

Small Business's Retention during Covid-19 Crisis

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Abstract

This study was aimed at investigating the levels of people-oriented management, technology-oriented management, organizational asset, and firm retention and the structural equation model of the antecedents, i.e. people-oriented management and technology-oriented management, with organizational asset as mediator and firm retention as consequence. It was conducted by interviewing entrepreneurs in the study group to identify key factors affecting their business survival, reviewing the literature to support the creation of research conceptual framework and questions, taking a random sample from small businesses that could maintain their businesses, and using a synthesized questionnaire for quantitative research to examine the causal factors influencing existence of small business entrepreneurs under the COVID-19 pandemic. The population and sample of this study included 115 small businesses selling food and consumer products. According to the results of this study, the mean of people-oriented management and technology-oriented management was 3.72 and 3.71, respectively, while the organizational asset had the highest mean of 3.73 and the firm retention had a low mean of 3.53. From these means, it can be concluded that the business administration during the COVID-19 pandemic must consider technology-oriented management and people-oriented management to strengthen organizational asset and support firm retention and stability.

Keywords

People-Oriented Management (POR), Technology-Oriented Management (TOR), Organizational Asset (OAS), Firm Retention (FIR)

1. Introduction

The COVID-19 pandemic has resulted in the global economic crisis, especially

small businesses in every country that have gone out of business. For example, as many as 400,000 businesses in the U.S. have been lost since the pandemic began until the end of 2020 (Hamilton, 2020). In Thailand, when the COVID-19 crisis hit, the business group that was affected first and most seriously is the tourism business group, because it is a business group that creates a lot of values for the country. It is estimated that in 2019, Thailand had a total tourism revenue of 3.06 trillion baht, with 39.77 million foreign tourists visiting Thailand, a growth of 4%, and generating a revenue of 1.96 trillion baht, a growth of 4%, while the domestic market had a total number of 167 million Thai tourists/times, a growth of 1%, and generating a revenue of 1.10 trillion baht, a growth of 3% (<https://www.prachachat.net/tourism/news-402482>). This situation caused foreign tourists to disappear from the system, and the cessation of economic activities (lockdown) announced in the early stages of the epidemic also affected the decline in the number of Thai tourists.

The result of the disappearance of tourists spread into the chain of tourism businesses, such as hotels, restaurants, and transportation providers. In addition, as our country announced the cessation of economic activities by itself, all business groups were affected, including the loss of jobs for many people. Small businesses in the communities were also affected by the lack of purchasing power of the people in their communities as well as encountered problems of investment capital and marketing ability based on their traditional business models. Moreover, consumers with purchasing power, especially middle-class people and company employees, changed their behavior to shop online instead in order to avoid disease exposure as well as to comply with the government's travelling control measures. However, under the crisis, there were still opportunities for small businesses to adapt to online sales trends, including the government's economic stimulus projects, such as Kon La Krueng Project, participated by small shops. From these examples, it can be seen that small businesses can have adapted themselves to using technology so they can survive during the economic crisis caused by the pandemic. It can also be said that this epidemic serves as a catalyst for many aspects of change, including the entrepreneurs in finding technology knowledge and adjusting their businesses to survive and the lifestyle of Thai people who rely heavily on technology forced by the Covid-19 situation (Somprawin Manprasert, 2020, The Impact of Covid-19 on the Thai Economy and SME Entrepreneurs).

From the problems of small businesses mentioned above, this study therefore investigated small businesses selling food and consumer products that could maintain their businesses during the Covid-19 epidemic in order to study the ability of entrepreneurs in terms of their people-oriented management and technology-oriented management affecting their firm retention as well as to apply knowledge to support and enable other business groups to survive.

This article examines the level of people-oriented management, technology-oriented management, that will affect the level of organizational asset and support the level of the firm retention. This study method analyzes the influence during the coronavirus 19 pandemic. The results of this study are expected to provide useful information for small businesses in the food and other consumer goods sector, to increase the ability to conduct business during the outbreak of the Coronavirus 19.

2. Objectives

To investigate the level of people-oriented management, technology-oriented management, organizational asset, and firm retention; and

To investigate the structural equation model of the antecedents, i.e. people-oriented management and technology-oriented management, with organizational asset as mediator and firm retention as consequence.

3. Hypotheses

People-oriented management and technology-oriented management have a positive influence on organizational asset; and Organizational asset has a positive influence on firm retention.

4. Scope

In this study, the antecedents were people-oriented management and technology-oriented management, with organizational asset as mediator and firm retention as consequence.

The study population was entrepreneurs or representatives of business units from food, beverage, clothing and apparel businesses, health and beauty service operators such as accommodation services, catering services that can maintain a business during the COVID-19 situation and located in Bangkok.

The data collection was conducted during May-June 2022.

5. Literature Review

5.1. People-Oriented Management (POR)

Means the ability of business owners in the knowledge management for personnel in their business to be able to support their businesses during the COVID-19 pandemic in various parts, such as production, ordering, marketing, payment, and Transportation, to meet customer needs efficiently. The process of knowledge management for personnel involves finding sharing, and applying knowledge to suit the business environment. It also involves acquiring and applying knowledge for entrepreneurs and employees can apply knowledge at work in a new normal way to generate a cash flow from their businesses. This means that small business entrepreneurs, both employers and employees, including those having only 1 - 2 employees, must be able to adjust their businesses digitally by

marketing with customer communications via social media, such as Line or Facebook, or accepting orders via mobile phones. Shipments can be handled using small logistics systems, such as Grab Bike or Panda. As this sort of management has never been done before in small businesses, it mainly relies on the ability of business owners to develop human capital health and beauty services in their businesses quickly and appropriately (Becker & Gerhart, 1996).

