. Importantly, the model addresses the need to be sensitive to cultural patterns—in this context, within the Arabic community. One of the more insightful comments made by a respondent in the interview process was made by I25, who said:

> If the language can be made simple and easy then more people will comfortably place enquiries online. I think the role of the government here (is) to consider the citizens wants and needs to ensure citizens engagement with the services provided online. In order to provide advanced technology additional IT expertise and budgets are necessary and essential.

This is a succinct summary of the data collected through these interviews, as well as the current literature related to this topic. Without a doubt, members of the NESB Arabic community that participated in this study are reaching out to the local government, requesting it to remove the barriers to access of the online services.

To understand the place that technology takes in the NESB Arabic community, it was necessary to discern how technology fits, or might fit, within that culture and in peoples’ lives. In short, these 30 interviews provided critical insights into what the meaning of technology is for members of the NESB Arabic community. Using that knowledge, it is now possible to define technology in terms of the wider social performance of the proposed NESB Model. The NESB Model, acting upon the theoretical framework developed for this study, assures that all communications that are taking place (or that need to take place) between all stakeholders (the local government and the members of the NESB community) is mutual, productive and results in an assessment of what is working and what needs adjustment. This is precisely what the respondents to these interview questions said they want—and need—in online services.
6.1 Defining the NESB Model

By developing a new theoretical framework directed at eliminating the barriers for online government service usage by NESB community members, an NESB Model that emphasises user-centricity is proposed. The framework combines several key themes that were identified in this research and that are evident in the existing literature: barriers to access, fit, usability, needs and computer/Internet skills. Whereas previous theories related to the willingness of citizens to access and utilise online government services were based on several divergent theories, this study has attempted to formulate a new theoretical framework designed to specifically address the needs of NESB community members—especially those in the Arabic community. Specifically, this framework, which is directly related to the NESB Model, seeks to understand the precise barriers to access facing the NESB community and find ways to overcome them.

If public sector information is to be utilised to its full potential in decision-making and the creation of business solutions in today’s society, then there should be timely and easy access to the information for the user community. In order to accomplish this goal, Masser et al. (2008) acknowledged three strategic challenges that must be understood and dealt with. The first challenge noted is the need for an approach that is more inclusive—connecting a significant number of stakeholders from a variety of levels, including the government, the private sector and the research community. The second challenge is the need for enabling data sharing between different kinds of organisations, which needs to include efficiently collecting and maintaining that data. Finally, the end result must be the development of enabling platforms that will facilitate access to spatial information and related services by the NESB community. Using Spatial Data Infrastructure (SDI) as an enabling platform can be viewed as an infrastructure that links data users and providers through data sharing. An SDI is described as the...
underlying infrastructure—often in the form of policies, standards and access networks—that allows the sharing of critical data between people within organisations, states or countries. This is the goal of the NESB Model. More details of SDI are provided in Section 6.3.

The features mentioned in the previous paragraph are also directly related to the matter of inter-operability—a key to the NESB Model’s success. In the context of this study, inter-operability implies the ability for seamless inter-operation of the possibly heterogeneous services that may be provided and consumed by NESB users in the context of e-government-provided services. The need for inter-operable frameworks and solutions has increased over the past five years, and this has necessitated adopting the advancements of service-oriented architectures (SOA) and web services. This process can be especially beneficial in regards to e-government services where there is pressure on data and information exchange between the services, data resources and applications distributed among a wide community of stakeholders.

Any process—whether or not for profit—necessarily needs a master plan or framework upon which it should be based. For this purpose, a model for the framework has to be developed that takes into consideration all of the factors and stakeholders involved. The NESB Model attempts to provide such a framework by taking into consideration what has been mentioned in the previous chapters. Addressing the problems faced by the NESB community in Australia and the betterment of their lives should be a fundamental aim of the government. This can be achieved to a large extent by implementing the NESB Model. This model will form the basis and will act as a roadmap for effectively implementing ICT programs for the betterment of NESB communities, including the Arabic community included in this research.

The NESB model involves the migrants’ individual attitudes, intentions, perceived utility and outcome, and views about what other people think about a particular option, which pertains to accessing e-government IS in this study. Likewise, the NESB model takes into account the migrants’ actual behaviours, the role of shared knowledge and the extent of compliance based on subjective norms concerning government IS. This highlights the merging of personal and social factors in deciding whether to access government online services.
The NESB Model recognises the changing nature of personal attitudes, intentions, perceptions and socio-cultural norms; for example, while a member of the NESB community may initially be reluctant to accept new technology that may change over time. Once technology—including the types of ICT that comprise e-government—is accepted, the individual may then change other attitudes, and their perceptions may change entirely. Such an approach further shows that accessibility to government online services goes beyond the availability of technological infrastructure that presents and disseminates needed information, as well as extant ICT policies of Australian governments.

6.2 What the MIS of the Government of Australia Can Ask in the Context of New Technology Potential (Sample Forms for Public Service Improvement)

According to Rao & Gupta (2011), the purpose of e-government can be served only through eliciting citizen and other stakeholder opinions, active civic-engagement and encouraging dialogue with citizens through a Virtual Socialisation Process. This helps the local government to understand the reasons for citizen apathy for devising e-government processes and programs to entice citizens back into public governance and instil trust, morale and confidence. In this process, citizen stakeholders and non-citizen stakeholders also provide support continuously in co-designing, conceptualising, implementing, maintaining and strategising public services. This approach clearly pulls apart the democratically elected and represented government bodies to make a difference for themselves from commercial applications of stakeholder theory.

The NESB Model is also inspired by the concepts presented by Rao & Gupta (2011). A few of their ideas are incorporated in Table 6.1. For example, they recommend a proactive approach of public bodies, such as local governments, to reach out to all concerned categories of stakeholders, starting with the primary stakeholders—citizens (in this context, the NESB community). This process allows a movement from a rigid, bureaucratic-oriented process to a more user-centric process of social inclusion. Based on the characteristics of various segments of stakeholders, local governments can devise
comprehensive e-government strategies and encourage stakeholders to network with each other in order to leverage their active participation in e-government.

Table 6.1: Objectives and Goals of Electronic Service Delivery (based on City Portal, 2011)

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish an interactive and transactive electronic presence for improving quality, effectiveness and efficiency of services</td>
<td>Provide ESD channels for all major government services. Provide electronic channels for communication between citizen users and government. Assess new technologies available for improving user access.</td>
</tr>
<tr>
<td>Continue to develop efficient and effective electronic internal systems for communication and reporting within the government</td>
<td>All relevant staff needs to be trained on the use of the database. Standardised internal processes need to be provided by electronic means for each business and service need.</td>
</tr>
<tr>
<td>Provide widespread access of all government-based services to the community and businesses</td>
<td>Facilitate increased Internet connection and usage by the community.</td>
</tr>
</tbody>
</table>

A number of key factors or principles are involved in the implementation of a system such as the NESB Model. These are listed here (first suggested by Gulliksen & Göransson, 2001):

- **The work practices of the users control the development.** With an early focus on users and tasks, the designer must understand the users, their cognitive behaviours, attitudes and the characteristics of their work tasks. The appropriate allocation of function between the user and the system is also important to prevent unnecessary control (Gulliksen et al., 2003, p. 398).

- **Active user participation** throughout the project—in analysis, design, development and evaluation. This requires a careful user selection process emphasising the skills of typical users, including both work domain experts (continuously through the development project) and end users (for interviews and observations as well as the evaluation of design results) (Gulliksen et al., 2003, p. 398).

- **Early prototyping** to evaluate and develop design solutions and to gradually build a shared understanding of the needs of the users as well as their future work practices.

- **Continuous iteration** of design solutions. A cyclic process of design, evaluation and redesign should be repeated as often as necessary. The evaluation process should include empirical measurements in which tests are conducted where
users perform real tasks on prototypes. The users’ reactions and attitudes should be observed and analysed (Gulliksen et al., 2003, p. 398).

- **Multidisciplinary design teams.** Mainly achieved by including a usability designer in the process (Gulliksen et al., 2003, p. 398).

- **Integrated design.** The system, work practices, online help, training and organisation should be developed in parallel (Gulliksen et al., 2003, p. 398).

Integrating cultural attributes into an NESB-focused model framework emphasises the dynamic process involved when the government attempts to make e-government services more accessible to the non-English migrants sector. The framework stresses the need to capture key individual, communal and cultural needs of NESB migrants that have to be integrated into formulating e-government services and accessibility policies. This condition allows a ‘moving away from the linear “waterfall” model of system development to a cyclical model…which allows for continuous revision…’ and which ultimately ‘moulds technology’ to fit user composite needs, as was proposed by Axup et al. (2004, p. 7).

For example, from maintenance to enhancement, the virtual organisation paradigm should: 1) have internal core capabilities for management and the maximisation of IS; 2) involve stakeholders (Gable et al., 2002) at all levels and strata both internally and externally; and (3) have government/public liaisons such as information (knowledge) managers or guides moving between the government and its system and the NESB community in need of, but with limited accessibility to, the system. These factors will ensure that the valued information/knowledge is being consistently pursued and that concerted efforts to equalise access are being constantly acted upon. Moreover, these measures render the user and his or her input/feedback as valued external factors as inter-organisational or inter-governmental components. Similarly, increased efforts towards strategic management and intervention will increase governmental-intended outcomes, including enhanced, increased information and knowledge. These steps will improve accessibility to government IS for the NESB user.

The argument advanced for the NESB Model is for IS analysts and developers to act within a social relativistic paradigm, recognising plural, socially constructed realities incorporated into human factors (perception, intent, behaviour, action, other people’s
beliefs). By so doing, the NESB communities can be taken into consideration. In advancing this model, the developers (professional practitioner) would act as facilitators, enabling reflection, cooperation and experiential learning for all those involved with the system. Systems development would thus proceed from within, based on the understanding and rationality of the members of the NESB community.

A more integrated effort that stems from a common intellectual framework and a shared understanding of how to mitigate inequality and build capacity would be a prerequisite for a more systematic assault on the digital divide. That is considered the main advantage of the proposed NESB Model. Innovation through the NESB Model in the future will depend upon the ability to integrate, coordinate and develop a client focus rather than an organisational one.

The proposed NESB Model of collaboration is the necessary corrective to the current market-exclusive framework of access to government online services. This framework presumes that it will require more than markets for the vast NESB community to achieve the threshold level of capacity to participate in an information society. An advantage of the NESB Model approach—assuming groups circulate and share resources, communicate outside of silos and plug into coordinated, integrated strategies—is that it springs from the unique and diverse experiences of organisations that take as their point of departure local needs, talents, contexts and participation.

The NESB Model requires knowledge-sharing and awareness-raising through consultative and educational activities involving NESB migrants, coordinators (government agents), IT experts, research centres and the entire NESB community through improved IS technology and instructions. The NESB Model ensures that all communications that take place (or that need to take place) between and among stakeholders are mutual, productive and result in an assessment of what is working, what needs adjustment and what remains to be done to improve e-government services. Most importantly, the information provided by the NESB Model must be based on the specific needs of NESB migrant communities that can be conveyed through the use of ICTs such as Internet-based discussions, forums and consultations. It is therefore critical that even residents of NESB communities who are unskilled in Internet or computer usage are still able to benefit from the NESB Model. In fact, as the literature review
confirmed, a lack of skill and knowledge in IT is one of the main barriers that prevents residents of NESB communities from using IS provided by the government that could otherwise benefit them.

Another important element of the NESB Model is that one cannot assume homogeneity among people in NESB communities and that one cannot assume homogeneity within populations of any particular NESB community. However, the central point is that to understand the uptake of technology, one needs to know how technology fits or might fit within a specific NESB culture and with peoples’ lives. In short, one needs to know what the meaning of technology is for people in NESB communities, and only then will one be in a position to say what the meaning of technology is in terms of wider social performance of the proposed NESB Model.

Based on the total results of this study, there is potential for the NESB Model to evolve into a significant multi-dimensional theory. This model essentially merges psychosocial and cultural factors with governance, public policy, and ICT. Individuals have mental and emotional faculties that allow them to evaluate themselves and their environment. They behave based on their needs and abilities as well as societal conditions that affect them.

Without a doubt, an e-government system that is focused on users has to make it easy for those users to find what they are looking for—whether information or services—which implies that they must be able to understand the various elements of the online services. In this regard, portals that allow users to access the government services available online have to be appealing to the NESB users, regardless of whether those users are experienced Internet users. Every portal connected with the e-government system needs to work seamlessly with every other portal. This will allow the NESB users to develop a trust for the system. It does no good if one portal provides what the NESB user is looking for but another is unable to—either due to problems with access or technical issues. The critical point here is that the focus is on what the NESB users want to achieve rather than simply what the government agencies are trying to deliver. In effect, this emphasis shifts the focus away from a simple agency or ministry website—with limited features and accessibility—towards e-government portals.
Fully implementing a system such as the NESB Model will require ensuring that everyone involved is very familiar with all elements of the functional IT and the Internet in general. This includes both the government agents who will be responsible for implementing and maintaining the system, and the NESB users and community, as they are the consumers of the final product. A series of education and training initiatives is required to make this work. In addition, close communication between all stakeholders will be essential, especially until such time as the NESB community has developed a sufficient level of trust in the process.

