INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 15, Issue 3, (2025) E-ISSN: 2222-6990

A Review of Diffusion of Innovations Theory (DOI) and Technology, Organization, and Environment Framework (TOE) in the Adoption of Artificial Intelligence

Sabha Maria Nawaf Alka'awneh, Hasliza Abdul-Halim, Nor Hasliza Md. Saad

School of Management, Universiti Sains Malaysia, Penang, Malaysia

Email: haslizahalim@usm.my, norhasliza@usm.my

Corresponding Author Email: mariaalkaawneh@student.usm.my

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v15-i3/24804 DOI:10.6007/IJARBSS/v15-i3/24804

Published Date: 29 March 2025

Abstract

Throughout the decades, numerous theories and models have been developed to explore the factors influencing technology adoption. Among these, two essential theories stand out: the Diffusion of Innovations Theory (DOI) and the Technology, Organization, and Environment Framework (TOE). This article reviews existing research on the application of both the DOI theory and TOE framework to Artificial Intelligence (AI) adoption, exploring how these frameworks elucidate the complexities of integrating AI technology in diverse contexts. The review underscores how each theory addresses different aspects of AI adoption and proposes methods for their integration, aiming to provide a deeper understanding of the factors that promote and impede AI implementation across various organizational contexts.

Keywords: Diffusion of Innovation Theory, DOI, Technology, Organizational and Environmental Framework, TOE, AI Adoption, Review.

Introduction

In the twenty first century, when age of digital technologies has linked every one (Paiola et al. 2021), information and communication technology (ICT) plays an important role to enhance various facets of corporate setting. ICT is used by different industries to transform existing systems and make use of traditional business practices to promote economic growth, societal development, and well being. Due to the pace of it in the digitalization race of the fourth industrial revolution, SMEs are required to use digital technology (Ghobakhloo & Iranmanesh, 2021; Maroufkhani et al., 2022). That means Business analytics, Internet of Things, Big data, advanced industry, cloud computing, cyber solutions, high performance computing, and artificial intelligence (Aloini et al., 2022; Popkova et al., 2022).

One of the most recent of these technologies is artificial intelligence (AI), at the moment. In the article, Artificial Intelligence (AI) is the study of creating a computer system that can perform tasks normally undertaken by humans (Khalid, 2020; Dwivedi et al., 2021; Badghish & Soomro, 2024). Adopting AI is a strategic necessity that significantly impacts the performance, competitiveness, and innovation of micro, small, and medium enterprises (MSMEs) (Kumar et al., 2022). Prior research has contended that using AI in an organisation will significantly enhance productivity and facilitate expedited decision-making (Duan et al., 2019; Dwivedi et al., 2021) and developing innovation (Bahoo et al., 2023), boost business sustainability (Burger et al., 2023; Al-Qaysi et al., 2023), operational performance (Mariani et al., 2023) and decreasing costs and enhancing forecasting (Agarwal et al., 2021). Therefore, businesses are increasingly depending on AI; AI has a great potential of improving organisations' performance (Mikalef & Gupta, 2021); and impacts SMEs' financial and nonfinancial performance (Baabdullah et al., 2021).

The most effective models and theories in terms of recent years to explain the use of innovation/technology are the Diffusion of Innovation Theory (DOI) and Technology Organization Environment framework (TOE). Yet both have significantly contributed to our knowledge regarding the determining factors of technology adoption in organizations (Hmoud et al., 2023; Horani, Al-Adwan et al., 2023).

