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Technology Adoption in MSMEs: A Literature Review Using Innovation Diffusion Theory (2023-2025)

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Abstract

This study conducts a Systematic Literature Review (SLR) to synthesize recent research on the application of the Diffusion of Innovation (DOI) Theory in analyzing technology adoption among SMEs and micro enterprises. A total of 37 peer-reviewed articles published between 2023 and 2025 were examined to identify research trends, thematic focuses, and challenges in innovation diffusion. The findings indicate a growing application of DOI driven by increasing digitalization and the pursuit of innovation-based competitiveness. Four major themes emerge: digital technology adoption, organizational readiness, environmental and institutional influences, and post-adoption performance outcomes. Results show that innovation adoption enhances efficiency, performance, and market reach but is hindered by limited resources, digital skill gaps, and infrastructural constraints. Despite these challenges, DOI remains a robust theoretical framework for understanding technology diffusion in resource-limited enterprises. The study contributes by consolidating recent DOI applications and offering practical insights to support policymakers and practitioners in advancing MSME digital transformation.

Keywords: Diffusion of Innovation Theory, Technology Adoption, MSMEs

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) have long been recognized as the backbone of both national and global economies. MSMEs not only contribute significantly to Gross Domestic Product (GDP) but also play a crucial role in expanding employment opportunities and promoting equitable economic welfare, particularly in developing countries such as Indonesia. MSMEs make substantial contributions to driving economic growth and job creation (Soni et al., 2022).

However, despite their strategic importance, MSMEs continue to face various challenges in their development, particularly limited access to formal financial products and services (Lu et al., 2020). These barriers hinder MSME actors from expanding their businesses, improving productivity, and enhancing competitiveness in increasingly competitive markets.

The wave of digitalization has transformed how businesses operate across sectors and industries, creating new opportunities for growth and sustainability. It has also reshaped business strategies, consumer preferences, and operational processes—especially in the MSME sector, often referred to as the *"engine of the economy"*. This transformation has attracted considerable attention from academics and practitioners seeking to understand how digitalization affects value creation in MSMEs, particularly in relation to innovation (Nambisan, 2017). Understanding these dynamics is essential for MSME actors, policymakers, and researchers to identify potential opportunities and mitigate risks within an increasingly dynamic digital ecosystem.

To ensure sustainability and boost performance, innovation has become a strategic necessity for MSMEs. However, a gap remains that MSMEs often lag behind larger enterprises in adopting and leveraging digital technologies (DT). Digital technologies including cloud computing, artificial intelligence (AI), and mobile applications serve as a transformative catalyst that can digitalize and optimize the entire value chain. Delays in adopting digital technologies not only reduce efficiency but can also threaten the long-term competitiveness of MSMEs in the global marketplace (Huong & Duc, 2023).

In line with these issues, this study formulates the following research questions to guide the systematic literature review and structure the subsequent analysis:

1. **RQ1:** What are the research trends related to the application of the Diffusion of Innovation (DOI) Theory in the context of MSMEs?
2. **RQ2:** What are the dominant research themes associated with the use of DOI Theory in MSMEs?
3. **RQ3:** What benefits, obstacles, and challenges have been reported in implementing the Diffusion of Innovation Theory within MSMEs?

These research questions aim to generate a comprehensive synthesis of the existing literature, enabling a deeper understanding of technology adoption phenomena and providing evidence-based recommendations for policymakers, practitioners, and future researchers.

LITERATURE REVIEW

The Diffusion of Innovation (DOI) Theory, developed by Everett Rogers, explains how new ideas, practices, or technologies spread among individuals or groups within a social system over time. Rogers defines diffusion as *"the process by which an innovation is communicated through certain channels over time among the members of a social system"* emphasizing the roles of communication, time, and social context in shaping how innovations are disseminated (Rogers, 1983).

Scholars widely agree that diffusion involves not only the adoption of an innovation but also the mechanisms and factors that accelerate or hinder its acceptance within society. Across the 33 studies reviewed, DOI consistently emerges as a foundational framework for analyzing and predicting how innovations are disseminated and adopted, particularly within organizational and technological contexts.

For instance, Mukhtar & Jallow (2025) highlight that DOI offers a comprehensive lens to understand how perceived innovation attributes—such as relative advantage and compatibility—influence adoption decisions. Similarly, Bailusy et al. (2025) and Ngian & Ling (2025), contextualize DOI within micro, small, and medium enterprise (MSME) environments, emphasizing its strong explanatory power in understanding technology adoption and designing targeted interventions.

