

# ผลกระทบของประสิทธิภาพของระบบเครือข่ายเคลื่อนที่ ต่อคุณภาพของสารสนเทศทางการบัญชี

Effects of Mobile Network System Efficiency on Accounting Information Quality

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## บทคัดย่อ

การวิจัยครั้งนี้มีจุดประสงค์ เพื่อทดสอบผลกระทบของประสิทธิภาพของเครือข่ายเคลื่อนที่ที่มีต่อคุณภาพของสารสนเทศทางการบัญชีของกิจการร้านอาหารในประเทศไทย โดยใช้แบบสอบถามเป็นเครื่องมือในการเก็บรวบรวมข้อมูล จำกัดผู้บริหารกิจการร้านอาหารในประเทศไทย จำนวน 156 คน สถิติเชิงพรรณนาและสถิติอ้างอิง อาทิ เช่น ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐานการวิเคราะห์สหสัมพันธ์พหุคุณ และการวิเคราะห์การคาดถอยแบบกำลังสองน้อยที่สุด ได้ถูกนำมาใช้ใน การวิเคราะห์งานวิจัยในครั้งนี้ ผลการวิจัยแสดงให้เห็นว่า ประสิทธิภาพของเครือข่ายเคลื่อนที่ ทั้งในด้านความพร้อมใช้งาน และคุณภาพในการเชื่อมต่อ ด้านการตอบสนอง ด้านความเรื่อถือได้ของระบบ และด้านคุณภาพของส่วนติดต่อกับผู้ใช้งาน มีความสัมพันธ์และผลกระทบเชิงบวกกับคุณภาพสารสนเทศทางการบัญชี ดังนั้นผู้บริหารกิจการร้านอาหารในประเทศไทย จึงควรให้ความสำคัญต่อประสิทธิภาพของเครือข่ายเคลื่อนที่ เพื่อเป็นแนวทางในการปรับปรุงและพัฒนาคุณภาพและ ประสิทธิภาพของข้อมูลทางการบัญชีของกิจการ ทั้งยังก่อให้เกิดประโยชน์แก่เจ้าของกิจการผู้ที่มีความสนใจในการ ประยุกต์ใช้เครือข่ายเคลื่อนที่ในการสนับสนุนและส่งเสริมประสิทธิภาพในการดำเนินกิจการไปสู่ความสำเร็จอย่างยั่งยืน

**คำสำคัญ :** ประสิทธิภาพของระบบเครือข่ายเคลื่อนที่ คุณภาพของสารสนเทศทางการบัญชี กิจการร้านอาหาร

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## Abstract

The purpose of this research is to examine the effects of mobile network system efficiency on accounting information quality of restaurant businesses in Thailand. The self-administrative questionnaire was used to gather the data from 156 managerial directors and managerial partners. Both descriptive statistics and inferential statistics; mean, standard deviation multiple correlation, and ordinary least square regression, were employed to analyze the data. The results illustrated that mobile network system efficiency; including the availability and connection quality, responsibility, system reliability, and interface quality, has shown the positive significant impact on accounting information quality. Hence, the manager of restaurant businesses in Thailand should pay their attention on the importance of mobile network system efficiency to use as a guideline in developing the quality of business accounting information. Moreover, the results also benefits business founders, as they implement mobile system to support and enhance the business efficiency and business sustainability.

**Keywords:** Mobile Network System Efficiency, Accounting Information Quality, and Restaurant businesses

### 1. Introduction

Nowadays, mobile network communication has becomes one of the dominant strategic tools which powerful in enabling business firms to enhance business performance (Kuo et. al., 2009, Özer et al., 2013). Generally, the mobile technology is normally uses in cellular network communication. However, since the dramatic evolution of smart-gadget empowered the use of mobile device from just a simple two-way pager to the all-in-one smartphone pile up with web browser, GPS navigator, and even a handheld gaming console. The IT experts believe that the next generation of information technology and the future of computer technology are rest in the line of the modern mobile network technology. Specially, with the availability and satiability of both 3G and 4G network technology, the uses of mobile network gadget like tablet has become more favorable. Many business firms has adapt the new innovate information technology in tablets to their business. Tablet technology can enable business capabilities and efficiency in many ways, data processing and storing for example.

