

The Mediating Effect of Service Innovation on Indonesian Insurance Industry

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Abstract

The COVID-19 pandemic dramatically has changed the business environment at all levels. This study sheds light on the significance of technological capability and market orientation and how they affect service innovation and firm performance. A quantitative research methodology was used to collect data from 98 Indonesian life and P&C insurance companies. Relationship hypotheses were validated by applying structural equation modelling (SEM). The findings showed that service innovation has a significant impact on firm performance. The direct impact of technological capability and market orientation on insurance firm performance was not observed. Nonetheless, such factors helped achieve firm performance through service innovation. Consequently, service innovation plays a unique mediating role between market orientation and technological capability toward insurance firm performance. Developing innovative services is crucial to navigating turbulent times.

Keywords: *service innovation, technological capability, market orientation, firm performance, insurance.*

1. Introduction

The world was shocked by the COVID-19 pandemic in 2020. The pandemic affected society at all levels (Finsterwalder & Kuppelwieser, 2020). The pandemic also impacted performance of the Indonesian financial services industries, including insurance (OJK, 2020). The insurance companies should take advantage of their dynamic capabilities to adapt and survive in an uncertain social environment (Stechemesser et al., 2015). Those capabilities can be in forms of organizational culture and capabilities (Schilke et al., 2018) which of them is innovation.

The academic study about insurance firm performance has attracted researchers from various countries based solely on financial aspects (Kourtzidis & Tzeremes, 2020). Felício and Rodrigues (2015) revealed that insurance firm performance in Spanish and Portuguese market influenced by strategic management factors. However, they conducted their research long before the COVID-19 pandemic with service innovation and information system as predictor to firm performance. Therefore, this study proposed a

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conceptual framework for influencing the insurance firm performance in Indonesia when facing the pandemic's impact based on technological capability, market orientation, and service innovation. Furthermore, this study will explore mediating effect of service innovation between technological capability and market orientation toward firm performance.

2. Literature Review

There are three levels of factors affecting performance in insurance industry: (a) macro level such as GDP, inflation, and competition; (b) mezzo level such as regulator and association; (c) micro level such as premium income, claims, and ownership structure (Akotey et al., 2013). Felcio and Rodrigues (2015) proposed strategic management factor such as service innovation, information systems and human resources that can influence insurance firm performance.

Service innovation refers to innovation in service industry (Miles, 1993). In normal situation, the service companies mostly use service innovation as the differentiator to win the market (Feng et al., 2020). However, the pandemic dramatically has changed the business environment at all levels (Finsterwalder & Kuppelwieser, 2020). Therefore, the company should adapt to a new normal situation by accelerating service innovation to retain consumers, generate customer value and reorient management in facing the pandemic challenges (Heinonen & Strandvik, 2021).

A company must possess the necessary technology capabilities to be successful in digital transformation (Mu & Lee, 2005). The capabilities that have brought digitalization process for the insurance companies, have impacts in three aspects: customer interaction model; efficiency and effectiveness in business process management; and product development (Eling & Lehmann, 2018). Understanding customer needs for products and services and mapping competitor can bring values and enhance organization performance (Kohli & Jaworski, 1990).

The innovation development is one the success factors to survive in hard-hitting competition (Cho & Pucik, 2005). Empirically in the context of the service providers, including insurance company, service innovation positively influences firm performance (Felício & Rodrigues, 2015) Furthermore, innovation is required in times of crisis because it has positive effect on firm performance. For example, during the 2008 global financial crisis (called financial crisis), innovation positively affected firm performance (Huhtala et al., 2014).

Hypothesis 1. Service innovation has a positive effect on firm performance.

In present-day management practices, information technology has taken a critical role in supporting daily business activities. As a result, technology capabilities significantly influence firm performance (Yin et al., 2020). Moreover, insurance company may improve their customer satisfaction by implementing digital applications (Eckert et al., 2022). Furthermore, when facing a crisis, the organization needs technology because it can affect its performance. For example, the firms with higher-level technology capability have higher profitability comparing the control group during the financial crisis (Wu et al., 2017).

Hypothesis 2. Technological capability has a positive effect on firm performance.

Sett (2018) provided a conceptual model for market orientation as part of the firm's dynamic capabilities. It has been empirically established that market orientation positively influences a firm's success under normal circumstances (Cheng & Chen, 2017). However, during a crisis, market orientation may affect firm performance. For example, Huhtala et al. (2014) found that market orientation significantly impacted firm performance during the financial crisis.

Hypothesis 3. Market orientation has a positive effect on firm performance.