Diffusion of Innovation Theory (DOI)

According to Rogers (2003) people or units engaged in adoption perceive new ideas practices and objects as innovations. The degree to which a person starts using innovative methods before their peers makes up their level of innovativeness according to Haun et al. (2020). Rogers (1962) identified five groups through which adopters move starting from innovators to early adopters followed by early majority and ending with late majority and laggards

A wide range of cultural and disciplinary settings help prove the DOI hypothesis while the adoption outcomes are shaped directly by features of the participants and how they make their decisions about new innovations. DOI outlines the path technology spreads through specific paths as members of social systems receive it during particular durations (Horani, Al-Adwan, et al., 2023; Lai, 2017). According to Horani, Al-Adwan and collaborators (2023), customer perception and technological specifications strongly affect the rate of innovation diffusion. The five key components in technical settings involve relative advantage and complexity together with compatibility and trialability followed by observability (Rogers, 1995). The DOI theory suffers from one universal limitation since it fails to consider environmental aspects which influence operational business performance and encompass regulatory standards and market-level competition. The model represented in Figure 1 shows the DOI.

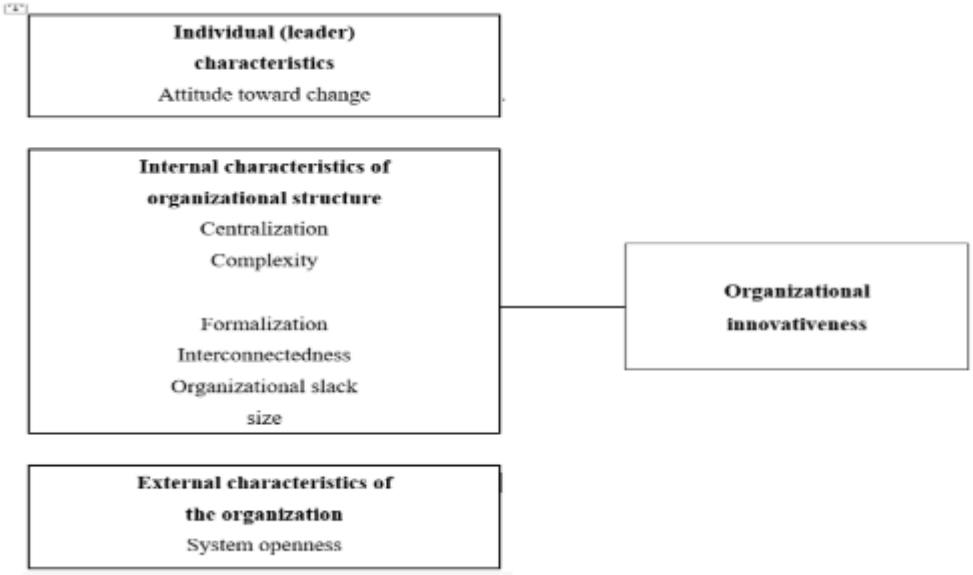

Figure 1: Diffusion of Innovations Theory (DOI)
(Rogers, 1995)

Technology-Organizational-Environmental Framework (TOE)

The fundamental framework which Tornatzky and Fleischer (1990) created shows that organizational technological innovation depends on three main factors including technological components and organizational elements and external environmental elements. Figure 2 illustrates the TOE framework.

