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Journal of Management, Accounting, General Finance and International Economic Issues
https://ojs.transpublika.com/index.php/MARGINAL
Online ISSN 2809-8013 | Print ISSN 2809-9222

https://doi.org/10.55047/marginal.v5i2.2105

Original Article

The Influence of Financial Technology on Environmental Performance: The Mediating Role of Green Knowledge Management

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Received : 11 December - 2025
Accepted : 07 March - 2026
Published online : 09 March - 2026

Abstract

The digital era has brought about technological advance, one of which is in the financial sector namely financial technology, which is designed to facilitate human activities, particularly in financial management. This facilitates access to the banking world, both internally and externally, the existence of this technology has had a number of extraordinary positive impacts, making environmental performance more organized and able to balance the role of the environmental performance as a supporter of financial technology. The purpose of this study is to determine the extent of the influence of financial technology on environmental performance mediated by green knowledge management at Bank Pembangunan Daerah Yogyakarta (BPD DIY). The research subjects were 100 employees of the Bank Pembangunan Daerah Yogyakarta main office. Sampling in the study used probability sampling, which means that all employees had the opportunity to participate in this study. The data collection method used a questionnaire, and the data analysis tool used Smart PLS 4.0 software. This results of the instrument scale test used were validity and reliability tests. Hypothesis testing showed that financial technology has a positive effect on environmental performance, financial technology has a positive effect on green knowledge management, green knowledge management has a positive effect on environmental performance, and green knowledge management mediates the positive effect of financial technology on environmental performance.

Keywords: Environmental Performance, Financial Technology, Green Knowledge Management.

1. Introduction

The Industrial Revolution 4.0 has made industries increasingly dependent on internet technology, significantly impacting the financial sector through the adoption of digital financial services (Pakpahan et al., 2020; Almulla & Aljughaiman, 2021). Financial technology (fintech) not only facilitates access to financial services but also creates opportunities for sustainable financial management (Putri & Samsuri, 2025). Environmental performance reflects a company's efforts to integrate ecological considerations into operations and stakeholder relations voluntarily, exceeding regulatory requirements (Budi & Sundiman, 2021; Haholongan, 2016). Prior studies indicate that fintech adoption positively influences environmental performance by enhancing resource efficiency, supporting sustainable projects, and promoting ethical corporate behavior aligned with sustainable development (Khan & Urooj, 2023; Guang-wen & Siddik, 2022).

Green knowledge management, defined as the systematic management of environmental knowledge to facilitate sustainable practices which is recognized as a critical factor in improving environmental performance (Wang et al., 2022; Widyanti et al., 2024). It supports decision-making, innovation, and dissemination of environmentally friendly practices within organizations (Al-husain et al., 2025; Khan & Urooj, 2023). Previous research

has also suggested that green knowledge management mediates the relationship between fintech adoption and environmental performance (Khan & Urooj, 2023).

Based on this research, the application of the Technology Acceptance Model (TAM) proposed by Davis (1989) is highly relevant, as it provides a comprehensive framework for explaining user acceptance and adoption of financial technology. This framework supports the premise that higher levels of technology acceptance facilitate the optimization of digital financial services, which in turn contribute to improved environmental performance through more efficient and paperless transactions (Azkiya, 2023). Conceptually, TAM was developed by Davis (1989) based on Expectancy Value Theory and the Theory of Reasoned Action (TRA) proposed by Ajzen and Fishbein (1980), both of which originate from psychological literature. TAM posits perceived usefulness (PU) and perceived ease of use (PEOU) as the primary determinants of technology acceptance, with behavioral intention (BI) serving as the key mechanism that drives actual system usage. Empirical evidence supports this framework. Harrison (2024) finds a significant relationship between perceived usefulness and intention to use financial technology, consistent with TAM assumptions. Furthermore, Wicaksono (2024) demonstrates that TAM facilitates alignment between tasks and technology, which significantly enhances employee performance. In line with these findings, Budi and Sundiman, (2021) reveal that financial technology acceptance grounded in TAM not only promotes ease of adoption but also contributes to environmental performance by reducing physical resource consumption and enabling environmentally friendly transaction processes.

Regional Development Banks (Bank Pembangunan Daerah/BPD) are financial institutions that continue to play a strategic role in promoting regional economic growth (Kurniawan et al., 2021). The selection of Bank Pembangunan Daerah Yogyakarta (BPD DIY) as the research context is based on its proven ability to compete effectively with national banks and its achievement of receiving Infobank awards for 25 consecutive years up to 2024. In the same year, BPD DIY was also awarded the Best Regional Owned Financial Enterprise (BUMD Keuangan) in the IDR 10–25 trillion asset category. This achievement reflects the bank's success in maintaining and strengthening customer loyalty, particularly through the utilization of mobile banking applications (Irawati et al., 2025). Furthermore, during the period from 1997 to 2021, BPD DIY was recognized for its strong workforce management (Wende & Paramitalaksmi, 2023). In response to the challenges of the digital era, BPD DIY has introduced mobile banking services as an effective platform to facilitate faster and more convenient digital transactions (Nabil & Wahyu, 2025). Data from Bank Indonesia indicate a steady increase in digital transactions, signaling a shift in customer preferences from conventional banking services toward more efficient, easily accessible digital services (Djamaluddin et al., 2026). Mobile banking represents a banking innovation that leverages technology to facilitate financial transactions via mobile devices, such as smartphones (Fianto et al., 2021).

In 2023, the number of BPD DIY mobile banking users reached 186,080 customers (Irawati et al., 2025). The Sustainability Report of Bank Pembangunan Daerah Yogyakarta (DIY, 2024, pp. 55-56) reveals a reduction in electricity consumption, which has contributed to lower carbon emissions and improved employee performance capabilities. This achievement is supported by continuous employee development through regular training programs and by enhancing competencies related to sustainable finance. Consistent with this perspective, Guang-Wen and Siddik (2022) argue that environmentally friendly technologies can improve financial soundness and support the development of more robust environmental systems, ultimately leading to enhanced economic outcomes and sustainability. The philosophy of the green economy emphasizes a balance between economic welfare and social

justice while minimizing environmental degradation and excessive exploitation of natural resources (Qoriah et al., 2025).

