Unlocking Intellectual Capital's Role in Enhancing Sustainable Financial Performance: A Study of Islamic Banks in Indonesia

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Abstract: This study investigates the performance of intellectual capital (IC) within Islamic banks (IB) and evaluates its impact on sustainable financial performance. IC measurement employs the Modified Value-Added Intellectual Coefficient (MVAIC™), an advanced model derived from VAIC™. Data were gathered from 12 Islamic banks spanning the period 2012 to 2021. Empirical results reveal a significant positive relationship between IC and financial performance. Moreover, disaggregating the components shows varying degrees of association between IC components and IB financial performance indicators. Notably, efficient capital utilization and the effectiveness of human capital emerged as the most influential components of IC in this study. The findings contribute to a deeper understanding of IC and its role in the IB, offering valuable insights for stakeholders such as regulators and IB management to formulate pertinent strategies for creating, utilizing, and sustaining IC, thus fortifying the banking sector.

Keywords: Islamic banks; intellectual capital; sustainable financial performance

1. Introduction

In the era of Industry 4.0 technology, information, knowledge, and information technology (IT) stand out as pivotal resources for sustaining a competitive edge in the evolving landscape of the knowledge-based economy. These resources, constituting intangible assets or intellectual capital (IC), have garnered significant attention from a myriad of companies, including both conventional and Islamic banks, as indispensable instruments for upholding company performance. Within a knowledge-based economy, it is well recognized that intangible assets generate more wealth than their physical counterparts (Mondal & Ghosh, 2012).

The rapid evolution of the knowledge-based economy necessitates increased investment from the banking industry in information technology, research and development, and high-quality human resources to uphold its competitiveness and sustainability. Nevertheless, the assessment of bank performance has traditionally relied on financial indicators such as return on assets (ROA), return on equity (ROE), and leverage. In today's economic landscape, where knowledge management and intellectual capital (IC) play pivotal roles, relying solely on traditional financial metrics proves inadequate (M. A. Al-Musali & Ku Ismail, 2016) and insufficiently comprehensive (Pulic & Kolakovic, 2003) in capturing the overall success of an

organization.

Banks, particularly Islamic banks (IB), are recognized as knowledge-intensive entities due to the predominance of intangible assets within their operational framework, as highlighted by Mention and Bontis (2013). These institutions heavily depend on information technology for product development and delivery, while also relying on skilled human resources to innovate products and foster enduring customer relationships. Consequently, within a competitive landscape, a bank's performance is significantly shaped by its adept utilization and investment in intellectual capital (IC), encompassing human resources, integrated information technology, brand image, and business processes, as underscored by Ahuja and Ahuja (2012).

The identification, valuation, and measurement of intellectual capital (IC) have become increasingly crucial for knowledge-intensive enterprises. Within the Islamic banking sector, where operations occur in the same market as conventional banking, a sector inherently characterized by its reliance on knowledge, empirical investigation into such relationships holds significant relevance (Mavridis & Kyrmizoglou, 2005; Nawaz & Haniffa, 2017). Therefore, analyzing the correlation between IC performance and the financial performance of Islamic banks (IB) is imperative (Mention & Bontis, 2013).

Islamic finance, by its very definition, is intrinsically linked to knowledge, as it is rooted in Islamic normative principles. Consequently, Islamic banks (IB) are expected to play a role in the advancement of knowledge as part of their fundamental operations, given that their institutional framework is governed by Islamic ontology, which underscores the significance of knowledge. However, criticisms have been raised suggesting that Islamic banking products often replicate those of conventional banks, thus falling short of fulfilling Islamic requirements despite being Shariah-compliant (Ahmed, 2014; Asutay, 2012). This indicates a deficiency within the Islamic banking sector in terms of allocating resources toward developing the necessary capabilities to originate authentic products and operational models derived from Islamic ontological sources, thereby hindering its ability to meet developmental and financial expectations.

Therefore, this study aims to investigate Intellectual Capital Performance (ICP) within Islamic banking (IB) institutions and explore the relationship between IC and financial performance spanning the period from 2012 to 2021. The study sample comprises 12 Islamic banks selected from countries with notable Islamic finance presence globally. The empirical analysis employs the Value-Added Intellectual Coefficient (VAIC™) and its components—capital use efficiency (CEE), human capital efficiency (HCE), and structural capital efficiency (SCE)—developed by Pulic (2000) as proxies for IC. Additionally, an additional measure, relational capital efficiency (RCE) from Ulum (2013), is incorporated to enhance the comprehensiveness of the IC measurement, leading to the development of the Modified Value-Added Intellectual Coefficient (MVAIC™). Diverging from existing literature, this study adopts a cross-country perspective. Financial performance is assessed using accounting ratios such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) to reflect sustainable financial performance.

