

# **Risky Business: Will Citizens Accept M-government in the Long Term?**

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**Abstract** : *M-government involves the provision of public sector services via mobile technologies. Two principal drivers are influencing the genesis of m-government: the need to increase the efficiency and effectiveness of service provision and the availability of an adequate technological infrastructure for mobile services. There is a third, but less visible, influence on the likely success of m-government: citizens' needs and desires to access public sector services through mobile technologies. This paper contributes an investigation of current usage of mobile technologies and a description of issues that will enhance or delay the widespread acceptance of m-government services amongst the users of public sector organizations.*

**Keywords** : m-government, mobile technologies, citizens' needs, user study

## **1. Introduction**

*"I want to limit the information coming in [on my mobile]... I get too much information coming in as it is."*

This paper describes some of the key issues that will enhance or delay widespread acceptance of m-government by users of public sector services. M-government involves the provision of public sector services via mobile technologies. This is an important issue for both developed and developing countries. There is pressure to improve the efficiency of public sector offerings with benefits including lower costs and reduced response times. There is also pressure to increase their effectiveness through improved diversity and accessibility of services and increased involvement of citizens in the government process. The trend towards m-government has been facilitated by growing capabilities of mobile technologies and their associated infrastructures, devices and systems and their acceptance in many—though not all—groups in both developed and developing countries. There is broad governmental support for m-government in the European Union, USA and Asia Pacific regions. This is an issue of significant practical and theoretical interest.

To date, much attention has been directed to the technical or tactical drivers of m-government. This is typical of other technology-driven trends (see Keil & Markus, 1994): the capabilities of the technology and perceived advantages for 'vested interests' such as management, technology vendors or marketers are combined to promise significant benefits for adopters. The risks of such an approach include failure of users to accept the technology and failure to use it as intended in long term. It is important that those promoting m-government heed the lessons of history and pay attention to the likely acceptance and long-term use of m-government offerings.

This paper investigates the needs of potential users of m-government services: the citizens who will access public sector services using mobile technologies. It describes some of the influences that will lead to the integration of the offered services into users' everyday practices. Empirical research examining different groups of people's needs for support while mobile indicates that the use of mobile technologies is in transition, with needs and practices evolving with available technologies. At present, it appears that users are constructing 'portfolios' of electronic and non-electronic resources to meet their real-time, situated needs as they move from place to place. However, introduction of new technologies or systems will lead to the emergence of new practices and consequently new needs for further technological support. Secondly, the use practices around mobile technologies are diverse. At present there is little evidence of convergence of practices where 'one size fits all' services are likely to meet the breadth of citizens' needs. Given the evolving and diverse nature of mobile technology use, designing m-government services to support current practices is short-sighted and likely to lead to rapid obsolescence. An evolutionary approach, where a small set of high-value services that are accessible from a range of technologies is developed over time, is likely to be more successful.

The paper is structured as follows. Firstly it outlines some of the key issues relating to electronic government, the precursor of m-government, as well as m-government itself. Secondly, it reports on research that contributes to our understanding of mobile users' needs for support. The research methods are described and the research findings are outlined. Thirdly, the implications of these findings for m-government are discussed. Finally, the paper concludes with some provisos on the findings and indications of areas for future research.

## **2. Electronic Government**

The widespread acceptance of electronic commerce technologies and business models has encouraged their application to the activities of government. It has been suggested that advantages of electronic commerce such as increased integration of work processes, reengineered supply chains and distributed access to information may be available to the government sector. The resulting conceptions of e-government refer generally to the use of information and communication technologies (ICTs) in government operations, so that government services are provided electronically 24 X 7 (Holden, Norris & Fletcher, 2003). Defining e-government more specifically is difficult, due to the involvement of different levels of government and the dimensions of services being provided electronically (Beynon-Davies, 2004). E-government may refer to activities at federal, regional and local government levels. It may also refer to internal activities (within government) and external relations (such as to suppliers and other businesses, other governments at either the same or different levels, or to its citizens). Some of the proposed benefits from e-government include more efficient government operations (Beynon-Davies, 2004; Silcock, 2001), improved relations with other governments and businesses (Wassenaar, 2000), improved quality and access to services for citizens (King, Li & Ramdani, 2004; Zhiyuan, 2002) and greater participation of citizens in government activities (Al-Sebie & Irani, 2003).

