



Effect of Knowledge Management on Intellectual Capital: A Study in Commercial Risk Group, PT. Bank Mandiri (Persero) Tbk.



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*intellectual capital;
knowledge combination;
knowledge externalization;
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knowledge management;
knowledge socialization;*

Abstract

In the dynamic and competitive banking industry, knowledge management plays a vital role in enhancing intellectual capital, which is considered a valuable intangible asset for organizations. The purpose of this paper is to examine the effect of knowledge management (KM) on intellectual capital (IC). The study aims to provide a comprehensive understanding of how knowledge management initiatives affect the development, utilization, and enhancement of intellectual capital. The research method used is a quantitative approach, using data collection techniques with survey methods by distributing questionnaires. Data were garnered with questionnaires from 96 employees. To achieve this objective, a quantitative analysis was conducted using the Statistical Package for the Social Sciences (SPSS) as the analytical tool. Moreover, the regression analysis demonstrated that knowledge management practices significantly predict intellectual capital in Commercial Risk Group, Bank Mandiri. The study found that knowledge management processes, including knowledge socialization (KS), knowledge externalization (KE), and knowledge internalization (K1) were significant predictors of intellectual capital. These results emphasize the importance of fostering a culture of knowledge-sharing and continuous learning within the organization to enhance intellectual capital. In conclusion, this study provides empirical evidence of the positive impact of knowledge management on intellectual capital in Bank Mandiri. The findings underscore the importance of incorporating knowledge management practices into the bank's strategic planning and operations.

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1 Introduction

The increasing competitiveness among companies is driven by the advancement of knowledge, prompting businesses to transform their way of operating by harnessing intellectual capital resources such as human capital and customer capital. These have become the most critical success factors and key elements in maintaining competitive advantage and creating corporate value (Shih et al., 2010; Wang et al., 2016; Rehman et al., 2022). Therefore, the potential to create competitive advantage and long-term value for companies is more crucial in the efficient management of intellectual capital compared to managing tangible assets. This is particularly evident in knowledge-based industries, such as the financial industry, specifically banking, where the majority of key resources are intangible and intellectual (Shih et al., 2010). According to the Sustainability Report of Bank Mandiri (2022), PT. Bank Mandiri (Persero) Tbk., as one of the state-owned banks in Indonesia, had 39,065 employees in 2022. In this case, 86.04 percent of the total number of employees held a bachelor's degree in various diverse fields, not limited to economics. This is because PT. Bank Mandiri (Persero) Tbk. provides equal opportunities for career advancement to all employees, regardless of their ethnic background, gender, religion, or educational background.

PT. Bank Mandiri (Persero) Tbk. has 9 divisions, and this research specifically focuses on the Commercial Risk Group. The Commercial Risk Group is a unit under the Risk Management division that is responsible for identifying, evaluating, and prioritizing risks, followed by the implementation of coordinated and cost-effective resources to minimize, monitor, and control the likelihood or impact of unfavorable events or to maximize the realization of opportunities. The majority of employees in the Commercial Risk Group of Bank Mandiri come from engineering backgrounds, specifically 32 employees, accounting for 33.3 percent of the total employees in the group. This highlights the need for knowledge standardization to achieve the company's established goals, considering the diverse educational backgrounds of the employees. This is consistent with the theory proposed by Honeycutt (2000), which states that to aid in planning, organizing, motivating, and controlling individuals, a process and system are required within an organization to ensure that knowledge-related assets are continuously enhanced and effectively utilized. This process is commonly referred to as knowledge management (Honeycutt, 2000).

From this phenomenon, the influence of knowledge management on intellectual capital in the Commercial Risk Group of PT Bank Mandiri (Persero) Tbk will be examined. Previous research conducted in a manufacturing company in Serbia has shown that knowledge management has an impact on intellectual capital, particularly in terms of human capital. Furthermore, a study conducted in the technology and information sector in Egypt has also indicated that knowledge management influences human capital (Seleim & Khalil, 2011).