The development of human capital refers to the knowledge and skills of personnel that are obtained from learning, operations, and training, becoming their natural skills and experiences. These knowledge and skills can be used to save to save time and other resources. In addition, the knowledge and skills that are inherent in each employee can be transmitted to other personnel in their organizations, resulting in the combination of knowledge and skills among personnel and leading to the creativity of innovative products and other processes associated with their performances (Bontis, 2001). Strengthening personnel capabilities can be done in a variety of ways, such as on-the-job and off-the-job trainings. Pasban & Nojedeh (2016) agreed with this idea and added that human capital is a key element in improving an organization's core assets because it is a sustainable competitive advantage and increases the efficiency of personnel.

In a new and ever-changing socio-economic environment, managing an organization to maintain its competitiveness can be done through values and innovations. This involves how to leverage the capabilities of the organization's people to offer products and services in the target markets or customer groups (Kozena & Striteska, 2010).

The development of personnel's abilities consists of the following components:

Knowledge and skills: Knowledge and skills of personnel affect the production processes and organizational efficiency. According to Nonaka et al. (2000), knowledge management is the process of having and applying commercial knowledge to drive innovations. This is in line with Pasban & Nojedeh (2016) who stated that knowledge and skills are always important in promoting economic growth and product development. According to Carolyn (1993), skills are divided into two areas: 1) technical skills, such as operational processes, and 2) interpersonal skills, such as communications.

Creativity and innovations: Innovations are originated from some processes that can extract the concept of human resources that are available to utilize. When divided by the condition of the elements, there are two sources: 1) internal source includes internal personnel, and 2) external source includes business partners, customers, and competitors of the organizations. Fukugawa (2006) presented the factors of innovations through a study titled Determining Factors in Innovation of Small Firm Networks: A Case of Cross Industry Groups in Japan. Key factors obtained were internal factors, including networks for knowledge sharing, R&D cooperation, dense communication, high level of commitment among members, and engagement in cooperative activities in sales, and

external factor, including external source of knowledge.

Competitive advantage: Competitive advantage is what the organizations desire, and they need to rely on knowledge and competence of their personnel at all levels. If the organization's personnel have creative abilities, it will lead to innovations. To gain a competitive advantage, the organizations must differentiate their products from competitors by recruiting more talented and skillful personnel than their competitors. Personnel abilities, such as good performance, flexibility, creativity, and ability to provide services directly to customers, play an important role in creating a competitive advantage for the organizations (Armstrong, 2008).

Customer satisfaction: The outcome of customer loyalty is reflected in purchasing attitudes and behaviors, which is the result of the financial income of the organizations (Yoon & Suh, 2003). However, building customer loyalty and retaining customers require the ability of the organization's personnel in paying attention and responding to the needs of their customers that will change over time (Varela González & García Garazo, 2006).

A study by Li et al. (2017) titled Supply Management Innovation: An Analysis of Enterprises in Science Industrial Parks based on Market Orientation explained that for sustainable development of contemporary organization management, the development of human resources is an important aspect. An effective and reasonable employee training has a significant effect on the overall quality of the organization's personnel and on the organization's performance management system. Training programs for personnel are also a key to building a high-quality performance management system. In addition, a study by Naqshbandi & Jasimuddin (2018) titled Knowledge-Based Leadership and Open Innovation: The Role of Knowledge Management Competencies in Multinational Companies in France summarized that traditional and new performance management processes are automatically integrated. A special analysis on the need to build human resources was conducted, including effective training courses and sensitive management to achieve diversified human resource development. At the same time, applications can be integrated on the organization's information management platforms as well as information network technologies are used to make employee training and assessment more programmable and efficient and to increase the organization's performance management process efficiency.

5.2. Technology-Oriented Management (TOR)

Technology-Oriented Management (TOR) means the management of the use of technology resources and networks in response to business goals. It consists of acceptance of change, improvement of business functionality, and use of technologies to find markets, such as online sales or home deliveries via phone orders and Kon La Krueng Project participated by small business entrepreneurs. It is an interdisciplinary field that integrates the knowledge of science, engineering,

and administration. It requires a deep understanding of the product technology lifecycle, processes, and systems and serves as a tool to accelerate research and development (Agarwal et al., 2018). In the knowledge-based economy era, the role of technology capital is highly recognized. According to Fernandez et al. (2000), technology capital is defined as acquiring and applying knowledge to develop innovative products, services, or production processes to be able to compete. In addition, from the point of view of administration that needs knowledge to restructure the organizations or to create a new management approach, the development of administrative innovations is invested in various areas, such as management techniques, financial methods, and marketing management innovations (Noland, 2003). For technology capital in terms of knowledge management, Reisman (2006) explained that in the age of Big Data, where the human capacity is unable to extract knowledge to support decision-making, the use of artificial intelligence (AI) approaches to solve executive problems is therefore an expense that must be set in the budget for intellectual capital. According to Benhabib & Spiegel (2005), technology capital is used to integrate knowledge, ideas, principles, techniques, procedures, processes, machinery, equipment, and communications in order to create a better production process or product in line with and supporting the economy, society, politics, environment, and culture in all circumstances.

The importance of technology capital in business operations involves the introduction and application of various knowledge, technologies, and experiences in the production of goods and services, including the discovery of new ways of utilizing resources to be more effective. The technology capital can significantly help 1) achieve goals efficiently with precision and speed, 2) achieve maximum productivity and minimum loss from the production processes effectively, and 3) reduce costs, time, and labor by using modern technologies instead of human labor (McGrattan & Prescott, 2012).

