



THE TRANSFORMATIVE IMPACT OF GENERATIVE AI ACROSS INDUSTRIES: A COMPREHENSIVE SYSTEMATIC REVIEW

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ABSTRACT: *Generative Artificial Intelligence (GAI) has emerged as a transformative technology with profound implications across various industries. This systematic review examines the applications, challenges, and ethical considerations of generative AI technologies across diverse sectors including healthcare, education, business, and creative industries. Following PRISMA guidelines, we analyzed 10 relevant studies published between 2010 and 2025, focusing on the implementation and impact of generative AI models, such as ChatGPT, GANs, and Large Language Models (LLMs). Our findings indicate that generative AI is significantly enhancing efficiency, personalization, and innovation across industries, while simultaneously raising concerns regarding data privacy, bias, employment implications, and ethical considerations. In healthcare, GAI is revolutionizing medical diagnostics, personalized treatment plans, and drug discovery. In education, it supports personalized learning experiences and teaching resource development. In business sectors, it transforms customer service, operational workflows, and innovation processes. However, challenges related to bias, privacy, transparency, and technical limitations persist across all domains. This review contributes to the ongoing dialogue on responsible AI deployment and provides valuable insights for researchers, practitioners, and policymakers navigating the evolving landscape of generative AI technologies. The findings underscore the need to balance innovation with ethical considerations and regulatory frameworks to maximize the benefits of generative AI while mitigating potential risks.*

KEYWORDS: Generative Artificial Intelligence (GAI), Large Language Models (LLMs), Healthcare Applications, Educational Technology, Systematic Review, Ethical Implications, Industry Transformation.



INTRODUCTION

The advent of Generative Artificial Intelligence (GAI) has ushered in a new era of technological innovation, transforming traditional approaches across various industries (Yafei et al., 2024). GAI, encompassing technologies like Large Language Models (LLMs), Generative Adversarial Networks (GANs), and Variational Autoencoders (VAEs), has demonstrated unprecedented capabilities in generating text, images, audio, and other forms of content that closely resemble human-created outputs (Pescapè, 2024). The release of models like ChatGPT has catalyzed widespread public and scholarly interest in these technologies, prompting discussions about their potential applications, implications, and the need for regulatory frameworks (Esteves, 2024).

Generative AI differs from traditional AI systems by focusing on creating new content rather than merely classifying or recognizing existing data (Banh & Strobel, 2023). These systems learn patterns from vast datasets and generate novel outputs that maintain the characteristics of the training data while producing unique content. This capability has positioned GAI as a transformative force across numerous sectors, including healthcare, education, business, creative industries, and more (Alnahhas & Yousef, 2024; Ooi et al., 2025).

The rapid evolution and adoption of generative AI technologies have been remarkable. According to the 2022 McKinsey Global Survey cited by Elahi et al. (2023), the adoption of AI has more than doubled since 2017. This dramatic increase highlights the growing recognition of AI's potential to enhance productivity, improve decision-making processes, and drive innovation across various domains.

In healthcare, generative AI is revolutionizing medical diagnostics, personalized treatment plans, and drug discovery (Siva Sai et al., 2024). In education, it supports personalized learning experiences and teaching resource development. In business sectors, it transforms customer service, operational workflows, and innovation processes (Alijoyo et al., 2024). The creative industries are experiencing a significant shift as generative AI tools enable new forms of artistic expression and content creation (Amankwah-Amoah et al., 2024).

However, the rapid advancement and deployment of generative AI technologies also raise important challenges and concerns. Issues related to data privacy, bias, transparency, and ethical implications have emerged as critical considerations in the responsible implementation of these technologies (Uddagiri & Isunuri, 2024; Zlateva et al., 2024). The potential impact on employment patterns and the need for regulatory frameworks to govern the use of generative AI are subjects of ongoing debate among scholars, practitioners, and policymakers.

Despite the growing body of literature on generative AI, there remains a need for a comprehensive review that systematically examines its applications, challenges, and ethical considerations across various industries. This systematic review aims to fill this gap by synthesizing current research on the transformative impact of generative AI across industries, providing valuable insights for researchers, practitioners, and policymakers navigating this evolving technological landscape.



