Jurnal Ilmiah Wahana Pendidikan, June 2026, 12(6.A), 277-287
DOI: https://jurnal.peneliti.net/index.php/JIWP/article/view/13243.
p-ISSN: 2622-8327 e-ISSN: 2089-5364
Accredited by Directorate General of Strengthening for Research and Development
Available online at https://jurnal.peneliti.net/index.php/JIWP

A Systematic Literature Review Of The Role Of The Toe Framework In Driving Sustainable Digital Transformation

Silva Aurelia Br Sinulingga, Sambas Ade Kesuma

Jurusan Akuntansi, Universitas Sumatera Utara

Received: 11 Mei 2026
Revised: 20 Mei 2026
Accepted: 30 Mei 2026

Abstract

This study aims to analyze how technological, organizational, and environmental factors influence decisions to adopt digital innovations in various global and local contexts through the Technology–Organization–Environment (TOE) framework approach. The method used is a literature study with thematic analysis of dozens of Scopus-indexed scientific articles published between 2023 and 2025. The results show that the success of digital transformation is not determined by a single factor, but rather by a synergistic configuration of technological readiness, management support, and external pressure. In addition, mediating variables such as staff training and leadership support have been shown to play an important role in bridging the influence between TOE dimensions. The findings also confirm that TOE has evolved into a dynamic model that can be integrated with other theories such as TAM, RBV, and SDT to explain the social, ethical, and sustainability dimensions of technology adoption. In conclusion, an interdisciplinary and configurational approach is needed to understand the complexity, contextuality, and ethical aspects of sustainable digital transformation.

Keywords: *Technology–Organization–Environment (TOE), Technology Adoption, Digital Transformation.*

(*) Corresponding Author: silvaaurelia@students.usu.ac.id, sambas@usu.ac.id

How to Cite: Sinulingga, S., & Ade Kesuma, S. (2026). A SYSTEMATIC LITERATURE REVIEW OF THE ROLE OF THE TOE FRAMEWORK IN DRIVING SUSTAINABLE DIGITAL TRANSFORMATION. *Jurnal Ilmiah Wahana Pendidikan*, *12*(6.A), 277-287. Retrieved from https://jurnal.peneliti.net/index.php/JIWP/article/view/13243.

INTRODUCTION

The development of digital technology in the last decade has driven major changes in various sectors, from small businesses to government. The conceptual model of the Technology–Organization–Environment (TOE) Framework has become an important reference in explaining the adoption of new technologies due to its ability to combine internal organizational factors and the external context of the environment. Various studies show that technological, organizational, and environmental factors play a significant role in guiding technology adoption decisions in various industrial contexts (Smirnova & Travieso-Morales, 2025; Hasa, 2024; Shang et al., 2024). Thus, TOE provides a strong theoretical foundation for understanding why some organizations are able to successfully adopt innovations while others lag behind (Abdurrahman, 2024).

In the context of an increasingly digitized global economy, the adoption of technologies such as cloud computing, artificial intelligence (AI), blockchain, and social media marketing has become a key factor for organizational sustainability and competitiveness. Previous studies show that the success of digital transformation is greatly influenced by organizational readiness, top management support, and external pressure from the market or regulations (Ahmed et al., 2025; Chang et al., 2024; Homan & Beránek, 2023). The TOE framework plays an important role in explaining how the

combination of these factors shapes digital performance and innovation in various industrial sectors (N'Dri & Su, 2024).

The topic of technology adoption through the TOE perspective is becoming increasingly important because digital transformation is not only occurring in the private sector, but also in the public sector and social institutions. For example, research by Omonov and Ahn (2025) highlights how organizational and technological factors influence the adoption of AI chatbots in government agencies, while Benchis, Shahzad, and Dan (2025) find fundamental differences between the public and private sectors in the adoption of blockchain. This phenomenon shows that organizational context and environmental pressures greatly determine the direction of digital transformation (Maragno et al., 2023).

