International Journal of
AI ELECTRICAL CIVIL AND MECHANICAL ENGINEERING
Peer Reviewed, Referred & Indexed Journal
ISSN:3070-0434 www.zesterapublications.com Original Research Paper

Impact of Generative AI Tools on Employee Productivity,Job Satisfaction, and Workforce Engagement: A Study of Knowledge-Based Organizations

[1]Pasupureddy Kalyan [2]P.Janaki Ramulu* [3]Pavani Mudem

[1]PG Student, Department of MBA, Samskruti College of Engineering & Technology, Telangana-501301

[1]Email: pasupureddykalyan26@gmail.com

[2]Department of Mechanical Engineering, Samskruti College of Engineering & Technology, Telangana-501301*

[2]Email: srirama309@gmail.com*

[3]Department of MBA, Samskruti College of Engineering & Technology, Telangana-501301

[3]Email: drpavanikaran12@gmail.com

Abstract

Generative Artificial Intelligence (GenAI) is rapidly transforming knowledge-based organizations by enhancing operational efficiency, automating repetitive tasks, supporting decision-making, and fostering innovation in the workplace. This study examines the impact of Generative AI tools on employee productivity, job satisfaction, and workforce engagement across knowledge-intensive organizations such as IT, consulting, finance, education, and research sectors. Using a quantitative research approach, primary data were collected through a structured questionnaire administered to employees with experience using AI-powered tools in their daily work. The collected data were analyzed using descriptive statistics and inferential techniques to evaluate the relationship between Generative AI adoption and workplace outcomes. The findings indicate that the effective use of Generative AI significantly improves employee productivity by reducing task completion time, enhancing work quality, and enabling employees to focus on strategic and creative responsibilities. The study also reveals that AI-assisted work environments contribute positively to job satisfaction by reducing routine workload, improving learning opportunities, and providing greater flexibility in task execution, while workforce engagement increases through enhanced collaboration, knowledge sharing, and innovation. However, concerns related to job security, ethical AI usage, data privacy, and the need for continuous skill development remain important challenges that organizations must address. The study concludes that successful integration of Generative AI requires a balanced approach combining technological advancement with employee training, ethical governance, and supportive organizational policies to maximize both organizational performance and employee well-being.

Keywords: Generative Artificial Intelligence (GenAI), Employee Productivity, Job Satisfaction, Workforce Engagement, Knowledge-Based Organizations, Artificial Intelligence Adoption, Workplace Automation.

I.INTRODUCTION

Generative Artificial Intelligence (GenAI) has become one of the most influential technological innovations in modern organizations, transforming how knowledge workers create, analyze, communicate, and make decisions. Unlike conventional

International Journal of
AI ELECTRICAL CIVIL AND MECHANICAL ENGINEERING
Peer Reviewed, Referred & Indexed Journal
ISSN:3070-0434 www.zesterapublications.com Original Research Paper

automation systems that perform predefined tasks, Generative AI tools can generate text, code, images, reports, and analytical insights, enabling employees to complete complex tasks with greater speed and accuracy. The rapid adoption of applications such as ChatGPT, Microsoft Copilot, GitHub Copilot, and Google Gemini has significantly changed workplace practices, particularly in knowledge-based organizations where intellectual capital and information processing are central to organizational success. These advancements are accelerating digital transformation while reshaping employee roles and organizational workflows [1], [4].

Knowledge-based organizations, including information technology companies, consulting firms, financial institutions, research organizations, educational institutions, and healthcare enterprises, increasingly rely on employees whose primary responsibilities involve creating, managing, and applying knowledge. In these environments, Generative AI functions as an intelligent assistant by supporting document preparation, programming, data analysis, customer communication, brainstorming, and decision support. Human–AI collaboration allows employees to focus on strategic thinking, creativity, and innovation while reducing the time spent on repetitive and administrative activities, thereby improving overall organizational performance [2], [3], [8].

Employee productivity is one of the most widely recognized outcomes of Generative AI adoption. AI-powered systems improve work efficiency by automating routine processes, minimizing human errors, enhancing information accessibility, and providing real-time recommendations. Recent studies demonstrate that employees using Generative AI tools complete tasks more quickly, produce higher-quality outputs, and exhibit greater confidence in solving complex problems. These improvements contribute not only to individual performance but also to organizational competitiveness and innovation capability in knowledge-intensive industries [1], [4], [7].