This study focuses on all employees at the Head Office of Bank Pembangunan Daerah Yogyakarta (BPD DIY), which has not previously been examined as a research object, as prior studies have concentrated mainly on the service sector in Pakistan (Khan & Urooj, 2023). The research is grounded on several key considerations. First, the adoption of financial technology can enhance sustainability, as organizations are required to develop technological innovations that improve transaction convenience and efficiency while reducing paper consumption and carbon emissions. Second, green knowledge management clearly affects environmental performance by disseminating information on environmentally friendly technologies, regulatory frameworks, and practical, easy-to-implement best practices. A strong understanding of green knowledge management encourages more effective utilization of financial technology, thereby directly influencing environmental performance. The findings of Guang-wen and Siddik (2022) confirm that environmentally friendly technologies can improve financial soundness and support the development of more robust environmental systems, leading to sustainable economic outcomes. As awareness of environmental issues continues to increase, organizations are increasingly recognizing the importance of green practices, which drives the re-evaluation of operational planning and management systems (Ahmed, 2022). Accordingly, this study is expected to contribute theoretically to the development of green innovation literature in the banking sector, while also providing practical recommendations for regional banks in formulating and implementing sustainable strategies.

2. Literature Review

The Technology Acceptance Model (TAM) proposed by Davis (1989) is a theoretical framework that explains individuals' attitudes toward the acceptance and use of technology. Hartanti (2021) explains that TAM was developed based on the Theory of Reasoned Action (TRA) proposed by Ajzen and Fishbein (1980), which serves as the foundation for the hypotheses in this study, suggesting that financial technology has the potential to enhance environmental performance. By leveraging technology, work quality, reflected in speed, reliability, and accuracy, can be improved. In addition, the use of technology can reduce costs associated with conventional resource usage (Wijonarko & Wirapraja, 2022).

2.1. Financial Technology

Financial technology, commonly referred to as FinTech or TekFin (Nurdin et al., 2020). has fundamentally transformed the way financial transactions are conducted (Qoriah et al., 2025). The development of financial technology has played a significant role in the digital financial sector, particularly by shifting payment systems from cash-based transactions to non-cash payment methods that are more practical, effective, efficient, and user-friendly (Pradini, 2021). Financial technology has substantially reshaped the financial industry, creating both challenges and opportunities for the banking sector in Indonesia. While financial technology has the potential to disrupt traditional business models, banks that adapt and collaborate with Financial technology companies tend to experience improved operational efficiency, reduced transaction costs, and expanded access to financial services for previously underserved segments (Tsakila et al., 2024). Moreover, Financial technology has emerged as a transformative force, with innovations ranging from online lending platforms to environmentally friendly investment applications, opening new opportunities to integrate sustainability principles into daily banking practices. Consequently, the potential of financial

technology to accelerate the transition toward a green economy should not be overlooked (Veriadi & Fasa 2025).

2.2. Environmental Performance

Environmental performance refers to a company's overall achievements in managing environmental issues arising from its operational activities (Shofia et al., 2020). Environmental protection and management constitute systematic, integrated efforts aimed at preserving environmental functions and preventing pollution and environmental degradation, encompassing planning, use, control, maintenance, monitoring, and law enforcement. Strong environmental performance can enhance a company's corporate image and generate high levels of social recognition, thereby fostering support from both upstream and downstream stakeholders (Zhou et al., 2022). Moreover, environmental performance reflects an entity's ability to manage its surroundings; companies with established governance committees tend to produce more substantial sustainability disclosures when they demonstrate strong environmental performance (Jati et al., 2023).

2.3. Green Knowledge Management

Green knowledge management is an emerging concept whose boundaries and focus are still being defined; however, it is closely associated with green innovation, green knowledge, and environmental intellectual capital (Iliescu, 2024). Green knowledge management represents a novel, knowledge-based, and pro-environmental phenomenon Wang et al. (2022) that facilitates the acquisition, integration, innovation, and adoption of sustainable practices, functioning as a systematic approach to managing environmental knowledge within organisations. The elements of green knowledge include environmentally friendly practices, sustainability information management, knowledge acquisition systems, competitive analysis, and knowledge retention (Widyanti et al., 2024). According to Zhou et al. (2022), green knowledge management is essential for all employees to support both internal and external improvements within organisations. Furthermore, green knowledge management enhances decision-making processes by providing relevant, up-to-date environmental information. It promotes innovation by creating an environment where information on sustainable practices is easily accessible and widely shared (Al-husain et al., 2025).