AIM AND OBJECTIVES

Aim

The primary aim of this systematic review is to comprehensively analyze and synthesize the current literature on the transformative impact of generative AI technologies across various industries, examining their applications, challenges, ethical implications, and future directions.

Objectives

1. To identify and categorize the major applications of generative AI technologies across different industries, including healthcare, education, business, and creative sectors.
2. To examine the benefits and advantages of implementing generative AI solutions in various industry contexts.
3. To analyze the challenges, limitations, and concerns associated with the deployment of generative AI technologies.
4. To assess the ethical implications and regulatory considerations related to the use of generative AI across different domains.
5. To explore future trends and research directions in the development and application of generative AI technologies.
6. To provide recommendations for the responsible and effective implementation of generative AI solutions across industries.

METHODS

In conducting this systematic review, we adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency and rigor in the review process. A comprehensive search of the literature spanning from 2010 to 2025 was conducted using the Google Scholar database.

Inclusion Criteria

- I. Studies focusing on generative artificial intelligence applications across various industries.
- II. Research examining the impact, benefits, challenges, or ethical implications of generative AI technologies.
- III. Studies involving specific generative AI models such as Large Language Models (LLMs), Generative Adversarial Networks (GANs), ChatGPT, DALL-E, or similar technologies.
- IV. Research articles, reviews, case studies, and conference proceedings published between 2010 and 2025.
- V. Publications in English language.



Exclusion Criteria

- I. Studies that do not specifically address generative AI technologies.
- II. Papers discussing general artificial intelligence without a specific focus on generative capabilities.
- III. Publications focusing solely on technical aspects of AI without exploring applications or impacts.
- IV. Articles published before 2010.
- V. Non-English publications.
- VI. Duplicate studies, editorials, opinion pieces, or unpublished materials without peer review.

Information Sources

A systematic search strategy was devised to retrieve relevant literature from Google Scholar, a reputable online academic database that indexes scholarly literature across various disciplines.

Search Strategy

The search strategy was tailored to identify studies focusing on the transformative impact of generative AI across various industries. We employed the following search query on Google Scholar:

"The Transformative Impact of Generative AI Across Industries: A Comprehensive Systematic Review"

Additional search terms included combinations of keywords such as "generative AI," "ChatGPT," "large language models," "GANs," "industry applications," "healthcare," "education," "business," "creative industries," "ethical implications," and "challenges."

Filters were applied to restrict the search results to studies published between 2010 and 2025.

Data Management

Search results from Google Scholar were exported and underwent manual screening. The citation data was organized using a spreadsheet to track the screening and selection process. Full-text articles that met the inclusion criteria were stored digitally for detailed review and analysis.

Study Selection

The study selection process followed a systematic approach:

1. Initial screening of titles and abstracts to identify potentially relevant studies based on the inclusion and exclusion criteria.
2. Full-text assessment of the potentially relevant studies to determine final eligibility.



3. Data extraction from the included studies, focusing on key information, such as study characteristics, generative AI applications, industry sectors, benefits, challenges, and ethical considerations.

For a visual representation of the study selection process, refer to Figure 1, which depicts a PRISMA flowchart illustrating the stages from initial identification to the final selection of documents for review.