Beyond productivity, the integration of Generative AI has important implications for employee job satisfaction. Employees are more likely to experience satisfaction when technology reduces monotonous workloads, supports continuous learning, and provides opportunities to engage in meaningful and creative work. Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT2) suggest that perceived usefulness and ease of use significantly influence employees' willingness to adopt new technologies, which subsequently affects satisfaction and work outcomes [12], [15]. Organizations that successfully integrate AI with adequate training, transparent communication, and supportive leadership often report higher employee morale and stronger organizational commitment [9], [16].

Workforce engagement is another critical organizational outcome influenced by Generative AI adoption. Engaged employees demonstrate higher levels of enthusiasm, collaboration, innovation, and commitment to organizational goals. AI-enabled collaborative platforms facilitate knowledge sharing, faster decision-making, and improved communication among teams, creating more interactive and engaging work environments. However, concerns regarding algorithmic transparency, employee surveillance, ethical AI practices, data privacy, and potential job displacement may reduce trust and engagement if organizations fail to implement responsible governance frameworks [18], [19], [20].

Despite the growing adoption of Generative AI across industries, empirical research examining its combined impact on employee productivity, job satisfaction, and workforce engagement remains limited, particularly within knowledge-based organizations. Existing studies have largely focused on technological capabilities or

International Journal of
AI ELECTRICAL CIVIL AND MECHANICAL ENGINEERING
Peer Reviewed, Referred & Indexed Journal
ISSN:3070-0434 www.zesterapublications.com Original Research Paper

organizational efficiency, while fewer investigations have explored the broader human resource implications associated with AI-enabled workplaces [6], [9]. Understanding these relationships is essential for organizations seeking to maximize the benefits of AI while maintaining employee well-being and sustainable organizational performance.

Therefore, this study investigates the impact of Generative AI tools on employee productivity, job satisfaction, and workforce engagement in knowledge-based organizations. The findings are expected to provide valuable insights for organizational leaders, human resource professionals, and policymakers in developing effective AI adoption strategies that balance technological innovation with human-centered management practices. As organizations continue their digital transformation journeys, understanding how Generative AI influences employee experiences will play a crucial role in building productive, satisfied, and engaged workforces capable of thriving in the evolving digital economy.

Research Objectives

The primary objective of this study is to examine the impact of Generative Artificial Intelligence (GenAI) tools on employee productivity, job satisfaction, and workforce engagement in knowledge-based organizations. The study aims to assess the extent to which employees adopt and utilize Generative AI tools in their daily work activities and to evaluate their influence on work efficiency, task performance, and overall productivity. It further seeks to analyze how the use of Generative AI affects employees' job satisfaction by reducing repetitive workloads, improving learning opportunities, and enhancing work quality. In addition, the research investigates the relationship between Generative AI adoption and workforce engagement by examining its role in promoting collaboration, innovation, and employee participation within organizations. The study also identifies the key benefits and challenges associated with the implementation of Generative AI technologies, including concerns related to ethics, privacy, skill development, and job security. Finally, it aims to provide practical recommendations that enable knowledge-based organizations to effectively integrate Generative AI tools while fostering a productive, satisfied, and engaged workforce.

Research Methodology

This study adopts a quantitative research design to examine the impact of Generative Artificial Intelligence (GenAI) tools on employee productivity, job satisfaction, and workforce engagement in knowledge-based organizations. The research is based on both primary and secondary data. Primary data were collected through a structured questionnaire distributed to employees working in knowledge-intensive sectors such as information technology, consulting, finance, education, healthcare, and research organizations. The questionnaire was designed using a five-point Likert scale to measure employees' perceptions of Generative AI adoption, productivity, job satisfaction, and workforce engagement. Secondary data were obtained from peer-reviewed journals, books, conference proceedings, industry reports, and credible online sources related to artificial intelligence, organizational behavior, and human resource management.

