Impact of Digital Competitiveness Factors on Thai Digital Economy Development Capability in International Business

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Abstract

This research aims to investigate the impact of digital competitiveness factors on Thai digital economy development capability in international business. It is a quantitative research on international digital business entrepreneurs in Bangkok and its vicinity. Three hundred and eighty-four samples were selected by using stratified random sampling based on provinces. Data collection instrument was questionnaires developed by the researcher and statistics used were Pearson Product Moment Correlation, and Multiple Regression Analysis. Research results revealed that 1) Thailand's digital competitiveness capability on the whole and in each of the three aspects was at the high level, 2) Thailand's digital economy development capability on the whole and in the four areas was at the high level, 3) there was a significant relationship between each variable of digital competitiveness capability and digital economy development capability, statistically significant at .01. The Pearson Correlation Coefficient (r) was at .551 - .800, statistically significant at .01. 4) as regards digital competitiveness capability, there was

a high correlation among digital knowledge (X_1), skills in using technology (X_2) and self-development in preparation for the future (X_3) and had a positive effect on the Thai digital economy development capability (Y) with a coefficient of determination of 64.40% (R^2 = 0.644). A prediction equation in the form of raw scores could be written as Y = .829 +.328(X_1) +.262(X_2) +.233(X_3) and an equation in the form of standard scores as Z_y = .355(X_1) +.293(X_2) +.260(X_3).

Keywords: digital competitiveness capability, digital economy development capability, international digital business

1. Background of the study

Digital disruption is a current situation, and it occurs in such a way that it is called VUCA World, that is, it is a rapid change in direction that is volatile (Volatility), uncertain (Uncertainty), involving complicated factors (Complexity) and many factors are still vague (Ambiguity). Changes of this kind therefore affect all quarters of the society and all countries around the world, requiring them to adapt quickly both for using the crisis as an opportunity and coping with changes and transitions to new development in the future (UNESCO, 2018; Ribble, 2019).

Regarding changes, many countries have turned the crisis into opportunities by focusing on accelerated personnel development in the areas of knowledge, capabilities, and new skills (Puncreobutr, 2014), especially digital skills (Fiona & Zoltan, 2015; Siriboonyakarn & Sumpong, 2019). Many countries have developed a ranking of the digital development capability of their people and various organizations have produced International “Digital Competitiveness" (Office of the National Economy and Society Commission, 2020).

The main objective of each country in developing digital knowledge, capabilities, and new skills is to equip people with the digital capability which will create new products or management that responds to the new needs of people in the digital age. It is expected that this will lead to economic development that has currently been stagnating in the midst of deflation. Emphasis is placed on creating a digital economy, especially digital economy in international business. If the development is effective, those countries will have new capabilities, namely "the capability of digital economy development" (Secretariat of the House of Representatives, 2015; Bukht, and Heeks, 2017; Meenu, 2018).

Results of an interesting ranking of Digital Economy Rankings 2010: Beyond e-Readiness by Economist Intelligence Unit (2010) found that the top five countries were Sweden, Denmark, the US., Finland and the Netherlands, with Thailand ranking 49. Ranking related to digital development for economics and society by the International Institute for Management Development (IMD) World Competitiveness Ranking 2020 put Thailand at 29 out of 63 countries (Office of the National Economy and Society Commission, 2020).

The Economist Intelligence Unit (2010) assessed the potential of attracting information technology (ATC) and its use for economic development and social benefits in 6 areas: Connectivity and Technology Infrastructure, Business Environment, Social and Culture Environment, Legal Environment, Government Policy and Vision, and Consumer and Business Adoption. Assessment results showed that the top five countries were Sweden, Denmark, the US, Finland, and the Netherlands, while Thailand ranks 49.

IMD World Competitiveness Ranking evaluated dimensions of digital development for economy and society in 4 factor groups, that is, Economic Performance, Government Efficiency, Business Efficiency, and Infrastructure. Thailand was found to rank at 29 out of 63 countries (Office of the National Economy and Society Commission 2020).

