

THE ROLE OF ORGANIZATIONAL INNOVATION CAPABILITY IN THE RELATIONSHIP BETWEEN DISRUPTIVE INNOVATION AND ORGANIZATIONAL PERFORMANCE OF THAI LISTED FIRMS

Sumittra Jirawuttinunt¹, Achariya Issarapaiboon^{2, *}, Chureeporn Mueangjum³,
and Veeraya Pataraarechachai⁴

Abstract

This research aims to examine the mediating effect of organizational innovation capability on the relationship between disruptive innovation and organizational performance. Data collection was implemented through a mail survey method via questionnaires completed by the executive managers of Thai-listed firms. Of the returned and completed surveys, 148 questionnaires were deemed usable. Statistical analysis was performed by means of structural equation modelling, to test the hypothesized relationships. Results indicated that organizational innovation capability plays a vital role through its mediating effect on the relationship between disruptive innovation (technological disruption and market disruption) and organizational performance. The findings contribute insights for current and large firms regarding the influence of disruptive innovation, indicating that this ensures enhanced organizational performance via organizational innovation capability. More importantly, the study also increases the knowledge of disruptive innovation, informing predictions and assisting decision-makers involved in generating firms' competitive advantages.

Keywords: Disruptive Innovation, Technology Disruption, Market Disruption, Organizational Innovative Capability, Organizational Performance

1. INTRODUCTION

Due to the competitive nature of the global business environment, innovation has become a critical success factor in economic development. The development of digital technology has changed consumer lifestyles and plays an important role in enhancing well-being in human lives (Oppong et al., 2020). During the COVID-19 pandemic, many businesses automatically accepted innovations in new capabilities that could be strategically deployed in businesses making the business stronger than before and able to respond to the unprecedented situations experienced by consumers (Alsamhi et al., 2022). Moreover, the COVID-19

¹ Asst. Prof. Dr. Sumittra Jirawuttinunt is currently working as a lecturer in Department of Management, Mahasarakham Business School, Mahasarakham University, Thailand. She obtained a Ph.D. in Management Science from Mahasarakham University, Thailand. Email: sumittra.j@acc.msu.ac.th

^{2,*} Asst. Prof. Dr. Achariya Issarapaiboon (Corresponding Author) is currently working as a lecturer in Department of Management, Mahasarakham Business School, Mahasarakham University, Thailand. She obtained a Ph.D. in Management Science from Mahasarakham University, Thailand. Email: achariya.i@acc.msu.ac.th

³ Dr. Chureeporn Mueangjum is currently working as a lecturer in Accounting Department, Faculty of Management Science, Phranakhon Si Ayutthaya Rajabat University. She obtained a Ph.D. in Accountancy from Dhurakij Pundit University, Thailand. Email: aotony1999@gmail.com.

⁴ Asst. Prof. Dr. Veeraya Pataraarechachai is currently working as a lecturer in Willpower Institute Thailand, Mahasarakham Province, Thailand. She obtained a Ph.D. in Management Science from Mahasarakham University, Thailand. Email: Veeraya.P@acc.msu.ac.th

pandemic brought major changes in people's everyday lives, leading to the widespread adoption of digital technologies (Srisathan & Naruetharadho, 2022). It can be argued that firms try to create innovative performance to match changes in disruptive technology and markets, allowing the business to continue in a shifting world. Accordingly, it can be seen that innovative disruption is an important effect which has come about via practical choices for dealing with environmental dynamism.

Under the Thailand industrial development strategy 4.0 from 2017 to 2036, the Thailand 4.0 strategy promotes the route of moving Thailand's economy toward a high-revenue nation by upgrading its industrial economy into an innovation-driven economy. The national strategy of Thailand 4.0 highlights the creation of innovative products, encouraging technology, and inspiring creativity and innovation (Wongwuttiwat & Lawanna, 2018). After experiencing COVID-19, firms have increasingly realized that disruptive technology enhances superior performance and stimulates long term growth (Jing & Jantan, 2022). Terry (2020) argues that disruptive innovation is not always the most advanced technology but can also refer to new combinations of existing technologies and reasonable responses that are productive, such as novelty automation, smart technology, innovative business models and new organizational products. This study has been conducted to fill a research gap by finding answers to the research question of how disruptive innovation affects organizational performance in the Thai context. There is little research in the Thai context clarifying the mechanisms and reasons why disruptive innovation can reach superior outcomes in large firms such as companies listed on the stock exchange. Furthermore, only a few studies have examined the impact of mediating variables such as organizational innovation capability in the effect of disruptive innovation on organizational performance. Accordingly, this research aims to examine the impact of disruptive innovation, including technological disruption and market disruption, on organizational performance. In addition, this research also studies the mediator of organizational innovation capability on the relationship between disruptive innovation (technological and market disruption) and organizational performance. The key research question is how disruptive innovations in technology and the market are positively correlated with organizational performance. It has been estimated that the growth of disruptive innovation in large firms is the main implication of robust difficulty changes, know-how modifications, and technology-enabled products, which strongly influence the achievement of better performance. Furthermore, the procedure of the government strategy model places emphasis on supporting the Thailand 4.0 approach. This is why the stock exchange companies of Thailand frequently promote disruptive technology and market disruption to meet their tasks, particularly in the dynamic environment. Consequently, this research places emphasis on the stock exchange companies in Thailand as a target population. The outcomes of this research can create valuable practices and knowledge for those companies registered in the Stock Exchange of Thailand (SET), making suggestions for this business sector regarding innovation achievement. This research guides the decision to implement disruptive innovation as a strategic focus. In addition, the study will enhance the literature, making available understanding of how disruptive innovation can promote organizational performance.

