



## The Development of Digital Accounting Information System Implementation among SMEs in Indonesia

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### ABSTRACT

Digital technology development has transformed the business landscape, particularly for Micro and Small Enterprises (MSEs), where Digital Accounting Information Systems (AIS) have become a critical tool. Digital AIS enhances operational efficiency, financial planning, and marketing, ultimately impacting revenue growth, with entrepreneur education being a crucial factor for successful adoption. This descriptive quantitative study aims to analyze the relationship and correlation direction between the implementation of digital AIS and the characteristics of SMEs in Indonesia. It utilizes panel data from the 2011-2023 SME profile surveys issued by Statistics Indonesia (BPS) and data on accounting software available on the Play Store. The indicators for SME characteristics are business capital, revenue, marketing, and education. The indicators for accounting software are rating, reviews, and downloads. The data were analyzed using Spearman's non-parametric statistical test. The results indicate a significant correlation between Digital AIS adoption and business capital and marketing, but no significant correlation with revenue and education. These findings underscore the necessity to develop and promote a holistic, context-based AIS implementation model. This model should be designed with user-friendly, integrated features and support certification programs for SMEs that demonstrate high-quality AIS implementation.



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## Introduction

The advancement of digital technology has reshaped the business landscape, especially for Micro and Small Enterprises (MSEs). Digital Accounting Information Systems (AIS) have emerged as a critical tool for improving access to business capital. Hendrawan et al. (2023) demonstrated that digital AIS enhances the accuracy of financial reports, thereby facilitating MSEs' access to external financing. This finding is supported by Puspitawati et al. (2024), who affirmed that cloud-based accounting software improves transparency, meeting lenders' demands for credible financial data. However, research by Bijak & Usman (2023) revealed a significant gap: 68% of MSEs in Palopo continue to use manual bookkeeping due to low digital literacy, preventing them from realizing the benefits of digital AIS. This indicates that while digital AIS holds potential for improving capital access, its adoption is highly dependent on human resource capacity—a dimension often overlooked in conventional Resource-Based View (RBV) theoretical frameworks.

In marketing, digital AIS has been proven to enhance the efficiency and market expansion of MSEs. Safitri & Aini (2023) found that features like real-time inventory tracking in AIS encourage impulse purchases in e-commerce, while Rustan et al. (2022) emphasized the benefits of integrating AIS with digital marketing systems. However, Addin & Herlambang (2022) identified a gap between technological

potential and implementation reality: without robust management control, the impact of AIS on sales becomes insignificant. Furthermore, Ramaj & Pjero (2023) revealed that only 55% of professionals master advanced accounting software, hindering the optimization of AIS benefits. This problem is exacerbated by system fragmentation and a lack of interdepartmental collaboration (Fakir & Mittro, 2024).

Meanwhile, the relationship between digital AIS and increased SME revenue also faces complex challenges. Muhindo et al. (2014) and Animah et al. (2019) demonstrated that digital AIS improves operational efficiency and financial planning, impacting revenue growth. However, Endrawati et al. (2023) noted that theoretical understanding of AIS does not automatically translate into effective business practices. An implementation gap arises from the misalignment between AIS design and the real needs of MSEs (Salehi et al., 2015), as well as limitations in digital literacy (Ainiyah et al., 2022).

Entrepreneur education is a crucial factor in the successful adoption of digital AIS. Resky et al. (2023) and Dini et al. (2024) showed that higher education levels correlate with more effective AIS use. However, Julita & Dura (2024) cautioned that formal education alone is insufficient without practical training, while Hanifah et al. (2020) found a gap between academic curricula and business needs. This problem is compounded by a lack of training programs that integrate technical skills with strategic decision-making (Kareem et al., 2021).

In the context of microloans, digital AIS has the potential to bridge MSEs' access to financing. Suhendi et al. (2022) and Jinan et al. (2025) affirmed the role of AIS in enhancing the credibility of financial reports and debt management. However, Andianti & Afiqoh (2024) revealed that without transparency and accountability, the benefits of AIS remain limited. The findings of Li (2010) and Saputra (2025) further indicate that the effectiveness of AIS depends on external factors such as reputation and financial conditions.