When customer behaviors and technology rapidly change, innovation can be a vanguard for organization (Thuethongchai et al., 2020). Intelligence technology at insurance companies has positive impact to innovation (Atkinson et al., 2020). Moreover, by leveraging technology application during the pandemic crisis, insurance company has a space and ability to innovate and to remain competitiveness (Lanfranchi & Grassi, 2021).

Hypothesis 4. Technological capability has a positive effect on service innovation.

An organization's market orientation can influence service innovation in everyday situation (Cheng & Chen, 2017). Moreover, market orientation also significantly affects innovation in times of crisis. For example, Huhtala et al. (2014) found that company's capacity to innovate can be enhanced by its market orientation during the financial crisis. Moreover, market orientation amid the pandemic may positively influence the organization's capacity for innovation (Christa et al., 2020).

Hypothesis 5. Market orientation has a positive effect on service innovation.

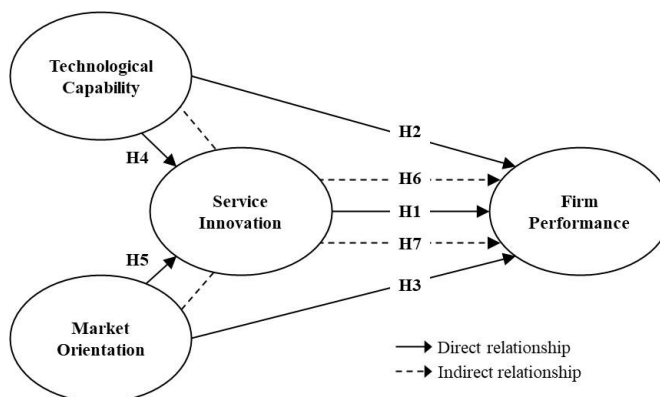
Yin et al. (2020) argued that firm performance can be improved by focusing on development of technology capabilities. However, other studies have different conclusion about relationship between technology capability and firm performance. For example, Erkmen et al. (2020) found that technology capability has no effect toward business outcomes. Khin and Ho (2019) claimed that link between technology capability and firm performance could have a mediating factor. Technology-based innovation can boost productivity of company's operations (Akter et al., 2016). Meanwhile, technologically-based product and process innovation can serve as a bridge between technology and organization performance (Saleem et al., 2020).

Hypothesis 6. Technological capability has a positive indirect effect on firm performance mediated by service innovation.

Product adjustment is a business strategy that should be implemented in a rapidly changing business environment, such as changes in consumer needs due to the pandemic, by empowering the ability to innovate (Christa et al., 2020). In light of consumers' reduced purchasing power due to the pandemic impact, there is a pressing need to enhance innovation-based organizational practices to develop products or services that align with current customer needs and trends (Christa & Kristinae, 2021). As a result, market orientation, such as paying more attention to consumer needs and market trends to maintain business performance through product innovation, can become a company reference in the pandemic crisis (Christa et al., 2020; Christa & Kristinae, 2021).

Hypothesis 7. Market orientation has a positive indirect effect on firm performance mediated by service innovation.

The diagram in Picture 1 illustrates the research hypotheses.



Picture 1. Research Hypotheses

3. METHODOLOGY

3.1 Data Collection

According to the Indonesian Financial Services Authority (2022), numbers of Indonesian insurance companies are 138 (61 life insurance and 77 P&C insurance companies). But, seven companies are intentionally not included in sampling frame because they have management problems and just started operating in 2020 which did not have financial performance records before the pandemic. Therefore, the sample size is 98 insurance companies on the Krejcie-Morgan formula (Sekaran & Bougie, 2016) for a known population (131 companies as total sampling frame).

The Indonesian insurance companies are very varying because of type, ownership, size reflected by total asset, and age category. The sample were selected by using a proportionate stratified sampling method from multiple sub-categories of sampling frame (Rahman et al., 2022). The respondent to be answered survey, is top executive member. The data was collected using Microsoft Forms during 2022.

The respondents were contacted by WhatsApp or LinkedIn Messaging. We communicated to 113 insurance companies, but only 105 of them responded and willing to fill the survey. We conducted verification based on LinkedIn database and company website. Only 98 sample were valid. Table 1 presented respondent profile and Table 2 provided characteristics of the company.

Table 1. Profile of respondents.

