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ADVANCING RADICAL INNOVATION IN INDONESIA'S SHARIA BANKING INDUSTRY THROUGH INTELLECTUAL CAPITAL AND KNOWLEDGE ABSORPTIVE CAPACITY

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Abstract

Sharia finance remains suboptimal in distributing working capital loans due to the limited features of its financing products compared to conventional banks. This gap underscores the urgent need to develop radically innovative Sharia banking products that enable Sharia banks to compete with conventional banks and highlight their offerings' distinctiveness. This study examines the relationship between knowledge potential, realized absorptive capacity, intellectual capital (IC), and radical innovative performance, forming a strategic framework to advance the Sharia banking industry. Grounded in the Resource-Based View (RBV) theory, the authors propose that knowledge potential and realized absorptive capacity serve as mediators, linking IC to radical innovative performance. Employing data collected from 234 valid questionnaires across Sharia Bank sites in Indonesia, the findings reveal that IC, mediated by absorptive capacity, significantly enhances radical innovative performance in Indonesia's Sharia banking sector. Furthermore, the study extends RBV theory by demonstrating how IC drives innovation through serial mediation of absorptive capacity variables. By integrating knowledge management, aligned governance, and technological investments, Sharia banks can sustainably innovate and preserve competitiveness, thereby shaping the future of the Islamic finance landscape.

Keywords: Intellectual capital, knowledge potential absorptive capacity, knowledge realized absorptive capacity, radical innovative performance.

JEL Codes: G21, O31, M10, L25

1. Introduction

Throughout 2024, the growth of Islamic banking in Indonesia was robust, as indicated by continued positive asset growth(Rofik et al., 2025). The Financial Services Authority (OJK) reported that approximately 9.34% of the banking system is attributed to Sharia banks. In contrast, the market share achievement percentage is still relatively low, far from proportional, compared to the conventional banking market share, which stands at 91.83% and has experienced a slow increase over the last five years(Iqbal et al., 2024). Several causes can trigger a slowdown in the growth of the sharia banking market share, including the limited availability of sharia banking products, which tend to mirror those of conventional banking, leading to the perception that sharia banks lack unique product characteristics(Abasimel, 2023). These product prices are less competitive, and the quality is not as good as that of conventional banks. In addition, the buying and selling system in Sharia bank financing contracts is more dominant than the profit-sharing and leasing systems(Siddiqui, 2008). More than half of Sharia Bank's profit-sharing is allocated to consumption. The increase in financing for consumption purposes also occurred at the Sharia Bank, which, in previous years, had only reached a third of the total financing portfolio(Arshed et al., 2020). However, Sharia finance is not yet optimal in distributing working capital loans, as the financing product features are still relatively limited compared to conventional banks(Kayani, 2023). Therefore, strategic steps are necessary for

developing innovative Sharia banking products, enabling Sharia banks to compete with conventional banks while showcasing the uniqueness of their offerings.

The product innovations presented do not disrupt the goal of maintaining financial system stability, which is essential for Sharia banking stability(Mohd Haridan et al., 2023). A policy response is needed to anticipate potential new sources of risk due to the rapid digital innovation in the financial sector, including enhancing product innovation in Islamic banking. All banks strive to enhance their strategies and innovations to improve corporate performance, driven by the needs of various banking stakeholders, especially customers(Taherparvar et al., 2014). Bank customers have high expectations regarding banking facilities, features, and services to conduct financial transactions, such as purchasing and leasing new vehicles, and life insurance(Mangala & Soni, 2023). Banking strategies significantly impact the development of bank quality, including employee performance, modern banking systems, and customer loyalty(Famiyeh et al., 2018). However, banks face various challenges, including government regulations, interbank competition, technological advancements, and the diverse needs of customers(Vives, 2019). Many banks feel pressured by overly strict regulations. The strategic approaches and regulatory frameworks are necessary to effectively mitigate these radical challenges in the banking sector (Wali et al., 2023).

One strategy banks can implement is to adopt a radically innovative method focusing on business systems, particularly in the banking sector(Das et al., 2018). Radical innovation is crucial in improving and developing the banking system, commonly called intellectual Capital(Agostini & Nosella, 2017). Intellectual capital centres around cognitive processes, skills, and experiences, which are shaped through priming(Ahmed et al., 2024). The intellectual capital system facilitates using cultural and cognitive resources, especially within specific companies(Sokolov & Zavyalova, 2021). Furthermore, it emphasizes accumulating knowledge, experience, and capabilities in a particular field, grounded in prior access to information, technology, and training. It is then developed into strategic assets for companies, particularly in the banking industry(Chahal & Bakshi, 2016). According to Pedro et al. (2018), intellectual Capital (IC) is composed of three main components: Human Capital (HC), Relational Capital (RC), and Structural Capital (SC). HC focuses on staff who work in the company and their knowledge, experience, and ability to deliver high-quality performance(Aryee et al., 2016). RC focuses on the influence of interactions and communication with customers, distributors, competitors, and other external stakeholders, which are closely tied to production systems, distribution channels, and access to information and technology(Lee & Ha, 2018). Furthermore, IC encompasses critical components, namely knowledge, experience, and capability, that are interconnected(Cabrilo et al., 2018). It is supported by (Ahinful et al., 2025; Truong & Nguyen, 2024; Tsou & Chen, 2020; Ul Rehman et al., 2024)that IC has increased radical innovative performance in various business sectors.Conversely, according to (Hsu & Wang, 2012; Hutahayan, 2020; Oliveira et al., 2020), HC did not contribute to increased innovative performance due to the lack of training and competence among employees. Meanwhile, study byAhmed et al. (2020) and Jordão & Novas (2024)has shown that relational capital did not affect increasing innovative performance due to less harmonious communication relationships with stakeholders, such as vendors and consumers. Study from Novas (2017) and Salangka et al. (2024) has shown that structural capital does not enhance innovative performance when the complexity of the information system used is not optimal for decision-making. Intellectual capital has a significant influence when explained theoretically; however, previous study

findings have shown inconsistent results due to the use of measurement tools that are not yet valid and credible.

