Literature Review

Use of Information Systems (IS) to Transform Small Businesses in Indonesia

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I.   **Introduction**

Small and medium-sized enterprises (SMEs) are the foundation of Indonesia's economy, making up more than 99% of all businesses and contributing over 60% to GDP while employing around 95% of the workforce (Tambunan & Busnetti, 2024). Their significance lies not only in job creation and income distribution but also in sustaining local communities and fostering innovation. Yet, Indonesian SMEs face persistent challenges such as limited financing, inadequate managerial skills, and infrastructural gaps, which hinder their ability to compete in an increasingly digitalized economy.

Information Systems (IS) offer a potential pathway for transformation. Encompassing technologies such as e-commerce platforms, enterprise resource planning (ERP), customer relationship management (CRM), mobile banking, and digital marketing, IS can help SMEs overcome traditional barriers of scale and geography. They enable businesses to streamline operations, reach wider markets, and adopt data-driven decision-making. The urgency of IS adoption was further accelerated during the COVID-19 pandemic, when many SMEs were forced to pivot to online platforms, ranging from social media marketing to participation in digital marketplaces such as Shopee and Tokopedia (Wiweko & Anggara, 2025). These developments demonstrated the opportunities of digital adoption but also exposed significant disparities, with many SMEs lacking the skills and resources to embed IS into long-term strategies.

This literature review examines the use of IS to transform small businesses in Indonesia, focusing on adoption determinants, benefits, barriers, and broader policy and socio-cultural influences. By critically evaluating existing studies (Ardiansah et al., 2024; Tambunan & Busnetti, 2024; Wiweko & Anggara, 2025), the review explores both similar and contrasting perspectives, identifies methodological strengths and limitations, and highlights gaps in current knowledge. In doing so, it aligns with the learning outcomes of this module by applying principles of academic investigation to a computing-related business issue in an emerging economy context.

II.   Overview of Current Knowledge

The Strategic Value of IS for SMEs

The digital transformation of MSMEs has become a key catalyst for economic growth and innovation in Indonesia (Ghobakhloo & Iranmanesh, 2021). The adoption of Information Systems (IS) is no longer a matter of competitive advantage but a necessity for SMEs operating in dynamic and technology-driven markets. IS encompass a wide range of tools and applications—from enterprise resource planning (ERP) and accounting software to e-commerce platforms, mobile payments, and digital marketing systems. These technologies allow firms to integrate operations, enhance communication, and base decisions on reliable data rather than intuition. For SMEs that often operate with limited resources, IS provide efficiency gains that reduce costs, minimize manual errors, and improve productivity. Beyond internal operations, IS also enable SMEs to strengthen customer relationships through tools such as customer relationship management (CRM), which can track preferences and support targeted marketing campaigns (Ardiansah et al., 2024).

In Indonesia, the strategic value of IS is particularly pronounced due to persistent challenges that hinder SME growth. Many small firms remain constrained by geography, infrastructure, and financing, making digital technologies an essential bridge to new markets. Purnomo et al. (2024) affirm that by leveraging online platforms, digital transformation provides Indonesian MSMEs with key benefits like increased market reach, operational efficiency, and profitability, thereby enabling them to compete effectively with larger firms. Similarly, mobile banking and digital payment systems provide affordable alternatives to traditional financial services, helping SMEs bypass bureaucratic or collateral-based barriers that restrict access to credit (Tambunan & Busnetti, 2024). These examples demonstrate how IS can level the playing field for Indonesian SMEs, transforming constraints into opportunities.

The global business environment further underscores the urgency of IS adoption for Indonesian SMEs. Internationally, digital transformation is driving competitiveness, with businesses increasingly relying on analytics, automation, and platform-based ecosystems. Countries such as Malaysia and Singapore have advanced faster in SME digitalization, positioning their firms more strongly within regional supply chains (Tambunan & Busnetti, 2024). Without accelerating IS adoption, Indonesian SMEs risk falling behind regional peers, reducing their ability to integrate into global value chains. Thus, IS should not be viewed solely as operational tools but as strategic

enablers that determine whether SMEs in Indonesia can thrive in an era of digital economies.

