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The E-government Situation in Thai Local Government: Municipalities in Khon Kaen Province

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Abstract

This article is based on an investigation of situations related to the utilization of e-government in public administration organizations, especially at the local municipality level in Thailand. The sample population consisted of elected and unelected officers in seven municipalities in Khon Kaen province, Thailand. Random sampling was employed to select the municipalities. The main objective of the study was to explore the current e-government utilization situation in Thai local administration organizations. A survey questionnaire was used to collect data along with unstructured interviews and a website review. The obtained data was analyzed for mean and standard deviation. Content analysis was also used. The results show that while use of e-government at the Thai local level has expanded, the greater usage has not resulted in successful e-government development. In fact, e-government development in Thai municipalities is still at the first stage, emerging presence. The data from open-ended questions also shows that in order to improve the use of e-government at the local level, better management, better technology and policy changes are needed. Moreover, the digital divide between local citizens is still a major stumbling block of Thai local e-government development.

Keywords: e-government, local government, ICT, digital divide

บทคัดย่อ

บทความนี้ศึกษาสถานการณ์ที่เกี่ยวข้องกับการใช้รัฐบาลอิเล็กทรอนิกส์ในองค์การบริหารส่วนท้องถิ่นโดยเฉพาะอย่างยิ่งระดับเทศบาลในประเทศไทย บทความนี้เป็นการวิจัยเชิงสำรวจ โดยมีวัตถุประสงค์หลักเพื่อสำรวจสถานการณ์ในปัจจุบันของการใช้รัฐบาลอิเล็กทรอนิกส์ในองค์การบริหารส่วนท้องถิ่นของไทย กลุ่มตัวอย่างประกอบด้วยเจ้าหน้าที่ในเทศบาล

ทั้งที่ได้มาจากการเลือกตั้งและแต่งตั้งในจังหวัดขอนแก่น ประเทศไทย ซึ่งได้มาจากการสุ่มอย่างง่าย เครื่องมือที่ใช้เป็นแบบสอบถามซึ่งใช้เก็บรวบรวมข้อมูลร่วมกับแบบสัมภาษณ์อย่างไม่เป็นทางการ และการศึกษาข้อมูลอิเล็กทรอนิกส์ ข้อมูลที่ได้นำมาวิเคราะห์เพื่อหาค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการวิเคราะห์เชิงเนื้อหา ผลการวิจัยพบว่ารัฐบาลอิเล็กทรอนิกส์ในประเทศไทยมีการขยายตัวอย่างกว้างขวาง แต่การขยายตัวนี้ไม่ส่งผลต่อความสำเร็จของการใช้รัฐบาลอิเล็กทรอนิกส์และระบบรัฐบาลอิเล็กทรอนิกส์ยังอยู่ในระยะเริ่มต้น ข้อมูลจากคำถามปลายเปิดชี้ให้เห็นว่าในการพัฒนาการใช้รัฐบาลอิเล็กทรอนิกส์ในระดับท้องถิ่นจะต้องอาศัยการบริหารจัดการและเทคโนโลยีที่ดีกว่า ตลอดจนการเปลี่ยนนโยบาย นอกจากนี้ ช่องว่างในการใช้ระบบดิจิทัลของประชาชนในท้องถิ่นยังเป็นประเด็นปัญหาหลักของการพัฒนารัฐบาลอิเล็กทรอนิกส์ในการบริหารท้องถิ่นไทย

คำสำคัญ: รัฐบาลอิเล็กทรอนิกส์ องค์กรปกครองส่วนท้องถิ่น เทคโนโลยีสารสนเทศและการสื่อสาร ความเหลื่อมล้ำทางดิจิทัล