To bridge the existing study gap, implementing Knowledge Absorptive Capacity (KAC) can mediate IC and innovative performance, which still focuses on the RBV. As Teece (2017) stated, the most essential capability in formulating company strategy is the ability to absorb knowledge. This absorptive capacity also offers opportunities to drive innovation, allowing companies to develop rapidly (Mahmood & Mubarik, 2020). KAC has become a central focus for enhancing the quality of modern business economics, particularly in improving knowledge development, experience, and managerial capability within companies (Martinez-Sanchez et al., 2019). This study emphasizes absorptive capacity, which aims to acquire, process, and update information to effectively implement it within the organization(Ávila, 2022). Companies must be able to integrate information from various sources by filtering and aligning it with corporate goals, enabling significant impact on their overall development (Luftman et al., 2017). The initial phase is known as Knowledge Potential Absorptive Capacity (KPAC), which focuses on acquiring and processing information(Gonzalez, 2024). The next phase, Knowledge Realized Absorptive Capacity (KRAC), centres on transforming and refining the processed information(Costa & Monteiro, 2018). KPAC is influenced by critical thinking abilities, essential for acquiring new knowledge. At the same time, KRAC is shaped by renewing and redesigning information in alignment with corporate objectives. This renewal process is supported by previously obtained knowledge and reconfigured into new strategic insights. According toEngelman et al. (2017), KPAC is crucial in enhancing IC to enhance innovation performance. It reinforces the view that IC significantly influences KPAC, as the renewal of prior knowledge combined with new information and conceptualized through KRAC can strengthen organizational knowledge, enrich experience, and improve high-quality skills within the company.

This study aimed to investigate the effect of KPAC on IC and radical innovative performance, which is the strategic foundation for developing the Sharia banking industry. This study offered three key contributions. First, it focused on developing a study model that incorporates the concepts of IC, HC, SC, RC, KPAC, KRAC, and radical innovative performance, thereby providing empirical support for the proposed hypotheses. Second, the study presented managerial implications centered on the relationships between intellectual capital, knowledge absorptive capacity, and innovative performance, which serve as a foundation for the Sharia banking sector in Indonesia. Third, the study emphasized KPAC and KRAC as IC and innovative performance mediators. Finally, the study highlighted the importance of Sharia banking management's understanding of knowledge transformation and utilization, which is vital in advancing organizational development through Radical Innovative Performance.

2. Literature Review

2.1 Resource-Based View (RBV)

RBV focuses on the source of knowledge, experience, and capabilities, emphasizing the value-driven nature of business (Teece et al., 1997). Companies with clear business strategies, qualified human resources, and structured organizational systems are more likely to achieve radical innovation. Resources focused on improving employee quality, technological advancement, information systems, and collaboration with other organizations form the foundation of the intellectual capital (IC) concept(Lentjušenkova & Lapina, 2016). Companies

view IC as a key asset as the basis, structure, and background for business development(Barney, 1991). These resources are crucial in enabling companies to gain and sustain superior performance. According to RBV, corporate assets must be complex to imitate, valuable, and unique to contribute to a sustainable competitive advantage(Barney, 1991).
Furthermore, sustained rents can be achieved when resources are authentic and valuable across various contexts. Barney (1991) was the first to develop the RBV to explain the significant influence of intellectual capital on radical innovation. Thus, banks can attain radical innovation by implementing IC as a strategic resource. As stated by (Rezaei & Ortt, 2018), IC creates high value for customers and other stakeholders in the banking sector, provided that the resource is hard to imitate, highly valuable, and unique. By adopting IC effectively, banks can enhance their radical innovation performance and establish a competitive edge over other financial institutions.

2.2 Intellectual Capital and Radical Innovative Performance

IC has various knowledge resources that focus on experience, capabilities, and understanding of technological and informational developments, which significantly influence the future progress of a company(Martín-de Castro et al., 2019). This knowledge plays a crucial role in the banking sector, as it contributes to improving service quality, enhancing banking systems, and fostering customer loyalty in conducting financial transactions(Ahmed et al., 2024). IC is categorized into three essential components. The first is Human Capital (HC), which focuses on individuals with knowledge, experience, and competencies in banking (Kengatharan, 2019). The second is Relational Capital (RC), which refers to the relationships between banks and external parties such as customers, the government, and industrial partners that provide important knowledge to the bank. The third is Structural Capital (SC), which pertains to the organizational infrastructure, including systems, human resources, and banking technology (Barrena-Martinez et al., 2019). These components are interconnected. IC is integrated through the collaboration of HC, RC, and SC. Although several theories offer diverse perspectives on these components, IC consistently rests on these three pillars(Ahmed et al., 2020; Alrowwad et al., 2020; Cabrilo et al., 2018; Kusi-Sarpong et al., 2022; Mubarik et al., 2021; Wang & Juo, 2021). This study adopted an integrative approach to combine all three IC components with a specific focus on the development of Islamic banking, particularly in terms of cooperation, values, and future competitive advantage. The study also focuses on the organization's intellectual assets, such as knowledge-based and strategic resources.

Information analysis is a key part of decision-making, particularly in Islamic banking. It includes acquiring, processing, and interpreting information (Koomson et al., 2023). HC is closely related to this concept, especially regarding receiving, updating, and managing human resource systems. Therefore, banks must be able to design and implement regulations that focus on improving organizational performance, a responsibility typically managed by the bank's Human Resources (HR) department(Masum et al., 2016). Sharia banks must be well-versed in finance, innovation, and Fiqh Muamalah (Islamic commercial jurisprudence), which creates new profit-loss sharing instruments through cognitive diversity(Johan et al., 2020). Therefore, cognitive diversity reduces groupthink and fosters the cross-pollination of ideas, enabling Sharia banks to push boundaries while remaining compliant. It requires a deep cognitive integration of Sharia principles with modern fintech to drive radical innovation and enhanced performance(Mohd Haridan et al., 2023). For example, hiring or developing talent skilled in

Islamic jurisprudence and data science can lead to innovations such as smart contracts that comply with Sharia.