Gregory (1995) proposed a technology-oriented management model that consists of five processes: 1) Identifying technologies that are important to business, including technology assessment, technology selection framework/market search, and information management; 2) Choosing right technologies for the organization, decision-making criteria and process, and verification; 3) Acquiring and supporting chosen technologies, including self-investment or use of support; 4) Leveraging technologies to generate benefits, such as market share, trade networks, and partners; and 5) Protecting and maintaining product and manufacturing knowledge and expertise. Based on these processes, Skilbeck & Cruickshank (1997) further extended to the management within the organizations by adding the following sub-steps: 1) Organization level (network perspective) using a technology-oriented management approach in various businesses; 2) Business level (external perspective) using an approach to create competitive advantages through technologies; and 3) Operational level (internal perspective) optimizing internal processes to manage technologies effectively.

5.3. Organizational Asset (OAS)

Organizational Asset (OAS) here means a small business capital, which may have small intangible capital but with larger intellectual capital, such as by having an outstanding production formula, continuously creating products/services, and having a high number of loyal customers and a high retention rate. Even if they cannot walk to buy products by themselves, the technologies can still be used for their purposes. This organizational asset arises from the integration of technologies and knowledge from business processes. It is set out as a principle to guide work and motivate, with rewards set to be realized. According to [Edvinsson & Malone \(1997\)](#), the organizational asset consists of operation manual, production technical process, organizational communication, policies, and other support mechanisms. In addition, [Subramaniam & Youndt \(2005\)](#) added that the foundation of organizational asset is gained from knowledge and experiences and developed into organizational structure design and work process. It is partly developed from the intellectual capital and can be considered as one of the key infrastructures to implement and manage to achieve goals ([Dabbaghi, 2017](#)).

Organizational Asset Consists of the Following Sub-Factors

- 1) Explicit Asset is a physical or perceived asset, such as cash flows, work procedures and processes, production techniques ([Rahman, 2004](#)), and production formulas and methods successfully developed in the organizations. It is a practice that involves the use of advanced production systems, just-in-time principles, quality data and reporting, quality management, design, statistical process control, comparison, and zero waste ([Lewis et al., 2006](#)). It also involves continuous improvements and innovations, data and performance measurement, process management, planning, process control, product and service design, and quality system comparison; and
- 2) Implicit Asset includes knowledge of employees originated from their experiences, good employee conditions, and leadership in planning and formulating business strategies, etc. ([Lai & Cheng, 2005](#); [Sila, 2007](#)). These are all important in leading the organizations to business success.

5.4. Firm Retention (FIR)

Firm Retention (FIR) is expressed by the level of business performances, such as net profit, cash flow, and number of customers, with continuity and stability. Business performances result from efficient business management in accordance with the circumstances from external factors and have been successful as defined in the objectives under the management of limited resources for maximum effectiveness. In addition to measuring business management capabilities through the potential to generate returns in terms of financial assets, it also includes organizational reputation and intellectual assets, which is an indicator of firm retention in creating a competitive advantage ([Ranzijin & Verboom, 2004](#)). A study by [Edwards \(2004\)](#) explained that profitability depends on the sales vo-

lume and the production cost. If there is a large sales volume, the cost will be low, and if it can manage the new production by using the production innovations invented by using the organization's own intellectual capital, it will even promote higher profitability.

6. Related Concepts and Theories

Resource-based view theory

Grant (1991) suggested the theory of resource-based view (RBV) and competitive advantage that currently there is interest in the role of resources in businesses because resources are considered fundamentals of organizational strategy formulation. There are five steps in the conceptual framework for strategy formulation, i.e. analysis of the organization's fundamental resources, assessment of the organization's competences, analysis of the organization's profitability trends from available resources, strategy selection, and expansion and improvement of all collective capabilities and resources of the organizations.

From literature review, it was pointed out that the People oriented management depends on knowledge and skills to perform tasks. The knowledge and skills that arise can be used to improve the work process to become creative and make Innovation of products and services the sources that can cause innovation are composed of 2 sources, from internal resources, such as initiatives of individuals to bring existing products or services to be developed from the original to be innovative, and from external resources, such as partners. Business partners, customers who contribute to the recommendation of products and services for improvement and development. Technology management is to improve business operations by applying knowledge and science to products and services, such as using technology in the form of offering products and services in various platforms such as Grabfood, Robinhood and Foodpanda, etc. Organizational asset is the integration of technology and knowledge from business processes. For the persistence of the business is expressed by the level of business performance, namely profit, the number of customers that are continual and stable.

From this study, various variable factors can be used to improve the efficiency of small business. The factor of People oriented management competence arises from the development of knowledge and skills that are already practiced. Expertise and bring that knowledge to develop innovative products and services by using technology to support doing business on various platforms to expand the customer base and increase the convenience of doing business in terms of ordering products and services, including payments through bank transfer applications without contact or interaction to reduce the spread of the coronavirus¹⁹ People oriented management combined with technology can be a great complement to small business operations to sustain business during the coronavirus¹⁹ pandemic very well.

From the literature review and synthesized, the research conceptual frame-

work is as follows.

7. Methodology

In this study, small business entrepreneurs who could survive during the epidemic crisis were chosen. Preliminary interviews were conducted with these entrepreneurs to determine key factors affecting their business survival, and the information obtained from interviews was then reviewed together with the literature to support the creation of research conceptual framework and questions. A random sample was taken from small businesses that could maintain their businesses, and a synthesized questionnaire was used for quantitative research to examine the causal factors influencing existence of small business entrepreneurs under the COVID-19 pandemic. According to the synthesis, the conceptual framework consisted of people-oriented management and technology-oriented management that were passed through the organizational asset and finally resulted in the firm retention.

