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Is Digitalizaion Really Enchance SMEs Financial Performance? Empirical Evidence from Bangka Belitung

Muhammad Qomaruddin Ridwan[1], Rulyanti Susi Wardhani[1], Alim Bahri[2], Darus Altin[2], Karmawan Karmawan[2]Alfiany Alim Imro'ah[3]

[1]Departement Ekonomi dan Akuntansi, Faculty of Economics and Business, Universitas Bangka Belitung, Indonesia
[2]Departement Manajemen dan Bisnis, Faculty of Economics and Business, Universitas Bangka Belitung, Indonesia
[3]Departement Informatics and Business, Politeknik Manufaktur Negeri Bangka Belitung, Indonesia

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ABSTRACT

This study examines the impact of digitalization on the financial performance of small and medium-sized enterprises (SMEs) by comparing key performance indicators—Return on Assets (ROA), Return on Equity (ROE), Total Asset Turnover (TATO), and Profit Margin (PM)—before and after digital adoption. Using a sample of 275 SMEs, descriptive statistics and Wilcoxon tests (paired and one-sample) were employed to evaluate changes in financial outcomes. The results indicate significant improvements in ROA, ROE, and PM following digitalization, while TATO remained stable, suggesting that digitalization's benefits are most immediate in profitability rather than operational efficiency. These findings reinforce the role of digital tools as strategic enablers of SME performance, emphasizing their contribution to cost management, financial transparency, and market expansion. The study offers practical recommendations for SMEs and policymakers to accelerate digital transformation and highlights avenues for future research, including sector-specific analysis, longitudinal studies, and cross-country comparisons.

Corresponding Author:
Muhammad Qomaruddin Ridwan
Department of Ekonomi dan Akuntansi
Faculty of Economics and Business
Universitas Bangka Belitung
Email: mqomaruddin@ubb.ac.id

1. INTRODUCTION

Digitalization has touched all aspects of life, including the business world (Caputo et al., 2021). Digitalization imenn the business has become a widely researched lately (Bouwman et al., 2018; Kraus et al., 2021; Rachinger et al., 2019; Ribeiro-Navarrete et al., 2021; Wang et al., 2023), especially

digitalization in SMEs (Amaral & Peças, 2021; Bokša et al., 2020; Bouwman et al., 2019; Dethine et al., 2020; Dutta et al., 2021; Isensee et al., 2020; Kilimis et al., 2019; Mika, 2020). Kwarteng et al., (2024) has studied the interest of SMEs in adopting digital technology for their business, the results said that SMEs have a high interest in digitalization. SMEs began to adopt digital technology due to the pressure that forced them to follow development of technology (Kwarteng et al., 2024) and also supported by demand from customers (Omrani et al., 2024).

The majority of MSMEs are digitizing in the fields of marketing (Bouwman et al., 2019; Mika, 2020) and also payments (Caputo et al., 2021; Omrani et al., 2024). In the field of marketing, MSMEs have started to promote through social media (Rachinger et al., 2019) and have started to make sales in the marketplace (Bouwman et al., 2019; Mika, 2020). While in the field of payments, MSMEs have begun to adopt digital payments, both through bank transfers and qris (Caputo et al., 2021; Omrani et al., 2024). MSME actors stated that there was an increase in productivity and sales after adopting digital technology (Wardhani et al., 2025). They stated that promotions through social media increased their product marketing network (Rachinger et al., 2019), and the adoption of digital payments increased customer convenience, especially millennial and gen z customers who prefer to use digital payments in their economic activities (Caputo et al., 2021; Yunita et al., 2021)

Although there have been many studies on digitalization in MSMEs, these studies are still at the level of perception (Gopaul & Manley, 2015; Kusa et al., 2021; Wardhani et al., 2025). Most studies are still at the level of interest in adopting and experience in carrying out digitalization (Amelia Setyawati et al., 2023; Legowo et al., 2022; Rafiah et al., 2022). Studies that explore the influence of digitalization adoption on performance have been widely conducted, but the performance measured is still at the level of perception with perception questionnaire questions (Azam, 2015; Forth & Bryson, 2019; Naudé et al., 2014; Prasannath et al., 2024; Wardhani et al., 2025). Although it was previously stated that MSMEs feel that there is an increase in performance after adopting digital technology, it is necessary to explore more deeply whether MSMEs' performance actually increases after adopting digital technology. This study will provide empirical answers about the influence of digitalization on MSME performance, which fills the gap in research results on MSMEs which have so far only been at the level of perception.

