REVIEW ARTICLE

Innovation management among the Indian small and medium-sized enterprises focusing on artificial intelligence: Opportunities and the way forward

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ABSTRACT

Introduction: The current study details about how artificial intelligence (AI) is applied in innovation management among Indian small and medium-sized enterprises (SMEs). It is a first-of-its-kind study that delves into this research domain in Indian SMEs whereas the study provides in-depth insights into the topic undertaken. **Methodology:** This narrative review considers the research publications, company reports, government reports, books, research materials published by institutions, and other web pages to analyze the existing information and achieve the objectives. **Findings:** The current study has identified the challenges involved in AI implementation both during its adoption and its continued use in organizations in terms of human resources, ethics, technology, organizational, and economic aspects. It has also found the limitations faced during AI implementation in innovation management among SMEs elsewhere, while the study discusses the opportunities to overcome the issues in innovation management among Indian SMEs. **Implications:** The policymakers, governments, educational institutions, academia, and skill development centers are provided with various suggestions from the study outcomes and if implemented, AI can uplift the contributions made by Indian SMEs toward their gross domestic product. **Originality:** The current study is a first-of-its-kind research article that dealt with the impact of AI on the innovation management aspect among the Indian SMEs.

Keywords: Artificial intelligence, ChatGPT, Ethics, Innovation management, Machine learning, Micro, small and medium enterprises, Small and medium-sized enterprises
JEL Classifications: O31, O32, O36, O14, O33

INTRODUCTION

Innovation is one of the key factors that provide a competitive edge to the companies to sustain in a competitive market. After the pandemic, there has been a paradigm shift experienced by the global market players toward the revitalization of their business strategies and digitalization of the company's processes, and this has echoed among small and medium-sized enterprises (SMEs) as well. The SMEs in India play a crucial role in the country's growth and development by contributing a significant portion of gross domestic product (GDP), employment generation, women empowerment, skill development, and so on. According to the Udyam portal, Micro, Small and Medium Enterprises (MSME) Ministry of India (Ministry of Micro Small and Medium Enterprises, 2024), India has a total of 2.52 crore

registered MSMEs as of April 2024 and it employs around 16.59 crore people across the nation. Innovation remains a crucial developmental factor for SMEs whereas the exploratory review authored by Ahmed (2023) detailed about the importance of innovation among SMEs, patent processing norms, digital innovation, and technological transformation. Innovation can be of three types such as incremental, breakthrough, and disruptive (Ravinder, 2023). While the developing nations yield results in incremental and breakthrough innovation, the developed economies focus on disruptive innovation since the demand from the consumer is ever-increasing and the competition is too heavy to sustain in the market (Si et al., 2020). Incremental innovation in product is favored by SMEs in Indonesia whereas quality issues, availability of funds, lack of skilled employees and technology, and lack of continuous funds have a negative impact on innovation among the MSMEs (Nugroho and Andadari, 2022). As per (Füller et al., 2022), the innovation process models have evolved from the 1950s from technology push, market pull (mid-1960s), push-pull (early-1970s), parallel processing (mid-1980s), E-integration (early-2000s), and network innovation (mid-2000s) since the companies strive to meet the dynamic consumer demands. In this scenario, AI can bring a paradigm shift to the seventh generation of innovation management. According to Rehman (2021), firm size, strategic focus, culture, and knowledge management are the crucial factors that drive the innovation performance of firms.

The Global Innovation Index lists the most innovative global economies in which 132 countries are considered. Among its competitors, India remains one of the top three innovation economies under the lower middle-income category and also in the top three countries in the Central and Southern Asian region. However, India is still in the 40th position compared to its global competitors such as the US (3rd), UK (4th), and China (12th). On the other hand, it is interesting to note that India has consecutively securing the position of being the most innovative economy in the region for 13 consecutive years (World Intellectual Property Organization, 2023). According to Gunjati and Adake (2020), the number of innovative Indian SMEs stands at 35.2% whereas most of the innovations happened in the manufacturing sector.

