



# Impact of Innovation on Operational Efficiency of Tourism Community Enterprises in Thailand

Chadarat Khwunnak<sup>1</sup> and Peerawat Chailom<sup>2</sup>

<sup>1</sup>Mahasarakham Business School, Mahasarakham University, Thailand

<sup>2</sup>Mahasarakham Business School, Mahasarakham University, Thailand. (Corresponding author)

Received 25 May 2021, Revised 15 Nov. 2021, Accepted 4 Jan. 2022, Published 15 Feb. 2022

**Abstract:** This research aims to the guideline for promoting the creation of entrepreneur's innovation and the development of tourism community enterprises which, it can be used as a management tool to add product value, increase marketing channels, create income stability, sustainable related agencies, be used as a guideline for determining measures and formulating policies to promote the implementation of community enterprises and, service businesses. This research studies relationships between operator business efficiency (OBE) with TCI, DTT, ADI, ECT, BDI, CEI, CC, and IT. The research result came from questionnaire surveys. Data were analyzed using percentage statistics, frequency, reliability test by Cronbach's Alpha, multiple correlation analysis, and multiple regression analysis. Testing the relationship between the variables found that DTT was statistically low positively correlated with ECT and BDI at the 0.01 level. ADI was statistically low positively correlated with ECT, BDI, CEI, and OBE at the 0.01 level. The ECT was statistically low positively correlated with the BDI, CEI, and OBE at the 0.01 level. BDI was statistically low positively correlated with CEI and OBE at the 0.01 level, otherwise, there was no correlation.

**Keywords:** Impact of Innovation, Operational Efficiency, Tourism Community Enterprises

## 1. INTRODUCTION

Competition is a key for entrepreneurs to implement innovative business models. Entrepreneurial innovation ability benefits businesses including the ability to learn, level of knowledge, and other competencies. An entrepreneur's innovation capability is important and will affect the business innovation process [1]. Business entrepreneurs seek innovation to achieve different things and opportunities that will lead to success in the future. Innovation refers to the process of bringing any new, issue understanding thought into utilizing such a thought for reorganizing, cutting costs, applying new budgetary systems, progressing communication, or amassing items [2]. The competition among entrepreneurs in each market is based on innovation to add value to an existing product or create innovation as a new product related to service [3]. From the statistics of the number of community enterprises in Thailand for the past 5 years (2015-2019), it was found that most tourism community enterprises are too concentrated in some categories. Tourism business groups distributed according to the size of enterprises in 2018, accounted for 2.70 percent of the number of enterprises, including the country [4].

Meanwhile, there are not many other types of products, there is a network integration problem. Community enterprises continue to experience problems in the same

way. Increased number of entrepreneurs, multiple types of business competition finding solutions will help community enterprises develop competitiveness. [5] The Upper North-east Region 1 of Thailand consists of 5 provinces: Udon Thani, Loei, Nong Khai, Nong Bua Lamphu, and Bueng Kan, which provide a gateway to ASEAN countries and to Laos. [6] Development and upgrading of tourism in the provinces to be a tourism community OTOP combine stories of history, civilization, traditions and, culture with tourism. This reflects the identity of the local community and distributes income to the community, promotes OTOP marketing and tourism community enterprises .

Problems and obstacles in the operation of the OTOP tourism community enterprises include the creation of a business network management of marketing, production, finance and funding, technology and innovation, and support from the government [7] [8]. Most entrepreneurs (55.66 %) lack data updates and lack expertise [9]. There are more gaps in some areas, as most creative innovations tend to be concentrated in cities areas rather than countryside areas. As a result, the gap between cities is expanding the economy. Innovation growth, however, cannot last long because new products and services are always out to compete and replace existing products and services [10].

## 2. REVIEW OF RELATED LITERATURE

### A. Tourism Community Enterprise Innovation (TCI)

TCI is creating new value by combining knowledge with creativity to differentiate a distinctive point or selling point for travel products. It includes the shared experience of tourists with the community through activities or the use of resources in existing communities or local areas to create value as income-generating tourism activities that enhance products to create competition in the market, as well as to further local wisdom [11]. The creativity of community enterprise and the influential role of the entrepreneur in local and regional development can be sustainable .

### B. Digital Technology as a Tool (DTT)

DTT refers to the use of computer technology as a tool in the production of community enterprise products. DTT uses tools, equipment, and supporting information operations to develop community enterprise products for maximum efficiency. it uses computer technology to design innovative products, and community enterprises to always attract the attention of customers [12].