The Resource-Based View *(RBV)*

The RBV asserts that firms can achieve sustained competitive advantage through the possession and strategic deployment of their resources (Assensoh-Kodua, 2019). Within this theoretical lens, digital technologies are conceptualized as strategic resources that, when effectively integrated into organizational processes, contribute to superior performance outcomes (Assensoh-Kodua, 2019; Lukovszki et al., 2020). For SMEs, the implementation of digital tools such as digital payment, digital marketing, cloud-based financial systems, enterprise resource planning (ERP) software, and advanced data analytics can enhance internal efficiencies and improve decision-making capabilities (Lukovszki et al., 2020). These tools enable firms to reduce operational costs, optimize resource allocation, and strengthen financial planning processes. RBV emphasizes that it is not merely the adoption of digital technologies that drives performance improvements, but rather the firm's capability to leverage these technologies to achieve strategic goals (Gerhart & Feng, 2021).

SMEs Financial Performance

Financial performance is a critical indicator of a firm's overall success and long-term sustainability, particularly for SMEs, which often operate under conditions of resource scarcity and heightened market vulnerability (Hudson et al., 2001). In the context of SMEs, financial performance

is typically assessed through key indicators such as revenue growth, profit margins, return on investment (ROI), and operational cost efficiency (Immawan et al., 2019). Unlike larger corporations, SMEs may face significant limitations in accessing capital, managing cash flows, and scaling operations, making financial performance both a strategic priority and a core determinant of business continuity (Prasanna et al., 2019).

Moreover, SMEs frequently rely on short-term financial metrics to evaluate success, given their limited access to long-term financing and fluctuating market conditions. As such, the ability to improve financial performance is often tied to the firm's adaptability, innovation capacity, and strategic use of resources (Hudson et al., 2001). Internal financial management practices such as budgeting, cost control, and performance monitoring play a crucial role in shaping outcomes (Omri et al., 2020). However, external factors, including competition, supply chain dynamics, and customer demand, also significantly influence financial viability. In this regard, any intervention or innovation such as the adoption of digital technologies that enhances efficiency, reduces costs, or increases sales potential can have a direct and measurable impact on an SME's financial performance (Harini et al., 2023). Consequently, financial performance serves as both an outcome of strategic initiatives and a necessary condition for long-term competitiveness in the SME sector

Digitalization

Digitalization refers to the integration of digital technologies into business operations, processes, and strategies to create value and competitive advantage (Ribeiro-Navarrete et al., 2021; Wang et al., 2023). For SMEs, digitalization includes tools such as cloud-based accounting systems, e-commerce platforms, digital payment gateways, and enterprise resource planning software (Legowo et al., 2022; Mika, 2020; Wardhani et al., 2025). These technologies enable SMEs to overcome limitations in resources, infrastructure, and market access, offering pathways to growth and sustainability. Digitalization for SMEs has intensified in recent years due to rapid technological advancements, globalization, and shifting consumer expectations (Bokša et al., 2020; Mika, 2020). While large corporations often lead in adopting cutting-edge technologies, SMEs benefit from the flexibility and adaptability that digital tools provide, enabling them to innovate with fewer bureaucratic barriers.

Hypotheses Development

Empirical research consistently demonstrates a positive correlation between digital adoption and firm performance, especially in SMEs. Studies indicate that digitalization reduces transaction costs, enhances supply chain efficiency, and strengthens relationships with customers and suppliers (Bokša et al., 2020; Mika, 2020; Wang et al., 2023). For example, e-commerce platforms allow SMEs to access global customers with minimal infrastructure investment, while cloud-based accounting systems provide financial transparency and accuracy, reducing risks of mismanagement (Amelia Setyawati et al., 2023; Legowo et al., 2022). The digitalization of financial operations enables SMEs to better monitor cash flow, forecast revenues, and plan investments, leading to improved profitability and financial sustainability (Bouwman et al., 2019; Isensee et al., 2020; Wardhani et al., 2025). Furthermore, the adoption of fintech solutions such as mobile payment platforms and online financing has widened SMEs' access to credit and capital, supporting their growth trajectories (Kraus et al., 2021).

In short digitalization represents a strategic imperative for SMEs seeking to enhance financial performance in an increasingly competitive and technology driven market environment (Legowo et al., 2022). By leveraging digital tools and platforms, SMEs can achieve greater operational efficiency,

expand market access, and strengthen financial management practices (Isensee et al., 2020). The literature strongly supports the positive correlation between digital adoption and financial performance, thus we propose our hypothesis as:
H_a: There are diffrences of financial performance before and after digitalization on SMEs

2. METHOD

This study aims to provide empirical evidence on whether the financial performance of SMEs has increased after implementing digital technology. Using a quantitative approach by comparing the financial performance of SMEs to analyze the data to provide empirical evidence.

Sample Selection and Data Sources

Participants in this study were SME actors in the Bangka Blitung Islands Province which includes 1 city and 6 districts, namely Pangkalpinang City, Bangka Regency, Central Bangka Regency, South Bangka Regency, West Bangka Regency, Belitung Regency, and East Belitung Regency. A total of 300 respondents were involved in this study, but only 275 observations could be processed. Data were obtained through the distribution of questionnaires in the form of Google Form which were distributed online and visited SMEs at their place of business using the convenience sampling technique.