The DOI conceptual framework argues that innovation adoption depends on the interaction between innovation attributes and the context of the adopting unit. Rogers identifies four key components of the diffusion process: (1) the innovation itself, (2) communication channels, (3) time, and (4) the social system. He further specifies five critical

attributes that shape the rate and extent of adoption—relative advantage, compatibility, complexity, trialability, and observability.

Innovations perceived as more advantageous, aligned with existing values, less complex, easier to trial, and with observable outcomes are generally adopted more rapidly. Recent empirical research in small and micro enterprises validates these attributes, while additional contextual factors—organizational readiness, management support, and external pressures—integrated into the DOI framework enhance its predictive power. Consequently, DOI provides a multidimensional and flexible analytical structure for understanding innovation adoption dynamics, serving as a valuable foundation for designing and evaluating technology diffusion strategies, particularly within small organizational settings.

RESEARCH METHODOLOGY

A. Types and Approaches of Research

This study employs a Systematic Literature Review (SLR) approach to provide a comprehensive, transparent, and structured synthesis of scholarly work related to the application of the Diffusion of Innovation (DOI) Theory in the context of technology adoption among SMEs and micro enterprises. The SLR approach is suitable for mapping theoretical developments, identifying research patterns, and evaluating methodological rigor across studies published within a specific timeframe. By utilizing this method, the review offers a consolidated understanding of how DOI Theory has been conceptualized and operationalized in recent empirical investigations involving digital technology adoption.

The review process follows the principles of the Preferred Reporting Items for Systematic Reviews. These guidelines ensure systematic identification, selection, appraisal, and synthesis of relevant literature. The procedure involves defining search strings, selecting appropriate academic databases, applying well-defined inclusion and exclusion criteria, and extracting key information from the eligible studies. This structured approach enhances the reliability of the findings and minimizes selection bias, ensuring that all reviewed articles directly contribute to answering the research questions.

B. Literature Research Strategy

The search strategy was conducted systematically across reputable academic databases, including Scopus, ScienceDirect, Emerald Insight, Wiley Online Library, IEEE Xplore, Google Scholar, and accredited national journals indexed in

SINTA. The search was limited to the period 2023–2025 to capture the most recent advancements in DOI-based research on technology adoption within SMEs and micro enterprises. A combination of keywords and Boolean operators was used to refine the search, including: *"Diffusion of Innovation Theory"*, *"technology adoption", "SMEs", "micro enterprises", "digital technologies"*, and *"innovation adoption".* These terms were combined using AND/OR operators to expand or narrow the search according to relevance.

Several iterative steps were followed during the search process. First, preliminary keywords were identified based on the research scope and theoretical foundation. Second, these keywords were tested across databases to ensure adequate coverage of relevant publications. Third, only articles explicitly employing DOI Theory within the context of SMEs or micro enterprises were retained. All retrieved studies were downloaded in full-text format and archived for screening and extraction. This multi-stage search strategy ensured a balanced representation of interdisciplinary perspectives while maintaining focus on the central theme of innovation diffusion.

C. Inclusion and Exclusion Criteria

Clear inclusion and exclusion criteria were defined to ensure that only studies directly aligned with the research objectives were incorporated into the final synthesis. The inclusion criteria required that publications (1) explicitly apply the Diffusion of Innovation (DOI) Theory as the primary theoretical framework, (2) focus on technology adoption within SMEs or micro enterprises, (3) fall within the 2023–2025 publication window, and (4) be available in full-text format.

Conversely, studies were excluded if they (1) did not employ DOI Theory as the main analytical lens, (2) lacked direct relevance to SMEs or micro enterprises, (3) did not address technological innovation, or (4) were published as non–peer-reviewed materials, including conference proceedings, books, dissertations, or institutional reports.

Applying these criteria ensured a rigorous and transparent filtering process that refined the initial pool of articles into a final set of 37 eligible studies. The selection was conducted in multiple stages—title screening, abstract review, and full-text evaluation—to maintain consistency and minimize potential researcher bias. The resulting corpus of studies provides a robust and methodologically sound foundation for

analyzing current research trends, thematic developments, and emerging challenges in DOI-based investigations within the SME context.