Another study conducted by Astari (2015), in a manufacturing company in Indonesia concluded that intellectual capital, particularly human capital (HC), has a significant impact on financial performance, proxied by Return On Equity (ROE) and the firm's value measured by Price to Book Value (PBV). In line with this, a study by Rizkyanti et al. (2020), conducted on 14 Islamic banks in Indonesia demonstrated that intellectual capital (VACA, VAHU, STVA) significantly influences the performance of Islamic banks. Furthermore, another study concluded that knowledge management and intellectual capital, when considered together, significantly impact firm performance (Rehman et al., 2022). This study aims to complement previous research by

examining the influence of knowledge management on intellectual capital in the banking industry, specifically within the Commercial Risk Group of PT Bank Mandiri (Persero) Tbk.

Literature review

Knowledge-based theory of the firm

The Knowledge-Based Theory of the Firm is a framework that explains how companies can leverage knowledge to achieve competitive advantage (Nonaka & Takeuchi, 1996). It emphasizes the importance of knowledge as a strategic resource and highlights how firms can create, acquire, transfer, and utilize knowledge to enhance their performance and gain a competitive edge in the marketplace. This theory recognizes that knowledge is a valuable asset that resides within individuals, teams, and organizational processes, and effective management of knowledge can lead to innovation, improved decision-making, and superior organizational performance. By leveraging their knowledge assets, firms can differentiate themselves from competitors and adapt to changing market conditions, ultimately leading to sustained competitive advantage. (Nonaka & Takeuchi, 1996). Another perspective on the Knowledge-Based Theory of the Firm is presented by Sveiby (1997), who shares the same view that knowledge is a crucial component within organizations. Sveiby suggests that companies rely on the knowledge held by individuals within the organization, forming the organizational structure of the firm. This viewpoint aligns with the notion that organizational structure is continuously shaped through the interactions and relationships among individuals (Weick, 1977).

Knowledge management

Knowledge management is important because it helps organizations maximize the value of their collective expertise and experience, drive innovation, and enhance decision-making processes, which can ultimately lead to competitive advantage and improved performance (Rehman et al., 2022).

Knowledge as an intangible asset

A common metaphor used to depict knowledge is an iceberg. Like an iceberg, only a small portion of knowledge is visible or easily accessible, while the majority remains hidden beneath the surface. The visible part of the iceberg represents explicit knowledge. This includes information that can be found in books, manuals, or databases, or that can be communicated through lectures or training sessions. On the other hand, the hidden part of the iceberg beneath the surface represents tacit knowledge. This includes knowledge acquired through experience, intuition, and personal insights, and is often difficult to articulate or transfer to others. This type of knowledge is deeply rooted in the culture, values, and beliefs of individuals or organizations, and may be challenging to communicate or replicate (Polanyi & Sen, 2009).

In this context, the knowledge represented by the iceberg is interconnected and interdependent. The visible part of the iceberg is built upon the hidden part, and both cannot be fully understood or appreciated without considering the other. Therefore, to fully understand and leverage knowledge, it is important to consider both the visible and hidden aspects of the iceberg. With knowledge management, tacit knowledge can be converted into explicit knowledge and vice versa. This means that knowledge that was previously known by only one person can be shared and become knowledge for many. This conversion and sharing of knowledge enable organizations to tap into the collective wisdom and expertise of their employees, fostering innovation, collaboration, and continuous learning (Nonaka & Takeuchi, 1996).