Attribute	Category	Frequency	Percentage
Position level	Director	42	42.9%
	Chief/Vice President/General Manager	56	57.1%
Job function	CEO	13	13.3%
	Finance and Investment	13	13.3%
	Operations and Information Technology	17	17.3%
	Sales and Distribution	14	14.3%
	Product Development and Marketing	17	17.3%
	Actuary and Risk Management	7	7.1%
	Strategy, Research and Analytics	12	12.2%
	Legal and Compliance	5	5.1%

Table 2. Characteristics of insurance companies that participated in this research.

Attribute	Category	Frequency	Percentage
Company type	Life insurance	46	46.9%
	P&C insurance	52	53.1%
Company ownership	State-owned enterprise	4	4.1%
	Local private company	55	56.1%
	Multi-national company	39	39.8%
Company Size	Big asset ⁵	49	50.0%

⁵ Big asset for life insurance company if its asset is more than USD 345 million, and for P&C insurance company if its asset is more than USD 69 million.

	Small-medium asset	49	50.0%
Company age	More than 20 years	70	71.4%
	Equal or less than 20 years	28	28.6%

3.2 Measurement of Variables

This study adopted and modified indicators, with some adjustments aligning business practices in insurance industry, for technological capability from Benitez et al. (2018), Mekhum (2020), and de Oliveira et al. (2020), and for market orientation from Afifah and Daud (2019) and Mekhum (2020). Measurement of service innovation used adapted indicators from Afifah and Daud (2019) and Heng et al. (2020). Insurance firm performance construct leveraged indicators from Felício and Rodrigues (2015), Krasheninnikova et al. (2019), and Rajapathirana and Hui (2018).

To test conceptual model in management research, many researchers employ PLS-SEM as an alternative method of CB-SEM (Hair et al., 2014). Hair et al. (2014) recommended that if the research is exploratory and contained formative construct, then PLS-SEM is good alternative for analysis. Therefore, this study employed WarpPLS 7.0 as PLS-SEM analytical tool because this study was exploratory research.

4. RESULTS AND DISCUSSION

Table 3 fulfilled minimum thresholds of factor loading 0.60, AVE 0.50, Cronbach's Alpha 0.70, Composite Reliability 0.70 (Hair et al., 2014). Based on the result of Fornell-Lacker criterion, discriminant validity (see Table 4), correlation between variable and the square root of AVE indicated no problem with the top numbers being the biggest one. Therefore, based on Table 3 and Table 4, all variables were valid and reliable.

Table 3. Construct's reliability and validity test.

1 st Order Construct	2 nd Order Construct	Indicator	Factor Loading	Cronbach's Alpha	CR	AVE
Technology Capability	-	Mobile application	0.706	0.768	0.853	0.594
		CRM application	0.826			
		Data Warehouse	0.841			
		Responsive and agile IT infrastructure	0.699			
Market Orientation	Information Gathering	NPS measurement	0.819	0.721	0.844	0.645
		Customer segmentation	0.735			
		Competitor information	0.850			
	Information Dissemination	Market trend discussion	0.729	0.796	0.882	0.716
		NPS result discussion	0.898			
		NPS target and result communication	0.900			
	Response to Information	Regular product review	0.858	0.777	0.871	0.692
		Response to business environment changes	0.835			
		Response to competitor's	0.801			

		action				
Service Innovation	Service Standard Changes	Adoption new approach for marketing program	0.872	0.700	0.835	0.629
		Exploration for new business model	0.796			
		Benchmark new product/service	0.704			
	Accelerated Service Process	Service with unique benefit	0.771	0.705	0.836	0.629
		Speediness complaint resolution	0.792			
		New method in business process management	0.817			
Firm Performance	Financial Performance	Premium income	0.872	0.901	0.931	0.772
		Premium growth	0.919			
		Return on investment	0.864			
		Profitability	0.858			
	Non-Financial Performance	Market share	0.766	0.751	0.843	0.575
		Customer satisfaction	0.756			
		Speediness product launch	0.821			
		Technological competitiveness	0.684			

Table 4. Discriminant validity test.

	A	B	C	D
A. Firm Performance	0.869	0.468	0.355	0.296
B. Service Innovation		0.932	0.615	0.527
C. Technological Capability			0.771	0.535
D. Market Orientation				0.887

This research model has Goodness of Fit with determination R-squared and predictive relevance indices Q-squared (see Table 5). Service innovation has R-squared 0.429 with 0.287 of technological capability's effect size and 0.143 market orientation's effect size. Q-squared of service innovation is 0.433 that means its exogenous variable have enough power as predictor. The R-squared of firm performance is 0.237 with 0.194 of effect size from service innovation, 0.036 from technological capability and 0.007 from market orientation. Q-squared of firm performance was 0.245 that means the predictive relevance from its predictor variables is medium power.