2. Literature Review

2.1. Resource-based Theory

Resource-based theory elucidates the utilization of resources to attain competitive advantage (Amit & Schoemaker, 1993; Black & Boal, 1994; A. Buallay et al., 2019; Mahoney & Pandian, 1992). This theory acknowledges intangible assets as pivotal in fostering sustainable competitive advantage essential for achieving superior business performance (Barney, 1991;

Nawaz & Haniffa, 2017). Wernerfelt (1984) posits that resources encompass anything that bolsters or undermines a firm's capabilities. Resources are deemed valuable if they fulfill consumer needs (Thomas & Daems, 1994; Verdin & Williamson, 1994) and enable companies to devise and execute strategies that enhance efficiency and efficacy (Barney, 1991; A. Buallay et al., 2019). Grant (1996) contends that intellectual capital stands as the primary strategic asset in creating and sustaining competitive advantage within firms, thereby supporting market and financial performance.

2.2. Intellectual Capital and Sustainable Financial Performance

Human Capital Efficiency (HCE) stands out as a critical component of intellectual capital that significantly enhances bank performance, as highlighted by Buallay et al. (2020) and Tran & Vo (2022). According to Haris et al. (2019), human capital efficiency exerts the most substantial influence on company performance. Numerous previous studies have underscored HCE as a primary driver of organizational growth (Aji & Kurniasih, 2015; Haris et al., 2019; Nawaz, 2019; Oppong & Pattanayak, 2019; Widowati & Pradono, 2017). Research conducted in Malaysia by Hashim et al. (2018) and Jetmiko (2018), in Indonesia by Widowati & Pradono (2017), in Pakistan by Rehman et al. (2012), in Africa by Alhassan & Asare (2016), in Saudi Arabia by Buallay (2017), in Australia by Aslam et al. (2018), and in India by Singh & Narwal (2015) have all found a positive correlation between HCE and company performance. Moreover, as suggested by Widowati & Pradono (2017), bank employees who exhibit company-specific skills and competencies can enhance the value of the bank.

SCE represents knowledge retained within a company even after an employee departs (Poh et al., 2018). According to Aslam & Haron (2021), SCE reflects the historical performance of human capital. Therefore, Nawaz (2017) defines SCE as non-human knowledge, encompassing organizational charts, databases, processes, routines, strategies, and other assets with a value exceeding their material worth. Aslam et al. (2018) conducted a study on Australian banks, suggesting that SCE holds less sway compared to other determinants of intellectual capital (Joshi et al., 2010). Nonetheless, it was observed that SCE correlates positively with financial, operational, and stock returns. Several pivotal studies have demonstrated a significant association between SCE and performance (Haris et al., 2019; Jetmiko, 2018; Khalique et al., 2012; Nawaz, 2017; Poh et al., 2018; Rochmadhona et al., 2018; Ur Rehman et al., 2022).

RCE furnishes the infrastructure and resources requisite for maximizing the utilization of both HCE and SCE, thereby enhancing overall company performance (Widowati & Pradono, 2017). Moreover, organizations derive optimal value by harnessing the synergistic combination of HCE, SCE, and RCE. Presently, the banking sector heavily relies on establishing stable, long-term relationships with customers, a task largely facilitated by the collective efforts of employees within a company (Rochmadhona et al., 2018).

The company engages in its operations through a blend of tangible and intangible resources. While Intellectual Capital (IC) constitutes a vital component of performance, the significance of physical capital in enhancing performance cannot be understated (Pulić, 1998). Chen Goh (2005) underscores the criticality of physical capital within the banking sector. According to Firer & Mitchell Williams (2003), physical capital stands as the foremost source of performance. Capital Employed Efficiency (CEE) gauges the efficacy of capital utilization. Buallay et al. (2020) and Tran & Vo (2022) assert that the two key elements of intellectual capital positively impacting bank performance are Human Capital Efficiency and Capital Employed Efficiency. Numerous studies including Chen Goh (2005), Puntillo (2009), Ahmad & Ahmed (2016), Nawaz & Haniffa (2017), Musali & Ismail (2014), Mondal & Ghosh (2012), Wei Kiong

Ting & Hooi Lean (2009), Meles et al. (2016), Yalama (2013), and Ozkan et al. (2017) have reported a positive correlation between CEE and company performance. Conversely, Joshi et al. (2010) and Firer & Mitchell Williams (2003) found an insignificant relationship between CEE and performance.

