Factors Influencing Management Accounting Information System Capability: Empirical Evidence from Beverage Businesses in Thailand*

ปัจจัยที่มีอิทธิพลต่อศักยภาพระบบสารสนเทศทางการบัญชีบริหาร: หลักฐานจากธุรกิจเครื่องดื่มในประเทศไทย

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Abstract

This research aims at examining the influence ofthe factors (business executive support, IT resource, employee technology learning, best accounting system, and environmental munificence potentiality) to management accounting information system capability. Data was collected from 141 beverage businesses in Thailand by questionnaire mail survey.The hypotheses were tested using the multiple regression analysis. The results of the empirical test suggested that two key factors, namely,IT resource and employee technology learning, have a positive influence on management accounting information system capability. The findings are useful for the executives of organizations to allocate funds to invest in information technology, and to promote technology learning for employees. Conclusions,contributions, and suggestions for future research are highlighted.

Keywords: Management accounting information system capability, Beverage business

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีอิทธิพลต่อศักยภาพระบบสารสนเทศทางการบัญชีบริหาร โดยปัจจัยที่ศึกษา ได้แก่ การสนับสนุนของผู้บริหาร ทรัพยากรเทคโนโลยีสารสนเทศ การเรียนรู้ทางเทคโนโลยีของพนักงาน ระบบบัญชีที่ดี และสภาพแวดล้อมที่เอื้ออำนวย โดยรวบรวมข้อมูลจากธุรกิจเครื่องดื่มในประเทศไทย จำนวน 141 บริษัท สถิติที่ใช้คือการวิเคราะห์ความถดถอยพหุคูณ

ผลการทดสอบเชิงประจักษ์พบว่าปัจจัยสำคัญ ได้แก่ ทรัพยากรเทคโนโลยีสารสนเทศ และการเรียนรู้ทางเทคโนโลยีของพนักงาน มีอิทธิพลเชิงบวกต่อศักยภาพระบบสารสนเทศทางการบัญชีบริหาร ผลการวิจัยนี้เป็นประโยชน์สำหรับผู้บริหารองค์กรในการจัดสรรงบประมาณเพื่อการลงทุนทรัพยากรด้านเทคโนโลยีสารสนเทศและเพื่อส่งเสริมการเรียนรู้เทคโนโลยีให้กับพนักงาน ซึ่งเป็นแนวทางในการเพิ่มศักยภาพระบบสารสนเทศทางการบัญชีบริหาร

คำสำคัญ: ศักยภาพระบบสารสนเทศทางการบัญชีบริหาร, ธุรกิจเครื่องดื่ม

Introduction

In today's challenging business environment, there is no denying that information has become amajor factor in the business world. Providing the right persons with the right information at the right time is important for an organization to both achieve and maintain its competitive advantage. Therefore, the ability to access, analyze and store data effectively enables organizations to outperform competitors. Management accounting information system, which is a management tool, is the key to success in today's business environment (Tamandeh, 2016). Management accounting information system is the sub-system of accounting information system, whichis the process that produces information to assist managers in planning, controlling and making decisions to achieve strategic goals (Hansen & Mowen, 2007). Such a system focuses on presenting information that might happen in the future. Additionally, it also provides information in both the short and long-term to support the decision. The efficiency of management accounting information system depends on the perception of decision-makers and on the usefulness of information generated based on operational objectives for operational processes, managerial reports, budgeting and control within the organization. Decision-making will be better if it uses quality information (Romney & Steinbart, 2012). Therefore, the organization with effective accounting information system provides quality accounting information, which is useful for decision-making (Prasertsak, 2015).

Based on the contingency theory, the organization's structure is influenced by internal factors, which are organizational factors, and external factors which are environmental factors (Anderson & Lanen, 1999). This theory explains that there is no best way to manage an organization. Therefore, organizational effectiveness depends on the suitable alignment of internal and external organizational contextual factors (Sauser, Reilly & Shenhar, 2009). The supporting research results were done by Choe (1998) who found that an accounting information system design may be influenced by contingent variables. There are significant relationships between contingency factors and the complexity of the accounting information system (Holmes & Nichols, 1988).