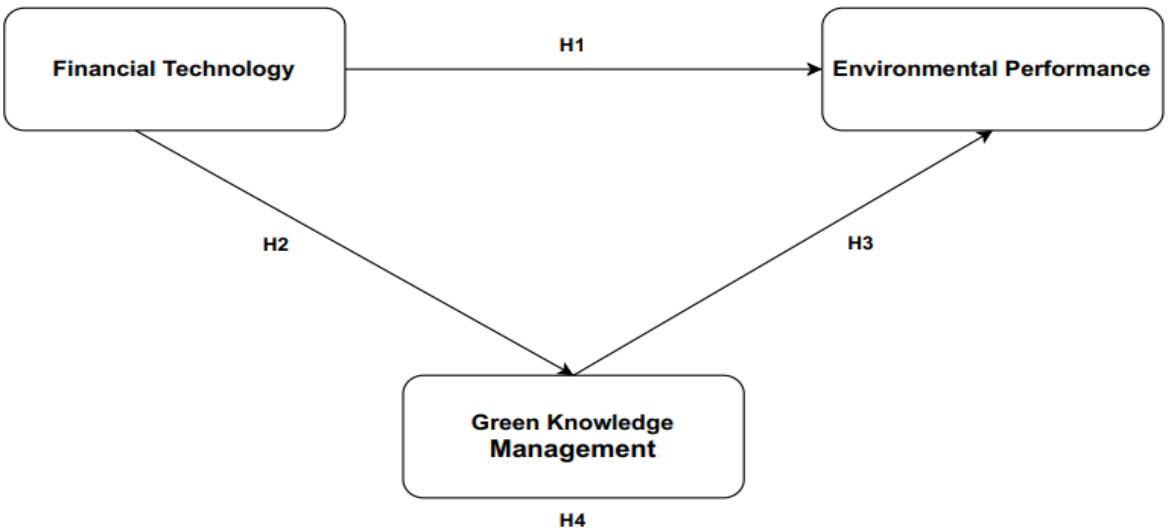

Figure 1. Research Model

Figure 1 illustrates the proposed research model examining the relationships among financial technology, green knowledge management, and environmental performance. Financial technology is hypothesized to have a direct positive effect on environmental performance (H1) and to enhance green knowledge management (H2), which in turn positively influences environmental performance (H3). Additionally, green knowledge management is expected to mediate the relationship between financial technology and environmental performance (H4), indicating that the adoption of financial technology can improve sustainability outcomes both directly and indirectly by facilitating the collection, dissemination, and application of environmental knowledge within the organization.

3. Methods

This study investigates the effect of financial technology on environmental performance, with green knowledge management serving as a mediating variable. The population consists of all 338 employees at the Head Office of Bank Pembangunan Daerah Yogyakarta (BPD DIY). Based on statistical and methodological recommendations, a sample of 100 respondents was selected, consistent with Hair et al. (2019), who suggest a minimum of 100–200 respondents for quantitative studies.

A simple random sampling technique was employed, ensuring that each employee meeting the inclusion criteria, having worked at BPD DIY for at least one year and possessing sufficient understanding of the research variables, had an equal chance of selection (Cumming, 1990). These criteria were applied to ensure both the relevance of responses and the generalizability of findings.

Data collection was conducted using a structured questionnaire with a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), distributed directly to employees. The questionnaire was adapted from Khan and Urooj (2023), covering seven indicators for financial technology, six indicators for environmental performance, and four indicators for green knowledge management.

Data analysis was performed using SmartPLS 4.0. The measurement model was assessed based on factor loadings, convergent validity, discriminant validity, and composite reliability (Hair et al., 2019). Indicators with factor loadings above 0.70 were considered valid, while constructs were deemed reliable if composite reliability and Cronbach's alpha values exceeded 0.70. Hypothesis testing was conducted using p-values, with significance determined at $p < 0.05$ (Gozali, 2021).

Limitations and potential sources of bias are acknowledged. The study relies on self-reported questionnaires, which may introduce social desirability bias. The sample size, although sufficient according to minimum recommendations, may limit representation of subgroups within the population. Moreover, the inclusion criteria favor employees familiar with fintech and sustainability, potentially biasing results. Instrument validation was limited to statistical testing, and contextual adaptation for BPD DIY was not pilot-tested. Future research could address these limitations by employing larger, stratified samples, piloting instruments, and incorporating controls for organizational or demographic variables.

4. Results and Discussion

4.1. Research Results

Table 1. Respondent Description

Characteristics	Information	Frequency (n)	Percentage (%)
Gender	Man	70	70.0
	Woman	30	30.0
Age	20-30	29	29.0
	31-40	41	41.0
	41-50	20	20.0
	>50	10	10.0
Level of education	High School/Vocational School	0	0
	Diploma/D3	4	4.0
	Bachelor degree/S1	79	79.0
	others	17	17.0
Years of service	1-2	0	0
	3-5	23	23.0
	6-8	11	11.0
	>8	9	9.0
Work unit	Finance	57	57.0
	Marketing	0	0
	Operational	16	16.0
	Customer Service	15	15.0
	Human Resources	7	7.0
	others	61	61.0

Source: Processed Respondent Data (2025)

Based on Table 1, the respondent profile indicates that 70 male and 30 female employees participated in the survey. Regarding age distribution, the majority of respondents were between 31 and 40 years old, with 41 participants. Regarding educational background, most respondents held a bachelor's degree, accounting for 79 participants. In terms of employment length, the majority had worked for more than 8 years, totalling 57 respondents. Finally, based on work units, most respondents were classified under the "other" category, with 61 participants.

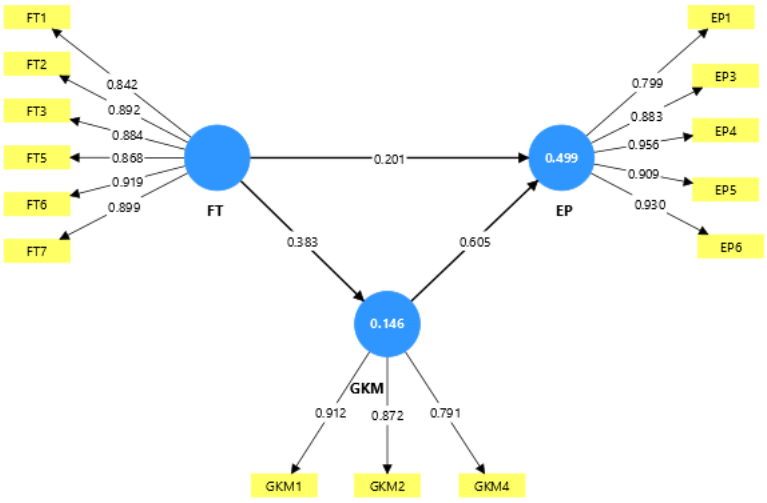

Figure 2. Model Structural PLS-SEM
Source: Data processed using Smart PLS 4.0

The results of the convergent validity assessment are illustrated in Figure 2. Based on Figure 2, all indicator loading factor values for each variable exceed the threshold of 0.70, indicating that the indicators are valid. Within the financial technology variable, the most dominant indicator is FT6, with a loading of 0.919. For the environmental performance variable, the strongest indicator is EP4, with a loading value of 0.956. Furthermore, within the green knowledge management variable, GKM1 emerges as the most influential indicator, with a loading value of 0.912. Meanwhile, indicators FT4, EP2, and GKM3 were found to be invalid and were therefore excluded from the measurement model.