### C. Access and Disseminate Information (ADI)

ADI is an information system to access information and news to be useful for your community enterprise business. It uses a telecommunication system to disseminate information about individual businesses to keep customers continuously informed [13].

### D. Electronic Commerce Transactions (ECT)

ECT uses online searching and ordering of community enterprises such as websites. Facebook can pay via e-commerce systems such as credit card payment via the internet, mobile application payment, etc. It delivers community enterprise products that customers order online. After-sales service is provided through the internet [14] [15].

### E. Business-Driven Innovation (BDI)

BDI brings service innovation to drive the activities of the tourism community enterprise business. It leads to a set goal appropriately bringing new ways to innovate to develop the workplace for sustainable progress [16].

### F. Creative Entrepreneur's Digital Innovation (CEI)

CEI promotes and supports the use of information to continuously learn and develop, supporting the use of technological equipment such as computers, mobile phones, tablets, etc. to create community products. It seeks new solutions and creates new products to increase product value. It uses mobile applications such as Facebook, Instagram, Line, Tik Tok, etc. to meet market demand and adopting new methods of operation by trying to learn and use creativity and innovation accordingly [17].

CC involves contact and coordination with customers with honesty, regularly provides information of the establishment to customers on a regular and continuous basis. CC uses the service of the internet system or social networks

as a means of communication or to update new information to customers. Good communication also allows efficient working and coordination [18].

### G. Information Technology Used (IT)

store and process information and facilitate operations. Tools and equipment supporting the operations of the information system with systematic planning. IT uses information technology to increase operational efficiency and gain a competitive advantage. It uses a telecommunication system to communicate with customers, and returns customer demand data for analysis, planning and to improve work processes [19] .

### H. Operator Business Efficiency (OBE)

OBE is the speed of service production cost reduction [20], efficient use of resources product [21], quality from production, and overall efficiency in the growth of the tourism community enterprise business [22].

## 3. RESEARCH MODEL AND HYPOTHESES

The outside determinants were adjusted from past implicated research. This study regards digital technology as a tool to, access and disseminates information, electronic commerce transactions, business-driven innovation, and creative entrepreneur's digital innovation factors.

Digital technology is a tool for developing innovative products. Entrepreneurs use digital technology to access information, disseminate information conducting electronic commerce transactions to drive the business of the community [23]. In addition, digital technology is used to promote and support the potential of the establishment resulting in the business efficiency of tourism community enterprises to thrive and succeed. Thus, we hypothesises the following: H1: digital technology as a tool (DTT) has a positive impact on the operator business efficiency (OBE) H2: access and disseminate information (ADI) has a positive impact on the operator business efficiency (OBE) H3: electronic commerce transactions (ECT) have a positive impact on the operator business efficiency (OBE) H4: business-driven innovation (BDI) has a positive impact on the operator business efficiency (OBE) H5: creative entrepreneur's digital innovation (CEI) has a positive impact on the operator business efficiency (OBE) Openings for electronic business change desire imaginative changes in four perspectives of the trade: information, exchange, communication, access information, and its distribution. Customer communication corporates relationship building between strategic partnerships through modern channels advertised by the network and digital technology as a tool for developing innovative products. Information diffusion is characterized as openness of learning inside and between corporations and trade enabled by digital technology as a tool for developing innovative products. Progressed guest service is distinguished as a key driver by most analysts, not just as an outside press, but also in making strides adequacy; for example, in expanded benefit conveyance, such as expedite of products