Convincing the NESB community in general to switch from what many consider comfortable—traditional face-to-face interactions—to online services requires that the government make all e-government services more appealing. The end users need a reason to make this switch, and just having the desire to make it happen is not sufficient. Overall, the convenience of 24-hour access needs to be stressed as a starting point; however, as shown in this study, more is needed. The most important changes that can be made in Australian e-government are those that will make the online process more compelling from the users’ standpoint—including having services available in their own language. By applying some of the tools of customer relationship management (CRM), the government can build up a more thorough knowledge of the NESB community.

### 6.3 Redefining NESB User Needs (New Critical Success Factors) and Government IT Requirements (According to New CSFs)

Language plays a critical role in discouraging NESB community members from accessing government online services, as indicated by the literature review and the data collected for this study from Arabic NESB communities. Language also plays a critical role in resolving such problems, as the interviewees suggested the use of simple English words and user-friendly designs and structures in government websites. They also supported the publication of multi-lingual information, education and communication (IEC) materials to supplement online tools. Thus, language is the primary component of the NESB Model, as it can influence a person’s perception and behaviour. The NESB Model intends to use language to lend value to a person’s culture, just as English does.
to its native speakers. It is this context that governments of English-speaking countries need to bear in mind when developing and implementing policies. Further, it is imperative to consider the importance of language when offering and delivering services. The kind of information provided to the NESB communities about government programs should then reflect culture and language sensitivity.

This same language and cultural sensitivity should be adopted by movers of technology. As human ingenuity goes beyond race and ethnicity, so does the effect of various technologies. IS/IT developers and program analysts have to be aware of the importance of respecting culture and language diversity. Incorporating a multi-lingual approach in the use of these devices certainly influences the perception of non-English speakers to use them as well. Although this is not a novel approach, as some companies have already been doing this, the NESB Model can explain why doing so is important. Members of NESB communities are part of the core human targets of Australia’s social inclusion policy. Thus, the NESB Model reflects the goal of such a policy, including overcoming barriers to accessibility to government information and services.

A Spatial Data Infrastructure (SDI) is concerned with the facilitation and coordination of the exchange and sharing of spatial data. Indeed, an SDI is described as the underlying infrastructure—often in the form of policies, standards and access networks—that allows the sharing of critical data between people within organisations, states or countries. The use of SDI will be essential to the implementation of the NESB Model, as it focuses on the interaction between people and data, and this is precisely what is governed by the technological components of SDI through the access network, policies and standards (Rajabifard et al., 2003). Figure 6.1 illustrates these inter-relationships between the people and spatial data within an SDI. The dynamic nature of the SDI is credited to the rate of technological advancement and changing user needs. This is significant to the NESB Model.

To design and implement an SDI, the stakeholders (in this case, the NESB community, government managers and technical experts) must be identified in addition to the business processes and functions of the groups involved. In addition, it is important to know the data required or provided by the functions that will be developed for the newly designed e-government system—and the flow of data between various functions.
This requires a significant amount of work, as data sharing, exchange, security, accuracy and access as well as rights, restrictions and responsibilities must be managed.

Each layer of the organisational structure has distinct information requirements and therefore needs support from a specific SDI level. Thus, it is possible to classify different levels of an SDI hierarchy according to their roles played within different administrative levels. To assist in this process, Grus et al. (2010) applied the theory of complex adaptive systems (CASs), which has been used in other organisational studies (as well as other disciplines) to describe and better understand the features, mechanisms and rules of complex phenomena. Grus et al. (2010) concluded that features and behaviours such as openness, level of self-organisation, adaptability and existence of feedback loop mechanisms play an important role in the efficient and effective functioning of SDI.

The various characteristics of inter-operability take into consideration technical, syntactic, semantic and organisational issues that are usually described as inter-operability layers (Kubicek & Cimander, 2009). These layers address the following objects:

- **technical interoperability level**: signals, low-level services and data transfer protocols
- **syntactic interoperability level**: data in standardised exchange formats, mostly based on XML or similar formalisms
- **semantic interoperability level**: information in various shared knowledge representation structures such as taxonomies, ontologies or topic maps
organisational interoperability level: processes, defined as workflow sequences of tasks, integrated in a service-oriented environment.

The NESB Model will take advantage of semantics (the server end of a client–server system for machine-to-machine interaction), which enables the modelling and representation of knowledge within a domain. This is accomplished by means of precise organisation of significant domain concepts, their attributes and relations, and the necessary workflow sequences and structures. Considering the diverse and widespread nature of an e-government domain, semantics can be effectively used as a common background platform for describing the processes and services provided by governmental institutions on various levels. These multiple issues are illustrated in Figure 6.2, which is based on Hansen et al. (2011).

Figure 6.2: E-government Strategy Model
Using some of the concepts of Hansen et al.'s (2011) e-government strategy model, the NESB Model’s platform permits the integration of multiple services, making them inter-operable and transparent for NESB end users. A primary advantage of the semantic enhancement of e-government services is its ability to formally describe the meaning and context of these government services in a way that will be understandable to the NESB community. It will allow traditional and online services to be identical, without the need for modifying the online services for the NESB population.

The use of semantics in the e-government field is extensive, and its application has been very encouraging (e.g. Kubicek & Cimander, 2009). One of the benefits of semantic technologies—and why it was selected for inclusion in the NESB Model—is the ability to model citizen behaviour. This in turn allows the system to improve the inter-operability of online government services and provide a platform for the creation of semantically described web services. The goal of semantics technology thus matches perfectly with the goal of the NESB Model—to provide better and more integrated public services to citizens.

Without a doubt, government services (traditional or electronic) need to be provided in an ‘integrated’ manner—in a way that appeals to the end users—including the NESB community. In this way, the usefulness of life events (in this context, the need for services) as expressions of a user’s needs is in correspondence with the life event approach (Vintar & Leben, 2002). The life event approach has been predominant in much of the e-government research and application over the past decade. The benefits of this approach also make it useful for inclusion in the NESB Model. In effect, a life event is a circumstance in the life of a member of the NESB community that requires the provision of a government service or services and should be semantically described within the system. While such events are often quite straightforward, they can at times be rather complicated, which would necessitate dividing them into several mutually dependent sub-goals. Once those sub-goals are addressed and properly dealt with, the solution of the given situation is identified. That is, each sub-goal can be satisfied by a set of government services that are available through the online government portal developed based on the concepts contained in the NESB Model.
While it is beyond the scope of this study to provide extensive details of the operation of the software program that will eventually convert the NESB Model into a working system (as the researcher lacks such technical expertise), a few brief details are provided here. According to Furdik et al. (2011), within the program:

…sub-goals can be organised in workflow structures using if-then-else constructs, cycles, and dependencies on outputs of other services—according to the specific case of the citizen or the organisation. During execution, the list of sub-goals for a life event is customised (e.g. by information provided by the user to specify his/her case) and then dynamically evaluated. Services, which resolve sub-goals, may require some additional inputs provided by other services, so sub-goals can be further decomposed to sub-sub-goals and so on. During the service resolution process, the system may dynamically create a user scenario of the life event by evaluating the conditions of sub-goals. The user is then navigated to the proper services that are capable of fulfilling the goals and solving the life event situation (p. 65).

It seems logical to assume that programmers will include ontologies as a basic mechanism for semantic modelling and the annotation of life events, goals, sub-goals, services and other specific concepts from the e-government domain. This approach allows for the integration of existing (and future) systems and government services, as well as their functional inter-connection on the technical, syntactic, semantic and organisational level. To design a concrete ontology structure and content according to the purposes of the NESB Model, three basic resources were identified, namely (Furdik et al., 2011):

- a conceptual model provided by selected semantic framework
- existing and available ontology resources
- formalised requirements that were provided by user partners of the project and were systematically organised into an ontology-like structure (p. 66).

The framework suggested in this section for adapting the NESB Model into a working system is built on established and widely accepted standards for data transfer and exchange (TCP/IP, XML), web services (WSDL, SA-WSDL) and process models (BPMN, BPEL). It is further suggested that the integration platform be based on the WSMO framework (Web Services Modelling Ontology). The WSMO framework offers an environment for the creation and development of the types of semantic knowledge structures that have already been discussed as important for the NESB Model—
ontologies and semantically annotated web services that may be organised into a
dynamic process workflow (Roman et al., 2006).

The main objective of the NESB Model is to develop a software platform that will be
capable of providing support for NESB citizens and businesses in their every-day life
and business episodes related to various governmental services. The solution combines
an effective user-centric paradigm (based on the needs of NESB communities) with an
efficient semantically inter-operable service-oriented architecture (on the side of the
government offices and service providers). The NESB Model values semantics, which
grants the ability to represent knowledge within a domain (such as an e-government
website or portal) by means of the clear formalisation of key domain concepts, their
attributes and relations, as well as workflow sequences and structures (this concept has
been successfully utilised by others, including Furdík et al., 2011; Hreňo et al., 2011;
Kubicek & Cimander, 2009; Skokan & Bednar, 2008).

Requirements from the NESB Model user partners will be collected in a systematic way
to produce ontology models of life events, sub-goals and provided services for the pilot
applications to be carried out within the project. Ontology, in the context of computer or
information science, refers to knowledge as a set of concepts. The so-called
requirement-driven approach (Klischewski & Ukena, 2007)—a method developed
within the NESB project—will be used as the main resource for ontology creation. This
multi-step procedure starts with the identification of users’ information needs for a
particular case, which are provided by public administrations in a free-text format (e.g.
as user scenarios). The information needs are then analysed with respect to the required
properties, such as scope and relevance. A list of proposed services together with related
laws and regulations, documents the needs to negotiate between users and public
administrations, and other requirements concerning information quality are provided.

The descriptions and background materials collected for use in the final program will be
processed, and a glossary of topics and terms will be generated. In order to function
effectively, these terms must be organised into an established and controlled vocabulary
that contains a hierarchy of categories and sub-categories created from the glossary by
grouping the terms into hierarchical sub-groups. Additionally, new terms and concepts
will also need to be defined during this phase of development, if necessary, for the
consistence of the whole structure. The ontology-like structure will then be formalised and expressed by WSML (Web Service Modelling Language) statements.

As a result of the multi-step procedure applied in the NESB Model, the following ontologies should be created and formalised by software programming language:

The **Core ontology** containing definitions of basic elements (concepts, attributes, relations) that are shared among the pilot applications and used for the annotation of the NESB services.

The **Life Events ontology** containing conceptual descriptions of life events, complex goals (also referenced as generic scenarios), and elementary sub-goals for the pilots. Separate Life-Events ontologies were produced for each of the NESB pilot applications.

**Domain ontologies**, providing domain-specific information for the pilots. The ontologies are fully localised (concepts have labels in several languages common in the NESB communities) and include concepts for description of forms, documents, certificates, location constraints, fees, questions and notification messages that are necessary to model the inputs and outputs of the provided government services. Separate domain ontologies need to be produced for each of the pilots.

Every stakeholder associated with the NESB project must understand the goals of the NESB Model, including the user context and who the NESB users are. It will be vital for everyone involved to have a grasp of the NESB community’s situation, goals and tasks, why and how they perform their tasks, and how they communicate, cooperate and interact. This will be a critical element in creating and maintaining a focus on the NESB users’ needs instead of merely a technical focus. It is also necessary to ensure that all project members meet real or potential NESB users, for instance, by visiting the community (or communities) where they live. Descriptions of typical NESB users, tasks and scenarios could be put up on the walls of the project room/area to maintain a user focus.

The NESB users should be directly involved both in the development project and in related activities, such as organisational development and designing new practices for
the e-government services website. Significantly, the users included in the design process must be representative of the entire intended user groups. Plans for involving NESB users should be specified from the start of the project in as much detail as possible. Another key element in the process is to properly identify the appropriate phases for user participation, in addition to specifying where, when and how NESB users should participate.

In order for the NESB Model to accomplish the most good, and to develop a strategy that allows inter-connectivity between IT systems with different functions (or possibly supplied by multiple software vendors), it is necessary to ensure that all IT systems used to provide services for NESB users are based on the same open standards. In addition, there is a need for smoothing the progress of the system’s development by establishing supporting services and ensuring that the development is moving in a chosen direction by setting goals and making recommendations.

The future goal of the NESB Model is the easy management of information and easy accessibility of governmental information for the NESB population and NESB business owners. Another critical goal is the inter-operability of information—locally and nationally. This requires that the NESB metadata be compatible with metadata that are in use by other governmental and local government agencies—or at least be using the same metadata standards. In principle, the NESB Model calls for a project consisting of two central parts: 1) developing a metadata standard that is compatible with other governmental metadata standards; and 2) developing applications based on the metadata. Standardisation initiatives directed in line with the NESB Model are expected to have a positive effect on the NESB user community.