Knowledge management process

Nonaka and Takeuchi created the SECI model in 1995. This model illustrates the four knowledge conversion processes that enable organizations to create new knowledge. *Knowledge socialization* (KS) is a process that involves sharing tacit knowledge among individuals through social interaction, observation, and shared practice. *Knowledge externalization* (KE) is a process that involves articulating tacit knowledge into explicit knowledge. Individuals transform their tacit knowledge into concepts, models, or language that can be

expressed and shared with others. *Knowledge combination* (KC) is a process that involves combining existing explicit knowledge to create new, more complex knowledge. Individuals or groups gather, merge, and integrate various existing explicit knowledge to generate a more comprehensive understanding or new solutions. *Knowledge internalization* (KI) is a process that involves internalizing explicit knowledge into individual tacit knowledge. Individuals convert the learned explicit knowledge into tacit knowledge through reflection, practice, and direct experience (Nonaka & Takeuchi, 1996).

Intellectual capital

According to Harris (2000), Intellectual capital (IC) refers to the intangible assets of an organization that contributes to its value and competitiveness. These assets include knowledge, expertise, skills, and other intangible resources that are not reflected in traditional balance sheets. On the other hand, Brooking (1997), states that IC is a term that encompasses the combination of intangible assets, intellectual property, infrastructure, and employees that enable a company to function in line with its objectives. In his research, Harris (2000), categorizes IC into three interrelated dimensions: *Human capital*, refers to the skills, knowledge, and experience of the organization's employees and other stakeholders. It includes elements such as education, training, expertise, creativity, and problem-solving abilities. *Structural capital* refers to the systems, processes, and technologies used by the organization to create value. It includes aspects such as patents, copyrights, trademarks, databases, software, and other forms of intellectual property. *Customer capital* encompasses the relationships with customers, business partners, and other stakeholders. It recognizes the value derived from these relationships and the importance of customer loyalty and satisfaction. Investments in human capital, structural capital, and customer capital are expected to enhance the value of an organization (Zhang et al., 2018).

Research framework and hypothesis development

Knowledge-Based Theory of the Firm, knowledge management plays a crucial role in intellectual capital. Through continuous knowledge management processes, a company can maximize its intellectual capital (Nonaka & Toyama, 2016). In this study, an examination will be conducted to investigate the impact of knowledge management as the independent variable (X) on intellectual capital as the dependent variable (Y). Thus, the conceptual framework can be illustrated in Figure 1. and the development of the hypotheses is disclosed in the following description.

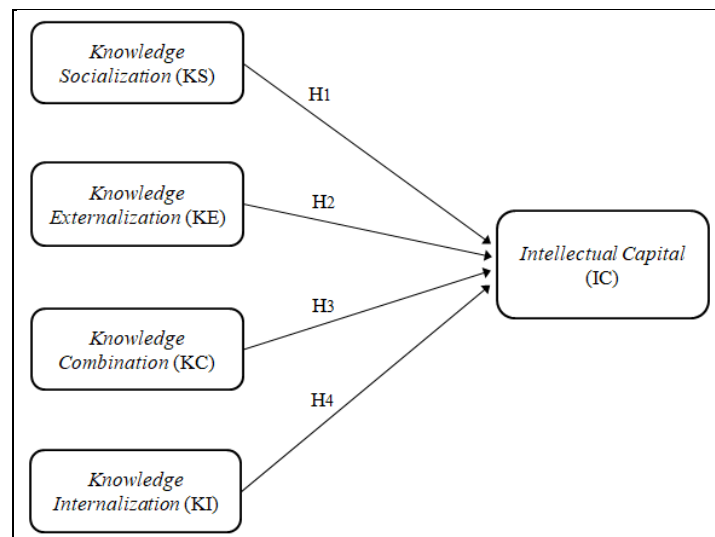


Figure 1. Research model

In the research examining the relationship between knowledge management and intellectual capital, it has been found that knowledge management has a significant positive impact on intellectual capital (Rehman et al., 2022; Paoloni et al., 2020; Zahedi & Khanachah, 2020). Conversely, it has been explained that intellectual capital also influences the processes of knowledge management (Seleim & Khalil, 2011). Thus, there is a possibility that knowledge socialization, which is part of the knowledge management process, affects intellectual capital