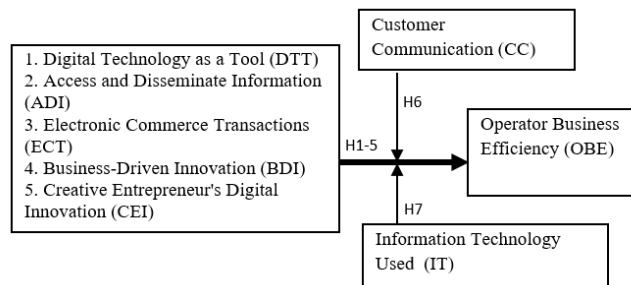


Figure 1. Research Framework

and online support [24]. The entrepreneurs communicate with customers with technology tools online community enterprise product trading emerged and customers can pay via electronic commerce system. Communications innovation has contributed to the fast development of the e-commerce commercial center. The overall picture of the business-driven innovation impacts highlights the importance of changes in mobility, whether in transport or customers communication. Data and communication innovation are scrutinized as a key input to the creation and adjustment of tourism advancement. The use of digital innovation has led to a series of modern innovative practices that have made strides the productivity in conveying different administrations to cover the whole tourism community enterprise esteem chain, including data related to goals, entrepreneur's creativity, convenience, transportation, customers communication, and services. Digital technology creates opportunities for coordination and communication with customers both inside and outside the organization. We postulate the relationship of customer communication with digital technology as a tool to be positive: H6a: Customer communication (CC) has a positive impact on the digital technology as a tool (DTT) H6b: Customer communication (CC) has a positive impact on the access and disseminate information (ADI) H6c: Customer communication (CC) has a positive impact on the electronic commerce transactions (ECT) H6d: Customer communication (CC) has a positive impact on the business-driven innovation (BDI) H6e: Customer communication (CC) has a positive impact on the creative entrepreneur's digital innovation (CEI) Numerous studies have singled out senior management encouragement and entrepreneurship as the foremost important variables for the effective realization of technology innovation and information technology usage in operations and developing products [25] [26]. Customer demand trends and technological changes are factors affecting the operational performance of the business. For example, a product designed with a computer program affects the competitiveness of exporting and developing innovative products [27] [28]. The use of information technology in business operations provides access to community enterprise information. Enlarge electronic trade emerged (electronic commerce) can be traded all over the world, becoming a network economy. Researchers claimed that digital innovation goes beyond

corporation scopes and requires the procession of a digital environment [29]. The digital ecosystem has become a catalyst for the creative entrepreneur's digital innovation for creating digital startups. [30] [31]The following hypotheses are proposed: H7a: Information Technology Used (IT) has a positive impact on the digital technology as a tool (DTT) H7b: Information Technology Used (IT) has a positive impact on the access and disseminate information (ADI) H7c: Information Technology Used (IT) has a positive impact on the electronic commerce transactions (ECT) H7d: Information Technology Used (IT) has a positive impact on the business-driven innovation (BDI) H7e: Information Technology Used (IT) has a positive impact on the creative entrepreneur's digital innovation (CEI)

#### 4. METHODOLOGY

##### A. Sampling Process

The sample group was tourism community enterprise entrepreneurs in the Upper Northeast Region 1 of Thailand (400 out of 10,597 entrepreneurs). Using Taro Yamane's theory [32] of computation, the tolerances were determined as 95% confidence intervals. The establishment has similar products and services. It also has a higher population of community enterprises than other regions.

##### B. Tools and Data Collection

For information collection, a closed-ended survey was developed. The survey was separated into five sections: Part 1: General information of entrepreneur Part 2 General information of tourism community enterprises Part 3 Opinions on the business efficiency of tourism community enterprises Part 4 Comments on Tourism Community Enterprise Innovation Part 5 Recommendations on the operation of tourism community enterprise innovation. The second section consists of 31 questions with eight variables. The answers were gotten using a Likert scale with a scale ranging from 1 to 5, where 1 means "Highly Disagree" and 5 mean "Highly Agree" [33]. The survey was conveyed to the required sample group by post. A sample of 327 (81.75%) was received. The researcher examined the quality of the tools by looking for an IOC value of 0.50 or more from 5 experts. The researcher revised the questionnaire as suggested by experts and tested them with the entrepreneurs who were not included in the sample of 30 people. To find



TABLE I. DEFINING THE VARIABLES

Variable	Source
Digital Technology as a Tool (DTT)	[12], [16]
Access and Disseminate Information (ADI)	[12], [13]
Electronic Commerce Transactions (ECT)	[14], [15],[23]
Business-Driven Innovation (BDI)	[6], [16]
Creative Entrepreneur's Digital Innovation (CEI)	[12], [17]
Customer Communication (CC)	[13], [18]
Information Technology Used (IT)	[12], [13]
Operator Business Efficiency (OBE)	[19], [20],[21],[22]

questions with item-total correlation from 0.20 [34] and above and Cronbach's alpha greater than 0.70 [35].

## 5. RESULTS

### A. Information of entrepreneurs tourism community enterprise

327 completed and valid questionnaires were returned (17 February to 20 March 2021) from the total of 400 questionnaires show that table II. From table II, it was found that demographic distribution of respondents shows that female entrepreneurs' community tourism enterprises comprised 58.4 % of overall respondents, while males comprised 41.6 %. 51.7% were over 50 years old with undergraduate-level education (99.4%). 5-10 years experience as entrepreneurs community enterprises (45%) business is a type of product manufacturing (95.7%) form of partnership 67.3%, business duration 5-10 years (40.4%), number of employees 1-10 persons (61.5%), average monthly income less than 30,000 baht (95.4%), capital in operation less than 10,000 baht (54.7%).