This study aims to examine how digital AIS interacts with factors such as entrepreneur education and capital access while addressing this theoretical gap by integrating RBV with Absorptive Capacity theory. Considering a holistic AIS implementation model that combines digital skills training, strengthened internal governance, and synergy between accounting and marketing functions—while providing a practical contribution in the form of a suggested technology adaptation guide for MSEs. Consider the "context-based AIS" framework that has the unique characteristics of MSEs—such as business scale, industry sector, and managerial capacity—that technology adoption genuinely contributes to revenue growth. Its academic contribution also lies in enriching contingency theory by incorporating multiple indicator variables. Proposes a hybrid entrepreneurship education model combining digital AIS training and financial literacy. Offering a suggestion in the form of training that can be adopted by educational institutions and SME service providers. Overall, this research contributes not only to the development of an integrative theory but also offers practical suggestions to strengthen the competitiveness of SMEs in the digital era.

## **Hypothesis Development and Literature Review**

### **Digital AIS Implementation and Business Capital**

Based on the Resource-Based View (RBV) theory (Hendrawan et al., 2023), digital AIS serves as a strategic resource that facilitates access to business capital by providing accurate and transparent financial information. The findings of Puspitawati et al. (2024) indicate that digital AIS enhances the effectiveness of financial reporting, reduces information asymmetry, and meets creditworthiness criteria. However, research by Bijak & Usman (2023) revealed that digital AIS implementation does not have a significant impact in contexts of low digital literacy, indicating a gap between technological potential and

user absorptive capacity. Therefore, it is hypothesized that there is a positive relationship between digital AIS and business capital in micro and small enterprises, provided it is supported by user competency and the quality of technological infrastructure, which bridges previous contradictory findings.

H1: There is a positive relationship between digital AIS and business capital in micro and small enterprises.

### **Digital AIS Implementation and Revenue Increase**

Based on the resource-based view theory and empirical evidence from Muhindo et al. (2014) and Animah et al. (2019), digital AIS serves as a strategic resource that can increase the revenue of micro and small enterprises by enhancing operational efficiency and decision-making quality. These studies show that effective digital AIS produces accurate and timely financial reports, facilitates better inventory management, and supports strategic financial planning. However, the findings of Endrawati et al. (2023) reveal a critical gap: theoretical understanding of AIS does not automatically increase entrepreneurial interest or revenue without practical implementation, while Salehi et al. (2015) emphasize the need for alignment between digital AIS capacity and specific business needs.

. Therefore, it is hypothesized that there is a positive relationship between digital AIS implementation and increased revenue in micro and small enterprises, provided it is supported by system alignment with business needs, user competency, and adequate technological infrastructure.

H2: There is a positive relationship between digital AIS implementation and increased revenue.

### **Digital AIS Implementation and Education Level**

Based on previous research, a theoretical gap exists regarding the role of entrepreneur education in adopting digital AIS. While Julita & Dura (2024) found that formal education does not significantly improve the quality of financial reporting without accounting knowledge, Resky et al. (2023) and Dini et al. (2024) showed that education promotes digital AIS adoption by enhancing technological literacy. This contradiction suggests that the education of micro-entrepreneurs may not directly affect accounting outcomes but can facilitate the utilization of digital tools.

This hypothesis is supported by the Unified Theory of Acceptance and Use of Technology (UTAUT), which states that education enhances performance expectancy and effort expectancy in technology adoption (Dini et al., 2024). Thus, although education alone may not guarantee accounting proficiency (Julita & Dura, 2024), it likely enables entrepreneurs to utilize digital AIS more effectively by increasing their capacity to understand and apply technological solutions (Dwivayani & Muliarta, 2020). Furthermore, Ainiyah et al. (2022) found that the effectiveness of digital AIS highly depends on user competency and the quality of technological infrastructure

H3: There is a positive relationship between digital AIS implementation and the level of education.

### **Digital AIS Implementation and Marketing**

The hypothesis regarding the relationship between digital AIS (accounting software) and the marketing of micro and small enterprises is based on the Technology Acceptance Model (TAM) and previous research findings showing empirical contradictions. Safitri & Aini (2023) proved that digital AIS improves transparency and operational efficiency, which can encourage impulse purchases through features like real-time inventory. However, Addin & Herlambang (2022) found that AIS has no significant effect on sales, indicating that the benefits of AIS depend on the implementation context and integration with marketing functions.