However, the electronic commerce analogy is only partially applicable to government. There are some fundamental differences between the commercial and government sectors. In the commercial sector, the customer has choices: to transact online or face to face, to chose between different providers both local and remote, and the decision to purchase is optional. In contrast, depending on the particular manifestation of e-government, citizens may lose the choice between electronic or face to face services, they will not have a choice between providers (at all levels of government, the 'provider' is determined by geographical location and/or nationality) and often participation in the transaction is mandatory (e.g. paying taxes). This suggests

that care should be taken when applying the lessons of electronic commerce to provision of public sector services.

There is much research that focuses on either the technological issues of e-government or the push to shift governments towards integrating electronic ICTs into their day-to-day activities (for example, Aldosari & King, 2004; Beynon-Davies, 2004). There has been less attention to the citizens' viewpoint and investigation of whether providing electronic delivery of some or all of governments' services is what citizens want. For example, the UK's e-government strategy states that "services will be accessed by multiple technologies, including web sites... public information kiosks, digital television and mobile phones, and call and contact centres" (Silcock, 2001). This is symptomatic of a "build it and they will come" mentality described by Keil & Markus (1994). Are these access mechanisms desired by citizens or are other (either face to face or alternative electronic) mechanisms preferred? For example, it has been noted that one barrier to successful e-government is that UK citizens prefer telephone or face-to-face contact when dealing with local council (King, Li & Ramdani, 2004). Success of e-government requires active engagement by both government and its citizens and so providing services electronically is only one half of the e-government equation. A greater challenge may be achieving acceptance and widespread, persistent use of e-government by citizens.

### **3. M-Government**

The challenges facing e-government are exacerbated by the current shift towards mobility. The growing prevalence of mobile over fixed telephones (ITU, 2003), the integration of mobile technologies with everyday activities and the vast possibilities of technology-supported interaction while mobile are giving rise to the latest variant of e-government: mobile or m-government. E-government involves the provision of information electronically to geographically diverse but technologically homogenous ICTs (such as personal computers or information kiosks) in fixed locations. In contrast, m-government involves interaction where the use contexts are unknown, where accessing government services might be one of several activities being undertaken and where the physical constraints of interacting with mobile devices limit the amount and type of information that might be located and accessed. These differences increase the risks of successful acceptance of m-government offerings. The remainder of the paper examines the viability of m-government from citizens' rather than technological or managerial perspectives.

### **4. The Research Approach**

Anticipating and meeting users' needs while mobile is extremely difficult (Carroll, 2004a). Users are unable to completely understand or express their needs, current or future (Davis, 1998). In addition, these needs are not fixed but are modified as users learn more about the possibilities of technology. They will change their activities to capitalize on a technology's capabilities and may adapt technologies to their particular needs, activities and contexts. This is particularly apparent with mobile technologies, where multiple, changing contexts of use, lack of stability in available technologies and the likelihood of ad hoc behaviours increase the difficulties of articulating or predicting users' needs (Carroll 2004a).

In this research, citizens' needs or wants for m-government services were not examined by explicitly asking: "Do you want this or that service?", because people's espoused theories are often very different to their theories in action (Argyris & Schon, 1996). One consequence is that what people believe they need or do frequently diverges from what they are observed to do. The approach taken in this research is to examine how people currently use mobile technologies (devices, channels and services) and to identify possible gaps

that are likely to be satisfied by future electronic provision of government services. Therefore, the implications for m-government are induced from the research findings.

This strategy poses a methodological issue. Many of our research approaches have been crafted to examine usage of fixed ICTs in organisational or domestic contexts. As a result, much of our knowledge of mobile technology use is derived by relatively remote methods that do not capture users' needs as they navigate the rich and changing textures of the contexts of use. A multi-method approach was employed in this research to capture participants' perceptions and practices. We investigated what participants say about their needs, do in their everyday routines as well as what they do with available resources, both electronic and non-electronic (adapted from Spradley, 1979). Also both contextual (in context) and a-contextual (out of context) methods were employed to address the influence of context on mobile technology use. Thus the participants were observed in their everyday situations of use, immersed in the sounds, issues, purposes and needs that drive their interactions with technology. They were also interviewed out of context so that they could focus on specific issues away from these contextual distractions. The research methods included focus groups, questionnaires, participant observation and semi-structured interviews. All data were transcribed, coded and categorised according to perceptions and use of technologies including multi-media and multi-functional devices, both fixed and mobile, and non-electronic resources.