### B. Reliability results

Determination of the reliability test by using the Alpha Coefficient according to the method, where the Alpha value is related to the number of questions in the questionnaire should be greater than 0.70 and item-total correlation from 0.20.

### C. Coefficients of Operator Business Efficiency

Coefficients of operator business efficiency found that ADI, ECT, CEI, are positively and significantly related to the operator business efficiency (OBE), while DTT has negative and negligible significant impact on the operator business efficiency (OBE), and BDI.

### D. Correlations between tourism community enterprise innovation with Operator Business Efficiency

Testing the relationship between the variables found that DTT variables were statistically low positively correlated with ECT and BDI variables at the 0.01 level. ADI variables were statistically low positively correlated with ECT, BDI, CEI, and OBE variables at the 0.01 level. The ECT variable was statistically low positively correlated with the BDI, CEI, and OBE variable at the 0.01 level. BDI variables were statistically low positively correlated with CEI and

OBE variables at the 0.01 level, otherwise, there was no correlation.

### E. The results of hypothesis testing

The results of hypothesis testing relationships of tourism community enterprise innovation with operator business efficiency (OBE) showed that ADI, ECT, CEI, are positively and significantly related to the operator business efficiency (OBE), while DTT has a negative and negligible significant impact on the operator business efficiency (OBE), and BDI. Thus, H1, H2, H3, and H5 are supported, whereas H4 is not supported. The results of hypothesis testing relationships of customer communication (CC) with tourism community enterprise innovation showed that for CC with digital technology as a tool (DTT) ( $r = 0.250^{**}$ ), CC with access and disseminate information (ADI) ( $r = 0.414^{**}$ ), CC with electronic commerce transactions (ECT) ( $r = 0.415^{**}$ ), CC with business-driven innovation (BDI) ( $r = 0.462^{**}$ ), CC with creative entrepreneur's digital innovation ( $r = 0.307^{**}$ ). There was negligible significance of positive correlation at the 0.01 level. Thus, H6a, H6b, H6c, H6d, and H6e are supported. The results of hypothesis testing relationships of information technology used in operations (IT) with tourism community enterprise innovation showed that for IT with digital technology as a tool (DTT) ( $r = 0.335^{**}$ ), IT with access and disseminate information (ADI) ( $r = 0.192^{**}$ ), IT with electronic commerce transactions (ECT) ( $r = 0.347^{**}$ ), IT with business-driven innovation (BDI) ( $r = 0.388^{**}$ ), IT with creative entrepreneur's digital innovation ( $r = 0.315^{**}$ ). There was a negligible significance of positive correlation at the 0.01 level. Thus, H7a, H7b, H7c, H7d, and H7e are supported.

## 6. DISCUSSION

The results show that community tourism enterprises are more successfully caused using technology and innovation tools. Earlier studies of entrepreneurs in tourism community enterprises showed that they must have a strategy for, management and dissemination of resources or raw materials by employees and the organization or others. Communities portrayed by the need for openings for improvement frequently see tourism activities as a implies to combine financial development and community building. Such action highlights a nexus between tourism, social business enterprise, and community advancement [36]. Entrepreneurs

TABLE II. INFORMATION OF ENTREPRENEURS TOURISM COMMUNITY ENTERPRISES

Demographic variable (N=327)	Items	Frequency	%
Gender	Male	136	41.6
	Female	191	58.4
Age	less than 30	14	4.3
	30 – 40	17	5.2
	41 – 50	127	38.8
	more than 50	169	51.7
status	Single	59	18.0
	Marry	236	72.2
	Widowed / Divorced	32	9.8
Education grade	Undergraduate	325	99.4
	Bachelor's degree	2	0.6
Community Enterprise Entrepreneur Experience	less than 5	117	35.8
	5 - 10	147	45.0
	11 – 15	31	9.5
	more than 15	32	9.8
Type of community enterprise	Product production group	313	95.7
	Service group	14	4.3
Business model	One owner	106	32.4
	Partnership	220	67.3
	Limited company	1	0.3
Length of business(year)	less than 1	1	0.3
	1 - 5	131	40.1
	5 – 10	132	40.4
	more than 10	63	19.3
Number of employees	1 – 10	201	61.5
	11 – 20	67	20.5
	21 – 30	14	4.3
	more than 30	45	13.8
Average monthly income	less than 30,000	312	95.4
	30,000 – 50,000	15	4.6
	50,001 – 100,000	0	0.0
	more than 100,000	0	0.0
Capital in operation	less than 10,000	179	54.7
	10,000 – 50,000	91	27.8
	50,001 – 100,000	42	12.8
	more than 100,000	15	4.6

