

TECHNOLOGY MANAGEMENT MODEL FOR DETERMINING THE TOURISM CAPABILITY OF UDON THANI PROVINCE, THAILAND

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Abstract

This paper explores the effect of technology management model on the capability of tourist's development tourism of Udon Thani Province, Thailand. The data was collected from 300 tourist of Udon Thani Province of Thailand through using the convenient sampling technique. The researcher used the deductive quantitative approach and cross sectional research design. The data analysis results have shown that technology management model has a significant and positive relation to improve the capability of tourist of Udon Thani Province, Thailand which shows that when the technology management improved then the tourist capability also increased. These significant results had shown that this study could be considered a pioneer study to improve the capability tourists. The research also helps to explore a research in future for other researchers in other way by making base to this research. The research also helpful for the tourism department to know about the importance of technology management to improve the capability of tourists. There were also discussed about the limitations and future directions of the research.

Keywords: technology management, capability, tourism, capability, Thailand.

Introduction

It is now commonly acknowledged that tourism is considered to be an important for the survival of the economy (Heij, Volberda, Van den Bosch, & Hollen, 2020; Ramadani et al., 2019). From the such importance of tourism industry the countries played an important attention to increase their social and economic growth and competitive advantage (Cormican & O'Sullivan, 2004). During development cycle, many tourism initiatives are uncontrolled (Eling, Griffin, & Langerak, 2016). As a result, that is critical for a country to grasp how to succeed in creating tourism. There has been a lot of research on how to stimulate tourism capability (TC) (W. W. Wu, Yu, & Wu, 2012) with the technology management (TM). This shows that TM is an important indicator for the TC.

Theoretically, it is found that TM which consist of management activities that could be identified from the identification, protection that could help to increase the capability of the organization (Holgersson & Aaboen, 2019). In other words, from resource base view perspective, it is found that technology management is important critical resource that could help to capability of the organization (Collins, 2021). It is also further explained that technology resources which shows the infrastructure of the organization is an important resource to enhance the capability because it creates an innovative environment (Lee & Sim, 2018). This previous discussion had shown that technology management models an important indicator to enhance the TC of any organization or any industry.

Despite fact that the significance of TM as well as TC through new product development has been widely acknowledged in ongoing study, the majority of studies overlook the impact of TM on TC. The relationship between TM and TC should addressed from a resource-based perspective (Barney, Ketchen Jr, & Wright, 2011). It has been suggested that TC is one of the most significant resources for new product development, and that TM would be a continual ability to establish TC (Cetindamar, Phaal, & Probert, 2009).

As a conclusion, throughout the procedure TM and TC are intended to have a closer connection. On the other hand, many studies look at the association between TM and technology capability (Cetindamar et al., 2009; W. Wu, Liang, Zhang, & Zhang, 2020; W. W. Wu et al., 2012), technology capital impact on firm performance (Bharadwaj, Bharadwaj, & Konsynski, 1999; Chege, Wang, & Suntu, 2020; Elife & Ünal; Klassen & McLaughlin, 1996; Saeidi et al., 2021; Wang, Shi, Nevo, Li, & Chen, 2015). While has a little attention between the relationship of technology management and tourism capability.

In other sense, the previous studies in the field of technology management had a major focused on the countries and also other sectors (Kolade, Obembe, & Salia, 2018; Novitasari & Agustia, 2021). While had little attention in Thailand especially in the tourism industry. The tourism industry of Thailand played an important role in the development of social and economic perspective of Thailand. On the other hand, it also played an important role for the tourist to spend their spare time in healthy activities. Therefore, the tourism industry could not be ignored. This is a reason the current study objective was to address the impact of technology management model on the tourism capability of Udon Thani Province, Thailand.

The findings of the study provide some guidance to businesses on how to use technology management to boost tourist capability. The results emphasize relevance of interaction between technology management model and capacity along with better fitting more likely to achieve tourism growth. As a result, governments must enhance their technology management in order to boost tourist capabilities. With respect to a technology management model, possible strategies include paying special resource acquisition attention, fostering a positive organizational culture, and implementing a whole quality management system. The possible approaches that might be applied through R&D activities, creating information networks, updating country equipment, and optimizing better structure from a technology management perspective.

