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49. Rethinking the Relationship between Ubiquitous Government and Electronic Government

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Abstract

The advancement of information and communications technology (ICT) has revolutionized the way governments deliver public services, thereby fostering the development of e-government in general and attracting increasing interests in ubiquitous government. While e-government encourages online services which can substitute or complement conventional offline services, the presence of digital divide can create a gap in such technology-enabled service provision. While different channel management strategies have been adopted to move citizens to online channels, these strategies are not effective when digital divide prevails. More importantly, the conventional view about “ubiquitous” is rather technical in nature and consequently the conceptualization or development of ubiquitous government has been led astray by this inherent nature. In this paper, we examine e-government, channel management strategy, digital divide and ubiquitous government. According to our analysis, ubiquitous government should not be considered as a subset of e-government. We redefine ubiquitous government which in effect may be viewed as a superset of e-government. Building upon our revised definition, we plan to further extend the scope of the Ubiquitous Government Development Model and illustrate our conceptualization and analysis using the experience of governments with different paces of e-government development. The case study methodology would be used.

Keywords: Ubiquitous, ubiquitous government, e-government, digital divide, and channel management

Background

The development of information and communications technology (ICT) has revolutionized the channels and approaches for delivering public services. Governments throughout the world are designing or experimenting with innovative ways to raise the standard of public services to a new height by leveraging available ICT. However, digital divide remains an important challenge.

Definition of e-government

According to the World Bank Group, e-government is about “the use of information and communications technologies to improve the efficiency, effectiveness, transparency and accountability of government” (The World Bank Group 2007). The United Nations defines E-Government as “a government that applies ICT to transform its internal and external relationships” (UNDESA 2003). The Organization for Economic Cooperation and Development (OECD) refers to e-government as “the use of information and communication technologies, and particularly the Internet, as a tool to achieve better government” (OECD 2003). The conceptualization by the Australian Government Information Management Office (AGIMO) is rather focused but captures the thrust of most prevalent definitions (including those described above), thereby e-government is defined as “the transformation of public-

sector internal and external relationships through Internet-enabled operations and information and communication technologies to optimize government service delivery, constituency participation and internal government processes” (AGIMO 2007). A review of the prevalent e-government definitions points to the use of ICT to transform the way governments work, share information, and deliver services to external and internal clients.

E-government services can be classified into two broad categories: public service provision through online channels, and delivery of conventional offline services with increasing efficiency through the use of appropriate ICT. Providing public services online represents a common emphasis in early stages of e-government development and is prone to the problems surrounding digital divide. Most governments focus on online presence, downloadable forms, online information dissemination, and/or online transactions which are cost-effective means for various government agencies to accomplish and demonstrate “observable” achievements.

Definition of digital divide

The World Bank Group (2002) defines digital divide as “the gap between people who have access to the Internet and those who do not.” In a more general sense, digital divide refers to the gap between people who have access to the ICT and those who do not. OECD (2001) considers digital divide as “the gap between different individuals, households, businesses and geographical areas at different social-economic levels as regards their opportunities to access IT and their use of the Internet.” Following the World Bank Group’s definition, Ke and Wei (2006) suggest digital divide to be a key risk factor in e-government projects, in addition to project size, newness of technology and project structure. In their analysis, governments should include digital divide as a significant factor when profiling and managing e-government projects. According to a recent study by the International Telecommunications Union (2006), digital divide is “no longer about basic connectivity alone, but about utilization and how ICTs are used.” This illustrates the insufficiency of service provision and highlights the need to take consideration service availability, accessibility and utilization simultaneously.

As Accenture noted in its recent annual electronic government (e-government) report, “as governments make great strides in using innovative service approaches to connect effectively with citizens, it is becoming clear that some critical divides remain.” (Accenture 2006)

E-government and digital divide

The field of e-government research is still in its early development stage (Grönlund 2005). Most previous e-government research concerned more about conceptualizing government and governmental administrative e-service (Andersen and Henriksen, 2005). This focuses more on the supply-side consideration, including service availability, readiness, and maturity through e-channels.

Digital divide has become an increasingly popular subject in policy discourses, academic research and civil society debates around the world in recent years (UNDESA 2005). Ruth (2007) indicates that the United Nations believes e-government could serve as a positive instrument of national policy through inclusion, access, and connectivity.

Countries around the world have invested heavily in information technology infrastructure based on the assumption that by achieving a solid infrastructure level, the benefits of information technology would flow automatically to citizens, businesses and governments (UNDESA 2005). This assumption essentially means that overcoming the connectivity gap

would bridge the digital divide. However, while connectivity is a prerequisite in reaping the benefits of ICT, it is not a sufficient condition by itself (UNDESA 2005). With the prevalence of digital divide, the accessibility and utilization of e-government services could be greatly confined and the co-existence of online channels and conventional offline channels becomes an inevitable necessity. The gap between the supply-side and the demand-side of e-government services manifests service provision mismatch and is likely to result in wasteful resource allocations.