TABLE III. CRONBACH'S ALPHA

Factor	No. Item	ALPHA
Digital Technology as a Tool (DTT)	3	0.852
Access and Disseminate Information (ADI)	2	0.846
Electronic Commerce Transactions (ECT)	4	0.845
Business-Driven Innovation (BDI)	3	0.844
Creative Entrepreneur's Digital Innovation (CEI)	5	0.849
Customer Communication (CC)	5	0.848
Information Technology Used (IT)	4	0.851
Operator Business Efficiency (OBE)	5	0.756
All Factor Combined(overall)	31	0.878



TABLE IV. COEFFICIENTS OF OPERATOR BUSINESS EFFICIENCY

V	B	S.E.	Beta	t	p-value
DTT	-0.093	0.038	-0.118	-2.417	0.016
ECT	0.153	0.027	0.319	5.593	0.000
BDI	0.099	0.054	0.133	1.841	0.067
CEI	0.125	0.046	0.190	2.739	0.007

TABLE V. CORRELATIONS BETWEEN DTT, ADI, ECT, BDI, CEI WITH OPERATOR BUSINESS EFFICIENCY

V.	DTT	ADI	ECT	BDI	CEI	OBE
DTT	1	0.099	0.307**	0.144**	0.102	0.037
ADI		1	0.497**	0.255**	0.155**	0.390**
ECT			1	0.285**	0.109**	0.431**
BDI				1	0.741**	0.394**
CEI					1	0.339**
OBE						1

must promote the learning and use of business innovation to create outstanding products and services leading to the growth of the business. Some tourism community enterprises have relatively low consumption of social networking and e-commerce, but when the entrepreneurs take advantage of online sales it results in better profitability. The results of this study are as follows. Operator Business Efficiency (OBE) is positively and significantly related to the Digital Technology as a Tool (DTT), Access and Disseminate Information (ADI), Electronic Commerce Transactions (ECT), and creative entrepreneur's digital innovation (CEI). These findings support research hypotheses H1, H2, H3, and H5. They do not, however, support hypotheses H4. The lack of correlation of variables may be caused by differences between businesses, for example, in different areas, there may be different business experiences or low levels of business innovation skills [37]. Most thinks about that have looked at the entrepreneur relationship in tourism community enterprise have been worried essentially with different determinants of tech trade visionaries [38] [39]. A positive relationship between the trade of development and the person metropolis levels (instruction and experience) of tech business people were found [40] has been found and a positive relationship noted between the level of innovation and the individual information and initiative of these entrepreneurs [41] found a positive correlation between business innovation and entrepreneurial creativity [42]; observe the relationship between entrepreneurial innovation behavior seek new methods and create new products to increase product value innovation [43], and found that innovation is the most important factor in any business planning. Recent research by Bouncken et al. (2020) [44], pointed out new ways of working together that can affect individual job satisfaction and empowerment on innovation and performance of entrepreneurs. [45] There is a difference between high-tech establishments and other types of business operators. Those who get it electronic commerce can see great opportunities in the world of online trade

because there are many focal points or points of interest in online business. These business entrepreneurs do not need to find a place to do business, they do business online only with computers or mobile phones and internet connections, and do not need to pay workers, and many more benefits. With the presence of electronic commerce services, customers can get to and stand orders from different places [46]. Enterprises supporting digital innovation in product development and product design innovation customer communication [47] in changing economic conditions using innovation advantage to rapidly meet the needs of customers [48]. This is a change of marketing communication mode to help improve the competitiveness of enterprises [49]. This supports the research hypotheses H6a, H6b, H6c, H6d, and H6e. Technology has a profound effect on the success of an organization's business aimed at meeting the needs of all business operators [50], accomplices within the chain [51]. Center on commerce show experimentation as a implies for harmonizing their organization's strategies with the troublesome and/or inventive digital transformation [52]. Thus, H7a, H7b, H7c, H7d, and H7e are supported. The digital technology trends are characterized by new conditions within the industrial business, where an innovation that is considered to be rising or new inside one business operations can be as of now broadly in use by others, there were frameworks that every organization has to adapt [53].