Table 1. Inclusion & Exclusion Criteria

Category	Inclusion	Exclusion
Publication Year	Published between 2023-2025	Published before 2023
Topic Relevance	Focus on technology adoption in MSMEs	Not related to MSMEs
Theoretical Framework	Explicitly applies diffusion of innovation theory	Does not use diffusion of innovation theory
Type of Publication	Peer-reviewed journal articles	Books, reports, proceedings, non peer-reviewed papers
Language	English	Non-English

After applying the inclusion and exclusion criteria, a total of 37 journal articles were identified as eligible for the final synthesis. The selection process began with the identification of all potentially relevant records retrieved from the databases, followed by the removal of duplicates and non-academic sources. Subsequently, each article underwent a three-stage screening—based on title, abstract, and full-text content—to ensure relevance and methodological quality. Only studies that explicitly integrated the Diffusion of Innovation Theory in analyzing technology adoption within SMEs and micro enterprises were retained. The final set of 37 articles represents the most methodologically robust and thematically relevant evidence base for this review. The detailed selection process is summarized in the following figure.

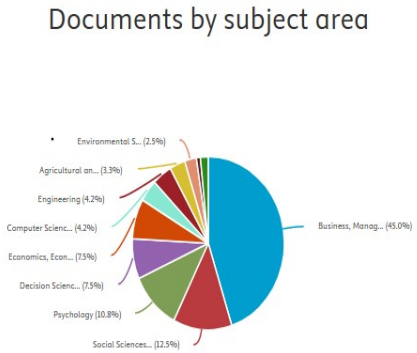


Figure 1. Distributiion of documents by subject area

The distribution of documents by subject area reveals that the majority of studies utilizing the Diffusion of Innovation (DOI) Theory in the context of technology adoption among SMEs are concentrated in the Business and Management domain (45%). This dominance indicates that DOI continues to serve as a core theoretical foundation in understanding innovation behavior, organizational decision-making, and technology adoption strategies within managerial settings.

The Social Sciences (12.5%) and Psychology (10.8%) areas represent the next largest shares, reflecting the interdisciplinary nature of DOI research that integrates behavioural and social perspectives in explaining how individuals and organizations adopt innovations. The inclusion of Decision Sciences (7.5%) and

Economics (7.5%) further highlights the theory's relevance to modelling decision-making processes and evaluating economic implications of technological adoption.

Meanwhile, smaller contributions from Computer Science (4.2%), Engineering (4.2%), Agricultural Sciences (3.3%), and Environmental Sciences (2.5%) indicate growing but still limited applications of DOI in technical and applied research fields. This suggests opportunities for expanding DOI-based studies into more technology-intensive and sustainability-oriented disciplines. Overall, the subject area distribution underscores that while DOI remains deeply rooted in business and social research, its cross-disciplinary potential continues to evolve, offering valuable insights for diverse sectors adapting to rapid technological change.

D. Data Screening and Data Extraction

The screening process was conducted in three stages: title screening, abstract review, and full-text evaluation. Articles that passed all stages were included for data extraction. Key information from each study—such as research objectives, country context, technology focus, methodological approach, constructs used, and main findings—was extracted using a structured coding sheet. The extracted data is then synthesized using thematic and comparative analysis techniques to answer the three research questions (RQ1–RQ3). This systematic approach allows for the identification of research patterns, thematic clusters, and empirical insights relevant to understanding technology adoption through the lens of Innovation Diffusion Theory in MSME enterprises.

RESULT AND DISCUSSION

RQ1: What is the research trend related to the application of diffusion of innovation theory in the context of MSMEs enterprises?

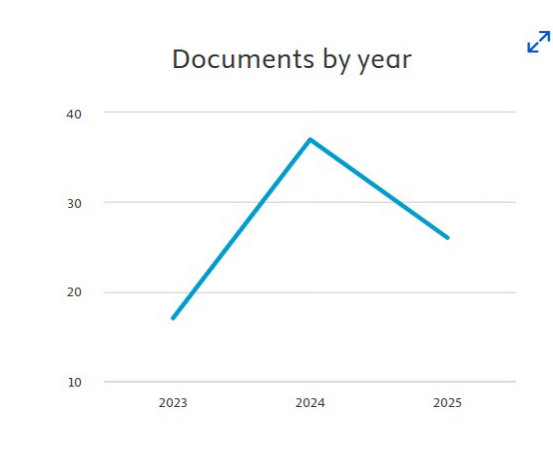


Figure 2. The trend of research applying the Diffusion of Innovation (DOI) Theory

The overall trend of research applying the Diffusion of Innovation (DOI) Theory in the context of MSMEs from 2023 to 2025 demonstrates a significant surge in scholarly attention, particularly peaking in 2024. As illustrated in Figure 2, the number of publications increased sharply

from around 17 documents in 2023 to nearly 37 in 2024, before showing a moderate decline to approximately 26 documents in 2025.