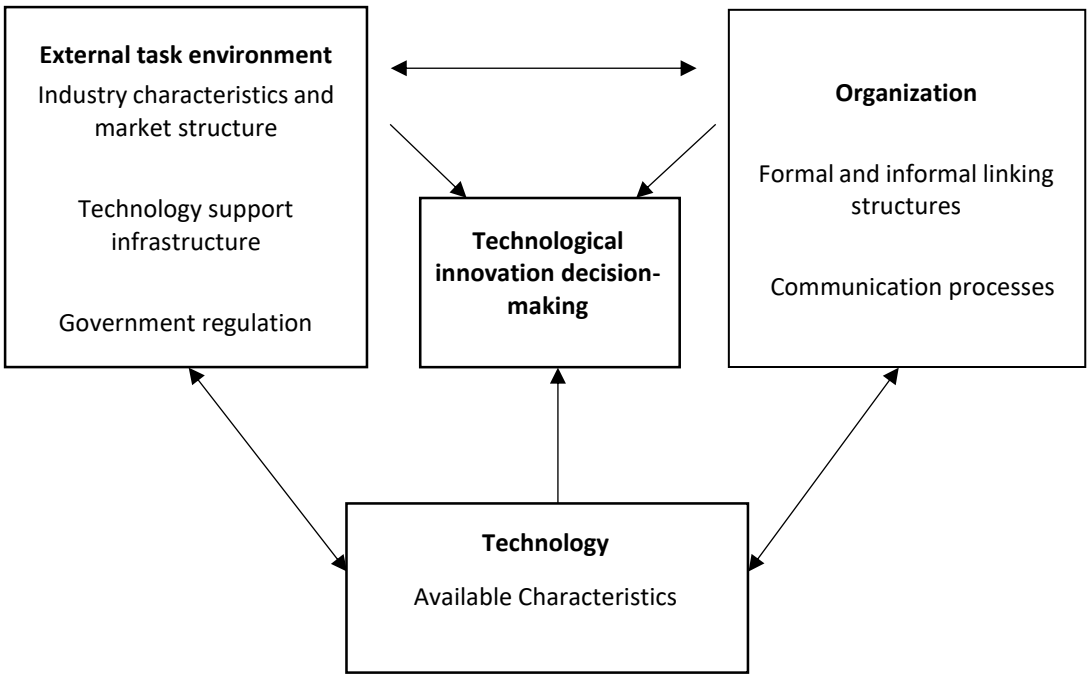

Figure 2: Technology-Organizational-Environmental Framework (TOE)
(Tornatzky & Fleischer, 1990)

Organizational factors consist of formal and informal approaches together with communication procedures and organizational size. Market structure together with governmental regulations and technological infrastructure form the environmental

influences. Technology availability as well as its features form part of the technological background according to Hussein et al. (2019).

DOI theory and TOE Framework and AI Adoption in Previous Studies

The research article by Tornatzky and Fleischer (1990) has received 49,700 citations while Rogers (1995) has accumulated 32,500 citations until 2024 (Google Scholar). The 49,700 Google Scholar citations about Tornatzky and Fleischer (1990) and Rogers (1995) definitions became the basis for understanding the TOE framework role in AI Adoption systems. The previous research conducted on TOE Framework within AI Adoption appears in Table 1. The model with its theoretical foundation and its major components together with the research findings are presented in this table.

Discussion

Table 1 demonstrates that AI technology exists in various settings of developed and developing countries. Various studies added various external factors to both the DOI and TOE models depending on their individual research requirements according to Table 2. Some research studies existed without including any external factors. The research location might explain this contradiction because these variables differ in use between countries so investigators must accommodate them according to national contexts. Per Straub et al. (1997) the same models and theories for technology users cannot be appropriately applied to every situation.

Table 1
Summary of Previous Studies of AI Adoption

Authors	Theory	Context	Variables	Findings of study
Badghish & Soomro (2024)	DOI &TOE	6 managers working in different sectors of SMEs IN KSA	**IV:** Implementation cost, Relative advantage, Complexity, Compatibility, Organizational support, Sustainable human capital, Market and Customer demand, and Government support. **Med:** AI adoption **DV**: operational performance, economic performance	Influence of AI on SMEs' operational and economic performance.
Abaddi .(2024)	TOE	537 MSME owners or managers in Jordan	**IV:** Business innovativeness, Management support, Perceived benefits, Perceived costs, Technological infrastructure. **DV:** AI adoption intention	Business innovativeness, management support, perceived benefits, and technological infrastructure have positive and significant effects on AI adoption intention, while costs have no significant effect.