Table 2. Outer Loading Matrix

Indicator	FT (x)	EP (y)	GKM (z)
FT1	0.842		
FT2	0.892		
FT3	0.884		
FT5	0.868		
FT6	0.919		
FT7	0.899		
EP1		0.799	
EP3		0.883	
EP4		0.956	
EP5		0.909	
EP6		0.930	
GKM1			0.912
GKM2			0.872
GKM4			0.791

Source: Data processed using Smart PLS 4.0

The table 2 above shows the results of the outer loading factor analysis, confirming that all indicators in this study have loading values exceeding the minimum threshold required in quantitative methodology. The financial technology indicators range from 0.842 to 0.919, indicating substantial contributions to the latent construct. Similarly, the environmental performance indicators range from 0.799 to 0.956, demonstrating balanced and strong explanatory power for the construct. The consistently high loading values across the three constructs indicate that the research instruments accurately capture the essence of each latent construct. As stated by Hair et al. (2019), an indicator is considered adequate when its loading factor is at least 0.70. Therefore, the latent variables employed in this study exhibit satisfactory loadings and are deemed valid.

Table 3. Reliability Test Results

Variables	Cronbach's alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
FT	0.944	0.948	0.956	0.782
EP	0.939	0.948	0.954	0.805
GKM	0.821	0.822	0.895	0.739

Source: Data processed using Smart PLS 4.0

Based on the data presented in Table 3, the financial technology construct exhibits composite reliability values (rho_a and rho_c) of 0.948 and 0.956, respectively, indicating excellent reliability and strong indicator consistency. Similarly, environmental performance shows composite reliability values (rho_a and rho_c) of 0.948 and 0.954, further confirming very high reliability and consistent indicators. Green knowledge management records composite reliability values (rho_a and rho_c) of 0.822 and 0.895, respectively,

demonstrating strong reliability and internal consistency among its indicators. Overall, the composite reliability values (rho_a and rho_c) for all constructs exceed the recommended threshold of 0.70, indicating that all indicators are reliable and consistent. Based on these results, it can be concluded that all variables in this study are dependable and that no multicollinearity issues are present, as there is no indication of excessively high correlations among indicators, thereby fulfilling the assumptions required in the outer model analysis.

Table 4. R-Square Value

Variables	R-Square	R-Square Adjusted
EP	0.499	0.489
GKM	0.146	0.138

Source: Data processed using Smart PLS 4.0

Table 4 presents the R-square values for the environmental performance and green knowledge management variables: 0.499 and 0.146, respectively. The adjusted R-square values for environmental performance and green knowledge management are 0.489 and 0.138, respectively. The relatively moderate R-square value for ecological performance is consistent with the findings of Guang-Wen and Siddik (2023), who reported an R-square value of 0.451. Meanwhile, Susilowati and Barinta (2024) found that green knowledge management exhibited a low R-square value of 0.086, which is categorized as weak. The differences between the R-square and adjusted R-square values indicate that the model is stable and does not over fit.

Table 5. Hypothesis Testing Results

Hypothesis	Original Sampel (O)	Sampel Mean (M)	Standard Deviation (STDEV)	T Statistics	P Value
FT → EP	0.201	0.201	0.065	3.104	0.002
FT → GKM	0.383	0.389	0.092	4.166	0.000
GKM → EP	0.605	0.608	0.068	8.841	0.000
FT → GKM → EP	0.231	0.238	0.066	3.489	0.000

Source: Data processed using Smart PLS 4.0

Table 5 presents the statistical results of the hypothesis testing, indicating that all hypotheses proposed in this study are supported. The path coefficient analysis represents the core of the structural model evaluation, as it examines the relationships among constructs and serves as the empirical basis for hypothesis testing. Statistical significance was assessed using t-statistics and p-values obtained via bootstrapping, where a t-statistic greater than 1.96 and a p-value less than 0.05 indicate a statistically significant relationship at the 95% confidence level. As shown in Table 5, all structural relationships in the proposed model are statistically significant. The relationship between financial technology and environmental performance yields a path coefficient of 0.201, a t-statistic of 3.104, and a p-value of 0.002, indicating a significant effect. The relationship between financial technology and green knowledge management demonstrates a path coefficient of 0.383, a t-statistic of 4.166, and a p-value of 0.000, confirming that financial technology is a significant predictor of green knowledge management. Furthermore, the relationship between green knowledge management and environmental performance shows a path coefficient of 0.605, a t-statistic of 8.841, and a p-value of 0.000, indicating a strong and positive effect. The mediating role of green knowledge management is evidenced by a path coefficient of 0.231, a t-statistic of 3.489, and a p-value of 0.000, providing strong support for a significant mediation effect.

4.2. Discussion

4.2.1. Financial Technology Has a Positive Impact on Environmental Performance

The results of this study indicate that financial technology has a positive effect on environmental performance, as evidenced by a path coefficient of 0.201 and a t-statistic value of 3.104. These findings are consistent with the Technology Acceptance Model (TAM) proposed by Davis (1989), which is highly relevant for explaining the acceptance of technological innovations in the Industry 4.0 era. Green product and green process innovations remain key resources that enhance environmental performance while simultaneously helping organizations build a positive reputation among key stakeholders (Sun et al., 2022). Employees with high performance capabilities are better able to formulate and implement organizational strategies to achieve the company's vision, mission, and objectives. With the support of information systems, employee performance can be significantly improved, enabling tasks to be completed more quickly, accurately, and efficiently, thereby minimizing errors and leading to cost and time savings (Astari, 2022). Environmental performance reflects a company's responsibility and commitment to environmental preservation (Budi & Sundiman, 2021). According to Haholongan (2016), corporate awareness in establishing strong environmental performance represents a manifestation and convergence between the company's ethical commitment and the essence of sustainable development strategies, achieved through the integration of economic, social, community, and environmental dimensions.