Table 5. Determination coefficient, predictive relevance indices and effect size.

	Service Innovation	Firm Performance
R-squared	0.429	0.237
Q-squared	0.433	0.245
Effect size of Service Innovation	-	0.194

Effect size of Technological Capability	0.287	0.036
Effect size of Market Orientation	0.143	0.007

Table 6. Model fit and quality indices.

Indices	Criteria	Result
Average path coefficient	\leq Significance level: 5%	0.253 (P=0.001)
Average R-squared	\leq Significance level: 5%	0.333 (P<0.001)
Average adjusted R-squared	\leq Significance level: 5%	0.315 (P<0.001)
Tenenhaus GoF	Small \geq 0.1; Medium \geq 0.25; Large \geq 0.36	0.482
Average full collinearity VIF	Acceptable if \leq 5	1.632
Sympson's paradox ratio	Acceptable if \geq 0.7	1.000
R-squared contribution ratio	Acceptable if \geq 0.9	1.000
Statistical suppression ratio	Acceptable if \geq 0.7	1.000
Nonlinear bivariate causality direction ratio	Acceptable if \geq 0.7	1.000

Table 7. Hypothesis test and path analysis.

Path Direction	Path Coefficient	p-values	Result
Direct Effect			
H1: Service Innovation \rightarrow Firm Performance	0.405	<0.001	Accepted
H2: Technological Capability \rightarrow Firm Performance	0.099	0.139	Rejected
H3: Market Orientation \rightarrow Firm Performance	0.025	0.393	Rejected
H4: Technological Capability \rightarrow Service Innovation	0.466	<0.001	Accepted
H5: Market Orientation \rightarrow Service Innovation	0.270	0.001	Accepted
Indirect Effect			
H6: Technological Capability \rightarrow Service Innovation \rightarrow Firm Performance	0.188	0.002	Accepted
H7: Market Orientation \rightarrow Service Innovation \rightarrow Firm Performance	0.109	0.045	Accepted

Table 6 presented Model Fit and Quality Indices to ensure idealistic of research model. All indexes in Table 6 fitted with criteria. Therefore, this research model is acceptable. Based on Table 7, all hypotheses are accepted except H2 and H3. For indirect relationship, H6 and H7 are also accepted. Hence, service innovation succeeded to be a full-mediator for technological capability and market orientation toward insurance firm performance.

According to Table 7, service innovation significantly affected insurance firm performance during times of crisis, such as the pandemic. This finding was aligned with research from Huhtala et al. (2014) that innovation can influence company performance during the 2008 global financial crisis. Furthermore, innovating new products or services is one trait to be successful throughout challenging economic times (Temel & Forsman, 2022). However, technological capability did not have direct impact toward insurance firm performance during the pandemic. This finding supported research from Hanif et al.

(2018) about there is no positive effect from technology to firm performance. The research finding that direct impact of market orientation on insurance firm performance during the pandemic, was not observed. This result strengthened argument from Kurniawan et al. (2020) that market orientation has no direct influence on company performance.

The finding on no direct effect of technological capability and market orientation toward firm performance has implication that an intervening variable should be employed to mediate their effects in influencing firm performance. This argument has been proved by the hypothesis of indirect relationship shown in Table 7. Technological capability and market orientation affected firm performance during the pandemic throughout service innovation within the insurance companies. This finding that innovation became a mediator between technology capability and firm performance, strengthened previous study from Khin and Ho (2019). An innovation as mediator between market orientation and firm performance in the pandemic, also supported previous study from Christa et al. (2020).

5. CONCLUSION AND IMPLICATION

There are many studies on the antecedents to maintain and enhance firm performance in environmental turbulence, such as the pandemic crisis. Therefore, this paper is motivated to initiate a novel perspective on how insurance company can leverage technological capability, market orientation, and service innovation to survive during and after the pandemic. The findings revealed that service innovation significantly impacted on firm performance. However, both technological capability and market orientation have no direct affect toward firm performance. As a result, service innovation occupied a unique position in Indonesian insurance industry, serving as a mediator between technology capability, market orientation, and firm performance.

It is admitted that the study has limitations because this study is a cross-section study. In addition, this research needs to conduct in-depth interviews with top executives of insurance company, the regulator, and the insurance association to enrich the reasons for this study's findings. Nevertheless, this study provided some insights into service innovation's role and its consequences on firm performance during the pandemic. Finally, the development of service innovation is a top priority for the insurance company in the face of turbulence such as the pandemic. Moreover, the development should incorporate the enhancement of technology capability and the improvement of market orientation.

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