The term "Artificial Intelligence (AI)" was first proposed by McCarthy in 1956 at the Dartmouth Conference though the term gained its popularity in Industry 4.0 (Oldemeyer et al., 2024). According to Hashimoto et al. (2018), "AI can be loosely defined as the study of algorithms that give machines the ability to reason and perform cognitive functions such as problem-solving, object and word recognition, and decision-making." AI-based innovations like virtual mirrors and visual search can enrich the customers' experience before trying the required products. Smart kitchen appliances, virtual reality, augmented reality, chatbot, ChatGPT, and so on have the potential to reinvent the functioning of businesses. Further, it has the potential to develop new business models that can generate a seamless stream of revenue for the SMEs. Manufacturing SMEs can automate their processes and forecast the demands of customers using AI-driven big data analytics (Lu et al., 2022).

AI has a key advantage over other techniques since it is capable of learning when getting exposed to novel requirements whereas technological reorientation will never be a problem in AI-driven software. Further, based on the acquired knowledge, AI can optimize the manufacturing processes and also increase the operational efficiency of the SMEs. It is important for the decision makers or the owners of the SMEs to experience, validate, and test the suitability of an AI application for their organization (Wei and Pardo, 2022). The study (Füller et al., 2022) mentioned that today's managers agree that AI holds immense potential in terms of increased effectiveness and efficiency of innovation tasks. However, there is a need to have predominant changes in technical as well as organizational levels. With limited access to resources, lack of experienced professionals, technical knowledge, company size and funds' availability, etc., it is challenging to implement AI while in addition to this, the one-size-fits-all approach is no more useful in this regard.

AI has been used by conglomerates for a known time due to its ambidextrous competence, for instance, IBM (Watson – for disease diagnosis using image recognition), Netflix (content creation), Mastercard (financial transactions), Airbus (production issues), GM (generative design applications), and Vodafone (customer service), and so on. According to Gama and Magistretti (2023), the adoption of AI in organizations requires enabling capabilities and enhancing capabilities. In India too (Kumari and Verma, 2023), various AI tools have been used by the SMEs for instance, PayNearBy, Credlix, Brego, and LendenClub (financial solutions, lending, etc.), Meesho (retail), and Alignbooks (invoicing).

On the other hand, various challenges are faced by those organizations that attempt to innovate in the aspect of AI. Some of the challenges involved in AI implementation among the SMEs are shown in Figure 1 such as the political,

economic, social, technological, environmental, and legal fronts. Lu et al. (2022) also agree with this opinion and list various challenges encountered during AI implementation in SMEs.

In this background, the current review article analyses the challenges encountered by Indian SMEs in innovation management, with a special focus on AI. The current review is a first-of-its-kind article that focuses solely on the innovation management aspect among the Indian SMEs that are exposed to AI in their conduct of business. The review not only covers the importance of AI in the growth and development of SMEs but also lists the challenges faced, available opportunities, and recommendations for policymakers at the government level and decision-makers at the firm level. Although earlier studies focused on AI-driven growth among SMEs in other countries, no study has covered the innovation aspect of Indian firms, especially SMEs. The current study outcomes may help the managers/decision-makers and the policymakers in the government to devise strategies that can help the firms achieve its vision and goals.

INNOVATION MANAGEMENT USING AI

Innovation management is a costly, competitive, and crucial affair for firms, especially SMEs since the market is introduced with new products now and then, dynamically increasing consumer demands, rivalry, and the influence of political instability and the costs involved from innovation to introduction of the product into the market (Haefner et al., 2021). This phenomenon can be easily explained using pharmaceutical manufacturers since the drug development process is a decade-old one whereas conceiving the concept for a new drug, testing, and its validation, followed by marketing and its establishment in a market is nothing <10–15-year-old process, within which the market's demands, consumer purchasing power parity, disease outcomes, political issues, competitor products, etc., tend to change. AI encompasses various techniques such as, but not limited to, machine learning (ML) and deep learning, natural language processing, and machine vision technologies (Lu et al., 2022).