Because the population size was unknown, the sample sizing was simply based on the lowest sample size condition according to the principles of Bentler & Chou (1987) and Muthén et al. (2009) where 1 empirical variable is equal to 5 sample sizes. As this study consisted of 23 empirical variables, 115 samples were collected, and the sampling plan used the two-stage sampling theory. In stage 1, samples of 10 areas were taken, and in stage 2, samples of small businesses were taken using a simplified sampling plan to obtain 12 units per area that could demonstrate their firm retention (The researcher created a list of qualified businesses in each area obtained in stage 1).

From the problems of small businesses mentioned above, how can small businesses that sell food and consumer products sustain their businesses during the COVID-19 outbreak? The authors examine entrepreneurs' abilities by focusing on people-oriented management and how will the use of technology affect business operations by bringing knowledge to support and help other business groups in conducting business? Including a review of various literature related to the COVID-19 outbreak, resulting in the research framework as shown in Figure 1.

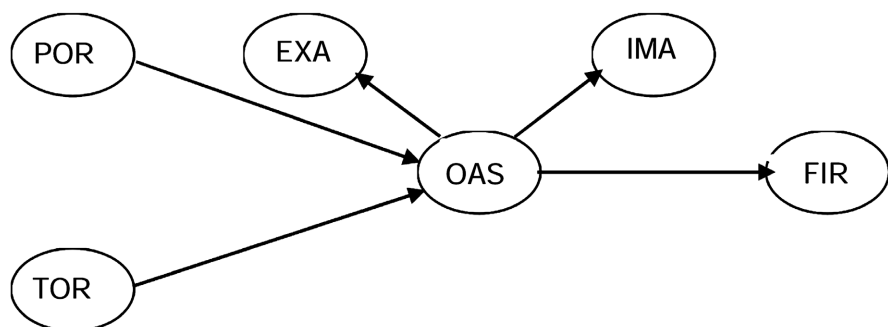


Figure 1. Conceptual framework.

7.1. Checking the Quality of Tools and Creating Individual Variable

Tool Quality Check

The tools used to collect data have quality inspection procedures as follows:

1) Measure the validity (Validity) by checking the content validity (Content Validity) by bringing the questionnaire to 5 experts to check the quality of the content validity tool. Content Coverage and Language Accuracy. The results obtained by the researcher were used to improve some contents to make the questionnaire more suitable.

2) Use the data obtained to find the index of consistency between the question and the objective (Index of Item Objective Congruence-IOC). There are scoring criteria as follows:

1 = when it is certain that the item or question is measurable according to the objectives

0 = when not sure that the item or question is measurable according to the objectives

-1 = when it is uncertain whether the item or question is measured and does not meet the objectives

The criterion for selecting questions will be considered only questions with an IOC value of not less than 0.5. For questions that lack content validity, the researcher will return to improve according to the recommendation of experts.

3) Measure the reliability of the questionnaire. (Reliability) by using a questionnaire that has been verified by a qualified person to experiment with a sample group close to the population to be studied, amounting to 30 sets, by finding the alpha coefficient (Alpha coefficient) of Cronbach's Alpha to measure internal consistency (Internal Consistency Model) and use the acceptance alpha coefficient criterion α greater than 0.7, which the alpha coefficient is in the test criterion α greater than 0.7 is considered entirely reliable (Hair et al., 2014).

In this study, the antecedents were people-oriented management and technology-oriented management, with organizational asset as mediator and firm retention as consequence. Definitions and measurements included 5 levels from 1 as lowest to 5 as highest.

7.1.1. People-Oriented Management Consisted of 5 Questions

1) The company constantly develops the knowledge and skills of its employees;

2) The company provides its employees with continuous training every year;

3) The company encourages its employees to participate in knowledge sharing for cost reductions;

4) The company supports and encourages its employees to find knowledge, both inside and outside the systems; and

5) The company always provides training of new knowledge needed in the

operations.

This was developed from de Castro et al. (2000); Nonaka et al. (2000); Pasban & Nojehdeh (2016); Carolyn (1993); Yoon & Suh (2003); Varela González & García Garazo (2006); Armstrong (2008).

7.1.2. Technology-Oriented Management Consisted of 5 Questions

- 1) The company uses technologies that support its efficient operations;
- 2) The company develops its human resources in the use of technologies to enhance the potential of employees;
- 3) The company continually invests in technologies in its operations to increase operational efficiency;
- 4) The company reduces product or process costs by using technologies; and
- 5) The company develops new products through technologies derived from research and development.

This was developed from Sircar et al. (2000); Bharadwaj (2000); Kumar et al. (1999); Ivanova (2008).

7.1.3. Organizational Asset Consisted of 10 Questions, Divided into the Second Factors: Explicit Asset and Implicit Asset. There Are 5 Questions for Each Factor

1) Explicit asset consisted of 5 questions:

- a) Operational procedures and processes, including production techniques;
- b) Production formulas and methods successfully developed in the organization;
- c) Quality data and reporting, including quality management;
- d) Continuous improvements and innovations; and
- e) Process control planning at every step.

2) Implicit asset consisted of 5 questions:

- a) Organizational culture;
- b) Employee knowledge and skills;
- c) Being a good employee of the organization;
- d) Leadership; and
- e) Business strategies.

This was developed from Edvinsson & Malone (1997); Subramaniam & Youndt (2005); Rahman (2004); Lewis et al. (2006); Lai & Cheng (2005); Sila (2007).

7.1.4. Firm Retention Consisted of 3 Questions

Firm retention consisted of 3 questions: profitability level, cash flow level, and customer retention rate, and was developed from Ranzijin & Verboom (2004); Rahman (2004).