This can be seen from its economic implications for the performance of small and medium-sized enterprises (SMEs). Many studies confirm that digital technology, if adopted appropriately, can improve the operational efficiency and global competitiveness of SMEs (Aligarh et al., 2023; Rabhan & Almezeini, 2025; Halek et al., 2025). In this case, the TOE framework is not only an analytical tool but also a basis for policymakers to understand the factors that accelerate or hinder the digitization of the business sector (Nautwima et al., 2025).

Although the TOE framework has been widely applied, recent research shows the need to expand it with other models or theories to capture the complexity of the phenomenon of modern technology adoption. For example, a study by Kankanamge et al. (2025) combines TOE with the Theory of Planned Behavior (TPB) and Diffusion of Innovation (DOI) to explain technology adoption in the e-waste mining sector, while Islam et al. (2023) integrate TOE with the Technology Acceptance Model (TAM) to understand AI adoption in the field of human resources. This integrative approach confirms that social and behavioral factors now play an increasingly important role in technology decision-making (Fatima et al., 2024).

There is still an empirical gap in the context of developing countries where digital infrastructure and organizational readiness are still low. Research in Indonesia, for example, shows that IT infrastructure and stakeholder pressure are the main determinants of cloud accounting adoption among MSMEs (Putri et al., 2025), while another study found that the digital business ecosystem significantly increases the adoption of sharia mobile banking (Abdurrahman, 2024). This condition highlights the need for further exploration of the relationship between TOE factors and the local context and organizational culture (Li et al., 2025).

This study aims to deepen the understanding of how technological, organizational, and environmental factors influence digital innovation adoption decisions in global and local contexts. By reviewing the findings from various recent studies, this study aims to identify common patterns as well as contextual differences in the application of the TOE framework in various sectors. Specifically, the research is directed at understanding how the mediation of organizational factors and external pressures influences the effectiveness of digital technology adoption (Lu et al., 2024; Seshadrinathan & Chandra, 2025; Zada et al., 2024).

Another objective of this study is to develop a more adaptive theoretical understanding by integrating TOE with other frameworks such as RBV, TAM, and SDT to explain the social, motivational, and resource dimensions in technology adoption (Lutfi et al., 2024; Rabhan & Almezeini, 2025; Fatima et al., 2024). This approach is expected

to produce a more comprehensive conceptual model for understanding cross-sector and cross-country digital transformation.

From a practical perspective, this research is relevant for policymakers, organizational leaders, and industry players who are facing pressure to adapt to new technologies. Studies such as those conducted by Ahmed et al. (2025) and Mu'min et al. (2025) show that technological knowledge and organizational readiness can accelerate the successful adoption of digital marketing technology in SMEs. Meanwhile, other studies find that bureaucratic cultural resistance and system complexity are major barriers to AI adoption in the public sector (Omonov & Ahn, 2025; Maragno et al., 2023).

In a global context, it is crucial to understand the structural differences between sectors. A study by Benchis et al. (2025) shows that private organizations focus more on efficiency and competitive advantage, while public organizations emphasize transparency and regulation.

These differences confirm that technology adoption strategies cannot be standardized, but must be tailored to the characteristics of the environment and the objectives of the organization (N'Dri & Su, 2024). Theoretically, this study contributes to enriching the TOE framework by adding new mediation and moderation variables that reflect the dynamics of today's digitalization.

For example, a study by Smirnova and Travieso-Morales (2025) shows that staff training mediates the relationship between technical complexity and the cost of GDPR compliance, while Xu, Ramayah, and Shi (2025) find that top management support mediates the relationship between competitive pressure and AI adoption. Such findings reinforce the position of TOE as a flexible model that can be developed according to contextual needs (Homan & Beránek, 2023).

In addition, this research expands the scope of TOE to the realm of sustainability and social responsibility. Lutfi et al. (2024), for example, assert that green practices and environmental innovation based on TOE can improve a company's environmental performance. This shows that TOE is not only relevant to technological issues but can also be used to understand the ethical and sustainability dimensions of digital transformation (Davies et al., 2024).