Since the usages of mobile network system have dramatically shift from a simple two way communication to the ultimate usage of communication and entertainments, concurrently, the stability and efficiency of mobile network system also experienced a great evolution. Therefore, this research especially focuses on the effects of mobile network system efficiency. Based on the previous studies, this research

develops the construct to measure the term of “mobile network system efficiency” consisting of availability and connection quality, responsibility, system reliability, and interface quality (Lin, 2013; Özer et al, 2013).

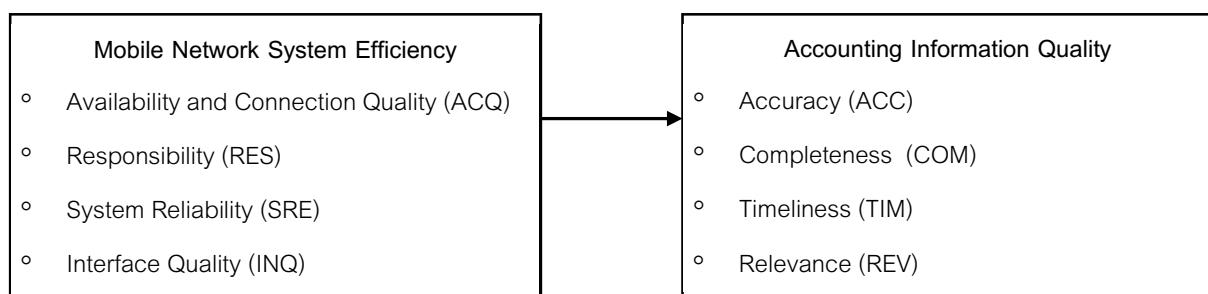
Respectively, the key purpose of this research was to investigate the influence of mobile network system efficiency on accounting information quality. For doing so, this research explicitly investigated the consequences of mobile network system efficiency on accounting information quality. Therefore, the distinctive dimensions of mobile network system efficiency has proposed, including availability and connection quality, responsibility, system reliability, and interface quality. Moreover, in this research, the critical dimensions of account information quality are includes accuracy, completeness, timeliness, and relevance.

This study outlines as follow: the first part reviews relevant literature in the key area and streams of all four distinctive dimensions of mobile network system efficiency, its consequences, links and influence between the concepts of accounting information quality, and finally propose the key research hypotheses of those aforementioned relationships. The second explicitly stimulate research methodology, including data collection, measurements of constructs, and statistical analyses. The results of the study derived from 156 branches of the top Thai restaurants that adapt mobile technology system into their daily business processes. The third part illustrates the results of statistical analysis and the corresponding discussion. Consequently, the final section summarizes the findings of the study, indicate and reveal both theoretical and managerial contributions, and specify suggestions for further research and the limitations of the study.

## 2. Theoretical Foundation and Literature Review

The objective of this study was to investigate and conceptualize the relationship between mobile network system efficiency and accounting information quality. With regard to the resource-based view of the firm (RBV), Figure 1 demonstrates the linkage and relationship between aforementioned variables.

Figure 1 Conceptual model of mobile network system efficiency and accounting information quality



Drawing on the resource-based view of the firm (RBV), conceptual model represented in Figure 1 explains the research phenomenon. RBV stated that firm with specific resources in handle that contain the characteristics of rare, valuable, non-substitutable, and inimitable will accomplish the firm's expectation objectives and goals (Barney, 1991). Likewise, information technology (IT) resource includes IT assets and IT capability convey firm to improve the achievement of strategic planning, decision making success, and competitive advantage (Zhang and Lado, 2001; Bhatt and Grover, 2005). Accounting information system is embedded in organization's processes and business routines, thus, accounting information is one of the beneficial informative resource provided by organization's information system. Moreover, prior research proposed that accounting information can enhances accounting information quality and business performance (Konthong and Ussahawanitchakit, 2010). Agreeably, a specific information system, such as mobile communication system, is one of business resource that promotes the internal business management capability and also provides loaded of beneficial information for the managers, as a critical decision makers. Consequently, this research determines the efficiencies of mobile network system influences the quality of accounting information which resulting in the improvement of firm performance.