An iteration (another term for the software development cycle—see Pavlo et al., 2009) should contain an appropriate analysis of the NESB users’ needs as well as the context of their usage. In addition, it needs to consist of a design phase, which will include a documented evaluation with meaningful suggestions for modifications and a re-design, if necessary, in accordance with the results of the detailed evaluation. Significantly, such activities will not necessarily have to be formal at all times, as long as it contains all required steps. Based on the NESB Model, the incremental development of the final program that priorities are set and the system is divided into parts that can be delivered
for use by the NESB community. Logically, regular evaluations of the increments in real use should influence the design of the following increments.

To fully meet the requirements of the NESB Model, critical usability goals will need to be specified and the design must be based on specific design criteria, as recommended by the principles of the Model. The design must be evaluated against the goals and criteria in co-operation with the users, in context and not just the goals of the designers or the government. Best practice requires that—early on in the development project—users have the opportunity to view models or drawings of the planned end product (i.e. a potential screenshot), with someone from the development team taking note of their reactions. As the project progresses, similar activities will take place using actual prototypes or simulations of the website. The behaviour, reactions, opinions and ideas of these NESB users should be observed, recorded and analysed. Such activities during the design and application process are crucial for the eventual usability and cover critical activities as well as the overall use situation.

The user interface design and the interaction design are of unquestionable importance for the success of the system. It is important to keep in mind that the NESB user (or any other e-government user) knows little or nothing about the overall system, so the interface is the system to the user. This places a greater emphasis on the ability of the program developers to create something that is extremely user-friendly and allows productive interaction. Far too often, the user interface and the interaction design simply ‘happen’ as a result of a programmer doing a little coding or modelling instead of being created as a truly professional interaction design as a structured and prioritised activity.

The NESB Model also recommends the inclusion of an experienced usability expert (also called a usability designer) or a usability group on the development team. This professional individual or group has to understand that the project is an ‘engine’ for the NESB Model process from the beginning of the project and throughout the development process and system lifecycle. In addition, this person or group should have the authority to decide on matters that will affect the usability of the system and the future use situation from the perspective of the NESB community.
A user-centred system designed from scratch requires a user-centred attitude throughout the project team, the development organisation and the client organisation (the NESB community). All people involved in the project must be aware of, and committed to, the importance of usability and user involvement, but the degree of knowledge may differ depending on the role and project phase. The key principles and theories defined in this study can serve as a common ground.

Therefore, the technical implementation of an NESB Model in Australia will be very complicated, requiring the cooperation of experts retained by the government as well as input from the end users of the planned system (the NESB community). In effect, the NESB users are experts in their own right, inasmuch as they understand what is needed to make an e-government system usable to the NESB community. Thus, there is a need to include a bottom-up approach to the NESB Model. At the same time, it is also essential that a top-down approach is included, as that is where the executive power to make things happen is located. The ultimate goal is to create a significant degree of consensus between the end users of the NESB system and the decision-makers at the government level.

Cooperation is a frequently researched topic in public administration science, and empirical evidence shows that changing existing forms or introducing new forms of public sector cooperation has often proven to be problematic (e.g. Staadt, 2012). This is not necessarily because good intentions and agreements on objectives are not reached, but because public sector cooperation is often burdened with organisational and political motives, such as legitimacy, accountability, short-term priorities and public image, which may counteract the cooperation structures and related technologies. Thus, changing paradigms for governance with different periods of centralisation, decentralisation and re-centralisation may complicate the development (de Vries, 2009).

**6.3.1 SWOT of the NESB Model**

This section provides a brief SWOT analysis of the NESB Model. This analysis is provided in Table 6.2, and then in more detailed text form following the table.
### Table 6.2: SWOT for NESB Model

<table>
<thead>
<tr>
<th>Internal</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td>1. The Spatial Data Infrastructure (SDI)</td>
<td>1. Limited room for experiments</td>
</tr>
<tr>
<td>2. Combined top-down/bottom-up approach</td>
<td>2. Possible limits in innovation regarding technology as well as organisation.</td>
</tr>
<tr>
<td>3. An inclusive and participatory process</td>
<td>3. Needs of the NESB users may not meet needs of other user groups</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opportunities</strong></td>
<td><strong>Threats</strong></td>
</tr>
<tr>
<td>1. Extended self-service by the citizens regarding basic interactions with the public sector</td>
<td>1. The potential for an economic crisis with severe budget reductions</td>
</tr>
<tr>
<td>2. Free flow of data supplied by e-government to the NESB community</td>
<td>2. Some local governments may not be able to find funding for the investments in technology and skilled people</td>
</tr>
<tr>
<td>3. Contributing to enhanced well-being of all members of Australian society.</td>
<td>3. General lack of people with expert knowledge in ICT</td>
</tr>
<tr>
<td>4. Pre-decision impact assessments through scenario methods will become a natural process</td>
<td>4. General lack of people with spatial information necessary to carry out the NESB Model</td>
</tr>
</tbody>
</table>

### 6.3.1.1 Strengths

The SDI is a fundamental element in the NESB Model strategy towards improving the way e-government is made available to the NESB community. Thus, the SDI will be integrated in all e-government initiatives. Another strength of the NESB Model is the combined top-down/bottom-up approach, which ensures a consistent strategy with awareness and responsibility at the government and executive levels in addition to support and involvement from the NESB user community. An inclusive and participatory process like this is the best way of making the user community accountable, but it requires cooperation through well-defined obligations and responsibilities. Therefore, cooperation is a key characteristic in the SDI as well as the NESB Model.

### 6.3.1.2 Weaknesses

A fixed and well-organised structure, such as the final system that will be developed based on the NESB Model, leaves limited room for experiments and may also limit innovation regarding technology and organisation. This is simply because the needs of the NESB users—which is of paramount importance in this context—may not match the
needs of other groups that the government may also need to modify the system to serve. In the longer term, this may reduce competitiveness in a globalised world.

6.3.1.3 Opportunities

The NESB Model, backed by a well-established and effective SDI, can contribute to increasing the welfare of the NESB community through extended self-service by the citizens regarding basic interactions with the public sector, including common service requests. The free flow of data supplied by e-government to the NESB community can contribute to the development of innovative solutions through public–private partnerships and thus contributing to enhanced wellbeing of all members of Australian society. By applying the NESB Model, Australian society, which includes the NESB community, can move forward from the information society to the knowledge-based society, where pre-decision effect assessments through scenario methods will become a natural process.

6.3.1.4 Threats

The potential for an economic crisis with severe budget reductions is an ongoing threat to most public organisations, including governments. Local governments are especially threatened by the possibility of a poor economy, as they typically operate with limited budgets. It is also possible that some local governments may not be able to find funding for the investments in technology and skilled people, which is needed for the implementation of the NESB Model. If this negative scenario occurs, it could create a negative spiral that results in negative consequences for the potential of improved access for the NESB community. Finally, the general lack of people with expert knowledge in ICT as well as spatial information necessary to carry out the NESB Model may be another threat (see Table 6.1).

6.4 Recommendations

By integrating all of these factors into an NESB model, the information/knowledge that is required by the NESB migrant community will be constantly pursued, with
determined efforts to equalise access persistently acted upon. As a result, the user (an NESB migrant) can be assured that any input provided by them will be viewed as a valued external component of the government online system. Correspondingly, the greater the effort applied to strategic management/intervention, the greater the increase in governmental intended outcomes.

The NESB Model’s capacity building to SDI implementation seems to have good possibilities for success. The strengths clearly surpass the weaknesses, and the opportunities for a significant contribution to extensive e-government improvement—benefitting the NESB community—seems promising. The threats from an economic crisis are serious, but can be mitigated by targeted initiatives from the central government. However, a strategy with self-organisation, openness and feedback loop mechanisms provide the NESB Model with the capacity to adapt to changes. A high degree of adaptability guarantees that this model can continuously develop by adjusting its structure, behaviour and goals to changing external circumstances.

This study has shown that merely providing convenient or low-cost access to government services is not sufficient motivation for members of the NESB community to use online services, especially if those services do not feature their native language. Therefore, to encourage NESB migrants to utilise e-government services, Australia must make a more concerted effort to promote online services content in the NESB languages. There is little doubt that a citizen-centred approach to e-government—following the NESB Model—is the most effective and sustainable way forward. In Australian NESB communities, the real needs of the constituents must be given paramount consideration.

Public administrations in Australia need to avoid the trap of doing e-government merely for the sake of e-government. It does little good to the NESB community to deploy the latest tools, solutions or services simply because the technology is available or because other countries or localities are doing it. The needs and priorities of the NESB population are very different from those of native English-speaking residents.

Additionally, it is over-simplistic to believe that there can be a ‘one size fits all’ model of e-government. Models and solutions that work well for one language group or one
country may not work for another. Every government needs to understand its people, and be able to design and deploy its programs accordingly. That is the essence of citizen-centred e-government, as well as the essence of the NESB Model.

For the NESB Model to function as intended, it will be necessary for IS analysts and developers to adopt a social relativistic standard, recognising that perception, intent, behaviour, action and beliefs vary from culture to culture. If this attitude is taken, the needs of the NESB migrants can be taken into consideration. In order to functionalise this model, the developers as facilitators promote cooperation between all those involved with the system.

The NESB Model appreciates the fact that it is important to preserve social values in the implementation of e-government and, in order to do so, citizens should actively participate and represent their opinion and the ethics of their social and cultural groups. As Evans & Yen (2005) said: ‘e-governments should be set in place to preserve the freedom and integrity of its citizens and as a reliquary of their individual and unique cultural heritage’ (p. 369).

It is possible that a workable structure and the platform prototype for implementing the NESB Model could be ready in about six months’ time from inception, if all required stakeholders fully commit to the project. The NESB system will have the NESB community as the end beneficiary and primary stakeholders. The NESB Model will also embrace the government departments, trainers, developers and community access centres as other stakeholders. All of the stakeholders will need to interact with the developers for fine-tuning and additional requirements. In a dynamic environment, new ideas and requirements may arise that have to be incorporated in the program. They will also have to interact with the support/finance group in order to communicate additional financial needs and other forms of support. The developers group will also be involved in training the members of the NESB community to understand and make use of the information systems. Some members of the community can also be taught to become local trainers. This can solve the problem of non-availability of trainers in remote areas.

Finally, as illustrated by Figure 6.3, government insistence on continuing to feature English only when establishing e-government services and portals is not consistent with
the current trends in language usage on the Internet. The figure clearly indicates that the concept of English-only websites has steadily declined over the past decade.

![Figure 6.3: Spread of Languages on the Internet from 2000–2011 (getspponge.com, 2012)](image)

Therefore, the government of Australia should move rapidly to implement the concepts outlined in this chapter related to the NESB Model. Not only will the NESB Model enable the government to provide vital services more completely and accurately to the NESB community across Australia, but the country will also prove that it is keeping up with the global trends in Internet usage. In this way, Australia will continue to be viewed as a progressive country rather than one that is failing to understand and react to critical national and global movements.
Chapter 7: Conclusion

7.1 Chapter Overview

This chapter provides an overview of what has been accomplished in this study, especially in regards to the formation of the NESB Model for improving e-government in Australia. In particular, the chapter discusses how the study accomplished the research aims that were established at the outset of the study. This includes an analysis of how well the primary research questions were answered, as well as the secondary questions. In this context, six main themes are indicated that appeared in the research.

In addition, this chapter discusses how the study contributes to the literature—the literature related to the NESB community as well as the e-government literature. Implications for practice are also discussed, especially as these relate to the establishment of the NESB Model. Also covered in this final chapter are the study’s limitations as well as suggestions for further research in the field of the NESB community’s access to online government services.

7.2 Achievement of Research Aims

7.2.1 Answering the Main Research Questions

The NESB model adopts the value of user-centricity or individual-focused approach to increase the likelihood of accessing e-government IS among NESB migrants. Thus, the fact that the NESB Model is now available for these agencies to embrace and perfect provides a significant level of improvement for members of the NESB community to access and utilise government services online.

This section revisits the research questions posed for this study and attempts to answer them based on the analysis of collected data.
Predominant Questions:

*RQ1: What specific needs of the NESB population may be met by the implementation of a new model that focuses on IS users?*

While a more detailed answer to this question, and a complete explanation of the NESB model, is provided in the following chapter, the data collected from the interviews answers this question. Specifically, there were three primary needs mentioned most often by the Arabic community members that participated in this study. These primary needs are: 1) greater usability of all online services; 2) simplified design of website, including basic instructions; and 3) provide online services in Arabic rather than just in English.

These needs must be considered by the local government in order to ensure that the online services, which are designed to benefit the community, can be fully accepted by most of the members of the NESB Arabic-speaking community. The need to have the online service website provided in Arabic and, when English is used, to ensure it is simplified for ease of use, are fundamental needs that the participants have discussed. In addition, the government should provide a means to inform the community of how to use these services and how they work.

