The Influence of Digital Competency of Accountants in Thai International Digital Businesses on the Digital Development for Thailand's Economy and Society

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Abstract

This research aims to study the influence of digital competency of accountants in Thai international digital businesses on the digital development for Thailand's economy and society. This research is quantitative conducted with a sample size of 379 accountants or accounting supervisors of Thai international digital businesses in the Bangkok metropolitan area. The sampling technique used was the simple sampling technique. The research instrument employed was a self-developed questionnaire. Data obtained was analysed with descriptive statistics (mean, S.D.), Pearson product moment correlation, VIF, and multiple regression. It was found that 1) the level of digital competency of accountants in Thai international digital business was high 2) the level of digital development for Thailand's economy and society, in the perspective of accountants in Thai international digital businesses, was high 3) all variables of the digital competency of accountants are in correlation with the digital development for the Thai economy and society, statistically significant at .01, with Pearson correlation

coefficients (r) between .494-.807 4) the digital competency of accountants for communication and collaboration (X_2), digital content creation (X_3), cyber safety (X_4), digital problem solving (X_5) had positive influence on the digital development for Thailand's economy and society (Y) with statistical significance at .01 and coefficient of determination of 78.20% ($R^2 = 0.72$). The derived determination equations are:
Raw score equation: $Y = .287 + .445(X_5) + .277(X_4) + .103(X_2) + .095(X_3)$
Standard score equation = $Z_y = .464(X_5) + .318(X_4) + .107(X_2) + .107(X_3)$

Keywords: Digital competence, Digital competency of accountants, Digital economy, Digital development for economy

1. Introduction

Advances in technologies have increased its influence on the economic and societal systems over time. Technologies, despite its original purpose as a tool for supporting businesses, today have been infused into economic structures such as manufacturing, services, social process, and economic activities resulting in this inevitable digital economy (Chunprasit, 2020; Puncreobutr et. al, 2022).

The digital economy is a network of global societal and economic activities. It consists of global digital networks for trading of goods and services, searching and finding capital and sources of funds on either electronic business platforms (e-business) or electronic commercial platforms (e-commerce). It also covers modern information technologies like mobile network technologies developed to fit consumer environments and lifestyles. Moreover, the digital economy extends its coverage to people's daily lives, logistics, retail commerce, financial services, business transactions, manufacturing, and education (Secretary of the House of Representatives, 2015; Bakhut and Heeks, 2017; Meenu, 2018).

This transformation of the economic system has unavoidably caused accountants' roles and competency to change. Accountants must change the way they perform book-keeping, and organise reports. Moreover, the model for accounting must be changed from the existing traditional model to the digital model. This means that accountants must change how they would deliver services, analyse, and make assessments, all of which are essential for strategic planning as well as systematic and timely decisions (Chunprasit, 2020). Accountants must have sufficient digital competency to not only support their domestic work, they must also have th digital competency for working in the international arena (Puncreobutr, 2014). In other words, it is an unavoidable situation that, today, accountants must possess digital competency (Panprung et al., 2020).

The digital competency for handling of hardware, handling of software, programming, application handling, information processing, data organization, and data sharing, etc. (Oberlander et al., 2020, Puncreobutr and Puncreobutr, 2023) consists of 5 sub-competencies, namely digital and information literacy, digital communication and collaboration, digital content creation, cyber safety, and digital problem solving (Mannila et al., 2018). These sub-competencies are further divided into 4 dimensions which are technologies, knowledge, ethics, and integration (Calvani et al., 2008).

Digital competency of accountants, furthermore, gives importance on digital communication and collaboration, accounting innovations, and the understanding of various digital tools for safeguarding accounting data (Sornsakda, 2019). Digital competency of accountants is also necessary for the development of digital accounting technologies such as cloud technology, cloud based accounting software, and mobile accounting. The digital accounting technologies are likewise applicable to the use of the OCR (Optical Character Recognition) technology for issuing receipts, payments, and collections via mobile phones, tablets, or smartwatches. OCR can also be used for scanning or converting photographs of receipts into data for recording expenses, post ledger accounts, or to send data automatically for accounting purposes (Panprung et al., 2020).