Fakir & Mittro (2024) strengthened this argument by showing that collaboration between accounting data and marketing strategy (e.g., profitability-based segmentation) improves marketing performance. Dewi & Suryanawa (2024) confirmed that digital AIS significantly supports SMEs, especially when combined with financial literacy. Thus, the research gap lies in the varying impact of AIS on marketing, which is suspected to be moderated by factors such as the digital capabilities of SME owners (Ramaj & Pjero, 2023) and the level of adoption of analytical features in accounting software (Rustan et al., 2022). This hypothesis proposes that digital AIS is positively related to SME marketing through mechanisms of improved customer data accuracy and efficiency in marketing budget allocation.

H4: There is a positive relationship between digital AIS implementation and SME marketing.

### Research Method

This study employs a quantitative approach to examine the relationship between digital AIS and the characteristics of micro and small enterprises (MSEs) in Indonesia. It utilizes two primary data sources: (1) Download statistics of accounting applications from the Google Play Store (2011-2023) as a proxy for AIS adoption and (2) MSE profile data published by Statistics Indonesia (BPS), using variables for revenue, owner's education level, and marketing practices.

### Sample and Time Frame

This study analyzes the development of MSEs over a 12-year period (2011-2023) across all provinces in Indonesia. Application data was collected from the top 66 accounting applications, while MSE variables were sourced from the annual SME Profile reports by BPS. The following is the list of sampled accounting applications.

Table 1. List of Sampled Accounting Application Data

1. QuickBooks: Accounting & Invoices	24. FreshBooks Invoicing App FreshBooks Cloud Accounting	47. Invoice Ninja
2. Zoho Invoice	25. ERP / Accounting: OmegaCube / Odoo modules	48. Zoho Inventory (mobile companion)
3. Invoice & Billing—Zoho-related	26. Pocket Accounting / Mobile Ledger Apps	49. MYOB Mobile / MYOB Invoicing (region apps)
4. QuickBooks Accounting: Invoicing & Expenses	27. AKUN. biz Buku Kas Online	50. Invoice Maker with Templates Gulooloo Tech Co., Ltd.
5. Xero Accounting	28. SAP Business One Sales	51. TrulySmall Accounting, Kashoo Inc.
6. Expenditure / Rydoo (Expense Apps)	29. Jurnal by Mekari (Mekari Jurnal)	52. Kledo Akuntansi Bisnis & UMKM
7. Receipt Tracker App – Dext	30. AlignBooks: ERP & Accounting Align Info Solutions Pvt. Ltd.	53. Kashoo Accounting
8. GST Invoice Billing Inventory Just Apps Pvt. Ltd.	31. Bookipi—Invoice & Billing	54. MASERP Reporting Software
9. Pengelola Keuangan Realbyte Inc.	32. Manajer uang: Expense Tracker KTW Apps	55. Kashoo Cloud Accounting
10. Zoho Books	33. Accurate LiteCPSSoft (Accurate	56. Catatan Akuntansi Pembukuan Ambo Dalle App
11. Monefy—Money Manager	34. Zahir Apps: Invoice & Keuangan	57. Jurnal Umum Akuntansi Ambo Dalle App
12. Invoice ASAP: Mobile Invoicing	35. Zobaze POS Kasir & Stok Barang Business Apps By Zobaze - POS, Billing, Inventory	58. Invoice Simple / Invoice Maker

13. Accounting App - Zoho Books Zoho Corporation	36. Dynamics 365 Business Central	59. Catatan Keuangan Sederhana flurs
14. Moka POS & Payment (Moka)	37. BukuWarung - Aplikasi UMKM	60. Bee Inventory Manager (BIM) PT. BITS MILIARTHA
15. Pawoon—Kasir & POS	38. APLIKASIR - Aplikasi Kasir POSPT Aplikasi Niaga Indonesia	61. ERPNext / ERPNext Mobile (Accounting module)
16. Zoho Expense	39. MyMoney—Track Expense & Budget Ananta Raha	62. KelolaBisnis Kasir & Akuntansi Genesis Solusi Akuntansi
17. NetSuite Cloud	40. Catatan Keuangan Usaha UMKM Ogestudio	63. Randu - Akuntansi UKM
18. Acumatica	41. Invoicely	64. KashFlow Mobile / UK apps
19. Omega POS - Aplikasi Kasir PT Omega Teknologi Indonesia"	42. Receipt Scanner: Easy Expense Tracker	65. Zoho Daybook - Ledger Book
20. FreshBooks: Accounting & Invoices	43. TallyDekho—Tally on mobile	66. Beefree - POS Kasir Gratis
21. Sage Business Cloud Accounting AutoEntry	44. TrulySmall Accounting Kashoo	
22. Odoo Accounting	45. Buku Kas—pengeluaran harian ANKIT SARAF	
23. Pembukuan Stok Barang Arus Kas 1C-RARUS TAS	46. Simple Accounting Bookkeeping	

