

Assessing the Role of Knowledge Management and Innovation in Indonesian Tuna Fishery Performance

DJOKO SETYADI¹, DODDY ADHIMURSANDI^{2,*}, RAFLY AMANDA¹

¹Faculty of Economics and Business,
Widyagama Mahakam University,
INDONESIA

²Department of Management, Faculty of Economics and Business,
Mulawarman University,
INDONESIA

**Corresponding Author*

Abstract: - The Indonesian fishery industry, a major part of the economy of the country, needs to raise its abilities in knowledge absorption, human intelligence, and innovation. In a study conducted in Bali, Indonesia, this article attempts to clarify the impact of absorptive capability, intellectual capital, and innovation on the performance of tuna fishery companies. This research uses a descriptive quantitative method. Data was acquired through a survey of 85 tuna fishery companies in Bali, Indonesia. This study employed the partial least squares (PLS) method with the aid of SmartPLS 3. The results of our data indicate that absorptive capacity doesn't significantly affect a company's performance since absorptive capacities in fact are ordinary capabilities, while intellectual capital and innovation represent extraordinary capabilities and bring good influences to a company. Therefore, this study proposes that the tuna fishery enterprises in Bali should strengthen absorbing power, develop intellectual capital, and use innovation as a leverage point for competitive advantage.

Key-Words: - Absorptive Capacity, Intellectual Capital, Innovation, Company Performance.

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1 Introduction

Indonesia, as a maritime country, has great potential for further developing the Blue Economy. The strategy underscores the following sentence: Pursues inclusive and sustainable economic development, [1], rooted in the balanced integration of social, economic, and environmental aspects of development. The Key Objective of this initiative is to strengthen the maritime Job creation in the sector by building GDP in the industry, and expand the state's marine zones dedicated to conservation, [2].

The Indonesian economy heavily relies on the maritime sector; the contribution of the maritime sector to national GDP has been a prominent policy agenda, [3]. In Indonesia, the National Long-Term Development Plan (2025–2045) aspires for this sector to play its role of 15% of GDP by 2045, [4]. The fisheries subsector alone contributes 3.1% of total GDP, highlighting its importance to the national economy, [5]. However, structural challenges, which not only stifle growth but also

sustainability, continue to limit the vast potential of the segment.

Indonesia's fishery sector faces a critical challenge: the need to develop adaptive innovations that enable it to sustain competitiveness and resilience in a changing environment. Innovation, the creation and implementation of new ideas, processes, or products, is an important tool to respond to changing market needs and obtain distinctiveness. However, the sector continues to be characterized by poor knowledge integration capacities and talent shortage that seriously limit innovation, [6].

Absorptive capacity is the ability of an organization to recognize the value of new external information, assimilate it, and apply it to commercial ends, [7]. This is especially vital for companies in rapidly evolving fields, as it enables them to maintain their competitive edge through efficient access to external information. In Indonesia's fisheries sector, invigorating absorptive capacity is required to assimilate new technologies

and global know-how to improve efficiency and sustainability, [5].

It combines the knowledge, skills, and competence of the staff with the structure that sustains innovation in an organization. It is broadly divided into three categories: human capital focusing upon the factual and technical skills of workers; structural capital concerned with organisational practices, routines, systems, and processes; and, where those two meet, relational capital, which alludes to a relationship with people such as customers or suppliers. Intellectual capital is a source of opportunities that depends on the culturally networked "intellectual capital", [8]. This parallel process forces those involved to respond to change and create market disturbances. Meanwhile, the fishing sector in Indonesia is suffering from growing environmental uncertainty: in addition to the weather-related damage of warming waters, market variables are becoming more and more unpredictable; then there is the volatility of changed regulations and increased production costs. These immense forces should make it hard for firms to operate across borders with a major economic power without any kind of limitations on access and significant market re-arrangement. Therefore, to improve adaptive capacity and intellectual capital is needful for increasing resilience and competitiveness of this particular production system, [9].

While the fisheries sector holds important promise moving forward with its potential continued contribution to GDP and export earnings, [10]. It is important to note that the fisheries industry also faces significant challenges. Research has shown that investing in advanced technology, human resources, and innovation leads to higher company performance compared to your peers, [11]. As a response, this study aims to see the effect of absorptive capacity and intellectual capital on innovation and organizational performance in the fisheries sector of Indonesia. The analysis aims to enhance theoretical and practical insights into how such industrial engineering capabilities help firms establish and sustain competitive advantage within turbulent environments.