Data Collection

Data collected with a questionnaire compiled to obtain data in the form of characteristics of SMEs, namely the name of the SME, business sector, length of business, length of digitalization, form of digitalization, and number of employees. In addition, the questionnaire also contains questions about the amount of assets before and after digitalization, the amount of equity before and after digitalization, the amount of omzet before and after digitalization, the amount of profit before and after digitalization.

Variable Measurement and Data Analysis

In order to obtain empirical evidence on the impact of the implementation of digitalization on the financial performance of SMEs in the Bangka Belitung Islands province, financial performance is measured using the following financial ratios:

Table 1. Measurment of Financial Performance

Financial Performance	Formula
Return on Asset	$\frac{Profit}{Total\ Asset}$
Return on Equity	$\frac{Profit}{Total\ Equity}$
Total Aset Turn Over	$\frac{Omzet}{Total\ Asset}$
Profit Margin	$\frac{Profit}{Omzet}$

(Source: Authors, 2025)

To obtain an overview of the differences in financial performance of SMEs before and after digitalization, a wilcoxon paired difference test was conducted. To strengthen the results, an additional wilcoxon one sample test was conducted, comparing the differences between financial performance before and after digitalization with an indicator value of zero.

3. RESULTS AND DISCUSSION

Results

The results of this study are presented sequentially, consisting of descriptive statistics, paired samples, and one sample. The following are the results of the descriptive analysis.

Table 2. Descriptive Statistics

Variables	N	Mean	Std. Deviation	Minimum	Maximum
ROA_After	275	.70230	.451251	.100	3.000
ROA_Before	275	.67654	.427913	.100	2.500
ROE_After	275	1.19152	.672381	.113	3.000
ROE_Before	275	1.13121	.643953	.150	3.000
TATO_After	275	1.07501	.625344	.100	3.000
TATO_Before	275	1.08245	.658661	.100	3.000
PM_After	275	.69149	.238483	.100	1.000
PM_Before	275	.67364	.241965	.150	1.000

(Source: Research Data, 2025)

The descriptive analysis in Table 2 reveals slight yet meaningful changes in financial performance indicators across the observed sample. Return on Assets (ROA) increased from a mean of 0.67654 (SD = 0.427913) to 0.70230 (SD = 0.451251), with a higher maximum value (3.00 compared to 2.50), suggesting a modest improvement in firms' ability to generate earnings from their assets. Similarly, Return on Equity (ROE) rose from 1.13121 (SD = 0.643953) to 1.19152 (SD = 0.672381), which may indicate enhanced returns for the owner, though the slight decrease in the minimum value reflects performance disparities among SMEs. Total Asset Turnover (TATO) remained relatively stable, with only a negligible decline in its mean (from 1.08245 to 1.07501), indicating that operational efficiency in asset utilization has largely plateaued. Conversely, Profit Margin (PM) also exhibited a minor increase, rising from 0.67364 (SD = 0.241965) to 0.69149 (SD = 0.238483), implying a small but positive shift in cost efficiency and profitability. Taken together, these findings suggest that while profitability metrics improved slightly after digitalization.

Table 3. Wolcoxon Paired Sample Test Result

	ROA_Before - ROA_After	ROE_Before - ROE_After	TATO_Before - TATO_After	PM_Before - PM_After
Z	-2.713	-3.521	-.872	-4.196
Asymp. Sig.	.007	.000	.383	.000

(Source: Research Data, 2025)

The Wilcoxon Paired Sample Test was conducted to evaluate differences in financial performance indicators before and after digitalization in SMEs. The results indicate statistically significant differences for ROA ($Z = –2.713$, $p = .007$), ROE ($Z = –3.521$, $p < .001$), and PM ($Z = –4.196$, $p < .001$), demonstrating that firms experienced meaningful improvements in asset profitability, equity returns, and profit margins. In contrast, the change in Total Asset Turnover (TATO) was not statistically significant ($Z = –0.872$, $p = .383$), suggesting that operational efficiency in asset utilization remained relatively stable. Overall, these findings highlight that while profitability metrics improved significantly after digitalization, SMEs did not exhibit notable changes in their ability to generate revenue relative to assets, potentially reflecting structural or operational constraints.