The development of digital technology has prompted Bank Indonesia to implement policy transformations governing payment systems, which are expected to generate positive impacts for the public as users of digital financial products and services provided by the banking sector (Ronggo & Abubakar, 2023). Bank Pembangunan Daerah Yogyakarta is one of the most prominent regional banks in the Yogyakarta region, operating under the regional banking concept to strengthen local economic development. The adoption of financial technology plays a crucial role in enhancing environmental performance, both in terms of environmental sustainability and employee efficiency. This is aligned with the organisational culture of Bank Pembangunan Daerah Yogyakarta, which emphasises "innovation" as a form of continuous development. In line with advancements in the banking industry, Bank Pembangunan Daerah Yogyakarta has introduced digital services through BPD DIY Mobile, which customers can easily access via smartphones to perform various banking activities, including balance inquiries, fund transfers, BI-Fast transfers, payments, and cardless cash withdrawals, available 24 hours a day. The implementation of these digital services helps reduce excessive paper use and mitigate traffic congestion and air pollution caused by customers visiting bank branches in person. Furthermore, the development of a digital economic ecosystem enhances public access to financial products and services at more affordable costs, with improved service quality and faster access, while simultaneously promoting financial literacy and consumer protection (Ronggo & Abubakar, 2023).

Based on a study by Wicaksono (2024), technology has a significant effect on performance, indicating that task–technology fit plays a crucial role in enhancing employee performance. This concept emphasizes reducing negative environmental impacts, such as carbon emissions, by directing financial resources toward renewable energy projects, green infrastructure, and more efficient resource management. Research by Veriadi and Fasa (2025) further demonstrates that financial technology plays a vital role in promoting banking sustainability. Their study underscores that the integration of financial technology into green banking practices is not merely a temporary trend but a fundamental transformation, in which

digital platforms act as powerful catalysts, enabling financial institutions to allocate funds to environmentally friendly projects more agilely and transparently. Enhanced efficiency not only accelerates capital flows but also enables stricter monitoring of environmental impacts and investment outcomes. Additionally, digital technology enables the automation of various business processes, reduces transaction costs, and increases employee productivity (Tsakila et al., 2024). This theoretical perspective aligns with the objectives of environmental improvement, as financial technology facilitates convenience while supporting sustainable practices. The successful implementation and utilization of technology are inseparable from employees' commitment to delivering efficient services and fostering customer trust in adopting digital solutions that simplify daily financial activities. The findings of this study are further reinforced by previous research confirming that financial technology has a positive effect on environmental performance (Khan & Urooj, 2023).

4.2.2. Financial Technology Has a Positive Influence on Green Knowledge Management

The results of this study indicate that financial technology has a positive effect on green knowledge management, with a path coefficient of 0.383 and a t-statistic of 4.166, indicating a strong, statistically significant relationship. This finding is consistent with the Technology Acceptance Model (TAM), which aims to predict an individual's level of acceptance of information systems by explaining the relationships among perceived usefulness, perceived ease of use, and actual system usage behavior within an organization (Hermanto et al., 2017). Green knowledge management represents an advanced development of the green knowledge concept by integrating environmental sustainability objectives into organizational expertise. It seeks to identify the main drivers and inhibitors of sustainable business performance (Iliescu, 2024). In this context, financial technology plays a strategic role in reducing information asymmetry and improving risk management by integrating big data with bank-managed green projects, thereby enabling more effective identification, management, and monitoring of environmentally friendly projects and accelerating decision-making (Cen & Tao, 2018). Furthermore, financial technology serves as a medium for providing financial services that guide organizations toward green transformation (Cen & Tao, 2018). While also representing a new financial paradigm that combines financial services with technological innovation (Kusuma, 2025).

The implementation of green knowledge management has been shown to enhance pro-environmental and knowledge-based activities within organizations significantly (Yu et al., 2022). Including at the Regional Development Bank of Yogyakarta, which continuously develops banking technologies that are readily accepted and utilized by customers. This success is closely linked to effective human resource management, including recruitment, training, and competency development, to ensure employees possess the necessary knowledge and skills (Sun et al., 2022). As corporate involvement in environmental activities increases, transparency in information disclosure becomes increasingly important as a form of corporate responsibility toward the environment and stakeholders (Shofia & Anisah, 2020). Therefore, integrating financial technology and green knowledge management not only enhances organizational environmental performance but also creates opportunities for inclusive, sustainable green economic growth for future generations (Ardita & Ahmadi, 2024). These findings are further supported by previous studies demonstrating that financial technology has a positive influence on green knowledge management (Khan & Urooj, 2023).

4.2.3. Green Knowledge Management Has a Positive Influence on Environmental Performance

The results of this study indicate that green knowledge management has a positive effect on environmental performance, with a path coefficient of 0.605 and a t-statistic value of 8.841. This study adopts the Technology Acceptance Model (TAM) as a supporting theoretical framework. According to Wijonarko and Wirapraja (2022), perceived usefulness refers to the extent to which users believe that using technology can provide them with value and benefits. This indicator suggests that an individual's behavioral intention to use technology is supported by their attitude toward the system involved in the operational process. When individuals perceive that using human resource information system applications is beneficial for their operational activities, it can be assumed that such technology use also improves user performance. Employees who possess the necessary skills are better able to generate ideas or at least encourage innovation, and sustained professional success can help support other employees in their work (Musyaropah et al., 2024). Work competence not only encompasses knowledge and skills but also includes attitudes and self-confidence that determine success in various work situations (Musyaropah et al., 2024). The evidences further explains that work competence remains an inherent factor within the organization, even though, in general, the level of competence at BPD DIY Syariah is already considered good. Green knowledge has a broad scope for guiding how organizations should respond to environmental challenges and for considering adopting more sustainable environmental, social, and economic development pathways (Yu et al., 2022). By paying closer attention to the surrounding environment, companies can actively participate in environmental conservation efforts to maintain the quality of life in the future (Shofia & Anisah, 2020). Environmental performance reflects the extent to which a company's performance contributes to environmental preservation activities (Ulfamawaddah et al., 2023).