This pattern suggests that 2024 marked the peak of academic interest in applying DOI to MSME contexts. The surge during this period may be attributed to the global emphasis on digital transformation, e-commerce expansion, and technological innovation among small businesses, particularly as part of post-pandemic economic recovery.

Although there was a slight decrease in 2025, this decline likely reflects a stabilization of research activity rather than diminished relevance. DOI remains a robust theoretical lens for examining how innovation attributes influence adoption behaviour in resource-constrained enterprises. The trend underscores DOI's continuing importance in understanding the mechanisms of technology diffusion, particularly in developing economies where MSMEs are critical drivers of digital and economic growth.

To further understand the distribution of DOI-based studies within the 2023–2025 review period, the journals in which these studies were published were examined. The publication outlets demonstrate a diverse yet concentrated pattern, indicating that research on DOI applications in MSMEs has gained recognition across multiple reputable international journals. Table 2 presents the distribution of the 37 selected articles by journal name.

Table 2. Publication Distribution

Journal's Name	**Number**
Journal of Indonesian Economy and Business (JIEB) (Bailusy et al., 2025)	1
Journal of Engineering and Technology Management (Daniel et al., 2025)	1
International Review of Management and Marketing (IRMM) (Ngian & Ling, 2025)	1
International Journal of Business Analytics (IJBAN) (Çelik et al., 2025)	1
Digital Transformation & Society (Daniel et al., 2025)	1
Cogent Business & Management (Amoa-Gyarteng et al., 2024; Fatorachian & Ramesh, 2025; Huong & Duc, 2023; Mukhtar & Jallow, 2025)	4
Business, Management, Economics and Engineering (DAŠKEVIČ & BURINSKIENĖ, 2025)	1
Bank & Bank System (Sang, 2024)	1
Asian Journal of Business &Accounting (Abeywardana et al., 2023)	1
Journal of Innovation & Knowledge (Faiz et al., 2024; Mubarik et al., 2025; Yang & Kwon, 2024)	3
Journal of International Accounting, Auditing and Taxation (Elmghaamez et al., 2024)	1
Journal of Organizational and End User Computing (Wang et al., 2024)	1
Journal of Retailing and Consumer Services (Lutfi et al., 2023)	1

Journal's Name	Number
Journal of Risk and Financial Management (Salim et al., 2023)	1
Logistics (Champahom et al., 2024)	1
Management, Contemporary Management Journal (Jayasinghe et al., 2025)	1
R&D Management (Sharma et al., 2025)	1
Review of Applied Socio-Economic Research (REASER) (Hens et al., 2018)	1
Review of Managerial Science (Felicetti et al., 2024)	1
Small Business Economics (Hassan et al., 2024)	1
Socio-Economic Planning Sciences (Bacci et al., 2023)	1
Spanish Journal of Marketing – ESIC (Kumar et al., 2025)	1
Sustainable Futures (Kankanamge et al., 2025)	1
Technological Forecasting & Social Change (Chen & Filieri, 2024; Hyysalo & Juntunen, 2024; Jin & Ryu, 2025; Soni et al., 2022)	4
Technology in Society (Duygan et al., 2023)	1
TEM Journal (Huong & Duc, 2023)	1
The British Accounting Review (Ajili Ben Youssef et al., 2025)	1
Tourism and Hospitality Management (Babolian Hendijani & Jaszus, 2024)	1
Tourism Management (Xie et al., 2025)	1
Grand Total	**37**

As shown in Table 2, the distribution of publications reveals that research on the application of DOI Theory in MSMEs is spread across a wide range of internationally recognized journals, indicating a strong and diverse academic interest. The journals Cogent Business & Management and Technological Forecasting & Social Change recorded the highest number of publications (four each), reflecting their prominence as preferred outlets for studies on innovation and technology diffusion.

The remaining articles are distributed relatively evenly across journals specializing in management, economics, technology, and social sciences, suggesting that DOI has become a cross-disciplinary framework adaptable to various research contexts. The inclusion of both general management and domain-specific journals (e.g., Small Business Economics, Tourism Management) further underscores DOI's versatility in explaining innovation adoption across different industries.