This is a concept addressed in the literature and confirmed by the results of this study. Specifically, Gottschalk (1999) declared that IT/IS user involvement ‘should include user training, understanding, participation, operation, development, and support’ (p. 116). Sharma & Yetton (2007), in their application of contingency theory, revealed end-user training as a ‘critical intervention to support successful implementation of information systems innovations’ (p. 219). Six different themes were found in the data collected from the interviews. In addition, most of these themes were supported by the literature that was reviewed for this study. As the research questions are discussed, these themes are included in the areas where they have an application. By applying the information gleaned from the research questions and these six themes, the NESB Model was more accurately developed.
Theme 1: Complex English Abbreviation and Terminology is a Barrier in Accessing the Local Government Online Services

Based on the responses of the participants, complex English terminology or language (N = 8, 27%) was the main barrier experienced in accessing government online services. Other barriers included complex English terminology/language, difficult procedure, outdated training, consistent need for assistance and different web browser. Two (7%) respondents believed that online services are good, and they are satisfied with the level of service it provides.

Several respondents cited the need for training in the use of the online services. For example, I2 stated, ‘I would also recommend interactive demonstrations may improve citizen’s ability to access e-services’. In addition, I6 noted, ‘There should be sufficient help for each section on the same platform’. Another pertinent comment was, ‘They can have some DVDs distributed to train us on the services provided’ (I7). Further, I8 said the government should, ‘review the instructions associated with each online service to improve website accessibility’. This theme was also mentioned by I20, who stated, ‘improve Internet skills for our citizens by sending them to training, so I assume one of important key elements is ease-of-use’. I21 confirmed, ‘We need easier systems or some training for the systems’. Finally, I27 explained, ‘I would recommend more Internet training packages programs should be provided to introduce the council’s (online services) to the community’.

Therefore, this study confirms that these needs of the NESB Arabic population may be met by the implementation of a new model that focuses on IS users (the NESB Model).

RQ2: What prevailing barriers to the access of government information systems exists as prohibitive elements to the NESB community’s ability to obtain services or training via Government-provided IS?

Specific barriers to accessing the government online services have been identified by means of this research, including: the perceived complexity of the language (English) used for the online services, language use (services need to be provided in Arabic), age of users (older users tend to be less likely to use online services) and lack of trust in the
online services (fear of others obtaining private information). The lack of trust in online services and reluctance of older ones to utilise them confirm the literature’s discussion of TAT, which focuses on user attitudes and perceived utility. TAT researchers having identified the need for IT interpretive flexibility and perceived fit (Cao, 2010; Chen et al., 2009; Muscatello & Chen, 2008; Zhang et al., 2008).

**Theme 2: Offline Users Perceived Local Government Online Services as Risky**

Specifically, a majority of offline users perceived local government online services as risky compared to online users. Other codes that emerged from the category included: confusing, advanced English, complex, not effective, requires a lot of training, incompatible, annoying and costly. A significant percentage of offline users (10 out of 30 participants, 33%) perceived the use of local government online services as risky due to viruses and personal information hacking.

**Theme 3: Most of the Participants were Very Comfortable in using Computers**

Significantly, the inability to use a computer or access the Internet was not one of the prevailing barriers for most of the participants. Twenty of the online users (67%) were very comfortable in using computers. Only one participant (3%) from the offline sample was described as not inclined to use computers. All of the online participants described themselves as very comfortable in using computers.

**7.2.2 Answering the Secondary Research Questions**

These barriers were clearly identified in the NESB Arabic community included in this study, but the interviewees also expressed a hopeful attitude that, if the local government could overcome these barriers, the services could become more widely used by community members.

Supporting Sub-questions are as follows:

*RQ3: What are the perceptions of IS users (and potential users) with respect to the usefulness of Government IS?*
Four (13%) respondents considered the local government’s online services as they are currently constituted useful, while the other 26 (87%) had doubts about the usefulness of those services. Without the removal of the current barriers that were consistently mentioned in the interviews, there seems little potential for the majority of the NESB Arabic community to consider government IS useful.

**Theme 4: Local Government Online Services are Usually Avoided by the Community**

Based on the thematic category, the perception of local government online services in the community, participants reported that they prefer the traditional format, which is a paper-based transaction (9 out of 30 participants, 30%). Some participants (6 out of 30 participants, 20%) reported that the community avoided the use of online services and perceived online services as complex for employees of local government.

**RQ4: What are the perceptions of IS users (and potential users) with respect to the usability of Government IS?**

The issue of usability was critical in the context of this study, as the assumption is that the government is not currently providing online services that are sufficiently usable by a majority of the non-English-speaking Arabic community. The results of the interview responses confirmed this opinion, and it is clear that many members of the Arabic community believe there are serious shortcomings regarding usability of the online services. Indeed, even if the online services being provided were technologically precise, always available and readily accessible to all members of the Arab-speaking community, it would do them little good if they were unable to actually use the service due to language barriers, not trusting government the website or instructions that are unclear to the user. As already discussed, the online services also have technology issues (which is definitely one of usability).

**RQ5: What are the perceptions of IS users (and potential users) with respect to the fit of Government IS?**
There is a notable lack of available online services provided in the Arabic language. This requires Arabic speakers to navigate websites written in English, which is often difficult for them to understand. Often, this results in frustration for these potential users who make up a large part of the Arabic community. Most respondents stated that the current online services did not fit their needs, in large part due to the overly complicated nature of English phrases that were used, but also due to the website being unreliable and difficult to understand.

Theme 5: Simplification of Language and Structure are Suggestions to Improve Online Services

The participants in the surveys provided several suggestions to improve the local government online services. Simplification of language (12 out of 30 participants, 40%) and reliability of services (12 out of 30 participants, 33%) emerged as the most cited suggestions. Many suggestions were made to improve local government online services, but most were directed towards language issues.

RQ6: What are the perceptions of IS users (and potential users) with respect to consequences of barriers to access of Government IS?

The respondents were clear that the barriers preventing them from successfully accessing the local government online services made it difficult to gain full benefits from those services. Regarding a lack of technical reliability, many of the respondents expressed frustration with their inability to access the website whenever and wherever they needed to. In some cases, this results in NESB community members choosing to bypass the online services completely and complete their tasks offline.

The other dominant barrier—the use of complicated English and/or a lack of information in Arabic—results in many members of the NESB Arabic community being frustrated with the services. As many have no option but to use the online services, this no doubt creates negative feelings towards the local government, which has the responsibility to provide services to citizens in a way that benefits them.
RQ7: Would a new, NESB model for Government IS be beneficial for the NESB community?

Based on the analysis of data collected from the 30 members of the NESB Arabic community in this study, it seems clear that the community would benefit greatly from the NESB model. In the following chapter, the NESB Model that is developed and proposed in this study is explained in great detail.

Theme 6: Incorporating Arabic in the Improvement of Online Services would Lead to Easier Access to Local Government Online Services

When the participants were asked about the effect of incorporating Arabic in the local government online services, the majority of the participants (28 out of 30 participants, 93%) believed that the process would be easier. Only one participant believed that incorporating Arabic in the process would not be helpful.

The majority of participants indicated that the current method of designing websites and online services for the NESB community is not effective. The use of the NESB Model is likely to be more successful when it augments, rather than replaces, existing locally developed education or training systems related to government online services. Importantly, the model addresses the need to be sensitive to cultural patterns—in this context, within the Arabic community.

One of the more insightful comments made by a respondent in the interview process was made by I25, who said:

If the language can be made simple and easy then more people will comfortably place enquiries online. I think the role of the government here (is) to consider the citizens wants and needs to ensure citizens engagement with the services provided online. In order to provide advanced technology additional IT expertise and budgets are necessary and essential.

This is a succinct summary of the data collected through these interviews, as well as the current literature related to this topic. Without a doubt, members of the NESB Arabic community that participated in this study are reaching out to the local government, requesting it to remove the barriers to access of the online services.
To understand the place that technology takes in the NESB Arabic community, it was necessary to discern how technology fits, or might fit, within that culture and with peoples’ lives. In short, these 30 interviews provided critical insights into what the meaning of technology is for members of the NESB Arabic community. Using that knowledge, it is now possible to define technology in terms of the wider social performance of the proposed NESB Model. The NESB Model ensures that all communications that take place (or that need to take place) between all stakeholders (the local government and the members of the NESB community) is mutual, productive and results in an assessment of what is working and what needs adjustment. This is precisely what the respondents to these interview questions said they want—and need—in online services.

7.3 Contributions to Body of Knowledge

7.3.1 Contribution to NESB Literature

Australian governments at both the national and local levels have progressed in using, developing and sustaining ICT channels (especially the Internet) to improve various operations, particularly the critical factor of interaction with its citizens. Nevertheless, not all residents have access to these online services, and nor do they know how to use these facilities.

With Australia’s heterogeneous or multicultural society, the government endeavours to provide necessary information services to foreign settlers—a large number of whom have an NESB. Thus, it is important to consider the needs of migrants with NESB and to know the barriers that they experience in accessing e-government information and/or services.

Factors can restrict e-government service delivery to NESB recipients. These may include language differences (i.e. low proficiency in Standard Australian English, as native speakers of languages other than English), and individual expectations, perceptions and difficulties about these facilities. Available studies regarding this matter are scarce, as shown in the review of literature provided in this study.
The reality of this situation makes this paper more relevant, considering that many NESB residents are found in the country’s socially and economically disadvantaged areas. This study’s aim is to provide a better understanding of NESB communities in Australia by attempting to: (a) identify the barriers and perceptions among NESB residents concerning their use of available government online information services; (b) provide suggestions to implement the appropriate strategies that facilitate the accessibility of NESB communities to Internet-driven public information; and (c) propose a theoretical framework—centred on the NESB Model—that will remove the barriers to adoption of online government services by NESB communities.

In following through on these goals by way of establishing the NESB Model, this study contributes significantly to the NESB literature. Despite the insistence by various government agencies in Australia that the needs of the NESB population are of great concern and are being addressed, the evidence indicates that government agencies have failed to identify the shortcomings of present e-government systems in the NESB context. The NESB Model adopts the value of user-centricity or an individual-focused approach to increase the likelihood of accessing e-government IS among NESB migrants. Thus, the fact that the NESB Model is now available for these agencies to embrace and perfect provides a significant level of improvement for members of the NESB community to access and utilise government services online.

Specifically, the NESB model involves the migrants’ individual attitudes, intentions, perceived utility and outcome, and views about what other people think about a particular option, which pertains to accessing e-government IS in this study. Likewise, the NESB model takes into account migrants’ actual behaviours, the role of shared knowledge and the extent of compliance based on subjective norms concerning government IS. This highlights the merging of personal and social factors in deciding whether to access government online services. This is a practical application of information about the NESB community that has not been utilised by the government until now. Moreover, the NESB model shows both the possible and existing barriers to accessibility, as well as the dynamic interaction between NESB migrants and the government in the context of accessing and providing relevant information, respectively.
A more integrated effort that stems from a common intellectual framework and a shared understanding of how to mitigate inequality and build capacity would be a prerequisite for a more systematic assault on the digital divide, which is considered the main advantage of the proposed NESB Model. Innovation through the NESB Model in the future will depend upon the ability to integrate, coordinate and develop a client focus rather than an organisational one.

The overall relationship between the themes identified in this study and the NESB Model are illustrated in Table 7.1.

<table>
<thead>
<tr>
<th>THEME</th>
<th>NESB MODEL SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrier(s) to Access</td>
<td>Seeks to understand the precise barriers to access facing the NESB community and find ways to overcome them (interoperability)</td>
</tr>
<tr>
<td>Fit</td>
<td>Recognizes the unique needs of the NESB community; Does not establish a one-size-fits-all approach to online services</td>
</tr>
<tr>
<td>Usability</td>
<td>Utilises a more inclusive approach; enables data sharing; development of enabling platforms that will facilitate access to spatial information and related services.</td>
</tr>
<tr>
<td>Needs</td>
<td>Recognises the changing nature of personal attitudes, intentions, perceptions and socio-cultural norms and adapts accordingly</td>
</tr>
<tr>
<td>Computer/Internet Skills</td>
<td>Citizen stakeholders and non-citizen stakeholders provide support continuously in co-designing, conceptualising, implementing, maintaining and strategising public services. This will simplify the technical skills required to utilise services.</td>
</tr>
<tr>
<td>Language Use (Arabic)</td>
<td>More extensive use of Arabic language as well as simplified words and phrases in English</td>
</tr>
</tbody>
</table>
7.3.2 Contribution to E-government Literature

The literature review revealed that the government of Australia and many other experts and agencies have invested significant time, funding and effort into providing online services to residents, including what is commonly referred to as e-government. There is little doubt that the government understands the value and importance of such services. For example, the provision of services via the Internet and other IT methods has continued to increase in recent years. In addition, the Australian government regularly publishes the results of its internal studies regarding the effectiveness of online government services. The most recent publication in this context, ‘Australians’ use and satisfaction with e-government services’, published by the AGIMO (2011) is a prime example of the government’s efforts. This report is a very detailed (96 pages) assessment of how average citizens view the current state of e-government services. The purpose of the report was to determine the level of satisfaction with such services, as well as to determine how and if improvements could be made.