Figure 2 shows the conceptual view of how the AI system works in which data plays a key role and it gets reflected
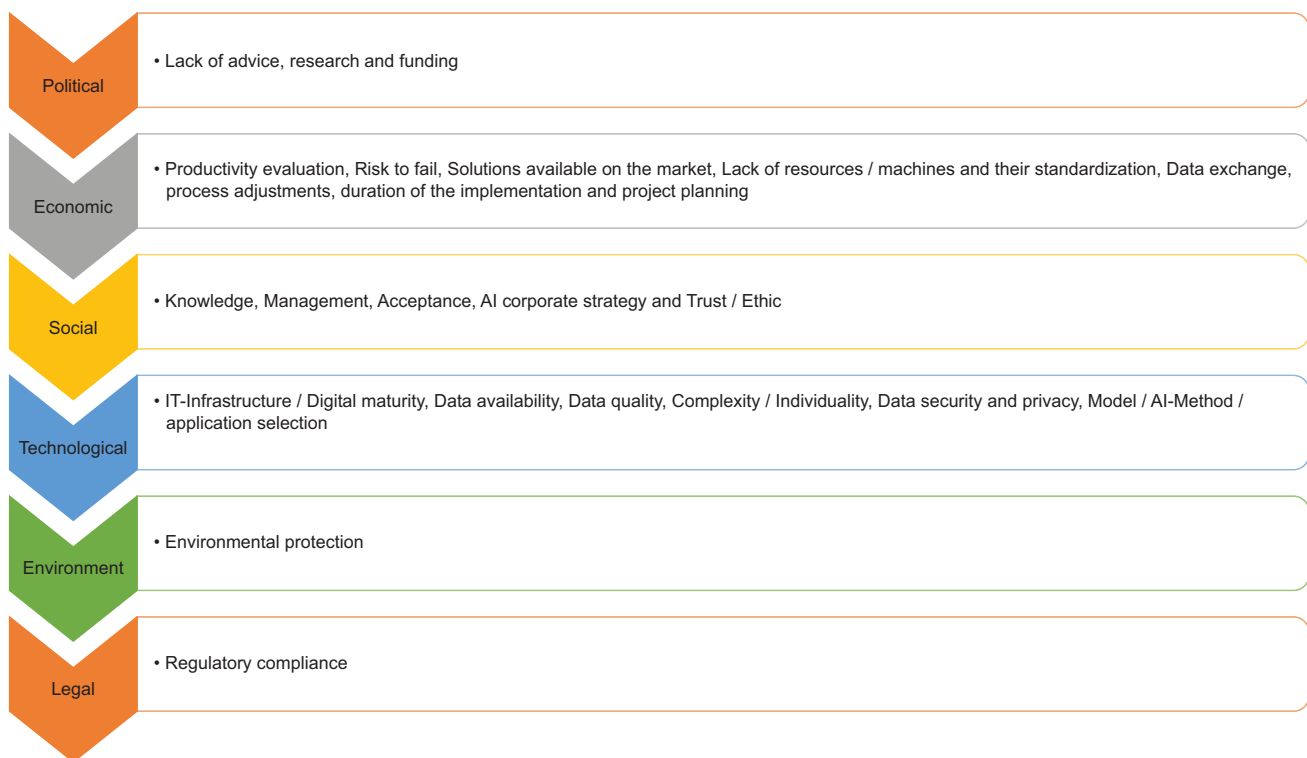

Political • Lack of advice, research and funding

Economic • Productivity evaluation, Risk to fail, Solutions available on the market, Lack of resources / machines and their standardization, Data exchange, process adjustments, duration of the implementation and project planning

Social • Knowledge, Management, Acceptance, AI corporate strategy and Trust / Ethic

Technological • IT-Infrastructure / Digital maturity, Data availability, Data quality, Complexity / Individuality, Data security and privacy, Model / AI-Method / application selection

Environment • Environmental protection

Legal • Regulatory compliance

Figure 1: Challenges encountered in artificial intelligence implementation
Source: Oldemeyer et al. (2024)

in the outcomes. Some of the important enablers for the functioning of the AI system include computing power, storage capacity, internet speed, and coverage followed by the rest of the technological developments such as IoT, 3D printing, and cheap sensors (OECD, 2021), The Digital Europe program was launched to create a linkage between AI and innovation. Some of the key policy suggestions made in the literature include increased funding toward R&D in AI, tax benefits, employee skill development, partnerships with other firms, educational institutions, and research centers, data sharing among the partner firms, common security, and privacy protection laws (Marino et al., 2023). According to Lu et al. (2022), AI-driven opportunities are vast in nature and optimize the process, mitigate business risks, forecast the demands, provide real-time data and insights about the customer's needs, and help in product and service innovation.