Relational Capital (RC) focuses on a company's relationships with various banking stakeholders, including customers, distributors, government institutions, and others who influence the organization's systems and future performance (Kamukama & Sulait, 2017). RC is crucial in distributing information that can be utilized for collaboration or cooperation, ultimately enhancing trust, reputation, and broader access. RC significantly impacts customer loyalty, strengthens stakeholder engagement, and contributes to sustainable competitive advantage(Tolossa et al., 2025). It can be a potent enabler of Radical Innovative Performance (RIP). Sharia banking emphasizes ethical relationships, transparency, and mutual benefit, forming a fertile ground for collaborative innovation. Strong relational ties with regulators, fintech partners, and scholars allow the bank to co-develop Sharia-compliant solutions (e.g., digital zakat platforms and Islamic robo-advisors)(Taufik Syamlan et al., 2025). These trust-based networks reduce resistance to experimentation, even when innovations are radical. Relational capital links Sharia banks to regulatory bodies, fintech ecosystems, and customer advocacy groups. These networks provide Validation of Sharia compliance and technology transfer opportunities. This embeddedness accelerates the ideation and scaling of disruptive Islamic financial products, like blockchain-based sukuk or Halal crowdfunding platforms.

Moreover, structural capital comprises embedded systems, routines, databases, organizational culture, and processes, forming the invisible infrastructure that enables human and relational capital to flourish into radical innovation(Ahmed et al., 2024). Sharia banks operate within strict ethical and jurisprudential constraints; therefore, having well-documented fatwa databases, standard operating procedures (SOPs), and sharia audit trails enables innovation without violating these principles(Mergaliyev et al., 2021). These structures reduce the cognitive load for employees and teams exploring bold new solutions by codifying boundaries and best practices, facilitating a more streamlined approach to innovation. For Example, A bank with a centralized digital repository of past Sharia product assessments can more confidently accelerate the development of hybrid Islamic fintech tools. Structural capital includes culture, as embodied in core values, policies, and rituals, that signal it is safe to experiment. When Sharia banks are still values aligned with Maqashid al-Shariah, which emphasizes the objectives of Islamic law in guiding ethical and value-based innovation, they cultivate a mission-driven yet exploratory ethos(Sheikh & Hussain, 2024). It supports ambidextrous structures, maintaining compliance while enabling high-risk, high-impact innovation. Finally, intellectual capital, comprising human, relational, and structural capital, is conceptualized into a model for Sharia banking that explains how these intangible assets collectively drive radical innovative performance. Therefore, the study posits that:

H1. Intellectual capital positively and significantly enhances radical innovative performance.

2.3 Bridging Intellectual Capital and Radical Innovative Performance Through Knowledge Potential Absorptive Capacity

Knowledge Potential Absorptive Capacity (KPAC) plays a crucial role in organizational development, particularly in adapting to current advancements in technology and information (Mahmood & Mubarik, 2020). It is a foundation for modern business economics because it encompasses knowledge, experience, and capabilities that contribute to superior future-oriented organizational management (Mostafiz et al., 2022). KPAC also manages external knowledge

through analysis, renewal, and implementing of concepts aligned with corporate goals (Sjödin et al., 2019). Knowledge absorptive capacity has a broad scope, primarily focusing on enhancing organizational innovation and performance, enabling companies to compete more effectively(Ávila, 2022). It consists of strategic steps that center on leveraging external information, aligning it with company objectives to foster competitive and high-quality development. The Resource-Based View (RBV) framework also associates absorptive capacity with strategic capabilities that provide companies with a competitive edge(Teece, 2017).

Knowledge Potential Absorptive Capacity (KPAC) refers to gathering and analyzing external information into valuable organizational knowledge(Ahmad & Erçek, 2019). In contrast, Knowledge Realized Absorptive Capacity (KRAC) focuses on transforming and implementing the acquired knowledge into practical use within the organization(Truong & Nguyen, 2024). KPAC is driven by critical thinking, which helps uncover new and relevant knowledge that supports organizational learning and growth. Meanwhile, KRAC involves reconfiguring or redesigning existing knowledge to ensure it remains relevant and aligned with previously established information. Engelman et al. (2017) state that KPAC is the foundation for leveraging intellectual capital (IC) to achieve higher radical innovative performance. It underscores the important role of IC in enhancing KPAC, as the acquisition of new knowledge builds on existing internal knowledge and transforms it to improve employee performance and overall organizational quality (Soto-Acosta et al., 2018). Prior studies have shown that human resources represent Human Capital (HC), external relationships constitute Relational Capital (RC), organizational structure forms Structural Capital (SC), and the search for external knowledge supports the development of organizational knowledge (Oliveira et al., 2020).

KPAC aims to improve organizational quality by focusing on technological and informational advancement to foster innovation and productivity(Costa & Monteiro, 2018). Organizations can expand their knowledge, experience, and capabilities through acquiring, analyzing, conceptualizing, and implementing externally sourced information. Furthermore, IC facilitates the acquisition of new knowledge by leveraging its three components —namely, HC, RC, and SC—thus enabling firms to interact with external sources and transform outdated knowledge into more competitive insights. Moreover, HC and SC significantly influence KPAC, as organizations can use them to absorb and process external information(Truong & Nguyen, 2024). In the context of Sharia banking, this includes understanding Islamic financial jurisprudence, integrating fintech innovations in compliance with Sharia principles, and learning from global Islamic financial systems. Consequently, KPAC in Sharia banking is built on knowledge from relationships with customers, distributors, government agencies, and other key stakeholders (Rafique et al., 2025).