However, it is significant to note that the report does not address the NESB population at all. Indeed, all of the statistics used to determine whether or not the average Australian views the current e-government services as effective or beneficial do not take into consideration the views of the NESB community. The only specific demographic identification made in the AGIMO study was age groups. This supports one of the primary reasons why this current study is highly important and valuable to both the government and the NESB community. Past and current research and surveys regarding Australian e-government services fail to take into consideration the unique needs of the NESB community. In contrast, this research focuses solely on those needs, and the results add significantly to the e-government literature, especially as it relates to NESB users and potential users.

Based on the AGIMO report (2011), the majority of Australians readily accept the Internet as their preferred method of interacting with the government. Indeed, for most citizens, the Internet is not a new technology but a routine and a natural instrument for citizens dealing with local or national government and the favoured means of accessing government services. AGIMO indicated that as many as two-thirds of the population have accessed governments’ online services since 2009. This indicates how important
online government services are to most citizens. The study also saw an increased take-up in the use of new communications technologies such as email, text messaging and social networking tools.

In addition, the AGIMO study claimed that the majority of citizens who access government services online are satisfied with those services. In fact, it was reported that the level of satisfaction continues to increase, especially in regards to the design of the government websites. A record number of Australian citizens accessed information about Australian Government programs and services through the official website at australia.gov.au. However, the government still has work to do to ensure that all citizens are able to access its services online. This is being accomplished, in part, by means of expanded high-speed broadband through the NBN and the increased use of new ICT providing greater flexibility in delivering better services to people, communities and businesses.

7.3.3 Implications for Practice—The NESB Model

The improvements that the Australian government is introducing to expand the availability of online government services is welcomed, but it is no simple task and consists of many inter-relating factors. New ICT continues to present opportunities for initiating positive social change, but it also represents challenges in relation to how it is used and applied by NESB communities. The challenges experienced by NESB communities when using technology can negatively affect their awareness and access to information for many critical services, such as those connected with health and wellbeing, education, employment, settlement services, banking and other essential services. Admittedly, many NESB communities have extremely limited use of the Internet, for a wide variety of reasons, as shown in this study.

In addition, the way in which communication is received and understood is not consistent across all language and cultural groups, which is an important consideration when interacting with NESB communities. Anyone seeking to design an online system that is focused on NESB communities needs to take into consideration language traditions and preferences, cognitive/thought processing, interactional styles and how non-verbal communication techniques influence effective communication with NESB
communities. Additional concerns are related to religion, traditional beliefs and explanatory models, community identity, isolation, confidentiality and degree of trust in mainstream society.

Australia has an inherent desire to afford migrants with a wide range of opportunities, so it naturally follows that government online services should also be available to migrants with a non-English-speaking background. Despite the admirable efforts of governments and local agencies in Australia to provide such services, the reality is that many NESB migrants are not taking advantage of these available services. This case study investigates possible reasons for this issue, as well as suggestions for improvement.

Researchers have investigated and challenged many of the present theoretical models of decision-making in IT implementation in the business domain—such as the rational model and its normative status with its prescriptive undertones—questioned the internal organisational elements and practices of IT implementation, revealing real problems. Nevertheless, few studies exist that correlate those internal problems as also being external to the surrounding community. Indeed, there is a significant lack of theoretical conceptualisation of how the government affects the socio-cultural aspirations of NESB communities. Neither is there a significant investigation related to government MIS implementation contingencies in particular regions, despite the fact that such contingencies lend to barriers-to-access theory and prompt best-approach perspectives.

In addition, this study, involving interviews with 30 selected Arab residents, identifies language and low computer skills as among the primary reasons why many NESB migrants are discouraged from using government online services in Australia. The results of this case study, in combination with the extensive literature on the topic, shows that Australia should implement ICT-based or e-government policies, programs and services that more accurately reflect migrant cultures and languages so that migrant integration can be more fully accomplished. Specifically, this article presents an NESB model that adopts the value of user-centricity or a more individual-focused approach to government online services in Australia.
Most experts accept the fact that language is one of the most challenging barriers to overcome in trying to reach higher levels of online-user satisfaction. This reality is even more complicated, as English is consistently preferred for most websites on the Internet, especially in the implementation of e-government services. Conversely, the reality is that nearly 95% of the population worldwide is not native English speakers, which threatens the advancement of e-government (Tamez & Al-Sharieh, 2009). Human nature implies that most people prefer to have access to information in their native language rather than merely be provided with the language that is considered the most common. Thus, it is more accurate to say that the preferred language for the Internet is ‘multi-lingual’ rather than English.

To reach minority groups and avoid the exclusion of electronic interaction with governments in a multicultural society such as Australia, members of the NESB community would appreciate having access to services and relevant information in their own language. People will be encouraged to take advantage of the benefits offered by e-government, feeling that they belong to a society rather than being excluded from it.

Websites that primarily use English text are often confusing to many members of NESB communities and will simply limit their access to what could be critically needed services. Another common practice is to provide information for the NESB communities in English directed to community leaders who are expected to be skilled in that language. Conversely, this practice ignores the majority of the NESB community who are most in need of the services being offered. Specifically, vital information regarding health and wellbeing, employment, education, employment and other information NESB communities is often difficult, if not impossible, to access.

Subsequently, the NESB community does not have equal access to the types of services and benefits that most Australian citizens take for granted. It is also clear from both the literature and the primary data collected for this study that there is a strong inter-relationship between age, level of education and English language proficiency and the use of government online services. Younger participants with good English language skills seem to be the most proficient and enthusiastic users of various new and emerging ICT, including online government services. Conversely, middle-aged and older NESB community members tend to use more basic functionality of Internet services.
This study, based on a case study of 30 Arab-speaking NESB migrants, as well as existing literature related to the limitations of current online government services, developed a theoretical framework for addressing the needs of NESB users (and potential users) of online government services and also proposed an NESB model (based on that framework) that integrates the fundamental nature of NESB communities and the barriers to online access. The NESB model recognises that the types of online services that work well for one culture do not necessarily serve another culture equally.

The two primary research questions cited earlier related to the: 1) specific needs that could be met by this new model, and 2) prevailing barriers for NESB communities to easily access government services through the use of information systems and technologies. In addition, this article addressed other concerns of NESB migrants, such as their perceptions of online government services and the potential benefits of the NESB model for NESB migrants.

This study revealed that not all migrants—such as the Arab natives included in the interviews—are aware of the social and cultural difficulties that may arise upon settling in a new country, especially when they are non-English speakers in an English-speaking nation. It is clear that the language barrier has significantly affected NESB migrants’ access to available and useful resources.

The interviews conducted for this study revealed potential for the NESB model, which is based on the theoretical framework, having several different aims, qualities or aspects. This model combines several aspects of psychosocial and cultural factors with governance, public policy and ICT. However, most importantly, it focuses on the needs of the NESB users as well as what has prevented them (up to this point in time) from fully accessing online government services. As it is accepted that individuals have the mental and emotional capacity to evaluate themselves as well as their environment, it is logical to assume that they will act according to their perceived needs and abilities, and on societal conditions that affect them. Current online government services do not consider these factors—the NESB model does.
Again, the interviews highlighted the major role that a lack of English skills plays in the ability (or lack of ability) of NESB migrants to access government online services. Moreover, this language barrier also was instrumental in requests made by the interviewees for inclusion of simplified English and more user-friendly designs and structures in government websites.

Suggestions were also forthcoming regarding the need for information to be available in multiple languages, which would allow NESB migrants to access IEC materials to supplement online tools. Understandably, language is the primary component of the proposed NESB model, as it is a key factor related to a person’s perception and behaviour. More importantly, it indicates that the NESB migrant’s culture is respected and valued—not viewed as less important than the English-speaking culture of the majority of Australians. Language and cultural sensitivity must become a critical element within any online government service.

However, that by itself is not enough. That same attitude must carry over into the developers of technology, including the ICT that powers government online services. Technology must transcend race, culture or language if it is to truly benefit people. In order for the NESB Model proposed here to function as intended, IS/IT developers and program analysts need to be aware of the importance of respecting culture and language diversity. By incorporating a multi-lingual approach in these devices, NESB users will be much more likely to use them—and gain the benefits that come from their use.

This is not a new concept, as this process has been implemented by many organisations and firms worldwide. However, the NESB model seeks to explain why doing so is important. Members of NESB communities, regardless of culture or native language, are entitled to benefit from Australia’s social inclusion policy. Thus, the NESB model reflects the goal of such policy, including overcoming barriers to accessibility to government information and services.

For this theoretical framework and model to function as intended, there will be a need for knowledge-sharing and awareness-raising by working closely with various groups of NESB migrants (who will provide critical feedback), as well as government agents, IT experts, research centres and the entire NESB community through improved IS
technology and instructions. Implementation of the NESB Model will result in an assessment of what is working, what needs adjustment and what remains to be done to improve e-government services.

Primarily, any adjustments in online services brought about by the NESB Model must be based on the specific needs of NESB migrant communities and may be collected and subsequently conveyed through the use of ICTs, such as the Internet-based discussions, forums and consultations. The beauty of the NESB Model is that it will allow even unskilled computer users to gain the same type of access as those who are experienced Internet users.

Thus, the goal is to combine an understanding of the needs and culture of the NESB migrants with the specific type of technology that will meet those needs. By developing a thorough understanding of why these individuals are reluctant to use (or incapable of using) the available online government services, it will be possible to identify the meaning of technology in terms of wider social performance of the proposed NESB Model.

7.4 Limitations of Research

This study’s limitations are summarised in this section. The interview approach used for this research (the interviews conducted with 30 members of the NESB Arabic community) represents just one period of time in the life of the participants. Therefore, the results may not show how (or whether) the participants’ attitudes or behaviours changed over time. A methodology featuring a longitudinal design would more accurately determine if the participants continued to feel the same way about the use of e-government and online services as they expressed during this study.

The research model accounted for less than half of the variance in citizens’ intention to use or not use government online services.

This study also relied on one case study for the collection of primary data to determine the effectiveness of and barriers to acceptance of government online services in the
NESB community in Australia. Multiple case studies could provide a more diverse set of factors that affect the adoption of e-government.

The final limitation is related to the group selected for inclusion in this study. The focus was on the NESB Arabic community and specifically located in a limited geographic location. As a result, the findings are not necessarily applicable to other NESB groups or other geographical locations within Australia. Further studies including other NESB groups at other locations will strengthen and validate this research’s results.

Despite these perceived limitations, the research presented herein provides valuable information that should benefit anyone or any group interested in the adoption of e-government services by the NESB community. At the same time, based on the listed limitations, future research is suggested in the following section.

7.5 Future Research Opportunities

Future research utilising a longitudinal design, as suggested in the previous section, would be beneficial for more accurately determining if the participants continue to feel the same way about the use of e-government and online services as they expressed during this study. By studying a group of NESB residents over a period of time—perhaps six months—more detailed information could be collected regarding these individuals’ use of e-government services. This would involve interviewing or having the participants complete a survey instrument at the outset of the study and a second time following the designated time period. As a greater period would be included in the study, it is possible that attitudes of the NESB users may change or evolve.

A second possible opportunity for further research is to expand the geographic area where the study takes place. For example, a study may be developed that includes members of NESB communities from locations across Australia, rather than a more localised area, as was the case with the present study. As it may be claimed that the findings of this research are not necessarily applicable to other NESB groups or other geographical locations within Australia, such an expansion to other areas would be
beneficial. Further studies including other NESB groups at other locations will therefore strengthen and validate this research’s results.

Additionally, future studies could include members from other NESB communities, rather than just focusing on the Arabic community. For example, members of the Greek and Chinese NESB communities could be included in addition to the Arabic community in a future study. As defined by the ABS, this cross-section of three communities comprises a nationally represented sample. This could serve to validate the results of this initial study with the Arabic community. Further, an SDI-driven interactive platform should be developed to enable a broader NESB communities access for the fine-tuning of the NESB model.

7.6 Conclusion

This study has made it clear that the online services provided by governments in Australia are not simply a way to initiate web-based technologies; rather, they represent a complex social system that covers key social issues, including those most important to the NESB community. In effect, this technology provides multiple opportunities for the government to re-evaluate how to deliver improved public services and in what way to tailor these services to users’ needs. The most significant issue for a mature e-government system is the organisational, social and political institutions, and their co-evolution. Moreover, a successful e-government should be a compilation of successful e-services, e-management, e-democracy and e-commerce. However, to accomplish such a goal, there is a need for a fundamental transformation in the approach that government has to the process and, perhaps more importantly, how NESB communities view the way government serves them.

End users of government online services have little patience for services that are viewed as providing them with few or no benefits. Instead, these services must be considered to meet their needs as well as being efficient and easily accessible. One way that could prove effective in encouraging community members to consider—or re-consider—using online services is the development of extensive and eye-catching awareness campaigns, targeting potential users properly to inform them about the genuine benefits they would
gain from the use of these new types of services. Benefits need to be specific and highly relevant to the NESB community, which may include savings in time and effort, reduction in bureaucratic procedures and enabling every person to conduct governmental transactions on an equal basis. E-government services must be designed to be as easy to use as possible to meet the needs of the culturally diverse NESB population of Australia in terms of education and Internet experience. Further, knowledge, resources and support (such as providing computers and Internet access) should be provided at the NESB community level in public places, especially in areas where less advantaged citizens are found. This would guarantee that the largest number of people could make use of these online services.