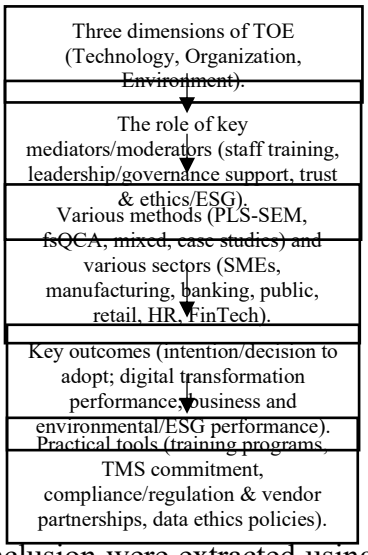
Despite numerous empirical studies, cross-cultural and longitudinal studies are still needed to assess the stability of TOE factors' influence on the long-term success of technology adoption. Studies such as those conducted by Marrucci et al. (2025) using the fsQCA method and Mu'hic et al. (2023) using a longitudinal approach demonstrate the importance of configurational analysis to understand variations in outcomes across organizations. This approach can help answer why certain combinations of factors result in high digital performance while others fail (Nautwima et al., 2025).

Further research also needs to highlight the human and ethical aspects of technology adoption, especially in disruptive technologies such as generative AI and blockchain. Research by Zada et al. (2024) confirms that although AI enhances innovation and organizational performance, ethical aspects are often overlooked. Thus, an interdisciplinary approach that combines TOE with digital ethics theory is needed to build a sustainable and responsible technology ecosystem (Benchis et al., 2025).

RESEARCH METHODOLOGY

This study applies a systematic literature review approach guided by the PRISMA 2020 guidelines and focuses on Scopus-indexed articles related to the adoption of technology based on the TOE (Technology–Organization–Environment) framework. The

search strategy was designed a priori using Boolean formulas combining the terms: ("technology-organization-environment" OR TOE) AND ("digital transformation" OR adoption OR "industry 4.0" OR blockchain OR "artificial intelligence" OR "cloud accounting" OR "social media marketing") and relevant synonyms (e.g., "digitalization," "e-government," "SMEs/MSMEs"). The search was limited to the years 2023–2025, articles and reviews, the fields of Business, Management & Accounting, Decision Sciences, Computer Science, and Social Sciences, English/Indonesian languages, and organizational/institutional contexts. All records were exported from Scopus (metadata: title, abstract, keywords, affiliation, year, source, citations) and then deduplicated (based on DOI/Title) before two-stage screening: (1) *title–abstract screening* to eliminate studies that did not use TOE or did not discuss digital adoption/transformation; (2) full-text eligibility to ensure scope suitability (digital adoption/sustainability, TOE variables, or TOE integration with other theories such as TAM/RBV/SDT). The process and results of each stage were documented in a PRISMA flow diagram (identification → screening → eligibility → inclusion), including the main reasons for exclusion (e.g., not an empirical study/systematic review, not in Scopus, did not mention TOE, or purely technical context without organizational/environmental dimensions). The reliability of the selection decision was maintained through double assessment with Cohen's κ measurement on the initial sample; an agreement threshold of ≥0.70 was used before proceeding to full screening.