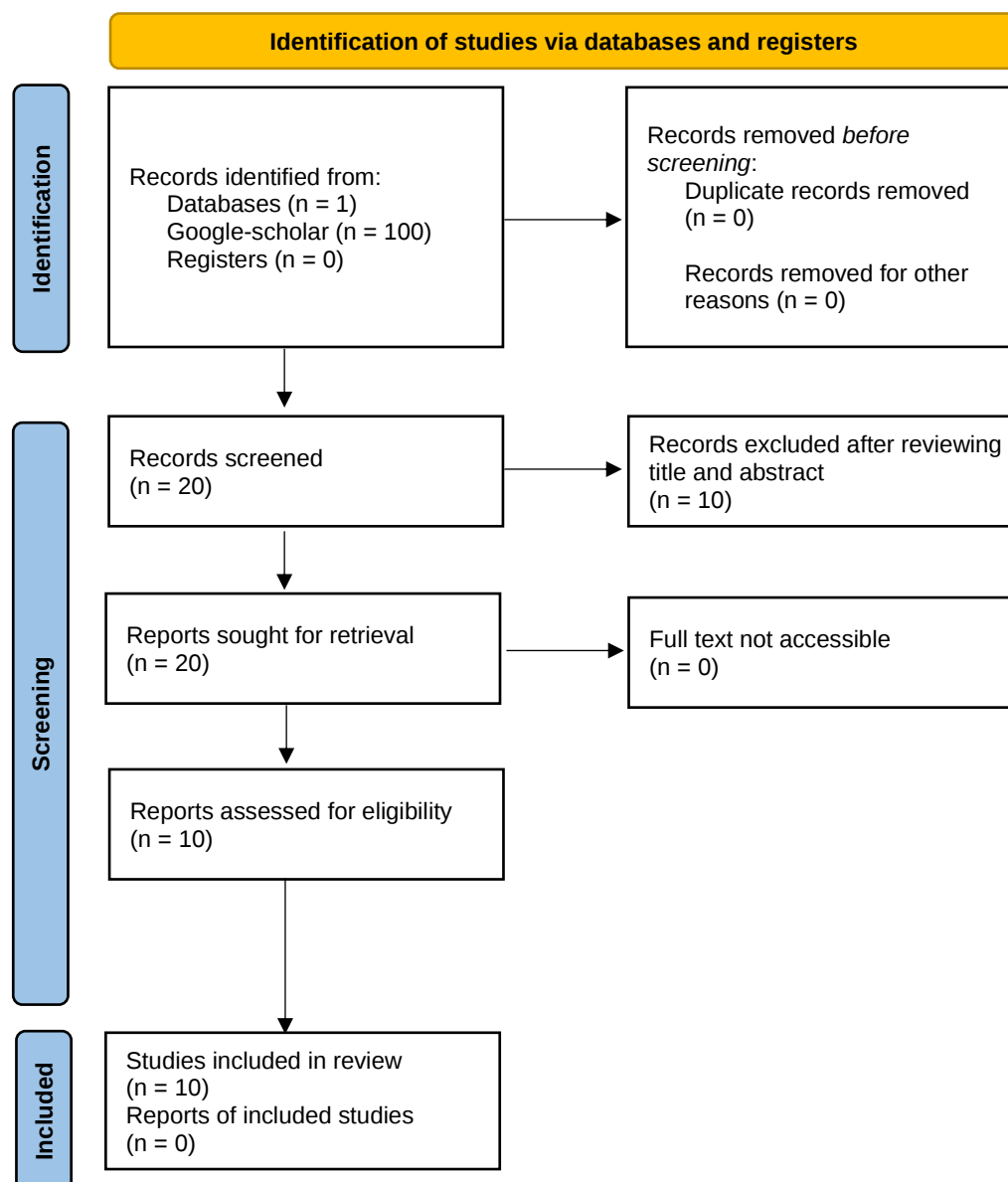


Figure 1: Flow diagram showing screened studies



RESULTS

In the systematic review, a total of 100 papers were initially identified from searches conducted on Google Scholar database. Twenty (20) papers were screened based on titles and abstracts. Following the screening process, 10 full-text articles were assessed for eligibility, of which the 10 papers were ultimately selected based on their relevance to the transformative impact of generative AI across industries. These selected papers investigated diverse applications, challenges, and ethical implications of generative AI technologies across various sectors.