Companies must be able to analyze information through innovation-oriented processes in order to convert it into impactful organizational knowledge (Hu et al., 2024). Risyad et al. (2025)also found that Sharia banks in Indonesia improved creativity and organizational performance by enhancing their ability to analyze and absorb knowledge relevant to Islamic banking systems. KPAC supports organizational innovation by enhancing products and services that benefit customers involved in financial transactions. This study encourages company managers to focus on innovation initiatives aligned with Industry 4.0, particularly by updating internal systems to improve future efficiency and effectiveness. Furthermore, KPAC is a strategic enabler for banks to reconfigure their IC to meet customer needs, especially in halal

investment(Susiang et al., 2024). Bridging tacit and explicit knowledge is especially important in Sharia banking, where jurisprudential insights are often implicit and context-specific. Knowledge acquisition capability positively impacts innovation performance in high-tech environments(Xie et al., 2018).

Furthermore, knowledge acquisition positively impacts innovation performance, particularly when Human Resource Management (HRM) plays a moderating role. Moreover, Structural Capital (SC) also contributes to external knowledge acquisition, enhancing innovative performance (Papa et al., 2022). Components of IC, namely human resources, organizational processes, and relational networks, enable companies to develop external knowledge, which opens up opportunities for radical innovative solutions. Therefore, this study posits the following hypothesis:

H2. Knowledge potential absorptive capacity mediates the relationship between intellectual capital and radical innovative performance.

2.4 Bridging Intellectual Capital and Radical Innovative Performance through Knowledge Realized Absorptive Capacity

Knowledge Realized Absorptive Capacity (KRAC) converts existing knowledge into new knowledge through analytical processes (Ahmed et al., 2024). Employees are responsible for acquiring, analysing, and renewing knowledge obtained from both internal and external sources. As stated by (Ahmed et al., 2024), critical thinking skills play a vital role in the KRAC process. HC enhances organizational quality due to the knowledge, experience, and capabilities that align with the firm's sector. Additionally, Structural Capital (SC) facilitates the development of innovations based on existing knowledge(Ahmad & Erçek, 2019). Soto-Acosta et al. (2018)further emphasize that continuous investment is essential for advancing a company's technology and information systems. Therefore, managers must possess strong critical thinking, creativity, and problem-solving abilities to address market challenges effectively. Companies should not become overly reliant on market-driven innovation, which may lead them into a comfort zone that hinders growth. Instead, firms must be capable of identifying valuable, up-to-date opportunities and moving ahead of their competitors through strategic innovation. KRAC includes transforming jurisprudential insights into digital Sharia-compliant products, exploiting fintech Knowledge to launch AI-driven zakat platforms or blockchain-based sukuk, and reconfiguring internal capabilities to align with evolving ethical and technological demands

Intangible capital enables companies to apply knowledge and generate innovations that benefit the organization (Martinez-Martinez et al., 2019). Furthermore, IC can foster innovation based on knowledge tailored to the company's sector(Kamasak et al., 2017). As Soo et al. (2017) stated, IC comprises interrelated components that significantly impact a company's development and growth. For example, human capital may possess deep Sharia knowledge, but KRAC determines whether that knowledge is applied to create radical innovations. Most companies strive to acquire knowledge but often fail to recognize the importance of a knowledge system grounded in prior understanding. Organizational capital is built upon processes, data analysis, and organizational performance. For instance, structural capital (e.g., databases of fatwas or compliance workflows) becomes a launchpad for new services only when KRAC enables their reconfiguration through driving internal innovation processes. Strong networks provide access to external knowledge, but KRAC ensures it has transformed this knowledge into marketable, disruptive solutions by leveraging relational capital. Corporate culture plays a crucial role in

organizational capital, as it facilitates the integration of new knowledge, thereby creating opportunities for innovation within the company. Moreover, realized absorptive capacity mediates culture and open innovation (Naqshbandi & Kamel, 2017). Companies utilize knowledge as the foundation for more advanced organizational systems. As stated by (Obeidat et al., 2017), companies must be able to develop intellectual assets with innovative knowledge in order to achieve radical innovative performance. Furthermore, properly implementing knowledge can produce innovation and quality business performance. Therefore, this study posits the following hypothesis:

H3. Knowledge realized absorptive capacity mediates the relationship between intellectual capital and radical innovative performance.

2.5 A Serial Mediation Analysis: Knowledge Potential and Realized Absorptive Capacity

IC plays a crucial role in KRAC within the company, providing valuable information. IC consists of three main components that serve as a foundation for companies to communicate with external resources, gathering, processing, and conceptualizing information through technological and informational advancements. Furthermore, previous studies have demonstrated that HC and SC significantly impact KAC. Companies must be able to utilize developments in technology and information through knowledge-oriented learning processes(Mahmood & Mubarik, 2020). In addition, organizational innovativeness refers to the knowledge, experience, and capabilities to create innovations that significantly impact the company's development(Xie et al., 2018). Zhang et al. (2023) state that innovation and organizational culture are closely intertwined. It is supported by(Ahmed et al., 2024), who assert that innovation is the foundation of organizational growth. Moreover, Knowledge Potential Absorptive Capacity (KPAC) aims to develop, update, and implement technological and informational knowledge. As a result, companies can improve productivity by gathering, processing, conceptualizing, and concluding knowledge into higher-quality strategies, innovations, and organizational systems. Under the theory of RBV, IC is a VRIN resource (Valuable, Rare, Inimitable, Non-substitutable) that includes Human Capital, such as Sharia employees, ethical finance experts, and fintech-savvy staff. Similarly, structural capital comprises Islamic finance systems, compliance databases, and innovation routines. In addition to relational capital, it encompasses stakeholder trust, regulatory ties, and ummah-based networks. These assets form the raw Knowledge base that fuels innovation, but must be activated.

KPAC offers benefits in learning that emphasize critical, creative, and innovative thinking skills. It provides opportunities for companies to grow, as evidenced by valuable innovations, high-quality performance, and human resources that contribute to their development, particularly in Sharia banking (Rahman et al., 2023). As stated by(Taghizadeh et al., 2021), Knowledge Realized Absorptive Capacity (KRAC) serves as the foundation for knowledge transfer processes, focusing on exploring and subsequently exploiting knowledge as a strategy to improve business performance. In addition, KPAC significantly influences performance by maximizing the absorption of external knowledge. KPAC and KRAC are closely related, focusing on developing high-quality products and services for customers. According to (Cepeda-Carrion et al., 2016), KRAC results from KPAC development, which is based on study processes and the advancement of symbolic knowledge.