Adoption Determinants

The determinants of IS adoption vary across studies, reflecting the complexity of Indonesia's SME environment:

- **Consumer integration and perceived usefulness**: Ardiansah et al. (2024), through a structural equation model of 237 SMEs in Central Java, found these to be the strongest determinants of IS adoption. SMEs prioritized technologies that directly connected them to customers and provided clear benefits, while cost considerations were statistically insignificant.

- **Resource and knowledge constraints**: Tambunan and Busnetti (2024) challenge this view, emphasizing digital literacy, managerial capacity, and infrastructural limitations as key barriers. Their survey data reveal slow progress in internet adoption compared to regional peers such as Singapore and Malaysia.

- **Ecosystem and external enablers**: Wiweko and Anggara (2025) highlight how digital platform ecosystems (Shopee, Tokopedia, Instagram, WhatsApp Business) act as enablers by lowering entry barriers. Government initiatives such as *UMKM Go Digital* further facilitate adoption, though with uneven regional reach.

  These contrasting findings suggest that adoption is shaped not only by internal readiness but also by external ecosystems and national policy contexts.

III. **Methodological Insights**

The reviewed literature uses diverse methodological approaches:

- **Quantitative analysis**: Ardiansah et al. (2024) applied structural equation modelling (SEM), generating statistically robust insights but with limited regional coverage.

- **Mixed-methods and survey-based approaches**: Tambunan and Busnetti (2024) combined secondary government data with primary online surveys, providing macro-level trends but facing limitations in data fragmentation and representativeness.

- **Systematic literature review**: Wiweko and Anggara (2025) synthesized studies across sectors and years, offering breadth but with limited empirical grounding.

Collectively, these methods highlight the strengths of triangulation but also reveal important gaps—particularly the lack of longitudinal research that could capture how adoption patterns evolve over time in response to changing technologies, government initiatives, or market shocks such as the COVID-19 pandemic. Without such studies, it is difficult to determine whether digital adoption results in sustained transformation or remains a short-term survival tactic. In addition, there is an absence of comparative studies across Indonesia's diverse provinces, many of which differ significantly in infrastructure quality, levels of digital literacy, and economic orientation. Exploring these regional differences would provide a more nuanced understanding of the uneven pace of IS adoption and allow policymakers to design interventions that are better tailored to local contexts rather than relying on a one-size-fits-all approach.

IV. Benefits of IS Adoption

Market Expansion and Customer Engagement

Digital platforms have democratized access to markets for small businesses. Platforms like Shopee and Tokopedia allow SMEs—even micro and home-based enterprises—to reach national and international consumers at low cost (Wiweko & Anggara, 2025). Social media applications such as Instagram and TikTok provide interactive features, including influencer collaborations and live commerce, that increase visibility and engagement.

Operational Efficiency

IS adoption also facilitates internal process improvements. According to Deloitte's 2021 Tech Trends Report enterprises have accelerated their digital transformation efforts, in order to make their operations more agile and productive (Edwards, 2020). ERP and accounting systems can reduce manual errors, improve transparency, and support data-driven decision-making (Ardiansah et al., 2024). Even basic IS tools such as instant messaging and cloud-based storage streamline communication and record-keeping.

Resilience and Sustainability

Tambunan and Busnetti (2024) note that SMEs adopting IS exhibited greater resilience during COVID-19, sustaining operations through online sales and remote coordination. Moreover, digitalization fosters innovation and

contributes to broader sustainability goals, aligning with global trends toward green digital economies.

V. Barriers and Challenges

Despite these benefits, IS adoption remains constrained by several barriers:

1. **Digital literacy gaps** – Many SME owners lack the technical knowledge to effectively utilize IS tools (Wiweko & Anggara, 2025).

2. **Infrastructural inequalities** – Rural SMEs face poor internet connectivity and unreliable power supply, limiting access (Tambunan & Busnetti, 2024).