From the literature, there are several key success factors in the development of accounting information systems, includingexternal environment (Ax, Greve, & Nilson, 2008; Chong & Rundus, 2004), national culture (Henri, 2006), organizational structure (Lee & Yang, 2011), organizational strategies (Boulianne, 2007; Cadez & Guilding, 2008), technology (Kalagnanam & Lindsay, 1999), task uncertainty (Chong, 1996), and budgetary participation (Tsui, 2001). Thus, the management accounting information system capability that is created by the organization to be effective depends on both internal and external factors. This research intends to provide empirical evidence of the influence and relationship between organizational factors, which are business executive support, IT resource, employee technology learning, best accounting system, environmental factors, which is environmental munificence potentiality, and management accounting information system capability. Importantly, this research is beneficial to help improve organizational performance under highly competitive environments by supporting factors that increase the ability to provide the information needed to satisfy specific management objectives.

Research Objective

The objective of this research was toinvestigatethe relationships among business executive support, IT resource, employee technology learning, best accounting system, environmental munificence potentiality, and management accounting information system capability.

Literature Review

The conceptual model used in this research is presented in Figure 1. It covers all proposed hypotheses that were tested to be positive. The detailed discussion of the concept, linkage, and relationships is provided below.

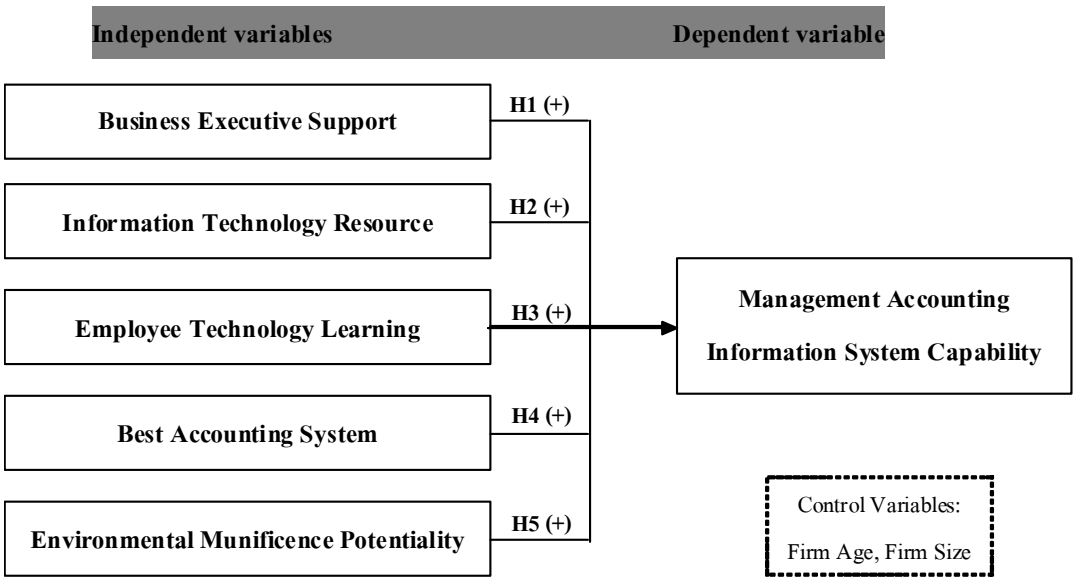

Figure 1: Conceptual Model

Management Accounting Information System Capability

An accounting information system is built with the key purpose to integrate accounting data from diverse sources into the accounting information, which is needed by various users to reduce risk in making decisions (Susanto, 2008). The accounting information system of an organization comprisestwo main subsystems. There are financial accounting information systems and management accounting information systems. Both sub-systems have different objectives, preparation, and presentations (Hansen & Mowen, 2007). The financial accounting information system collects and processes data to providefinancial information to external users. Management accounting information system is the process that prepares information related to the operation for presentation to the managers or internal users. Useful information in the management accounting information system is based on the requirements of decision-makers. The manager uses the management accounting information system to find more specific information which enables them to reinforce information about strategic issues of formal and informal sources (Heidmann, Schaffier & Strahringer, 2008). In this research, management accounting information system capability refers to the ability of organizations to use the technology to manage operational and financial data; including collecting, processing, storing, analyzing, and reporting; and to provides information needed to satisfy specific management objectives (Napitupulu, 2015)

Factors of Management Accounting Information System Capability

Business Executive Support

The role of business executives is critical to the achievement of interoperability between the activities and operations of an organization, because business executives are an important source by which one achieves organizational goals. From the information system literature, business executive support has been identified as a key positive factor that influences information system performance and increases information system effectiveness (Seliem et al., 2003). According to Mark, Cindy & Jerry (2012), business executive support in the development of accounting information systems can be managed in the form of resources, money, and time to support the development of information systems that occur in the long-term that can continue in a stable process.In this research, business executive support refers to a business executive focus on supporting technical development, new operating experience, investment and technology development related to operations (Mark, Cindy & Jerry (2012). In prior research, Young & Jordan (2008) found that business executive support is an important factor, and significantly affects accounting information system quality. Morever, Loonam & McDonagh (2005) suggested that business executive support can improve internal communication, as well as more effective and proper collaboration and integration. Therefore, this research proposes the hypothesis as follows:

Hypothesis 1: Business executive support is positively related to management accounting information system capability.