This study was conducted on tuna fishing companies in Bali Province. The study also investigates the interaction between absorptive capacity, intellectual capital, and innovation and explains their impact on firm performance through a series of research questions. This is intended to produce highly actionable findings that could lead to strategies that will facilitate innovation, advance organizational competencies, and, ultimately,

improve performance in a changing industry environment.

2 Literature Review

2.1 Corporate Performance

The concept of corporate performance captures the outcomes of organizational activities over a specific period in relation to predetermined objectives, [12]. As noted in [13], performance is commonly assessed by monitoring productivity levels and the capacity of human resources to generate goods and services. According to [14], an individual's performance reflects the extent to which they successfully fulfill their tasks. In addition, [15], contend that performance includes behaviors and actions that are relevant to achieving organizational goals. Consistent with this reasoning, [16], observed that employees exhibit stronger self-motivation when they are provided with explicit and attainable goals.

Company performance reflects the success of business activities in generating profits, [17], to maximize profitability, businesses must effectively leverage knowledge by adopting a knowledge-based approach, [18]. Efficient resource management within an organization directly impacts performance. In addition, understanding market needs is vital, as market orientation enables businesses to identify consumer demands. Adapting to market changes and evolving consumer preferences is essential for enhanced performance and sustained business growth, [19].

The Firm Performance variable benchmark indicator is taken based on [20], in a study performed in [21], which consists of 5 measurement indicators. However, in this study, the indicators used are sales growth, market penetration, operational governance, business relationships, and productivity.

2.2 Absorptive Capacity

In Indonesia's fisheries industry, absorptive capacity is very important for achieving improved company performance. Companies that effectively assimilate External knowledge are better positioned to improve their competitiveness and sustainability.

Theoretical studies on absorptive capacity, intellectual capital, innovation, and company performance. A review of previous research on the relationships between these variables provides the basis for this research hypothesis. Absorptive capacity serves as a critical factor in determining an organization's capability to foster innovation and

effectively adjust to changing environmental conditions. The study [6], was presented, describing it as an organization's capacity to identify the worth of novel external information, internalize it, and utilize it for strategic business objectives. Absorptive capacity enables organizations to harness external knowledge as a catalyst for innovation and competitive advantage, making it highly relevant in dynamic and uncertain environments, [22].

The research in [23], exploring the connection between firm performance and absorptive capacity revealed that absorptive capacity, exerts a substantial and favorable influence on firm performance. Similarly, research in [24], also demonstrated a strong and favorable association between absorptive capacity and firm performance. Research in [25], showed similar results in that absorptive capacity has a positive impact and is significant on firm performance. This challenge is limited to inadequate technology and training programs that hinder the sector's ability to apply external knowledge and effectively absorb it. Therefore, increasing absorptive capacity is essential for encouraging innovation and improving performance within a company.

This research proposes the following research hypothesis based on the phenomenon: Absorption capacity has a significant and positive impact on the performance of tuna fisheries companies in the province of Bali, Indonesia. The indicators studied by, [22], consist of information providers, meetings with business partners, group learning, evaluation and prediction, and research and development. Hypothesis 1 proposed that absorption capacity has a significant and positive effect on the performance of tuna fishery companies in Bali, Indonesia.

2.3 Intellectual Capital

Intellectual capital is a multidimensional concept that integrates human, structural, and relational components. Human capital refers to the knowledge, skills, and competencies possessed by employees, while structural capital comprises organizational systems, processes, and cultural frameworks that support and enhance workforce performance. Relational capital highlights the value of networks established with key stakeholders, including clients, suppliers, and external partners, [26].

According to, [8], firms with stronger intellectual capital are more capable of harnessing knowledge to drive innovation and improve performance. Likewise, [27], highlights its strategic importance in building sustainable competitive

advantage by fostering continuous learning and adaptability. Within Indonesia's fisheries sector, the effective management of intellectual capital is particularly vital for strengthening innovation capacity and competitiveness. However, limitations in the optimization of human and structural capital continue to constrain the sector's ability to innovate and adapt to environmental shifts. Thus, examining the influence of intellectual capital on performance is essential for advancing both competitiveness and long-term sustainability.