Three groups were targeted: 16 year olds, post-graduate IT students, and IT professionals. Our aim was not to examine exceptional cases such as very early ICT adopters (see Rogers, 1994) but rather 'middle of the road' people who were comfortable with ICTs, used them in their everyday lives but were not at the cutting edge of practice. It is within this cohort that persistent, long-term use of m-government offerings will need to be achieved. We chose not to examine laggards or late adopters for similar reasons, although their importance in achieving broad acceptance of m-government is noted.

The site of our research was one of the major cities in Australia, a city of several million people situated in a country known for its acceptance of ICTs. In Australia, over 70% of population use a mobile phone; in 2003 there were 12.7 million mobile services compared to 11.4 million fixed phone services (The Age, 2003). A broad range of SMS-based services including alerts of delays in public transport, notification of examination results, availability of parking spaces and alerts of the location of drug-sniffer dogs has been adopted in Australia. In line with our focus towards looking towards future m-government practices, two of the user cohorts were young people. Young people are viewed as indicators of the trends that may be followed by the rest of the population. More than 90% of urban Australian young people aged between 13 and 19 own a mobile phone (The Age, 2004). The third user cohort was a group of sales and management professionals working in the IT field, selected for their expertise in examining and applying ICTs in different settings.

#### ***4.1 Perceptions and use of ICTs: young people aged sixteen***

The research involved an intensive study of a pre-existing group of six 16 year olds over one month (November-December 2003); the group comprised four males and two females.

##### *Technologies to hand*

Devices	Mobile phone, PC, digital camera, MP3 player
Other resources	diary, pen & paper
Digital media	voice, text, image
Other media	Face to face
Applications	SMS, email, chat, address, games

The participants were thoughtful users of technology. The main purpose of technology use was communication rather than information gathering or retrieval. Major influences on the type and amount of use were cost and convenience. Many workarounds were observed in mobile technology use to reduce cost including selective activation of voicemail, use of SMS rather than voice and ‘pranking’ (making a brief call to others’ phones so they ring back in response to a missed call, thus passing on the cost to the receiver). Convenience was also important. Text messaging is quicker and easier than email: “*cos you don’t have to turn on the computer, open up all the programs*” and “*you can get a response straight away*”. One participant decided that accessing voice mail via the home phone was too little complicated: “*Well I wouldn’t be bothered with that*”. A young male is selective about the medium used: “*usually I use SMS when I have to say something quick*” but for more complex activities he uses voice because there is less chance of misunderstanding.

The Internet is used to download songs and play games rather than communication. None of the participants buy from the internet although they are aware of others who buy concert tickets and clothes that way. Concern about security of credit card details on internet was evident: “*It’s just so dodgy*” and “*Everything can get cracked so easy.*” There was discussion of news stories about people accessing credit card details and stories relating to hacking into internet banking sites. One participant has persisted with internet banking, one has stopped and others would not consider it.

The participants expressed general satisfaction with existing technology. They have adapted available technologies to meet their needs (mixing in a limited geographical area with a well-known social group and interactions with known institutions such as school, banks and their workplaces). One stated that “*I think a phone is a phone. It doesn’t have to have all the magic gadgets.*” He was not interested in playing games on a phone because the screen is too small. When asked whether new phones with more features are good, another participant replied “*more buttons [are] more confusing... it’s fine how it is now.*”

The mundane nature of technology within the participants’ lives was clear. Technology is just an accepted part of everyday life. The participants’ practices change effortlessly according to context (school, work, at home, with friends, travelling away from home) and who they communicate with (for example, there was agreement that they would not SMS a teacher). A mobile phone is always ‘to hand’ though it may not be a personal phone (it may belong to friend, parent or sibling). There was a loose coupling between mobiles and individuals (who might lose, swap, barter or share phones). Further, although a mobile may be to hand the user may not be available to others: the mobile may not be turned on, may not be answered, or it may not be their own phone.

#### **4.2 Perceptions and use of ICTs: young people over twenty**

The research involved 11 post-graduate Information Technology and Information Systems students at two universities. Data were collected over five months in 2004. There were seven female and four male participants; all except one was in their twenties.