IT Resource

Today, it is unlikely that an organization will be able to compete without the use of technology resources because investing in technology infrastructure will support the operation of an organization's current or future business (Byrd & Turner, 2000). IT resources are set to include: 1) tangible technical components such as software, hardware, databases, networks, web technologies, and enterprise resource planning systems; 2) human technical and managerial IT skills; and 3) intangible IT-enabled resources such as knowledge resources, IT human resources, relationship resources that contribute to strategic value for a firm, and customer orientation (Bharadwaj, 2000; Nevo & Wade, 2010). In this research, IT resources refers to existing IT infrastructures and IT investments in any organization's information system budget, in terms of both monetary and intellectual resources, which enable an organization to create new application systems and enhance the competency of implemented information systems (Konthong & Ussahawanitchakit, 2010). Nada & Robert (2005) found that IT resources support an accounting information system to offer information integration, speed, relevance, accuracy, easy understanding, and system competency. Consistent with the study by Bi, Davison & Smyrnios (2013), IT complementary resources lead to the growth of the organization through enhancing activity integration and information-sharing processes. Therefore, this research proposes the hypothesis as follows:

Hypothesis 2: IT resource is positively related tomanagement accounting information system capability.

Employee Technology Learning

Employee learning is a process of seeking knowledge with curiosity to learn. According to Dixon (1999), employee learning will increase the ability of employees, and these abilities are useful in employee performance and productivity. Moreover, employees' skills and fluency in using accounting information systems have a critical impact on achieving the desired goals of the system's adoption. In this research, employee technology learning refers to the learning of employees to continually develop their knowledge, abilities, and skills of technology through training, leading to effective performance (Chaikambang & Ussahawanitchakit, 2012). Soegiharto (2001) indicated that if an organization has at least one person with high ability in accounting information systems, it can help other users to use the information system appropriately. This research expects that the employees can use their ability in technology application to manage accounting information system appropriately to generate accounting information value, accuracy, timeliness, relevance, and understandability. Thus, the hypothesisis proposed as below:

Hypothesis 3: Employee technology learning is positively related to management accounting information system capability.

Best Accounting System

Accounting is an information system that is a communication process which collects, stores, processes, and disseminates information to users. An accounting system is one of the most effective decision-making tools of management. The information produced by the accounting system provides an explanation

for the usage of resources and operations: presents the essential financial information for decision-making, and improves the quality of decisions within the organization (Kara & Kilic, 2011; Salehi, Rostami & Mogadam, 2010). Thus, a firm has the best accounting system when it can help evaluate its past performance, present conditions, and future prospects. In this research, best accounting system refers to a suitable accounting system with procedures for gathering data from various financial documents as evidence in accounting records and accounting methods, including transaction analysis, recording, classification, analysis, summarization, interpretation, and reporting accurate accounting data (Bagranoff et al., 2010). Prior research has showed that firms with a higher degree of accounting system implementation effectiveness result in higher degrees of information value (Dechow & Mouritsen, 2005; Ismail & King, 2005). Moreover, Williams & Seaman (2002) found that best accounting system can provide valuable information for decision-making, management and control activities to achieve the objectives. Thus, the hypothesis is proposed as below:

Hypothesis 4: Best accounting system is positively related to management accounting information system capability.

Environmental Munificence Potentiality

In general, environmental munificence refers to an environment's ability to encourage the sustained growth of an organization. In this research, environmental munificence potentiality is defined as the ability of an environment to support the sustained growth of an organization, promote easier implementation, and create more convenience (Goll & Rasheed, 2004). According to Sutcliffe (1994), over the last two decades, clearly suggests that environmental munificence has an extensive influence on organizational processes, strategies, and structures. It also links positively to a range of strategy and organizational options available to firms (Su, Xie, & Li, 2009). Additionally, firmswith a high level of munificence in the environment tend to successfully provide rational decision-making (Goll & Rasheed, 1997). Therefore, this research proposes the hypothesis as follows:

Hypothesis 5: Environmental munificence potentiality is positively related to management accounting information system capability.