### 2.1. Mobile Network System Efficiency

The use of mobile network increased in recent years and the developments in mobile services continue to grow (Wang and Lin, 2012). Mobile network system is defined as mobile character of wireless devices that support electronic service transactions (Kleijnen et al., 2007). However, mobile network has its own characteristics and delivers different values to its customers (Balasubramanian et al., 2002). Therefore, to identify the mobile network system efficiency, various measurement dimensions have been proposed according to mobile network properties such as accuracy, completeness, availability, reliability, consistency, and stability. This research develops the construct of mobile network system efficiency based on previous studies of Lin (2013) and Özer et al. (2013) which categorized into four different dimensions including the availability and connection quality, responsibility, system reliability, and interface quality.

First, the availability and connection quality is the perceptions of the coverage of mobile signal, easy to access and availability for use from employees, and the continuous and stable of mobile network. Second, responsibility is the retrieving time of customer orders with quickly response, quickly access to master data (such as customer file and inventory file), and audit trail of transactions.

Next, system reliability is defines as the accuracy of data processing, reduction of data redundancy, reduction of data storage costs, reliability of system security and confidential of data, and communication reliability. Finally, interface quality is the ease of use, user friendly and understandability, and availability of helps and supports. Moreover, this research hypothesizes that mobile network system efficiency is positively influences accounting information quality.

## 2.2. Accounting Information Quality

In this research, accounting information quality is defined as accounting information provided by accounting information system which has four key characteristics, including accuracy, completeness, timeliness, and relevance (Neely and Cook, 2011). First, accuracy refers to the attribute of accounting information which reflects the neutrality, unbiased, and reality. Accuracy accounting information, such as the accuracy financial reporting, is benefits to the managers in supporting their critical strategic planning and operation management. Second, completeness is refers to the accounting information that is entirely reported and convey the full dimensionality for related user needs. Complete accounting information does not only provided financial information, complete accounting information can also represents the non-financial information such as customer behavior and managerial information to the managers. As previous research show that the complete information from integrated functions within the firm is positively relates to managerial decision making success, business operation effectiveness, and firm credibility (Ismail and King, 2005; Konthong and Ussahawanitchakit, 2009).

Next, timeliness is the characteristic of accounting information which is reported at the right time and represents the current situation. Many prior studies illustrate the positive effect of timely information on the effectiveness of decision making and decision making performance (Abdelsalam and Street, 2007). Moreover, the study Cheng and Neamtiu (2009) reveals that timeliness of financial reporting enhances the credibility of the firms. Finally, relevance is the pertinence of accounting information which is appropriately related to a given purpose. Managers take the advantages of relevant information to enhance their decision and the performance of business management. The relevance of financial statement information supports the effectiveness of performance evaluation of executives (Krolick, 2005). According to all of the above, this research hypothesizes that mobile network system efficiency is positively influences accounting information quality, as follows;

**Hypothesis 1:** Availability and connection quality has the positive influence on (a) the accuracy of accounting information, (b) the completeness of accounting information, (c) the timeliness of accounting information, and (d) the relevance of accounting information.

**Hypothesis 2:** Responsibility has the positive influence on (a) the accuracy of accounting information, (b) the completeness of accounting information, (c) the timeliness of accounting information, and (d) the relevance of accounting information.

**Hypothesis 3:** System reliability has the positive influence on (a) the accuracy of accounting information, (b) the completeness of accounting information, (c) the timeliness of accounting information, and (d) the relevance of accounting information.

**Hypothesis 4:** Interface quality has the positive influence on (a) the accuracy of accounting information, (b) the completeness of accounting information, (c) the timeliness of accounting information, and (d) the relevance of accounting information.