The literature extensively acknowledges intellectual capital as an essential element shaping organizational performance, comprising workforce expertise and the supporting organizational systems that facilitate innovation and competitiveness, [8]. Earlier investigations provide substantial evidence of its beneficial impact. For instance, [28], reported that intellectual capital advances firm performance by reinforcing knowledge management and innovation, while, [29], highlighted its pivotal role in promoting both competitiveness and organizational success.

The relationship between intellectual capital and organizational performance demonstrated that intellectual capital substantially improves firm outcomes. In a similar vein, [30], emphasized the constructive and significant role of intellectual capital in enhancing organizational performance. The study [31], corroborated these results, revealing that intellectual capital exerts a significant and favorable influence on firm performance.

Furthermore, research conducted in [32], the effect of Intellectual Capital on firm performance, demonstrated a significant and positive relationship between public satisfaction and service quality. Another study in [33], produced similar findings, indicating that Intellectual capital substantially impacts organizational effectiveness. The indicators examined included skills, expertise, development and knowledge, discipline, and opportunities for socialization. Consequently, the second hypothesis stated as follows: Intellectual Capital significantly affects Firm Performance in tuna fisheries companies located in the province of Bali, Indonesia.

2.4 Innovation

Innovation is extensively acknowledged as a vital catalyst for firm performance and competitive positioning. By fostering differentiation, improving operational processes, and meeting changing customer demands, innovation directly contributes to organizational advantage, [34]. Previous research

reinforces this connection, [35], demonstrated its significant effect on financial outcomes, and [36], underlined its crucial contribution to productivity growth and enhanced firm performance.

Innovation is a critical necessity for the fisheries industry in Bali Province, especially in tuna fisheries, where firms must contend with environmental unpredictability and market instability. Evidence suggests that enterprises investing in innovation, advanced technologies, and R&D are more capable of overcoming such obstacles and achieving stronger performance outcomes, [37].

Studies have consistently shown that innovation plays a decisive role in mediating the link between absorptive capacity and organizational performance. Specifically, [38], found that innovation acts as a conduit through which absorptive capacity contributes to improved performance. Likewise, [39], underscored the importance of innovation in bridging this relationship, particularly in the context of complex organizational systems

Research [28], revealed that innovation mediates the relationship between intellectual capital and firm performance, underscoring its critical role in driving performance gains. Similarly, [29], highlighted innovation's mediating function in linking intellectual capital to organizational performance, particularly within the context of dynamic organizational systems.

The study [40], confirmed that innovation positively and significantly influences organizational performance. Likewise, [41], reached similar conclusions, emphasizing innovation's role in driving firm performance improvements. Furthermore, [21], carried out research examining the influence of innovation performance on organizational outcomes. Their research identified a statistically significant and positive relationship between service quality and public satisfaction. Similarly, [42], confirmed that innovation performance exerts a favorable and substantial impact on firm performance.

The Innovation variable indicator is in this research conducted in [43], namely: product growth, product growth innovation frequency, innovation frequency, competitive advantage, process speed, and new technology. Product growth, product growth innovation frequency, innovation frequency, competitive advantage, competitive advantage, process speed, and new technology. The formulated hypothesis is presented as follows: Innovation has a significant effect on

Firm Performance in tuna fisheries companies in the province of Bali, Indonesia.

3 Research Methods

3.1 Research Design

This investigation adopts a quantitative research framework with a descriptive design to investigate the relationship among absorptive capacity, intellectual capital, innovation, environmental uncertainty, and performance in Indonesian fishery companies. The descriptive design seeks to offer a deeper understanding of the defining features of the sample population. And the interrelations among the variables of interest. This research employs a cross-sectional survey approach, enabling the gathering of data from a substantial sample of respondents at a single moment in time. This approach is appropriate for examining the relationships among multiple variables and testing the research hypotheses.

3.2 Population and Sample

The research object was the members of the Indonesian Tuna Longline Association (ATLI), which includes 87 businesses: 85 businesses were in Bali and could provide data. Of the 87 businesses whose data were submitted, 85 came through the net. So the population of 86 for analysis became 85 companies that participated in the survey work. A manager or an executive representative for each company, made up the sample with 85 people Through this form of investigation a more reliable understanding of the population can be obtained -as well as providing for some validity in deriving insights in terms specifically related to interrelationships between variables The sample was made up of several companies in Indonesia's fishery industry with different scales, from different areas, and at varying operations levels. Such variety offers ample scope to study what influences innovation or productivity outcomes in industry.