In the literature, the authors have segregated the target audience who prefer the implementation of AI in their firms under four different clusters such as AI-frontrunners, AI-practitioners, AI-occasional innovators, and non-AI innovations (Füller et al., 2022). AI has already ventured into Open Innovation bringing knowledge from partners, employees, vendors, and customers along with the decision-makers of the firm. In the literature, the authors analyzed how companies can institutionalize business process transformation with the help of AI and innovation management using AI. After the outbreak of COVID-19, open innovation has gained prominence since the organizations suffer from a lack of technical expertise, experience in handling the technologies, and so on. Here, AI comes to the rescue since it can build a pool of technical knowledge from outside the organizations as well. AI-based innovation management can be relied upon by the SMEs in both organizational as well as technical aspects. AI can help organizations to do repetitive tasks and those tasks that demand human interaction such as chatbots. This is also helpful in developing in-depth knowledge about customers' requirements as ML is a part of AI too (Kuzior et al., 2023).

AI-DRIVEN OPPORTUNITIES FOR INDIAN SMEs

According to Forbes, as shown in Figure 3, these AI tools are going to be the hotspot of the year 2024 among small businesses.

The investment made in AI is predicted to grow up to 253.8 Million USD in the year 2025 (Ahmad et al., 2023). NASSCOM (2024) reported that for the financial year 2022–23, India has already received 4 billion USD as investment in AI. The verticals that received the investment include technology, healthcare, data analytics, digital content, banking, and fintech. In addition to these, software services, banking, financial services, insurance, finance, and supply chain are some of the industries that are expected to invest in AI adoption in the market with a growth rate of 25–35% compound annual growth rate within 2027.

AI service providers have already started focusing on helping Indian SMEs to meet the growing demands of
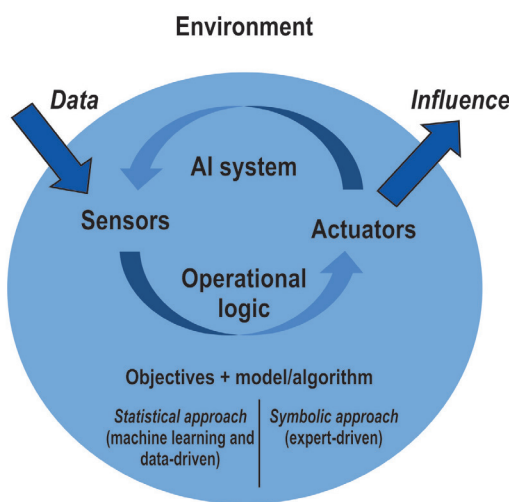
Figure 2: Conceptual view of an artificial intelligence system
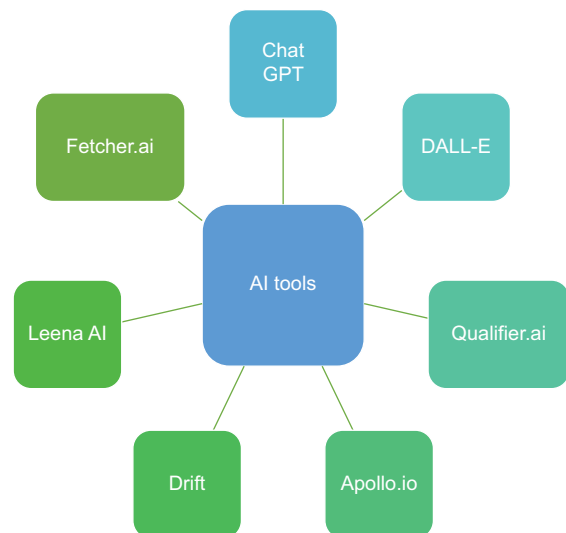Source: OECD (2019)

Figure 3: Artificial intelligence tools predicted for high usage in 2024
Source: Davis (2024)

the customers, for example, U GRO capital (to raise funds), Scalenut (content creation for SEO), QuickReply. ai (WhatsApp-based automated marketing tool), and so on (Bora, 2023). HSBC (2023) has mentioned that SMEs in India can reap multiple advantages from AI in a few important domains such as sales, digital marketing, customer engagement, manufacturing and supply chain, data protection and privacy, automation, and fraud detection.