## 7. CONCLUSION AND FUTURE WORK

The purpose of this study is to explore the impact of innovation on the operational efficiency of tourism community enterprises using tools to foster innovation or the entrepreneur's expected level of business growth. This study found that digital technology is a tool for developing innovative products (DTT), access and disseminate information (ADI), electronic commerce transactions (ECT), creative entrepreneur's digital innovation (CEI) has a positive impact on the operator business efficiency (OBE) (H1, H2, H3, H5). However, on the contrary expectations, business-



driven innovation (BDI) does not affect business operator business efficiency (OBE) (H4). This ponder contributes to the extension of insightful knowledge, and application of innovation in the tourism community enterprise business. Promotion activities affect the success of enterprises. Therefore, large enterprises need commitment, enthusiastic participation, and various skills of employees, networking, and collaboration. Good customer communication, application of information technology in operation, the utilization of e-commerce are tools to support and promote innovation in the tourism community enterprise business more efficiently. In expansion, the comes about of this think about a show that entrepreneurs of tourism community enterprises must have leadership ability for innovation. Managing digital technology skills at a higher level may always produce better results to better prepare these entrepreneurs to cope with the economic, and social changes. Future research should expand the scope of the studied parameters to cover businesses, community enterprises, various forms of tourism, commercial, service, and financial sectors, entrepreneurial characteristics. Management styles that affect innovation in business. It may also be valuable to meet other business personnel. In education Should research, and develop information technology skills for community enterprise entrepreneurs. Emphasis on developing manpower to have knowledge and ability to operate, and expanding the business to advance globally.

## REFERENCES

- [1] Z. Zhang and Xu, "Business model innovation: an integrated approach based on elements and functions," *Information Technology and Management*, vol. 17, p. 303–310, 2016.
- [2] C. M. Williams, A. M. Hall, "Tourism and Innovation," *Routledge*, 2016.
- [3] A. J. Nordli, "Measuring innovation in tourism with community innovation survey: a first step towards a more valid innovation instruments," *Scandinavian Journal of Hospitality and Tourism*, vol. 17, p. 423–440, 2017.
- [4] D. of Agricultural Extension, "Community Enterprise Information System," *Prince of Songkla University, Thailand*, vol. 17, 2018. [Online]. Available: <http://smce.doe.go.th/index.php>
- [5] U. Parinyasutinun, "Community Enterprise: The Paradox of the Competition of Business," *Silpakorn University Journal*, 2017. [Online]. Available: <https://doi.org/10.14456/SUJTHAI.2017.1>
- [6] G. of Strategic Administration of the Upper Northeastern Region 1, "5-year provincial development plan," *upper northeastern provinces I*, 2018. [Online]. Available: <http://www.osmnortheast-n1.moi.go.th/new/>
- [7] T. Chiarakul., "The Problems and the Adaptation of OTOP to AEC," *Journal of Executive*, vol. 1, p. 177–191, 2014.
- [8] t. Sakonnakhon. and U. Sangkharat, "Development Guidelines for Small and Micro Community Enterprises in Songkhla Lake Basin," *Prince of Songkla University*, 2013. [Online]. Available: <http://kb.psu.ac.th/psukb/handle/2016/12368>
- [9] P. J. Jabjone.S, Sudajai.L, "The promoting of competency on digital technology literacy for community entrepreneurs," *Research report Nakhon Ratchasima Rajabhat University, Thailand.*, 2018.
- [10] P. Pholphirul, "Creative Economy and Development Issues in Thailand," *NIDA Economic Review*, vol. 7, p. 1–69, 2013.
- [11] C. Thanapitak, R. Wilasinee and K. Natika, "Creative Tourism Management by Alive Dam Innovation From Community Wisdom of Khao Pu Subdistrict Sribunpod District, Phattalung Province," *Research report National Research Council of Thailand and The Thailand Research Fund*, 2018.
- [12] M. Evans, "Foreign language learning with digital technology," *A and C Black*, 2009.
- [13] H. L. Huang, "Performance effects of aligning service innovation and the strategic use of information technology," *Service Business*, vol. 8, p. 171–195, 2014.
- [14] M. M. Salwani, G. Marthandan and S. Chong, "E-commerce usage and business performance in the Malaysian tourism sector," *Information Management and Computer Security*, vol. 17, p. 166–185, 2009.
- [15] Divisekera and Nguyen, "Drivers of innovation in tourism An econometric study," *Tourism Economics*, vol. 24, p. 998–1014, 2018.
- [16] Najda-Janoszka and S. Kopera, "Exploring Barriers to Innovation in Tourism Industry – The Case of Southern Region of Poland," *Social and Behavioral Sciences*, vol. 110, p. 190–201, 2014.
- [17] Sandybayev and C. Republic, "Strategic Innovation in Tourism," *International Journal of Research in Tourism and Hospitality*, vol. 2, p. 4–10, 2016.
- [18] F. Schloffer.J and Maloles.C, "Refusal and Interference of Communication—Analysis of the Effects of a New Phenomenon on Customer Relationships," *Springer*, p. 116–116, 2015. [Online]. Available: [https://doi.org/10.1007/978-3-319-10951-0\\_41](https://doi.org/10.1007/978-3-319-10951-0_41)
- [19] K. Kalai.E and Rubinovitch.M, "Optimal Service Speeds in a Competitive Environment," *Management Science*, vol. 38, p. 1154–1163, 1990.
- [20] M. V. Alexander.H, Günter.R, "Valuation and cost reduction of behind-the-meter hydrogen production in hawaii," *MRS Energy and Sustainability*, vol. 7, pp. 1–3, 2020.
- [21] G. Kim and Y. Suh, "Semantic business process space for intelligent management of sales order business processes," *Information Systems Frontiers*, vol. 13, p. 515–542, 2011.
- [22] K. Bouncken.R and Roig-Tierno.N, "Knowledge and innovation-based business models for future growth: digitalized business models and portfolio considerations," *Review of Managerial Science*, vol. 15, 2021.
- [23] X. He and H. Bakht, "An analysis of administrative management, financial and security barriers in e-commerce adoption in small to medium size enterprises (SME's) in the United Kingdom," *International Journal of Computing and Digital Systems*, vol. 7, p. 337–346, 2018.
- [24] P. Levy.M and W. L., "Strategic Intent and E-Business in SMEs: Enablers and Inhibitors," *Information Resources Management Journal*, vol. 18, pp. 1–20, 2005.