Al Wael et al. (2024)	TOE	393 experienced accounting professionals in Kuwait	**IV:** Organization culture, communication structure, Competitive pressure, Regulatory support, Resource availability, Perceived usefulness, Perceived ease of use. **DV:** AI Adoption	Organizational culture, regulatory support, PU, and PEOU have a direct (+) effect on AI adoption, while PEOU and PU also have an indirect (+) effect through accounting profit and behavioral intention.
Kaur et al. (2024)	TOE	329 HR professionals in India	**IV:** Compatibility, Relative advantage, Top management, Competitive pressure. **DV:** AI Adoption	Relative Advantage and HR Readiness emerge as the most influential and robust predictors of adoption. the availability of resources, effective communication channels, and CP insignificant impact on AI adoption.
Horani et al. (2023)	DOI &TOE	512 senior IT/IS managers in public/private organizations located in Jordan	**IV:** Compatibility, Relative advantage, Cost-effectiveness, Top management support, AI strategic alignment, Competitive pressure, Availability of resources, Government support, Market uncertainty, Support vendors, Competitive pressure. **DV:** AI adoption intentions	RA, TMS, cost-effect, comp, vendor support, com, AI strategic alignment and resource availability (+) influence the intention to adopt AI-based technologies. Government regulation and complexity (-) influence adoption intentions.
Lada et al.(2023)	TOE	196 SMES operating in Sabah, Malaysia	**IV:** Competitive Pressure (CP), Top Management Commitment (TMC), Employee Adaptability (EA), External Support (ES), Organization Readiness (OR). **DV:** AI adoption in SMEs	TMC and OR have a significant relationship with AI adoption, while CP, EA, and ES have an insignificant impact. SME organizations may benefit from focusing on and enhancing TMC and OR practices to improve Al outcomes.
Rawashdeh et al. (2023)	TOE	The owners and managers of SMEs were surveyed online using a	**IV:** Compatibility, Readiness for Challenge, Saving Time And Efficiency-improving.	Accounting automation partially mediated the relationship between

		convenience sampling technique.	**DV:** AI adoption.	predictive variables and the adoption of AI
Al-khatib. (2023)	DOI &TOE	260 managers and administrative employees in Jordan	**IV:** Relative advantage, complexity, compatibility, top management support, organizational readiness, competitive pressures, customer pressures. **MED:** adoption of GEN-AI. **DV:** exploratory innovation, exploitative innovation.	RA, TMS, OR, and customer pressures (+)influence GEN-AI adoption. The empirical results demonstrated that the influence of com and Comp on GEN-AI adoption is insignificant. It was found that COX (-)influence of GEN-AI adoption, (+) impact of GEN-AI on both exploratory and exploitative innovation.
Phuoc. (2022)	DOI &TOE	193 senior managers who are directly in charge of information systems in both private and public companies in Vietnam	**IV:** compatibility (com), Relative advantage (RA), complexity (cox), Managerial support, Managerial capabilities, Organization size, Organizational readiness (OR), and Government involvement. **DV:** AI applications adoption	COM, RA, COX, capability, managerial capability, OR, government involvement, market uncertainty, and vendor partnership are significantly related to AI applicationadoption.
Ghani et al. (2022)	TOE	127 participation publicly listed manufacturing companies in Malaysia	**IV:** information technology (IT) capability, top management support, and government support **DV:** AI adoption	IT capability does not significantly influence the AI adoption of publicly listed manufacturing companies.
Kinkel et al. (2022)	TOE	655 participants in China and others.	**IV:** Company size, competitive factor, R&D intensity, Digital skills, Industrial sector, country, product complexity, Batch size. **DV:** AI technologies in manufacturing.	digital skills, company size, and R&D intensity, have the greatest impact on the adoption of AI in manufacturing.
Pai & Chandra. (2022)	TOE	124 Indian firms	**IV:** Technology competence, Relative advantage, Decision-	Influence of the nine technological, organizational, and