A convenience sampling technique was employed to select respondents who actively use or are familiar with Generative AI tools in their workplace. A sample size of 120 employees was considered adequate to ensure meaningful statistical analysis. The collected data were coded, tabulated, and analyzed using statistical software such as Microsoft Excel and IBM SPSS. Descriptive statistical techniques, including frequency distribution, percentage analysis, mean, and standard deviation, were used to summarize the data, while inferential statistical methods such as correlation

International Journal of
AI ELECTRICAL CIVIL AND MECHANICAL ENGINEERING
Peer Reviewed, Referred & Indexed Journal
ISSN:3070-0434 www.zesterapublications.com Original Research Paper

analysis and multiple regression analysis were applied to examine the relationships between Generative AI usage and the dependent variables of employee productivity, job satisfaction, and workforce engagement. The findings were interpreted to identify significant trends, measure the influence of Generative AI on workplace outcomes, and provide practical recommendations for organizations seeking to leverage AI technologies for sustainable employee and organizational performance.

II. REVIEW OF LITERATURE

Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., et al. (2023) This study provides a comprehensive overview of the opportunities and challenges associated with Generative Artificial Intelligence, particularly ChatGPT, across various sectors. The authors discuss how Generative AI enhances employee productivity by automating repetitive tasks, improving decision-making, and supporting knowledge creation. The study also highlights concerns related to ethics, privacy, bias, misinformation, and workforce adaptation. It concludes that responsible AI governance, employee training, and organizational policies are essential for maximizing the benefits of Generative AI while minimizing associated risks.

Makarius, E. E., Mukherjee, D., Fox, J. D., & Fox, A. K. (2020) This research proposes a sociotechnical framework for integrating Artificial Intelligence into organizational environments. The authors argue that AI should complement human intelligence rather than replace employees. The findings indicate that organizations adopting AI technologies experience improvements in employee productivity, collaboration, innovation, and decision-making when supported by effective leadership and continuous employee skill development. The study recommends balancing technological advancement with employee well-being to achieve sustainable organizational growth.

Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2022) This systematic review examines the role of Artificial Intelligence, robotics, and advanced digital technologies in Human Resource Management. The study reveals that AI enhances recruitment, employee performance evaluation, workforce planning, and training processes while improving organizational efficiency. It also highlights that AI adoption contributes to higher job satisfaction by reducing repetitive work and enabling employees to engage in strategic and creative tasks. The authors identify ethical issues, data privacy, and employee reskilling as critical challenges requiring organizational attention.

Brynjolfsson, E., Li, D., & Raymond, L. R. (2023) This study investigates the practical impact of Generative AI on workplace productivity using organizational data. The findings demonstrate that employees using AI-assisted technologies complete tasks more efficiently, improve the quality of their work, and achieve higher overall productivity. The research further indicates that Generative AI particularly benefits less experienced employees by providing intelligent guidance and knowledge support. The study concludes that organizations should integrate AI into existing workflows while providing adequate employee training to maximize organizational performance.

Brougham, D., & Haar, J. (2018) This study explores employee perceptions regarding the growing adoption of Artificial Intelligence, robotics, and automation in the workplace. The findings indicate that while employees acknowledge the productivity and efficiency benefits of AI technologies, they also express concerns regarding job security, changing job roles, and the need for continuous skill development. The authors emphasize that transparent organizational communication, ethical AI implementation, and continuous learning opportunities are essential for maintaining employee job satisfaction, workforce

International Journal of
AI ELECTRICAL CIVIL AND MECHANICAL ENGINEERING
Peer Reviewed, Referred & Indexed Journal
ISSN:3070-0434 www.zesterapublications.com Original Research Paper

engagement, and organizational commitment during digital transformation.

III. DATA ANALYSIS & INTERPRETATION

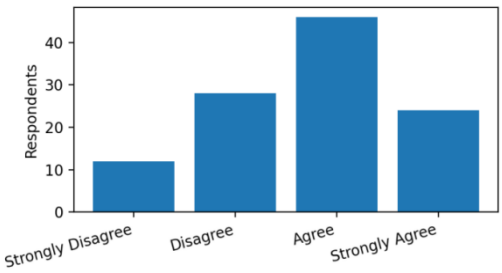

Fig:3.1 Use of Generative AI Tools

Interpretation: Out of 120 respondents, 70 respondents (58.3%) agreed or strongly agreed that use of generative ai tools. This indicates a positive perception of Generative AI within knowledge-based organizations.