Overall, this publication pattern reinforces the position of DOI Theory as a central and enduring model in MSME innovation research, with growing integration across academic domains and publication platforms.

RQ2: What are the prevailing research themes associated with diffusion of innovation theory in MSMEs?

The thematic analysis of the reviewed studies identified several dominant research streams that illustrate how Diffusion of Innovation (DOI) Theory

has been applied to explain innovation behaviour in MSMEs. These themes collectively reveal the evolving focus of DOI-based research from understanding adoption intention to exploring broader organizational and contextual factors influencing digital transformation.

One of the most prominent themes is digital technology adoption, which includes the adoption of e-commerce platforms, digital payment systems, cloud computing, mobile applications, and other digital tools that enhance operational efficiency. Researchers commonly employ DOI to assess how perceived innovation attributes—such as relative advantage, compatibility, and complexity—shape MSME owners' decisions to adopt digital technologies. This theme reflects the ongoing wave of digitalization and demonstrates DOI's explanatory power in modelling technology acceptance within small business contexts.

A second major theme centers on innovation capability and organizational readiness, where DOI Theory is applied to analyze internal enablers of innovation. Studies within this stream investigate leadership commitment, employee competence, innovation culture, and resource adequacy. By combining DOI with organizational and behavioural constructs, researchers emphasize that successful innovation adoption is not solely determined by technological features. Instead, internal readiness and strategic alignment significantly moderate diffusion outcomes, particularly in resource-constrained MSMEs.

Another recurring theme involves external pressures and environmental influences on innovation diffusion. These studies examine how market competition, regulatory environments, customer expectations, and ecosystem maturity affect MSME adoption behaviour. By extending DOI with contextual variables such as environmental uncertainty or institutional support, researchers highlight the importance of external enablers and barriers in shaping diffusion processes—revealing that innovation adoption operates at both organizational and systemic levels.

Finally, several studies focus on post-adoption performance and value creation, positioning DOI Theory as a foundation for evaluating innovation outcomes. These studies analyze how technology adoption improves productivity, operational efficiency, customer engagement, financial outcomes, and long-term competitiveness. By linking DOI constructs to measurable business performance, this theme underlines the

strategic role of innovation in sustaining MSME growth and resilience.

Overall, the diversity of these themes signifies that DOI Theory remains a versatile and enduring framework for studying MSME innovation. Its adaptability across technological, organizational, and environmental dimensions underscores its continuing relevance in understanding how and why MSMEs adopt and benefit from emerging technologies in an increasingly digital economy.

RQ3: What benefits, obstacles and challenges are reported in the implementation of innovation theory in MSME's enterprises?

The reviewed literature indicates that the application of Diffusion of Innovation (DOI) Theory in MSME contexts consistently highlights a diverse set of benefits linked to technology adoption. When MSMEs embrace innovations offering clear relative advantages—such as increased operational efficiency, enhanced customer engagement, and reduced costs—their overall business performance tends to improve significantly. Digital technologies, particularly e-commerce platforms, financial technologies, and cloud-based applications, allow MSMEs to optimize workflows, access broader markets, and strengthen competitiveness. Within this framework, DOI Theory provides an explanatory lens connecting perceived innovation attributes with adoption intensity and speed, thereby demonstrating how effective diffusion contributes to sustained value creation and competitive advantage.

Despite these advantages, the literature identifies several obstacles that constrain innovation diffusion in MSMEs. Complexity is among the most frequently cited barriers, especially when technologies demand advanced technical skills or specialized knowledge that MSME owners and employees may lack. Other persistent issues include limited financial capacity, low digital literacy, inadequate training opportunities, and organizational resistance to change. These internal limitations hinder the translation of perceived benefits into successful implementation. DOI Theory helps clarify these constraints by emphasizing that unfavourable perceptions of complexity, compatibility, or trialability often discourage adoption and slow diffusion processes.

Beyond internal limitations, MSMEs also face external challenges that shape innovation outcomes. These include volatile regulatory environments, insufficient institutional support, weak digital infrastructure, and broader market uncertainties—conditions particularly prevalent in developing economies. Moreover, while competitive pressure and evolving customer expectations can act as catalysts for innovation, they may also overwhelm MSMEs that lack strategic readiness and adaptive

resources. The reviewed studies often expand DOI by integrating environmental and institutional perspectives, underscoring that innovation diffusion is embedded within—and influenced by—its surrounding ecosystem.