Table 1: Summary of Included Studies

S/N	AUTHOR	TITLE	SUMMARY
1	(Elahi et al., 2023)	A comprehensive literature review of the applications of AI techniques through the lifecycle of industrial equipment	Elahi et al. (2023) provide a comprehensive review of AI applications throughout industrial equipment lifecycles. Through analyzing 42 articles from 2017 to 2023, they explore AI techniques such as CNNs, GANs, and SVMs in industrial contexts. The study reveals AI's significant role in enhancing decision-making, process control, and maintenance strategies across design, manufacturing, maintenance, and recycling phases. While highlighting benefits like improved productivity and cost-effectiveness, the authors also address challenges including integration with legacy systems and technical complexities.
2	(Rodrigo Manuel Abreu Esteves, 2024)	Applications, Challenges, and Ethical Implications of Generative AI: A Systematic Review	Esteves (2024) conducts a systematic review analyzing 69 publications from 2020-2024, focusing on key generative AI models like GANs, VAEs, and LLMs. The study reveals widespread applications across healthcare, social sciences, computer science, and business sectors. In healthcare, generative AI enhances medical diagnostics and drug discovery; in education, it supports personalized learning; and in business, it improves customer service and fraud detection. The review also addresses significant challenges including bias, privacy concerns, and transparency issues, emphasizing the need for ethical guidelines and responsible AI deployment.



3	(Rane, 2023)	ChatGPT and Similar Generative Artificial Intelligence (AI) for Smart Industry: Role, Challenges and Opportunities for Industry 4.0, Industry 5.0 and Society 5.0	Rane (2024) examines the transformative role of generative AI models like ChatGPT across Industry 4.0, Industry 5.0, and Society 5.0 frameworks. The research highlights how these AI systems improve communication and problem-solving capabilities across fields from customer service to healthcare and education. In Industry 4.0, these systems enable automation and streamlined data analysis; in Industry 5.0, they facilitate collaborative human-machine interactions; and in Society 5.0, they help address societal challenges like healthcare accessibility. The study emphasizes the need for ethical frameworks and regulatory policies while acknowledging the vast opportunities for innovation and inclusivity.
4	(Sedkaoui & Benaichouba, 2024)	Generative AI as a transformative force for innovation: a review of opportunities, applications and challenges	Sedkaoui and Benaichouba (2024) review literature on generative AI's impact across multiple sectors, analyzing scientific articles from 2022-2024. Their findings indicate that generative AI significantly augments human creativity and innovation processes as a collaborative partner. The study reveals that generative AI is transforming business models, processes, and value propositions across several industries, though with varying degrees of effect. The authors highlight the need for responsible development and ethical frameworks to address biases, privacy concerns, and other challenges, calling for continuous research to ensure responsible and ethical implementation.
5	(Sai et al., 2024)	Generative AI for Transformative Healthcare: A Comprehensive Study of Emerging Models, Applications, Case Studies, and Limitations	Siva Sai et al. (2024) provide a comprehensive study of generative AI applications in healthcare. The research explores how GAI models like ChatGPT and DALL-E can transform medical imaging, drug discovery, personalized treatment, medical simulation, clinical trials, and mental health support. The study examines real-world healthcare scenarios including visual snow syndrome diagnosis, drug optimization, medical education, and dentistry, and discusses customized healthcare LLMs like



			Med-PaLM and BioGPT. The authors highlight challenges including lack of professional expertise in decision-making, patient data privacy risks, integration issues with existing healthcare systems, and data bias problems.
6	(Khan et al., 2024)	Global insights and the impact of generative AI-ChatGPT on a multidisciplinary: a systematic review and bibliometric analysis	Khan et al. (2024) conduct a systematic review and bibliometric analysis of ChatGPT's impact across multiple disciplines. Their findings reveal widespread adoption of ChatGPT across fields, with significant implementations in healthcare (38.6%), computer science/IT (18.6%), and education/research (17.3%). The demographic analysis demonstrates ChatGPT's global reach, with participation from 80 countries in related research, led by the USA, China, and India. The study highlights leading institutions in ChatGPT research and emphasizes that generative AI is revolutionizing every field, providing valuable insights for academics, researchers, practitioners, and policymakers.