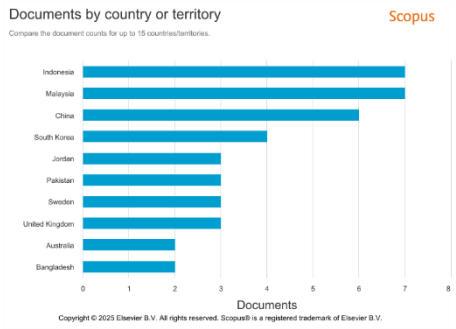


Articles that passed inclusion were extracted using a structured extraction sheet covering: bibliographic metadata, country/sector context, design/method (PLS-SEM, fsQCA, case study, *mixed methods*), constructs/determinants in the dimensions of Technology (e.g., relative advantage, compatibility, complexity), Organization (top management support, IT readiness, HR competence), Environment (competitive pressure, government regulation/support), and mediating/moderating variables (e.g., staff training, leadership, ethics/ESG). The methodological quality of each study was assessed using a checklist aligned with the type of design (e.g., JBI for observational studies; model transparency for PLS-SEM/fsQCA) so that the weight of the interpretation of the findings was proportional. Synthesis was conducted at two levels: (i) descriptive quantitative synthesis (publication trends per year, sector/country distribution, analysis techniques) and (ii) thematic synthesis to map TOE relationship patterns, including TOE integration with other theories and sustainability/ethical implications. To maintain traceability, all

inclusion/exclusion decisions, search formulas, and extraction templates are stored in the appendix, while summary data (CSV) is ready to be shared for replication.

RESULTS AND DISCUSSION

The TOE (Technology-Organization-Environment) theory is commonly used in quantitative research, as it is often applied to examine the influence or relationship between technological, organizational, and environmental factors on the adoption of



specific innovations or technologies. Researchers generally use Likert scale questionnaires to measure variables in the TOE model and then analyze the data using statistical techniques such as regression or SEM (Structural Equation Modeling). However, in some cases, TOE can also be used in qualitative research, for example, to explore in depth how these factors influence organizational decisions through interviews or case studies.

The diagram shows that publications related to the research topic mostly originate from Indonesia and Malaysia (7 documents each), followed by China (6), South Korea (4), and other countries such as Jordan, Pakistan, Sweden, the United Kingdom (3), and Australia and Bangladesh (2). These findings can be explained using TOE theory, in which differences in the number of documents reflect variations in three main dimensions. In the technology dimension, countries with higher numbers of publications, such as Indonesia, Malaysia, and China, are likely to have stronger digital infrastructure, data access, and technology adoption, thereby encouraging research intensity. In the organizational dimension, academic institutions in these countries appear to have a high commitment to research, characterized by internal support such as funding, collaboration, and large researcher capacity, which contributes to scientific productivity. Meanwhile, the environmental dimension reflects the influence of external factors, such as regulatory conditions, industry demands, market dynamics, and social issues that drive specific research interests, resulting in variations in scientific output between countries. Thus, the distribution of documents between countries in this diagram can be understood as the result of the interaction between technological, organizational, and environmental aspects that influence the ability and motivation of institutions to produce similar-themed publications.

The TOE (Technology-Organization-Environment) theory is commonly used in quantitative research, as it is often applied to examine the influence or relationship between technological, organizational, and environmental factors on the adoption of specific innovations or technologies. Researchers generally use Likert scale questionnaires to measure variables in the TOE model and then analyze the data using statistical techniques such as regression or SEM (Structural Equation Modeling). However, in some cases, TOE can also be used in qualitative research, for example, to

explore in depth how these factors influence organizational decisions through interviews or case studies.

No	Theory Combined with TOE	Main Focus	Relevance to TOE Framework
1	**TAM (Technology Acceptance Model)**	Perceived ease of use & usefulness in technology adoption	Complements the *Technology* dimension by explaining individual behavioral acceptance toward new technologies
2	**DOI (Diffusion of Innovation Theory)**	Diffusion process & innovation characteristics	Strengthens the *Technology* and *Environment* dimensions by explaining how innovations spread and are influenced by external conditions
3	**RBV (Resource-Based View)**	Organizational resources as competitive advantage	Supports the *Organization* dimension by emphasizing the role of internal capabilities in technology adoption
4	**Institutional Theory**	Institutional pressures (normative, coercive, mimetic)	Enhances the *Environment* dimension by explaining how institutional forces drive technology adoption
5	**UTAUT (Unified Theory of Acceptance & Use of Technology)**	Determinants of individual acceptance and use of technology	Integrates behavioral and organizational perspectives that align with *Technology* and *Organization* dimensions
6	**IS Success Model (DeLone & McLean)**	System quality, information quality, use, and net benefits	Supports evaluation of outcomes of technology adoption across *Technology* and *Organization* contexts