##### *Technologies to hand*

Devices	Mobile phone, laptop, PDA, PC, camera, iPod, MP3 player, USB key
Other resources	Diary, notes, pen & paper
Digital media	Voice, text, image
Other media	Face to face
Applications	SMS, email, chat, scheduler, address, games

These participants had access to a wider range of devices and applications than the younger cohort. Cost was less of a constraint on technology use although participants stated that cost influenced their selection of SMS rather than voice calls. The participants were discriminating users who displayed a fine-grained appreciation of the strengths and weaknesses of current devices and applications and appeared unwilling to compromise on the functions of each. They expressed clear preferences for matching media (voice, text, image) and applications (email, SMS, voice call) to a particular purpose or activity.

Use of internet-based resources was limited. Of eleven participants, two used a desktop computer to pay bills, six used a desktop to download information such as transport times, most used a desktop to bank on the internet and all accessed their course notes using either a desktop or laptop computer. There was little use of mobile technologies (mobile phone or PDA) to access the internet: one participant downloaded transport information.

Convenience was a major issue for these users. A male participant expressed the desire to reduce complexity: *“If you have too much technology in your life, you get reliant on it.. I think all of them, a nightmare...”* For most of the participants, the dominant purpose of a mobile technology was communication. The mobile phone was usually selected in situations where participants could only carry limited resources. Two participants were dedicated users of PDAs. A female in her early thirties stated that her PDA is more useful than a mobile phone: she stores pictures of her pet rabbit, all her thoughts are stored there as well as her schedule, work things and fun things. A younger male described how his PDA contains his calendar, address book, list of greatest movies ever and funny quotes. Both participants use their PDAs to store information and their usefulness rests on providing access to stored information at any time and any place. Both PDA owners use other technologies for communication.

Further, within the one medium (text), alternative applications (SMS and email) provided for nuanced communication. An example related to making and maintaining friendships. Although voice (face to face or by phone) was preferred, it was viewed as acceptable to email or chat with people that you have not met face to face. However there was broad agreement that you should not SMS someone that you have not yet met or created a relationship with. This is summed up by a male participant: *“You need to actually have a conversation. And it’s better in person than down the phone.”* An older female added: *“I’m very old fashioned. I don’t use SMS... I have to meet somebody and talk to them...”*

#### **4.3 Perceptions and use of ICTs: IT professionals**

The research involved a study in 2003 of seven IT professionals (six male and one female) and their needs for technological support while mobile. These people travel frequently to meetings with clients and colleagues within the one city and between states.

##### *Technologies to hand*

Devices	Mobile phone, laptop, PDA/IPAQ, MP3 player, hands-free kit for the car
Other resources	Exercise books, pen and paper
Digital media	Voice, text, image
Other media	Face to face
Applications	Addresses, calendar and task lists (schedule), SMS. MSWord, Project and Excel, email (a company standard), PDF Writer, Internet browsers, specialized prototyping tools (Visio, PowerPoint)

The participants had access to a wide range of devices and applications used for both communication and information purposes. Fewer nuances of media selection were noted than in the post-graduate students. Voice was preferred for coordination of both colleagues and clients. When privacy is an issue, text rather than voice is used. SMS and chat are viewed as suitable for colleagues but not clients; email should be used for clients. The mobile phone is the primary resource for these participants because *“the convenience of the phone is too good.”*

There was a clear disparity between the stated needs of the participants and their actions. The participants articulated a desire for a converged mobile device, combining the IPAQ and phone (that is, information and communication capabilities). However, an important issue was the usability and size of mobile devices: an ideal device is *“not as big as a laptop but larger than a PDA.”* There was agreement that the PDA was too small, required constant scrolling and made reading and writing difficult: *“I have an IPAQ, I find it quite difficult to type, I don’t like typing in for too long.”* Accordingly the participant writes information about each client in a separate notebook; these notebooks accompany her to meetings. Another participant stated that he wants the correct device and information for the task. He uses a laptop at work and home and a PC at home. He uses a mobile phone for voice and a Palm for email, notes and calendar: he *“flip flops from each other”*. A third participant believes that accessing maps or images from the Internet require a larger screen: *“... this is why you need the bigger device. If you’re looking at a map with public transport, road etc, you need to have a big enough area to see the context of that information.”* Sensitivity to the affordances and constraints of materials/resources was apparent, between devices, applications, media and between electronic and paper-based resources. Therefore, the stated desire for a single converged device was not supported by participants’ actions in combining technologies with very different characteristics to meet the specific needs of their activities.