- [25] N. M.Igbaria and A.Cavaye, "Analysis of Information Technology Success in Small Firms in New Zealand," *International Journal of Information Management*, vol. 18, p. 103–119, 1998.
- [26] J. B. Quinn and K., "Innovation Explosion Intellect and Software to Revolutionize Growth Strategies," *Journal of Product Innovation Management*, vol. 17, p. 95–96, 1997.
- [27] R. Sanchez Badini and R.Kozak, "Critical success factors for small and medium forest enterprises," *Forest Policy and Economics*, vol. 94, p. 35–45, 2018.
- [28] G. Contreras and K. Siu, "Computer Programming for All: A Case-Study in Product Design Education," *Social and Behavioral Sciences*, vol. 182, p. 388–394, 2015.
- [29] W. W.Li and J.Yin, "Digital Entrepreneurship Ecosystem as a New Form of Organizing The Case of Zhongguancun," *Frontiers of Business Research in China*, vol. 11, p. 1–21, 2017.
- [30] M. Aljawder, "Impact of Manager's Role and Information and Communication Technologies on the Construction Projects," *International Journal of Computing and Digital Systems*, vol. 9, 2020. [Online]. Available: <http://dx.doi.org/10.12785/ijcds/090304>
- [31] F.Sussan and Z.Acs, "The digital entrepreneurial ecosystem," *Small Business Economics*, vol. 49, p. 55–73, 2017.
- [32] T. M.Bronfenbrenner and C.Lee, "A Study in Redistribution and Consumption," *The Review of Economics and Statistics*, pp. 149–159, 1955.
- [33] G. Albaum, "The Likert scale revisited," *Market Research Society Journal*, vol. 39, pp. 1–21, 1997.
- [34] I. H. Hwang, "The usability of item-total correlation as the index of item discrimination," *Korean Journal of Medical Education*, vol. 12, pp. 45–51, 2000.
- [35] J. M. Cortina, "What Is Coefficient Alpha An Examination of Theory and Applications," *Journal of Applied Psychology*, vol. 78, 1993.
- [36] M.Jørgensen and J.Jensen, "Collective tourism social entrepreneurship A means for community mobilization and social transformation," *Annals of Tourism Research*, vol. 88, p. 103171, 2021. [Online]. Available: <https://doi.org/10.1016/j.annals.2021.103171>
- [37] D. R.Harel and D.Kaufmann, "The relationship between innovation promotion processes and small business success the role of managers' dominance," *Review of Managerial Science*, vol. 88, pp. 1–24, 2020. [Online]. Available: <https://doi.org/10.1007/s11846-020-00409-w>
- [38] M.Marvel and G.Lumpkin, "Technology entrepreneurs' human capital and its effects on innovation radicalness," *Entrepreneurship: Theory and Practice*, vol. 31, p. 807–828, 2007.
- [39] S.Divisekera and V.Nguyen, "Determinants of innovation in tourism evidence from australia," *Tourism Management*, vol. 67, pp. 157–167, 2018. [Online]. Available: <https://doi.org/10.1016/j.tourman.2018.01.010>
- [40] W. J. Baumol, "Education for innovation Entrepreneurial breakthroughs versus corporate incremental improvements," *Innovation policy and the economy*, vol. 5, pp. 33–56, 2004.