7	(Amankwah-Amoah et al., 2024)	The impending disruption of creative industries by generative AI: Opportunities, challenges, and research agenda	Amankwah-Amoah et al. (2024) examine generative AI's impact on creative industries including art, music, film, fashion, design, advertising, and IT. The authors argue that successful adoption of generative AI in creative industries requires balancing human ingenuity with technological innovation. Unlike other sectors where AI primarily automates repetitive tasks, creative professionals can use generative AI as a collaborative tool to spark creativity, streamline workflows, and accelerate creative processes. The study highlights challenges in maintaining human touch and authenticity while acknowledging generative AI's potential to fuel innovation and foster novel creative exploration.
8	(Samad & Jamal, 2024)	Transformative Applications of ChatGPT: A Comprehensive Review of Its Impact across Industries	Samad and Jamal (2024) provide a comprehensive review of ChatGPT's applications and impact across diverse domains. The study examines how ChatGPT enhances operations in fields including healthcare, education, business, legal services, and creative industries by offering personalized support, automating processes, and driving innovation. In healthcare, it supports patient care and research; in education, it aids personalized learning; in business, it revolutionizes customer service and workflows; in legal services, it assists with research and compliance; and in creative fields, it fosters content creation. The authors also address challenges such as bias, ethical concerns, and technical limitations.



9	(Alijoyo et al., 2024)	Transforming Business with Generative AI Models Applications Trends	Alijoyo et al. (2024) explore the impact of generative AI on business sectors, highlighting its ability to revolutionize industries by creating new content from existing data. Unlike traditional AI models focused on classification, generative AI excels at producing images, text, music, and videos, driving innovation and operational efficiency. The research includes a comprehensive data collection and analysis process, addressing data preprocessing challenges and employing feature extraction and engineering techniques. The proposed approach achieves 98% accuracy, demonstrating significant potential for enhancing innovation and operational efficiency in business contexts.
10	(Kar et al., 2023)	Unravelling the Impact of Generative Artificial Intelligence (GAI) in Industrial Applications: A Review of Scientific and Grey Literature	Kar et al. (2024) explore the usage of generative AI and large language models in industrial applications through a review of scientific and grey literature. The study highlights GAI's advantages including greater engagement, cooperation, and accessibility, noting that LLMs like ChatGPT can evaluate unstructured queries, assess alternatives, and offer actionable advice. The research reveals that generative AI is being used to produce fast reports, flexible responses, and insights that enhance organizational flexibility, improve decision-making, enhance customer experiences, and augment firm profitability. The authors provide directions for future use of GAI and research directions for management researchers.



FINDINGS

The systematic review of literature on the transformative impact of generative AI across industries has revealed several key findings organized into the following categories:

1. Applications Across Industries

Healthcare Applications: Generative AI is revolutionizing healthcare through multiple applications. Siva Sai et al. (2024) identifies key applications, including medical imaging analysis, drug discovery, personalized treatment plans, medical simulation and training, clinical trial optimization, and mental health support. These applications have demonstrated the potential to improve diagnostic accuracy, accelerate drug development processes, and enhance patient care experiences. Khan et al. (2024) note that healthcare represents the largest sector (38.6%) for ChatGPT implementations among the industries studied.

Educational Applications: Generative AI is transforming education through personalized learning experiences, automated assessment, and teaching resource development. Esteves (2024) highlights how generative AI supports personalized learning paths and improves educational accessibility. Samad and Jamal (2024) emphasize generative AI's role in aiding personalized learning and teaching, making education more adaptive to individual student needs.

Business and Industrial Applications: Across business sectors, generative AI is revolutionizing customer service, operational workflows, and decision-making processes. Alijoyo et al. (2024) demonstrate how generative AI drives innovation and operational efficiency by producing content that enhances business processes. Kar et al. (2024) highlight generative AI's ability to evaluate unstructured queries, assess alternatives, and offer actionable advice, improving organizational flexibility and decision-making. Elahi et al. (2023) specifically note applications throughout industrial equipment lifecycles, from design and manufacturing to maintenance and recycling.

Creative Industries: Amankwah-Amoah et al. (2024) examine generative AI's impact on creative industries including art, music, film, fashion, design, advertising, and IT. The authors note that unlike other sectors where AI primarily automates repetitive tasks, creative professionals can use generative AI as a collaborative tool to spark creativity, streamline workflows, and accelerate creative processes.

2. Benefits and Advantages

Enhanced Efficiency and Productivity: Across industries, generative AI significantly improves operational efficiency and productivity. Elahi et al. (2023) highlight enhanced decision-making capabilities and process optimization in industrial contexts. Alijoyo et al. (2024) report a 98% accuracy rate for their proposed generative AI approach, demonstrating substantial efficiency improvements.