Researchers are increasingly focusing on Intellectual Capitals (ICs) within the banking sector, particularly as the service industry experiences rapid growth (Chen Goh, 2005; Joshi et al., 2013; Ku Ismail & Abdul Karem, 2011; Mavridis & Kyrmizoglou, 2005). It has been argued that value creation in knowledge-intensive sectors like banking necessitates the utilization of both ICs and physical assets (Chen et al., 2014; Marr & Adams, 2004). Similarly, Chen Goh (2005) acknowledges the significance of physical capital but contends that in banking, IC predominantly influences the quality of customer services. Human capital emerges as the primary driver of performance within banks, as indicated by Ku Ismail & Abdul Karem (2011) and Nawaz (2019), underscoring the importance of investments in human resource training (i.e., HC), brand development, systems, and processes (SC), among others, to ensure sustainable competitive advantage.

Sustainable Financial Performance is commonly employed as a metric to gauge financial achievement, offering a comprehensive overview of operational outcomes. Profitability delineates a company's ability to conduct its operations effectively, showcasing the earnings derived from its activities. Profitability ratios, including return on assets and return on equity, are frequently utilized to evaluate a company's financial performance. Return on assets assesses a company's ability to generate profits from its assets over a given period. Return on equity, on the other hand, represents the return to common shareholders and is widely regarded as one of the paramount financial indicators for investors.

3. Research Methods

This research utilizes data sourced from the annual reports of 12 Islamic banking companies in Indonesia spanning the period from 2012 to 2021. Due to the unavailability of certain data points during the observation period, this study acquired unbalanced data, resulting in a total of 110 years of observation. For instrument testing, Classical Assumption Tests were conducted, and the analysis employed a panel data regression model. The determination of the panel data regression models was carried out through Chow and Hausman tests. The panel data regression models encompassed the common effect model, fixed effect model, and random effect model.

4. Results and Discussion

4.1. Descriptive Statistics

Table 1 presents the descriptive statistics of the dependent variables, independent variables, and control variables utilized in this study. The results of the descriptive analysis indicate that the average Net Interest Margin (NIM) exhibits the highest value, followed by Return on Equity (ROE), while Return on Assets (ROA) demonstrates the lowest value among the banks. Specifically, NIM has an average value of 268.2391 with a standard deviation of 317.3865, suggesting a considerable variation in the NIM of banking companies. ROE, on the other hand, has an average value of 69.89130 with a standard deviation of 232.5372, indicating a substantial variation in the return on equity of banking companies. Conversely, ROA presents an average value of 10.858700 with a standard deviation of 16.32839, suggesting a comparatively smaller variation in the ROA of banking companies when compared to NIM and ROE.

The descriptive analysis of Intellectual Capital (IC) components, including HCE, SCE,

RCE, and CEE, reveals that HCE emerges as the most influential component in wealth creation, boasting the highest average value of 5572.438. This contrasts with SCE, RCE, and CEEE, which display average values of 542.0942, 56.66304, and 29.73913, respectively. These findings align with prior research indicating that human capital efficiency, or human capital, serves as the most potent driver of value creation compared to structural and physical capital (Nimtrakoon, 2015; Rahman, 2012; Zéghal & Maaloul, 2010).

Table 1. Descriptive Statistics

Variables	Observations	Mean	Min.	Max.	Std. Dev.
Dependent variables					
ROA	110	10,858700	-112	91	16,32839
ROE	110	69,89130	-3553	473	232,5372
NIM	110	268,2391	-2011	1200	317,3865
Independent variables					
HCE	110	5572,438	-6686	53316	8811,364
SCE	110	542,0942	-3554	1473	449,7629
RCE	110	56,66304	-145	564	86,53482
CEE	110	29,73913	-29	195	30,52351
Control variables					
Bank size	110	20221,88	13364	30969	4923,857
Bank age	110	29789,86	1000	68000	17098,84
Leverage	110	7152,895	1	20859	5285,692