H1: Knowledge Socialization Affects Intellectual Capital

By externalizing tacit knowledge, employees can make their knowledge and skills more easily accessible to others within the organization, which can help enhance collective human resources. This is because when knowledge is made explicit, it becomes easier to document, codify, and share, resulting in faster and more effective knowledge transfer (Nonaka & Toyama, 2016). In studies conducted by Asmara (2019); Tai-Ning et al. (2011); Shih et al. (2010), to examine the impact of knowledge socialization, externalization, and combination through the process of knowledge creation, it was found that they significantly and positively influence intellectual capital. Based on the analysis and findings, the following hypothesis is formulated for this study.

H2: Knowledge Externalization Affects Intellectual Capital

In the study conducted by Curado (2008), it is stated that the most valuable strategic management is the "knowledge management" strategy. By leveraging knowledge and disseminating it, innovation can be fostered, and new knowledge can be created. It is also mentioned that knowledge management influences intellectual capital, with human capital being the most valuable component.

H3: Knowledge Combination Affects Intellectual Capital

In Nonaka's view, knowledge internalization is a key aspect of knowledge creation because it allows individuals to transform explicit knowledge into tacit knowledge that is more difficult to articulate and transfer to others. By internalizing explicit knowledge, individuals can develop a deep understanding of its practical applications and specific contextual nuances, which can help them generate new insights, ideas, and innovations. In the studies conducted by Zahedi & Khanachah (2020); Rehman et al. (2022); Paoloni et al. (2020), a significant positive influence of knowledge creation adopting internalization on intellectual capital was found.

H4: Knowledge Internalization Affects Intellectual Capital

2 Materials and Methods

The research method used is a quantitative approach, employing data collection techniques through a survey method with questionnaire distribution. Sampling in this study used a total sampling technique, consisting of all employees who are part of the Commercial Risk Group unit at PT Bank Mandiri (Persero) Tbk., totaling 96 employees. Researchers collected data sources in the form of primary data obtained through surveys by distributing questionnaires. The questionnaire to be used is a type of questionnaire using a Likert scale. The data analysis method used in this study is the statistic package for social science (SPSS). The study is conducted to determine the partial influence of independent variables on the dependent variable and whether they have a significant effect or not. The influence of independent variables is determined based on the significance level, where if the significance level (p-value) of the t-test is greater than 0.05, the independent variables are considered not to have a significant partial effect on the dependent variable.

3 Results and Discussions

The distribution of questionnaires was carried out from June 23rd, 2023 to June, 27th 2023. The total number of questionnaires received was 96. The tests conducted include research instrument validation, classical assumption tests, and data analysis techniques using multiple regression methods using IBM SPSS Statistics version 25 (Aristo, 2016; Bontis et al., 2000; Ramadan et al., 2017; Wiig, 1997).

External validity indicates that the results of a study are valid and can be generalized to different objects, situations, and timeframes. The technique used to test validity is the Pearson Product Moment correlation. A measurement instrument is considered to have high validity if it performs the measuring function for the intended purpose of the measurement. The validity of variable items is indicated when the computed correlation coefficient (r-value) is greater than the critical value (tabular value). The model reflective tests are as follows:

Table 1
Validity of variable

Variable	Number	r-value	tabular value	Result	Variable	Number	r-value	tabular value	Result
<i>Knowledge Socialization (X₁)</i>	X1.1	0.719	0.202	Valid	<i>Knowledge Internalization (X₄)</i>	X4.1	0.684	0.202	Valid
	X1.2	0.776	0.202	Valid		X4.2	0.714	0.202	Valid
	X1.3	0.812	0.202	Valid		X4.3	0.693	0.202	Valid
	X1.4	0.829	0.202	Valid		X4.4	0.792	0.202	Valid
	X1.5	0.631	0.202	Valid		X4.5	0.794	0.202	Valid
<i>Knowledge Externalization (X₂)</i>	X2.1	0.677	0.202	Valid	<i>Intellectual Capital (Y)</i>	Y1	0.713	0.202	Valid
	X2.2	0.283	0.202	Valid		Y2	0.821	0.202	Valid
	X2.3	0.466	0.202	Valid		Y3	0.765	0.202	Valid
	X2.4	0.321	0.202	Valid		Y4	0.791	0.202	Valid
	X2.5	0.558	0.202	Valid		Y5	0.684	0.202	Valid
<i>Knowledge Combination (X₃)</i>	X3.1	0.619	0.202	Valid					
	X3.2	0.777	0.202	Valid					
	X3.3	0.749	0.202	Valid					
	X3.4	0.700	0.202	Valid					
	X3.5	0.530	0.202	Valid					

Based on the table above for the validity testing, it can be observed that the variables Knowledge Socialization (X₁), Knowledge Externalization (X₂), Knowledge Combination (X₃), Knowledge Internalization (X₄), and Intellectual Capital (Y) with their respective 5 statement items, all obtained computed correlation coefficients (R-values) for questionnaire items in the research variables that are greater than the critical values (tabular values). Comparing the computed correlation coefficients with the critical value of 0.202 at a 5% significance level (0.05), it can be concluded that all statements are considered valid (Cepeda & Vera, 2007; Serenko et al., 2011; Nneka et al., 2016; Sukardi, 2019).

Then, a simultaneous coefficient test is conducted to examine whether knowledge socialization, externalization, combination, and internalization, collectively or simultaneously, have a significant influence on intellectual capital or not.

Table 2
F-test result

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	107.090	4	26.773	50.117	.000 ^b
	Residual	48.612	91	0.534		
	Total	155.703	95			

a. Dependent Variable: IC(Y)
b. Predictors: (Constant), KI(X4), KE(X2), KS(X1), KC(X3)

Based on the F-test result in the table above, it can be observed that the significance value is 0.000, which is less than the significance level (α) of 0.05. Therefore, it can be concluded that collectively, all independent variables consisting of Knowledge Socialization (X1), Knowledge Externalization (X2), Knowledge Combination (X3), and Knowledge Internalization (X4) have a significant influence on Intellectual Capital (Y) (Abdullah & Sofian, 2012; Dumay et al., 2020; Berzkalne & Zelgalve, 2014). Then, a partial test (t-test) is conducted to determine the partial influence of independent variables on the dependent variable, whether they have a significant effect or not. The influence of independent variables is determined based on the significance level, where if the significance level (p-value) of the t-test is greater than 0.05, the independent variables are considered not to have a significant partial effect on the dependent variable.

Table 3
Hypothesis testing results

Coefficients ^a							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Decision
		B	Std. Error	Beta			
1	(Constant)	8.602	0.948		9.078	0.000	
	<i>Knowledge socialization</i> (X1)	0.061	0.031	0.130	1.992	0.049	ACCEPTED
	<i>Knowledge externalization</i> (X2)	0.232	0.037	0.424	6.269	0.000	ACCEPTED
	<i>Knowledge combination</i> (X3)	0.029	0.045	0.047	0.644	0.521	REJECTED
	<i>Knowledge internalization</i> (X4)	0.296	0.038	0.504	7.724	0.000	ACCEPTED

a. Dependent Variable: *Intellectual Capital* (Y)

The results of the t-test results in the table above, the interpretations are as follows:

- 1) The significance value of the Knowledge Socialization variable (X1) is 0.000, which is smaller than 0.05. This indicates that Knowledge Socialization has a significant positive influence on Intellectual Capital, and thus, hypothesis H1 is accepted.
- 2) The significance value of the Knowledge Externalization variable (X2) is 0.049, which is smaller than 0.05. This indicates that Knowledge Externalization has a significant positive influence on Intellectual Capital, and thus, hypothesis H2 is accepted.
- 3) The significance value of the Knowledge Combination variable (X3) is 0.521, which is larger than 0.05. This indicates that Knowledge Combination does not have a significant influence on Intellectual Capital, and thus, hypothesis H3 is rejected.
- 4) The significance value of the Knowledge Internalization variable (X4) is 0.000, which is smaller than 0.05. This indicates that Knowledge Internalization has a significant positive influence on Intellectual Capital, and thus, hypothesis H4 is accepted.