Thailand still gives importance to digital competitiveness even though it's world ranking is not so high. In addition, it gives importance to the use of human resources to drive Thailand's digital economy development capability in various businesses for some time now.

To clarify whether there was any success or failure from the implementation, the researcher believed that there should be a study on digital competitiveness that influenced Thailand's digital economy development capability in international business.

The results of the study would be beneficial to organizations involved in personnel development, human resources development, business development, and international business as well as entrepreneurs in international business. In addition the results of the study could be used to enhance business capability in the context of digital disruption that takes place in the VUCA World and sustainable international digital capabilities.

2. Research Objectives

2.1 To study Thailand's digital competitiveness in international business.

2.2 To study Thailand's digital economy development capability in international business.

2.3 To study the relationship and impact of digital competitiveness factors on Thailand's digital economy development capability in international business.

3. Research Methodology

This study used the qualitative method of research. The population used in the research was 100,000 international digital business entrepreneurs in Bangkok and its vicinity. The researcher calculated the sample size by using the Krejcie and Morgan Table. The sample size was 384. Stratified random sampling was used with provinces as the criterion for stratification

3.1 Variables used in the study

1) Independent variable

The independent variable was digital competitiveness.

The digital competitiveness variable used in the study was adopted from the conceptual framework of Harris (2009), Fiona & Zoltan (2015), and the concept of Siriboonyakarn & Sumpong (2019). It consisted of 3 aspects: digital knowledge (X_1), skills in using technology (X_2), and self-development to be prepared for the future (X_3).

2) Dependent variable

The dependent variable was Thailand's digital economy development capability in international business.

The digital economy development capability used in the study was adopted from the conceptual frameworks of Bukht, and Heeks (2017), Meenu (2018), and the concept of Zhenlong (2021). It consisted of 4 areas: economic performance (Y_1), business sector performance (Y_2), public sector performance (Y_3) and national digital infrastructure (Y_4).

3.2 Data collection instrument and statistics

The researchers developed a questionnaire to collect data, and it had a discrimination index ranging from 0.392 to 0.917 and a reliability score of 0.91. The statistics used in the research consisted of Mean, S.D., Pearson Product Moment Correlation, VIF (Variance Inflation Factor), and Multiple Regression Analysis.

3.3 Duration of study

The research project duration was six months, from March 2023 to August 2023.

4. Research Results

4.1 Thailand's digital competitiveness level

Digital competitiveness in Thai international business is shown in Table 1.

Table 1 Digital competitiveness in international business (N=384)

Aspect	Mean	S.D.	Level of competitiveness
Digital knowledge (X_1)	4.27	.548	High
Skills in using technology (X_2)	4.23	.564	High
Self-development in preparation for the future (X_3)	4.14	.565	High
Digital Competitiveness Overall level (X)	4.21	.492	High

Table 1, the digital competitiveness capability of Thailand's international business as a whole was at a high level (4.21). When considering each aspect, it is found that the capability to compete in every aspect was also at a high level, which could be arranged in order of competitive capability from highest to lowest as follows: Digital knowledge (4.27), skills in using technology (4.23) and self-development in preparation for the future (4.14), respectively.

4.2 Level of digital economy development capability

Thailand's digital economy development capability in international business is shown in Table 2.

Table 2 Thailand's digital economy development capability in international business (N=384)

Aspect	Mean	S.D.	Capability level
Economic competency (Y_1)	4.31	.545	High
Business sector efficiency (Y_2)	4.36	.558	High
Public sector efficiency (Y_3)	4.24	.555	High
National digital infrastructure (Y_4)	4.29	.565	High

Digital Economy Development Capability Overall level (Y)	4.30	.505	High

Table 2 reveals that Thailand's digital economy development capability in international business as a whole was at a high level (4.30). When considering each aspect, it was found that the digital economy development capability was also at a high level, with business sector efficiency at the highest level (4.36), followed by economic competency (4.31), national digital infrastructure (4.29) and public sector efficiency (4.24), respectively.