Research Methodology

In this study, the population is the beverage businesses in Thailand. There were 675 firms selected as the sample from the online database of the Department of Industrial Works, Ministry of Industry of the Thai government (June, 2017). The research instrument for collecting the datawas a questionnaire. The key informants were accounting executives of each beverage firm. A total of 141 complete questionnaires were usable for analysis. The effective response rate was 21.79 %. The response rate for a mail survey which is greater than 20 percent, without an appropriate follow-up procedure, is considered acceptable (Aaker, Kumer & Day, 2001). According to Armstrong & Overton (1977), the extrapolation method was used to test the non-response bias by comparing the early and late respondents. The t-test for statistics was employed to compare the differences in means of the firm characteristics between the early

and the late response group. There were no statistically significant differences between the two groups at a 95% confidence level. Thus, non-response should not be a concern in this research.

Table 1: Result of Measure Validation

Constructs	Factor Loadings	Cronbach'sAlpha
Business Executive Support (BES)	.730 - .820	.784
IT Resource (ITR)	.773 - .870	.849
Employee Technology Learning (ETL)	.772 - .866	.835
Best Accounting System (BAS)	.744 - .852	.815
Environmental Munificence Potentiality (EMP)	.776 - .850	.834
Management Accounting Information System Capability (MAISC)	.603 - .903	.973

For validity and reliability of the questionnaire, the results of the factor loading and the Cronbach's alpha coefficient of all constructs are shown in Table 1. The factor loadings are in the rangeof .603 – .903. All factor loadings are greater than the 0.40 cut-off score (Nunnally & Bernstein, 1994), which indicate acceptable construct validity. Moreover, the Cronbach's alpha coefficients are in the range of .784 – .973, which is greater than 0.70 (Hair et al., 2010). Thus, these measures are considered appropriate for analysis because they express an accepted validity and reliability. Multiple regression analysis was used to test all proposed hypotheses in this study. The equation model for statistical analysis was presented as follows:

Equation: $MAISC = \alpha_1 + \beta_1 BES + \beta_2 ITR + \beta_3 ETL + \beta_4 BAS + \beta_5 EMP + \beta_6 FA + \beta_7 FS + \varepsilon_1$

Results and Discussion

The relationship between variables is shown in table 2. The correlations among all variables are significant relationships between .511 – .781, $p < 0.01$. Multicollinearity problems may occurwhen the inter-correlation in each independent variable is more than 0.80, which is a high relationship. However, these correlations are less than 0.80, as suggested by Berry & Feldman (1985). Variance Inflation Factors (VIFs) are used to test the correlation among the independent variables, which is well below the cut-off value of 10 (Hair et al., 2010). In this case, the maximum value of VIF is 3.903. Thus, multicollinearity problems should not be a concern.

Table 2: Descriptive Statistics and Correlation Matrix

Variables	BES	ITR	ETL	BAS	EMP	MAISC	FA	FS
Mean	4.073	4.066	4.048	4.137	3.986	4.107	n/a	n/a
S.D.	.479	.539	.539	.522	.552	.586	n/a	n/a
BES	1							
ITR	.764***	1						
ETL	.749***	.781***	1					
BAS	.744***	.689***	.759***	1				
EMP	.536***	.543***	.649***	.624***	1			
MAISC	.590***	.693***	.682***	.624***	.511***	1		
FA	.062	.068	.082	.070	.110	.141	1	
FS	.152	.333***	.195**	.273***	.231***	.327***	.180**	1

*** $p < 0.01$, ** $p < 0.05$

Table 3 presents the results of the multiple regression analysis of the relationships between business executive support, IT resource, employee technology learning, best accounting system, environmental munificence potentiality, and management accounting information system capability which are followed by hypotheses 1 to 5.