Robustness Test

Table 4. Wolcoxon One Sample Test Result

Variables	N	Standard Error	Standardized Test Statistic	Asymptotic Sig.
ROA	275	819.388	2.708	.007
ROE	275	825.376	3.517	.000
TATO	275	831.648	.876	.381
PM	275	506.571	4.202	.000

(Source: Research Data, 2025)

The Wilcoxon One-Sample Test was conducted to robust the on the differences between financial performance indicators before and after digitalization, using zero as the reference point. A significant result indicates that the median difference is not equal to zero, meaning digitalization had a measurable effect on that performance indicator. The results reveal significant positive differences for ROA (Standardized Test Statistic = 2.708, p = .007), ROE (3.517, p < .001), and PM (4.202, p < .001), suggesting that digitalization contributed to measurable improvements in asset profitability, equity returns, and profit margins after digitalization. Conversely, the difference in TATO (0.876, p = .381) is not significant, indicating that digitalization did not produce a systematic change in SMEs' asset turnover or operational efficiency. These results complement the paired test findings, showing that while digitalization initiatives were effective in enhancing profitability measures, they had limited influence on asset utilization efficiency. This pattern suggests that the early benefits of digitalization may have been realized primarily through improved cost management, pricing strategies, or financial decision-making, rather than through operational restructuring or changes in asset deployment.

Discussion

This study set out to empirically proved that digitatization may increase SMEs financial performance by examine differences in SMEs' financial performance before and after digitalization. The results provide strong support for this hypothesis, with statistically significant improvements observed in ROA, ROE, and PM, while TATO remained relatively unchanged. These findings confirm that digitalization has a measurable and positive impact on profitability metrics, even though its influence on operational efficiency appears more gradual.

The significant improvements in ROA and ROE align with prior studies demonstrating that digital adoption enhances a firm's ability to generate higher returns from both assets and equity. This is consistent with research by (Bokša et al., 2020; Mika, 2020; Wang et al., 2023), who highlight how digitalization reduces transaction costs, optimizes resource allocation, and strengthens relationships with customers and suppliers, leading to improved financial performance. The adoption of cloud-based accounting systems and other digital financial management tools, as noted by (Amelia Setyawati et al., 2023; Legowo et al., 2022), likely contributed to these improvements by providing SMEs with greater financial transparency, more accurate data, and enhanced decision-making capabilities.

The increase in PM indicates that digitalization also contributes to better cost control and operational effectiveness at a financial level. This finding echoes (Bouwman et al., 2019; Isensee et al., 2020), who argue that digitalization enables firms to forecast revenues more accurately, manage expenses efficiently, and achieve higher levels of profitability. Additionally, fintech innovations,

such as mobile payment platforms and digital financing solutions, have expanded SMEs' access to credit and working capital, allowing them to invest in growth and technology (Kraus et al., 2021). These cumulative effects likely explain the upward trend in profitability measures observed in this study.

However, the non-significant result for TATO suggests that while digitalization can enhance financial outcomes relatively quickly, its impact on operational efficiency, measured through asset utilization, may require more time or deeper structural changes. Hautala-Kankaanpää, (2022) notes that digital transformation often begins with financial and customer-facing processes, whereas the optimization of core operations such as production workflows or asset deployment to be a longer-term process. This finding underscores the importance of distinguishing between immediate financial benefits from digitalization and the slower trajectory of efficiency gains.

Overall, the findings reinforce the hypothesis and support the growing body of literature emphasizing digitalization as a strategic imperative for SMEs. As Isensee et al., (2020) and Legowo et al., (2022) highlight, SMEs that effectively leverage digital tools can strengthen financial management, expand market access, and enhance competitiveness in increasingly technology driven markets. This study adds to the literature by providing empirical evidence that profitability improvements are the most immediate and tangible outcome of digitalization, while operational restructuring may lag behind. For policymakers and SME managers, these results suggest that investments in digital adoption should be complemented with long-term strategies focused on process innovation, capacity building, and workforce upskilling to unlock efficiency gains over time.

4. CONCLUSION

This study investigated differences in SMEs' financial performance before and after digitalization, focusing on ROA, ROE, TATO, and PM. The results strongly support the hypothesis, revealing significant improvements in profitability metrics (ROA, ROE, PM) after digital adoption, while asset utilization (TATO) remained largely unchanged. This findings suggest that digitalization provides immediate benefits in profitability and cost efficiency, whereas operational efficiency gains may require more time or deeper organizational restructuring. In theoretical view, this findings robust the resources based view theory that how firms include SMEs interpose their resources to get competitive advantages. Digitalization can help to reduce costs, so the operation more efficient.

For SMEs, these results underscore digitalization as a strategic tool for strengthening financial management, market access, and decision-making processes. SMEs should prioritize investments in digital solutions to enhance profitability while planning long-term initiatives to improve operational efficiency. Policymakers can support SMEs by expanding access to digital infrastructure, providing training programs, and offering financing schemes to facilitate comprehensive digital transformation.

Future studies should explore sector-specific variations in digitalization's impact, employ longitudinal approaches to capture delayed operational benefits, and investigate organizational factors influencing digital adoption outcomes. Comparative research across countries and regulatory environments may also provide valuable insights into how institutional contexts shape SMEs' digitalization strategies and performance.

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