According to a report published by Deloitte (2022) for the period between April and May 2022, businesses in India have already started a shift from AI centralization to democratization and decentralization of AI to widen their horizons. PwC (PricewaterhouseCoopers, 2022) mentioned about the widespread adoption of AI in the Indian fintech industry, especially when a large-scale Indian bank made use of AI technology to identify the lifecycle and macroeconomic events in the SMEs so as to offer personalized experience according to the profile of these SMEs.

According to a study conducted among accountants in India (EnteraGlobal, 2023), merely 2% were interested in increasing their investment in AI whereas only 3%, who work for SMEs, utilize AI in their accounting tasks since there is a need exists to verify the accuracy after the tasks were completed by AI-driven tools. However, 52% of the respondents were highly positive about automation in the upcoming years since AI is made to learn from the data. The challenges involved in AI implementation among the SMEs were studied by Ingalagi et al. (2021), in the state of Karnataka, India. According to the authors, the commitment of top management toward AI adoption is a crucial element while most of the SME owners are optimistic about the prevalent adoption of AI in the upcoming years. In literature (Sharma et al., 2022), an AI framework has been proposed for the functioning of SMEs in design and manufacturing industries, functioning in the state of Gujarat, India. The study also necessitated positive intervention from the governments (both states and the union) to bring awareness, nourish the required skills among the youth, and incentivize the firms that utilize AI.

SOLUTIONS FOR THE PROBLEMS - THE WAY AHEAD

As in every other change, there are a few challenges associated with the transformation of organizational processes focusing on AI. The prime challenges include a lack of appropriate technical infrastructure, inadequate corpus funds, stringent socio-environmental regulations, and the lack of skilled employees (Lu et al., 2022).

AI has the power to grasp the working mechanism behind any sort of unprogrammed events, or unexpected behaviors and can gain insights from unstructured and complex data (Ofosu-Ampong, 2024). Although this feature may be useful in the beginning, the SMEs will be expected to refine themselves now and then, in their product and service offerings since the dynamicity invites a complex and competitive market environment. Hence, AI policies must be framed to meet the expectations of the current and future needs. AI can help organizations in their decision-making processes by generating and developing ideas by overcoming the constraints faced in information processing and local search routines (Füller et al., 2022). Easier said than done, the potentials of AI should be tapped with a case-by-case approach since the challenges faced by SMEs in bringing a product/service to the market are different compared to MNCs.

Further, the findings suggest that the government of India must focus on providing the required technical support to the SMEs so as to instill trust among the SMEs toward technology adoption. Skill development is another area that needs to be focused on while skill development centers must be open to interested learners from Tier-II and Tier-III cities across the nation as the SMEs are primarily concentrated in these areas (Press Information Bureau, 2023). According to the National Skill Development Corporation report published for the year 2019–2020 (National Skill Development Corporation, 2021), a total of 2.5 crore people have been trained since the inception of NSDC under various training schemes. Although the MSMEs have been aided by the Mudra schemes, for loans, the skill development in the area of AI for SMEs still lags behind. Hence, it is important for the GOI to provide special attention to upskill the talent to be an economic superpower in 2047. This opinion was supported by the researchers who emphasize the need for the development of AI-orientation skills among the workforce. Further, policies pertaining to responsible AI utilization, data privacy, and safety must be framed to fight against the challenges faced in terms of social, legal, and ethical fronts.

According to Anh et al. (2024), some of the crucial elements to be understood before implementing AI in business processes include socioeconomic factors (education and skill development, government policies and regulations, technology infrastructure, cost sensitivity, and trust in the technology) and cultural factors pertaining to the land and law of the people. Badghish and Soomro (2024)

commented that AI implementation in Saudi Arabia has a few hindrances such as the high costs, lengthy payback periods, and challenges involved in IPR protection coupled with high follow-up costs. Hence, this common narrative set among the SMEs, especially in India, toward the incorporation of AI being a costly, time-consuming, manpower-intensive, and technology-demanding affair should be changed so that the positive aspects of embracing AI are well-projected among the target audience, that is, SME decision-makers or owners. This can happen with incentivization programs from the Indian governments (States and the Union) whereas technological barriers should be sorted out.