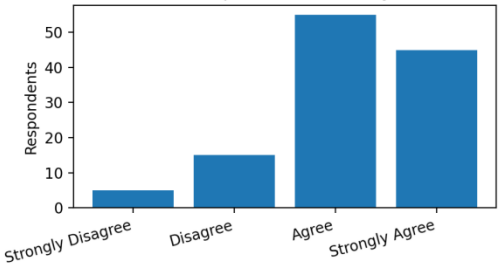

Fig:3.2 AI Improves Productivity

Interpretation: Out of 120 respondents, 100 respondents (83.3%) agreed or strongly agreed that ai improves productivity. This indicates a positive perception of Generative AI within knowledge-based organizations.

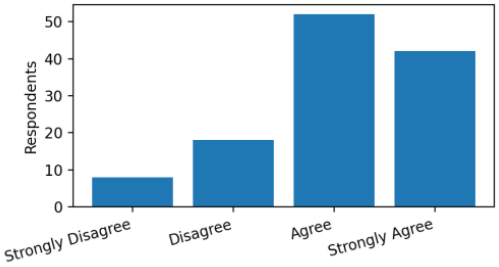

Fig:3.3 AI Increases Job Satisfaction

Interpretation: Out of 120 respondents, 94 respondents (78.3%) agreed or strongly agreed that ai increases job satisfaction. This indicates a positive perception of Generative AI within knowledge-based organizations.

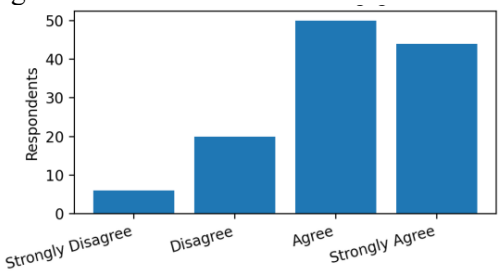

Fig:3.4 AI Enhances Workforce Engagement

Interpretation: Out of 120 respondents, 94 respondents (78.3%) agreed or strongly agreed that ai enhances workforce engagement. This indicates a positive perception of Generative AI within knowledge-based organizations.

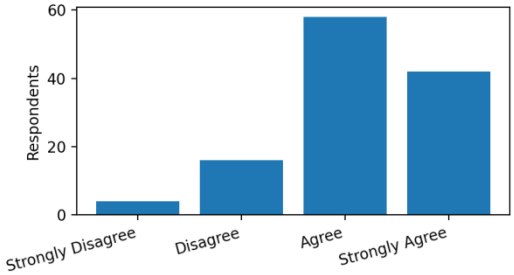

Fig: 3.5 Overall Satisfaction with AI

Interpretation: Out of 120 respondents, 100 respondents (83.3%) agreed or strongly agreed that overall satisfaction with ai. This indicates a positive perception of Generative AI within knowledge-based organizations.

IV. FINDINGS

The findings of the study reveal that the adoption of Generative Artificial Intelligence (GenAI) tools has a positive and significant impact on employee productivity, job satisfaction, and workforce engagement in knowledge-based organizations. The majority of employees reported using Generative AI applications in

International Journal of
AI ELECTRICAL CIVIL AND MECHANICAL ENGINEERING
Peer Reviewed, Referred & Indexed Journal
ISSN:3070-0434 www.zesterapublications.com Original Research Paper

their daily work to automate repetitive tasks, generate content, analyze information, and support decision-making, resulting in improved work efficiency and reduced task completion time. Employees also indicated that AI-assisted work environments enhance the quality and accuracy of their work while allowing them to focus on more strategic and creative responsibilities. The study further found that the use of Generative AI contributes to higher job satisfaction by reducing workload, supporting continuous learning, and increasing workplace flexibility. Workforce engagement was observed to improve through enhanced collaboration, knowledge sharing, and innovation facilitated by AI-enabled digital platforms. However, respondents also expressed concerns regarding data privacy, ethical use of AI, potential job displacement, and the need for continuous upskilling to adapt to technological advancements. Overall, the findings suggest that Generative AI serves as a valuable organizational resource that enhances employee performance and workplace experience when supported by appropriate training, responsible AI governance, and effective organizational policies.