The TOE Framework is frequently combined with several complementary theories to enhance its explanatory power in technology adoption studies. The Technology Acceptance Model (TAM) enriches the technological dimension by focusing on perceived usefulness and ease of use that shape individual acceptance behavior. Diffusion of Innovation (DOI) supports the technology and environment dimensions by explaining how innovation characteristics and external factors influence adoption rates across organizations. The Resource-Based View (RBV) strengthens the organizational dimension by highlighting the importance of tangible and intangible resources in enabling successful technology integration. Institutional Theory extends the environmental dimension by describing how coercive, normative, and mimetic pressures shape organizational technology decisions. UTAUT adds further behavioral insight by identifying determinants such as performance expectancy, effort expectancy, social influence, and facilitating conditions that affect user acceptance. Lastly, the DeLone & McLean IS Success Model complements TOE by offering a post-adoption perspective, emphasizing system quality, information quality, usage, and benefits to assess implementation success and technology value within organizations.

This collection of studies confirms that technology adoption strategies cannot be standardized because each organization operates in a unique ecosystem, with different internal and external dynamics. Therefore, strategies must be tailored to the

characteristics of the environment, organizational goals, and available resource capacity. A cross-dimensional Technology–Organization–Environment (TOE) configurative approach is crucial to understanding the mutually reinforcing interactions between these factors. Configural evidence shows that no single factor such as technological readiness or external pressure is sufficient to explain the success of digital transformation. Instead, the right combination of factors (e.g., synergy between digital transformational leadership, employee competence, and government support) creates optimal results. Thus, TOE has evolved into a dynamic framework capable of accommodating new mediations and moderations that enrich our understanding of the complexity of digital transformation in various contexts (N'Dri & Su, 2024; Shang et al., 2024).

Empirically, recent studies show the importance of mediation variables in explaining the relationship between TOE dimensions. In the context of regulatory compliance such as GDPR, for example, staff training has been shown to mediate the influence of regulatory and technical complexity on compliance costs. These findings indicate that investment in human resource development can "bridge" technical barriers to more efficient and manageable costs (Smirnova & Travieso-Morales, 2025). On the other hand, in the context of Generative AI (GenAI) adoption in the insurance industry, top management support mediates competitive pressure and organizational readiness toward adoption decisions. This indicates that strategic governance and resource allocation commitments at the leadership level play an important role in transforming external pressures into innovative opportunities (Xu, Ramayah, & Shi, 2025). These two examples emphasize that human and leadership factors are vital bridges in translating technological potential into real advantages.

A number of recent studies have expanded TOE through the introduction of moderator variables and the exploration of new sector contexts. For example, studies on AI adoption in public organizations and higher education institutions show that factors such as organizational dynamics, public ethics and accountability, and environmental pressures have different influences on the success of adoption. In this context, organizational compatibility and readiness no longer stand alone but are influenced by organizational culture, moral governance, and social norms inherent in the public sector (Maragno et al., 2023; Van Aartsen et al., 2024). This approach shows that TOE is flexible and adaptable to different environmental characteristics, not limited to the private sector such as manufacturing or retail, but also capable of explaining adoption phenomena in public, academic, and non-profit institutions that have different institutional logics.

The latest body of evidence also extends the scope of TOE to the realm of sustainability and social responsibility. Studies show that green practices and environmental innovations designed based on TOE factors can result in better environmental performance, strengthening the position of organizations in sustainable business ecosystems. In fact, new technologies such as blockchain and NFTs are projected to increase supply chain transparency and traceability, thereby integrating ethical and sustainability aspects into the technology decision-making process (Lutfi et al., 2024; Davies et al., 2024). Thus, TOE is now not only relevant for explaining technical and efficiency issues, but also as a framework for understanding how technology contributes to environmental, social, and governance (ESG) goals in the context of global digital transformation.