### 3. Research Methods

#### 3.1. Sample Selection and Data Collection Procedure

The population of this research was Thai restaurants that adopt mobile technology into order entry process, five restaurants are chosen. Although the single industry context might limit the generalizability of the finding, it enhances the internal validity by possibly making more systematic and unbiased comparison across industries (Vorhies, et al., 2009). The unit of analysis was the branches of five restaurants. As the result, there were 916 branches used as a population of this research and 500 branches were randomly selected as a sample of the analysis, using stratified random sampling technique. Moreover, branch manager is determined as a key informant. A mail survey procedure via the constructive questionnaire was employed for data collection. The participants were managing directors and managing partners. With regard to the questionnaire mailing, there are 156 responses were completed and usable. The effective response rate was approximately 31.20%. Hence, the response rate for a mail survey, without an appropriate follow-up procedure, if greater than 20% is considered acceptable (Aaker, et al., 2001). To assess potential non-response bias, the comparison between early and late respondent yielded no statistically significant different in term of firm characteristics; firm age, number of employee (Armstrong and Overton, 1977). However, the result of t-test statistic implied that non-response bias was not a serious problem in this study (Sin, et al., 2005).

#### 3.2. Reliability and Validity

To assess the measurement reliability and validity, factor analysis was firstly utilized to assess the underlying relationships of a large number of items and to determine whether they can be reduced to a smaller set of factors. The factor analyses were conducted separately on each set of the items representing a particular scale due to limited observations. With respect to the confirmatory factor analysis, this analysis has a high potential to inflate the component loadings. Thus, a higher rule-of-thumb, a cut-off value of 0.40, was adopted (Nunnally and Bernstein, 1994). All factor loadings are greater than the 0.40 cut-off and are statistically significant. The reliability of the measurements was secondly evaluated by Cronbach alpha coefficients. In the scale reliability, Cronbach alpha coefficients are greater than 0.70 (Nunnally and Bernstein, 1994). The scales of all measures appear to produce internally consistent results; thus, these measures are considered appropriate for further analysis because they express an accepted validity and reliability in this study. Table 1 below presents the results for both factor loadings and Cronbach alpha for multiple-item scales used in this study.

Table 1 Results of Validity and Reliability Testing

VARIABLES	Factor	Cronbach's Alpha
	Loadings	Coefficients
Availability and Connection Quality	0.724-0.962	0.856
Responsibility	0.696-0.870	0.719
System Reliability	0.688-0.801	0.712
Interface quality	0.747-0.919	0.823
Accuracy	0.707-0.952	0.832
Reliability	0.629-0.927	0.761
Timeliness	0.887-0.927	0.893
Relevance	0.798-0.886	0.806

### 3.3. Statistical Technique

The ordinary least squared regression (OLS) was used to test and examine the relationships between the dimensions of mobile network system efficiency; availability and connection quality (ACQ), responsibility (RES), system reliability (SRE) and, interface quality (INQ), and the dimensions of accounting information quality; accuracy (ACC), completeness (COM), timeliness (TIM), and relevance (REV). Because all dependent variable, independent variables, and control variables in this study were neither nominal data nor categorical data, ordinary least squares regression analysis is an appropriate method for examining the hypothesized relationships (Aulakh, et al., 2000). With the need to understand the relationships in this study, the research models of the aforementioned relationships are depicted as shown below.

$$\text{Equation 1: ACC} = \alpha_1 + \beta_1 \text{ACQ} + \beta_2 \text{RES} + \beta_3 \text{SRE} + \beta_4 \text{INQ} + \beta_5 \text{AGE} + \beta_6 \text{SIZ} + \varepsilon_1$$

$$\text{Equation 2: COM} = \alpha_2 + \beta_7 \text{ACQ} + \beta_8 \text{RES} + \beta_9 \text{SRE} + \beta_{10} \text{INQ} + \beta_{11} \text{AGE} + \beta_{12} \text{SIZ} + \varepsilon_2$$

$$\text{Equation 3: TIM} = \alpha_3 + \beta_{13} \text{ACQ} + \beta_{14} \text{RES} + \beta_{15} \text{SRE} + \beta_{16} \text{INQ} + \beta_{17} \text{AGE} + \beta_{18} \text{SIZ} + \varepsilon_3$$

$$\text{Equation 4: REV} = \alpha_4 + \beta_{19} \text{ACQ} + \beta_{20} \text{RES} + \beta_{21} \text{SRE} + \beta_{22} \text{INQ} + \beta_{23} \text{AGE} + \beta_{24} \text{SIZ} + \varepsilon_8$$