St. Theresa International College is one among Thai higher education institutions that have been continuously developing the accounting labour force through our instructions and academic services for society, especially capacity development for accountants (Puncreobutr et al., 2018). In order for the success of the Thai accounting profession, which all parties concerned have been developing, and for the accounting profession to become a part of the digital development for Thailand's economy, research should be conducted on the influence of digital competency of accountants on the digital development for Thailand's economy and society. This research will build confidence for graduates and would be beneficial for business managers, the people involved in digital economy, and all parties responsible for development of the accounting profession. Furthermore, accountancy curriculum coordinators may find the research findings useful for improving academic administration or for curriculum development to further raise the quality of both the graduates and Thai accountants.

2. Research Objectives

2.1 To study the digital competency of accountants in Thai international digital businesses.

2.2 To study digital development for Thailand's economy and society in the perspective of international digital businesses in Thailand.

2.3 To study the influence of digital competency of accountants on the digital development for Thailand's economy and society.

3. Research Methodology

This research is quantitative.

The population of the research is 29,706 accountants or accounting supervisors in international digital businesses in the Bangkok metropolitan area, Thailand (Department of Business Development, 2021). The sample size of 379 respondents was determined using Krejcie-Morgan table and drawn with simple random sampling.

3.1 Variables used in the study

1) The independent variable in this research is the digital competency of accountants in international digital businesses.

The competency of accountants studied in this research is an integration of digital competency components described by Mannila et al. (2018) and components of digital literacy

of accountants by Patpoom (2020). The above-mentioned competency consisted of 5 sub-competencies: information and data literacy (X_1), communication and collaboration (X_2), digital content creation (X_3), cyber safety (X_4), and digital problem solving (X_5).

2) The dependent variable in this research is the digital development for Thailand's economy and society

The digital development for Thailand's economy in this study is an integration of the dimensions of digital development for the economy and society described by IMD World Competitiveness Ranking (Office of the National Economy and Society Commission, 2020) and the dimensions used for determining digital economy rankings by the Economist Intelligence Unit (2010). This integration produced 5 dimensions: business environment (Y_1), consumer adoption (Y_2), government efficiency (Y_3), business efficiency (Y_4), and economic performance (Y_5).

3) The research instrument used was a self-developed questionnaire with discrimination power of .379 - .908. Data obtained was analysed with descriptive statistics (mean, S.D.), Pearson product moment correlation, VIF (Variance Inflation Factor), and multiple regression analysis.

4) The duration of this study was between March 2023 and August 2023.

4. Research Findings

The findings are as follows:

4.1 Level of digital competency of accountants

The level of digital competency of accountants in international digital businesses in the Bangkok metropolitan area, Thailand is displayed in Table 1.

Table 1 The digital competency of accountants in international digital businesses (N = 379)

Sub-competencies	Mean	S.D.	Level of competency
Information and data literacy (X_1)	4.06	.556	high
Communication and collaboration (X_2)	4.10	.551	high
Digital content creation (X_3)	4.16	.598	high
Cyber safety (X_4)	4.05	.611	high
Digital problem solving (X_5)	4.05	.554	high
Overall digital competency of accountants in international digital businesses (X)	4.08	.476	high

From Table 1, the overall digital competency of accountants in international digital businesses was high (4.08) and the level of each of its sub-competencies was also high. The sub-competency with the highest level was digital content creation (4.16), followed by communication and collaboration (4.10), information and data literacy (4.06), digital problem solving (4.05), and cyber security (4.05) respectively.

The high level of sub-competency of digital content creation was attributed to uses of various tools for creating digital content, multiple sources, data profiling for the development of digital content, digital program development, and planning and designing of computer programs to suit a variety of users.