8. Results

The results met the specified objectives. This study investigated the level of firm retention under the COVID-19 situation, including people-oriented management and technology-oriented management supporting the organizational asset,

both explicit and implicit assets, which finally affected the firm retention. From the testing of confirmative models and adjustments, the results of the analysis were as follows:

Objectives 1. To investigate the levels of people-oriented management, technology-oriented management, organizational asset, and firm retention.

From **Table 1**, the mean of people-oriented management and technology-oriented management, antecedents, was 3.72 and 3.71, respectively, with a coefficient of variation of 23 percent, while the organizational asset, mediator, had the highest mean of 3.73 with a coefficient of variation of 23 percent and the firm retention, consequence, had a low mean of 3.53 with a coefficient of variation of 25 percent, indicating that business administration during the COVID-19 pandemic must consider technology-oriented management and people-oriented management to strengthen organizational asset and support firm retention and stability.

Objectives 2. To investigate the influence of firm retention along with hypothesis testing.

Criteria for decision the appropriateness index according to the study of Hooper et al., (2008) Structural Equation Modelling: Guidelines for Determining Model Fit, Florida Atlantic University, Florida USA.

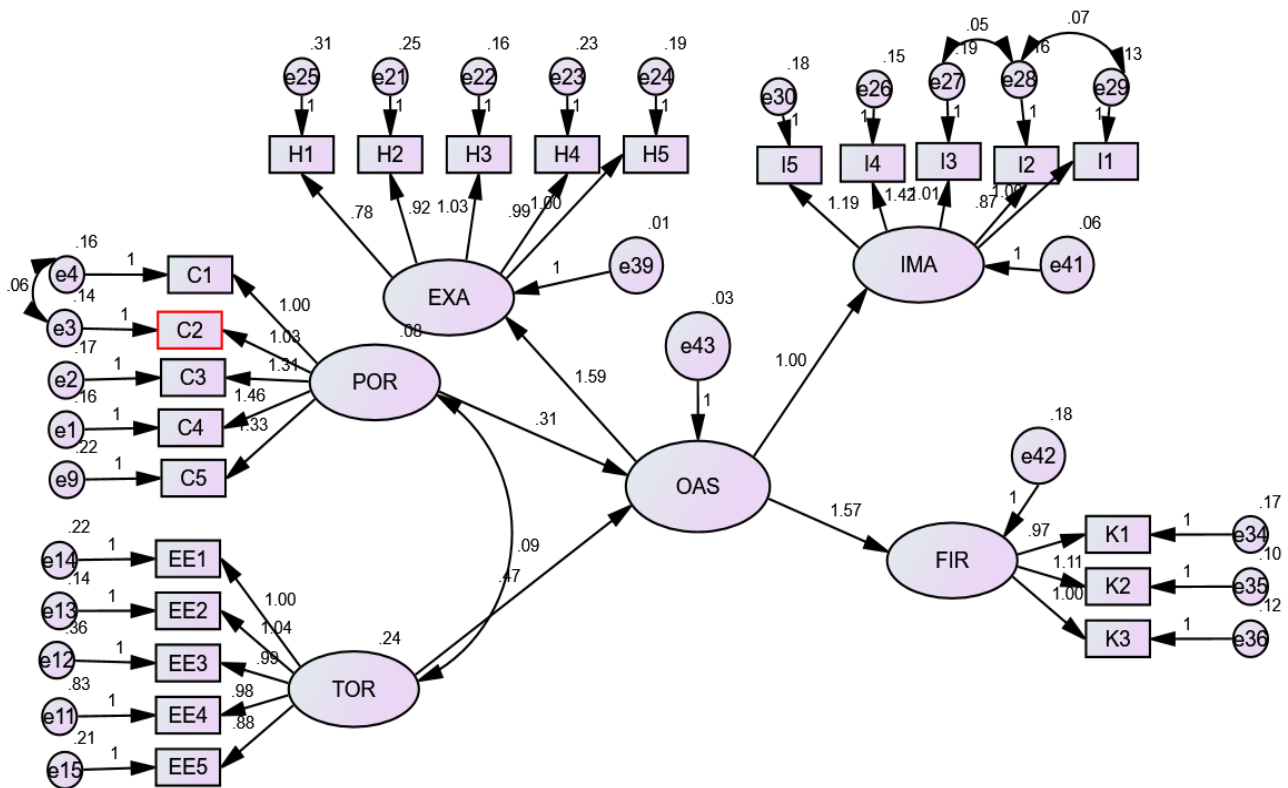
The results of data analysis for the model coherence index in **Table 2** showed that the coherence of the model had a chi-square statistical value of 604.945 with a level of statistical significance (p) equal to 0.000. At degrees of freedom (df) 221, the p-value below the criterion is 0.05 and the relative chi-square value is 2.737, which is less than the criterion is greater than 3.00, which may be interpreted as The model fit the empirical data when considering the GFI value (GFI) found to be equal to 0.804, which is a moderately acceptable value, which the standard value must be greater than 0.90 of the residual value (RMR) is 0.027, which is less than 0.05. In addition, the square root index of the error in parameter estimation (RMSEA) is 0.076, which is considered. Values less than 0.08, including the Comparative Fit Index (CFI), are equal to 0.903 to qualify for consideration, which must be greater than 0.90. In addition, the Criterion-Based Fitness Index (NFI) was equal to 0.801, which was a moderately acceptable value, which the standard had to be greater than 0.90. The results of **Table 2** analysis imply that the model fits well with the empirical data.

The results in the model using 7 goodness-of-fit index values showed that 3 values were very good and 4 values were moderately good. Therefore, from model analysis based on conceptual framework, it was considered that the goodness-of-fit index values were good.