These findings also highlight that the Regional Development Bank of Yogyakarta possesses adequate knowledge and performance capabilities in managing its operational activities. Such knowledge enables the bank to enhance its overall performance, positioning it as a preferred financial institution for the people of Yogyakarta in managing financial services, facilitating easier access to digital finance, and supporting greater sustainability. Green knowledge management is an emerging concept that is still defining its boundaries and focal areas; however, it is closely associated with green innovation, green knowledge, and environmental intellectual capital (Iliescu, 2024). Environmental protection and management represent systematic, integrated efforts to preserve environmental functions and prevent pollution and environmental degradation, encompassing planning, control, maintenance, monitoring, and law enforcement (Shofia & Anisah, 2020). Furthermore, the synergy between the Regional Development Bank of Yogyakarta and the Yogyakarta Special Region Government, particularly through regional financial management training programs, is intended to enhance the bank's understanding of public financial management processes. This initiative is expected to improve service performance for both the regional government and the broader community. These outcomes are influenced by individuals' engagement in environmentally friendly practices in their daily activities, which can generate positive environmental impacts. Consequently, significant improvements may be achieved through consistent implementation of environmentally responsible actions (Iliescu, 2024). Overall, the findings of this study are supported by previous research demonstrating that green knowledge management positively affects environmental performance (Khan & Urooj, 2023).

4.2.4. Green knowledge management mediates the positive influence of financial technology on environmental performance

The mediating role of green knowledge management in the relationship between financial technology and environmental performance represents a novel finding in this study, as indicated by a path coefficient of 0.231 and a t-statistic value of 3.489. The results demonstrate that financial technology influences environmental performance through green knowledge management, supported by the Technology Acceptance Model (TAM), which emphasizes the role of organizations in the technology adoption process within the banking sector. Green knowledge management plays a critical role in amplifying the impact of financial technology on environmental performance by providing essential mechanisms for acquiring, preserving, and applying knowledge of green practices. By implementing green knowledge management, organizations can expand their understanding of financial management practices applicable to operational activities, including the development and maintenance of comprehensive customer databases within the Regional Development Bank of Yogyakarta. As an intangible asset, green knowledge cannot be managed in the same manner as other organizational resources (Yu et al., 2022).

The complex nature of green knowledge management necessitates new research perspectives and a re-evaluation of existing frameworks that integrate sustainability insights and address alternative approaches to mitigating the negative environmental impacts of the financial industry (Iliescu, 2024). The rapid evolution of financial technology and its capacity to introduce innovative solutions have positioned it as a key driver of transformation in the financial sector, strengthening conventional practices while establishing new standards for efficiency and innovation (Kusuma, 2025). Furthermore, the study by Khan and Urooj (2023) reveals that corporate green knowledge management facilitates the interconnected relationship between financial technology and environmental performance, confirming that green knowledge management mediates the effect of financial technology by enabling organizations to adopt financial technology solutions that support innovation and green knowledge practices, ultimately enhancing environmental performance.

5. Conclusion

This study demonstrates that financial technology significantly enhances environmental performance, both directly and indirectly through green knowledge management. The findings highlight that effective management and dissemination of environmental knowledge are crucial in translating technological adoption into sustainable organizational outcomes. By extending prior research in the service sector in Pakistan (Khan & Urooj, 2023) to the context of the Regional Development Bank of Yogyakarta, this study provides new empirical evidence within the Indonesian regional banking sector, where studies on these relationships remain limited.

From a practical perspective, these results offer guidance for BPD DIY to implement programs that strengthen employee competencies, promote environmentally responsible practices, and raise awareness among customers about sustainable financial technology. Specifically, the bank can leverage fintech to develop green products, adopt environmentally friendly innovations, and disseminate environmental knowledge through structured green knowledge management, ultimately improving environmental performance and reinforcing its reputation as a sustainable regional bank.

Nevertheless, this study has several limitations. Data were collected using self-reported questionnaires, which may introduce social desirability bias. The sample size, while meeting

minimum statistical requirements, may limit generalizability, and the instruments were not pilot-tested for local adaptation. Additionally, demographic and organizational factors that could influence responses were not controlled. Future research should address these limitations by using larger, stratified samples, longitudinal designs, and more rigorous instrument validation. Overall, the study supports the Technology Acceptance Model (TAM) (Davis, 1989), demonstrating that the acceptance and integration of financial technology can serve as a form of sustainable innovation, improving both environmental performance and organizational standing in the regional banking sector.

6. References

Ahmed, D. (2022). Insurers ' risk management as a business process : a prospective competitive advantage or not ? *European Journal of Management and Business Economics*, *31*(3), 345–366. https://doi.org/10.1108/EJMBE-08-2021-0221

Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs. *Englewoods Cliffs: Prentice Hall*.

Al-husain, R. A., Jasim, T. A., Mathew, V., Al-romeedy, B. S., Khairy, H. A., Mahmoud, H. A., Liu, S., & El-meligy, M. A. (2025). Optimizing sustainability performance through digital dynamic capabilities , green knowledge management , and green technology innovation. *Scientific Reports*, 1–16. https://doi.org/https://doi.org/10.1038/s41598-025-04912-6

Almulla, D., & Aljughaiman, A. A. (2021). Cogent Economics & Finance Does financial technology matter ? Evidence from an alternative banking system Does financial technology matter ? Evidence from an alternative banking system. *Cogent Economics & Finance*, *9*(01). https://doi.org/10.1080/23322039.2021.1934978

Ardita, V. Y., & Ahmadi, M. A. (2024). Green Finance Sebagai Pendukung Keberlanjutan Ekonomi : Analisis Konsep Dan Implementasi. *Culture Education and Technology Research (Cetera)*, *1*, 37–46.

Azkiya, S. R. (2023). Analisis Penerimaan Aplikasi iKalsel Menggunakan Teori Technology Acceptance Model (TAM). *Jurnal Perpustakaan*, *1*, 176–183.

Bank BPD DIY. (2024). *Laporan Berkelanjutan, Tumbuh Semakin Kuat Mengembangkan Bisnis Berkelanjutan*. https://www.bpddiy.co.id/attachment/download_file/3648

Budi, & Sundiman, D. (2021). Pengaruh Inovasi Hijau Terhadap Kinerja Berkelanjutan: Peran Moderasi Dari Kepedulian Lingkungan Manajerial (Studi pada UMKM di Batam). *DeReMa (Development Research of Management): Jurnal Manajemen*, *16*(1), 96.