3.3 Data Collection

We used a questionnaire that we designed systematically to obtain the data on absorptive capacity, intellectual capital, innovation practices, environmental uncertainty, and company performance. Maintaining the analytical side of questions. This particular performance is exposed in turn to assessment for open items, while content items must have Likert-type scales. We conducted

pretesting on the instrument to check its validity, as well as its reliability, which was demonstrated by these exercises. Consumers' insights about the initial pretest helped to revise the questionnaire for greater clarity in wording and its relevance to the context.

3.4 Data Analysis

The gathered data were examined through the Partial Least Squares (PLS) technique, utilizing SmartPLS 3 software for analysis. Table 1 (Appendix) illustrates the findings derived from the initial stage of the analysis and Figure 1 (Appendix).

Overall, in Table 2 (Appendix), all constructs in this model have met the loading factor criteria above 0.7, indicating that each indicator has a significant contribution to the construct it represents. This shows that the measurement model used in the study has shown good convergent validity.

4 Result

4.1 Discussion of Analysis Results

The outcomes of the hypothesis testing offer an in-depth analysis of the broader implications of these results for tuna fishery companies in Bali Province, Indonesia.

4.2 Absorption Capacity on Corporate Performance

The results in Table 3 (Appendix) show that absorption capacity has only a very small direct effect on firm performance, reflected in a coefficient of -0.060 with a p-value greater than 0.285. This result suggests that absorption capacity in the sample remains weak, thus limiting its effect on firm performance. As a result, low absorptive capacity seems to hinder the performance of tuna fishing firms in Bali Province, Indonesia.

4.3 Intellectual Capital on Corporate Performance

In Table 3 (Appendix), intellectual capital has a significant effect on firm performance, which is reflected in the coefficient value of 0.702 and p-value > 0.0. The positive coefficient indicates a positive relationship, indicating that intellectual capital has a statistically significant effect. This indicates that intellectual capital directly affects the performance of tuna fishing companies in Bali

Province. In addition, intellectual capital is essential in driving innovation performance.

4.4 Innovation in Corporate Performance

Innovation directly affects firm performance with a coefficient of 0.239 and a p-value < 0.05 in Table 3 (Appendix), indicating that each one-unit increase in innovation correlates with a 23.9% increase in firm performance. The low p-value indicates strong statistical significance, suggesting that innovations made by the company have a positive impact on its performance. Tuna fishing companies in Bali Province can innovate products and production processes to improve efficiency, reduce costs, introduce new products that meet market needs, strengthen their market position, and ultimately increase profits.

The research's findings offer valuable insights into the relationship between absorptive capacity, intellectual capital, and innovation and their impact on the performance of tuna fisheries companies in Bali Province, Indonesia. Absorptive capacity does not affect company performance because some of the indicators are still low, so those that support absorptive capacity are only evaluation and R&D indicators, while indicators for mutual information and knowledge sharing between businesses are still lacking.

4.5 Contribution of Research Results

This research offers a valuable contribution to both theoretical frameworks and practical applications. Theoretically and empirically, absorptive capacity, intellectual capital, and innovation affect firm performance, providing a comprehensive framework for analyzing this relationship in other industries and contexts. Practically, this study offers actionable insights for managers and policymakers of tuna fishery companies in Indonesia, revealing that the absorptive capacity or absorptive power of the fishery industry remains low. Therefore, it is necessary to emphasize the importance of investing in absorptive capacity and innovation to improve competitiveness and performance. Policymakers can use these findings to design policies that support knowledge sharing and innovation, thereby encouraging the growth and sustainability of the tuna fisheries industry, particularly the fisheries industry in Indonesia. Emphasizing the importance of absorptive capacity as the main driver of innovation with intellectual capital, in accordance with the demands of increasingly advanced technology, will help a company progress so that it can compete with companies abroad. This study provides a roadmap for business actors who want to

navigate the dynamic challenges of the current digital era.

5 Research Limitations

Although this research provides important insights. Although this research offers valuable contributions, it is not without limitations. The cross-sectional design restricts the ability to make causal conclusions, and the limited sample size may influence the applicability of the findings to broader contexts.

Future research would benefit from adopting a longitudinal design to provide richer insights into how these relationships develop over time and by incorporating a larger, more diverse sample of firms. Since this study was limited to the tuna fisheries sector in Bali, Indonesia, the findings may not be generalizable to other industries or regions. Broader investigations across multiple sectors and geographic contexts would contribute to a more comprehensive understanding of these dynamics.