3. **Financial and resource constraints** – While Ardiansah et al. (2024) found cost statistically insignificant, in practice many SMEs cite investment costs, lack of skilled staff, and training expenses as barriers (Tambunan & Busnetti, 2024).

4. **Cultural resistance and mistrust** – Some SME owners are reluctant to adopt digital practices due to fears of cyber fraud or mistrust of online platforms (Tambunan & Busnetti, 2024).

5. **Fragmented strategies** – SMEs often use digital tools reactively, without integrating them into strategic plans, resulting in inefficiencies (Wiweko & Anggara, 2025).

These barriers reflect a broader digital divide shaped by socio-economic inequalities and regional disparities.

VI. Government Policy and Institutional Support

The Indonesian government has recognized SMEs' digital lag and implemented initiatives such as:

- **UMKM Go Digital** – The initiative's goal is to encourage SMEs to transition from conventional to digital operations, leveraging platforms like e-commerce and social media to expand their market reach (Kementerian Koordinator Bidang Perekonomian Republik Indonesia, 2021).

- **Gerakan Nasional Literasi Digital** – Promoting digital literacy among entrepreneurs (Kementerian Komunikasi dan Informatika, 2021).

- **SMESCO Trade Portal** – Providing a centralized marketplace for SMEs (Tambunan & Busnetti, 2024).

While these programs have facilitated millions of SMEs to go online, their effectiveness remains uneven. Urban SMEs benefit disproportionately, while rural and remote businesses remain underserved (Wiweko & Anggara, 2025). Furthermore, many initiatives provide only one-off training without sustained mentorship, limiting long-term impact.

VII. Socio-Cultural Factors

SME adoption of IS is not purely technical but also cultural. Resistance to change, generational differences, and perceptions of technology influence adoption rates. Older entrepreneurs may prefer traditional methods, while younger entrepreneurs are more inclined to experiment with digital tools (Ardiansah et al., 2024). Moreover, gender dimensions are evident—women dominate certain SME sectors such as culinary and fashion, yet often face greater digital literacy gaps and resource constraints.

VIII. Comparative and Global Perspectives

Indonesia's SME digitalization progress lags behind neighboring countries. By 2019, only 3.79 million of more than 65 million SMEs were online, a figure significantly lower than in Malaysia and Singapore (Tambunan & Busnetti, 2024). Global literature also highlights similar barriers in developing economies, such as limited digital skills and infrastructural deficits (Ghobakhloo & Iranmanesh, 2021). These comparisons highlight that Indonesia's challenges are not unique but part of broader structural issues facing SMEs in emerging economies.

Research Gaps

From the literature, several critical gaps are evident:

1. **Regional disparities** – Rural and remote SMEs remain underrepresented in research, despite facing the greatest infrastructural and digital literacy challenges. A stronger focus on these regions would help policymakers design interventions that account for Indonesia's geographical diversity.

2. **Sectoral focus** – Most studies concentrate on retail and services, with limited attention to agriculture and manufacturing. Yet, these sectors are central to Indonesia's economy and could benefit uniquely from IS adoption in areas such as supply chain management and production efficiency.

3. **Longitudinal data** – Few studies track IS adoption trends over time, making it difficult to determine whether digitalization results in sustained transformation or short-term adaptation to external shocks such as the COVID-19 pandemic.

4. **Post-adoption outcomes** – Limited research evaluates how IS adoption affects long-term competitiveness, innovation, or employment. This gap reduces our ability to assess whether digitalization leads to structural growth or simply survival.

5. **Ethical and security considerations** – Cybersecurity, privacy, and trust issues are underexplored, despite being critical to encouraging SMEs to engage fully with digital platforms.

Future Directions

Future research should adopt longitudinal and comparative designs to capture evolving adoption patterns across Indonesia's diverse provinces. Sector-specific studies are needed to tailor digital strategies to industries such as agriculture, which face unique challenges. Furthermore, research must expand beyond adoption to assess the long-term sustainability, ethical dimensions, and societal impacts of IS adoption. Policymakers should also focus on reducing rural-urban digital divides by expanding infrastructure, subsidizing training, and promoting trust in digital systems.