Introduction

Over the past decade, information communication technology, or ICT, has penetrated into almost every function of society, including government functions. ICT has enabled and enhanced government in terms of both its management and its service. The popular term, "e-government," for electronic government implies the use of electronic ICT-enabled management and services in public administration (Scholl, 2003). E-government is seen as strengthening the performance of government and public administration, and a necessary prerequisite for economic and social development (Schuppan, 2009). According to Ndou (2004), ICT tools extend the potential for operational efficiency, cost reduction, quality of services, convenience, innovation and learning in both the private and public sectors. The benefits of ICT also include accuracy, speed, enhanced communication, increased productivity and acquisition of skills and knowledge (Bagozzi et al., 1992). ICT speeds up the flow of information and its use in decision making (Ahmed et al., 2006). Trends suggest that the public sector at various levels has increasingly implemented the use of ICT in its organization. The growth

of ICT has had a significant impact on the way in which local, state and national government function (Gupta, Dasgupta and Gupta, 2008). However, in the case of local government, the fact that ICT requires various kinds of literacy as well as the basic ability to read and write has become a major barrier to many local governments (Idowu et al., 2003). Other challenges include unreliable internet access and rapidly-growing populations, as well as the availability of funding for ICT implementation (Ogbomo, 2009). Roddick (2012) also points out that human resource development is an important function in information technology. Consequently, workplaces should identify potential employees and create programs to develop employee training. Governments worldwide, including Thailand, are working to implement local e-government. However, in Thailand the e-government sector is decreasing even though ICT has increased in terms of both the quantity and quality of the technology and the fact that the e-commerce sector is making great advances in the use of information and communication technology. As part of the public service delivery function of the Thai government, local government units may be a part of this decrease as well. This study explores the current Thai local e-government situation in order to gain a better understanding of what is happening at Thai local administration units regarding e-government utilization, especially at the level of urban and rural municipalities.

Definitions of e-government

The electronic government or e-government concept emerged in the field of public administration in the late 1990s (Moon, 2002). Since then, e-government has been given several definitions. E-government is the use of ICTs in general and the utilization of the internet in particular as a tool to achieve better government (OECD, 2003). Tambouris, Gorila and Boukis (2001) defined it as "the application of information and communications technology (ICT) to transform the efficiency, effectiveness, transparency and accountability of informational and transactional exchanges within government, between governments

and government agencies at the federal, municipal and local levels, citizen and business; and to empower citizens through access and use of information." According to *The E-Government Handbook for Developing Countries* (InfoDev, 2002), the World Bank gave a more complex definition: "the use by government agencies of information technologies that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management." Brown and Brudney (2001) define e-government as the use of technology, especially Web-based applications, to enhance access to and efficiently deliver government information and services. Similarly, in a global study of e-government, a joint research project by the United Nations (UN) and the American Society for Public Administration defined it as "utilizing the Internet and the World Wide Web for delivering government information and services to citizens" (UN and ASPA, 2002). Fountain (2004) prefers the term "digital government" or "virtual state" instead of e-government. E-government deals with a wide range of activities and actors. It also can provide many services to different groups of people and sectors. From a technical perspective, e-government can be seen as a new technology used by the government to simplify and automate transactions among governments and constituents, businesses, or other governments (Sprecher, 2000). From a management perspective, e-government can be seen as the use of ICT as a tool to achieve better government (Song, 2004). From an economic perspective, e-government is defined as a new market and a new type of government, a powerful channel to distribute public services interactively (Sprecher, 2000; OECD, 2003). Though e-government is variously defined, the term essentially embraces the use of ICT to transform how government works by enhancing administrative efficiency and effectiveness and increasing citizens' participation in, and the transparency and accountably of, the policy-making process (Sang and Lee, 2009).