From **Figure 2**, it is a confirmation factor analysis to see the appropriateness of dividing the variables into each factor. It is a test of the theory of building a model with quantitative research to formulate a hypothesis showing the causal relationship that will be tested from. Is the information collected consistent with each other or not?

Table 1. Overall comparison of each factor.

Factor	Mean	Standard deviation	CV	Level
People-oriented management	3.72	0.85	0.23	High
Technology-oriented management	3.71	0.86	0.23	High
Organizational asset	3.73	0.87	0.23	High
Firm retention	3.53	0.88	0.25	High



chi-square = 604.945, df = 221, chi-square ldf = 2.737, P-value = 0.000, RMR = .027, GFI = .840, RMSEA = .076, CFI = .903, AGFI = .801. Meaning of symbol: POR: People-oriented management, TOR: Technology-oriented management, OAS: Organizational asset, FIR: Firm retention.

Figure 2. Analysis for model confirmation.

From **Table 3**, the correlation coefficients of the OAS and FIR factors were 0.752 and 0.615, which were in the high level. (The correlation coefficient was 0 - 1 with the following evaluation criteria: 0 - 0.19 very low (very weak), 0.2 - 0.39 low (weak), 0.40 - 0.59 moderate (moderate), 0.6 - 0.79 very (strong) and 0.8 - 1, the highest level (very strong) (Stanton, 2001). In the hypothesis test, it was found that 1) POR had a positive effect on OAS, 2) TOR had a positive effect on OAS, and 3) POR had a positive effect on OAS. OAS had a positive effect on OAS at a significant level with values of 0.314, 0.471 and 1.588, respectively. It was also found that OAS was a transmission factor for both POR and TOR and FIR, indicating that the organizational capital factor was a transmission factor

Table 2. Goodness-of-fit index from model analysis based on conceptual framework.

Index	Value	Standard Level good fit	Level	Remark
Chi Square	604.945	-		-
Degree of Freedom (df)	221	-		-
χ^2/df	2.737	≤ 3.00	Good fit	Wheaton et al. (1997)
RMSEA	0.076	< 0.08	Mediocre fit	MacCallum et al. (1996)
NFI	0.801	> 0.90	Mediocre fit	Bollen (1990)
CFI	0.903	> 0.90	Good fit	Hu & Bentler (1999)
GFI	0.840	> 0.90	Mediocre fit	Sharma et al. (2005)
IFI	0.881	> 0.90	Mediocre fit	Miles & Shevlin (2007)
RMR	0.027	< 0.05	Good fit	Byrne (1998)

Note: Result of running with Lisel.

Table 3. Hypothesis testing according to conceptual framework

Hsisehtopy	R ²	Unstandardized coefficient	Standardized coefficient	t-test	p-value	Conclusion
POR -> OAS		0.314***	0.265	2.364	0.000	Supported
TOR -> OAS	OAS = 0.752	0.471***	0.677	0.525	0.000	Supported
OAS -> FIR	FIR = 0.615	1.588***	0.817	3.637	0.000	Supported

Note: decision criteria are $*p < 0.05$, $**p < 0.01$ and $***p < 0.001$.

Table 4. Direct, indirect, and collective influences.

Factor	POR	TOR	OAS
OAS DE	0.265	0.677	NA
IE	NA	NA	NA
TE	0.265	0.677	NA
FIR DE	NA	NA	0.784
IE	0.208	0.531	NA
TE	0.208	0.531	0.784

Note: $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

between personnel management factors and technology management factors to business retention factors. The results obtained support the hypothesis testing according to the research conceptual framework.

From **Table 4**, it can be concluded that people-oriented management had a collective influence on firm retention with a weight of 0.208, followed by tech-

nology-oriented management with a weight of 0.531, while organizational asset had no influence. The organizational asset was a mediator between the people-oriented management and technology-oriented management and the firm retention with a high influence of 0.784.

9. Discussions

From the results of the study, people-oriented management and technology-oriented management had a collective influence on firm retention. This is consistent with the studies by [Kozena and Striteska \(2010\)](#); [Kucharčíková \(2011\)](#) explaining that economic growth requires the acquisition of knowledge, education, competence, skills, and expertise gained through the development of human resources, including effective technology management. For example, communicating with customers can help increase channels in the production and distribution of products effectively. Similarly, according to [Weill & Vitale \(2002\)](#); [Bharadwaj \(2000\)](#), investing in computers, communication technologies, platforms, and databases to communicate with and retain customers leads to cost reductions and adds value in customers. A study by [Al-Ansari et al. \(2013\)](#) titled *Adaptation of Innovative Technology to Affect Business Performance: A Case Study of SMEs in Dubai* reported that technological planning influences innovations and that the resulting innovations affect business efficiency in small- and medium-sized enterprises in emerging markets.

10. Benefits

The results of this study can be applied in personnel management by developing personnel to have operational knowledge, skills, and expertise and in modern technology management to be used in business operations to increase competitiveness during the COVID-19 pandemic.

11. Limitations

Because the samples used in this study were only small businesses selling food and other consumer products that could maintain their businesses during the COVID-19 pandemic, they did not cover small businesses in other groups.

12. Recommendations and Policy Implications

Applying research results in management

The model used in the study proved that businesses should manage the level of a person's ability to utilize existing technologies in all areas, such as creating a platform to offer the products and services they operate for business benefits. In addition, in terms of corporate capital, which includes personal and technological factors, it must be effective. Personnel must have the knowledge and skills to conduct business, whether it is to present products and services. Finding ways to create new markets to make it easy for customers to access Ease of purchasing

products and services will help the business to survive during the Coronavirus-19 outbreak.