The high level of sub-competency for communication and collaboration was attributed by interactions on digital platforms, collaboration through digital technologies, and sharing or disseminating information through digital platforms.

The high level of sub-competency for information and data literacy was associated with uses of search applications for finding digital information, digital information filtering, digital information verification, and the systematic storing of data for continuous easy access.

The high level of sub-competency for digital problem solving was attributed by the identification of root causes and the creation of solutions for technical issues such as search algorithms, program setting adjustments to enhance or change processing behaviours, the development of devices compatible with digital technologies, the adaptation of digital tools to change work behaviours, and data restoration.

The high level of sub-competency for cyber safety was attributed to uses of security systems to protect personal and organizational information from unauthorized access, the surveillance and detection of personal information lures/phishing activities, the capabilities to detect and isolate inappropriate or criminal websites, and the ability to assess the digital consequences on the operations of the organization.

4.2 Level of digital development for Thailand's economy and society

The study of digital development for Thailand's economy and society in the perspective of accountants in international digital businesses in the Bangkok metropolitan area, Thailand is shown in Table 2.

Table 2 The level of digital development for Thailand's economy and society in the perspective of accountants in international digital businesses (N = 379)

Dimensions	Mean	S.D.	Level of development
Business environment (Y_1)	4.07	.528	high
Consumer adoption (Y_2)	4.03	.611	high
Government efficiency (Y_3)	4.03	.628	high
Business efficiency (Y_4)	4.04	.603	high
Economic performance (Y_5)	3.97	.595	high
The overall digital development for Thailand's economy and society (Y)	4.03	.532	high

From Table 2 the level of overall digital development for Thailand's economy and society in the perspective of accountants in international digital businesses was high (4.03). The level of each dimension of digital development for Thailand's economy and society was also high. The dimension with the highest level of development was business environment

(4.07) followed by business efficiency (4.04), consumer adoption (4.03), government efficiency (4.03), and economic performance (3.97) respectively.

4.3 The correlation between digital competency of accountants and the digital development for Thailand's economy and society

The findings of the correlation between each variable of digital competency of accountants and the digital development for Thailand's economy and society by determining Pearson correlation coefficients is displayed in Table 3.

Table 3 The correlation between each variable of digital competency of accountants and the digital development for Thailand's economy and society (N = 379)

Variables	X_1	X_2	X_3	X_4	X_5	Y_1	Y_2	Y_3	Y_4	Y_5
X_1	1.000									
X_2	.545**	1.000								
X_3	.517**	.628**	1.000							
X_4	.527**	.600**	.741**	1.000						
X_5	.527**	.574**	.706**	.718**	1.000					
Y_1	.508**	.686**	.693**	.724**	.760**	1.000				
Y_2	.535**	.582**	.752**	.790**	.807**	.769**	1.000			
Y_3	.494**	.554**	.666**	.688**	.744**	.785**	.828**	1.000		
Y_4	.500**	.513**	.611**	.712**	.721**	.722**	.793**	.754**	1.000	
Y_5	.497**	.513**	.593**	.647**	.686**	.685**	.723**	.723**	.769**	1.000
VIF	1.619	1.947	2.786	2.774	2.503	3.066	4.200	4.100	3.543	2.848

**p<.01

From Table 3, it was found that each variable has moderate to high correlation with Person correlation coefficients (r) between 0494 - .807, statistically significant at .01 level which could indicate multicollinearity. VIF test was then performed and found that the VIF for each variable was between 1.619 - 4.100 which was less than 10. Therefore, the variables were not correlated with each other, and multicollinearity did not occur. Hence, multiple regression analysis could be further performed.

Further analysis was performed to determine the correlation between the independent variables of the digital competency of accountants and the dependent variables of the digital development of Thailand's economy and society in the perspective of accountants. Findings are displayed in Table 4.