Technology readiness of an organization, less complex processes, trustworthiness, and enriching the individuals' skills play a crucial role in an organization toward AI adoption, as mentioned by Chaudhuri et al. (2022). In this digitization era, it is important for firms to move from traditional physical systems to cyber-physical systems for enhanced automation of their services. Further, simplifying the complex nature of organizational contextualization should be encouraged for a visible outcome. It was suggested by Ingalagi et al. (2021) that AI service providers must provide a "pay-as-you-use" option for SMEs so that its adoption can be prevalent and rapid as it becomes affordable. Further, the employees who lack the required skills must be provided training by both the governments as well as the service providers for the rapid adoption of AI. Instead of considering AI as an expenditure, the SMEs must think that it is a strategic investment for the future.

AI has the capacity to self-improve while it may pose serious challenges to data security, privacy, and reliability of the solutions offered. Since data are the key, in case of incorrect or insufficient data, it is challenging for the AI to perform and meet the expectations. Hence, the legal obligations must safeguard the interests of the consumers as well as AI service providers as per the law of the land. Rather than being exploitative, AI should be applied for constructive and nation-building purposes, which is possible only if the state and union governments frame the necessary acts and legal provisions. In literature (Ahmad et al., 2023), the authors found worrying outcomes with the implementation of AI in the decision-making process such as increasing laziness among human beings, privacy and security issues, and data-driven decision-making instead of customer-driven decisions leading to loss. According to the authors, Walmart and Amazon have already started using AI in their human talent acquisition process. Hence, work ethics, driving humans out of jobs, and loss of cognitive skills become the topics of interest. The cultural aspect remains a primary barrier that prevents people from adopting AI. Hence, a comprehensive human approach must be followed to overcome this challenge.

CONCLUSION

The current research article details about how innovation plays a crucial role in both the incorporation and the development of SMEs, one of the primary contributors to a country's GDP. Innovation management is given much importance since a company's future is decided by the innovativeness of its product/service offerings. In this background, the role played by AI in managing the innovative aspect among the Indian SMEs needs in-depth investigation. First, SMEs contribute heavily to the GDP of India and after COVID-19, the SMEs started adopting more and more technology tools to minimize their functional costs with less manpower and achieve high returns. Second, the impact of AI has been felt in most of the domains, particularly health care, data analytics, supply chain, customer interaction, banking, fintech, software and ITES, content creation, and so on. The current study detailed about the role played by innovation management in SMEs and the challenges faced in AI implementation, when making an attempt to achieve innovation management. The study also mentioned about the opportunities available for Indian SMEs along with the problems and the way forward to get rid of it. The current study is a first-of-its-kind in an Indian setting that focuses primarily on Indian SMEs that are trying to adopt AI in innovation management. The study provided suggestions for policymakers, governments, and academic and research institutions as well. In the future, the authors may develop this study as empirical research and validate the effectiveness of AI in innovation management among Indian SMEs.

AUTHORS' CONTRIBUTIONS

One author conceptualized the study, conducted data collection and analysis, and drafted the manuscript, while the other provided expertise in the subject matter, contributed to conceptualization, and offered critical insights throughout the writing process. Both authors approved the final version and are accountable for the integrity of the work.

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CONFLICTS OF INTEREST

This is to bring to your kind consideration that this research work has no conflicts of interest.