Buwono, S. R., Abubakar, L., & Handayani, T. (2022). Kesiapan Perbankan Menuju Transformasi Digital Pasca Pandemi Covid-19 Melalui Financial Technology (Fintech). *Jurnal Poros Hukum Padjadjaran*, *3*(2), 228–241. https://doi.org/10.23920/jphp.v3i2.764

Cen Tao, H. R. (2018). Fintech , Green Finance and Sustainable Development. *International Conference on Management, Economics, Education, Arts and Humanities*, *291*(Meeah), 222–225.

Cumming, R. G. (1990). Is Probability Sampling Always Better? A Comparison Of Results From A Quota And A Probability Sample Survey. *Australian and New Zealand Journal of Public Health*, *14*(2), 132–137. https://doi.org/10.1111/j.1753-6405.1990.tb00033.x

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319–340. https://doi.org/https://doi.org/10.2307/249008

Djamaluddin, R. A., Marzuki, S. N., Novianty, R., Agama, I., Negeri, I., Bone, K., Selatan, S., Agama, I., Negeri, I., Bone, K., Selatan, S., Agama, I., Negeri, I., Bone, K., & Selatan, S. (2026). The Influence of Fintech Adoption and Green Finance on The Sustainability Performance of Indonesian Sharia Bank Branches in Bone District. *Jurnal Perbankan*

Syariah Dan Ekonomi Syariah, *08*(01), 1–22.

Fianto, B. A., Rahmawati, C. K., & Supriani, I. (2021). Jurnal Ekononomi & Keuangan Islam. *Jurnal Ekonomi & Keuangan Islam*, *7*(1), 59–76.

Ghozali, I. (2021). *Partial Least Squares: Konsep, teknik dan aplikasi menggunakan program SmartPLS 3.2.9 untuk penelitian empiris* (3rd ed.). Badan Penerbit Univesitas Diponegoro.

Guang-wen, Z., & Siddik, A. B. (2022). Do Corporate Social Responsibility Practices and Green Finance Dimensions Determine Environmental Performance ? An Empirical Study on Bangladeshi Banking Institutions. *Renewable Energy*, *10*(June), 1–14. https://doi.org/10.3389/fenvs.2022.890096

Guang-Wen, Z., & Siddik, A. B. (2023). The effect of Fintech adoption on green finance and environmental performance of banking institutions during the COVID-19 pandemic: the role of green innovation. *Environmental Science and Pollution Research*, *30*(10), 25959–25971. https://doi.org/10.1007/s11356-022-23956-z

Haholongan, R. (2016). Kinerja lingkungan dan kinerja ekonomi perusahaan manufaktur go public. *Jurnal Ekonomi Dan Bisnis*, *19*(3), 413.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2013). *Multivariate Data Analysis*. Pearson Education Limited.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Harrison, D., & Arifin, A. Z. (2024). Faktor-faktor yang memengaruhi niat penggunaan fintech pada Generasi Y dan Z di Jabodetabek. *Jurnal Manajemen Bisnis Dan Kewirausahaan*, *8*(2020), 842–852. https://doi.org/10.24912/jmbk.v8i4.31636

Hartanti, L. P. S. (2021). Pendekatan Technology Acceptance Model Dalam Analisis Penerimaan Teknologi (Studi Kasus Pada Pengguna Mobile Payment). *Buletin Profesi Insinyur*, *4*(1), 1–6. https://doi.org/10.20527/bpi.v4i1.91

Hermanto, S. B., Akuntansi, S., Tinggi, S., Ekonomi, I., & Surabaya, I. (2017). Determinan Penggunaan Aktual Perangkat Lunak Akuntansi Pendekatan Technology Acceptance Model. *Jurnal Akutansi Dan Keuangan*, *19*(2), 67–81. https://doi.org/10.9744/jak.19.2.67-81

Iliescu, A. (2024). Green Knowledge Management — Bibliometric Analysis. *MDPI*, 923–935.

Irawati, Y. F., Ginting, G., & Priansa, D. J. (2025). Meningkatkan Loyalitas Pengguna Mobile Banking Bank BPD DIY melalui Layanan , Kepercayaan , dan Kemudahan Penggunaan Increasing Mobile Banking User Loyalty of Bank BPD DIY through Service , Trust , and Ease of Use. *Jurnal Samudra Ekonomi Dan Bisnis*, *16*(225), 441–455. https://doi.org/10.33059/jseb.v16i2.11120.Abstrak

Khan, I. H., & Urooj, S. F. (2023). The Nexus of Green Fintech and Corporate Financial Performance: A Catalyst for Sustainable Corporate Growth and Financial Success. In *Journal of Business and Management Research* (Vol. 2, Issue 2, pp. 706–736).

Kurniawan, A., Rahayu, A., Wibowo, L. A., & Indonesia, U. P. (2021). Pengaruh Transformasi Digital Terhadap Kinerja Bank Pembangunan Daerah Di Indonesia. *Jurnal Ilmu Keuangan Dan Perbankan (JIKA)*, *10*(2). https://doi.org/10.34010/jika.v10i2.4426

Kusuma, D. R. (2025). The effect of financial technology on sustainability performance : Mediating role of green finance. *Journal of Management and Business Insight*, *3*(1), 1–10.

Musyaropah, Asyari, M., & Shoolihah, M. F. Q. (2024). Pengaruh Disiplin , Kompetensi dan Lingkungan Kerja Terhadap. *EKOMA : Jurnal Ekonomi, Manajemen, Akuntansi*, *4*(1), 2557–2577.

Nabil, F., & Wahyu, S. P. (2025). Sentiment Analysis of BPD DIY Mobile Banking Application Using SVM and KNN Methods. *JURNAL INOVTEK POLBENG*, *10*(2), 934–944.

Nurdin, N., Azizah, W. N., & Rusli, R. (2020). Pengaruh Pengetahuan , Kemudahan dan Risiko Terhadap Minat Bertransaksi Menggunakan Finansial Technology (Fintech) Pada Mahasiswa Institut Agama Islam Negeri (IAIN) Palu. *Jurnal Perbankan Dan Keuangan Syariah*, *2*(2).