Table 4 The correlation between the independent variables of the digital competency of accountants and the dependent variables of the digital development of Thailand's economy and society (N = 379)

Variables	X_1	X_2	X_3	X_4	X_5	X_{total}
X_1	1.000					
X_2	.545**	1.000				
X_3	.517**	.628**	1.000			
X_4	.527**	.600**	.741**	1.000		
X_5	.527**	.574**	.706**	.718**	1.000	
Y_{total}	**.565****	**.632****	**.738****	**.793****	**.829****	**.859****

** p<.01

From Table 4, all independent variables of the digital competency of accountants are in correlation with the dependent variables of the digital development for Thailand's economy and society, with statistical significance at 0.1 level, and Pearson correlation coefficients (r) between .517 - .829. This means that every variable can be used for determining the digital development for Thailand's economy and society.

4.4 Analysis of the influence of the digital competency of accountants on the digital development for Thailand's economy and society

The analysis of the influence of the digital competency of accountants on the development of Thailand's economy and society was done by performing a hypothesis test with multiple regression analysis and then formulated the raw score and standard score determination equations. This includes the reporting of results from the multiple correlation analysis which were the multiple correlation coefficients (R), the coefficients of determination (R^2), the adjusted coefficient of determination (adj R^2), standard error of estimates (S.E. est), and the variances of the multiple regression analysis. The findings are shown in Tables 5 – 6.

Table 5 The correlation analysis on regression coefficients of the digital competency of accountants influencing the digital development for Thailand's economy and society (N = 379)

Competency of accountants	Digital development for the economy and society			t	p
	b	S.E.b	β		
Constants	.220	.114		1.937	.054
Digital and information literacy (X_1)	.057	.029	.060	1.946	.052
Communication and collaboration (X_2)	.086	.032	.089	2.665	.008**
Digital content creation (X_3)	.089	.036	.101	2.508	.013*
Cyber safety (X_4)	.270	.035	.310	7.734	.000**
Digital problem solving (X_5)	.435	.037	.453	11.903	.000**
F= 271.488 P = 0.000 R =.886 R^2 = .784 AdjR^2 = .782					

*P<.05 **p<.01

From Table 5, correlation was found between the digital competencies of accountants namely communication and collaboration (X_2), cyber safety (X_4), and digital problem solving (X_5) and the digital development of Thailand's economy and society (Y), statistically significant at the 0.1 level.

The digital competency of accountants for digital content creation (X_3) was in correlation with the digital development for Thailand's economy and society, statistically significant at the .05 level.

The digital competency of accountants for digital and information literacy (X_1) was found not to have any correlation or influence on the digital development for Thailand's economy and society.

In addition, the researcher took the digital competency of accountants namely communication and collaboration (X_2), digital content creation (X_3), digital problem solving (X_5) to formulate determination equations for the digital development for Thailand's economy and society (Y). The findings are as shown in Table 6.

Table 6 Correlation analysis results for the influences of digital competency of accountants on the digital development for Thailand's economy and society (N =379)

Competency of accountants	Digital development for the economy and society			t	p
	b	S.E.b	β		
Constants	.287	.109		2.647	.008**
Communication and collaboration (X_2)	.103	.031	.107	3.291	.001**
Digital content creation (X_3)	.095	.036	.107	2.657	.008**
Cyber safety (X_4)	.277	.035	.318	7.957	.000**
Digital problem solving (X_5)	.445	.036	.464	12.285	.000**
F= 335.910 P = 0.000 R =.884 R^2 = .782 AdjR^2 = .780					

*P<.05 **p<.01

From Table 6, the digital competency of accountants for communication and collaboration (X_2), digital content creation (X_3), digital problem solving (X_5) have high level of correlation and positively effects the digital development for Thailand's economy and society (Y) with statistical significance at .01 and coefficient of determination of 78.20 % (R^2 = 0.782). The determination equations can be written as:

Raw score equation: $Y = .287 + .445(X_5) + .277(X_4) + .103(X_2) + .095(X_3)$

and

Standard score equation = $Z_y = .464(X_5) + .318(X_4) + .107(X_2) + .107(X_3)$

5. Summary

5.1 The level of digital competency of accountants in international digital businesses overall and in each sub-competency was high; the sub-competency with the highest level was digital content creation and the sub-competency with the lowest level was cyber safety.