Recent studies show a tendency to combine various analytical approaches such as PLS-SEM, fsQCA, and mixed methods to capture the complexity of causal and configurative relationships more comprehensively. For example, fsQCA findings reveal

that there are several different "paths" (equifinality) to high digital transformation performance or successful Industry 4.0 implementation, indicating that success can be achieved through a combination of various factors. Meanwhile, PLS-SEM-based studies highlight the significant role of relative advantage, organizational readiness, and managerial support as key drivers (Marrucci et al., 2025; Shang et al., 2024; Xu et al., 2025).

This combinative approach enriches understanding by not merely testing linear relationships, but rather exploring more realistic configuration patterns in line with the complexity of modern organizations. Longitudinal studies on the sustainability of cloud computing use open up new perspectives by identifying "managerial process" barriers such as internal strategy, communication with vendors, and change management as important factors that were previously under-captured in TOE.

These research results encourage the proposed expansion of the model to TOMPE (Technology–Organization–Management Process–Environment), which emphasizes the importance of the managerial process dimension in maintaining consistency and sustainability in technology adoption (Mu'hic et al., 2023; Homan & Beránek, 2023).

Thus, the stability of TOE's influence over time should be analyzed not only through cross-sectional snapshots but through a process lens that highlights the dynamics of adaptation, learning, and refinement of internal organizational policies. The heterogeneity of cross-country and cross-sector study results shows that TOE's influence is highly contextual.

In the case of Namibia, for example, organizational and environmental factors proved to be dominant, while mediating variables such as entrepreneurial education did not function significantly, possibly due to limitations in infrastructure or local entrepreneurial culture (Nautwima et al., 2025). Conversely, in the Albanian retail sector, technological factors emerged as the main driver of IT adoption (Hasa, 2024). These differences underscore the need for cross-cultural research and longitudinal designs to test the resilience of TOE's influence in various socio-economic contexts. In other words, technology adoption policies must be contextually designed and cannot be simply imported from one country to another without adjustments to local cultural, institutional, and regulatory conditions.

Human and ethical dimensions are becoming increasingly important in the context of disruptive technologies such as GenAI and blockchain. Although both are capable of driving innovation and improving organizational performance, findings show that ethical considerations are often left behind. This imbalance can give rise to new risks such as algorithmic bias, privacy violations, and degradation of public trust (Zada et al., 2024; Benchis et al., 2025). Therefore, an interdisciplinary approach that combines TOE with digital ethics and governance theory is needed to create a responsible technology ecosystem. Practical recommendations derived from various studies include enhancing digital ethics training for employees, implementing data accountability principles, and strengthening managerial support as concrete steps to maintain a balance between innovation and social responsibility.

The implications of these findings show that the TOE model has evolved from a static framework into a dynamic analytical tool capable of capturing the complexity of modern organizational ecosystems in the digital age. The research results confirm that technology adoption strategies cannot be standardized because each organization has unique characteristics determined by internal factors such as technological readiness and transformational leadership, as well as external factors such as regulatory pressure and

government support. The configurational approach, which synergistically combines technological, organizational, and environmental dimensions, answers the research question of how these factors contribute to the success of digital transformation, not through a single path, but through various equally effective configurations (equifinality). On the other hand, findings on the mediating and moderating roles enrich the understanding of the internal mechanisms that bridge the relationship between TOE dimensions, such as the role of staff training and managerial support in turning external pressures into innovation opportunities. However, this study also has limitations, including the dominance of a cross-sectional approach that fails to capture long-term dynamics and limitations in cross-contextual generalization across cultures and sectors. Differences in results between countries show that the effectiveness of TOE is highly dependent on local conditions, including infrastructure, organizational culture, and national regulations. In addition, the dimensions of ethics and social responsibility are still not deeply integrated into the model, even though issues such as algorithmic bias and privacy are increasingly crucial in the era of Generative AI and blockchain.