Overall, the synthesis of findings reveals that while DOI Theory offers a robust framework for analyzing MSME innovation behaviour, its real-world application is mediated by a combination of benefits, constraints, and contextual dynamics. A balanced understanding of these factors is essential for designing effective digital transformation strategies. The interplay between perceived advantages and systemic barriers identified through DOI-based studies underscores the importance of capacity-building programs, policy support, and accessible technological infrastructures to accelerate innovation diffusion and strengthen MSME resilience in the digital era.

CONCLUSIONS AND SUGGESTIONS

Conclusions

This systematic review concludes that the Diffusion of Innovation (DOI) Theory remains a robust and evolving framework for understanding technology adoption among MSMEs. The reviewed studies demonstrate that perceived innovation attributes—such as relative advantage, compatibility, and complexity—play a crucial role in shaping adoption behaviour. Despite significant benefits from digital innovation, MSMEs continue to face challenges such as limited financial capacity, low digital literacy, and inadequate institutional support. Integrating DOI with organizational and environmental perspectives provides a more comprehensive understanding of these dynamics, reaffirming its theoretical and practical relevance in guiding innovation diffusion in the MSME sector.

Suggestions

Future research should broaden the application of DOI by combining it with complementary frameworks like TOE or UTAUT to capture the multidimensional nature of technology adoption. Policymakers are encouraged to strengthen MSME digital readiness through capacity-building initiatives, financial incentives, and improved infrastructure. Meanwhile, MSME practitioners should cultivate innovation-oriented cultures by enhancing digital skills and maintaining openness to technological change, ensuring sustained competitiveness in the digital economy.

REFERENCES

Abeywardana, N. L. E., Azam, S. M. F., & Teng, K. L. L. (2023). Why/How are Integrated Reporting Practices Adopted/Diffused? Evidence From Public Listed Companies in Sri Lanka. In *Asian Journal of Business and Accounting* (Vol. 16, Issue 2, pp. 107–141). https://doi.org/10.22452/ajba.vol16no2.4

Ajili Ben Youssef, W., Bouebdallah, N., & EL Bouhali,

M. (2025). Blockchain technology adoption intention among the Big Four audit firms. *British Accounting Review*, *February 2024*, 101692. https://doi.org/10.1016/j.bar.2025.101692

Amoa-Gyarteng, K., Dhliwayo, S., & Adekomaya, V. (2024). Innovative marketing and sales promotion: catalysts or inhibitors of SME performance in Ghana. *Cogent Business and Management*, *11*(1). https://doi.org/10.1080/23311975.2024.2353851

Babolian Hendijani, R., & Jaszus, K. (2024). the Rise of Virtual Food Tourism Experiences: Integrating Diffusion of Innovation Theory and Self-Determination Theory. *Tourism and Hospitality Management*, *30*(2), 249–258. https://doi.org/10.20867/thm.30.2.8

Bacci, S., Fabbricatore, R., & Iannario, M. (2023). Multilevel IRT models for the analysis of satisfaction for distance learning during the Covid-19 pandemic. *Socio-Economic Planning Sciences*, *86*(February 2022), 101467. https://doi.org/10.1016/j.seps.2022.101467

Bailusy, M. N., Pollack, J., Fahri, J., Amarullah, D., & Buamonabot, I. (2025). Determinants of Indonesian Smes' Intentions To Adopt Fintech: an Innovation Diffusion Theory Perspective. *Journal of Indonesian Economy and Business*, *40*(2), 196–213. https://doi.org/10.22146/jieb.v40i2.10843

Çelik, A. A., Balcıoğlu, Y. S., & Altındağ, E. (2025). Understanding User Engagement With Gemini Through Sentiment Analysis and Concept Mapping. *International Journal of Business Analytics*, *12*(1), 1–14. https://doi.org/10.4018/IJBAN.375429

Champahom, T., Se, C., Laphrom, W., Jomnonkwao, S., Karoonsoontawong, A., & Ratanavaraha, V. (2024). Modeling User Intentions for Electric Vehicle Adoption in Thailand: Incorporating Multilayer Preference Heterogeneity. *Logistics*, *8*(3), 1–22. https://doi.org/10.3390/logistics8030083