Source: Data processed with STATA 17

HCE, SCE, and RCE focus on the value derived from investments in employees, structural capital, and relational networks, which are intangible assets. Therefore, the emphasis is placed on intellectual capital and intangible components. In contrast, CEE represents the value generated by units of physical and financial capital, making it a component of tangible assets. The combined mean value of HCE, SCE, and RCE amounts to 6171.19524, significantly surpassing the CEE average of 29.73913. This comparison underscores that firms generate value much more efficiently from intellectual capital and intangible components than from physical/tangible and financial components. This finding is consistent with prior literature indicating that firms operating in the modern economic era tend to create value primarily through IC rather than physical capital (A. Buallay et al., 2020; Celenza & Rossi, 2014; Inkinen, 2015; Rahman, 2012; S. Singh et al., 2016; Zéghal & Maaloul, 2010).

The descriptive analysis of control variables in this study includes company size, company age, and leverage. Company size is quantified as the natural logarithm of total assets, resulting in an average value of 20221.88, which can be challenging to interpret. The high standard deviation of total assets indicates significant size disparity among companies. Company age exhibits an average value of 29789.86, signifying considerable variation in company age among the firms. Lastly, the average leverage value stands at 7152.895, with a high standard deviation indicating substantial leverage variation across companies.

4.2. Classical Assumption Test

Table 2 presents the direction of each variable's relationship, employing the Spearman

correlation matrix to gain deeper insights before testing the research hypotheses. The correlation coefficient analysis reveals a statistically significant positive correlation between the components of intellectual capital and financial performance metrics (ROA, ROE, and NIM), with CEE demonstrating the strongest correlation with financial performance. Furthermore, as depicted in Table 2, the analysis conducted in this study indicates no correlation in sustainable financial performance, as proxied by ROA, ROE, or NIM. Previous studies (A. Buallay et al., 2020; Haris et al., 2019; D. B. Tran & Vo, 2018) have noted that multicollinearity issues between independent variables are weak or nonexistent when the Variance Inflation Factor (VIF) is below 10. Consistent with this, the results of this study, as shown in Table 2, are devoid of multicollinearity problems since the VIF remains below 10, in line with the findings of (N. P. Tran & Vo, 2022).

Table 2. Correlation Analysis

	ROA	ROE	NIM	HCE	SCE	RCE	CEE	Bank size	Bank age	Leverage	VIF	
ROA	1,0000											
ROE	0,6525	1,0000										
NIM	0,6742	0,6385	1,0000									
HCE	0,0802	0,0812	0,2512	1,0000							1.86	0.5363
SCE	0,1213	0,0824	0,2078	0,3929	1,0000						3.37	0.2963
RCE	0,0140	0,0461	0,1443	-0,1457	-0,1645	1,0000					1.60	0.6236
CEE	0,6445	0,0845	0,0544	-0,1221	0,0823	-0,1099	1,0000				2.25	0.4440
Bank size	-0,0462	-0,0625	-0,1984	-0,2109	-0,1922	-0,2457	0,1054	1,0000			6.4	0.1655
Bank age	0,0604	-0,0617	-0,0161	-0,1842	-0,0324	0,1319	0,1232	0,2011	1,0000		4.51	0.2217
Leverage	-0,1524	0,1468	0,2269	0,3809	0,3139	0,1112	-0,4385	-0,6081	-0,3388	1,0000	3.48	0.2869

Source: Stata 17 data processing results

This study employed the Breusch–Pagan Lagrange test to detect heteroskedasticity in one model of the study. The results of the Breusch–Pagan Lagrange test, as presented in Table 3, indicate that the p-values in all four models exceed the significance level of 0.5%. This suggests that both models are devoid of heteroskedasticity issues.

Table 3. Heterokedasticity Testing Table

	Breusch-Pagan Lagrange multiplier test		
	Chi-sq. Statistic	Prob.	Presence of heteroskedasticity
Model 1	1.2	0.3129	X

Source: Stata 17 data processing.

4.3. Regression Model

Furthermore, both fixed-effect and random-effect models were employed in this study. The Hausman test was utilized to determine the appropriate model (Hausman, 1978). The null hypothesis (H0) posits that random-effect models are consistent and efficient. The results presented in Table 4 indicate that for models 1, 2, and 3, the null hypothesis (H0) is rejected.

Hence, for Islamic banking companies, model 1 utilizing a fixed-effect model and models 2 and 3 employing a random-effect model are deemed appropriate.