The provision of citizen-centred e-government is a repetitive process and requires an ongoing commitment, a desire to measure service quality, to constantly look for opportunities to determine the degree to which the services meet user needs and a willingness to implement the lessons learned from the various needs assessment. Said differently, citizen-centred e-government can be costly and may require a cultural shift in governments—from an efficiency orientation to a user orientation. However, the citizen-oriented approach can decrease the identified gaps between government service providers and users. This can increase the use of e-government services, increase the effect of those services, and increase user interaction with government within the NESB community.

A user-centred e-government focus contrasts directly to e-government as a means to reduce the cost of government service provision and simply seeking a different way to provide the same service. A service that does not meet the needs of the user nor one that is difficult to use is a service that is not used—and that is a costly mistake that can require greater investments to correct, if they are ever corrected at all. While the promise of citizen-centred e-government may revolutionise government-user interaction in the long-term, the preliminary data collected in this study indicates that it will require substantial investment and change in the short-term. Not making these investments, however, minimises the benefits of including users in the design, development and implementation of e-government services—and can limit the overall success of e-government.
Availability of data and the resulting information and knowledge are essential components for any organisation to be effective. This is true for any organisation regardless of its form for profit or service. The twenty-first century IS through the cutting edge ICT can be effectively utilised for this purpose if the organisation and its management have the capability and the appropriate strategic vision. Privately owned organisations formed for profit have their own agenda and business-driven strategy that motivate the management team and employees to develop information systems.

However, in the case of government organisations, apart from capability, the elected body has to be earnest and motivated in order to effectively develop information systems that can provide valuable services to satisfy the need of the society. It is a challenging task for government organisations to provide services to the society with diverse cultures and races. However, effective IS can be invaluable. This study concentrated on the implementation of IS that are accessible to NESB communities by government organisations in Australia, and the implications of such IS on the overall society. Indeed, unless more and more members of the NESB community have access to and use the Internet and e-government, the fundamental objective of the government’s IS implementation on communities will be lost.

Australia is one of the most culturally diverse and prosperous societies in the world, and such heterogeneity or pluralism has both advantages and challenges. Providing support to and for the integration of migrants, especially among those with an NESB, is a must for the Australian government. Investments in IS have resulted in the use of ICT to raise public awareness about the country’s policies, programmes, and services. However, communication issues have recently emerged between the government’s online IS and the NESB migrants and their communities.

The most effective way to determine if Australian government agencies are making the necessary progress in e-government development is simply to observe whether or not they are becoming more participatory or maintaining the status quo. The worst-case scenario would be that these agencies merely remain satisfied with having a web presence that meets their own personal needs, but fails to consider increasing the participation of residents in an expansive and more inclusive fashion. As local governments are supposed to be closer to the general community—and also the NESB...
community—it should be expected that they also take the lead in the development of more participatory models of e-governance.

Based on their increasing significance in Australia’s socio-economic and political landscape, it is necessary not only to identify and understand the needs of NESB migrants, but also to determine the barriers (both perceived and actual) that NESB migrants experience with regard to government online services (otherwise termed e-government). Interview findings involving several Arab residents also revealed that language and low computer skills are among the reasons why many NESB immigrants are either discouraged or do not initially use government online services. The study recommends that heterogeneous countries like Australia need to implement ICT-based or e-government policies, programs and services that reflect culture and language sensitivity to effect meaningful and effective migrant integration. By adopting the NESB Model, the Australian government, nationally and locally, will prove that it is determined to improve the reach and use of its e-government services. Once the NESB community believes that the government is addressing the barriers preventing its members from fully accessing online services, usage should improve significantly. Further research implications were also cited.

Members of NESB communities, regardless of culture or native language, are entitled to benefit from Australia’s social inclusion policy. There is no legitimate reason why the majority of citizens in Australia regularly use the e-government services provided for their benefit, while members of the NESB community are unable to do so with the same level of confidence. Thus, the NESB model reflects the goal of Australian government policy, including overcoming barriers to accessibility to government information and services.
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Appendix A: Questions Asked of Participants

1. Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

2. Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

3. Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

4. Based on your experiences within your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

5. If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

6. As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?
Appendix B: Contact Letter

Dear Potential Participant:

This letter is an invitation to participate in a research study. As a part-time PhD student in the Department of (insert department name) at the (insert University name), I am currently conducting research under the supervision of Professor (insert name) on overcoming the barriers experienced by Non-English-Speaking Background (NESB) communities in accessing online Australian Government Information Systems.

Study Overview

Specifically, this study will investigate cultural, social and political factors in general and how those factors influence Non-English-Speaking Background communities, especially the Arabic communities. Despite the increasing number of Government Information Systems that are designed to assist local communities, it has been observed that barriers in accessibility to these services are often apparent. These barriers occur both in actual accessibility as well as in perception.

This research aims to instigate the process of dismantling these barriers by way of qualitative measures which will investigate causality and causal relationships among barriers, perceived barriers, strategic management intervention strategy and government IS outcomes. It is therefore the overarching aim of this study to redirect the emphasis to a user-centred approach, in order that the aforementioned objectives be exacted. The study proposes what is called an NESB Model, which establishes communication between the NESB individuals, coordinators (government agents), IT experts, research centres and entire NESB communities by means of improved IS technology and instruction.

Your Involvement

The study involves in-person semi-structured interviews and open-ended questions about your use, or lack of use, of local government online services. I am especially interested in obtaining input from individuals with an NESB background in the Arabic community. If you agree to participate, I will contact you again to arrange an in-person interview with you. I will be scheduling in-person interviews commencing (insert date).

The interview will last fifty to sixty minutes and would be arranged at a time convenient to your schedule. To ensure the accuracy of your input, I would ask your permission to audio record the interview. However, you may feel free to refuse this if you so choose. I will be making written notes and will review these with you following the interview to make sure that your thoughts are accurately conveyed.

Participation in the interview is entirely voluntary and there are no known or anticipated risks to participation in this study. You may decline to answer any of the questions you do not wish to answer. Further, you may decide to withdraw from this study at any time,
without any negative consequences, simply by letting me know your decision. All information you provide will be considered confidential unless otherwise agreed to, and the data collected will be kept in a secure location (at the University) and confidentially disposed of in five years’ time.

Your name will not appear in any thesis or publication resulting from this study unless you provide express consent to be identified and have reviewed the thesis text and approved the use of the quote. After the data have been analysed, you will receive a copy of the executive summary.

Contact Information

If you have any questions regarding this study, or would like additional information about participation, please contact me at (insert phone #) or by email (insert email). You can also contact my supervisor, Professor (insert name), by telephone at (insert phone #) ext. xxxxxx or by email at (insert email).

I assure you that this study has been reviewed and received ethics clearance by The Human Research Ethics Committee at (insert University name). However, the final decision to participate is yours. If you have any comments or concerns resulting from your participation in this study, please contact (insert contact information).

Thank you in advance for your interest and assistance with this research. Your participation is greatly appreciated and will be extremely valuable.

Yours very truly,

(insert name)
PhD Candidate
Appendix C: Text of the Interviews

Note: Characters used during the interviews: R: Researcher; P: Participant

Interview #1
Name: Anonymous
Sex: Female
Age: 18–55
Education: Bachelors
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): None
Service used On-line: Enquiring about a development application and Rates Payment

Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I am always on the move because of construction business; at home I have Internet Explorer while on Laptop I got Mozilla Firefox. The websites don’t work right on any other browser than Internet Explorer so I am bound to use them at home’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘The pages are scrambled and the forms don’t submit. I need to be able to use them anywhere’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness to access local government online services.

P: ‘I am very good at using computers’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few and explain the reasons for how you answer?

P: ‘In Arabic-speaking community, people use these quite often. My case is exceptional, I don’t have an issue using the service; I just have problems in using them on different browsers’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Please make the services more advanced technically and ensure browser compatibility. It will provide better accessibility to the system for both citizens and business better outcomes and less cost’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes, if content is in Arabic it will be easier for builders from Arabic community to do their tasks online’.

[End of Interview]
Interview #2
Name: Anonymous
Age: 18–55
Sex: Male
Education: Building and Construction (Trade)
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): None
Service used On-line: Development Application

Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I have trouble understanding the official specific terms and abbreviations in English language. “If it’s easy to find the information on the website, I would not be phoning up”. In other word, the website it’s not easy to use and it’s not community focused as well’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I have trouble understanding the official specific terms and abbreviations in English language’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I am good at using computer, this is not an issue for me’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few and explain the reasons for how you answer?

P: ‘People like the way they do not have to run to office/bank but they still have trouble figuring out difficult words’ meanings. They are relatively a few people use the online services; I think it’s lack of communication between government and citizens in providing online services. The government needs to improve the relationship between citizens and the public sector by providing better access to information and services. It is the responsibility of the council to provide any community wishing to have an online services and resource available to improve and achieve service quality’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘The government should ensure services are delivered to all levels of society at the most convenient way. However, they can use simple English for people who are not from English background. Users should be able to quickly find the information and using functionality on the website. I would also recommend interactive demonstrations may improve citizens’ ability to access e-services’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: Definitely. This will be great for us and help builders within our community to use the service quite frequently’.

[End of Interview]
Interview #3
Name: Anonymous
Age: 18–55
Sex: Male
Education: Apprenticeship
Employment Status: Part-Time
Mother Tongue: Arabic
Fluency in English: Novice

Service used Off-line (Traditional Method): None
Service used On-line: Development Application

Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I have been living in Australia for about one year and I have just started my Apprenticeship. There are language barriers. English is difficult for me’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘There is no technical problem. I have a computer and Internet connection but I don’t understand most of the site content’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I can use the computer easily but I cannot call myself a skilled professional or an expert in computers’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few and explain the reasons for how you answer?

P: ‘People avoid sites with no Arabic language provided. For example, if a problem with a payment occurred it would be hard for them to fix it.’

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Simplify language on the websites, provide translated pamphlets in multi-languages’

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Cultural issues that should be addressed when developing online services to achieve high level of service delivery to all communities across the board. For example, if taking the Arabic language into consideration would influence the user’s interaction with the service’.

[End of Interview]
Interview #4
Name: Anonymous
Age: 18–55
Sex: Female
Education: Bachelors
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): None
Service used On-line: Development Application, Rates Payment and Service Request
Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘The website service is not reliable because the service goes down quite often. In that case, if urgent information is required, one cannot rely on it’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘It is very annoying but one has no better option. When possible I visit the office to make my inquiry’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I can use computer easily’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few and explain the reasons for how you answer?

P: ‘People don’t trust the website as much as they trust the office. I think because of lack of literacy, limited resources and lack of knowledge. Issues need to be considered such as giving citizens greater access to the range of services and greater security, faster delivery by providing faster, more accurate service. In some cases, citizens will not use services if they do not have access to a computer or if the cost of accessing services on-line is expensive, people will not use it as well’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Make the online services better and more reliable. Online services needs to be supported in better way. It’s not acceptable for such a service to be unavailable for more than a week. I believe the major issue with online services adoption by our community lies in the technical nature of the online services provided by local government. The online services needs more review and efforts. The management should re-think in a way that can help citizens to interact with government through IT so citizens can adopt and accept online services. For example, considerable investment has to be made in local government online services projects’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Arabic is going to help all the Arabic community and must be provided. English should also be there for others’.

[End of Interview]
Interview #5
Name: Anonymous
Age: 18–55
Sex: Male
Education: Building and Construction (Trade)
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): None
Service used On-line: Development Application

Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I do not understand the official English terminology and the website is too complicated’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘The online system is too complex. I have used many times but I still get confused’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I can use computer very well’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘People find the website difficult to understand. Some opt alternative methods to avoid hassle’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Please make the website in simple language so that we can easily use it. Also simplify the design and process flow; it is very confusing. I also would recommend (A–Z online guide to all services)’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘I think it's a great idea to allow councils to target the Arabic community in Australia to maintain Arabic focus by providing websites support Arabic language and applications. It will help to increase the acceptance of online services within the Arabic community’.