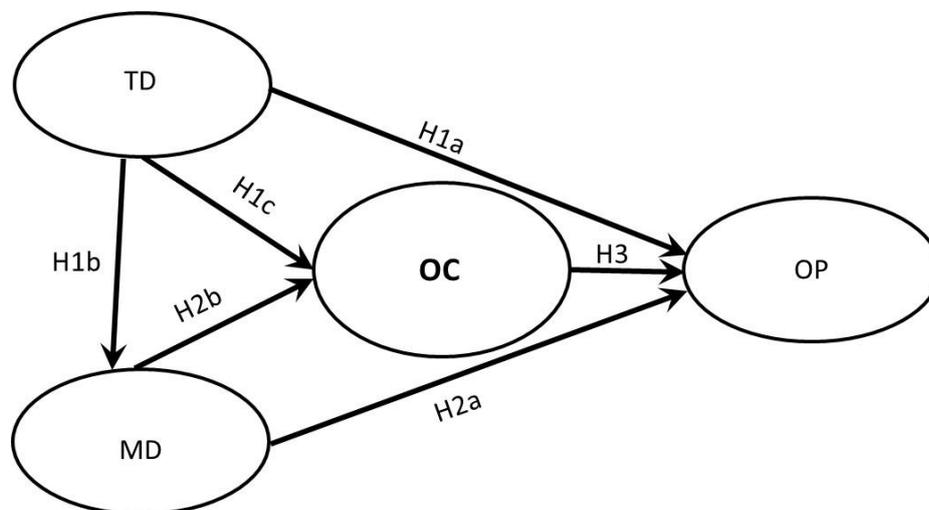
2. LITERATURE REVIEW

Many researchers have presented the relevant definitions and dimensions from various perspectives. For this research, disruptive innovation is characterized as the particular procedures or activities of a business, comprising goods, materials, services, systems or techniques, that are able to succeed contemporary merchandise, generate a modernized and trendy market, or convert or generate new management models, by developing technology for uncertain changes, to achieve competitive benefits in dynamic surroundings. Bower and

Christensen (1995) described the dimensions of disruptive innovation including low-end operators with lower-cost goods or commercial models and the innovation section by creating improved products for new markets. In the same vein, Govindarajan and Kopalle (2006), identified two aspects of disruptive innovation which stand out: technological features and marketplace dynamics. Similarly, Thomond and Lettice (2002) split the concept into three dimensions: (a) radical practicality, (b) discontinuous technical standards, and (c) the innovation's possessions. Additionally, the research of Si and Chen. (2020) explained disruptive innovation as low-end innovations and new market innovations. Within the domain of innovation disruption, the study of Jing and Jantan (2022) presented two forms: product and disruptive innovation modes. In the situation of Thailand, this research emphasizes two aspects, namely: 1) technological disruption and 2) market disruption.

According to disruptive innovation theory, the innovation of a new market creates an innovative set of developed factors which generate (a) new needs, new chances and new trials, and (b) low-end novelties that bring new technologies with features at a minor cost. Bower and Christensen (1995) described that disruptive innovation is able to respond to the needs and expectations of buyers through new attributes such as a lower-price, greater portability, or being quicker, smaller, or having greater simplicity. In addition, Christensen et al. (2018) suggested that disruptive innovation is the precise procedure and capabilities that change current trades, generate new buyers, or advance the business platform through technological disruption with unpredictable changes to reach better competition in a dynamic environment, finally achieving superior performance. This research applies disruptive innovation theory to explain the dimensions of disruptive innovation which consist of technological disruption and market disruption, to implement a strategic focus through organizational innovation capability and organizational performance. In addition, the rapidly changing and strong competition, which generates a turbulent, uncertain and highly complex environment, focus the importance of the role of the dynamic capability concept in managing organizational strategy. This research proposes a situational change by way of dynamic capability theory, matching disruptive innovation, which influences the opportunities from external environments and the flexibility to respond in changing market environments, consequently making a contribution in the rapidly changing technological landscape and market by creating organizational innovation capabilities such as technological goods, new services, or business modes, to reach the demands of lower-end or new clients, and changing enterprises to a new venture. Thus, disruptive innovation can bring customer benefits, such as convenience, openness, user-friendliness, or suitability for new consumers (Anthony et al., 2008). Likewise, Lin et al., (2015) summarized that technological disruption influences the creation of new markets and increases new opportunities for income in line with its novelties. Many studies have stated that disruptive innovation with new efficiencies can create new demands for a new market, generating a competitive advantage over competitors, and enhancing firm performance (Nakata et al., 2006; Palmié et al., 2020). Concerning increased competition, many firms have developed new business platforms and upgraded their market setting through new technologies which create greater organizational performance. From a dynamic capability perspective, effective firms have found that technological and market innovation are able to generate organizational innovative capabilities, leading to the achievement of enhanced firm performance (Owuor, 2018). In addition, Koay and Muthuveloo (2021) concluded that disruptive innovation and organizational capabilities positively affect organizational outcomes. Additionally, Wang et al., (2023) confirmed that disruptive innovation is positively correlated with firm performance. With a complete consideration of the relationships, this research proposes the theoretical linkages shown in Figure 1.

Figure 1 Conceptual Framework of Disruptive Innovation (TD = Technological Disruption, MD = Market Disruption, OC = Organizational Innovation Capability, OP = Organizational Performance)



2.1 Hypothesis Development

With the study of disruptive innovation in the Thai context, this research emphasizes two aspects: 1) technological disruption and 2) market disruption. This research considers that disruptive innovation which includes technological disruption and market disruption, can enhance organizational innovation capability and organizational performance. An additional complete argument of these dimensions is described below.

2.1.1 Technological Disruption (TD) refers to the capacity to adopt and utilize advanced or up-to-date technologies to create new products and services for a new competitive advantage (Singh & Hanafi, 2019). Furthermore, disruptive technology generates new chances and brings lower costs to the consumer (Yang et al., 2022). Likewise, Khin and Ho (2020) explained that the potential of advanced technology brings business growth by using a new business platform, new products and services that are simple, reasonable, and crucial for adoption and success in consumer needs and expectations. For instance, firms are focused using new social media such as Twitter, Facebook, and other social network applications, to make more available contact to goods and customer services, also using big data to organize the corporation to be swifter, more appropriate, and more effective (Kraus et al., 2021). The study by Wicaksono et al. (2020) indicated that technological capability has a positive effect on digital disruption and firm performance. Furthermore, Chepkemboi and Paul (2019) stated that technological innovation appears to create a long-run competitive advantage for firm performance. The study by Singh and Hanafi (2019) shows that disruptive technology positively influences firm performance. Likewise, Khraim (2022) confirmed that technological innovation capability has a significant positive influence on firm performance. Thus, the following hypotheses are proposed:

H1a: Technological disruption is positively related to organizational performance.

H1b: Technological disruption is positively related to market disruption.

H1c: Technological disruption is positively related to organizational innovation capability.