			makers' knowledge, Financial strength, Partner readiness, Benefits to beneficiaries, Government support, Sound legal system, Risk to stakeholders. **DV:** AI adoption intention for CSR initiatives by Indian firms.	environmental factors and dives deeper through the post-hoc analysis of the variations due to the size of the firm, public or private orientation, and industry sector.
M. Wang.(2022)	TOE	318 firms in China	**IV:** AI Technology, Relative advantage (RA), supply chain collaboration, Environmental Uncertainty. **MED:** Willingness to Adopt AI. **DV:** Supply Chain Performance, Supply Chain Resilience	RA of enterprise AI technology, supply chain collaboration, and environmental uncertainty are the three major factors affecting the adoption of AI, which subsequently provides a (+) affect on supply chain resilience and supply chain performance.
Sharma et al. (2022)	DOI &TOE	292 SMEs via an online survey	**IV:** Relative advantage, Complexity, Cost, Top management support, financial resources, Employee capability, Competitive pressure, Customer pressure, Vendor support. **DV:** AI chatbot implementation intention.	perceived employee capability, perceived availability of financial support, TMS, cost, COX and RA are (+) associated with SMEs' AI-based chatbot adoption intention.
Mikalef et al. (2022)	TOE	91 municipalities from three European countries (i.e., Germany, Norway, and Finland)	**IV:** Perceived benefits, Perceived financial costs, Organizational innovativeness, Perceived government pressure, Regulatory support, Perceived Citizen Pressure, Government Incentives, and Regulatory Guidelines. **DV:** AI capabilities.	Perceived financial costs, organizational innovativeness, perceived governmental pressure, government incentives, regulatory support impact the development of AI capabilities. Perceived citizen pressure and PV of AI solutions are not important determinants of AI.

*Table **Error! No text of specified style in document.**: Identified Important Factors Affecting the Adoption of AI in Previous Studies*

Construct	Frequency	Source
Technological Factors		
Relative advantage	7	Phuoc, (2022), (Horani et al., 2023), Pan et al. (2022), Badghish & Soomro (2024), Sharma et al. (2022), (Al-khatib, 2023), Pillai & Sivathanu. (2020a)
Compatibility	6	Badghish & Soomro. (2024), (Phuoc, 2022), (Al-khatib, 2023), (Horani et al., 2023), Rewashed et al. (2023), Chatterjee et al. (2021)
Complexity	6	Chatterjee et al. (2021), Phuoc.(2022), Badghish & Soomro.(2024), (Al-khatib, 2023), Sharma et al.(2022), Pan et al.(2022).
Organizational Factors		
Top management support	5	Abaddi. (2024), Ghani et al.(2022), Horani et al. (2023), (Sharma et al., 2022), (Al-khatib, 2023).
Organization size	2	(Kinkel et al., 2022), Phuoc. (2022).
IT capability	4	Ghani et al. (2022), Na et al.(2022), Nayal et al.(2022).
Organizational readiness	4	Phuoc.(2022), Lada et al.(2023), Chatterjee et al.(2021), (Al-khatib, 2023).
Environmental Factors		
Competitive pressure	5	Phuoc. (2022), Lada et al.(2023), Al Wael et al. (2024), Nay al et al.(2022), Horani et al.(2023), Sharma et al.(2022), Al-khatib.(2023), Pillai & Sivathanu. (2020a).
Partner support	3	Chatterjee et al. (2021), Na et al. (2022), Nayal et al.(2022).
Government support	4	Ghani et al.(2022), Badghish & Soomro.(2024),Nayal et al.(2022), Pai & Chandra.(2022).

Salah et al. (2021) has outlined multiple relationships existing between the specific theories of DOI and TOE framework. Talking about the organizational components of the TOE framework connects them to the organizational context component of the DOI model while the technological elements match with the innovation specificaitons of DOI (Ilin et al., 2017). The two theoretical approaches demonstrate substantial variations according to Horani, Al-Adwan et al., 2023. The DOI hypothesis lacks consideration of environmental factors which opposes the approach of the TOE paradigm. Various studies about technological adoption in different contexts show that integrating TOE dimensions solves DOI theory limitations according to Pateli et al. (2020) and Salah et al. (2021).