[End of Interview]
Interview #6
Name: Anonymous
Age: 18–55
Sex: Male
Education: Building and Construction (Trade)
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): Development Application, Rates Payment and Service Request
Service used On-line: None

Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘It is difficult to follow the procedure. I looked for some good help section but could not find it. The process is complex. It is difficult to navigate around. I believe the local government online services considered confusing and disjointed’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I personally believe the online service it doesn’t enhance my effectiveness in accessing government services. I don’t like the way website looks like. It’s complex and confusing to locate relevant information about a service. We have become so organised around technology that we have almost forgotten what it’s like to talk to people. In addition, when you find yourself face-to-face with someone, you realise you can explore, ask questions, keep asking more questions and get to the heart of the matter. The Frequently Asked Questions (FAQ) section it doesn’t answer my questions and it’s simple questions it gives simple answers’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I am not a big fan of computers but still I can use them pretty well. This does not have much to do with my dislike for the service’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘I think most builders within our community find the online services difficult and complex to use. The government should look into overall infrastructure, technical and security factors. The goal is to create a friendly, easy-to-use tool for the businesses to locate information and more convenience to access online services. It appears to me more security is required to protect against unauthorised access to government’s resources’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘To be successful, the online services must build trust with businesses and citizens. They should protect all of the sensitive data. I believe the security issues represent a major concern in our community. Citizens they need to be comfort in using online services; they should have sort of methods that are able to guarantee privacy. Other things such as web design should be simple and appealing for non-technical people such as us. There should be sufficient help for each section on the same platform. Also, the
government should consider that language can be simplified. If the citizens are offered benefits by using online services, or ability to customise options on the Internet, it may increase using the online channels’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘It is reasonable to assume there is a substantial need for Arabic language due to the population of Arabic community in Australia. However, the Arabic language it may increase use due to increased trust, but it could be possible to decrease in use due to impacts on ease of use and usefulness as well. So if we look in a positive way, yes, it is expected to help improve trust will certainly make the whole process much easier and increase the use of online services’.

[End of Interview]
Interview #7
Name: Anonymous
Age: 18–55
Sex: Male
Education: Building and Construction (Trade)
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): Development Application
Service used On-line: None

Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘Well, because I’ve done my trade certificate 18 years ago and I didn’t up-to-date my skills with technology, I feel that I am so behind with technology and I have limited ability “computer knowledge”, so I always think instead of taking risk. I follow the conventional office paperwork procedure, which it doesn’t require continuous training’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘The online services seem complicated to me and it requires lots of training; that is why I avoid them. Security issues I find it difficult to trust online service providers; it’s too risky’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘Yes, this is true. I avoid online systems in all fields, not just the local government development enquiries but also otherwise. I don’t even shop online’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘I have not discussed this with others, but I am sure that people in my age group avoid computers. It’s a critical matter so one has to avoid trouble’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘They can have some DVDs distributed to train us on the services provided, which I think it will reduce our fear and risk associated with this technology’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Arabic language will also help. Especially those with weak English’.

[End of Interview]
Interview #8
Name: Anonymous
Age: 18–55
Sex: Female
Education: Bachelors
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): Development Application and Service Request
Service used On-line: None

Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I find it so difficult for me to navigate through the website to find a particular service. It’s actually not flexible to interact with’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘It’s important to have clear instructions spelled out in details so that people always know what they are expected to do’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I can use the computer for fundamental purposes like email, chat and browsing but I am not into too much technicalities’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘The lack of flexibility and quality of online services, I think this will impact on people accessing the online services within our community. I think the majority of people still prefer human contact either by visiting a council office or using the telephone’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Assess the website structure and review the instructions associated with each online service to improve website accessibility. Making the Internet access available to customers in public buildings, ensuring the needs of disabled people taken into consideration. The focusing should be on ICT and new technologies to change the way the council do things, so they can facilitate better services that are more relevant to their needs’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Since we live in an English country, everyone knows English so I do not think it’s a major benefit if Arabic content is provided. It might be helpful to some though’.

[End of Interview]
Interview #9

Name: Anonymous
Age: 18–55
Sex: Male
Education: Building and Construction (Trade)
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Novice

Service used Off-line (Traditional Method): Development Application
Service used On-line: None

Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I have to enquire quite often but it is not easy to learn computer in this age. I find it difficult to go all the way to the office but I have no other option’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I have not used computer for most of my life and it confuses me very much. I tried to use it once but the English was very advanced so I stopped trying’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I am not good at using computer and this definitely serves as a barrier for me to use online services’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘I heard many people finding these relatively easy and good to use. They think it is easier to use than to go to the office to do it. The latter is a lengthy tiresome process’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘For those who are in an age group where learning is tough please make services easier for us, e.g. through mobile phone perhaps or telephone where some operator can do the job for us. This will save our trip to the office’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Native language content will also make things easier. Probably then I can again give it a try. It is too risky in English’

[End of Interview]
Interview #10
Name: Anonymous
Age: 18–55
Sex: Male
Education: Building and Construction (Trade)
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): Development Application and Service Request
Service used On-line: None

Interview Category: Enquiring about a development application

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I do not like the online services in particular because the English they have used is not simple and straight. There are many confusing abbreviations and jargons which make it tricky’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘Yes, it is very tricky to understand the wordings used. Also there is risk of mistake. For this reason I have to visit the office and opt the lengthy traditional procedure’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I can use computer very well in general but this site is not easy to access available services’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘A lot of community members complained about the same thing and prefer using the traditional methods. Especially the ones who are not very fluent in English’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Firstly, the website features and design have to be simplified and stable. Also the content should be in easy language for everyone’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes, Arabic language will help all the Arabic community to a great extent. They should also be phone support representatives who can clear our ambiguities if we call them’.

[End of Interview]
Interview #11

Name: Anonymous
Age: 18–55
Sex: Male
Education: Bachelors
Employment Status: Unemployed
Mother Tongue: Arabic
Fluency in English: Novice

Service used Off-line (Traditional Method): None
Service used On-line: Rates Payment

Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I am not very fond of using online services but because of other responsibilities I have to do it. I always have a fear of making some computer error which might cause me serious trouble’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘Firstly, I needed to upgrade my computer to make sure that the local government sites open right and so I had to spend a great deal of money. Secondly, I have to pay extra for my Internet service despite the fact that I don’t use it otherwise that much’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I know computer basics but I am not very good at it. If there is an error even from the website side, I assume I did something wrong. It is annoying for me to do the things online’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘Websites and web services are relatively new, and they have become substantial local government responsibilities and I don’t think currently many people using it. Since the technology relatively new, I would suggest more future development and maintenance to online services without significantly affecting ease of use and usefulness’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘• Have Arabic versions and other language versions for the services.
• Keep things simple and straight.
• Make sure that the online service is flawless without any errors’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘People who are not from English communities or computer experts will really like it if there were simple interfaces done in Arabic or some other language. This will increase interest in use of online service’.

[End of Interview]
Interview #12

Name: Anonymous
Age: 18–55
Sex: Male
Education: Bachelors
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): None
Service used On-line: Rates Payment

Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: 'I make payments on my father’s behalf for his property using the online service because he is not good with using computer. As such, there are only few issues that sometimes its last due date but website is down. This creates a big problem because if overdue, we have to pay surcharge even when it is not our fault'.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: 'There is problem and risk when my father is not doing a critical thing such as payment himself. I am a mediator and if I make a mistake, he has to pay for it. We often have this trouble that if website is down then payment gets delayed and then we have to pay a fine'.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: 'I don’t have any trouble using computers because I have done some computer courses and also I use Internet frequently'.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘People in the age group of forty to sixty are not fond of these online services. They still prefer the paper method. Computer and online services in intangible so they take it less seriously’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Have an awareness program for people of my father’s age and similar age group so that they take these services seriously. Ensure that the website is up and running most of the time by using reliable multiple backup servers’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Definitely, if it is in Arabic we can easily understand so many things. Especially elders like my father can easily do their own work’.

[End of Interview]
Interview #13
Name: Anonymous
Age: 18–55
Sex: Female
Education: Masters
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Excellent

Service used Off-line (Traditional Method): None
Service used On-line: Rates Payment

Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I am satisfied with the service. It saves time and effort’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘Please refer to the answer above’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I am good with using a computer; I have Masters degree in Computer Science. Perhaps this is the reason I comfortably use the online services provided by the local government’.

R: Based on your experiences within your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘From what I have seen, women especially avoid using computers in particular because they lack knowledge. If the content is in Arabic or other related native language then it will be easier for everyone to use’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘The government should identify and focus on citizen needs and community ownership. Make these services easier for people from all sectors of life to use. Establish a trust between the local government and citizens, which will increase engagement and perceive benefit to the individual. If the government also can demonstrate to citizens that online services will save time and money when using it or by introducing a new service on the Internet, they are likely to engage with it’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘I believe it’s important for the government to be able to communicate concepts across diverse cultures and languages and to ensure that concepts have the same meaning across cultures. Yes, I am sure that if the services are available in Arabic for the Arabic community, these will help people use the services and cause less hassle. Citizens then will see the potential personal benefits of engaging with online services’.

[End of Interview]
Interview #14

Name: Anonymous
Age: 18–55
Sex: Male
Education: Bachelors
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): None
Service used On-line: Rates Payment

Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I am not very good with using computer or Internet; therefore, I find it risky to use the online services. Fear of mistake is always there’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I keep wondering what if in middle of the payment, computer goes off? Or what if I make a mistake and pay more than required. There is too much ambiguity and risk’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I can use the computers well enough but not as good as kids who spend most of their time on it. Maybe since the whole process is intangible, one finds it difficult in this age to leave the traditional methods’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘All the people of my age have more or less similar reservations with the online services’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘I will ask them to hire some people who can come door to door and collect cheques with acknowledgement. We use online service only to save us a trip and this can be done offline too’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘It will help but the risk and uncertainty about computer will remain’.

[End of Interview]
Interview #15
Name: Anonymous
Age: 18–55
Sex: Male
Education: Masters
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): None
Service used On-line: Rates Payment

Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘If Internet service is down then we have to go to the office all the way which is quite far from our residence. Sometimes the website is down. There is problem if the payment is in process and something goes wrong with the website. In addition, I have some fear about my privacy and security on the web’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘The services are fine. I only have problem if the services are unavailable’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I am good with computers’.

R: Based on your experiences within your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘The young people find it good while the old ones prefer paper methods. Many people use it from what I know’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Make the website in Arabic if you want more of the Arabic community to be using it. Also, please improve the service and make sure the website is working fine all the time. Issues regarding privacy and security need to be improved to ensure protecting personal information’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes, it will help everyone, even those who are good with English. There is nothing more comfortable than the native language’.

[End of Interview]
Interview #16
Name: Anonymous
Age: 18–55
Sex: Male
Education: Masters
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Excellent

Service used Off-line (Traditional Method): Rates Payment
Service used On-line: None
Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘It is too risky. I do not like to make payments online because of hacking and viruses. I don’t feel that government websites are reliable. They are many issues out there such as information protection, cyber crime and credit cards fraud. If I send a request via email I will receive the right solution from the government staff’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I prefer the traditional paper method or going to bank instead of making an online payment because if the account information or card information falls in wrong hands then it’s a lengthy recovery process which I don’t have time to get into. The information collected may be used for purposes other than that for which it was collected’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I can use computers at ease. I have one in office and at home. Also, I have a smart phone with all features of a computer, so yes, I can use computers very well’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘I and my group of friends mostly prefer the paper method for the same reasons: hacking, privacy and viruses. But if we do access the online services, it will make government less personal and make it difficult to get answers’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Well they can make the payment mechanism secure with some kind of guarantee that our bank information or card numbers etc. will not fall in the wrong hands. The government should aim to enhance their websites’ quality and accessibility, which help us to use it more frequently’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Migrating the language to Arabic will help those who are not comfortable with English, but still the security issues and privacy issues will be there, which are the basic problem. Website enhancement is extremely important, since it enhances the continued use of the Web sites’.

[End of Interview]
Interview #17

Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘Internet service is expensive for me and also a new computer which is good enough to run these services. Secondly, our community the English language is the second language for us so the language barrier is there and this is one of the social problem that is preventing us from using the online services I guess’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘For people with low income, it is difficult to pay for a good Internet service and computer. To save money, we use the conventional office/bank method’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I just know the basics but I can improve if I were to buy one for home’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘Minorities who are doing odd jobs or making just enough to pass the month find it difficult to invest in extra things. Our prime focus is providing necessities to family’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘If they can give us computers on low rate and some installments, all the people in my locality will opt for these services. Also, if the services are easy and convenient to access, the adoption of the services will rise, improve service quality for all citizens with lower cost’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes. Arabic is our native language and we find it easier as compared to English’.

[End of Interview]
Interview #18

Name: Anonymous
Age: 18–55
Sex: Male
Education: Masters
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Excellent

Service used Off-line (Traditional Method): Rates Payment
Service used On-line: None

Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I do not trust online services. They have viruses, spywares, toolbars and hackers. I am satisfied when I pay in person at office/bank. In order for me to successfully engage with online services, I need to have confidence in both the government and the technology’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘It is insecure and risky feeling for me’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I can use computers at ease. I am working in advertising agency so we use computers a lot. Got no problems there’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘I do not know many people who use this; most of my social circle is office people and we all prefer the offline method because the office/bank is nearby so why take the risk?’

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘The government continually needs to put more efforts to enhance its design and add more executable functions. So they can give us a solution to viruses, security, privacy and hacking issues then we can consider using this service’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘One of the major challenges I think the government currently facing is that to analyse local needs, taking into consideration culture, social and human aspects. Since I am good in English, it won’t make a big difference but definitely it will help other’.