2.1.2 Market Disruption (MD) refers to the activities of a firm in changing current goods or services with a new technology or inventing goods, process or services that have never been known or used before by practicing know-how or novelty and qualifying it to respond to the needs of existing or new consumers. Guo et al. (2019) suggested that a low-end-market novelty cuts the rate of business processes, yielding lower prices and producing innovative services that respond to a new market for a new business platform, ultimately generating greater outcomes. Moreover, Wang et al., (2022) found that disruption of the low-end marketplace decreased the cost of new functions of products and services and reached the expectations of customers. Similarly, the previous study of Thakur et al., (2012) revealed that innovations in the healthcare industry increase service value, reduce prices, and respond to new consumers. Likewise, the success of Tesla in the automotive industry has indicated that high-priced electric vehicles are satisfactory for customer acceptance and effective firm performance (Shao et al., 2021). Additionally, some research confirms that innovation capability mediates the relationship between marketing innovation and business performance (Huhtala et al., 2014). The results of this research could lead to management of innovation capabilities, helping to deliver more effective innovation outcomes and generate better performance. In addition, the findings of Akpan et al., (2022) confirmed that disruptive innovation enhances the competitive advantage and achievement of the online market and business performance. Thus, the following hypotheses are proposed accordingly:

H2a: Market disruption is positively associated with organizational performance.

H2b: Market disruption is positively associated with organizational innovation capability.

2.1.3 Organizational Innovation Capability and Organizational Performance

Organizational Innovation Capability (OC) refers to a firm's ability to create and explore innovative organizational resources significant in leveraging business procedures for achieving superior performance (Santosa et al., 2020; Assink, 2006). According to Sulistyo and Ayuni (2020), organizational innovation capability is related to resources and the capability of firms, advancing beneficial growth, achieving customer acceptance, and bringing greater income. The studies of Chi (2021) and Thongyai and Potipiroon (2022) concluded that innovation capability refers to success in implementing new venture processes, improving service superiority, or upgrading marketing systems. Moreover, some research has shown that corporate innovation capability is a significant source of competitive advantages for producing new consumer demands, new business chances and greater revenue (Tian et al., 2019). Prior study has also found that technological and market innovations are able to generate organizational innovative capability, which leads to greater firm performance (Owuor, 2018). In addition, the study by Huhtala et al., (2014) revealed that innovation capability plays a critical role in mediating between market orientation and business performance.

Organizational Performance (OP) is defined as the outcome of a firm regarding its financial and non-financial achievements (Koay and Muthuveloo, 2021). Tajpour et al., (2020) considered organizational performance to also include innovation performance, product excellence, and the quality of human capital, also noting that it is related to effective organizational administration. In the same line, Akram et al., (2018) described the focus of organizational performance as the achievement of long-term growth and ways to increase productive output, decrease costs, develop creative proficiency, and maintain adaptability to a changing environment. Kamenjarska et al., (2022) argued that innovation capabilities had significant impacts on business performance. Similarly, the empirical research confirmed a significant and strong relationship between innovation capabilities and organizational performance (Rajapathirana & Hui, 2018; Latifi & Bouwman, 2018). Hence, the following hypotheses are proposed:

H3: Organizational innovation capability is positively associated with organizational performance.

H4a: Organizational innovation capability mediates the relationship between technological disruption and organizational performance.

H4b: Organizational innovation capability mediates the relationship between market disruption and organizational performance.

3. RESEARCH METHODOLOGY

3.1 Population and Sample

In this research, both the population and sample consisted of Thai-listed companies. Stock market companies are appropriate for hypothesis testing as the survey of Thailand's digital transformation shows that 54 percent are large-sized companies (Deloitte, 2022). Thai-listed companies are large firms with a high potential to employ disruptive innovation as a strategic asset to yield business success under the challenges of global trade activities, allowing the business to move forwards with a competitive advantage and growth in the capital market. Today, disruptive innovation is considered an important competitiveness tool for firm success in the digital disruption era. The database used in this research was gathered from Thai-listed companies on the SET website: <http://www.set.or.th>. Based on the SET database, there are 732 Thai listed firms as of April 22, 2021, which are still active. The executive directors and managers of each firm made up the key population for selection of the sample used in this research.

3.2 Data Collection Procedure

Data collection for this research was organized by sending questionnaires by post. This was an appropriate survey method as mailing questionnaires is effective for large-scale data collection in different geographical areas (Dillman et al., 2014). All 732 questionnaires were sent to the target population, which included the chief executive officers (CEO) and general managers (GM) of the SET companies. Data collection with follow up took about eight weeks, after which 157 questionnaires were returned, while 9 were deemed to be incomplete and unusable. From the completed survey, a total of 148 surveys were available for data analysis. This indicates a response rate of 23.55 percent. According to Malhotra and Grover (1998), a minimum of 20 percent response rate for a mail survey is considered acceptable for assessment. In addition, Kline (2005) suggested that a sample of 100 to 200 is appropriate for analyzing structural equation models.

A non-response test was conducted for two independent samples. Boek (1990) suggests comparing early response and late response data. A t-test comparing the firm characteristics revealed no significant differences between the two groups. Thus, non-response bias was deemed not to be a major problem for this research (Lewis et al., 2013).

3.3 Measurement

The study was organized to measure all the variables using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). All variables were adapted from previous research. The questionnaire was separated into four sections. First, *organizational performance* was split into a four-item scale adapted from Chepkemboi and Paul (2019) by using financial performance, the success of internal procedures, excellent service over rivals, and purchaser satisfaction. Second, *technological disruption* was divided into five items,

further developed from Singh and Hanafi, (2019) and Wicaksono et al., (2020) such as technological sensing, technological process, technological investment, digital-based businesses and digital innovations. Third, *market disruption* was broken down into four items adapted from Lin et al., (2015) and Latifi and Bouwman (2018) such as potential target customers, proactive prediction of future market demands, brand-new markets, and introduction to an over serviced market. Finally, *organizational innovation capability* was divided into four items and was adapted from Chi (2021) including process innovations, marketing innovations, superior service innovations and administrative innovations.

4. RESULTS AND DISCUSSION

4.1 Results of the Descriptive Statistics

Regarding the demographic characteristics survey of the collected sample, the majority of respondents were male (64.10 percent). The greatest proportion by age was 41-50 years (37.84 percent) with most respondents being married (52.02 percent). The most common education level was bachelor's degree or higher (74.32 percent). Regarding work experience, 39.90 percent had been working with their respective firms for 10-15 years. Moreover, the greatest proportion of respondents received a revenue of 50,000-100,000 Baht per month (40.24 percent), followed by 31.20 percent in the 100,001-150,000 Baht per month range. In terms of current position, 46.60 percent were general managers, while 30.05 percent were executive managers. The most common business type was property & construction (28.24 percent), followed by service industry (25.45 percent). The greatest number of firms had registered capital of 300 million to 600 million Baht (37.25 percent). Regarding the number of employees, most companies comprised 1,001-1,500 employees (37.45 percent), while 23.60 percent had 500-1,000 employees. The highest proportion of firms had been in operation for 16-20 years (40.56 percent). In terms of time registered on the stock market, the greatest proportion had been registered 11-15 years (31.44 percent).