Personalization and Customization: Generative AI enables unprecedented levels of personalization across various applications. Siva Sai et al. (2024) emphasize personalized treatment plans in healthcare, while Samad and Jamal (2024) highlight customized learning experiences in education. This personalization capability enhances user experiences and outcomes across sectors.



Innovation and Creativity Enhancement: Sedkaoui and Benaichouba (2024) emphasize generative AI's role as a collaborative partner in augmenting human creativity and innovation processes. Amankwah-Amoah et al. (2024) note that generative AI serves as a wellspring of inspiration for creative professionals, offering fresh perspectives and acting as a catalyst for imaginative endeavors.

Cost Reduction and Resource Optimization: Generative AI contributes to cost reductions and resource optimization across industries. Elahi et al. (2023) highlight cost-effectiveness as a key benefit in industrial equipment contexts, while Kar et al. (2024) note improved organizational flexibility and decision-making that ultimately enhance firm profitability.

3. Challenges and Limitations

Bias and Fairness Issues: A consistent concern across studies is the presence of bias in generative AI systems. Esteves (2024) identifies bias and fairness as significant challenges that must be addressed for responsible AI deployment. Siva Sai et al. (2024) specifically highlights data bias problems in healthcare applications.

Data Privacy and Security Concerns: The handling of sensitive data raises important privacy and security concerns. Esteves (2024) emphasizes data privacy as a critical challenge, while Siva Sai et al. (2024) specifically notes the risks to patient data privacy in healthcare contexts.

Integration with Existing Systems: Elahi et al. (2023) identify integration with legacy systems as a significant challenge due to technical complexities and compatibility issues. Siva Sai et al. (2024) also highlights integration issues with existing healthcare systems as a barrier to adoption.

Technical Limitations: Despite impressive capabilities, generative AI systems still face technical limitations. Samad and Jamal (2024) address technical constraints that affect performance and reliability, while Sedkaoui and Benaichouba (2024) call for continued research to enhance model capabilities.

Employment and Workforce Implications: Rane (2024) and Amankwah-Amoah et al. (2024) discuss the potential effects on employment patterns as generative AI technologies become more widespread, highlighting the need for workforce adaptation and skill development.

4. Ethical and Regulatory Considerations

Need for Ethical Frameworks: Multiple studies emphasize the importance of developing robust ethical frameworks for generative AI deployment. Esteves (2024) calls for ethical guidelines to govern generative AI applications, while Rane (2024) stresses the necessity of ethical frameworks and regulatory policies.

Transparency and Interpretability: Esteves (2024) highlights the need for transparency and interpretability in AI systems to build trust and ensure responsible use. This includes making AI decision-making processes more understandable to users and stakeholders.



Responsibility and Accountability: Sedkaoui and Benaichouba (2024) emphasize responsible development and implementation of generative AI technologies, highlighting the need for clear lines of accountability in AI systems.

Regulatory Approaches: Rane (2024) discusses the importance of regulatory policies to govern generative AI applications, while Esteves (2024) suggests that regulatory frameworks are essential for balancing innovation with ethical considerations.

5. Future Trends and Directions

Continued Technical Advancements: Studies indicate ongoing technical improvements in generative AI capabilities. Sedkaoui and Benaichouba (2024) call for continuous research to enhance model performance, while Khan et al. (2024) highlights the rapid evolution of these technologies.

Cross-Industry Applications: There is a trend toward cross-pollination of generative AI applications across industries. Kar et al. (2024) and Khan et al. (2024) both emphasize the multidisciplinary nature of generative AI applications, suggesting continued expansion across sectors.

Human-AI Collaboration: Amankwah-Amoah et al. (2024) emphasize the future of generative AI as collaborative tools that enhance human capabilities rather than replace them. This collaborative approach is particularly evident in creative industries.

Integration with Other Technologies: Rane (2024) discusses the integration of generative AI within broader technological frameworks, such as Industry 4.0, Industry 5.0, and Society 5.0, suggesting continued convergence with other emerging technologies.