Applying research results in policy

The government must play a role in helping small entrepreneurs to operate their businesses during the COVID-19 pandemic by bringing technology to create a platform to combine products and services of small entrepreneurs into one point. Payment for goods and services using the bank's application and creating easy access to various functions, suitable for users of all genders and ages, including payments through service provider applications such as the Grabfood, Lineman and Foodpanda apps that enable wallet payments, makes it convenient to use and can also greatly reduce contact that causes infection. For entrepreneurs and those who want to use general services, it is easy to use and offers ways to stimulate the domestic economy, such as holding exhibitions and goods in places where epidemic control is strictly controlled, offering joint promotions with operators. This will help stimulate the economy and can also help small entrepreneurs to continue their business.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Agarwal, P. K., Yadav, P., & Mondal, S. (2018). Economic Analysis of Cost and Return Structure of Paddy Cultivation under Traditional and Sri Method: A Comparative Study. *International Journal of Agriculture Sciences*, *10*, 5890-5893.
- Al-Ansari, Y., Altalib, M., & Sardoh, M. (2013). Technology Orientation, Innovation and Business Performance: A Study of Dubai SMEs. *The International Technology Management Review*, *3*, 1-11. <https://doi.org/10.2991/itmr.2013.3.1.1>
- Armstrong, J. D. (2008). Factors Impacting the Perceived Organizational Support of IT Employees. *Journal Information & Management*, *45*, 556-563. <https://doi.org/10.1016/j.im.2008.09.003>
- Becker, G., & Gerhart, B. (1996). The Impact of Human Resource Management on Organizational Performance: Progress and Prospects. *The Academy of Management Journal*, *39*, 779-801.
- Benhabib, J., & Spiegel, M. M. (2005). *Human Capital and Technology Diffusion*. In *Handbook of Economic Growth*. Newnes Books. [https://doi.org/10.1016/S1574-0684\(05\)01013-0](https://doi.org/10.1016/S1574-0684(05)01013-0)
- Bentler, P. M., & Chou, C. (1987). Practical Issues in Structural Modeling. *Sociological Methods and Research*, *16*, 78-117. <https://doi.org/10.1177/0049124187016001004>
- Bharadwaj, S. A. (2000). A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation. *MIS Quarterly*, *24*, 169-196. <https://doi.org/10.2307/3250983>
- Bollen, K. A. (1990). Overall Fit in Covariance Structure Models: Two Types of Sample Size Effects. *Psychological Bulletin*, *107*, 256-259.
- Bontis, N. (2001). Assessing Knowledge Assets: A Review of the Models Used to Measure

- Intellectual Capital. *International Journal of Management Reviews*, 3, 41-60.
<https://doi.org/10.1111/1468-2370.00053>
- Byrne, B. M. (1998). *Structural Equation Modeling with LISREL, PRELIS and SIMPLIS: Basic Concepts, Applications and Programming*. Lawrence Erlbaum Associates.
- Carolyn, M. C. (1993). Transformational Learning. *New Directions for Adult and Continuing Education*, 1993, 47-56. <https://doi.org/10.1002/ace.36719935707>
- Dabbaghi, A. (2017). Identification and Prioritization of the Criteria Measuring Organizational Capital in the Oil Industry Using Grey Systems Theory. *Petroleum Business Review*, 1, 49-57.
- de Castro, G. M., Lopes, J. E. N., Mulna, F. E. G., & Saez, P. L. (2000). *A New Model to Measure and Manage Intellectual Capital*.
https://warwick.ac.uk/fac/soc/wbs/conf/olkc/archive/oklc5/papers/k-4_decastro.pdf
- Edvinsson, L., & Malone, M. (1997). *Intellectual Capital: Realising Your Company's True Value by Finding Its Hidden Brainpower*. Harper Collins.
- Fernandez, E., Montes, J. M., & Vazquez, C. J. (2000). Typology and Strategic Analysis of Intangible Resources: A Resource-Based Approach. *Technovation*, 20, 81-92.
[https://doi.org/10.1016/S0166-4972\(99\)00115-7](https://doi.org/10.1016/S0166-4972(99)00115-7)
- Fukugawa, N. (2006). Science Parks in Japan and Their Value-Added New Technology-Based Firms. *International Journal of Industrial Organization*, 24, 381-400.
<https://doi.org/10.1016/j.ijindorg.2005.07.005>
- Grant, R. M. (1991). The Resource-Based Theory of Competitive Advantage: Implications for Strategy. *California Management Review*, 33, 114-135.
<https://doi.org/10.2307/41166664>
- Gregory, J. M. (1995). Technology Management: A Process Approach. *Journal of Engineering Manufacture*, 209, 347-356.
https://doi.org/10.1243/PIME_PROC_1995_209_094_02
- Hamilton, S. (2020). *From Survival to Revival: How to Help Small Businesses through the COVID-19 Crisis*.
https://www.brookings.edu/wp-content/uploads/2020/09/PP_Hamilton_Final.pdf
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis* (7th Edition). Pearson Education.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. *Structural Equation Modeling*, 6, 1-55.
- Ivanova, E. V. (2008). *Technological Capital—Theory and Practice of Evolutionary Changes: Monograph*. MGSU Publishing House.
- Kozena, M., & Striteska, M. (2010). The Key Differences between Balanced Scorecard Framework for Public and Private Sector. *The Proceedings of 6th International Strategic Management Conference* (pp. 403-409).
- Kucharčíková, A. (2011). Human Capital—Definitions and Approaches. *Human Resources Management & Ergonomics*, 5, 60-70.
- Kumar, V. et al. (1999). Building Technological Capability through Importing Technology: The Case of Indonesian Manufacturing Industry. *Journal of Technology Transfer*, 24, 81-96. <https://doi.org/10.1023/A:1007728921126>
- Lai, K., & Cheng, T. C. (2005). Effects of Quality Management and Marketing on Organizational Performance. *Journal of Business Research*, 58, 446-456.
<https://doi.org/10.1016/j.jbusres.2003.08.001>