Chen, W., & Filieri, R. (2024). Institutional forces, leapfrogging effects, and innovation status: Evidence from the adoption of a continuously evolving technology in small organizations. *Technological Forecasting and Social Change*, *206*(April), 123529. https://doi.org/10.1016/j.techfore.2024.123529

Daniel, L., Groeger, L., & Hölzle, K. (2025). Unpacking smart farming innovation: A systematic literature review on technological change in agriculture. *Journal of Engineering and Technology Management - JET-M*, *77*(July), 1–18. https://doi.org/10.1016/j.jengtecman.2025.101898

DAŠKEVIČ, D., & BURINSKIENĖ, A. (2025). ALIGNMENT OF INNOVATION DIFFUSION AND PROJECT MANAGEMENT TO INCREASE LOGISTICS DIGITALIZATION. *Business, Management and Economics Engineering*, *23*(2), 265–279.

Duygan, M., Fischer, M., & Ingold, K. (2023). Assessing the readiness of municipalities for digital process innovation. *Technology in Society*, *72*(November 2022), 102179. https://doi.org/10.1016/j.techsoc.2022.102179

Elmghaamez, I. K., Ntim, C. G., & Yekini, K. C. (2024). Diffusion theory, economic consequences, and adoption of international standards on auditing around the world. *Journal of International Accounting, Auditing and Taxation*, *56*(August), 100641. https://doi.org/10.1016/j.intaccaudtax.2024.100641

Faiz, F., Le, V., & Masli, E. K. (2024). Determinants of digital technology adoption in innovative SMEs. *Journal of Innovation and Knowledge*, *9*(4), 100610. https://doi.org/10.1016/j.jik.2024.100610

Fatorachian, H., & Ramesh, S. (2025). Leveraging digital transformation platforms to strengthen market position in India's textile industry. *Cogent Business and Management*, *12*(1). https://doi.org/10.1080/23311975.2025.2527220

Felicetti, A. M., Corvello, V., & Ammirato, S. (2024). Digital innovation in entrepreneurial firms: a systematic literature review. In *Review of Managerial Science* (Vol. 18, Issue 2). Springer Berlin Heidelberg. https://doi.org/10.1007/s11846-023-00638-9

Hassan, S. S., Meisner, K., Krause, K., Bzhalava, L., & Moog, P. (2024). Is digitalization a source of innovation? Exploring the role of digital diffusion in SME innovation performance. *Small Business Economics*, *62*(4), 1469–1491. https://doi.org/10.1007/s11187-023-00826-

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Hens, L., Block, C., Cabello-Eras, J. J., Sagastume-Gutierez, A., Garcia-Lorenzo, D., Chamorro, C., Herrera Mendoza, K., Haeseldonckx, D., & Vandecasteele, C. (2018). On the evolution of "Cleaner Production" as a concept and a practice. *Journal of Cleaner Production*, *172*, 3323–3333. https://doi.org/10.1016/j.jclepro.2017.11.082

Huong, P. T., & Duc, N. L. (2023). The Perceptions of Prospective Digital Transformation Adopters: An Extended Diffusion of Innovations Theory. *TEM Journal*, *12*(1), 459–469. https://doi.org/10.18421/TEM121-56

Hyysalo, S., & Juntunen, J. K. (2024). Series of configurational movements: User activities in technology generalization. *Technological Forecasting and Social Change*, *200*(June 2022), 123158. https://doi.org/10.1016/j.techfore.2023.123158

Jayasinghe, S., Weerakkody, W. A. S., & Apeji, U. D. (2025). Antecedents of the Actual Usage of Hris By Employees in Wfh and Hybrid Contexts: Integration of Dit, Tam, and Utaut. *Management (Croatia)*, *30*(1), 45–60. https://doi.org/10.30924/mjcmi.30.1.4

Jin, S. V., & Ryu, E. (2025). Unraveling the dynamics of digital equality and trust in AI-empowered metaverses and AI-VR-convergence. *Technological Forecasting and Social Change*, *210*(October 2023), 123877. https://doi.org/10.1016/j.techfore.2024.123877

Kankanamge, A. K. S. U., Erdiaw-Kwasie, M. O., & Abunyewah, M. (2025). Advancing conceptual understanding of technology adoption decisions in E-waste urban mining sector. *Sustainable Futures*, *10*(March), 100871. https://doi.org/10.1016/j.sftr.2025.100871