Table 1 Variables and Measurement Items

Variables	Items	Factor loading	CR	Cronbach's Alpha	AVE
Technological Disruption (TD)	TD1	0.64	0.848	0.821	0.528
	TD 2	0.76			
	TD 3	0.77			
	TD 4	0.76			
	TD 5	0.69			
Market Disruption (MD)	MD1	0.74	0.820	0.843	0.534
	MD2	0.75			
	MD3	0.79			
	MD4	0.63			
Organizational Innovation Capability (OC)	OC1	0.51	0.857	0.811	0.610
	OC2	0.80			
	OC3	0.91			
	OC4	0.84			
Organizational Performance (OP)	PER1	0.80	0.860	0.831	0.607
	PER2	0.85			
	PER3	0.76			
	PER4	0.70			

Note. AVE = Average Variance Extraction) CR= Composite Reliability. All factor loadings, AVE, and CR values were significant at $p < 0.01$

4.2 Evaluation of the Measurement Model

Regarding the model's demonstration of reliability and construct validity, as displayed in Table 1, firstly, it can be seen that the factor loadings of the latent variables were between 0.64 and 0.91, and were therefore greater than the recommended 0.40 cut-off value, indicating a statistically significant acceptability as recommended by Stevens (1992). Secondly, the calculated Cronbach's alpha (CA) and composite reliability (CR) measures were found to be greater than 0.70, as recommended by Hair et al., (2019), indicating a good level of reliability. Thirdly, convergent validity as measured using the average variance extracted (AVE), according to Fornell and Larcker (1981), whereby each criterion should yield a value of AVE of 0.5, all AVE measurements fell in the range 0.534-0.610, and thus exceeded the threshold of 0.5, indicating that the model had adequate levels of convergent validity. The AVE values were deemed to exhibit acceptable validity.

Lastly, for discriminant validity, under the Fornell–Larcker criterion, the square root of the AVE of a latent variable must have a higher value than all correlations with other latent variables (Fornell & Larcker, 1981). Table 2 validates that discriminant validity is acceptable as the values of the square root of AVE shown by the bold diagonal values (0.731, 0.725, 0.782, and 0.779, respectively) were higher than the correlations between each construct and the other constructs. Thus, discriminant validity was accepted.

Table 2 The Correlations Between Constructs

	TD	MD	OC	OP
TD	0.731			
MD	0.432*	0.725		
OC	0.412*	0.410*	0.782	
OP	0.367*	0.353*	0.422*	0.779

Note. 1. *p < 0.05

2. The values in the diagonal (i.e., 0.731, 0.725, 0.782, and 0.779) are the square roots of each AVE value.

4.3 Assessment of the Hypothesized Testing

4.3.1 The Structural Model Fit of the Conceptual Model

Table 3 presents a summary of the structural model fit. The structural model validation was evaluated by the criteria of the main fit indices. The value of CMIN/DF equaled 1.876 which is lower than 2.00 (Diamantopoulos & Siguaaw, 2000). Moreover, the values of the other goodness of fit indexes were higher than .90 (i.e., CFI = 0.919, TLI = 0.900). In addition, the RMSEA value equals .051 which is lower than .08 (Schumacker and Lomax, 2010), while the SRMR value was .055, less than .080 (Diamantopoulos & Siguaaw, 2000). The outcomes of the AMOS output confirm that the model has a comparatively good goodness of fit. At this point the hypothesized model was assessed to verify the structural relationships. The t-value for the .05 significance level was used for analyzing and testing all hypotheses.

Table 3 The Results of the Structural Model Fit Analyses

Goodness of Fit	Recommended Values	Structural Model (result)
CMIN/DF	1.0 - 3.0 (Diamantopoulos and Siguaaw, 2000)	1.876
CFI	≥0.900 (Kelloway, 2015)	0.919
RMSEA	≤0.080 (Schumacker and Lomax, 2010)	0.051
TLI	≥0.900 (Schumacker and Lomax, 2010)	0.900
SRMR	≤ 0.080 (Diamantopoulos and Siguaaw, 2000)	0.055

4.3.2 The Results of the Hypothesis Testing

Table 4 presents a summary of the hypothesis testing of the relationships among technological disruption, market disruption, organizational innovation capabilities, and organizational performance. First, the technological disruption construct was found to have a significant relationship with organizational performance (H1a: $\beta = 0.228$, $p < 0.05$). Meanwhile, the link between technological disruption and market disruption was also shown to be significant (H1b: $\beta = 0.841$, $p < 0.05$). Likewise, the findings regarding the relationship between technological disruption and organizational innovation capabilities was found to be significant with a direct effect (H1c: $\beta = 0.418$, $p < 0.05$). Hence, hypotheses H1a, H1b and H1c were found to be in support of prior literature. The relationship between technological disruption and organizational performance was found to be significant with direct effect. Second, market disruption was found to be positively and directly related to both organizational innovation capabilities and organizational performance (H2a: $\beta = 0.104$, $p < 0.05$, H2b: $\beta = 0.306$, $p < 0.05$). Thus, H2a and H2b were supported, consistent with prior literature. Finally, organizational innovation capabilities were shown to have a positive influence on organizational performance (H3: $\beta = 0.402$, $p < 0.05$), in line with the reviewed literature. Thus, H3 was also supported. All these points indicate that the influence of technological disruption and market disruption on organizational performance may be mediated by organizational innovation capabilities. Regarding the examination of market disruption, results indicated significant relationships with both organizational innovation and organizational performance, consistent with Kiraka et al., (2013). However, it seems that technological disruption and market disruption may not consistently enhance firm performance. This is because effective innovation capability is required to achieve a competitive advantage, which in turn leads to greater firm performance.