5.2 The level of digital development for Thailand's economy and society in the perspective of accountants in international digital businesses, overall and each dimension, were high, with business environment at the highest and economic performance at the lowest.

5.3 The VIF test on the variables of the digital competency of accountants found values of less than 10 for all sub-competencies. This indicated that none of them has multicollinearity issue. Also, all variables of the competency of accountants were found to be in correlation with the quality of financial reports of small and medium enterprises in Bangkok, statistically significant at the .01 level, with Pearson correlation coefficients between .517 - .829. This means that every variable of the digital competency of accounts can be used to determine the digital development for Thailand's economy and society.

5.4 It was found that the digital competency of accountants for digital and information literacy (X_1) was not in correlation and had no influence on the digital development for Thailand's economy and society.

5.5 There were high correlation between 4 of 5 sub-competencies of the digital competency of accountants, namely communication and collaboration (X_1), digital content creation (X_3), cyber safety (X_4), and digital problem solving (X_5) with the digital development for Thailand's economy and society (Y). These digital competencies of accountant also positively influenced the digital development for Thailand's economy and society (Y) with statistical significance at .01 level, and coefficient of determination of 78.20 % (R^2 = .072), thus, determination equations can be written.

5.6 The determination equations are as follows:

Raw score equation: $Y = .287 + .445(X_5) + .277(X_4) + .103(X_2) + .095(X_3)$

and

Standard score equation = $Z_y = .464(X_5) + .318(X_4) + .107(X_2) + .107(X_3)$

6. Discussion

From the study which found that 4 sub-competencies of the digital competency of accountants, namely communication and collaboration, digital content creation, cyber safety, and digital problem solving, together positively influenced the digital development for Thailand's economy and society because they coincided with the core digital competencies which are digital and information literacy, communication and collaboration, digital content creation, cyber safety, and problem solving (Mannila et al., 2018; Puncreobutr, 2023). The findings are in consistence with a study by Sornsakda (2019) which found that the digital competency of accountants involve digital communication and collaboration skills, accounting innovations, the knowledge of digital tools for storing accounting data, and the development of digital accounting technologies. Moreover, the findings are also in accordance with research by Panprung et al. (2020) which found that the digital competency of accounts must be focused on new digital technologies such as cloud technology, cloud-based accounting software, mobile

accounting, use of OCR (Optical Character Recognition) for transacting data on various applications and for sending data automatically for accounting purposes.

7. Conclusion and Recommendations

7.1 Recommendations for implications

From the study which found that the level of digital competency of accountants in international digital companies for cyber safety was the lowest and that accountants viewed that the economic performance dimension of the digital development for Thailand's economy and society was least developed indicated that, in order to raise the potential, the of digital economy, cyber security must be urgently deployed for employees. Furthermore, responsible parties such as the management of accounting firms and enterprises, as well as curriculum coordinators should urgently collaborate to organize programs/activities to build accountants' digital competency for cyber safety.

From the finding that 4 sub-competencies of the digital competency of accountants which are communication and collaboration, digital content creation, cyber safety, and problem solving together positively influenced the digital development for Thailand's economy and society, it is recommended that the management of accounting firms and enterprises, along with the people involved in digital economy, should collaborate to organize professional development programs for the development of digital competency for accountants. These programs should include enhancements of individual potential and the systematic development of standards for accountants' attributes in the digital age. This will positively benefit international digital businesses by increasing their competitive capabilities. It will also benefit Thailand in its efforts to raise its international digital economy and digital competitiveness rankings to match those of ASEAN members and the rest of the world.