This cohort was more willing to access internet-based information. One participant was observed accessing transport information from an information kiosk; his growing frustration with the design of the interface *“It’s difficult to use and hard to understand”* led to him walking away from the technology and asking nearby people for the required information. The participants wanted to use the organisational intranet while mobile. However, the issue of control was important: information overload is common and the participants expressed dissatisfaction with having information or advertising pushed onto devices: *“I’d prefer to be able to search for stuff that’s around me and me connect to it rather than it being automatic and sensing stuff. I want to limit the information coming in... I get too much information coming in as it is.”*

#### **4.4 Summary**

Three cohorts of users were examined. All cohorts were thoughtful about their use of technology. They had access to a diverse range of technologies, media and applications. Most participants nominated the mobile phone as their principal device. However, the ‘mobile phone’ used by the sixteen year olds was different to that used by the post-graduates or the IT professionals.

A wide range of technology practices was observed. The sixteen year olds used technology principally for communication. Cost and convenience had strong influences on their use. For them, a mobile phone was always ‘to hand’ through the practice of sharing, swapping or trading phones. This, along with the loose coupling between mobiles and individuals, allowed the participants to create a low-cost, low-tech ‘pervasive computing’ environment. The post-graduate students had access to a wider range of devices and applications than the younger cohort and were less cost-sensitive to use. The participants acknowledged the physical constraints on mobile technologies, particularly size. The participants expressed clear preferences for matching media (voice, text, image) and applications (email, SMS, voice call, face to face conversation) to a particular purpose or activity. The IT professionals are very much aware of size constraints on mobile

technologies which suggests that a small number of multi-functional devices would be preferred to an ‘all in one’ device. Fewer nuances of media selection were noted than in the post-graduate students.

The concept of portfolios is useful for picturing the participants’ practices. Users construct a portfolio of technologies to support their diverse and dynamic needs while mobile. They select from the vast array of devices, media, applications and non-electronic resources according to their personal preferences, those of their peer group, their perceived needs and purposes for diverse activities in likely situations of use. This portfolio can then provide tailored technological support to the user, be adapted as needs change and aspects of the portfolio can be updated as enhanced technologies become available. At this time, when the capabilities of technology are changing rapidly, when users’ practices are continuing to emerge and when understanding of our needs for support are limited only by our imaginations, a portfolio approach is a practical way of dealing with mobile technologies.

## **5. Discussion**

A number of common themes were observed in the three user cohorts:

1. Mobile technologies are an accepted and often invisible part of the participants’ lives. The participants were discriminating in the devices, functions and media that were applied for different activities. However, having access to mobile technologies does not mean that they are used for a wide range of activities.
2. Convenience is important to users. For most of the participants in this research, technology is a tool that must be quick and easy to use, available when needed and not intrusive in everyday activities.
3. Participants were unwilling to invest effort into using mobile devices for complex or lengthy tasks. Much of the time, participants were multitasking while mobile and paid limited attention to mobile devices. Interaction with mobile devices was characterised by both ‘time slices’ and ‘information slices’ whereby users dedicated small amounts of time to access narrow and specific pieces of information.
4. The participants wanted to control the traffic on their devices and limit incoming information to meet their local, real-time needs.
5. The physical limitations of mobile technologies including clumsy input and output mechanisms and inadequate screen size influenced usage. This raises doubts about the wisdom of transacting more complex public sector services while mobile.
6. There were continuing concerns about privacy and security and vividness of ‘urban myths’ around mobile technologies have led to continuing distrust of electronic transactions. This raises doubts about the acceptance of using mobile technologies for transactions that involve private information.
7. Mobile access to the internet was limited and narrowly targeted to finding specific types of information. There was little access to public sector services; the chief service accessed was transport information.

This research has a number of implications for the long-term acceptance of m-government. Current users’ practices suggest that further work is required to investigate whether any but the most simple information-access transactions meets citizens’ needs. Other implications indicate that citizens’ use of m-government services may depend on further improvements in the interface of mobile technologies.