Stages of e-government

Numerous e-government models have been proposed by researchers, scholars and institutions. Below, we briefly discuss some prominent models for measuring the stage of e-government development maturity: the UN and American Society for Public Administration (UN&ASPA) five-stage model, Layne and Lee's four-stage model (Layne and Lee, 2011) and Moon's five-stage model (Moon, 2002) The first, the UN&ASPA (2001) model delineated the following five stages of e-government development: (1) emerging presence (provide static information), (2) enhanced presence (provide more dynamic and specialized information), (3) interactive presence (formal interaction between citizens and service providers), (4) transactional presence (complete government transaction online) and (5) fully integrated or seamless (convenient access to all kinds of services.) The second model is Layne and Lee's four-stage model. Layne and Lee (2011) refer to those four stages as: (1) catalogue, (2) transaction, (3) vertical integration and (4) horizontal integration. The last model is Moon's five-stage model, (Moon, 2002) adapted from the Hiller and Belanger model. Moon's five stages are: (1) simple information dissemination (one-way communication), (2) two-way communication (request and response), (3) service and financial transactions, (4) integration (horizontal and vertical integration), and (5) political participation. For this study project, the UN&ASPA five-stage model (UN&ASPA, 2001) was used to determine the stage of Thai local e-government development.

The global e-government situation

The United Nations Public Administration Country Studies (UNPACS, 2014) recently published the UN E-Government Survey report (as shown in Table 1), which is the only one in the world to assess the e-government development status of the 193 UN member countries. From the report, it can be seen that the income level of a country is a general indicator of better e-government development. Both access to ICT infrastructure

and the level of ICT literacy are related to the income level of a nation. Nevertheless, in many countries, national income does not guarantee better e-government development. The survey points out that one of the primary factors contributing to a high level success of e-government is past and current investment in telecommunication, human capital and the provision of online services.

The Republic of Korea retained its top spot in 2014, with continued leadership focusing on e-government innovation. Australia and Singapore came second and third, respectively; both have improved substantially from their 2012 rankings. The digital divide is still considered a primary challenge for e-government implementation. One additional issue that is also gaining more attention is the e-government usage divide. There is an increasing concern that a substantial number of people will lose their jobs as more and more government tasks are moved online. The 2014 survey shows that inclusive multichannel service strategies are needed. There are increasing expectations from citizens for easier access to more public information and public services from anywhere, at any time, through multiple channels. The 2014 survey also shows that the increases in e-participation, growth of mobile channels and social media have contributed to progress in e-government development (UNPACS, 2014.)

The e-government situation in Thailand

As mentioned in the UN E-Government Survey 2014 report, the income level of a country is a general indicator of greater e-government development. But in many countries, national income does not necessarily guarantee better e-government development. Thailand is one of the countries that fall under this category. Even though Thailand was classified by the World Bank (World Bank, 2014) as an upper middle-income level country, its ranking in the E-Government Development Index or EGDI (UNPACS, 2014) has sharply dropped from 64th place in the 2008 ranking to 102nd in 2014, that is, lower than our ASEAN neighbors Viet Nam (99th) and Philippines (95th),

which were classified as lower middle-income level countries. Thailand's EGDI ranking fell 38 places in six years' time. This is an alarming sign. In the past six years, contrary to the picture painted by the EGDI ranking, ICT development in Thailand has grown. The number of internet users has increased from around 13.4 million people in 2007 to more than 26.1 million in 2013. Domestic bandwidth has grown from around 90,011 Mbps in 2007 to more than 1,527,515 Mbps in 2013, increasing more than 16 times the 2007 bandwidth speed (NECTEC, 2013). Furthermore, according to data from the World Economic Forum's Network Readiness Index or NRI (Dutta and Bilbao-Osorio, 2012), Thailand's NRI has continually increased from 40 in 2008, to 47 in 2010 and, in the most recent survey, to 77 in 2012. Regardless of all of these ICT improvements, curiously, e-government development continues to decline. In 2011, the Electronic Government Agency of Thailand's Ministry of Information and Communication Technology conducted a nationwide survey regarding e-government and e-service in Thailand. The survey disclosed that the majority of e-service in Thailand (91.52%) was still at the earliest stages of e-government development-s information and interaction stages. Only 4.6 percent of the e-government in Thailand has reached the interchange transaction level, only 0.72 percent has reached the integration level and none of the e-government in Thailand has reached the intelligence stage level, the highest in e-government development (UN-ASPA (2001).