KPAC and KRAC are supported by theoretical frameworks and previous studies that highlight how their collaboration forms the broader construct of Absorptive Capacity(Ding et al.,

2023). As such, KRAC creates opportunities for firms to achieve radical innovative performance. Moreover, Engelman et al. (2017)stated that innovation is influenced by a firm's ability to acquire and renew new knowledge from external sources. Prior study has demonstrated that ACAP significantly affects innovation output (Limaj & Bernroider, 2019). Intellectual Capital (IC) facilitates firms, especially Sharia banks, acquiring knowledge through relational networks and identifying effective processes that enable opportunities for radical innovation (Khalique et al., 2015). The study posits that:

H4. Knowledge potential and realized absorptive capacity mediate the relationship between intellectual capital and radical innovative performance.

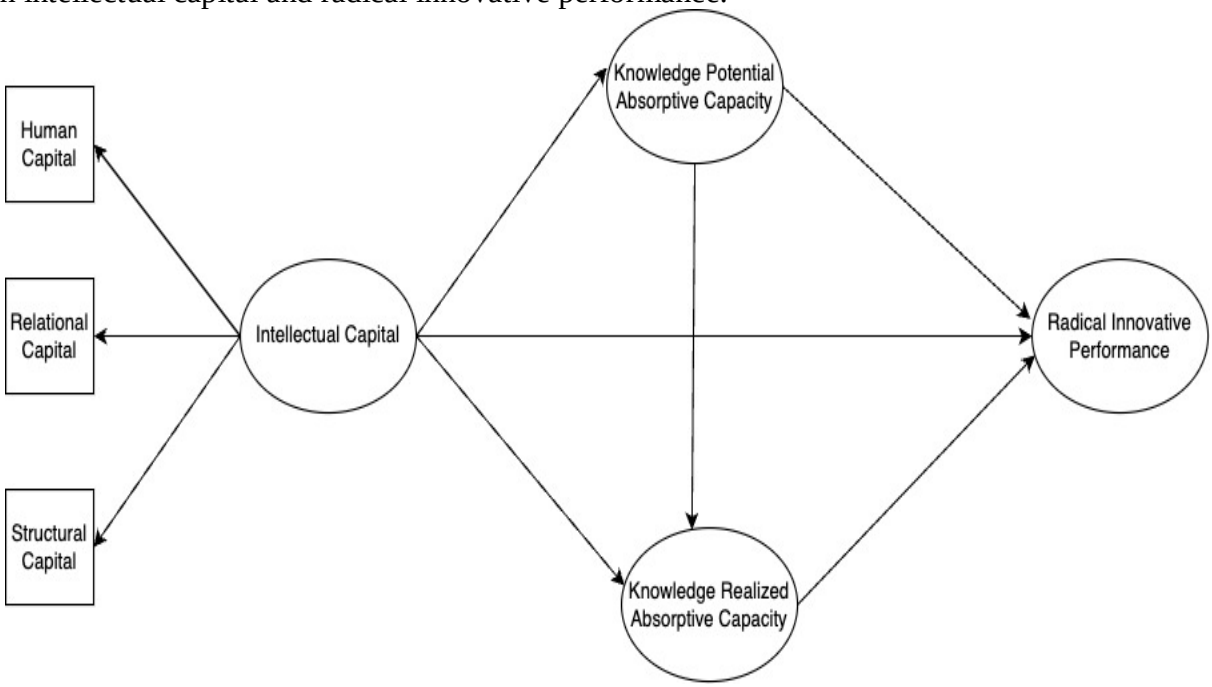

Figure 1. Conceptual Model

3. Methodology

The questionnaire survey was used to test our hypothesis within the context. This study collected data from several Sharia Bank locations in Indonesia. The database from the latest 2024 report, published by the Financial Services Authority, was used to identify the target population. The total population of this study consisted of 672 Islamic branch banks, provided that their bank assets exceeded $5 million US dollars. All these banks were then sent a study questionnaire. The top managers of the banks were required to fill out the questionnaire. Data were collected by email from October to January 2025, except for banks that refused or did not participate in the study. Of the 875 questionnaires sent to these branch banks, this study obtained 234 valid questionnaires, 34.82% of the target population. Table 1 shows the sample of this study.

This study consisted of four constructs: IC, KPAC, KRAC, and Radical Innovative Performance, each of which included several indicators. This study employed a Likert scale, where one is categorized as 'strongly disagree' and five is categorized as 'strongly agree'. The measurement instrument for Intellectual Capital (IC) was developed based on(Ahmed et al.,

2020, 2024), focusing on three dimensions of IC, each consisting of five items. The measurement of KPAC consists of seven items that focus on the organization's ability to implement knowledge acquired from external sources(Gonzalez, 2024), which is integrated into the company's system, particularly in the banking context. Furthermore, the KRAC construct comprises six items that focus on renewing existing knowledge into more advanced forms(Truong & Nguyen, 2024). The measurement of Radical Innovative Performance consists of five items(Ahmed et al., 2024).

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM), focusing on the structural relationships among the study variables about the study objectives. In addition, Table 2 presents the standardized factor loadings of the measurement items, which range from 0.808 to 0.954. The Cronbach's Alpha values for the constructs range from 0.944 to 0.976. In contrast, the Average Variance Extracted (AVE) values range between 0.820 and 0.899, as shown in Table 3, indicating that each construct in the category is significant compared to its correlation with other constructs. These results provide information related to acceptable reliability, convergence, and validity.