6 Conclusion

These findings highlight the significance of absorptive capacity, intellectual capital, and innovation in enhancing the performance of tuna fishery firms in Bali, Indonesia. Firms are encouraged to invest in developing their absorptive capabilities and intellectual capital to sustain a competitive advantage, especially in a dynamic and uncertain global market. This study emphasizes the crucial role of absorptive capacity, particularly in R&D, along with suitable intellectual capital and the capacity to innovate to enhance firm performance.

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Conflict of Interest

The authors have no conflict of interest to declare

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APPENDIX

Table 1. Coefficients Loading Factor

	INNOVATION (X3)	ABSORPTION CAPACITY (X1)	CORPORATE PERFORMANCE (Y)	INTELLECTUAL CAPITAL (X2)
X1.1		0.668 *		
X1.2		0.647 *		
X1.3		0.761		
X1.4		0.688 *		
X1.5		0.746		
X2.1				0.659 *
X2.2				0.766
X2.3				0.803
X2.4				0.820
X2.5				0.902
X3.1	0.846			
X3.2	0.872			
X3.3	0.832			
X3.4	0.797			
X3.5	0.768			
Y1.1			0.859	
Y1.2			0.877	
Y1.3			0.708	
Y1.4			0.921	
Y1.5			0.739	

*Indicator loading factor removed
Source: Results Data Processing Using SmartPLS 3

Table 2. Loading Factor

	INNOVATION (X3)	ABSORPTION CAPACITY (X1)	CORPORATE PERFORMANCE (Y)	INTELLECTUAL CAPITAL (X2)
X1.3		0.857		
X1.5		0.876		
X2.2				0.757
X2.3				0.841
X2.4				0.864
X2.5				0.891
X3.1	0.846			
X3.2	0.872			
X3.3	0.832			
X3.4	0.797			
X3.5	0.768			
Y1.1			0.858	
Y1.2			0.879	
Y1.3			0.711	
Y1.4			0.921	
Y1.5			0.735	

Source: Results Data Processing Using SmartPLS 3.0

Table 3. Path Coefficients

	Path coefficient	T statistics	P-values	Result
Absorption Capacity (X1) -> Corporate Performance (Y)	-0.060	1.070	0.285	Rejected
Intellectual Capital (X2) -> Corporate Performance (Y)	0.702	11.897	0.000	Supported
Innovation (X3) -> Corporate performance (Y)	0.239	3.538	0.000	Supported

Source: Results Data Processing Using SmartPLS 3

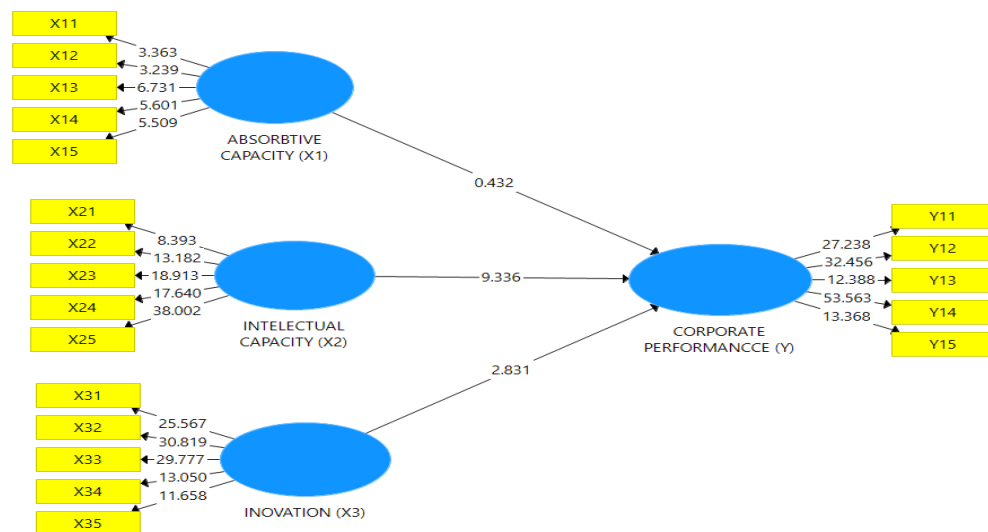


Fig. 1: Hypothesized research model

Source: Output Smart-PLS 3.0