- Lewis, W. G., Pun, K. F., & Lalla, T. R. M. (2006). Exploring Soft versus Hard Factors for TQM Implementation in Small and Medium-Sized Enterprises. *International Journal of Productivity and Performance Management*, 55, 539-554. <https://doi.org/10.1108/17410400610702142>
- Li, X., Mao, F. L., Lin, M., & Nan, Y. D. (2017). Supply Side Management Innovation: Analysis on Enterprises in Scientific Industry Park Based on Market Orientation. *1st International Global on Renewable Energy and Development (IGRED 2017)*.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power Analysis and Determination of Sample Size for Covariance Structure Modeling. *Psychological Methods*, 1, 130-149.
- McGrattan, E. R., & Prescott, E. C. (2012). The Great Recession and Delayed Economic Recovery: A Labor Productivity Puzzle. In L. Ohanian, J. Taylor, & I. Wright (Eds.), *Government Policies and the Delayed Economic Recovery* (pp. 115-154). Hoover Institution Press. <https://doi.org/10.21034/wp.694>
- Miles, J., & Shevlin, M. (2007). A Time and a Place for Incremental Fit Indices. *Personality and Individual Differences*, 42, 869-874.
- Muthén, B. et al. (2009). *Applications of Continuous-Time Survival in Latent Variable Models for the Analysis of Oncology Randomized Clinical Trial Data Using Mplus*. Technical Report. <http://www.statmodel.com/>
- Naqshbandi, S. M., & Jasimuddin, M. M. (2018). Knowledge-Oriented Leadership and Open Innovation: Role of Knowledge Management Capability in France-Based Multinationals. *International Business Review*, 27, 701-713. <https://doi.org/10.1016/j.ibusrev.2017.12.001>
- Noland, M. (2003). *Religion, Culture, and Economic Performance*. <https://doi.org/10.2139/ssrn.497702>
- Nonaka, I., Reinmoeller, P., & Toyama, R. (2000). Integrated IT Systems to Capitalize on Market Knowledge. In G. von Krogh, I. Nonaka, & T. Nishiguchi (Eds.), *Knowledge Creation* (pp. 89-109). Palgrave Macmillan. https://doi.org/10.1007/978-1-349-62753-0_5
- Pasban, M., & Nojehdeh, S. H. (2016). A Review of the Role of Human Capital in the Organization. *Procedia-Social and Behavioral Sciences*, 230, 249-253. <https://doi.org/10.1016/j.sbspro.2016.09.032>
- Rahman, S. (2004). The Future of TQM Is Past, Can TQM Be Resurrected? *Total Quality Management and Business Excellence*, 125, 411-422. <https://doi.org/10.1080/1478336042000183550>
- Ranzijin, M., & Verboom, S. (2004). *Connecting Corporate Performance and Gender Diversity*.
- Reisman, A. (2006). *Turkey's Modernization: Refugees from Nazism and Atatürk's Vision*. New Academic Publishing.
- Sharma, S., Mukherjee, S., Kumar, A., & Dillon, W. R. (2005). A Simulation Study to Investigate the Use of Cutoff Values for Assessing Model Fit in Covariance Structure Models. *Journal of Business Research*, 58, 935-943.
- Sila, I. (2007). Examining the Effects of Contextual Factors on TQM and Performance through the Lens of Organizational Theories: An Empirical Study. *Journal of Operations Management*, 25, 83-109. <https://doi.org/10.1016/j.jom.2006.02.003>
- Sircar, S. et al. (2000). A Framework for Assessing the Relationship between Information Technology Investments and Firm Performance. *Journal of Management Information Systems*, 16, 69-98. <https://doi.org/10.1080/07421222.2000.11518266>

- Skilbeck, J.N., & Cruickshank, C. M. (1997). A Framework for Evaluating Technology Management Process. Innovation in Technology Management. In *Innovation in Technology Management. The Key to Global Leadership. PICMET'97* (pp. 138-142). IEEE. <https://doi.org/10.1109/PICMET.1997.653296>
- Somprawin Manprasert (2020). *The Impact of Covid-19 on the Thai Economy and SME Entrepreneurs*. <https://www.krungsri.com/th/plearnplearn/covid19-newnormal-with-sme>
- Subramaniam, M., & Youndt, M. A. (2005). The Influence of Intellectual Capital on the Type of Innovative Capabilities. *Academy of Management Journal*, 48, 450-463. <https://doi.org/10.5465/amj.2005.17407911>
- Varela González, J., & García Garazo, T. (2006). Structural Relationships between Organizational Service Orientation, Contact Employee Job Satisfaction and Citizenship Behavior. *International Journal of Service Industry Management*, 17, 23-50. <https://doi.org/10.1108/09564230610651561>
- Weill, P., & Vitale, M. (2002). What IT Infrastructure Capabilities Are Needed to Implement E-Business Models? *MIS Quarterly Executive*, 1, 17-34.
- Wheaton, B., Muthen, B., Alwin, D., F., & Summers, G. (1977). Assessing Reliability and Stability in Panel Models. *Sociological Methodology*, 8, 84-136.
- Yoon, M. H., & Suh, J. (2003). Organizational Citizenship Behaviors and Service Quality as External Effectiveness of Contact Employees. *Journal of Business Research*, 56, 597-611. [https://doi.org/10.1016/S0148-2963\(01\)00290-9](https://doi.org/10.1016/S0148-2963(01)00290-9)