The findings also show how technology management model and tourist capability have a contingency relationship. Whenever tourist competences are high, our data reveal that technology management dominates the fit. These findings suggested, in order to enhance tourism capacity, the economy must first assess efficient technology management. If a country's tourist capacity is low in contrast to that of other countries, the country needs first improve its technological management to a specific degree. As a result, our findings give a new tool for countries and businesses to improve their tourism capabilities

Theoretical Foundation and Hypotheses Development

Technology Management

The study of TM may be dated back to as early 1970s. With the passage of time, TM has progressed from early R&D managing in the direction of planned TM (Drejer, 1997). TM, according to the National Research Council (NRC) Board, Council, Committee, and Council (1987), joins engineering, scientific, as well as management specialties can design, develop, and apply TC to define and achieve a firm's strategic and operational goals. Recognition, evaluation, acquisition, utilization, preservation R Phaal, Farrukh, and Probert (2001), and acquiring knowledge Cetindamar, Phaal, and Probert (2016) are some of the general activities that are commonly considered to be included in TM. Therefore suggests that TM is closely associated to a variety of types of knowledge, including strategic, organizational, and innovation management (Sahlman & Haapasalo, 2009). Under this research, researchers use the NTC's definition of TM, which defines it as capacity to strategy, improve, achievement, and apply TC with the intent of enhancing a business's competitiveness. Theoretically, it is found that TM which consist of management activities that could be identified from the identification, protection that could help to increase the capability of the organization (Holgerson & Aaboen, 2019). In other words, from resource base view perspective, it is found that technology management is important critical resource that could help to capability of the organization (Collins, 2021). It is also further explained that technology resources which shows the infrastructure of the organization is an important resource to enhance the capability because it creates an innovative environment (Lee & Sim, 2018). This previous discussion had shown that technology management models an important indicator to enhance the TC of any organization or any industry.

Technology Management and Capability

Organizations get lasting competitive benefits from the resources also competencies they hold, according to the resource-based perspective (Zhou & Wu, 2010). Technical competence refers to a firm's technological resources, whereas TM ensures that these resources, which include both soft and physical resources including expertise and equipment, are matched with the organization's goals (Farrukh, Phaal, & Probert, 2003). As a result, TC may be considered the item on which TM focuses, and both TM and TC are linked to fit (Bhatt, 2001). The link between TM and TC in NPD may meet the management requirements of a particular group of technological resources, which might increase NPD performance even more. Additionally, TC refers to a collection of distinct talents that serve as the foundation for a company's competitive advantage on long-term basis (Srivastava, Gnyawali, & Hatfield, 2015). TC can continually provide fresh prospects for NPD in this procedure (Tang, Park, Agarwal, & Liu, 2020).

TM, alternatively, must seize and convert these new prospects. TM allows a company effectively absorb, utilize, modify, and transfer current technologies Kim (2015), as well as assist it build new ones (Oerlemans, Knobens, & Pretorius, 2013). As a result of the alignment of TM and TC to the market, businesses may create new products and gain a competitive advantage by being the first to market. To handle the challenges of a changing environment,

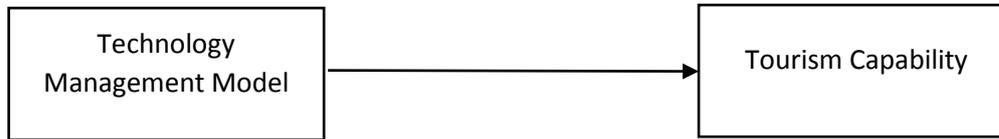
TM and TC be situated complimentary. New product development necessitates technical competence to support engineering and manufacturing Eng and Okten (2011), as well as effective TM to offer a foundation for designing and executing TC (Robert Phaal, Kerr, Oughton, & Probert, 2012). When a company depends solely on TC and overlooks TM during NPD, it will likely spend too much money on innovation without completely fulfilling market expectations and business development objectives (Yam, Guan, Pun, & Tang, 2004). As a conclusion, this is clear that TM and TC remain intertwined, and the closer they were, the better the NPD performance.

Despite fact that the significance of TM is more for the organizations. The previous literature had major focused on technology capability while has little attention on tourism capability (TC). The relationship between TM and TC should addressed from a resource-based perspective (Barney et al., 2011). It has been suggested that TC is one of the most significant resources for new product development, and that TM would be a continual ability to establish TC (Cetindamar et al., 2009; Yu et al., 2018). As a conclusion, throughout the procedure TM and TC are intended to have a closer connection. On the other hand, many studies look at the association between TM and technology capability (Cetindamar et al., 2009; W. Wu et al., 2020; W. W. Wu et al., 2012), technology capital impact on firm performance (Arciénaga Morales et al., 2018; Bharadwaj et al., 1999; Chege et al., 2020; Elife & Ünal; Klassen & McLaughlin, 1996; Saeidi et al., 2021; Wang et al., 2015). While has a little attention between the relationship of technology management and tourism capability. In other sense, the previous studies in the field of technology management had a major focused on the countries and also other sectors (Kolade et al., 2018; Novitasari & Agustia, 2021). This shows that previous studies had little attention on the developing economies which shows that there is a need of time to conduct a research in the developing countries especially in the context of Tourism.