Source: Processed Data, 2025

### Variable Operationalization

- AIS Implementation: Measured by the annual growth rate of the rating, number of reviews, and number of downloads of accounting software from Play Store data.
- Revenue Growth: Measured by the annual percentage change in revenue for SMEs with revenue between 0 and 1 billion Rupiah from BPS data.
- Marketing: Measured by the percentage of SMEs experiencing marketing difficulties from BPS data.
- Owner's Education Level: Measured by the percentage of business owners with a high school (SMA) and undergraduate (S1) education level from BPS data.

### Analysis Method

Spearman's rank correlation was used because the data distribution was not normal (Shapiro-Wilk test,  $p < 0.05$ ), and the hypotheses focus on monotonic (not necessarily linear) relationships. The analysis tested pairwise correlations between AIS adoption metrics and MSE characteristics. AIS adoption data (rating, reviews, and downloads) was obtained from the Play Store for each accounting software provider, based on the first release date within the 2011-2023 period. Selected MSE data from 2011 to 2023 was paired with the accounting software data from 2011 to 2023, based on the first release date information. The cumulative data for each software was tested in the form of annual averages.

## Results and Discussion

### Results

#### Descriptive Statistics

The data used consisted of two groups:

1. Accounting Application Data: Rat (Rating), UI (Reviews), Don (Downloads).

2. Small and Medium Enterprise (SME) Data: Mas, Map, Mod, Sma, S1, Mar, and Ern (which are proportions or percentages).

Table 2. Descriptive Statistics Results

Variable	Mean	Median	Mode	Standard Deviation
Rat	4.56	4.50	4.49, 4.50	0.10
UI	104,063	94,649		- 75,184
Don	4,321,936	3,839,181		- 3,060,301
Mas	0.82	0.84		- 0.06
Map	0.13	0.13		- 0.05
Mod	0.03	0.02	0.02	0.01
Sma	0.17	0.17	0.16	0.02
S1	0.02	0.02	0.02	0.01
Mar	0.31	0.26		- 0.12
Ern	0.22	0.21	0.20	0.12

Source: Processed Data, 2025

Description:

- Rat = Rating (digital accounting application)
- UL = Reviews (digital accounting application)
- Don = Number of Downloads (digital accounting application)
- Mas = Fully Self-Financed Capital (SMEs)
- Map = Joint Venture Capital (SMEs)
- Mod = Fully Externally Financed Capital (SMEs)
- Sma = High School Education Level (SME owners)
- S1 = Undergraduate Education Level (SME owners)
- Mar = Marketing (SMEs facing difficulties)
- ERN = Revenue (SMEs)

### Accounting Application Data (Rat, UI, Don)

The analysis of accounting application data reveals distinct patterns. The mean rating (Rat) of 4.56 and median of 4.50 are uniformly high, indicating that, regardless of download volume, the perceived quality of these applications is generally favorable. For the number of reviews (UI) and downloads (Don), the mean values (104,063 and 4,321,936, respectively) are higher than the medians (94,649 and 3,839,181). This suggests that the distribution is right-skewed, meaning the annual averages are influenced by a smaller number of applications with exceptionally high review counts and download figures. The close relationship between UI and Don is expected, as a larger user base (downloads) typically generates a greater volume of reviews.

### SME Characteristic Data (Mas, Map, Mod, Sma, S1, Mar, Ern)

The data on SME characteristics show several key trends. A predominant majority of SMEs (over 80%) are fully financed by owner capital, as indicated by the high mean and median for Mas (0.82 and 0.84, respectively). The low standard deviation (0.06) confirms this pattern is highly consistent across the

observation period. Consequently, the use of joint venture (Map, mean=0.13) and fully external capital (Mod, mean=0.03) is minimal.

Regarding owner education, the proportion of owners with a high school education (Sma, mean=0.17) is substantially higher than those with an undergraduate degree (S1, mean=0.02). The small standard deviations for both variables indicate little variation over time, suggesting that education level may not be a primary determinant for starting a business.