- [41] R. A. Baron and J. Tang, "The role of entrepreneurs in firm-level innovation Joint effects of positive affect creativity and environmental dynamism," *Journal of Business Venturing*, vol. 26, p. 49–60, 2011.
- [42] B. A.Strobl, K.Matzler and V.Veider, "Individual innovation behavior and firm-level exploration and exploitation how family firms make the most of their managers," *Review of Managerial Science*, vol. 14, p. 809–844, 2020.
- [43] D.-S. F.Hernández-Perlines, M.Ibarra Cisneros and H.Mogorrón-Guerrero, "Innovativeness as a determinant of entrepreneurial orientation analysis of the hotel sector," *Economic Research-Ekonomska Istrazivanja*, vol. 33, p. 2305–2321, 2020.
- [44] R. R.Bouncken, M.Ratzmann and S.Kraus, "Coworking spaces empowerment for entrepreneurship and innovation in the digital and sharing economy," *Journal of Business Research*, vol. 114, p. 102–110., 2020.
- [45] E. M. Jernsand, "Student living labs as innovation arenas for sustainable tourism," *Tourism Recreation Research*, vol. 44, p. 337–347, 2019. [Online]. Available: <https://doi.org/10.1080/02508281.2019.1613299>
- [46] G. K.Dube and D.Chikodzi, "Climate change-induced droughts and tourism Impacts and responses of western cape province South Africa," *Journal of Outdoor Recreation and Tourism*, vol. 44, p. 100319, 2020. [Online]. Available: <https://doi.org/10.1016/j.jort.2020.100319>
- [47] C. Alm and E.Jönsson, "Innovation Culture in Five Dimensions-Identifying Cultural Success Factors and Barriers for Innovation," *Master's thesis Master of Science*, p. 101, 2014.
- [48] D.Miao and H.Chen, "Dynamic risks hierarchical management and control technology of coal chemical enterprises," *Journal of Loss Prevention in the Process Industries*, vol. 71, p. 104466, 2021. [Online]. Available: <https://doi.org/10.1016/j.jlp.2021.104466>
- [49] M. Bommer and D. S. Jalajas, "Innovation sources of large and small technology-based firms," *IEEE Transactions on Engineering Management*, vol. 51, p. 13–18, 2004.
- [50] M. S.Saeed, N.Jhanjhi and M.Humayun, "Analysis of software development methodologies," *International Journal of Computing and Digital Systems*, vol. 8, p. 445–460, 2019.
- [51] M.Verreynne and A.Williams, "Innovation Diversity and Uncertainty in Small and Medium Sized Tourism Firms," *Tourism Management*, vol. 72, p. 257–269, 2019.
- [52] T. T.Clohessy and L.Cloud, "The Impact of Cloud-Based Digital Transformation on IT Service Providers: Evidence from Focus Groups," *International Journal of Cloud Applications and Computing (IJCAC)*, vol. 7, p. 1–19, 2017.
- [53] Hrustek and Furjan, "Influence of Digital Transformation Drivers on Business Model Creation," *Ieee*, vol. 7, p. 1304–1308, 2019. [Online]. Available: <https://ieeexplore.ieee.org/abstract/document/8756666/>





**Chadarat Khwunnak** Chadarat Khwunnak is a doctoral student in department of Maharakham Business School, Maharakham University, Thailand.



**Peerawat Chailom** Peerawat Chailom is a doctor in the department of Maharakham Business School, Maharakham University, Thailand.