Thai local administration and e-government development

Thailand is using a unitary democratic system. The history of local autonomy in Thailand dates back to the Municipal Administration Act of 1933, which resulted in the establishment of the municipality as a basis for local government in Thailand (Nagai, Funatsu and Kagoya, 1997). However, local administration at that time was not seen to play an important role in Thai society. Thailand maintained a strong centralized unitary structure which emphasized uniformity of service. With this, Thailand experienced rapid growth and significant improvement in

living standards but the benefits were unevenly shared and the goals of equality and uniformity of public services were not met. Nevertheless, the idea of the real need for decentralization was not fully realized until the 1997 Constitution. This Constitution was followed by the Decentralization Act of 1999 and the work of a decentralization program developed. Currently, Thailand has two parallel systems of public administration, central administration and local administration. The central administration has de-concentrated field offices at provincial, district and sub-district levels. For local administration, Thailand is divided into provincial administrative organizations (PAO), as well as city, town and sub-district municipalities (World Bank, 2012), which are classified according to their population and budget.

The Department of Local Administration (2013) of the Ministry of the Interior reported on the implementation of the Master Plan for ICT Development in local government, which was intended to be officially implemented over the period from 2014 to 2017. The objectives were to specify the direction of ICT so that it works in line with the policy of the Ministry of Interior and the strategic plan of the Department of Local Development. The strategic plans include: 1) integration of data, 2) increased effectiveness in ICT management, 3) developing ICT infrastructure so the system can be stable and safe, and 4) developing capacity and skills in ICT of personnel in the local administrative organization. Boonphiew (2001), who studied the ICT installment model for the effectiveness of administrative and service systems of Khon Kaen municipality office, found that the implemented model was at a very early stage, and consequently, there were problems related to data-based filing systems. Eight years later, Kumarnchan (2009) conducted a survey of the knowledge, ability and opinions of officers in the district office of Nakhon Si Thammarat regarding ICT usage, and found that the sample population was knowledgeable of ICT and opined that the system helped them work more effectively and productively. The study also revealed that ICT helped improve work procedures and work flow. The clients who came for services also expressed their satisfaction with the rapid outcome of the work.

Mekkhachorn (2011) studied readiness and utilization of information systems of a sub-district municipality and a sub-district administrative organization, and found that 87.1 percent of the personnel in the two organizations gained benefits from the internet system. The information filed in computers has been highly used (61.2 percent). Most problems and obstacles were from internet connectivity (27.6 percent). Ruenpakpoj and Yongvanit (2010) studied knowledge, skills and attitudes about information management for planning in local administrative organizations in Khon Kaen province, and found that ICT was used for planning in local administrative organizations at a high level. However, they also found problems in skills related to information technology management in data collection, processing, storing and presentation.

Methods and findings

The present study was conducted using survey research. The structured survey was conducted with 35 elected and unelected officers of seven municipalities in Khon Kaen province: Ban Phai, Khon Kaen, Sila, Mueang Kao, Phra Lap, Kaen Neir and Hin Tang. The sample group was drawn by simple random sampling. The questionnaire used a Likert scale with five possible answers, from strongly agree to strongly disagree, and was broken down into two main areas of local e-government activities: local administration and local services. Open-ended questions were also attached. The data obtained from the Likert scale questions was analyzed by mean and standard deviation. The findings are presented in Tables 2 and 3. Data from the open-ended questions was analyzed by content analysis. In addition, all websites of the seven sub-district municipalities were also reviewed in order to determine their stage of development.

When asking the officers to rate e-government activities in local administration, the results showed that overall the local government officers use ICT to a high degree to help with almost all types of administrative work activities. The activities that rank at the top were using technology to help in searching for data ($\overline{X} = 4.07$), followed by using technology to do data analysis and planning ($\overline{X} = 3.76$), using ICT

in procurement work ($\overline{X}$ = 3.62), and using ICT in accounting and finance work ($\overline{X}$ = 3.62).