Nuriadini, A., & Hadiprajitno, P. T. B. (2022). Manfaat Penerapan Sistem Informasi Akuntansi terhadap Kinerja Karyawan dengan Pendekatan TAM. *DIPONEGORO JOURNAL OF ACCOUNTING*, *11*(1), 1–11. https://ejournal3.undip.ac.id/index.php/accounting/article/view/33073

Pakpahan, E. F., Chandra, K., Tanjaya, A., Indonesia, U. P., Fintech, K. K., Hukum, P., & Hukum, P. (2020). Urgensi Pengaturan Financial Technology Di Indonesia. *JURNAL DARMA AGUNG*, *28*, 444–456.

Pradini, K. T., & Susanti, S. (2021). Pengaruh Literasi Keuangan, Literasi Digital, Dan Kemudahan Penggunaan Terhadap Penggunaan Mobile Banking BCA, BNI, BRI. *E-Jurnal Ekonomi Dan Bisnis Universitas Udayana*, *10*(10), 859–872. https://doi.org/10.24843/eeb.2021.v10.i10.p04

Putri, F. W., & Samsuri, A. (2025). Peran Fintech Syariah dalam Mendorong Investasi Berbasis ESG (Environmental, Social, Governance) di Pasar Modal Syariah Digital. *Jurnal Ilmu Ekonomi Islam*, *9*(1), 38–57. https://doi.org/10.33507/lab.v9i01.2802

Qoriah, L., Safitri, I., Husna, L., Chifdzi, N., Nisak, L., & Saputri, P. L. (2025). Peran Fintech dalam Mendorong Transaksi Berkelanjutan dan Investasi Hijau Global. *CEMERLANG : Jurnal Manajemen Dan Ekonomi Bisnis*, *5*(1), 80–90. https://doi.org/10.55606/cemerlang.v5i1.3436

Shofia, L., & Anisah, N. (2020). Kinerja Lingkungan dan Corporate Social Responsibility Mempengaruhi Profitabilitas Perusahaan. *JAD : Jurnal Riset Akuntansi & Keuangan Dewantara*, *3*(2), 122–133. https://doi.org/10.26533/jad.v3i2.678

Sun, X., Askary, A. El, Meo, M. S., & Zafar, A. (2022). Green transformational leadership and environmental performance in small and medium enterprises. *Economic Research-Ekonomska Istraživanja*, *35*(1), 5273–5291. https://doi.org/10.1080/1331677X.2021.2025127

Susilowati, C., & Barinta, D. D. (2024). The Influence of Knowledge Management and Green Innovation on the Environmental Performance of MSMEs in Malang City: A Study of the Laundry Sector. *Jurnal Manajemen Bisnis*, *11*(1), 79–93. https://doi.org/10.33096/jmb.v11i1.661

Tsakila, N. F., Wirahadi, M. A., Fadilah, A. A., Simanjuntak, H., & Siswajanty, F. (2024). Analisis Dampak Fintech terhadap Kinerja dan Inovasi Perbankan di Era Ekonomi Digital. *Indonesian Journal of Law and Justice*, *1*(4), 1–11.

Ulfamawaddah, U., Junaidi, J., & Wahyudi, I. (2023). Pengaruh Environmental Performance Dan Environmental Cost Terhadap Nilai Perusahaan Dengan Profitabilitas Sebagai Variabel Intervening. *Jurnal Akuntansi & Keuangan Unja*, *7*(3), 132–143. https://doi.org/10.22437/jaku.v7i3.16189

Veriadi, V., & Fasa, M. I. (2025). (2025). *Penerapan Fintech Dalam Green Banking : Studi Kualitatif Tentang Peran Teknologi Dalam Keberlanjutan Perbankan Fintech Implementation in Green Banking : A Qualitative Study on the Role of Technology in Banking Sustainability*. *April*, 6947–6956.

Waluyo, J. K., Agustina, L., Deviani, D., Ulupui, I. G. K. A., & Dwi, K. R. (2023). The effect of environmental performance on sustainability reporting : A case of Indonesia. *Environmental Economics*, *14*(1), 36–46. https://doi.org/10.21511/ee.14(1).2023.04

Wang, S., Abbas, J., Sial, M. S., Álvarez-Otero, S., & Cioca, L.-I. (2022). Achieving green innovation and sustainable development goals through green knowledge management: Moderating role of organizational green culture. *Journal of Innovation & Knowledge*, *7*(4), 100272.

Wende, M. E., & Paramitalaksmi, R. (2023). Comparative Analysis Of Financial Performance

Of Bank Bpd Diy And Bank Jateng For The 2019-2022 Period. *Global Financial Accounting Journal*, *7*(02), 243–254. https://doi.org/10.37253/gfa.v7i2.8858

Wicaksono, C. A. (2024). Meningkatkan Kinerja Karyawan dengan Pendekatan Technology Acceptance Model. *Journal of Business and Information System*, *6*(1), 72–84.

Widyanti, R., Rajiani, I., & Basuki, B. (2024). Green knowledge management to achieve corporate sustainable development. *Journal of Infrastructure, Policy and Development*, *8*(2), 1–22.

Wijonarko, G., & Wirapraja, A. (2022). Pengaruh Green Human Resource Management Terhadap Peningkatan Kepuasan Kerja dan Produktivitas Karyawan Melalui Perspektif Technology Acceptance Model (TAM). *KONSTELASI: Konvergensi Teknologi Dan Sistem Informasi*, *2*(1), 13–22.

Yu, S., Abbas, J., Álvarez-Otero, S., & Cherian, J. (2022). Green knowledge management: Scale development and validation. *Journal of Innovation and Knowledge*, *7*(4). https://doi.org/10.1016/j.jik.2022.100244

Zhou, G., Liu, L., & Luo, S. (2022). Sustainable development, ESG performance and company market value: Mediating effect of financial performance. *Business Strategy and the Environment*, *31*(7), 3371–3387.