## 4. Results

Table 2 represents the descriptive statistics and correlation matrix for all variables. With respect to the potential problem relating to multicollinearity, none of the correlation coefficients among dependent variables are exceed 0.80. Moreover, the variance inflation factors (VIF) range from 1.04 to 3.86, which was below the cut-off value of 10 (Hair, et al., 2006, 2010). There, it can be concluded that the multicollinearity is not a serious problem in this study. The Durbin-Watson (d) ranges from 1.71-2.22, which is between the two critical values of  $1.5 < d < 2.5$  (Durbin and Watson, 1971) and therefore we can assume that there is no first order

linear auto-correlation in our multiple linear regression data. Moreover, Cronbach's alpha coefficient is commonly used as a measure of the internal consistency or reliability of constructs (Hair, et al., 2006, 2010). In this research, Cronbach's alpha coefficients are ranging from 0.712 – 0.893. Respectively, internal consistency of the measures used in this research must be considered good for all constructs.

Table 2 Descriptive Statistics and Correlation Matrix of All Variables

	ACQ	RES	SRE	INQ	ACC	COM	TIM	REV	AGE	SIZ
Mean	4.630	4.316	4.394	4.641	4.630	4.500	4.547	4.406	.833	.192
S.D.	.483	.561	.565	.502	.492	.553	.578	.557	.277	.395
RES	.201 <sup>*</sup>									
SRE	.202 <sup>*</sup>	.252 <sup>**</sup>								
INQ	.586 <sup>**</sup>	.262 <sup>**</sup>	.252 <sup>**</sup>							
ACC	.854 <sup>**</sup>	.272 <sup>**</sup>	.304 <sup>**</sup>	.606 <sup>**</sup>						
COM	.320 <sup>**</sup>	.379 <sup>**</sup>	.279 <sup>**</sup>	.363 <sup>**</sup>	.298 <sup>**</sup>					
TIM	.248 <sup>**</sup>	.563 <sup>**</sup>	.363 <sup>**</sup>	.326 <sup>**</sup>	.227 <sup>**</sup>	.375 <sup>**</sup>				
REV	.330 <sup>**</sup>	.252 <sup>**</sup>	.180 <sup>*</sup>	.287 <sup>**</sup>	.292 <sup>**</sup>	.374 <sup>**</sup>	.248 <sup>**</sup>			
AGE	.120	-.092	.071	-.021	.083	.039	-.019	-.014		
SIZ	.072	-.055	-.105	-.013	.076	-.062	-.002	-.052	.088	

\*\*\*p<0.01, \*\*p<0.05, \*p<0.10

Table 3 represents the results of ordinary least squared regression analysis of the relationships between mobile network system efficiency's dimensions and accounting information quality. The result illustrated that mobile network system efficiency's dimensions, namely Availability and connection quality, show significant positive effects with the accuracy of accounting information quality ( $\beta_{01}=0.742$ ,  $p<0.01$ ) and the relevance of accounting information quality ( $\beta_{19}=0.241$ ,  $p<0.05$ ). This finding is consistent with previous research that the availability and connection quality of information technology is the fundamental requirement of information system quality (Neely and Cook, 2011; Krolick, 2005). Therefore, hypothesis 1a and 1d are supported.

In hypothesis 2a-d, the statistical analysis revealed that the responsibility of mobile network system have the significant positive relationships with the competences ( $\beta_{08}=0.274$ ,  $p<0.01$ ), the timeliness ( $\beta_{14}=0.473$ ,  $p<0.01$ ) and the relevance ( $\beta_{20}=0.159$ ,  $p<0.05$ ) of accounting information quality. So, it is possible to assume that network system responsibility is related to information quality (Kleijnen et al., 2004; Wang and Lin, 2012). Hence, hypothesis 2b, 2c, and 2d are supported.