4. Results

SmartPLS3 was employed to analyze the hypotheses of this study by estimating the conceptual model and examining the structural path (Hair et al., 2019). Then, the regression coefficient and the "t" statistic are used to assess the validity of the hypothesis after measuring and verifying the model's validity. Additionally, two indices, "t" and "P," are used to test the significance of the hypothesis. The "t" test must be more than 1.96 if the significance level is below 1.96. Thus, the relevant parameters fall within the category of statistically significant. If the p-value is less than 0.05, each hypothesis is supported at the 95% and 99% significance levels. The results of the PLS analysis are presented in Table 4, which shows that the statistical significance of each hypothesis is based on the coefficient values (β) and t-tests. It can be concluded that the relationship between Intellectual Capital (IC) and radical innovative performance is considered significant. These findings support H1 ($\beta = 0.098$; p-value < 0.01). The influence of IC on radical innovative performance, with Knowledge Potential Absorptive Capacity (KPAC) as a mediator (H2), is also positive and significant, with $\beta = 0.203$; p-value < 0.01. Thus, H2 is supported. Conversely, the path coefficient from IC to radical innovative performance, with Knowledge Realized Absorptive Capacity (KRAC) as a mediator, is also positive but not statistically significant, with a value of $\beta = 0.017$; p-value > 0.05. It suggests that H3 is not supported. Finally, the effect of intellectual capital on radical innovative performance, serially mediated by knowledge potential and realized absorptive capacity (H4), is positive and significant ($\beta = 0.261$, p-value < 0.01), supporting H4.

Table 1. Demographics

Characteristic	Frequency	Percent
Gender		
Male	188	80.34%
Female	46	19.66%
Education		
Undergraduate	185	79.05%
Post-graduate	49	20,94%
Working Experience		
< 1 years	8	3.41%
1 – 5 years	69	29.48%
> 10 years	157	32.89%
Total Asset		
> USD 5	23	9,82%
> USD 5 Million	147	62,82%
USD 5 Million – USD 50 Million	64	27,36%
> USD 50 Million		
	234	100%

Table 2. Item Measurement Model

Item Name	Item Loading	Cronbach's Alphas	AVE
Human Capital			
HC1	0,882		
HC2	0,917		
HC3	0,915		
HC4	0,908	0,941	0,813
HC5	0,912		
Relational Capital			
RC1	0,931		
RC2	0,808	0,957	0,824
RC3	0,929		
RC4	0,933		
RC5	0,919		
Structural Capital			
SC1	0,944		
SC2	0,954	0,952	0,859
SC3	0,944		
SC4	0,909		
SC5	0,652*		
Knowledge Potential Absorptive Capacity			

KPAC1 KPAC2 KPAC3 KPAC4 KPAC5 KPAC6 KPAC7	0,934 0,928 0,936 0,939 0,926 0,936 0,952	0,973	0,846
Knowledge Realized Absorptive Capacity KRAC1 KRAC2 KRAC3 KRAC4 KRAC5 KRAC6	 0,946 0,932 0,935 0,923 0,939 0,946	0,970	0,861
Radical Innovative Performance RIP1 RIP2 RIP3 RIP4 RIP5	 0,944 0,942 0,948 0,952 0,952	0,971	0,814

Note: Drop items with loadings below 0.7

Table 3. Discriminant Validity

Variable	**KPAC**	**KRAC**	**HC**	**RIP**	**RC**	**SC**
KPAC						
KRAC	0,612					
HC	0,584	0,723				
RIP	0,692	0,682	0,718			
RC	0,745	0,585	0,621	0,704		
SC	0,659	0,631	0,589	0,573	0,556	

Figure 2. The Model Results

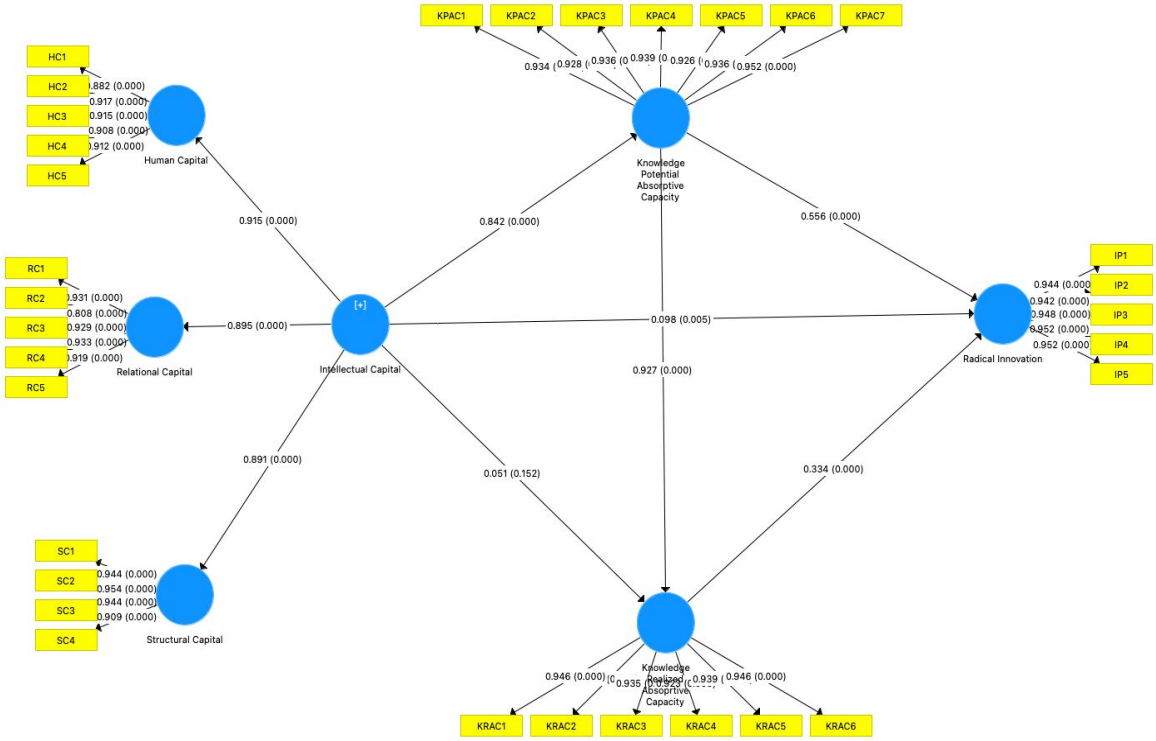

Table 4. The Hypotheses Result

Hypothesis	Relationship	Path Koefisien	Test Result
H1	*Intellectual capital* → *Radical Innovative Performance*	0,098	Significant at 99%
H2	*Intellectual capital* → *knowledge potential absorptive capacity* → *Radical Innovative Performance*	0,203	Significant at 99%
H3	*Intellectual capital* → *knowledge realized absorptive capacity* → *Radical Innovative Performance*	0,017	Non-Significant
H4	*Intellectual capital* → *knowledge potential absorptive capacity* → *knowledge realized absorptive capacity* → *Radical Innovative Performance*	0,261	Significant at 99%