Firstly, the result shows that business executive support has no significant effects on management accounting information system capability ($\beta_1 = -.020$, $p > .10$). The possible reason for this is that the business executive is involved with supporting the skills and experience of users in technology, but is not involved in solving problems at all stages of the development implementation process of information system that is enhancing management accounting information system capability. This result is consistent with Grabski & Leech (2007) who found that top management support has no direct influence on the competency of an accounting information system. Similar to the study of Konthong & Ussahawanitchakit (2010), which investigated the relationship between top management support and accounting information system competency, it was found that there are no significant relationships between top management support and accounting information system competency. **Therefore, hypothesis 1 is not supported.**

Secondly, the results shows that IT resource has a significant, positive relationship to management accounting information system capability ($\beta_2 = .360$, $p < .01$). This finding confirms that IT resources are one of the key major forces of the determinants of management accounting information system capability. It was supported by the study of Konthong & Ussahawanitchakit (2010) which found that IT resources has a positive, significant relationship with complete information collaboration, compatible information system linkage, and comprehensive accounting information presentation. Thus, hypothesis 2 is supported.

Table 3: Results of Regression Analysis

Independent Variables	Dependent Variables Management Accounting Information System Capability (MAISC)
Business Executive Support	-.020
(BES: H1)	(.128)
IT Resource	**.360*****
(ITR: H2)	**(.117)**
Employee Technology Learning	**.305*****
(ETL: H3)	**(.123)**
Best Accounting System	.152
(BAS: H4)	(.114)
Environmental Munificence Potentiality	.044
(EMP: H5)	(.084)
Firm Age	.073
(FA)	(.069)
Firm Size	.126
(FS)	(.076)
Adjusted R^2	.538
Maximum VIF	3.903

*** $p < 0.01$, Beta coefficients with standard errors in parenthesis

Thirdly,the results shows that employee technology learning has a significant and positive relationship to management accounting information system capability ($\beta_3 = .305$, $p < .01$). This empirical result is consistent with the perspective of Soegiharto (2001), which indicated that if the organization has at least one employee who has high ability in using an accounting information system, it will allow other employees to use the information system correctly. Moreover, the skills and expertise in using accounting information systems have a great impact on the success of such systems (Chaikambang, Ussahawanitchakit, & Boonlua, 2012). **Thus, hypothesis 3 is supported.**

Fourthly, the results show thatbest accounting system has no significant effects on management accounting information system capability ($\beta_4 = .152$, $p > .10$). It is possible that the accounting system is designed to suit the business conditions and business operations, which must follow the procedures and accounting practices. Therefore, the accounting system is not flexible, which affects the integration of information, linking accounting technology to other information systems, and may cause operational barriers. This finding was supported by the study of Hussain, Gunaskearn, & Laitiner (1998) which found that best accounting systems are not very successful to achieve the goals of decision-making, planning, and improving information systems within an organization. Thus, hypothesis 4 is not supported.

Finally, the results indicate thatenvironmental munificence potentiality has no significant effects on management accounting information system capability (β_5 = .044, p > .10). According to Goll & Rasheed (1997), firms may adjust strategies or change organizational structures to respond to low environmental munificence, and firms operating in less munificent environments are more likely to commit illegal acts. Consistent with prior research, it was found that environmental munificence does not directly impact strategic entrepreneurial capability (Kokfai, Pratoom, & Muenthaisong, 2016). Therefore, hypothesis5is not supported.

Conclusion and Contributions

The overall aim of this research is to attempt a detailed and comprehensive view of the relationships among management accounting information system capability and its factors. For the research methodology, the population of this research is the beverage businesses in Thailand. The Department of Industrial Works, Ministry of Industry of the Thai government, is utilized as a database. A survey questionnaire was developed and used to collect the data. There were 675 questionnaires that were directly distributed to the accounting executives of each beverage business firm in Thailand. There were 141 usable questionnaires for analysis. The effective response rate was approximately 21.79%. The usable data is analyzed by multiple regression analysis.

The results have beneficial contribution for practitioners. This research provides a better understanding of how the firm can support management accounting information system capability. The resulting analysis indicates which factors have more impact on management accounting information system capability. The findings suggest that IT resources and employee technology learning are important internal factors in supporting the potential of management accounting information system capability. Therefore, managers should allocate funds for investment in information technology resources that are needed, and encourage technology learning for employees. Although the results of this research found some interesting information about the influence of IT resources and employee technology learning on management accounting information systems capability, there are some limitations that need to be addressed.Beverage business firms are the population of this research, and they also consist of two types of businesses: alcoholic and non-alcoholic beverages, both of which may have different strategies and operating procedures, resulting in different views on management accounting information system.Thus, researchers should be concerned with the interpretation of the analyzed results. For future research, data analysis should distinguish between alcohol and non-alcoholic beverage businesses.

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