CONCLUSION

The application of the Technology–Organization–Environment (TOE) framework has proven to be a comprehensive approach in explaining the dynamics of technology adoption in various sectors and global contexts. TOE asserts that the success of digital transformation cannot be explained by a single factor, but rather through a synergistic combination of technological readiness, organizational support, and external environmental pressures. Recent developments show that TOE is now evolving into a more dynamic model with the addition of mediation and moderation variables, as well as expansion into the realm of sustainability and digital ethics. The integration of TOE with other theories such as TAM, RBV, and SDT further enriches our understanding of the role of human factors, leadership, and ethical governance in the successful adoption of technology. Therefore, future research needs to adopt an interdisciplinary and configurational approach to capture the complexity, contextuality, and social and ethical dimensions of sustainable digital transformation.

BIBLIOGRAFI

Abdurrahman, A. (2024). *Investigating the impact of digital business ecosystem in enhancing Islamic mobile banking adoption through the TOE framework*. Digital Business, Elsevier (Scopus Q1). https://doi.org/10.1016/j.digbus.2024.100096

Ahmed, A., et al. (2025). *The tech advantage: exploring technological determinants of social media marketing adoption in Pakistani small and medium startups*. Journal of Innovation and Entrepreneurship, SpringerOpen (Scopus Q1). https://doi.org/10.1186/s13731-025-00470-3

Amoah, J., Bruce, E., Zhao, S., Egala, S. B., & Kwarteng, K. (2023). *Social Media Adoption in SMEs Sustainability: Evidence from an Emerging Economy*. Cogent Business & Management, 10(1). Taylor & Francis (Scopus). https://doi.org/10.1080/23311975.2023.2183573

Badasjane, V., Ahlskog, M., Granlund, A., Bruch, J., & Sauter, B. (2025). *Navigating through uncertainties: coordinating digital transformation in international manufacturing networks*. Journal of Manufacturing Technology Management, Emerald (Scopus Q1). https://doi.org/10.1108/JMTM-06-2024-0322

Benchis, M. P., Shahzad, K., & Dan, S. (2025). *Comparative Analysis of Blockchain Adoption in the Public and Private Sectors: A TOE Framework Approach*. Journal of Innovation & Knowledge, 10, Elsevier (Scopus). https://doi.org/10.1016/j.jik.2025.100746

Chang, H. J., Bruess, F., & Chong, J. W. (2024). *Opportunities and challenges of smart technology for small independent fashion retailers: a reflexive thematic analysis using the TOE framework*. Fashion and Textiles, Springer (Scopus Q1). https://doi.org/10.1186/s40691-024-00391-x

Davies, J., Sharifi, H., Lyons, A., Forster, R., & Elsayed, O. K. S. M. (2024). *Non-fungible tokens: The missing ingredient for sustainable supply chains in the metaverse age?* Transportation Research Part E, Elsevier (Scopus Q1). https://doi.org/10.1016/j.tre.2024.103412

Fatima, N., Abrar, M., & Shahbaz, M. (2024). *Untangling the Influencing Factors of Intention to Adopt Green Supply Chain Management Practices: An Integration of TOE Framework and Self-Determination Theory*. Operations and Supply Chain Management, 17(1). Scopus Indexed.

Hasa, E. (2024). *Investigating IT adoption through the TOE model in Albanian retail: an empirical analysis*. Issues in Information Systems, 25(3). IABE (Scopus). https://doi.org/10.48009/3_iis_2024_133

Li, W., Cham, T.-H., Zhang, Y., Loebiantoro, I. Y., & Mirzaliev, S. (2025). *Breaking the Virtual Wall: Why Businesses Resist Metaverse in the Retail Industry?* International Journal of Business and Society, Scopus (Q2). https://doi.org/10.33736/ijbs.9567.2025