REFERENCES

Ahmad, S. F., Han, H., Alam, M. M., Rehmat, M. K., Irshad, M., Arraño-Muñoz, M., & Ariza-Montes, A. (2023). Impact of artificial intelligence on human loss in decision making, laziness and safety in education. *Humanities and Social Sciences Communications*, *10*(1), 311. doi: 10.1057/s41599-023-01787-8

Ahmed, I. (2023). An overview on the crucial nature of innovation strategies for sustainable businesses. *Indian Journal of Commerce and Management Studies*, *14*(3), 21-29. doi: 10.18843/ijcms/v14i3/03

Anh, N. T. M., Hoa, L. T. K., Thao, L. P., Nhi, D. A., Long, N. T., Truc, N. T., & Ngoc Xuan, V. (2024). The effect of technology readiness on adopting artificial intelligence in accounting and auditing in Vietnam. *Journal of Risk and Financial Management*, *17*, 27. doi: 10.3390/jrfm17010027

Badghish, S., & Soomro, Y. A. (2024). Artificial intelligence adoption by SMEs to achieve sustainable business performance: Application of technology-organization-environment framework. *Sustainability*, *16*, 1864. doi: 10.3390/su16051864

Bora, G. (2023). *ET MSME Day 2023: How New-age Small Businesses are Using AI, Automation as Part of their Marketing Strategy*. p1. Retrieved from: https://economictimes.indiatimes.com/small-biz/sme-sector/et-msme-day-2023-how-new-age-small-businesses-are-using-ai-automation-as-part-of-their-marketing-strategy/articleshow/101098332.cms?from=mdr

Chaudhuri, R., Chatterjee, S., Vrontis, D., & Chaudhuri, S. (2022). Innovation in SMEs, AI dynamism, and sustainability: The current situation and way forward. *Sustainability*, *14*, 12760. doi: 10.3390/su141912760

Davis, L. (2024). *10 AI Tools In 2024*, *Forbes*. Retrieved April 20, 2024 from: https://www.forbes.com/advisor/business/ai-tools

Deloitte. (2022). *State of AI in India Second Edition*. Retrieved from: https://file:///c:/users/nilat/downloads/in-state-of-ai-in-india-2022-noexp.pdf

EnteraGlobal. (2023). *Only 3% of SME Accounting Representatives in India Use AI Tech, 52% Optimistic about Automation: Study*. Retrieved April 20, 2024 from: https://enteraglobal.in/tpost/ntvcfnphx1-only-3-of-sme-accounting-representatives

Füller, J., Hutter, K., Wahl, J., Bilgram, V., & Tekic, Z. (2022). How AI revolutionizes innovation management - perceptions and implementation preferences of AI-based innovators. *Technological Forecasting and Social Change*, *178*, 121598. doi: 10.1016/j.techfore.2022.121598

Gama, F., & Magistretti, S. (2023). Artificial intelligence in innovation management: A review of innovation capabilities and a taxonomy of AI applications. *Journal of Product Innovation Management*, doi: 10.1111/jpim.12698

Gunjati, S. B., & Adake, C. V. (2020). Innovation in Indian SMEs and their current viability: A review. *Materials Today: Proceedings*, *28*, 2325-2330. doi: 10.1016/j.matpr.2020.04.604

Haefner, N., Wincent, J., Parida, V., & Gassmann, O. (2021). Artificial intelligence and innovation management: A review, framework, and research agenda☆. *Technological Forecasting and Social Change*, *162*, 120392. doi: 10.1016/j.techfore.2020.120392

Hashimoto, D. A., Rosman, G., Rus, D., & Meireles, O. R. (2018). Artificial intelligence in surgery: Promises and perils. *Annals of Surgery*, *268*(1), 70-76. doi: 10.1097/SLA.0000000000002693

HSBC. (2023). *Artificial Intelligence for Small Businesses in India*. Retrieved April 20, 2024 from: https://www.businessgo.hsbc.com/en/article/artificial-intelligence-for-small-businesses-in-india

Ingalagi, S. S., Mutkekar, R. R., & Kulkarni, P. M. (2021). Artificial Intelligence (AI) adaptation: Analysis of determinants among Small to Medium-sized Enterprises (SME's). *IOP Conference Series: Materials Science and Engineering*, *1049*(1), 12017. doi: 10.1088/1757-899X/1049/1/012017

Kumari, J., & Verma, V. (2023). Tech based solutions to empower Indian MSMEs. *International Journal of Engineering Research and Technology*, *12*(10), 1-4. doi: 10.17577/IJERTV12IS100065

Kuzior, A., Sira, M., & Brożek, P. (2023). Use of artificial intelligence in terms of open innovation process and management. *Sustainability*, *15*, 7205. doi: 10.3390/su15097205