A combined framework of DOI and TOE enables researchers to recognize all factors which influence AI adoption decisions at a business organizational scale. The model demonstrates its suitability for understanding AI adoption because it explains technical elements along with organizational components and environmental aspects at the organizational level. DOI and TOE function excellently as theoretical foundations to understand IS adoption behavior in SMEs according to Baabdullah et al. (2021). The behavioral aspects of perceived usefulness together with ease of use remain absent in DOI and TOE theories. The study by Abaddi (2024) examined how technological, organizational and environmental factors shape the intention of Jordanian MSMEs to use AI. The research investigation failed to analyze the mechanisms through which users accept and operate with technology. A different study by Al-khatib

(2023) failed to analyze significant behavioral factors which impact user acceptance along with usage.

Conclusion

Industrial 4.0 technologies are among the new technologies which SMEs sector persistently adopts. AI adoption has become essential for SMEs so they can improve their performance alongside their competitiveness and innovation, as well as reduce costs. The DOI-TOE framework represents an established method to analyze technology adoption in organizations by studying three groups of variables: technological elements as well as organizational and external environmental factors.

The current study provides a novel contribution by addressing a gap in the existing body of knowledge, extending the application of the DOI-TOE framework to the context of SMEs adopting AI technologies. Theoretically, it strengthens the significance of diffusion and organizational-environmental factors in shaping AI adoption decisions, offering a deeper understanding of how SMEs navigate technological transformation. Contextually, this research highlights the unique challenges and drivers specific to SMEs, particularly in the industry 4.0 era. By examining technological readiness, organizational capabilities, and external pressures, the study offers valuable insights for policymakers, business leaders, and technology providers aiming to facilitate AI adoption in SMEs.

Acknowledgement

This study was conducted without external financial support. The authors sincerely express gratitude to every member of the study team for their commitment, cooperation, and diligence. Their commitment and perseverance have been instrumental in enhancing the quality and success of this study.

References

Abaddi, S. (2024). *Factors and moderators influencing artificial intelligence adoption by Jordanian MSMEs*. https://doi.org/10.1108/MSAR-10-2023-0049

Abdul Hameed, M., & Counsell, S. (2012). Assessing the influence of environmental and CEO characteristics for adoption of information technology in organizations. *Journal of Technology Management & Innovation*, *7*(1), 64–84.

Agarwal, V., Mathiyazhagan, K., Malhotra, S., & Saikouk, T. (2021). Analysis of challenges in sustainable human resource management due to disruptions by Industry 4.0: an emerging economy perspective. *International Journal of Manpower*, *43*(2), 513–541.

Al-khatib, A. (2023). Technology in Society Drivers of generative artificial intelligence to fostering exploitative and exploratory innovation : A TOE framework. *Technology in Society*, *75*(October), 102403. https://doi.org/10.1016/j.techsoc.2023.102403

Al-Qaysi, N., Granić, A., Al-Emran, M., Ramayah, T., Garces, E., & Daim, T. U. (2023). Social media adoption in education: A systematic review of disciplines, applications, and influential factors. *Technology in Society*, 102249.

Al Wael, H., Abdallah, W., Ghura, H., & Buallay, A. (2024). Factors influencing artificial intelligence adoption in the accounting profession: the case of public sector in Kuwait. *Competitiveness Review*, *34*(1), 3–27. https://doi.org/10.1108/CR-09-2022-0137

Aloini, D., Latronico, L., & Pellegrini, L. (2022). The impact of digital technologies on business models. Insights from the space industry. *Measuring Business Excellence*, *26*(1), 64–80.

Baabdullah, A. M., Alalwan, A. A., Slade, E. L., Raman, R., & Khatatneh, K. F. (2021). SMEs and artificial intelligence (AI): Antecedents and consequences of AI-based B2B practices. *Industrial Marketing Management*, *98*, 255–270.