Table 4. Path Coefficient and Hypothesis Testing

Hypotheses	Hypothesis Test	Beta	T-values	P-values	Results
H1a	TD ----> OP	0.228	2.078*	0.041	S
H1b	TD ----> MD	0.841	2.341*	0.023	S
H1c	TD ----> OC	0.418	4.267*	0.000	S
H2a	MD ----> OP	0.104	3.471*	0.011	S
H2b	MD ----> OC	0.306	2.384*	0.035	S
H3	OC ----> OP	0.402	4.283*	0.004	S

Notes. * = $p < 0.05$; S : supported, NS : not supported

4.3.3 The Mediating Effect of Organizational Innovation Capability on the Links Between Technological Disruption, Market Disruption, and Organizational Performance

Under examination of the mediating effect of organizational innovation capability, the findings showed that both the technological disruption and market disruption constructs had a significant direct and indirect effect on organizational performance, with the indirect effect shown through organizational innovation capability. The direct and indirect effects of each linkage were determined as shown in the summarization (Table 5) below. There are two types of mediation, namely full mediation and partial mediation (Baron & Kenny, 1986). Following the Baron and Kenny criteria, the results showed that the relationship between technological disruption and organizational performance was significant regarding both the direct and indirect relationships. First, technological disruption was shown to have a significant direct effect on organizational performance (t-value = 2.078, p-value = 0.041). Second, organizational innovation capability was shown to have a direct significant effect on organizational performance (t-value = 4.283, p-value = 0.004). Third, technological disruption was shown to have a significant indirect effect on organizational performance through

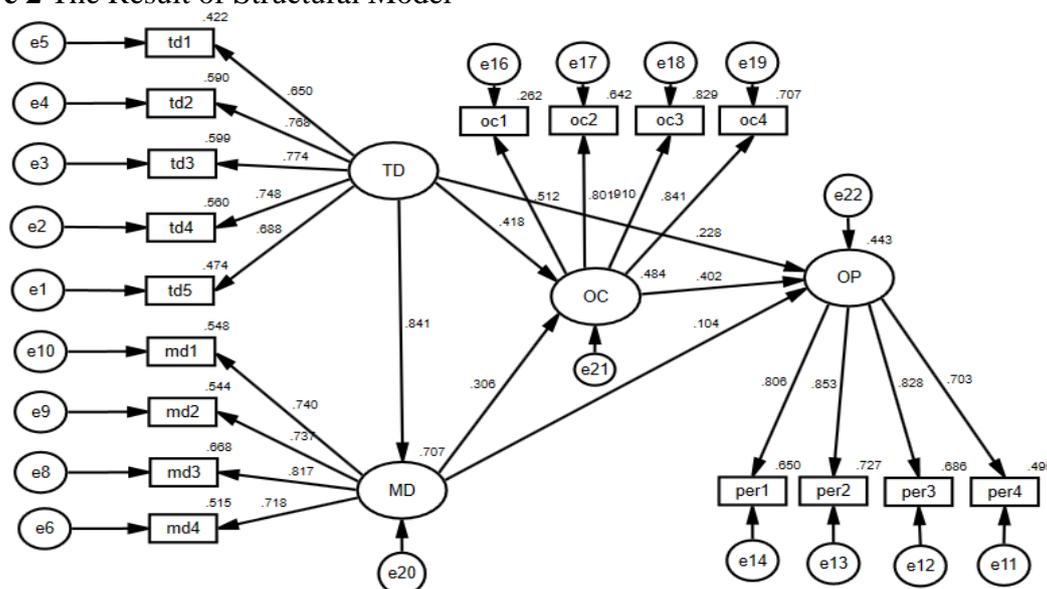
organizational innovation capability (t-value = 3.815 , p-value = 0.013). Thus, it was confirmed that organizational innovation capability has a partial mediation effect on the relationship between technological disruption and organizational performance, meeting the criteria of Baron and Kenny (1986). Hence, Hypothesis 4a was supported. Similarly, the link between market disruption and organizational performance was shown to be direct and significant (t-value = 3.471, p-value = 0.011). Likewise, market disruption was shown to have a significant effect on organizational performance through organizational innovation capability (t-value = 4.145, p-value = 0.001). Hence, Hypothesis 4b was also supported. The results shown in Table 5 indicate a significant partial mediation influence of organizational innovation capability on the link between both technological disruption and market disruption on organizational performance. Regarding examination of the magnitude of the indirect effect according to the variance accounted for (VAF) values, Hair et al. (2014) proposed that a condition in which the VAF is larger than 20 percent and less than 80 percent can be concluded as partial mediation. Based on this assumption, the VAF results of 62.00 percent and 79.80 percent, verify that the impacts of technological disruption and market disruption on organizational performance are partially mediated through organizational innovation capability. In addition, Figure 2 presents the structural model of all construct results.

Table 5 The Result of Direct and Indirect Effects

Hypotheses	DE	t-values	P-values	IDE	t-values	P-values	VAF
H1a: TD --> OP	0.228	2.078*	0.041	-	-	-	-
H1b: TD --> MD	0.841	2.341*	0.023	-	-	-	-
H1c: TD --> OC	0.418	4.267*	0.025	-	-	-	-
H2a: MD --> OP	0.104	3.471*	0.011	-	-	-	-
H2b: MD --> OC	0.306	2.384*	0.035	-	-	-	-
H3: OC --> OP	0.402	4.283*	0.004	-	-	-	-
H4a: TD --> OC--> OP				0.389	3.815*	0.013	0.620
H4b: MD--> OC--> OP				0.410	4.145*	0.001	0.798

Note. * = p < 0.05; DE = Direct Effect, IDE = Indirect Effect, VAF = Variance Accounted For = IDE/IDE+DE

Figure 2 The Result of Structural Model



Note. —————> The correlation was statistically significant.

4.4 Discussion

The study outcomes mostly suggest that disruptive innovation, including technological disruption and market disruption, has an influence on corporate performance indirectly via organizational innovation capability. Specifically, disruptive innovation appears to reinforce and improve the growth of organizational innovation capability, leading to greater performance in the matter of sales growth, productivity, and profitability. These findings are discussed as follows.

First, the results show a significant and direct effect between technological disruption, organizational innovation capability, and organizational performance, consistent with the study of Hao and Yu (2011), which explained that technological capability has a significant and positive influence on innovation success and organizational performance. Similarly, this finding corresponds with the prior research of Wicaksono et al., (2020), stating that digital technological disruption such as digital application, artificial intelligence, analytic data, cloud architecture, and virtual and mobile banking, exhibited a positive and significant influence on banking performance. Likewise, Li (2022) revealed that digital disruption, when integrated into the corporate strategy, leads to superior firm performance and the enterprise' achievement of sustainable development.