Based on the research findings, it is known that Knowledge Socialization has a significant positive influence on Intellectual Capital. This means that the higher the level of knowledge socialization among employees, the better their intellectual capital in the Commercial Risk Group of PT Bank Mandiri (Persero) Tbk. Through the

Knowledge-Based Theory of the Firm proposed by Sveiby in 1997, it states that a company relies on the knowledge of its people, which shapes the organizational structure of the company (Sveiby, 1997). This organizational structure is built through constant interaction among individuals (Weick, 1977). The main purpose of knowledge socialization is to facilitate the conversion of tacit knowledge through interaction and shared experiences, allowing previously uncommunicated knowledge to be communicated (Nonaka & Takeuchi, 1996). Furthermore, the questionnaire data collected for the knowledge socialization variable, consisting of 5 items, yielded an average score of 4.08, indicating a good interpretation level. This demonstrates that knowledge socialization, with indicators such as economic and financial dialogues, banking business brainstorming sessions, and sharing empirical experiences through team interactions, is considered good and valued by the respondents. This indicates that in the Commercial Risk Group of PT Bank Mandiri (Persero) Tbk., knowledge socialization can help create more innovative and adaptive credit processes in the banking industry. This aligns with previous research indicating that knowledge socialization plays a crucial role in shaping the human capital of organizations. Meanwhile, Intellectual Capital can be obtained through systematic investment in resources and management within an organization (Marr et al., 2004). Therefore, it can be concluded that Knowledge Socialization has a significant positive influence on intellectual capital in the Commercial Risk Group of PT Bank Mandiri (Persero) Tbk.

Based on the research findings, it is known that Knowledge Externalization has a significant positive influence on Intellectual Capital. This means that the higher the level of knowledge externalization among employees, the better their intellectual capital in the Commercial Risk Group of PT Bank Mandiri (Persero) Tbk. The Knowledge-Based Theory of the Firm views knowledge in a company as creating value through the transformation of inputs into outputs (Grant, 1996). By externalizing tacit knowledge, employees can make their knowledge and expertise more easily accessible to others within the organization. Furthermore, the questionnaire data collected for the knowledge externalization variable, consisting of 5 items, yielded an average score of 4.02, indicating a good interpretation level. This demonstrates that knowledge externalization, with indicators such as learning sessions, and briefings on economics, finance, and banking, is considered good and valued by the respondents. Through knowledge externalization, employees can articulate their knowledge, ideas, and concepts, which can be shared with others and contribute to the collective improvement of human resources. These findings align with previous research conducted by Asmara (2019); Tai-Ning et al. (2011); Shih et al. (2010), which showed that knowledge externalization through the process of knowledge creation has a significant positive impact on intellectual capital. Based on the research findings from the table above, it is known that Knowledge Combination does not have a significant influence on Intellectual Capital. Several factors could potentially explain why knowledge combination has no effect on intellectual capital in this study:

- 1) Lack of a collaborative culture: If the organizational culture in the banking institution is dominated by competition and protection of personal knowledge, collaboration, and knowledge exchange among individuals or teams may not be encouraged. In such an environment, effective knowledge combinations may be challenging, leading to no significant influence on intellectual capital.
- 2) Absence of appropriate reward and incentive systems: Without reward and incentive systems that promote and value collaboration, knowledge sharing, and efforts in knowledge combination, individuals may tend to prioritize their interests or the interests of their work units. As a result, the influence of knowledge combinations on intellectual capital may be hindered.
- 3) Incompatibility of the combined knowledge: If the knowledge being attempted to be combined is not mutually supportive or relevant in the specific banking context, the influence of knowledge combination on the development of intellectual capital may be diminished. In some cases, the combined knowledge may not add significant value or may not integrate well into the organizational context.
- 4) External factors limiting the influence of knowledge combination: There may be external factors such as regulatory changes, intense industry competition, or significant technological advancements that limit the influence of knowledge combination on the development of intellectual capital in banking. These factors can disrupt knowledge transfer across organizations or reduce the value of the knowledge combinations being made.