5. Discussions

The empirical data showed that intellectual capital increases radical innovative performance at Sharia Bank—employees' intellectual capability and expertise, which is crucial for supporting product innovation aligned with Sharia principles. Skilled and knowledgeable personnel can design innovative financial products that comply with Islamic law, thus driving radical innovation in the sector. Moreover, structural capital, including processes, systems, and governance structures tailored to Sharia compliance, enables efficient knowledge management and the implementation of innovation. Strong corporate governance in Sharia banks has been empirically linked to improved intellectual capital performance, supporting innovative outcomes. In addition, customer and stakeholder relationships enable banks to understand market needs and regulatory expectations, fostering innovation that meets both competitive and Shariah requirements. This relational knowledge supports the development of novel products and services that resonate with Islamic finance customers. This finding aligns with Ahmed et al. (2020) and Allameh (2018), which demonstrate that intellectual capital enhances radical innovative performance in banking. The integration of intellectual capital equips Sharia banks with strategic intangible assets that create sustained competitive advantage, enabling them to innovate radically while maintaining compliance with Sharia law.

The empirical data support the hypothesis that intellectual capital can indirectly enhance radical innovative performance by mediating KPAC in Sharia banking. Intellectual Capital (IC) comprises three key components: Human Capital (HC), which focuses on human resources; Structural Capital (SC), which centers on processes and systems; and Relational Capital (RC), which emphasizes relationships with key stakeholders. These three components influence the development of Knowledge Potential Absorptive Capacity (KPAC), which enables the firm to acquire, analyze, and renew knowledge, ultimately achieving greater excellence and quality. As a result, firms, particularly Sharia banks, can acquire knowledge related to IC and external factors that offer opportunities for developing valuable innovations. The findings of this study are consistent with those of (Ahmed et al., 2024)and(Huma et al., 2024), who emphasize that IC plays a crucial role in enhancing KPAC within the context of Sharia banking. Transforming and applying knowledge is the foundation for developing banking products, services, and systems that align with Sharia principles. This transformation is essential for radical innovation, introducing fundamentally new Sharia-compliant financial products or business models. Intellectual capital alone may not translate into innovative performance without sufficient absorptive capacity. Moreover, knowledge sharing between management and employees, supported by potential absorptive capacity, promotes a culture of continuous learning and innovation. This dynamic interaction ensures that intellectual capital is not static but is actively leveraged to generate innovative ideas and solutions tailored to the unique requirements of Islamic banking(Priyadi et al., 2023).

Additionally, Sharia banking operates under strict religious guidelines that evolve in response to interpretations and market demands. KPAC helps banks rapidly assimilate new Sharia knowledge and regulatory updates, embedding them in intellectual capital, enabling them to innovate radically while maintaining compliance. The results of this study support those of (Ahmed et al., 2024; Malik et al., 2025), which demonstrate that KPAC can improve radical innovative performance in the sharia banking. It enables the effective acquisition and

assimilation of knowledge necessary to develop novel, Sharia-compliant financial innovations that sustain competitive advantage and compliance.

Furthermore, the empirical data support the hypothesis that intellectual capital can indirectly increase radical innovative performance by mediating KRAC in sharia banking. Due to their limited capacity, Sharia banks can transform intellectual capital directly into actionable insights and innovative solutions that comply with Sharia law. Furthermore, some employees showed limited contribution to improving the banking services provided to customers. Sharia banking operates within strict religious and legal frameworks that complicate the practical application of its principles. Even when knowledge is acquired (potential absorptive capacity), transforming it into innovative products or services that fully comply with Sharia principles can be challenging, causing a gap in the effectiveness of realized absorptive capacity. Studies highlight challenges in knowledge delivery processes within Islamic banks, including misconceptions, poor integration, and limited knowledge sharing across departments or with external partners. In addition, Islamic banks may lack sufficient innovation infrastructure, such as R&D investment, technological tools, or skilled personnel dedicated to transforming knowledge into radical innovations. This resource constraint restricts the realized absorptive capacity's ability to generate impactful innovations, despite the availability of intellectual capital. As a result, intellectual capital is not fully realized and plays a limited role in mediating the organization's knowledge absorptive capacity, which IC could not increase the KRAC in Sharia banking(Migdadi, 2022; Yaseen et al., 2023). The negative implication is that knowledge absorptive capacity in Sharia banking is inadequately realized, resulting in a less effective mediation of the relationship between intellectual capital and radical innovative performance because of difficulties in transforming and exploiting knowledge due to complex Sharia compliance requirements, ineffective knowledge delivery and integration, organizational and cultural barriers, and limited innovation resources. These factors create a disconnect between possessing intellectual capital and achieving radical innovation outcomes(Fakhrunnas et al., 2019).