Ubiquitous government

Ubiquitous computing or u-computing (Weiser 1988) highlights the computing development from the mainframe paradigm to salient personal computing, and then to the u-computing era in which computing are behind-the-scene in all aspects of our lives. Computing is becoming “seamless” or “transparent” to users (Anttiroiko 2005). In u-computing, technology serves “as a means to an end” and therefore should “take a back seat to allow users to fully concentrate on the task at hand.” The notion of “the computer as a dedicated device” is subsiding by making the information processing capabilities available and easily accessible throughout our surroundings (Mattern 2001). According to Gouscos et al. (2001), ubiquity denotes availability, with time and geographical constraints removed. Accenture (2003) highlights ubiquitous government as “new forms of interaction enabled by such technologies as wireless, television, voice and silent commerce.” Use of the technology can greatly facilitate interactions and transactions anywhere and at any time, unconstrained by power lines and telephone wires (Accenture 2003).

While the Latin root of “ubiquitous” suggests “existing everywhere”, Sharma and Gupta (2004) conceptualizes ubiquitous government as reflecting those aspects of e-government where ICT is limited to the mobile and wireless technology. Anttiroiko (2005) consolidates their conceptualization and indicates that ubiquitous government is essentially a subset of e-government. Though Anttiroiko takes a rather technology-oriented perspective towards ubiquitous government, his illustration of Finnish experience points to an obvious reason for the slow and incremental adoption of ubiquitous government in Finland; i.e., a predominant technological bias which directs all the spotlights to technological issues (such as networks, devices, and contents) rather than analysis of citizens’ needs or substantive value-add in ubiquitous services (Anttiroiko 2005).

The relationship of e-government, digital divide and ubiquitous government

The view of ubiquitous government as a subset of e-government deserves closer examinations. We advocate against considering ubiquitous government as a natural extension of ubiquitous computing. In Weiser’s idealistic vision of ubiquitous computing, though technology becomes so unobtrusive and seamless that it is almost “hidden” from users, it is after all technology-dominant. The provision of public services, on the other hand, is citizen-centric. That is, computing serves only people who use computers but governments cannot choose their customers—they are obliged to serving all citizens. As a result, governments must meet the digital divide challenge. For services to be available and delivered ubiquitously beyond any temporal or geographic constraints, they may not necessarily use online channels exclusively. While the use of online channels to provide (deliver) government services may be more cost effective and efficient in many circumstances, it is not necessarily always the case. Take traffic control for instance, a traffic control system at road junctions, while an electronic traffic light control system could be adequately effective in downtown areas characterized by extensive traffic volumes and prompt maintenance services in times of system failures, it is more appropriate to use roundabouts in remote areas where the junctions

are prone to natural disasters and maintenance services usually cannot be scheduled shortly. In addition, the notion of “existing everywhere” implies service provision or availability and does not address service accessibility, which is of equally importance. In situations where public services indeed “exist everywhere” through online channels, digital divide could well deter citizens from gaining access to these services. Noticeable presence of digital divide constrains ubiquity in terms of government service provision which, in turn, makes ubiquitous government less meaningful. Without accessibility, service availability by itself cannot realize the full benefits of ubiquitous government.

For citizens who lack motivations for adopting online services, the actual service utilization could be assessed and fostered using adequate channel management strategies. Channel management strategies are defined as strategies used to switch users from a certain channel of service distribution to an alternative channel. Examples of which include providing sufficient incentives and eliminating (discontinuing) conventional offline channels. In comparison, building a digital inclusive society that takes into consideration the digital divide among citizens is far more challenging. According to Lam and Lee (2006), the vision of a “digital inclusive society” is to create a society where citizens can explore the potential and benefits of new technologies, access and share information and services freely, and effectively participate in the community through the use of ICT. They highlight the motivation for exploring available ICT and point out the importance of accessibility and participation. In this connection, government services should be delivered ubiquitously in an accessible manner. Built upon their analysis, we reflect the time when all government services were delivered through conventional offline channels. While ICT is enabling governments to deliver services and approach their citizens in a wide variety of channels, the conventional channels remain appropriate in many service scenarios and some of them are still effective.

While a digital inclusive society might be a grand vision of government, policymakers must address more pressing issues that include further developments of the ubiquitous government concept, together with its inherent technological orientation rooted in ubiquitous computing. Pragmatically, policymakers have to exercise due diligence to assure the availability of government services online and improving their accessibility and mobility. In particular, an imperative issue—how to use the limited resources to maximize the benefits of government services available and accessible through an appropriate combination of online and offline channels in a ubiquitous manner—has often been ignored by policymakers. This oversight is comprehensible when considering the development of ubiquitous government concept along a technology-centric dimension. Policymakers can make inappropriate resource allocation decisions but not properly addressing issues that pertain to the demand-side of the equation. For instance, Japan launches the u-Japan initiative in 2005 to pursue promising ICT opportunities but with a predominant focus on technology, as is revealed in its overarching policy explicitly lay out in the document of “Working Toward Realizing the Ubiquitous Network Society by 2010” (Japan 2005). In contrast, we approach ubiquitous government from a different perspective in order to draw due attention from policymakers and researchers to rethink the relationship between ubiquitous government and e-government. By establishing a proper relationship between these two closely related notions, the challenge of digital divide can be thoroughly analyzed and appropriately addressed from the perspective of policy making as well as resource allocation.