For marketing, the mean value (Mar=0.31) indicates that, on average, 31% of SMEs reported facing marketing challenges. The relatively large standard deviation (0.12), nearly 40% of the mean, points to significant year-to-year variation in these challenges. The median (0.26) being lower than the mean suggests a right-skewed distribution, where a small number of SMEs experience disproportionately intense marketing difficulties. Finally, for revenue (Ern), the proximity of the mean (0.22) and median (0.21) suggests a relatively normal distribution for this variable. However, the large standard deviation (0.12), approximately 55% of the mean, indicates considerable income disparity among SMEs in certain years.

### Spearman Correlation Test Matrix

Based on data testing using the Spearman correlation test method, a summary of the correlation matrix is presented in Table 3, supplemented by an interpretation of the correlation strength and direction in Table 4.

Table 3. Spearman Correlation Test Results

	mas	map	mod	small	s1	mar	ern
Rat	-0.5127	0.4930	0.7812	-0.2488	-0.5166	-0.6914	-0.0023
UI	0.8200	-0.7808	-0.8571	0.3132	0.3802	0.7597	-0.3218
Don	0.8473	-0.8082	-0.8186	0.2103	0.2798	0.7368	-0.4000

Source: Processed Data, 2025

Table 4. Interpretation of Spearman Correlation Test Results

	mas	map	mod	sma	s1	mar	ern
Rat	WM (N)	(WM)	(S)	(VW)(N)	(S) (N)	(S) (N)	(VW) (N)
UI	(VS)	(VS)(N)	(VS)(N)	(WM)	(WM)	(S)	(WM) (N)
Don	(VS)	(VS)(N)	(VS)(N)	(VW)	(WM)	(S)	(WM) (N)

(N) Negative

Source: Processed Data, 2025

Correlation Strength Guide:

(0.00-0.25): Very Weak (VW); (0.26-0.50): Weak/Moderate (WM); (0.51-0.75): Strong (S); (0.76-1.00): Very Strong (VS).

Based on the results interpreted in Table 4, the following correlations are observed:

- Business Capital: Fully self-financed capital (Mas) shows a strong positive correlation with the number of reviews (UI) and downloads (Don), but a moderate negative correlation with application rating (Rat). In contrast, both joint venture capital (Map) and fully external capital

(Mod) demonstrate very strong negative correlations with UI and Don. Interestingly, Mod shows a strong positive correlation with Rat.

- Owner Education: The high school education level (Sma) shows a very weak negative correlation with Rat and Don, and a weak positive correlation with UI. The undergraduate education level (S1) shows a moderate negative correlation with Rat, and only weak positive correlations with UI and Don.
- Marketing: Marketing challenges (Mar) show a strong positive correlation with the number of reviews (UI) and downloads (Don), but a strong negative correlation with application rating (Rat).
- Revenue: Revenue (Ern) shows very weak to weak negative correlations with all three digital AIS adoption metrics (Rat, UI, Don).

## Discussion

This study aims to investigate the complex interaction between Digital AIS adoption and the characteristics of Micro and Small Enterprises (MSEs) in Indonesia. The findings reveal a nuanced picture, providing important insights into the contingencies of digital transformation in the MSE sector, within the limits of correlation analysis, which does not imply causality.

### Digital AIS Implementation and Business Capital (H1)

H1 proposed a positive relationship. The results show that the number of reviews (UI) and downloads (Don) have a very strong positive correlation with the use of fully self-financed capital (Mas). This suggests that early and enthusiastic adopters of digital AIS are predominantly those who are self-reliant and potentially more risk-averse. Conversely, the very strong negative correlation between UI/Don and the use of partnership (Map) and external capital (Mod) directly challenges the simplistic narrative that AIS adoption automatically facilitates access to external funding.

These findings align with the cautions raised by Bijak & Usman (2023) regarding the literacy gap. It appears that in the Indonesian context, mere technology adoption does not overcome deeper informational and institutional barriers to external financing. Therefore, while digital AIS holds promise, its role as a bridge to external capital is not yet fully realized, justifying the need for integrating RBV with absorptive capacity to understand this dynamic.

### Digital AIS Implementation and Revenue Increase (H2)

H2 postulated a positive relationship. However, the results show consistent negative correlations between all AIS adoption metrics (Rat, UI, Don) and revenue (Ern), albeit weak to moderate. This is a surprising finding that seems to contradict the positive results reported by Muhindo et al. (2014) and Animah et al. (2019).