[End of Interview]
Interview #19

Name: Anonymous
Age: 18–55
Sex: Female
Education: Masters
Employment Status: Unemployed
Mother Tongue: Arabic
Fluency in English: Novice

Service used Off-line (Traditional Method): Rates Payment
Service used On-line: None

Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘Barriers such as language acronyms and abbreviations used in English are confusing, badly web design decrease people to access online services’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I cannot understand most of the content; therefore I have to go to bank/office’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘Computer is also mostly in English but we know through practice. Payment is a serious matter so we do it in office/bank. Councils need to identify the tools and requirements to provide secure and customer friendly online transaction’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘People don’t like the way everything is in English. It’s better if other minorities’ are taken seriously and we should have the service in our own language’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Please provide us service in simple Arabic language so that we all can use it better. I don’t know if the government realising some other issues or factors that exist within our community for example, lack of resources, skills and awareness. It’s really a major challenge to deal with. So in terms of improving resources, a free Internet access through public terminals would be recommended’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘I think the lack of language, one of the barriers that our community needs to do something about it, so if the government provides it in our native language, It will make it easy for use and save us from going to office/bank’.

[End of Interview]
Interview #20
Name: Anonymous
Age: 18–55
Sex: Female
Education: Bachelors
Employment Status: Unemployed
Mother Tongue: Arabic
Fluency in English: Novice

Service used Off-line (Traditional Method): Rates Payment
Service used On-line: None

Interview Category: Making a Rate Payment

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I cannot go to office/bank and I am not good in English so I have to pay a friend in neighbourhood to make the payment for me online’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I have to share private details such as bank details and credit card etc. with him and he knows the status of my late payments etc., which is embarrassing’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I am not good at using computer so I have to pay a friend extra to do my work, otherwise I go to bank/office’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘I don’t think the online services are used commonly within our community. Marketing campaign is needed to promote such a services available online. Actually, it’s a good thing will increase people awareness’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘If you can please make the services easier or something like SMS method to make a payment, it will be great help. Improve Internet skills for our citizens by sending them to training, so I assume one of important key elements is ease-of-use’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes it will be ideal if things are in Arabic. Phones too support Arabic so I suggest, local government gives us Arabic SMS facility to make payments instead of paying or trusting some third person’.

[End of Interview]
Interview #21
Name: Anonymous
Age: 18–55
Sex: Male
Education: High School
Employment Status: Part-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method: None
Service used On-line: Service Request

Interview Category: Submitting a service request

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I worry about making some technical mistake on a computer which might lead to further problem. I don’t fully trust technology; it is too unpredictable’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I am not too good with handling computer. Many a times if there is an error or virus I don’t know what to do and then have to call the support staff, which charges me high on an hourly rate. Therefore, it is easier to visit the office and make the request on paper. I do go to the office whenever I get a chance, otherwise I have to manage somehow. It is very confusing, especially the English’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I have to use the service, I do not have another option but I am not comfortable using it. The first problem is that the services are in complicated English, which increase error chances and second issue is lack of computer knowledge, which de-motivates me from using online enquiry’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘Everyone has the same problems more or less. We need easier systems or some training for the systems or maybe both. Within my community, there is a strong demand for online information services from local government’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘My community is not aware of the range of Internet-based information services offered by local government; in other hand, local government Internet services are difficult to access and hard to use’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes. Arabic content will solve one of the major problems’.

[End of Interview]
Interview #22

Name: Anonymous
Age: 18–55
Sex: Female
Education: Masters
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Excellent

Service used Off-line (Traditional Method): None
Service used On-line: Service Request

Interview Category: Submitting a service request

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I do not have a problem. Sometimes the website is down, which is annoying; otherwise, I think it is best if we use the service online from home or office’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘Not any significant issues faced except system service being down’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I do not have any problem using a computer. If the website goes down, then no computer expertise come in handy’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘I am fluent with English because I have been using it since many years. Many others who do not know English too well still use the office-based system instead of online service’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘They can improve the service time and make sure that the website is available in functional way 24/7. Also, if the language can be simplified or if the site can be translated somehow in native languages, it will help many people in Arabic community and also other communities’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes. Please refer to the answer above’.

[End of Interview]
Interview #23

Name: Anonymous
Age: 18–55
Sex: Female
Education: High School
Employment Status: Full-Time
Mother Tongue: Unemployed
Fluency in English: Novice

Service used Off-line (Traditional Method): None
Service used On-line: Service Request

Interview Category: Submitting a service request

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I am not too fond of online services because of complex form-filling technology, but we have to use it in either case. Also, the English is difficult to understand’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘Language and technology both are difficult, which make the online service less desirable’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I am not fully comfortable using computer and it discourages me from using the online service too’.

R: Based on your experiences within your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘Many people who are good at using computer and advanced English do not have trouble. However, I am not fully satisfied with the level of ease’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Make the language simple, preferably in minority languages which we can understand, and keep the technical aspect simple, as everyone is not a computer expert. Basically, a website with useful functions and easy navigation will attract our community members to use the online services delivered by local council’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘If the government website support languages other than English spoken at home. For example, the Arabic language for the Arabic community—it’s really important; it may makes the whole process become easy’.

[End of Interview]
Interview #24

Name: Anonymous
Age: 18–55
Sex: Male
Education: Masters
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Excellent

Service used Off-line (Traditional Method): None
Service used On-line: Service Request

Interview Category: Submitting a service request

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I do not have major issues—just that the forms are lengthy and verification process takes long. If process time can be reduced, its better’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘The procedure is very long; otherwise, there is no other major issue’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I don’t have any trouble or lack of knowledge when it comes to computers’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘Most of the people I know use these services easily. Everyone wants the process to be as short as possible’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘From user’s perspective, citizens need to be aware of access to e-government services. A review of local government websites is needed to better understand the way that local governments had positioned themselves with regard to consultation and participation’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes. It will help those who do not find English language comfortable. But the main issue it’s not the language; the only issue stopping the community from accessing the online services beside that there are a few issues the government needs to look at such as IT infrastructure, improve security and privacy, IT skills and costs’.

[End of Interview]
Interview #25

Name: Anonymous
Age: 18–55
Sex: Female
Education: Bachelors
Employment Status: Unemployed
Mother Tongue: Arabic
Fluency in English: Novice

Service used Off-line (Traditional Method): None
Service used On-line: Service Request

Interview Category: Submitting a service request

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I like the way I can use the service from home. I am a housewife, so going out too many times is annoying for me. The online services processes slow and inefficiency, some of the online services requires password and user name, the system doesn’t generate the user name and the password instantly. I think the council officer has to complete manual steps to be able to obtain access and this it doesn’t happen straight away. Sometimes it takes days to get your access done’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I think the language is complicated, which sometimes makes me refer dictionary or seek husband’s help’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘Yes, I can use the computer easily. I regularly shop online and surf the Internet too’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘The people I know in our community—especially woman—all complain about the difficult English. But based on my experience, the local community don’t have the requisite knowledge and resources to exploit online services’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘If the language can be made simple and easy, then more people will comfortably place enquiries online. I think the role of the government here to consider the citizens’ wants and needs to ensure citizens’ engagement with the services provided online. In order to provide advanced technology, additional IT expertise and budgets are necessary and essential’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes. If the content is in Arabic it will be a major help. Then we don’t have to look up dictionaries or ask anyone regarding the meanings and confusions’.

[End of Interview]
Interview #26
Name: Anonymous
Age: 18–55
Sex: Female
Education: Masters
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): Service Request
Service used On-line: None

Interview Category: Submitting a service request

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I have done my Masters degree in biology so we don’t know much or computers. I only use the basic use like Facebook etc.’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘I find the online service unreliable because I cannot fully trust the website. I fear for hackers to get a hold of my information or someone from local community to access my information’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I don’t have a problem using it at a fundamental level but the things beyond my control such as privacy and security really bother me. These are the reasons I visit the office and use paper method’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘Many people in my age group are skeptical about sharing their enquiries or information using the online services. We don’t know who is receiving our information and what they will do with it’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘I do not think anyone can assure a foolproof security and privacy for the IT systems. It’s a global fact that just as security is getting better, so are the hackers. Using e-services can make the public feel vulnerable. There is no guarantee that the data will not be used for other purposes’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Yes. It will bring a sense of belonging and ease of use’.

[End of Interview]
Interview #27
Name: Anonymous
Age: 18–55
Sex: Female
Education: Bachelors
Employment Status: Part-Time
Mother Tongue: Arabic
Fluency in English: Good

Service used Off-line (Traditional Method): Service Request
Service used On-line: None

Interview Category: Submitting a service request

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I use my university computer, which has limited access. The local services don’t work on it so I have to use the regular method by going in person to the office’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘Well, the services page does not open so I don’t know how difficult it is. I have no option but to use the alternative methods’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I can easily use computer all the time’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘From what I hear, people are happy they don’t have to go all the way to the office. However, in order to improve the access and make them participate to online services, currently our community needs to improve two areas I think: language and literacy’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘The local government needs to be near the community and understand their requirements to provide continuous maintenance and development for online services’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘That too can help. There is nothing better than native language. Also, I would recommend more Internet training packages programs should be provided to introduce the council’s (online services) to the community. This should be provided in both languages: English for those interested to improve their English language and Arabic for those not able to communicate in English’.

[End of Interview]
Interview #28
Name: Anonymous
Age: 18–55
Sex: Male
Education: High School
Employment Status: Unemployed
Mother Tongue: Arabic
Fluency in English: Novice

Service used Off-line (Traditional Method): Service Request
Service used On-line: None

Interview Category: Submitting a service request

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘I do not like doing such critical things online because the English is difficult to understand and so it even stops me from using the whole service idea’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘The language is complicated and so there are more chances of making a mistake. Correction is a slow and lengthy process so I rather go to the office and simply make a paper submission’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I don’t have generally any problem using computer’.

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘Everyone has similar reservations because of which they either use some alternative like hiring a computer or English specialist on hourly basis; otherwise, they have to go to the office’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘Make the process simple enough for everyone to understand. Also, language needs to be simplified’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Native language Arabic will help a great deal to people from our culture. We won’t need to hire anyone and make submissions ourselves’.

[End of Interview]
**Interview #29**

Name: Anonymous  
Age: 18–55  
Sex: Female  
Education: High School  
Employment Status: Unemployed  
Mother Tongue: Arabic  
Fluency in English: Novice  

Service used Off-line (Traditional Method: None  
Service used On-line: Rates Payment  

Interview Category: Submitting a service request  

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?  

P: ‘I don’t know how to use computer much. Therefore, I have to request someone to help me, which is embarrassing. I would rather go to the office and make the submission’.  

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?  

P: ‘It is embarrassing and annoying. I wish I was better at using computer’.  

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.  

P: ‘Please see answer above’.  

R: Based on your experiences within the your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?  

P: ‘Youngsters who have good command on computer can easily use the service. It’s people like us who face all the trouble’.  

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?  

P: ‘If they can arrange some telephone representatives who can help us and take our details and send us acknowledgements, it will be better. Otherwise, we can use some training etc., which might help us using computer and online services’.  

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?  

P: ‘Arabic language is the best thing. Then we will not need help from outside and can take care of the whole thing ourselves’.  

[End of Interview]
Interview #30
Name: Anonymous
Age: 18–55
Sex: Male
Education: Masters
Employment Status: Full-Time
Mother Tongue: Arabic
Fluency in English: Excellent

Service used Off-line (Traditional Method): Service Request
Service used On-line: None

Interview Category: Submitting a service request

R: Could you provide details of the types of barriers you have experienced in accessing the local government online services that are provided to assist you in any of the following areas: enquiring about a development application?

P: ‘It is difficult to trust technology. The systems are not reliable and I don’t trust anyone with my private information’.

R: Could you please explain, as completely as possible, how you feel when you experience difficulties accessing any local government online services?

P: ‘With viruses, spyware, adware, I do not want to put my information in an online form. From the looks of the online service website, I doubt if there is any security implemented. Therefore, I prefer the fatigue of going all the way to the office’.

R: Please tell me about how comfortable you are using a computer and whether or not your ability (or lack of ability) plays any role in your willingness or ability to access local government online services.

P: ‘I have sufficient computer knowledge. I have a Master degree in Computer Science’.

R: Based on your experiences within your community (such as Arabic community), can you discuss how the local government online services are perceived in that community, and whether they are widely used or used by relatively few—and explain the reasons for how you answer?

P: ‘The people who have studied IT and computer science all share the same reservations as me’.

R: If the producers of the local government online services asked you for your input in making these services better for your community, what would you tell them, and what types of details would you provide?

P: ‘I do not think they can get best possible privacy or security, but yes, they can make some improvements. First, the design of the online service should be captivating so that people take it seriously. Then they can get off-the-shelf products to implement back-end security. If they don’t have the right expertise to do this, they should either outsource it or get fresh consultants to do the job’.

R: As a member of the Arabic community, can you talk about how online services that take your native culture and language into consideration would be an improvement over the services currently being offered, and how would you recommend these changes be implemented?

P: ‘Arabic will help those who have trouble comprehending English and there is nothing more comfortable than native language’.

[End of Interview]
Appendix D: List of Publications