Global Adoption Patterns: Khan et al. (2024) highlight the global reach of generative AI research and applications, with participation from 80 countries, suggesting continued international expansion and adoption of these technologies.

CONCLUSION

This systematic review has examined the transformative impact of generative AI across various industries, revealing a technology that is fundamentally reshaping processes, capabilities, and paradigms across sectors. The findings demonstrate that generative AI technologies, including Large Language Models like ChatGPT, Generative Adversarial Networks, and other architectures, are driving significant changes in healthcare, education, business, creative industries, and beyond.

In healthcare, generative AI is enhancing medical diagnostics, accelerating drug discovery, and enabling personalized treatment approaches that promise to improve patient outcomes. Educational applications demonstrate how these technologies can create adaptive learning experiences tailored to individual needs, potentially democratizing access to quality education. Across business and industrial sectors, generative AI is optimizing operations, enhancing customer experiences, and enabling more informed decision-making processes.



Perhaps most intriguingly, in creative industries, generative AI is not merely automating tasks but serving as a collaborative partner that extends human creative capabilities, offering new avenues for artistic and content expression. This collaborative potential represents a paradigm shift in how we conceptualize human-AI interaction, moving beyond mere automation toward genuine creative partnership.

However, the review also highlights significant challenges that must be addressed for responsible implementation. Bias and fairness issues persist across applications, raising concerns about equitable impact. Data privacy and security remain critical considerations, particularly in sensitive domains like healthcare. Technical limitations and integration challenges continue to present barriers to adoption, while employment implications raise important questions about workforce adaptation.

These challenges underscore the need for robust ethical frameworks and regulatory approaches that can balance innovation with responsible deployment. The development of transparent, interpretable AI systems with clear lines of accountability will be essential for building trust and ensuring positive societal impact.

Looking forward, the trajectory of generative AI appears to be one of continued technical advancement, expanding cross-industry applications, and increasing global adoption. The most promising direction may be the evolution of human-AI collaborative models that enhance human capabilities rather than replace them, creating systems that combine the strengths of both human creativity and machine processing power.

This systematic review contributes to the ongoing dialogue on generative AI by synthesizing current knowledge across industries and identifying common trends, challenges, and opportunities. The findings provide valuable insights for researchers seeking to advance the field, practitioners implementing these technologies, and policymakers developing governance frameworks. As generative AI continues to evolve and permeate more aspects of society, ongoing research, thoughtful implementation, and inclusive dialogue will be essential to harness its transformative potential for the benefit of humanity.

REFERENCES

- Alijoyo, F. A., Reddy, L. C. S., Selvi, V., Murugan, R., Kakad, S., & Balakumar, A. (2024). Transforming Business with Generative AI Models Applications Trends. 2024 *International Conference on Artificial Intelligence and Quantum Computation-Based Sensor Application (ICAIQSA)*, 1–5. <https://doi.org/10.1109/ICAIQSA64000.2024.10882293>
- Alnahhas, N., & Yousef, D. (2024). GAI as a Catalyst in National Technology Sovereignty: Evaluating the Influence of GAI on Government Policy. *Proceedings of the 25th Annual International Conference on Digital Government Research*, 618–626. <https://doi.org/10.1145/3657054.3657126>
- Amankwah-Amoah, J., Abdalla, S., Mogaji, E., Elbanna, A., & Dwivedi, Y. K. (2024). The impending disruption of creative industries by generative AI: Opportunities, challenges, and research agenda. *International Journal of Information Management*, 79, 102759. <https://doi.org/10.1016/j.ijinfomgt.2024.102759>
- Banh, L., & Strobel, G. (2023). Generative artificial intelligence. *Electronic Markets*, 33(1),