This paradox can be explained by the implementation gap highlighted in the literature. As suggested by Endrawati et al. (2023) and Salehi et al. (2015), technical understanding or adoption of AIS alone does not translate into effective business practices. The data indicate that many MSEs may adopt digital AIS reactively or at a basic level without integrating the system into strategic decision-making processes that directly impact revenue growth.

### Digital AIS Implementation and Education Level (H3)

Regarding the role of education, H3 is largely rejected by the data. The owner's education level, both high school (SMA) and undergraduate (S1), shows no meaningful positive relationship with AIS adoption metrics. In fact, higher S1 education correlates negatively with application rating (Rat). This supports the argument of Julita & Dura (2024) that formal education alone is insufficient without specific, practical digital and accounting training. The impact of education on AIS adoption, as suggested by Resky et al. (2023), may depend on the type and practical relevance of the education received.

#### **Digital AIS Implementation and Marketing (H4)**

H4 received mixed results. The strong positive correlation between the number of reviews/downloads (UI/Don) and marketing challenges (Mar) is counterintuitive yet enlightening. This result suggests that MSEs facing significant marketing difficulties are actively seeking digital solutions, hoping that AIS tools will help them overcome these challenges. However, the strong negative correlation between application rating (Rat) and marketing challenges indicates that the perceived quality of these applications is lower among those with marketing problems. This aligns with the findings of Addin & Herlambang (2022) and Fakir & Mittro (2024), emphasizing that without strong internal controls and cross-departmental collaboration, the potential of AIS to support marketing efforts remains untapped.

### **Conclusion**

This study concludes that the relationship between Digital AIS and MSE performance is nuanced and varies across indicators, heavily influenced by contextual factors and internal capacities. The findings lead to the following key conclusions:

- Digital AIS and Capital Access: H1 is partially supported but context-dependent. While digital AIS is widely adopted, its primary users are self-financed MSEs. The expected positive relationship with external capital is not clearly evident, underscoring that technology alone cannot bridge the trust and information gaps with lenders.
- Digital AIS and Revenue: H2 is rejected. The findings reveal a productivity paradox at the MSE level, where increased adoption of digital tools does not correlate with higher revenue. This highlights a critical implementation gap where AIS is used for operational record-keeping rather than strategic analysis and decision-making.
- The Role of Education: H3 is rejected. Formal educational attainment does not appear to be a significant driver of effective AIS adoption. This calls for a shift from theoretical education to hands-on, practical training modules.
- Digital AIS and Marketing: H4 receives mixed support. MSEs with marketing challenges proactively adopt AIS, but they are dissatisfied with its effectiveness, indicating a misalignment between system capabilities and strategic marketing needs.

**Theoretical Implications:** This study makes a significant contribution by integrating the Resource-Based View with Absorptive Capacity and Contingency Theory. The results demonstrate that a firm's resources (digital AIS) are insufficient without the internal capacity to absorb and apply them strategically. The effectiveness of AIS is contingent upon factors such as the owner's practical skills, the alignment of the system with specific business needs (especially marketing), and the prevailing business model (self-financed vs. externally funded).

#### **Practical Implications and Recommendations:**

Based on the conclusions, the following recommendations are offered:

- For MSEs and Training Institutions: Develop and promote a holistic, context-based AIS implementation model. Training should extend beyond software operation to include data interpretation for strategic decision-making, financial management, and integrated marketing strategy formulation. The proposed hybrid entrepreneurship education model should be prioritized.
- For AIS Developers: To address the revenue and marketing gaps, AIS software for MSEs should be designed with user-friendly, integrated features for customer profitability analysis, budget-based marketing cost control, and simple data visualization to support strategic decisions.
- For Policymakers and Financial Institutions: To strengthen the link between AIS and external capital, policymakers can support certification programs for MSEs that demonstrate high-quality AIS implementation. Financial institutions can develop credit assessment models that value the quality and credibility of digital financial reports, not just their existence.

**Limitations and Future Research:**

- The use of Spearman's correlation test means the study cannot infer causality.
- This research is limited by the use of proxy data (app downloads) for AIS adoption and aggregated national data. Future research should employ micro-level surveys or case studies to observe the depth of AIS usage and its direct impact on managerial decisions. Longitudinal studies are also needed to explore the causal relationship between AIS adoption and MSE performance over a longer period.

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