Kumar, S., Malhotra, D., & Kathuria, G. (2025). Unrestrained buying behavior in the metaverse: exploring the moderating role of technostress and self-control. *Spanish Journal of Marketing - ESIC*, *October*. https://doi.org/10.1108/SJME-07-2024-0217

Lu, Z., Wu, J., & Liu, J. (2020). Bank concentration and SME financing availability: The impact of promotion of financial inclusion in China. *International Journal of Bank Marketing*, *38*(6), 1329–1349. https://doi.org/doi.org/10.1108/IJBM-01-2020-0007

Lutfi, A., Alrawad, M., Alsyouf, A., Almaiah, M. A., Al-Khasawneh, A., Al-Khasawneh, A. L., Alshira'h, A. F., Alshirah, M. H., Saad, M., & Ibrahim, N. (2023). Drivers and impact of big data analytic adoption in the retail industry: A quantitative investigation applying structural equation modeling. *Journal of Retailing and Consumer Services*, *70*(June 2022), 103129. https://doi.org/10.1016/j.jretconser.2022.103129

Mubarik, M., Maciukaite-Zviniene, S., Mubarak, M. F., Ghobakhloo, M., & Pilkova, A. (2025). Strategic and organisational factors for advancing knowledge in intelligent automation. *Journal of Innovation and Knowledge*, *10*(2), 100675. https://doi.org/10.1016/j.jik.2025.100675

Mukhtar, Y. A., & Jallow, C. (2025). Factors influencing consumers' intention to adopt Takaful products in Somalia: extension of diffusion of innovation theory. *Cogent Business and Management*, *12*(1). https://doi.org/10.1080/23311975.2025.2543050

Nambisan, S. (2017). Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship. *Entrepreneurship Theory and Practice*, *41*(6), 1029–1055. https://doi.org/10.1111/etap.12254

Ngian, E. T., & Ling, P. S. (2025). Rebuilding Micro-Enterprises Identity through Sharing Economy: Empirical Evidence from the Perspective of Innovation Diffusion and Perceived Social Value. In *International Review of Management and Marketing* (Vol. 15, Issue 3, pp. 426–437). https://doi.org/10.32479/irmm.18246

Rogers, E. M. (1983). Diffusion of Innovations. In *Collier Macmillan Publisher: Vol. Third Edit* (Third). The Free Press. teddykw2.files.wordpress.com/.../everett-m-rogers-diffusion-of-innovati..

Salim, M. J. M., Eksandy, A., & Sofia, I. P. (2023). the Effect of Green Accounting and Firm Size on Financial Report Performance (Empirical Study of Mining Sector Companies Listed on the Indonesia Stock Exchange in 2017-2021). *International Journal of Accounting, Management, Economics and Social Sciences (IJAMESC)*, *1*(4), 432–441.

https://doi.org/10.61990/ijamesc.v1i4.13

Sang, N. M. (2024). Examining the adoption of Apple Pay among generation Z in Vietnam. *Banks and Bank Systems*, *19*(1), 34–47. https://doi.org/10.21511/bbs.19(1).2024.04

Sharma, N., Payal, R., & Paul, J. (2025). *Hello How Can I Help You Role of Technology Appetite on AI Adoption in the Post-Pandemic*.

Soni, G., Kumar, S., Mahto, R. V., Mangla, S. K., Mittal, M. L., & Lim, W. M. (2022). A decision-making framework for Industry 4.0 technology implementation: The case of FinTech and sustainable supply chain finance for SMEs. *Technological Forecasting and Social Change*, *180*(May 2021), 121686. https://doi.org/10.1016/j.techfore.2022.121686

Wang, Y. M., Wei, C. L., Lin, H. H., & Wang, Y. S. (2024). What Drives Internet Entrepreneurial Commitment in Taiwan: The Moderating Effects of Job Type and Personal Innovativeness. *Journal of Organizational and End User Computing*, *36*(1), 1–35. https://doi.org/10.4018/JOEUC.348956

Xie, C., Lai, F., Zhang, J., & Huang, S. (Sam). (2025). Transforming intangible cultural heritage in destinations: A fashion communication perspective. *Tourism Management*, *110*(February). https://doi.org/10.1016/j.tourman.2025.105161

Yang, J., & Kwon, Y. (2024). Are digital content subscription services still thriving? Analyzing the conflict between innovation adoption and resistance. *Journal of Innovation and Knowledge*, *9*(4), 100581. https://doi.org/10.1016/j.jik.2024.100581