Badghish, S., & Soomro, Y. A. (2024). Artificial Intelligence Adoption by SMEs to Achieve Sustainable Business Performance: Application of Technology–Organization–Environment Framework. *Sustainability (Switzerland)* , *16*(5). https://doi.org/10.3390/su16051864

Bahoo, S., Cucculelli, M., & Qamar, D. (2023). Artificial intelligence and corporate innovation: A review and research agenda. *Technological Forecasting and Social Change*, *188*, 122264.

Burger, B., Kanbach, D. K., Kraus, S., Breier, M., & Corvello, V. (2023). On the use of AI-based tools like ChatGPT to support management research. *European Journal of Innovation Management*, *26*(7), 233–241.

Duan, Y., Edwards, J. S., & Dwivedi, Y. K. (2019). Artificial intelligence for decision making in the era of Big Data–evolution, challenges and research agenda. *International Journal of Information Management*, *48*, 63–71.

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., & Eirug, A. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, *57*, 101994.

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.

Hmoud, H., Al-Adwan, A. S., Horani, O., Yaseen, H., & Zoubi, J. Z. Al. (2023). Factors influencing business intelligence adoption by higher education institutions. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(3), 100111. https://doi.org/10.1016/j.joitmc.2023.100111

Horani, O. M., Al-adwan, A. S., & Alkhalifah, A. (2023). *The critical determinants impacting arti fi cial intelligence adoption at the organizational level*. https://doi.org/10.1177/02666669231166889

Horani, O. M., Al-Adwan, A. S., Yaseen, H., Hmoud, H., Al-Rahmi, W. M., & Alkhalifah, A. (2023). The critical determinants impacting artificial intelligence adoption at the organizational level. *Information Development*. https://doi.org/10.1177/02666669231166889

Hussein, L. A., Baharudin, A. S., Jayaraman, K., & Kiumarsi, S. (2019). B2B e-commerce technology factors with mediating effect perceived usefulness in Jordanian manufacturing SMES. *Journal of Engineering Science and Technology*, *14*(1), 411–429.

Ilin, V., Ivetić, J., & Simić, D. (2017). Understanding the determinants of e-business adoption in ERP-enabled firms and non-ERP-enabled firms: A case study of the Western Balkan Peninsula. *Technological Forecasting and Social Change*, *125*, 206–223.

Kaur, M., A. G., R., & Vikas, S. (2024). Adoption of Artificial Intelligence in Human Resource Management: A Conceptual Model. *Indian Journal of Industrial Relations*, *57*(2), 331–342. https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,sso&db=bth&AN=153280404&scope=site&custid=s8448101

Khalid, N. (2020). Artificial intelligence learning and entrepreneurial performance among university students: evidence from malaysian higher educational institutions. *Journal of*

Intelligent & Fuzzy Systems, *39*(4), 5417–5435.

Kinkel, S., Baumgartner, M., & Cherubini, E. (2022). Prerequisites for the adoption of AI technologies in manufacturing – Evidence from a worldwide sample of manufacturing companies. *Technovation*, *110*(July), 102375. https://doi.org/10.1016/j.technovation.2021.102375

Kumar, M., Raut, R. D., Mangla, S. K., Ferraris, A., & Choubey, V. K. (2022). The adoption of artificial intelligence powered workforce management for effective revenue growth of micro, small, and medium scale enterprises (MSMEs). *Production Planning & Control*, 1–17.

Lada, S., Chekima, B., Karim, M. R. A., Fabeil, N. F., Ayub, M. S., Amirul, S. M., Ansar, R., Bouteraa, M., Fook, L. M., & Zaki, H. O. (2023). Determining factors related to artificial intelligence (AI) adoption among Malaysia's small and medium-sized businesses. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(4), 100144. https://doi.org/10.1016/j.joitmc.2023.100144

Lai, P. C. (2017). The literature review of technology adoption models and theories for the novelty technology. *JISTEM-Journal of Information Systems and Technology Management*, *14*(1), 21–38.