Table 4. Research Results

	Chi-sq. Statistic	Prob.
All countries		
Model 1	8.51	0.2899***
Model 2	4.41	0.7371***
Model 3	6.74	0.4560***
Non-Indonesia		
Model 4	24.35	0.0010***
Model 5	49.57	0.0000***
Model 6	33.50	0.0000***
Indonesia		
Model 7	28.23	0.0002***
Model 8	13.90	0.0530***
Model 9	5.1	0.06582***

Note(s):***significant at 5%

Source: Stata 17 data processing results

4.4. Discusion

Can effective intellectual capital serve as a proxy for enhanced performance in Islamic banks? Table 4.5 presents the results of regression analysis based on financial performance, proxied by ROA, ROE, and NIM, through the processing of nine regression models. Model 1 serves as the primary regression model, examining the relationship between intellectual capital components (HCE, SCE, RCE, and CEE) and ROA. It was found that both HCE and CEE exhibit significant positive associations with ROA ($p < 0.000$), thus corroborating H1 and H1c. These findings bolster the notion of human intellectual capital as a pivotal source of value creation, offering deeper insights into latent intellectual property values (Nawaz & Haniffa, 2017; Youndt et al., 2004). They are also in line with earlier studies (Chen Goh, 2005; Mavridis & Kyrmizoglou, 2005; Mention & Bontis, 2013; Nawaz & Haniffa, 2017), which assert that human intellectual capital contributes directly and indirectly to business performance in the banking sector. Additionally, Soetanto & Liem (2019) revealed that CEE can enhance asset returns by facilitating income generation. Efficient utilization of CEE is thus instrumental in driving revenue and subsequently increasing returns on assets. Some researchers (Nimtrakoon, 2015; Ousama & Fatima, 2015; Soetanto & Liem, 2019) have demonstrated that CEE impacts financial performance, as proxied by ROA. This is consistent with the assertions of (A. Buallay et al., 2020; D. B. Tran & Vo, 2018; N. P. Tran & Vo, 2022), who emphasize the pivotal roles of HCE and CEE efficiencies in wealth creation for banks. Conversely, SCE and RCE exhibit p-values exceeding 0.05, namely ($p = 0.648$) and ($p = 0.067$), indicating an insignificant relationship between SCE and ROA, as well as RCE and ROA, thus not supporting H1a and H1b in this study.

Table 5. Research Results

Variables	Model 1	Model 2	Model 3
Independent variables			
HCE	0.006(0.001)***	-0.049(0.884)***	0.107(0.770)***
SCE	-0.004(0.208)***	0.656(0.000)***	0.766(0.000)***
RCE	-0.151(0.719)***	-0.151(0.078)***	0.128(0.171)***
CEE	0.195(0.129)***	0.422(0.101)***	0.351(0.215)***
Control variables			
Bank size	0.001(0.354)***	-0.354(0.730)***	1.299(0.237)***
Bank age	-0.001(0.532)***	0.356(0.095)***	-0.063(0.780)***
Leverage	0.001(0.449)***	0.543(0.000)***	-0.047(0.553)***
Constant	-40.101(0.352)***	-5.004(0.621)***	-14.437(0.181)***
R2	0.1881	0.6842	0.4807

Note(s):***significant at 5%

Source: Stata 17 data processing results

Model 2 serves as the primary regression model examining the relationship between intellectual capital components (HCE, SCE, RCE, and CEE) and ROE. CEE demonstrated a positive and significant association (p = 0.007) with ROE, thereby supporting H2c. This finding aligns with several prior studies (Kweh et al., 2019; Nawaz & Haniffa, 2017; Ozkan et al., 2017; Sidharta & Affandi, 2016; Wang et al., 2021), indicating that the utilization of CEE influences financial performance, as proxied by ROE. Conversely, HCE exhibited no discernible effect and did not influence the H2 results. These outcomes suggest that shareholders lacked adequate assurance regarding the company's human resources delivering satisfactory returns on investment. This finding resonates with research by Chowdhury et al. (2019). Additionally, SCE and RCE failed to exhibit a significant relationship with ROE, thus not supporting H2a and H2b. However, these results lend support to the notion that trade-offs may exist between components of the intellectual model, as proposed by Murthy & Mouritsen (2011), suggesting that certain IC components may be unproductive. Consequently, not all investments in IC elements yield benefits for Islamic banks (Li, 2001; Nawaz & Haniffa, 2017; Youndt et al., 2004).