Second, the findings show that market disruption is positively and directly related to organizational innovation capability and organizational performance supporting previous research conducted by Christensen, et al., (2018). This article stated that market disruption cases such as an airline business which is faced with a crisis and intense competition has the ability to cause disruption by becoming increasingly adaptive, flexible, and agile, in developing products or services, lowering the cost of flights in the market, providing innovative products to the mass market, and transforming the business into an online business, linking with brokers or travel agents. It can be concluded that market disruption helps organizations to maintain a competitive advantage for the retention of existing customers and the gaining of new customers, by helping them to provide outstanding services and to offer business more efficiently and effectively than competitors (McDonald, et al., 2021).

Third, organizational innovation capability plays an important role as a mediator in the relationship between both technological disruption and market disruption on organizational performance, consistent with Khan et al., (2021), Boateng and Li, (2022) and Alaskar (2023). The positive effect of technological and market disruption makes these constructs essential for integration into a business, to overcome various challenges and ultimately achieve business goals. This research found that innovation disruption enhances firms performance; this not only refers to strategic abilities under normal conditions, but also shows how to reestablish, renew and redesign firm abilities in response to a changing environment, such as increasing capacity through technological advancement, adapting in relation to changes in the use of digital technology, aiming at low-end customers in the market, and providing a low-price attraction of disruptive products to existing market customers.

In summary, the outcomes of this research indicate that firms can upgrade using technological advancements and developing innovative marketing tools to engage existing customers, reach new buyers, and drive digital transformation by creating a special division such as new digital-based business (Fintech), applying warehouse management systems using Internet of Things (IOT), advancing supply chain systems and, ultimately enhancing productivity, market growth and profitability. At this point, organizational innovation capability plays an important role as a mediating variable in the relationship between disruptive innovation (technological and market disruption) and organizational performance. For instance, in the banking sector, technological and market disruption as forms of innovation capability have driven the original market into an innovation landscape through the growth of

technologies such as digital banking and mobile payments, the potential of artificial intelligence and machine learning, and automation through robotic processes, along with the integration of block chain technology and cyber security to serve the needs of customers, enhance customer convenience, and reduce operational costs. Moreover, the findings have indicated that technological and market disruption provide companies with a choice of platforms and instruments for use in involving consumers in innovative ways, such as advanced social media, modern digital marketing, and new business platforms. In addition, this research has presented the power of disruptive innovation on organizational performance via organizational innovation capability which can be relevant to large-sized corporations. This research confirms the practices of large firms that have used disruptive innovation to create new chances to expand their innovation capability and increase their attractiveness by using disruptive technology and disruptive marketing such as digital technology, introducing digitally-based products and services, artificial intelligence, blockchain technology and modern business platforms to support the existing market and move to a new market to meet the needs of innovative consumers, for example, Google's X units, Amazon, Netflix, MedTech, FinTech and cashless society. This can improve customer fulfilment, trustworthiness, and cultivation of firm performance. The present study can be used as a guideline by large firms for support and challenge in embracing innovative disruption. However, this declaration does not mean success in every challenge via the use of innovative disruption. The prominent factors recognized from the base level of businesses such as infrastructure investment, technological opportunism, an organizational culture of change, regulatory and compliance complexity, leadership potential, and talent and creative teamwork, may help to develop better strategies with technological and market disruption. Finally, the findings confirm that technological disruption and market disruption have a positive impact on organizational performance via organizational innovation capability, supporting the objective.

5. CONCLUSION AND RECOMMENDATIONS

This research developed a quantitative model to test the link between innovative disruption, including technological disruption and market disruption, on organizational performance through organizational innovation capability, using 148 stock market companies of Thailand as a sample. The final results confirmed the direct and indirect effect of disruptive innovation and organizational performance relationships via the development of organizational innovation capability. Moreover, the indirect determinant of both technological disruption and market disruption on organizational performance was greater than the direct effect.

The findings of this research have some academic and managerial implications. Firstly, this research makes several contributions to the disruptive innovation literature by aiming to understand and empirically differentiate the dimensions of disruptive innovation. The research attempts to empirically validate the impact of disruptive innovation in two dimensions (technological disruption and market disruption) on performance outcomes. In exploring the direct and indirect links between disruptive innovation and firm performance, it indicates that this possibly will be the basis of a sustainable competitive benefit. Contributing to achieving superior company performance by consolidating and renewing practical capabilities, this, in turn, will result in better performance. Secondly, the findings expand knowledge on the impact of disruptive innovation on organizational performance by using large-sized firms in quantitative research that has not been conducted often. This study's proposed relationship of disruptive innovation → organizational innovation capabilities → organizational performance has not been a major theme in large-scale empirical validation. Thus, this research offers some contribution toward filling this gap. Third, the present study also indicates that disruptive innovation has a positive impact on organizational performance through organizational

innovation capability as there are always chances for accomplishing higher performance. The study also found that market disruption plays a significant role in the successful realization of the relationship between technological disruption and organizational performance. Finally, chief executive managers should emphasize their competitive strategies by developing technological and marketing disruptions which maximize the impacts to business success in a variety of environments. However, there are some limitations. First, the number of responses was small. Therefore, in future research, the sample size should be increased. Second, the unit of analysis for the conducted research consisted of all business types; future research should focus on a specific business type such as the manufacturing sector or service sector, to validate the research findings, as this might provide different results from this research. Finally, the study provided some insights regarding disruptive innovation in terms of technological and marketing disruption, however, longitudinal research is necessary to fully understand conditions in the long run where technological and marketing disruption can be most effective.

Regarding the mediating variable between disruptive innovation and organizational performance, the present research also confirms that disruptive innovation has a positive impact on organizational performance through organizational innovation capability. The study therefore provides insight into the impact of disruptive innovation in terms of technological and market disruption. As the view of disruptive innovation continues to evolve, there is a necessity for research on this topic to support businesses in accessing the competitive market effectively, increasing their target audiences and ultimately achieving greater performance.

ACKNOWLEDGMENT

This research project was financially supported by Mahasarakham University.