4.3 Relationship between digital competitiveness and digital economy development capability of Thailand

Table 3 shows an analysis of the relationship between Thailand's digital competitiveness and digital economy development capability in international business, using the Pearson Correlation Coefficient.

Table 3 Correlation of the variables of digital competitiveness and the digital economy development capability in international business of Thailand (N=384)

Variables	Digital knowledge (X_1)	Skills in using technology (X_2)	Self-development in preparation for the future (X_3)	Digital Competitiveness (X)
Economic competency (Y_1)	.711**	.674**	.607**	.754**
Business sector efficiency (Y_2)	.636**	.640**	.551**	.692**
Public sector efficiency (Y_3)	.687**	.681**	.609**	.748**
National digital infrastructure (Y_4)	.640**	.638**	.613**	.716**
Digital Economy Development Capability Overall level (Y)	.735**	.724**	.655**	.800**

** p< .01

From Table 3, it is found that the variables of each aspect were related to each other at a moderate level to high level with a Pearson Correlation Coefficient (r) value between 0.551 to 0.800, statistically significant at the .01 level.

The researcher also performed a Multicollinearity test with VIF values. The test results revealed that the VIF values of various variables ranged from 1.714 to -2.668, which were less than 10, indicating that there was no multicollinearity.

In addition, the researcher examined the relationship between the independent variable, digital competitiveness, and the dependent variable, that is, the ability to develop Thailand's digital economy development capability, as shown in Table 4.

Table 4 Relationship between digital competitiveness variables and the digital economy development capability variables

Variable	X_1	X_2	X_3	Y
X_1	1.000			
X_2	.767**	1.000		
X_3	.605**	.615**	1.000	
Y	.735**	.724**	.655**	1.000
VIF	2.598	1.714	2.668	

** p< .01

From Table 4, it was found that there is a relationship between the overall digital competitiveness and overall digital economy development capability of Thailand, statistically significant at the .01 level, with a Pearson Correlation Coefficient (r) value of .800.

Furthermore, there is a relationship between the digital economy development capability of Thailand as a whole and various variables of digital competitiveness, ranging from .655 - .735. This showed that every variable of digital competitiveness could be used to predict Thailand's digital economy development capability.

4.4 Analysis of the impact of digital competitiveness on Thailand's digital economy development capability

The impact of digital competitiveness on Thailand's digital economy development capability was analyzed using Multiple Regression Analysis. Then a prediction equation was created in the form of raw scores and standard scores. Also presented were results of the multiple correlation analysis (R), coefficient of determination (R^2), adjusted coefficient of determination (adj R^2), standard error of estimate (S.E. est) and the variance obtained from multiple regression analysis, as shown in Table 5.

Table 5 Impact of digital competitiveness on Thailand's digital economy development capability (N=384)

Digital competitiveness	Digital economy development capability			t	p
	b	S.E.b	β		
Constant value	.829	.134		6.182**	.000
Digital knowledge (X_1)	.328	.046	.355	7.200**	.000
Skills in using technology (X_2)	.262	.045	.293	5.848**	.000
Self-development in preparation for the future (X_3)	.233	.036	.260	6.496**	.000
F= 228.799 P = 0.000 R =.802 R^2 = .644 AdjR^2 = .641					

* p< .05 ** p< .01

Table 5 reveals that, as regards the digital competitiveness, digital knowledge (X_1), skills in using technology (X_2) and self-development in preparation for the future (X_3) there is a high level of relationship and a positive effect on Thailand's digital economy development capability (Y), statistically significant at the .01 level, with a coefficient of determination of 64.40% (R^2 = 0.644) with the following prediction equation:

in the form of raw scores

$Y = .829 + .328(X_1) + .262(X_2) + .233(X_3)$

and in the form of standard scores

$Z_y = .355(X_1) + .293(X_2) + .260(X_3)$

5. Summary

Results of the study are summarized as follows:

5.1 Thailand's digital competitiveness in international business on the whole and according to each of the three aspects were at a high level with competitiveness in the area of digital knowledge capability ranking first and competitiveness in the area of self- development in preparation for the future ranking last.