Then, the third main regression model examines the relationship between intellectual capital (HCE, SCE, RCE and CEE) and NIM. SCE was found to have a positive and significant (p 0.000) relationship with NIM. These results provide empirical evidence that the profitability of Islamic banking in Indonesia, Malaysia, and Saudi Arabia improves with good SCE management. Bontis et al., (2000) suggest that structural capital (SCE) which includes the structure of the company, the capacity of the company to reach the market, hardware, software, and all capabilities in the company that support employees to increase productivity and increase profitability. While HCE, RCE, and CEE did not show a significant relationship between HCE and NIM, RCE with NIM and CEE with NIM, so they did not support H3, H3b, and H3c. previous researchers Dzenopoljac et al., (2017) revealed that human capital (HCE) has no effect on ROE or NIM.

Among the control variables, bank leverage exhibited a positive and significant

relationship with bank performance, i.e., ROE, but displayed a negative relationship with NIM. These findings are consistent with previous research, including studies by Aslam & Haron (2020) and Ur Rehman et al. (2022), which suggest that higher levels of debt have a detrimental impact on the profitability of Islamic banks. Conversely, the size and age of the company did not have a significant influence.

The primary strength required by companies to attain optimal performance, as delineated in resource-based theory, is to maximize the potential of existing resources, both tangible and intangible. In this study, HCE demonstrated a positive and significant association ($p < 0.001$). These findings indicate that Human Capital Efficiency (HCE) exerts a substantial impact on return on assets (ROA). According to the findings of this study, if Islamic banking institutions can optimize the efficiency of their human resources, the company's performance will improve. This aligns with research by Nawaz (2019) and Shah et al. (2020), which identified a relationship between Human Capital Efficiency (HCE) and Return On Assets (ROA). Conversely, SCE, RCE, and CEE did not exhibit a significant relationship with ROA. Therefore, in this model, it can be concluded that in the regression analysis, hypothesis 1 is accepted while hypotheses 1a, 1b, and 1c are rejected.

Model 2 represents a regression model examining the relationship between intellectual capital components (HCE, SCE, RCE, and CEE) and ROE, while Model 3 explores the relationship between intellectual capital and NIM. In Models 8 and 9, it was observed that SCE exhibited a positive and significant relationship ($p < 0.000$), indicating that structural capital (SC) significantly impacts the profitability of Islamic banks in Indonesia. This suggests that the operational systems and procedures implemented by Islamic banks in Indonesia are effective. However, considering the negative relationship between HCE and both ROE and NIM, it appears that Indonesian Islamic banks have not fully utilized human resource competence to capitalize on expansion opportunities. While the effectiveness of SC has increased in conjunction with the rise in ROE and NIM, it still lacks sufficient support from HCE. Previous studies have also indicated that SC has a significant positive effect on ROA, ROE, and NIM (Rehman et al., 2012; Suroso et al., 2017). Consequently, Hypothesis 2a is accepted, whereas Hypotheses 2b and 2c are rejected.

5. Conclusion

This study has investigated the relationship between intellectual capital (IC) and financial performance in Islamic banks (IB), focusing on profitability measures. The results indicate that capital use efficiency and human capital efficiency emerged as the most significant and positively correlated IC components influencing sustainable financial performance in IB. This research holds three significant implications. Firstly, in terms of academic contributions, it enriches intellectual capital theory and literature, serving as a valuable educational resource for managers and students seeking to enhance their comprehension of intellectual capital's significance, particularly in the context of Islamic banking. Secondly, concerning practical implications, the study serves to bridge the gap between theoretical concepts and real-world application, providing Islamic banking managers in leading Islamic finance nations with enhanced awareness of the importance of intellectual capital development. The findings underscore the necessity for collaborative efforts among Islamic banks within and across countries to optimize the impact of intellectual capital management, positioning these nations as leaders in this domain. Thirdly, from a societal perspective, the study highlights how robust intellectual capital in Islamic banking can yield substantial benefits for society. By offering financial services that cater to community needs, high-quality intellectual capital in Islamic banking fosters improved financial services, reduced costs, innovative banking initiatives,

resource efficiency, economic growth, and an overall enhanced quality of life for individuals. In conclusion, this research holds social implications for enhancing societal well-being through the optimization of intellectual capital in Islamic banking.

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