Ultimately, intellectual capital offers a wealth of knowledge resources and expertise. This capacity enables the bank to identify, acquire, and assimilate valuable knowledge embedded in intellectual capital and external sources such as regulatory updates or market trends. It reflects the bank's ability to absorb new Sharia-related knowledge and effectively internalize it, thereby preparing the organization for innovation. Empirical studies in Islamic banking suggest that this stage is crucial for laying the foundation for innovation by enhancing employees' learning abilities and motivation and fostering a culture of knowledge sharing(Abbas et al., 2019; Zulkifli et al., 2023). The bank can leverage the acquired and renewed knowledge to develop innovations—whether in products, services, or banking systemsthat are more effective and efficient, while remaining aligned with core Sharia principles. It involves organizational routines and processes that convert intellectual capital into radical innovation outputs, ensuring that knowledge is stored and actively applied to generate competitive advantage. This stage is critical for radical innovation performance, as it bridges the gap between knowledge possession and commercialized innovation(Nafik et al., 2022; Wildan et al., 2021). This sequential process ensures that intellectual capital leads to innovation through knowledge possession and effective knowledge absorption and application. Exploit these innovations commercially, such as launching novel Sharia-compliant financial products or services that differentiate the bank competitively and increase the transformational knowledge. Thus, it is recommended that banks

focus on regulatory frameworks within the banking system as a foundation for enhancing KRAC by implementing technological and informational advancements. This approach is expected to support the optimal achievement of innovative performance in the banking sector. That is why KRAC can improve radically innovative performance in Sharia banking. So, KPAC and KRAC serially enable the assimilation and transformation, as well as the practical application of Sharia-specific knowledge, ensuring that intellectual assets lead to developing and commercializing novel, compliant financial innovations that enhance competitive advantage and performance.

5.1 Theoretical and Practical Implications

This study focused on the effect of IC towards Radical Innovative Performance, mediated by KPAC and KRAC. IC consists of three key components, SC, HC, and RC, closely related to KPAC and KRAC. However, only a few previous studies have explored the fundamental concepts of this relationship. The study gap can be addressed by proposing a theoretical model that provides empirical evidence demonstrating a positive relationship between IC and both KPAC and KRAC, which in turn mediate the effect of IC on innovative performance. This study contributes to RBV, which emphasizes the firm's capacity to gain a competitive advantage.

Furthermore, IC is essential in developing Knowledge Absorptive Capacity (KAC) to support innovation. At the same time, previous study has examined the relationship between IC and overall firm performance (Campos et al., 2022; Hamdoun, 2020; Mubarik et al., 2019). Only a few studies focused on the effect of IC towards innovative performance through KPAC and KRAC within an integrated study model that includes organizational innovation as a key variable. Moreover, extending these two absorptive capacity variables strengthens RBV theory by illustrating how IC drives radical innovative performance through serial mediation. In the context of Sharia banking, IC significantly enhances radical innovation by implementing a mediation mechanism, in which the development of KPAC and KRAC transforms intellectual assets into Sharia-compliant innovations.

This study proved that firms must manage tangible and intangible resources to enhance innovation. This innovation can be utilized as a strategic tool to drive business growth. Therefore, the results of this study could serve as a guideline or regulatory reference for business owners and managers to improve resource performance, leading to superior, high-quality, and sustainable innovation. First, Sharia banks should implement systematic processes to capture external knowledge (e.g., regulatory updates, market trends) and internal expertise (e.g., insights from scholars). The firm should focus on structural capital, which comprises dedicated knowledge teams that monitor global Islamic finance developments and regulatory shifts.

Additionally, digital knowledge repositories provide real-time access to Sharia compliance guidelines, enhancing innovation best practices. Human capital (employee expertise) must be actively mobilized through Cross-departmental workshops to share tacit knowledge on Sharia-compliant product design. Incentive systems that reward employees for contributing innovative ideas aligned with Islamic principles. The mechanism confirms that such practices boost knowledge assimilation, turning intellectual capital into actionable innovation inputs. Relational Capital (RC) plays a crucial role in acquiring valuable information that supports business development, as these sources of information come from customers, distributors, government agencies, and other external stakeholders. RC also enables the design of business plans, the selection of technologies that align with organizational needs, and the selection of proper products and services. Companies must have leaders with the knowledge, experience, and

capabilities to build a strong corporate culture, effectively implement business strategies, and enhance the organization's intangible assets. By serially mediating IC through knowledge potential and realized absorptive capacities, Sharia banks can systematically convert intangible assets into radical innovations that comply with Islamic law and meet market demands. It requires integrated knowledge management, supportive culture, aligned governance, technological investment, and continuous performance evaluation. Such an approach enhances the bank's ability to innovate sustainably and competitively in the evolving Islamic finance landscape.

6. Conclusions and Limitations

A policy response is needed to anticipate potential new sources of risk arising from the rapid digital innovation in the financial sector, particularly the enhanced product innovation in Sharia banking. Banks must be able to connect IC and innovative performance by developing KPAC and KRAC. Furthermore, the Resource-Based View (RBV) serves as the theoretical foundation of this study, focusing on how firms evaluate and utilize their resources and capabilities to achieve radical innovative performance. The novel concept introduced in this study highlights the influence of intellectual capital improvement, mediated by knowledge potential absorptive capacity (KPAC), in enhancing radical innovative performance within the RBV theory. The mediating role of KPAC showed a significantly greater influence in improving the radical innovative performance of the antecedent variable, intellectual capital, compared to the direct relationship. Although the role of KRAC could be a mediator for IC and IP, its limited capacity allows Sharia banks to transform intellectual capital directly into actionable insights and innovative solutions that comply with Sharia law. Moreover, KPAC and KRAC serially enable the assimilation and transformation, as well as the practical application of Sharia-specific knowledge, ensuring that intellectual assets lead to developing and commercializing novel, compliant financial innovations that enhance competitive advantage and performance.

Sharia banks are the primary focus of this study, despite several limitations. The findings of this study can serve as a reference, regulatory basis, and new benchmark relevant to banks on a broader scale. This study has the potential to be further developed by conducting study in other countries, allowing for comparisons in theoretical foundations and study models that also emphasize the influence of intellectual capital (IC) on corporate performance. Data collection in this study was limited to the company's management level, involving managers who had access to internal information and data. Future study should include other stakeholders, such as shareholders, customers, and suppliers, to gain diverse perspectives on the influence of intellectual capital on innovative performance, aligning with the study objectives.

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