Based on the research findings, it is known that Knowledge Internalization has a significant positive effect on Intellectual Capital. This means that the higher the level of knowledge internalization possessed by employees, the better their intellectual capital in the Commercial Risk Group of PT Bank Mandiri (Persero) Tbk. The Knowledge-Based Theory of the Firm leverages the knowledge held by employees to create organizational efficiency and achieve company success (Grant, 1996). Employee knowledge can be acquired through reading documents or manuals about the job and the organization, as explained by Nonaka & Toyama (2016). Knowledge internalization involves the process of embodying explicit knowledge through personal experiences and practices and transforming it into tacit knowledge embedded in an individual's beliefs, values, and skills. The data obtained from the questionnaire survey for the variable of knowledge internalization, with 5 items, show an average score of 4.29, indicating a very good level. This demonstrates that knowledge internalization, with indicators such as training, mentoring, and attending courses or workshops related to economics, finance, and banking, is considered good and beneficial by the respondents (Liebowitz, 2001; Chen & Huang, 2009; Liao & Wu, 2010; Choi & Lee, 2002). The role of mentors/buddies within the work department can assist in the process of knowledge internalization and accelerate the development of credit evaluation skills for employees. Initiatives for self-learning, such as reading books, and articles, or attending training, can enhance employees' understanding of credit evaluation processes in banking. This research is consistent with previous studies that show by internalizing explicit knowledge, individuals can develop a deep understanding of its practical application and specific contextual nuances, which can help them generate insights, ideas, and innovations. In studies conducted by Zahedi & Khanachah (2020); Rehman et al. (2022); Paoloni et al. (2020), a significant positive influence was found from knowledge creation adopting internalization on intellectual capital. Therefore, the research findings support the idea that knowledge internalization plays a crucial role in enhancing intellectual capital within the Commercial Risk Group of PT Bank Mandiri (Persero) Tbk.

4 Conclusion

Based on the research, it has been proven that knowledge socialization, knowledge externalization, and knowledge internalization have a significant positive effect on intellectual capital. Therefore, it is expected that banks can enhance collaboration and knowledge exchange among employees to learn best practices and efficient processes, especially in the credit evaluation process in banking. By sharing knowledge and experiences, banks can improve operational efficiency, avoid duplication of work, and optimize the use of existing resources. This can contribute to increased productivity and overall performance of the bank.

Knowledge Internalization has the greatest influence compared to other factors. Therefore, Commercial Risk Group PT Bank Mandiri (Persero) Tbk. needs to pay more attention to knowledge internalization to enhance intellectual capital. The results of this study reject hypothesis H3, indicating that knowledge combination does not have a significant effect on intellectual capital. This study suggests the need for further research in a broader context and with a more comprehensive approach. Further research can expand the variables studied, including a larger sample size, and consider relevant contextual factors to gain a more comprehensive understanding of the relationship between knowledge combination and intellectual capital.

This research has limitations related to data obtained from the questionnaire. Questionnaires are often used to gather data based on self-reports or subjective statements from respondents. This can lead to limitations in measuring variables that cannot be directly observed or objectively measured due to differences in perception between the researcher and the respondents. Although these limitations have been minimized by conducting classical assumption tests, there are still limitations in studies that use primary data. Furthermore, this research has not fully revealed all the factors that influence intellectual capital, as there may be other variables outside the research model that also have an impact on intellectual capital.

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