Lu, X., Wijayaratna, K., Huang, Y., & Qiu, A. (2022). AI-enabled opportunities and transformation challenges for SMEs in the post-pandemic era:

A review and research Agenda. *Frontiers in Public Health*, *10*, 885067. doi: 10.3389/fpubh.2022.885067

Marino, D., Gil Lafuente, J., & Tebala, D. (2023). Innovations and development of artificial intelligence in Europe: Some empirical evidences. *European Journal of Management and Business Economics*, *32*(5), 620-636. doi: 10.1108/EJMBE-03-2023-0085

Ministry of Micro Small and Medium Enterprises. (2024). *Factsheet of MSME (Udyam) Registration, 2024*. Retrieved April 10, 2024 from: https://udyamregistration.gov.in/government-india/ministry-msme-registration.html

NASSCOM. (2024). *AI Powered Tech Services: A Roadmap for Future Ready Firms*. Retrieved from: https://www.nasscom.in/knowledge-center/publications/ai-powered-tech-services-roadmap-future-ready-firms

National Skill Development Corporation. (2021). *Skilling India's Youth, Shaping India's Future, Annual Report 2019-20*. Retrieved from: https://nsdcindia.org/sites/default/files/files/nsdc-annual-report-2019-20.pdf

Nugroho, O., & Andadari, R. (2022). The innovation of micro, small, and medium enterprises: A case study of Laweyan Batik Village - Indonesia. *Indian Journal of Commerce and Management Studies*, *5*(2), 37-46.

OECD. (2019). *Artificial Intelligence in Society*. Paris: OECD. doi: 10.1787/eedfee77-en

OECD. (2021). *The Digital Transformation of SMEs*. Paris: OECD. doi: 10.1787/bdb9256a-en

Ofosu-Ampong, K. (2024). Artificial intelligence research: A review on dominant themes, methods, frameworks and future research directions. *Telematics and Informatics Reports*, *14*, 100127. doi: 10.1016/j.teler.2024.100127

Oldemeyer, L., Jede, A., & Teuteberg, F. (2024). Investigation of artificial intelligence in SMEs: A systematic review of the state of the art and the main implementation challenges. *Management Review Quarterly*, doi: 10.1007/s11301-024-00405-4

Press Information Bureau. (2023). *Economic Survey 2022-23*. Retrieved from https://static.pib.gov.in/writereaddata/userfiles/file/economicsurvey2023q44o.pdf

PricewaterhouseCoopers. (2022). *Uncovering the Ground Truth*. Retrieved from: https://www.pwc.in/assets/pdfs/research-insights/2022/ai-adoption-in-indian-financial-services-and-related-challenges.pdf

Ravinder, R. (2023). An overview on the role of innovation in making sustainable and future-ready businesses. *Indian Journal of Commerce and Management Studies*, *14*(1), 11-18.

Rehman, N. U. (2021). Business and management factors relating to firm innovation performance. *Indian Journal of Commerce and Management Studies*, *6*(1), 78-90.

Sharma, P., Shah, J., & Patel, R. (2022). Artificial intelligence framework for MSME sectors with focus on design and manufacturing industries. *Materials Today: Proceedings*, *62*, 6962-6966. doi: 10.1016/j.matpr.2021.12.360

Si, S., Zahra, S. A., Wu, X., & Jeng, D. J. F. (2020). Disruptive innovation and entrepreneurship in emerging economics. *Journal of Engineering and Technology Management*, *58*, 101601. doi: 10.1016/j.jengtecman.2020.101601

Wei, R., & Pardo, C. (2022). Artificial intelligence and SMEs: How can B2B SMEs leverage AI platforms to integrate AI technologies? *Industrial Marketing Management*, *107*, 466-483. doi: 10.1016/j.indmarman.2022.10.008

World Intellectual Property Organization. (2023). *Global Innovation Index 2023 Innovation in the Face of Uncertainty*. Geneva: World Intellectual Property Organization. Retrieved from: https://www.wipo.int/edocs/pubdocs/en/wipo-pub-2000-2023-en-main-report-global-innovation-index-2023-16th-edition.pdf