Research motivation

Despite the advantages of e-government and online services in substituting or supplementing conventional offline services, digital divide represents a critical challenge in public service

provision and delivery. While different channel management strategies have been adopted by governments to move reluctant citizens to newly designed online channels, their effectiveness can be greatly reduced by the presence of digital divide. More importantly, the conventional view about “ubiquitous” is rather technical in nature and the development of the ubiquitous government concept has been mostly led astray by this inherent nature. In this paper, we examine e-government, channel management strategy, digital divide, and ubiquitous government. According to our analysis, ubiquitous government should not be viewed as a subset of e-government, a conceptualization commonly suggested by previous research. Instead, ubiquitous government should be perceived as a superset of e-government. We build upon this refined definition to extend the scope of the Ubiquitous Government Development Model and illustrate our analysis using the experience of governments with different paces of e-government development.

Ubiquitous Government Analysis and Extensions

The advancements of ICT give rise to the era of e-government which has revolutionized the way governments deliver services to citizens. These advancements allow governments to make their services available and accessible to citizens in a ubiquitous manner. In ubiquitous government, the notion of “ubiquitous” should extend from “beyond the constraints of time and places” highlighted by Gouscos et al. (2001). Specifically, accessibility is equally important. According to our analysis, the notion of ubiquitous should be expanded to refer to “beyond the constraints of time, places and digital divide.”

Ubiquitous government should embrace a broader scope than does e-government because it can be accomplished with or without electronic means. In many ways, e-government facilitates the development of ubiquitous government because it can revolutionize the way how ubiquitous government is established. E-government encourages services through online channels and can supplement services delivered through conventional channels, such as service counters.

Establishing ubiquitous government without e-government can be costly in terms of time and resource requirements. In ubiquitous government, providing government services through conventional, offline means is inseparable. For improved service availability and accessibility which are critical to attaining ultimate ubiquity, an appropriate mix of online services and offline services is pragmatic and essential. This suggests ubiquitous government to be a superset of e-government. The “right” mix of online and offline services may be specific to service scenarios and can evolve over time. Hence, policymakers and researchers should investigate how to design an optimal mix for with respect to the target service scenario rather than focusing on online channels exclusively.

Channel management strategy should be reexamined. Instead of encouraging or forcing citizens to switch to online channels, governments should realize that co-existence of online and offline channels are inevitable. Designs of e-government solutions should consider more about how to improve the integration of online processing and offline channels, hereby achieving greater synergy and minimizing wasteful resource allocations that result from the maintenance of dual channels. In addition, delivery channels should be vertically separated from delivery interface and backend processing. While the backend processing can benefit from the digitalization in e-government, the delivery interface should match citizens’ needs and preferences. Equipped with the facilitating backend processing and effective interface for service delivery, governments can alleviate the magnitude and the prevalence of digital divide, and thus realize the grand vision of a digital inclusive society.

Proposed Research Methodology

Having defined our research motivation, we intend to refine the ubiquitous government development model that extends from our proposed shift in ubiquitous government. We would then use a case study methodology to analyze the experience of governments with different paces of e-government development and illustrate the use of our refined conceptualization of ubiquitous government and ubiquitous government development model. The methodology design is still under revision. The case analysis would commence upon the completion of methodology design.

Expected Contributions and Limitations

In this paper, we approach ubiquitous government from a different perspective and use experience to illustrate our analysis and depositions. We connect e-government, channel management strategy, digital divide and ubiquitous government. Our analysis advocates against the conventional view of considering ubiquitous government as a subset of e-government. The inherently technological conventional view has confined previous work of ubiquitous government to focus primarily on mobility and the availability issues of government services. We redefine ubiquitous government from a broader perspective as a superset of e-government and supplement the availability with accessibility.

With the redefinition of ubiquitous government, we point out that the channel management strategy of e-government adopted by many policymakers leaves some gaps to be filled. Typical channel management strategy concerns mainly issue about encouraging citizens to switch to online channels or discouraging them from using offline channels. However, under the new definition of ubiquitous government and given the inevitable co-existence of online and offline channels, policymakers should consider channel management strategy from a wider horizon. E-government solutions should be designed to facilitate processing of online and offline channels to create synergy as far as possible. Delivery channel should be vertically segregated as delivery interface and backend processing. While backend processing could be aggressively setup as to reap the benefits of e-government, the delivery interface should respond to citizens with varying needs. Digital divide could therefore be alleviated.

Using the new definition, we would attempt to extend Anttiroiko's Ubiquitous Government Development Model to include considerations about offline alternatives so that its scope of coverage could be extended and its generalizability be enhanced.

While this paper attempts to redefine the ubiquitous government and trigger discussion from a different perspective with regard to e-government research, much research needs to be done in how to determine the right combination of online and offline options so that both availability and accessibility could be achieved. As the combination would be a dynamic one that would change over time and as circumstances change, longitudinal studies should also be conducted to measure the characteristics of the combination shift over time.

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