Table 3 Result of OLS Regression Analysis<sup>a</sup>

Independent Variable	Dependent Variable			
	H1a-4a		H1b-4b	
	ACC	COM	TIM	REV
ACQ	.742*** (.050)	.129 (.089)	.029 (.081)	.241** (.095)
RES	.063 (.042)	.274*** (.076)	.473*** (.068)	.159** (.080)
SRE	.111*** (.042)	.130* (.076)	.209*** (.068)	.066 (.080)
INQ	.127*** (.051)	.183** (.090)	.133 (.081)	.086 (.096)
Firm Age	-.009 (.147)	.047 (.262)	.005 (.236)	-.026 (.278)
Firm Size	.040 (.102)	-.044 (.182)	.046 (.164)	-.050 (.193)
Adjusted R <sup>2</sup>	.227	.222	.368	.126

<sup>a</sup> Beta coefficients with standard errors in parenthesis, \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

Next, in hypothesis 3, the finding illustrated that mobile network system reliability has the positive influence on the accuracy ( $\beta_{03}=0.111$ ,  $p<0.01$ ), the completeness ( $\beta_{09}=0.130$ ,  $p<0.10$ ), and the timeliness ( $\beta_{15}=0.209$ ,  $p<0.01$ ) of accounting information quality. This coincides with the information technology perspective that there are the positive relationship among the information technology reliability and system accuracy Orens and Lybaert, 2007, information completeness (Kim, et al., 2004), and timeliness (Abdelsalam and Street, 2007; Cheng and Neamtiu, 2009). Thus, hypothesis 3a, 3b, and 3c are supported.

Finally, the interface quality of mobile network system represent the positive significant relationship with the accuracy ( $\beta_{04}=0.127$ ,  $p<0.01$ ) and the completeness ( $\beta_{10}=0.183$ ,  $p<0.05$ ), of the accounting information quality. This exhibited that the high-level of system interface quality is related to information accuracy (Orens and Lybaert, 2007) and the completeness of accounting information (Yang, et al., 2005). Consequently, hypothesis 4a and 4b is supported.

## 5. Conclusion and Limitations

As early mentioned that the rapidly growth of information technology, mobile network communication becomes a strategic tools that enables firm enhance their performance. Mobile technology is the technology

used for cellular communication. Specially, the Mobile technology has evolved rapidly over the past few years. A standard mobile device has gone from being no more than a simple two-way communication to the multifunction and entertainment device. Many experts believed that the future of modern computer technology rests in mobile gadgets and wireless network system.

Restaurant businesses are a good example in adopting and exploiting the advantages of the ultramodern mobile network communication, mostly in ordering system. Mobile ordering system of restaurant enables firms to increases their profits by reducing the operational costs and slack time. Mobile ordering system also increases customer satisfaction and business operation efficiency at the same time.

As the results, this research discovers that the mobile network system efficiency, consisted of the availability and connection quality, responsibility, system reliability, and interaction quality of the network system has the positively influences on business accounting information quality. More specifically, the availability and connection quality of mobile network system has shown the positive impacts on the accuracy and relevance of accounting information. The responsibility of mobile network system also pinpointed the positively influences on the reliability, timeliness, and relevance of accounting information. For the system reliability of mobile network, it is clear that the reliability of mobile network has the positive impacts on the accuracy, reliability, and timeliness of accounting information. Moreover, this research also illustrated the positive relationship between the interaction quality of mobile network system and the accuracy and reliability of accounting information.

This research offers both theoretical contributions as well as managerial implications. The core theoretical contribution of the research is to fulfill the lack of academically investigation of the mobile network system impacts on managerial performance, as this research intentionally focuses on the effects of mobile network system efficiency influence on accounting information quality. The new constructs of mobile network system efficiency is developed, based on previous literatures; including availability and connection quality, responsibility, system reliability, and interaction quality. The discussions of this research also contribute to managerial practices concentrating on mobile network system efficiency. This research sheds light on the advantage of mobile network of restaurant businesses. The findings suggest that mobile technology is one of significant tools in enhancing managerial performance, especially accounting information quality. More specifically, to increase business performance, restaurants should adopt mobile technology to their business processes such as order entering, billing, and reporting. More importantly, employing mobile network system in business, the manager should pay their attention to the availability and the connection quality, the responsibility of the system, the system reliability, and the interaction quality of a specific network.

The future research may set the focus in generalizing this construct by examining the effects of mobile network system in other service businesses. Researcher may also try to investigate the impacts of mobile

network system on other interesting variables and constructs such as business performance and survival.

Finally, the moderators, such as technology intensity and competitive pressures, can be added into the relationship between network system quality and its consequences to capture more comprehensive view in the mobile network system literature.

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