As for how the officers were using e-government in their local services activities, the results followed the same pattern as ratings for local administration activities. The ratings came in moderately high in all activities. In local services, e-government was most utilized to distribute information (to citizens) ($\overline{X}$ = 3.85), followed by providing web bulletin boards ($\overline{X}$ = 3.67) and providing forms online ($\overline{X}$ = 3.47).

The data from open-ended questions revealed that some officers in local administration offices mentioned that they had to rely on their colleagues to help manage some software programs. Some officers suggested replacing the old computers and outdated technology equipment with more up-to-date ones. One officer pointed out that although many tasks could be done electronically, because the auditor general office would only audit reports on paper, the office continued completing their tasks on paper. The other issue was the online content management, which more often than not faced technical problems or lack of a continuously monitored system. However, those samples opined that email, Facebook and Line applications motivate them to develop their technological skills. As for e-government used in services for local citizens, the officers stated that Thai local society was still facing the a digital divide problem, meaning that there were still many people in the area governed by the local administration office who cannot access technology. Finally, a review of the web presence of each municipality found that each municipality was still at the emerging stage of e-government development according to the UN's five-stage model.

Discussion

The questionnaire results indicate that the local government units in Khon Kaen have largely been able to utilize e-government to help in their organization both with their local administration tasks and their local services activities for local citizens. This is in line with Ruenpakpoj

and Yongvanit (2010) and Kumarnchan (2009). However, the open-ended question results exposed some obstacles in implementing e-government at the local level, i.e. lack of software use competency, outdated hardware equipment, audit policy problems, content management problems, and a digital divide among local citizens. Regarding the e-government development stage, in spite of the advantages of wider use of e-government in many areas of local government work, the improvement of ICT infrastructure and the increase in the number of internet users in Thailand, the current Thai local e-government is still at the first stage of e-government development: the emerging stage. This result implies that current e-government development in Thailand has focused more on broadening the utilization of e-government and has paid less attention to advancing to the next stage of e-government development. This result could partially explain why Thailand's e-government development ranking fell so sharply. Additionally, certain problems in ICT use were also identified, such as the low skill levels of the officers in software applications, the management of information and structures of monitoring systems. All these problems were consistent with the previous studies by Ruenpakpoj and Yongvanit (2010) and Mekkhachorn (2011). As for the digital divide problem mentioned in the open-ended questions, this is a rich area for further investigation. Reddick (2012) pointed out that the implementation of e-government is not only for the development of government organizations but also for the development of citizen participation. Similarly, the digital divide was still considered a primarily challenge for e-government implementation globally according to the United Nations E-Government Survey 2014 report. The digital divide is a result of social, environment and organizational factors that prevent the use or expanded use of e-government, and the extent to which this divide contributes to the lack of e-government development in the Thai context needs to be studied further.

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APPENDIX

Table 1: World and Regional E-government Leaders

World e-government leaders	Regional e-government leaders	
Republic of Korea Australia Singapore France Netherlands Japan USA United Kingdom New Zealand Finland	AFRICA	Tunisia Mauritius
	NORTH AMERICA	USA Canada
	ASIA	Republic of Korea Singapore
	EUROPE	France Netherlands
	OCEANIA	Australia New Zealand

(Source: The United Nations E-Government 2014 Survey, UNPACS)

Table 2: E-Government in Local Administration

E-government Activities	$(\overline{X})$	(SD)
For searching data	4.07	.86
Help in data analysis and planning	3.76	.85
For receiving data and gathering information	3.50	.91
Using in document management	3.58	1.09
For procurement	3.62	.94
In human resource and personnel management	3.61	.88
In accounting and finance	3.62	1.02
Use in local database	3.58	1.5

Table 3: E-Government in Local Services

E-government activities	($\bar{X}$)	(SD)
Providing forms online	3.47	1.01
Online content management	3.07	1.00
Distributing information (Information dissemination/catalogue)	3.85	.91
Suggestions &opinions online (Web bulletin boards)	3.67	1.00