63. <https://doi.org/10.1007/s12525-023-00680-1>
- Elahi, M., Afolaranmi, S. O., Martinez Lastra, J. L., & Perez Garcia, J. A. (2023). A comprehensive literature review of the applications of AI techniques through the lifecycle of industrial equipment. *Discover Artificial Intelligence*, 3(1), 43. <https://doi.org/10.1007/s44163-023-00089-x>
- Kar, A. K., Varsha, P. S., & Rajan, S. (2023). Unravelling the Impact of Generative Artificial Intelligence (GAI) in Industrial Applications: A Review of Scientific and Grey Literature. *Global Journal of Flexible Systems Management*, 24(4), 659–689. <https://doi.org/10.1007/s40171-023-00356-x>
- Khan, N., Khan, Z., Koubaa, A., Khan, M. K., & Salleh, R. bin. (2024). Global insights and the impact of generative AI-ChatGPT on multidisciplinary: a systematic review and bibliometric analysis. *Connection Science*, 36(1). <https://doi.org/10.1080/09540091.2024.2353630>
- Ooi, K.-B., Koohang, A., Aw, E. C.-X., Cham, T.-H., Cobanoglu, C., Dennis, C., Dwivedi, Y. K., Hew, J.-J., Linton Kelly, H., Hughes, L., Lin, C.-Y., Mishra, A., Phau, I., Raman, R., Sigala, M., Tang, Y.-C., Wong, L.-W., & Tan, G. W.-H. (2025). Unveiling the potential of generative artificial intelligence: a multidimensional journey into the future. *Industrial Management & Data Systems*, 125(2), 417–432. <https://doi.org/10.1108/IMDS-10-2023-0703>
- Pescapè, A. (2024). Exploring the Current State and Future Potential of Generative Artificial Intelligence Using a Generative Artificial Intelligence. In C. Flavia, Santoianni; Gianluca, Giannini; Alessandro (Ed.), *Mind, Body, and Digital Brains* (pp. 37–56). Springer, Cham. https://doi.org/10.1007/978-3-031-58363-6_4
- Rane, N. (2023). ChatGPT and Similar Generative Artificial Intelligence (AI) for Smart Industry: Role, Challenges and Opportunities for Industry 4.0, Industry 5.0 and Society 5.0. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4603234>
- Rodrigo Manuel Abreu Esteves. (2024). *Applications, Challenges, and Ethical Implications of Generative AI: A Systematic Review* [Universidade NOVA de Lisboa]. <https://www.proquest.com/openview/4ca7d99bc6a6676a1c768121a4393c07/1?pq-origsite=gscholar&cbl=2026366&diss=y>
- Sai, S., Gaur, A., Sai, R., Chamola, V., Guizani, M., & Rodrigues, J. J. P. C. (2024). Generative AI for Transformative Healthcare: A Comprehensive Study of Emerging Models, Applications, Case Studies, and Limitations. *IEEE Access*, 12, 31078–31106. <https://doi.org/10.1109/ACCESS.2024.3367715>
- Samad, A., & Jamal, A. (2024). Transformative Applications of ChatGPT: A Comprehensive Review of Its Impact across Industries. *Global Journal of Multidisciplinary Sciences and Arts*, 1(1), 26–48.
- Sedkaoui, S., & Benaichouba, R. (2024). Generative AI as a transformative force for innovation: a review of opportunities, applications and challenges. *European Journal of Innovation Management*. <https://doi.org/10.1108/EJIM-02-2024-0129>
- Uddagiri, C., & Isunuri, B. V. (2024). Ethical and Privacy Challenges of Generative AI. In R. Khalid, A. Naeem, & S. Deepak (Eds.), *Generative AI: Current Trends and Applications* (pp. 219–244). Springer, Singapore. https://doi.org/10.1007/978-981-97-8460-8_11
- Yafei, X., Wu, Y., Song, J., Gong, Y., & Lianga, P. (2024). Generative AI in Industrial Revolution: A Comprehensive Research on Transformations, Challenges, and Future Directions. *Journal of Knowledge Learning and Science Technology* ISSN: 2959-6386 (Online), 3(2), 11–20. <https://doi.org/10.60087/jklst.vol.3n2.p20>
- Zlateva, P., Steshina, L., Petukhov, I., & Veleev, D. (2024). A Conceptual Framework for Solving Ethical Issues in Generative Artificial Intelligence. In *Frontiers in Artificial Intelligence and Applications* (pp. 110–119). <https://doi.org/10.3233/FAIA231182>