Of crucial importance is the observed diversity of practice. This reinforces the need for care in generalising about practices by age group, educational background or gender. What is clear from these findings is the richness of use and the ways that the participants selected from the wide set of choices of devices, media and applications according to their purposes (communication, information and entertainment), activities, contexts of use, personal preferences, sensitivity to other’s preferences and their needs (for convenience, cost and effectiveness of communication, for example). The concept of portfolios of technologies has been

proposed to capture this variety of practice. A portfolio contains a selection of resources (tangible or intangible) that is organised and presented around a theme or aim. In this case, the users select a number of media, applications and devices from the vast array that is now available; the selection is organised to support the user for a given purpose, activity or task in (or between) different contexts of use. Applying the concept of a portfolio to mobile technology use provides a rich, empirically-based foundation for developing m-government services that will meet the diverse needs of citizens.

Understanding the variety and combinations of resources within these portfolios is crucial for designers to identify the technology forms, functions, purposes and applications of systems that will meet users' real needs (Carroll 2004b). Harnessing this understanding enables the design and construction of m-government services and applications that will be accepted and used by citizens in the long-term. Also, governments that propose m-government and designers who create visions of m-government services and applications should be very careful not to prematurely close down the design space for m-government. Nor should they over-generalise about the needs and practices of large segments of their citizens. At this stage in the trajectory of mobile technologies, they would be better served by providing evolutionary applications that can develop and grow to meet the changing needs of a variety of citizens. As citizens' portfolios of technology change, these applications can be evolved to meet new needs. Similarly, managers and IT staff should support this 'mix and match' rather than a 'one size fits all' approach to m-government services.

## **6. Conclusion**

This paper has identified some of the issues that will enhance or delay citizens' long-term acceptance of m-government services. The contributions of this paper are threefold. Firstly, the paper highlights the importance to m-government of heeding citizens' needs and practices. The thoughtful and discriminating nature of use of mobile technologies noted in this research emphasises the importance of basing m-government services on citizens' needs. Secondly, the paper provides empirical evidence of the diverse and transitory nature of mobile technology use that is captured in the concept of a portfolio of technology. This concept explains current, observed practices and provides a foundation for designing future m-government services and applications. Thirdly, the methodological challenges and approach taken to meet them indicate that intensive research has an important role in evolving m-government services.

The findings of this paper suggest that the debate around m-government should involve attention to the practices and preferences of citizens when accessing public sector services, in addition to the needs of government to increase efficiency and effectiveness and the capabilities of technology. It has been noted in this research that all the participants were discriminating users of technology: they do not merely accept the technological options pushed onto them but intentionally appropriate a range of functions, features, media and devices that most closely meets their local, situated needs. The lesson for m-government is clear: unless the services and applications of m-government meet citizens' needs, they will not achieve long-term, persistent use.

Insights into how, where and when mobile technologies are used can provide some understanding of citizens' practices. This paper has examined what people are doing with the capabilities of mobile technologies, from constructing a low-tech pervasive environment (sixteen year olds), to exploring a broad range of technological possibilities offered by existing devices (post-graduate students) to mixing and matching multiple devices and applications (IT professionals). All three cohorts have taken many available resources (including some mobile technologies) and adapted them to their local and particular needs.

A key concept here is that of a portfolio of technology, based on observations that currently users ‘mix and match’ a variety of electronic and non-electronic resources. The participants were thoughtful users of technology who select, from the larger pool of available technologies, those functions and devices that are suited to their particular needs. The resulting portfolio of technology is dynamic and will be altered to reflect emergent needs or new technologies. Therefore, it is important to identify what selections are applied in what situations to support what activities, in order to provide the likely foundations for designing successful m-government services and applications.

The methodological difficulties of examining current practices in order to design future mobile services have been acknowledged earlier in the paper. The approach taken in this research has been to examine current user practices while mobile, identify usage patterns and users’ needs as expressed by their actions (what they do) as well as their articulations (what they say they might do or need). This allows for the design and evolution of m-government services that are based on actual practice and therefore increase the likelihood of gaining acceptance and persistent use.

Finally, the research was undertaken in Australia. Previous research into Australians’ usage of mobile technologies has indicated strong similarities with practices in Europe (for example, Carroll, Howard, Peck & Murphy, 2002) and therefore the findings have application outside Australia. However, given the observation that use of mobile technologies appears to be in transition, further research is necessary to monitor the changing directions of use to ensure that m-government is aligned with citizens’ needs and practices.

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