5.2 Thailand's digital economy development capability in international business on the whole and according to each aspect were of high quality, with the digital economy development capability of the business sector efficiency ranking first and the digital economy development capability of country's digital infrastructure coming last.

5.3 VIF test results for every digital competitiveness variable had a value of less than 10, indicating that the variables did not cause any multicollinearity problem. In addition, every digital competitiveness variable was significantly related to the digital economy development capability at the .01 level, with a Pearson Correlation Coefficient (r) value ranging from .655 - .735. This showed that every competitiveness variable could be used to predict the digital economy development capability.

5.4 Digital competitiveness in all 3 areas, namely digital knowledge (X_1), skills in using technology (X_2), and self-development in preparation for the future (X_3) had a positive effect on the digital economy development capability, with a coefficient of determination accounting for 64.40% ($R^2 = 0.644$). The prediction equation could be written in the form of raw scores as

$Y = .829 + .328(X_1) + .262(X_2) + .233(X_3)$

and the equation in the form of standard scores as $Z_y = .355(X_1) + .293(X_2) + .260(X_3)$.

6. Findings and Discussion

As results of data analysis found that every digital competitiveness variable was related to the digital economy development capability variables ranging from .655 - .735 and the overall digital competitiveness was related to the overall digital economy development capability at a high level, with a Pearson Correlation Coefficient (r) value of .800. This indicates that accelerating the development of Thai personnel to have knowledge, abilities, and new skills, especially digital skills, is important to both digital competitiveness enhancement and digital economy development capability. However, based on the ranking of international organizations, Thailand remains at the middle level. This shows that all sectors concerned will still need to intensify their implementation even more in the coming years.

7. Suggestions

7.1 Suggestions for implications

1) Based on the study results of all the aspects related to Thailand's digital competitiveness in international business, digital knowledge was found to rank first while self-development in preparation for the future came last. In the light of this finding, higher education administrators, program administrators and those responsible for the curriculum must raise urgently the level of learning development, especially digital self-development for students in various programs offered by the universities.

2) Based on the research results regarding the efficiency aspect and digital economy development capability in international business, the business sector was the forerunner in this respect whereas the public sector came last. In view of this finding, those concerned with public policy making, economic administration, establishment administrators and related sectors should conduct a survey on the gaps that have occurred and organize implementation activities to improve efficiency as well as urgently enhance Thailand's digital economy development capability, as efficiency of the public sector in digital economy development is an important indicator for every organization for competitiveness ranking.

3) As research results found that all three aspects of digital competitiveness: digital knowledge (X_1), skills in using technology (X_2), and self-development in preparation for the future (X_3) together had a positive effect on Thailand's digital economy development capability in international business. Therefore, public policy administrators, higher education administrators, establishment administrators and various related parties should jointly set up a plan to enhance the digital development of human resources systematically which in turn will have a positive effect on both digital competitiveness and Thailand's digital economy development capability.

7.2 Suggestions for future research

1) From the study, it was found that the efficiency of the public sector in digital economy development came last. This may be a consequence of the study which was conducted with a sample group in Bangkok and its vicinity only. Therefore, there should be another study with other sample groups to cover all areas of Thailand to further confirm the results of the study.

2) From the study which found that digital competitiveness, skills in using technology and self-development to be prepared for the future affects Thailand's digital economy development capability in international business, with a coefficient of determination accounting for 64.40%, this may be a result of some other variables which were not included in this study. Therefore, it is recommended that more research projects on digital economy should be done, taking into consideration other variables so that predicting efficiency may be further enhanced.

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