Research Framework and Hypothesis development

The above literature section had become the research framework foundation. Various gaps were identified in the previous literature review section. Firstly, the previous studies were mainly focused on the relationship of technology management model with the technology capability and with firm performance while has limited studies on the impact of technology management on tourism capability. Secondly, the previous researches mainly focused on other sectors but have little attention on tourism industry. Thirdly, previous studies were major focused on other developed countries while has little attention on developing like Thailand. These gaps have shown that there is a need of time to conduct a research in Thailand tourism industry. Therefore, the present study had been conducted in the Thailand tourism perspective along with technology management model as an independent variables and tourism capability as a dependent which are predicted in the following Figure 1 below.

Figure 1: Conceptual Framework



H1: The technology management model had a positive and significant impact to improve the tourist capability Udon Thani Province, Thailand.

Research Methodology

The study objective was to check the impact of technology management on the improvement of tourist's capability. For this purpose, the quantitative research approach was applied which has more strength as compare qualitative (Einasto, A. Klypin, Saar, & Shandarin, 1984). The study has used the cross sectional research design and is correlational in nature. The research objective was obtained by using a self-administered questionnaire which was conducted on the Udon Thani Province, Thailand. The questionnaire used for data collection was pre-tested. After the pre-test, some of the items were being reverse coded and deleted. The questionnaire was distributed among 400 respondents by using a convenient sampling technique. Among of those, 300 questionnaires were returned back. The research questionnaires were adapted from the previous literature according to study nature. The technology management was measured by 17 items which were adapted from the (W. W. Wu et al., 2012). The capability was measured by 11 items which were adapted from the study of (Rudeforth, 1975). These instruments were translated or adapted according to research context. The research questionnaire was measured on five point Likert Scale which was ranged from 1 strongly agree to 5 strongly disagree. The adapted research questionnaire was pre and post tested from the panel of judges. This procedure was followed in two phases. In first phase the research questionnaire was given to the industrial experts and academicians to check the relevance of the research instrument. In second phase the research instrument was translated and edited from the English professors of university. Then the research instrument pilot test was done from randomly 30 selected individuals.

Data analysis and Results

The data was analyzed by using a Smart PLS 3.28 version. In the smart PLS the Partial Least Square (PLS)-Structural Equation Modelling (SEM) was applied. Both of the convergent and discriminant validity of the construct was measured in the measurement model. The convergent validity was measured through factors loadings which recommended value is 0.5, Cronbach alpha which recommended value is 0.7, composite reliability which recommended value is 0.7 and average variance extracted which recommended value is 0.5. These are suggested by following researchers (Hair, Ringle, & Sarstedt, 2013; Hair, Sarstedt, Pieper, & Ringle, 2012; Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). Table one present that all of the values are greater than above discussed values which shows that construct full fill the criteria of convergent validity. On the other hand, the discriminant validity was measured by three criteria's, Fornell Larker which shows that above diagonal values should be greater than from

below values, cross loadings that should be equal to factors loadings, and Hetrotrait Monotrait Correlation (HTMT) which shows that correlation among the constructs should be less than 0.85 or 0.90 (Henseler, Ringle, & Sarstedt, 2015). The Table.2 and Table.3 had shown that construct fulfill the criteria of discriminant values because the Fornell Larker diagonal values are greater than below values and HTMT values are less than 0.85.

Table 1: Reliability and validity

Construct	Item	Loadings	Cronbach's Alpha	CR	AVE
Technology management model	TMM1	0.721	0.761	0.799	0.504
	TMM2	0.825			
	TMM3	0.72			
	TMM4	0.544			
	TMM5	0.597			
	TMM6	0.813			
	TMM7	0.719			
	TMM8	0.739			
	TMM9	0.825			
	TMM10	0.687			
	TMM11	0.794			
	TMM12	0.916			
	TMM14	0.903			
	TMM15	0.86			
	TMM16	0.819			
	TMM17	0.783			
	Tourist Capability	TC1			
TC2		0.784			
TC3		0.802			
TC4		0.756			
TC5		0.812			
TC6		0.675			
TC7		0.856			
TC8		0.789			
TC9		0.902			
TC10		0.892			
TC11		0.783			