REFERENCES

- Akpan, A. O., Mfon, A. A. & Ibok, N. I. (2022). Disruptive innovations and marketing performance of online marketers in Uyo, Akwa Ibom State. *World Journal of Advanced Research and Reviews (WJARR)*, 16(2), 181-192. <https://doi.org/10.30574/wjarr.2022.16.2.1026>
- Akram, S., Goraya, M. A., Malik, A., & Aljarallah, A. M. (2018). Organizational performance and sustainability: exploring the roles of IT capabilities and knowledge management capabilities. *Sustainability*, 10(10), 3816; doi:10.3390/su10103816
- Alaskar, T. H. (2023). Innovation capabilities as a mediator between business analytics and firm performance. *Sustainability*, 15(6), 5522.
- Alsamhi, M. H., Al-Ofairi, F. A., Farhan, N, H. F., Al-ahdal, W. M., & Siddiqui, A. (2022). Impact of Covid-19 on firms performance: empirical evidence from India. *Cogent Business & Management*, 9(1), 2044593.
- Anthony, S. D., Johnson, M. W., Sinfield, J. V., & Altman, E. J. (2008). *The innovator's guide to growth: putting disruptive innovation to work*. Harvard Business Press, Boston.
- Assink, M. (2006). Inhibitors of disruptive innovation capability: A conceptual model. *European Journal of Innovation Management*, 9(2), 215-233.
- Baron, R & Kenny D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51:1173–1182
- Boateng, A. A. & Li, C. (2022). The Mediating effect of innovative capability on the relationship between technology innovation adoption and firm performance in the Ghana's manufacturing industry. *International Journal of Business and Management Invention*, 11(5), 30-53.

- Boek, Walter E. (1990). A comparison of early with late respondents to a mailed questionnaire. *Journal of the Washington Academy of Sciences*, 80(4), 153-160.
- Bower, L. J., & Christensen, M. C. (1995). Disruptive technologies: catching the wave. *Harvard Business Review*, 73(1), 43-53.
- Chepkemboi, E. T., & Paul, D. S. N. (2019). Disruptive innovation strategies and performance of selected airlines in Kenya. *Journal of Business and Strategic Management*, 4(1), 47-68. <https://doi.org/10.47941/jbsm.332>
- Chi, N. T. K. (2021). Innovation capability: The impact of e-CRM and Covid-19 risk perception. *Technology in Society*, 67(1), 101725. <https://www.sciencedirect.com/science/article/pii/S0160791X21002001>
- Christensen, C. M., McDonald, R., Altman, E. J., & Palmer, J. E. (2018). Disruptive innovation: An intellectual history and directions for future research. *Journal of Management Studies*, 55(7), 12349 <https://onlinelibrary.wiley.com/doi/full/10.1111/joms.12349>
- Deloitte Thailand. (2022). *Thailand digital transformation report 2022*. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/th/Documents/technology/th-tech-the-thailand-digital-transformation-report-2022.pdf>
- Diamantopoulos, A., & Siguaw, J. A. (2000). *Introducing LISREL*. Sage Publications, London
- Dillman, A. D., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed mode surveys: The tailored design method* (4th ed.). John Wiley & Sons, New York.
- Fornell, C., Larcker, D. F., (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18(1), 39-50.
- Govindarajan, V., & Kopalle, P. K. (2006). Disruptiveness of Innovations: Measurement and an Assessment of Reliability and Validity. *Strategic Management Journal*, 27(2), 189-199.
- Guo, J., Pan, J., Guo, J., Gu, F., & Kuusisto, J. (2019). Measurement framework for assessing disruptive innovations. *Technological Forecasting and Social Change*, 139, 250-265. <https://www.sciencedirect.com/science/article/pii/S0040162518306656>.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage, Boston.
- Hair, J. F. Jr., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A premier on partial least squares structural equation modeling (PLS-SEM)*. SAGE Publications Ltd, Thousand Oaks CA.
- Hao, S., & Yu, B., (2011). The Impact of technology selection on innovation success and organizational performance. *iBusiness*, 03(04), 366-371. https://www.scirp.org/pdf/IB20110400005_80489624.pdf
- Huhtala, J.-P., Sihvonen, A., Frösén, J., Jaakkola, M., & Tikkanen, H. (2014). Market orientation, innovation capability and business performance: Insights from the global financial crisis. *Baltic Journal of Management*, 9(2), 134-152.
- Jing, W., & Jantan, H. W. (2022). Dynamic capability, disruptive innovation and enterprise performance: Theoretical model. *Journal of International Business and Management*, 5(11), 01-07.
- Kamenjarska, T., Spremić, K. T., & Miloloža, M. I. (2022). The impact of innovative capabilities and innovation types on the financial performances of insurance companies. *International Journal of E-Services and Mobile Applications (IJESMA)*, 14(1), 1-23.
- Kelloway, E. K. (2015). *Using Mplus for structural equation modeling; A researcher's guide* (2nd ed.). Sage Publications, Thousand Oaks CA.
- Khan, F., Jehangir, M., Shah, S.M.A. & Din, A. U. (2021). Impact of market & technology orientation on product innovation performance of Pakistani manufacturing SMEs:

- mediation role of innovation capability. *Indian Journal of Economics and Business*, 20(3), 801-819.
- Khin, S., & Ho, T. C. (2020). Digital technology, digital capability and organizational performance: a mediating role of digital innovation. *International Journal of Innovation Science*, 11(2), 177-195. <https://doi.org/10.1108/IJIS-08-2018-0083>
- Khraim, H. (2022). The influence of technological innovative capabilities on firm performance: moderating effect of strategic agility. *Problems and Perspectives in Management*, 20(2), 459-470. doi:10.21511/ppm. 20(2).2022.38
- Kiraka, R., Kobi, M. & Katwalo, A. (2013). *Micro, small and medium enterprise growth and innovation in Kenya: a case study on the women enterprise fund*. Investment Climate and Business Environment Research Fund ICBE-RF Research Report No. 47/13. Nairobi, Kenya. <https://wef.go.ke/resource/micro-small-and-medium-enterprise-growth-and-innovation-in-kenya-a-case-study-on-the-women-enterprise-fund>
- Kline, R. B. (2005). *Principles and practice of structural equation modelling*. Guilford Press, New York:
- Koay, H. G., & Muthuveloo, R. (2021). The influence of disruptive innovation, organisational capabilities and people on organisational performance among manufacturing based companies in Malaysia. *Journal of Entrepreneurship, Business and Economics*, 9(1), 163 - 201.
- Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital transformation: An overview of the current state of the art of research. *SAGE Open*, 11(3), 1–15. <https://journals.sagepub.com/doi/epub/10.1177/21582440211047576>
- Latifi, M-A., & Bouwman, H. (2018). Business model innovation and firm performance: The role of mediation and moderation factors. *Conference proceedings of the 31st Bled e conference digital transformation: meeting the challenges*. June 17 – 20, 2018, Bled, Slovenia, 67-83. University of Maribor Press.
- Lewis, E. F., Hardy, M., & Snaith, B. (2013). An analysis of survey reporting in the imaging professions: is the issue of non-response bias being adequately addressed?. *Radiography*, 19(3), 240–245.
- Li, L. (2022). Digital transformation and sustainable performance: The moderating role of market turbulence. *Industrial Marketing Management*, 104(12), 28-37. <https://www.sciencedirect.com/science/article/abs/pii/S0019850122000785>
- Lin, C., Zhang, Z., & Yu, C. (2015). Measurement and empirical research on low-end and new market disruptive innovation. *Journal of Interdisciplinary Mathematics*, 18(5), 827–839.
- McDonald, R. E., Masselli, J.J., & Chanda, B. (2021). Nonprofit business model innovation as a response to existential environmental threats: Performing arts in the United States. *Journal of Business Research*, 125(Summer), 750-761.
- Malhotra, M., & Grover V., (1998). An assessment of survey research in POM: from constructs to theory, *Journal of Operations Management*, 16(4), 407-425.
- Nakata, C., Im, S., Park, H., & Ha, Y.W. (2006). Antecedents and consequences of Korean and Japanese new product advantage. *Journal of Business Research*, 59(1), 28-36.
- Oppong, G. Y. S., Singh, S., & Kujur, F. (2020). Potential of digital technologies in academic entrepreneurship – a study. *International Journal of Entrepreneurial Behaviour and Research*, 26(7), 1449-1476.
- Owuor, E. (2018). Impact of disruptive technology on the performance of insurance firms in Kenya. *Journal of Strategic Management*, 3(1), 72-82.
- Palmié, M., Wincent, J., Parida, V., & Caglar, U. (2020). The evolution of the financial technology ecosystem: an introduction and agenda for future research on disruptive

- innovations in ecosystems. *Technological Forecasting and Social Change*, 151(4), 119779.
- Rajapathirana, R. P. & Hui, Y. (2018). Relationship between innovation capability, innovation type, and firm performance. *Journal of Innovation & Knowledge*, 3(1), 44–55.
- Santosa, P. W. (2020). The effect of financial performance and innovation on leverage: Evidence from Indonesian food and beverage sector. *Organizations and Markets in Emerging Economies*, 11(22), 367-388.
- Shao, X., Wang, Q., & Yang, H. (2021). Business analysis and future development of an electric vehicle company - Tesla. *Proceedings of the 2021 International Conference on Public Relations and Social Sciences (ICPRSS 2021)*. 395-402. Atlantis Press. <https://doi.org/10.2991/assehr.k.211020.188>
- Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling* (3rd ed.). Lawrence Erlbaum Associate, Mahwah, NJ.
- Si, S., & Chen, H. (2020). A literature review of disruptive innovation: What it is, how it works and where it goes. *Journal of Engineering and Technology Management*, 56(8), 101568.
- Singh, D. S. M., & Hanafi, N. B. (2019). Disruptive technology and SMEs performance in Malaysia. *International Journal of Academic Research Business and Social Sciences*, 9(12), 136–148.
- Srisathan, W.A & Naruetharadhol, N., (2022). A Covid-19 disruption: The great acceleration of digitally planned and transformed behaviors in Thailand. *Technology in Society*, 68(2), 101912.
- Stevens, J. P. (1992). *Applied multivariate statistics for the social sciences* (2nd ed.). Lawrence Erlbaum Associates Publishers, Mahwah, NJ.
- Sulistyo, H., & Ayuni, S. (2020). Competitive advantages of SMEs: the roles of innovation capability, entrepreneurial orientation, and social capital. *Contaduría Administración*, 65(1), 1-18.
- Tajpour, M., Hosseini, E. & Salamzadeh, A. (2020). The effect of innovation components on organisational performance: case of the governorate of Golestan province. *International Journal of Public Sector Performance Management*, 6(6), 817–830.
- Terry, O. (2020) . Disruption innovation and theory. *Journal of Service Science and Management*, 13(03), 449-458.
- Thakur, R., Hsu, S. H. Y., & Fontenot, G. (2012). Innovation in healthcare: Issues and future trends. *Journal of Business Research*, 65(4), 562-569.
- Thomond, P., & Lettice, F. (2002). Disruptive innovation explored. *9 th IPSE international conference on concurrent engineering: research and application*, Cranfield University. <http://www.insightcentre.com/resources/DIExplored-CEConf2002 final.pdf>.17-28.
- Thongyai K. & Potipiroon W. (2022). How entrepreneurial leadership enhances the financial performance of small and medium enterprises: the importance of intellectual capital and innovation capabilities. *ABAC Journal*, 42(2), 172-194.
- Tian, Q., Zhang, S., Yu, H., & Cao, G. (2019). Exploring the factors influencing business model innovation using grounded theory: the case of a Chinese high-end equipment manufacturer. *Sustainability*, 11(1455), 1-16.
- Wang, Y., Tan, R., & Peng, Q. (2022). A hybrid method for product low-end disruptive innovation. *Frontiers of Mechanical Engineering*, 17(3), 34. <https://journal.hep.com.cn/fcse/EN/article/downloadArticleFile.do?attachType=PDF&id=31668&title=10.1007-s11465-022-0690-6>
- Wang, C., Guo, F., & Zhang, Q. (2023). How does disruptive innovation influence firm performance? A moderated mediation model. *European Journal of Innovation Management*. 26(3), 798-820.

- Wicaksono, A., Gunawan, I. D., & Husin, Z. (2020). Analysis the effect of information technology cabability, business innovation, digital disruption and digital disruption reactions on sustainable banking performance. *American Research Journal of Business and Management*, 6(1), 1-16.
- Wongwuttiwat, J., & Lawanna, A. (2018). The digital Thailand strategy and the ASEAN community. *The Electronic Journal of Information Systems in Developing Countries*, 84(3), 12024. <https://onlinelibrary.wiley.com/doi/epdf/10.1002/isd2.12024>.
- Yang, S., Kim, Y., & Choi, S. (2022.) How to respond to disruptive innovation in online retail platforms. *Journal of Open Innovation Technology, Market and Complexity*, 8(3), 130. <https://doi.org/10.3390/joitmc 8030130>.