7.2 Recommendations for further research

The finding that competency of accountants for digital and information literacy did not influence the digital development for Thailand's economy and society, may be a consequence of drawing a sample group only from the Bangkok metropolitan area, thus there should be further research conducted with sample groups from regions across Thailand to confirm the findings from this research.

The finding that the 4 digital competencies of accountants for digital communication and collaboration, digital content creation, cyber security, and digital problem solving, altogether, positively influenced the digital development for Thailand's economy and society with coefficient of determination of 78.20 % was perhaps because other variables were not studied in the research, hence there should be further research to study other variables of the digital competency of accountants, or other variables of digital competencies of other professions that influence the digital development of Thailand's economy and society to further raise the coefficient of determination.

Reference

Bukht, R., & Heeks, R. (2017). *Defining, Conceptualizing and Measuring the Digital Economy. (Research Report).* Manchester: Centre for Development Informatics.

Calvani, A., Cartelli, A., Fini, A., & Ranieri, M. (2008). Models and Instruments for Assessing Digital Competence at School. *Journal of e-Learning Knowledge Society, 4*(3), 183-193.

Chunprasit, K. (2020). *The Efficiency of Accountants with the Digital Advances of Establishments in Bangkok.* Individual Study for Master of Business Administration Program in Accounting. Bangkok: Ramkhamhaeng University.

Department of Business Development, Thailand. (2021). *Accountant (remained) as of 31 October 2021.* Retrieved December 29, 2021. From https://www.dbd.go.th/ewt_dl_link.php?nid 20211116132940.pdf

Economist Intelligence Unit. (2010). *Digital Economy Rankings 2010: Beyond e-Readiness.* (Research Report). New York: Economist Intelligence Unit.

Mannila, L., Norden, L. A. & Pears, A. (2018). *Digital Competence, Teacher Self-efficacy and Training needs.* Proceedings of the 2018 ACM Conference on International Computing Education Research.

Meenu, G. (2018). Digital Economy and the Role of Information Technology. *International Journal of Management and Information Technology, 3*(2), 53-58.

Oberlander, M., Beinicke, A., Bipp, T. (2020). Digital Competencies: A Review of the Literature and Applications in the Workplace. *Computers Education, 146*, 1-13.

Office of the National Economy and Society Commission. (2020). *IMD World Competitiveness Ranking 2020.* Retrieved March 5, 2020 from https://onde.go.th/assets/portals//files/IMD_WCR20.pdf

Panprung, W., Mneechote, T., Rodyim, C., & Songneam, N. (2020). The Development of Causal Relationship Model of Knowledge Management and Professional Skills Affecting to Potential of Accountant in Digital Economy. *Rajamangala University of Technology Srivijaya Research Journal, 12*(1), 22-35.

Patpoom, D. (2020*). Development of a Prototype for Promoting Digital Competence among Accountants in Large Private Organization in the Bangkok Metropolitan.* Thesis of Master of Art. Bangkok: Srinakharinwirot University.

Puncreobutr, V. (2014). Professional and Cross-Cultural Competences of Thai Graduates to Work in ASEAN Context. *Journal of Community Development and Life Quality, 2*(3), 225-232.

Puncreobutr, V., Dhamacharoen, A., Tapaneeyakorn, W. (2022). Factors Affecting the Readiness of Thai University to Organize Learning Activities in the Metaverse Era. *Webology, 19*(2), 9285-9296.

Puncreobutr, V., and Puncreobutr, B. (2023). Digital Challenges: The Digital Competencies of Educational Institutions. *St. Theresa Journal of Humanities and Social Sciences, 9*(2), 144-160.

Secretariat of the House of Representatives. (2015). *Digital Economy: Policy Driving to New Economy*. Bangkok: Academic Focus.

Sornsakda, A. (2019). *The Competency of Professional Accountant in Digital Era in order to Develop Accounting Office Quality.* A Thematic Paper for Master of Accountancy Program. Bangkok: Dhurakij Pundit University.