Note: TMM-Technology Management Model, TC-tourism capability

Table 2: Discriminant Validity

	TMM	TC
TMM	0.710	
TC	0.568	0.790

Note: TMM-Technology Management Model, TC-tourism capability

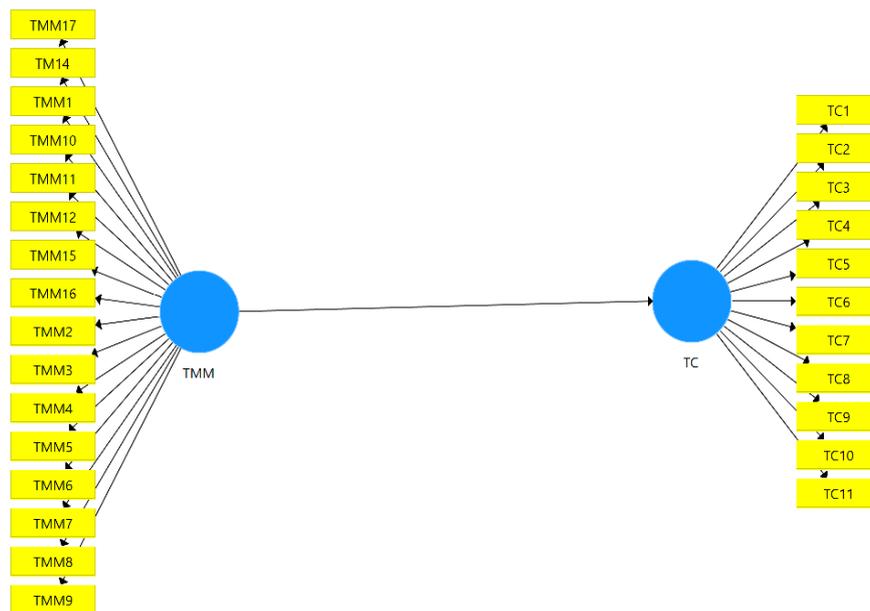
Structural Model

The hypothesis was tested by using bootstrap 5000 resampling techniques. The PLS-SEM findings have shown that technology management is being positively and significantly effect to the tourist capability that support to the proposed hypothesis. This results show that when the technology management has improved then the capability of the tourists also increased. This indicates that according to the perceptions of tourist in Thailand, the technology management an important indicator to improve the capability of the tourist. This is further supported by previous studies which suggested that when the technology management has increased then the capability of the tourist is also increased (Cetindamar et al., 2009; W. W. Wu et al., 2012). The above discussed results are predicted in the following Table 3 below.

Table 3: Hypothesis results

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
SC -> ST	0.843	0.854	0.028	30.545	0.0000

Figure 2: Structural Model



Conclusion and implications

This paper explores the effect of technology management model on the capability of tourist’s development tourisms of Udon Thani Province, Thailand. The results show that technology management model (TMM) positive and significant impact on the improvement of capability of tourist of Udon Thani Province, Thailand which shows that when the technology management (TM) improved then the tourist capability also increased. The results contribute to new in a variety of ways. To begin, this research added an integral understanding about the

association of technology management and tourist capability in Thailand's Udon Thani Province. Previous research has found a coupling link between the relationship of TMM and TC (Asim & Sorooshian, 2019; Magistretti, Trabucchi, Dell'Era, & Buganza, 2019; Yoon, Shin, & Lee, 2018), and various researches on the form of a double helix (Ahuja Sánchez, Yépez Ríos, & Pedroza Zapata, 2020) but limited studies on TMM and TC. This study demonstrates the existence of a relationship between technology management model and tourist capability. As a result, the article refers to and expands on previous studies by emphasizes importance of the model among TMM and TC. Second, this article adds to the literature by proving the precedence influence of technology management on the competency of tourists in Thailand's province. Prior tourism-related research has mostly focused on the consequences of interactions between various functions such as marketing, manufacturing, and research and development. The link among both technology management model and tourist capability were rarely discussed (Knoll, Golkar, & de Weck, 2018). The present study found a direct association between TMM and TC. This paper has identified a new antecedent of TC and encourages further theoretical development on the fit of other elements.

The findings of the study also provide some guidance to businesses on how to use technology management to boost tourist capability. The results emphasize relevance of interaction between technology management model and capacity, with better-fitting enterprises more likely to achieve tourism growth. As a result, governments must enhance their technology management in order to boost tourist capabilities. With respect to a technology management model, possible strategies include paying special resource acquisition attention, fostering a positive organizational culture, and implementing a whole quality management system. The possible approaches that might be applied through R&D activities, creating information networks, updating country equipment, and optimizing better structure from a technology management perspective. The findings also show how technology management model and tourist capability have a contingency relationship. Whenever tourist competences are high, our data reveal that technology management dominates the fit. These findings suggested, in order to enhance tourism capacity, the economy must first assess efficient technology management. If a country's tourist capacity is low in contrast to that of other countries, the country needs first improve its technological management to a specific degree. As a result, our findings give a new tool for countries and businesses to improve their tourism capabilities.

Research Limitations and future Directions

The study also has some limitations which will help for future research. The study was limited on direct effect while there are also some other variables that could moderate or mediate. Therefore, a future research could be done along with moderating and mediating variable like culture capital or environment vulnerability etc. The study was also limited on Thailand one province, there are also several other provinces which also have some fisheries product, in this regards, a future research could be done on other provinces of Thailand or other countries to increase research generalizability.

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