Lu, Y.-H., Yeh, C.-C., & Kuo, Y.-M. (2024). *Exploring the critical factors affecting the adoption of blockchain: Taiwan's banking industry*. Financial Innovation, SpringerOpen (Scopus Q1). https://doi.org/10.1186/s40854-023-00523-0

Lutfi, A., Al-Hiyari, A., Elshaer, I. A., Alrawad, M., & Almaiah, M. A. (2024). *Green environmental management system and environmental performance: Results from PLS-SEM and fsQCA*. Sustainable Futures, Elsevier (Scopus Q1). https://doi.org/10.1016/j.sftr.2024.100276

Maragno, G., Tangi, L., Gastaldi, L., & Benedetti, M. (2023). *Exploring the factors, affordances and constraints outlining the implementation of Artificial Intelligence in public sector organizations*. International Journal of Information Management, 73, Elsevier (Scopus Q1). https://doi.org/10.1016/j.ijinfomgt.2023.102686

Marrucci, A., Rialti, R., & Balzano, M. (2025). *Exploring paths underlying Industry 4.0 implementation in manufacturing SMEs: a fuzzy-set qualitative comparative analysis*. Management Decision, Emerald (Scopus Q1). https://doi.org/10.1108/MD-05-2022-0644

Muhic, M., Bengtsson, L., & Holmström, J. (2023). *Barriers to continuance use of cloud computing: Evidence from two case studies*. Information & Management, 60, Elsevier (Scopus Q1). https://doi.org/10.1016/j.im.2023.103792

N'Dri, A. B., & Su, Z. (2024). *Successful configurations of technology–organization–environment factors in digital transformation: Evidence from exporting SMEs in manufacturing industry*. Information & Management, 61, Elsevier (Scopus Q1). https://doi.org/10.1016/j.im.2024.104030

Nazir, M. A., Rizwan, H., & Zhu, X. (2025). *A Thematic Analysis of Factors Influencing SME Adoption of Social Media Marketing: A TOE Perspective*. Qualitative

Market Research, 28(1), Emerald (Scopus). https://doi.org/10.1108/QMR-10-2023-0143

Omonov, M. S., & Ahn, Y. (2025). *Towards Smart Public Administration: A TOE-Based Empirical Study of AI Chatbot Adoption in a Transitioning Government Context*. Administrative Sciences, 15(8). MDPI (Scopus Q2). https://doi.org/10.3390/admsci15080324

Putri, E., Bandi, W., Widarjo, W., & Arifin, T. (2025). *The value of cloud accounting for MSMEs: a Technology-Organization-Environment (TOE) framework perspective*. Cogent Business & Management, Taylor & Francis (Scopus Q2). https://doi.org/10.1080/23311975.2025.2494712

Seshadrinathan, S., & Chandra, S. (2025). *Trusting the trustless blockchain for its adoption in accounting: theorizing the mediating role of TOE framework*. Financial Innovation, SpringerOpen (Scopus Q1). https://doi.org/10.1186/s40854-024-00685-5

Smirnova, Y., & Travieso-Morales, V. (2025). *Tech startups and general data protection regulation: an empirical exploration of compliance challenges*. Journal of Small Business and Enterprise Development, 32(8). Emerald (Scopus Q2). https://doi.org/10.1108/JSBED-09-2024-0495

Zaijuan, X., Ramayah, T., & Yubo, S. (2025). *Determinants of Generative Artificial Intelligence Adoption in Insurance Companies*. International Journal of Business and Society, Scopus (Q2). https://doi.org/10.33736/ijbs.9562.2025

Zada, M., Khan, S., Mehmood, S., & Contreras-Barraza, N. (2024). *Generative artificial intelligence in FinTech: Applications, ESG considerations, and organizational performance*. Oeconomia Copernicana, Scopus (Q1). https://doi.org/10.24136/oc.3323

Zabri, S. M. (2024). *Factors Affecting Digitalization Acceptance Among MSMEs in Malaysia*. paperASIA, 40(4b). https://doi.org/10.59953/paperasia.v40i4b.208