IX. Conclusion

Information Systems are playing a transformative role in Indonesia's SMEs by enabling market expansion, operational efficiency, and resilience. However, adoption remains uneven and often superficial. The literature reveals contrasting perspectives: Ardiansah et al. (2024) emphasize consumer integration and usefulness as primary drivers, while Tambunan and Busnetti (2024) stress structural and literacy constraints, and Wiweko and Anggara (2025) highlight fragmented strategies and reliance on external platforms.

These divergences underscore that IS adoption in Indonesia is shaped by an interplay of technological, organizational, and socio-cultural factors. For digital transformation to be meaningful, SMEs must move beyond reactive adoption toward strategic integration. SMEs require support in terms of digital literacy and funding access, furthermore policy recommendations include enhancing government support, providing digital training programs, and offering incentives for digital investments (Ainurrokhim et al., 2024). Only then can Indonesia harness the full potential of IS to sustain inclusive economic growth and competitiveness in the global digital economy.

References

- Ainurrokhim, T., Hati, K.C. & Adibta, N.D. (2024). Digital Transformation in Small and Medium Enterprises (SMEs): Challenges and Opportunities in Indonesia. *Proceeding of the International Conference on Management, Entrepreneurship, and Business*, 1(1), pp. 14-19.

- Ardiansah, M.N., Murtini, S., Raharjanti, R., Hidayati, U. & Mansur, A.W., 2024. Determinants of ICT Adoption in Business for Emerging SME Entrepreneurs in Indonesia. *European Journal of Business and Management Research*, 9(5), pp.1-28. https://doi.org/10.24018/ejbmr.2024.9.5.2476

- Edwards, A. (2020) 'Deloitte's 2021 Tech Trends Report shows enterprises are accelerating digital transformation', Dallas Innovates, 22 December. Available at: https://dallasinnovates.com/deloittes-2021-tech-trends-report-shows-enterprises-are-accelerating-digital-transformation/ (Accessed: 15 September 2025).

- Ghobakhloo, M., & Iranmanesh, M. (2021). Digital transformation success under Industry 4.0: a strategic guideline for manufacturing SMEs. Journal of Manufacturing Technology Management, 32(8), 1533–1556. https://doi.org/10.1108/JMTM-11-2020-0455

- Kementerian Komunikasi dan Informatika (2021) 'Literasi Digital Bergulir ke Seluruh Negeri', *Kementerian Komunikasi dan Informatika*, 3 June. Available at: https://www.komdigi.go.id/berita/artikel/detail/literasi-digital-bergulir-ke-seluruh-negeri (Accessed: 15 September 2025).

- Kementerian Koordinator Bidang Perekonomian Republik Indonesia (2021) 'UMKM Go Digital, UMKM Go Global', *Kementerian Koordinator Bidang Perekonomian Republik Indonesia*, 31 July. Available at: https://www.ekon.go.id/publikasi/detail/3184/umkm-go-digital-umkm-go-global (Accessed: 15 September 2025).

- Purnomo, S., Nurmalitasari & Nurchim (2024). Digital transformation of MSMEs in Indonesia: A systematic literature review. *Journal of Management and Digital Business*, 4(2), pp. 301-312.

- Tambunan, T.T.H. & Busnetti, I., 2024. Recent Evidence on the Digitalization Process in Indonesia's Micro and Small Enterprises. *International Journal of Current Science Research and Review*, 7(8), pp.6031-6049. https://doi.org/10.47191/ijcsrr/V7-i8-18

- Wiweko, A. & Anggara, A.W., 2025. A Review of Digital Marketing Practices among SMEs in Indonesia: Trends, Challenges, and Opportunities. *International Research Journal of Economics and Management Studies*, 4(5), pp.315-323. https://doi.org/10.56472/25835238/IRJEMS-V4I5P140