Management, I., Maroufkhani, P., Iranmanesh, M., & Ghobakhloo, M. (2022). *Determinants of big data analytics adoption in small and medium- sized enterprises (SMEs)*. *February*. https://doi.org/10.1108/IMDS-11-2021-0695

Mariani, M. M., Machado, I., Magrelli, V., & Dwivedi, Y. K. (2023). Artificial intelligence in innovation research: A systematic review, conceptual framework, and future research directions. *Technovation*, *122*, 102623.

Mikalef, P., & Gupta, M. (2021). Information & Management Artificial intelligence capability : Conceptualization , measurement calibration , and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, *58*(3), 103434. https://doi.org/10.1016/j.im.2021.103434

Mikalef, P., Lemmer, K., Schaefer, C., Ylinen, M., Fjørtoft, S. O., Torvatn, H. Y., Gupta, M., & Niehaves, B. (2022). Enabling AI capabilities in government agencies: A study of determinants for European municipalities. *Government Information Quarterly*, *39*(4). https://doi.org/10.1016/j.giq.2021.101596

Nayal, K., Raut, R., Priyadarshinee, P., Narkhede, B. E., Kazancoglu, Y., & Narwane, V. (2022). Exploring the role of artificial intelligence in managing agricultural supply chain risk to counter the impacts of the COVID-19 pandemic. *International Journal of Logistics Management*, *33*(3), 744–772. https://doi.org/10.1108/IJLM-12-2020-0493

Pai, V., & Chandra, S. (2022). Exploring Factors Influencing Organizational Adoption of Artificial Intelligence (AI) in Corporate Social Responsibility (CSR) Initiatives. *Pacific Asia Journal of the Association for Information Systems*, *14*(5), 82–115. https://doi.org/10.17705/1pais.14504

Paiola, M., Schiavone, F., Grandinetti, R., & Chen, J. (2021). Digital servitization and sustainability through networking: Some evidences from IoT-based business models. *Journal of Business Research*, *132*, 507–516.

Pan, Y., Froese, F., Liu, N., Hu, Y., & Ye, M. (2022). The adoption of artificial intelligence in employee recruitment: The influence of contextual factors. *The International Journal of Human Resource Management*, *33*(6), 1125–1147.

Pateli, A., Mylonas, N., & Spyrou, A. (2020). Organizational adoption of social media in the hospitality industry: An integrated approach based on DIT and TOE frameworks.

Sustainability, *12*(17), 7132.

Pillai, R., & Sivathanu, B. (2020). Adoption of artificial intelligence (AI) for talent acquisition in IT/ITeS organizations. *Benchmarking: An International Journal*, *27*(9), 2599–2629.

Popkova, E. G., De Bernardi, P., Tyurina, Y. G., & Sergi, B. S. (2022). A theory of digital technology advancement to address the grand challenges of sustainable development. *Technology in Society*, *68*, 101831.

Salah, O. H., Yusof, Z. M., & Mohamed, H. (2021). The determinant factors for the adoption of CRM in the Palestinian SMEs: The moderating effect of firm size. *PloS One*, *16*(3), e0243355.

Sharma, S., Singh, G., Islam, N., & Dhir, A. (2022). Why do SMEs adopt artificial intelligence-based chatbots? *IEEE Transactions on Engineering Management*.

Straub, D., Keil, M., & Brenner, W. (1997). Testing the technology acceptance model across cultures: A three country study. *Information & Management*, *33*(1), 1–11.

Tornatzky, L., & Fleischer, M. (1990). *The process of technology innovation, Lexington, MA*. Lexington books.

Wang, M. (2022). *Drivers of Artificial Intelligence and Their Effects on Supply Chain Resilience and Performance : An Empirical Analysis on an Emerging Market*.