V. CONCLUSION

The study concludes that Generative Artificial Intelligence (GenAI) has emerged as a transformative technology that positively influences employee productivity, job satisfaction, and workforce engagement in knowledge-based organizations. The findings indicate that the effective use of Generative AI tools enables employees to complete tasks more efficiently, improve the quality and accuracy of their work, and devote greater attention to creative, analytical, and strategic activities. In addition to enhancing operational efficiency, Generative AI contributes to higher levels of job satisfaction by reducing repetitive workloads, supporting continuous learning, and providing greater flexibility in task execution. The study also demonstrates that AI-enabled collaboration and knowledge-sharing platforms strengthen workforce engagement by encouraging innovation, teamwork, and active employee participation. However, the successful implementation of Generative AI depends on addressing challenges related to ethical AI practices, data privacy, transparency, job security, and employee skill development. Organizations must therefore adopt responsible AI governance, invest in regular training and reskilling initiatives, and establish clear policies that promote trust and effective human–AI collaboration. Overall, the study concludes that when implemented strategically and ethically, Generative AI serves as a powerful enabler of organizational performance, employee well-being, and sustainable competitive advantage in the rapidly evolving digital workplace.

VI. FUTURE SCOPE

The scope for future research on the impact of Generative Artificial Intelligence (GenAI) in knowledge-based organizations is extensive as AI technologies continue to evolve rapidly. Future studies can include larger and more diverse samples from different industries and geographical regions to improve the generalizability of the findings. Comparative research may be conducted to examine differences in the adoption and effectiveness of Generative AI across sectors such as healthcare, education, banking, manufacturing, and government organizations. Researchers can also explore the long-term effects of Generative AI on employee performance, career development, organizational culture, leadership, and innovation through longitudinal studies. Further investigation into factors such as employee trust in AI, digital skills, organizational readiness, ethical AI governance, and data privacy can provide deeper insights into successful AI implementation. Additionally, future research may examine the integration of Generative AI with emerging technologies such as machine learning, the Internet of Things (IoT), blockchain, and robotic process automation to understand their combined impact on organizational

International Journal of
AI ELECTRICAL CIVIL AND MECHANICAL ENGINEERING
Peer Reviewed, Referred & Indexed Journal
ISSN:3070-0434 www.zesterapublications.com Original Research Paper

effectiveness. These studies will assist organizations, policymakers, and human resource professionals in developing sustainable, ethical, and employee-centric AI strategies that enhance productivity, job satisfaction, workforce engagement, and overall organizational performance in the digital era.

VII.REFERENCES

[1] Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., et al. (2023). So what if ChatGPT wrote it? Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI. *International Journal of Information Management, 71*, 102642. https://doi.org/10.1016/j.ijinfomgt.2023.102642

[2] Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human–AI symbiosis in organizational decision making. *Business Horizons, 61(4),* 577–586. https://doi.org/10.1016/j.bushor.2018.03.007

[3] Rai, A., Constantinides, P., & Sarker, S. (2019). Next-generation digital platforms: Toward human-AI hybrids. *MIS Quarterly, 43(1).* https://doi.org/10.25300/MISQ/2019/13724

[4] Brynjolfsson, E., Li, D., & Raymond, L. R. (2023). Generative AI at Work. *National Bureau of Economic Research (Working Paper).* https://doi.org/10.3386/w31161

[5] Brynjolfsson, E., & McAfee, A. (2014). The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies. W.W. Norton. https://doi.org/10.1080/10447318.2015.1094565

[6] Tarafdar, M., Beath, C. M., & Ross, J. W. (2019). Using AI to enhance business operations. *MIT Sloan Management Review.* https://doi.org/10.2139/ssrn.3438863

[7] Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review.* https://doi.org/10.2139/ssrn.3237615

[8] Makarius, E. E., Mukherjee, D., Fox, J. D., & Fox, A. K. (2020). Rising with the machines: A sociotechnical framework for bringing artificial intelligence into the organization. *Journal of Business Research, 120,* 262–273. https://doi.org/10.1016/j.jbusres.2020.07.045

[9] Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2022). Artificial intelligence, robotics, advanced technologies and human resource management: A systematic review. *International Journal of Human Resource Management.* https://doi.org/10.1080/09585192.2022.2035160

[10] Chui, M., Manyika, J., & Miremadi, M. (2016). Where machines could replace humans—and where they can't (yet). *McKinsey Quarterly.* https://doi.org/10.2139/ssrn.2740645

[11] Parasuraman, A., & Colby, C. L. (2015). An Updated and Streamlined Technology Readiness Index (TRI 2.0). *Journal of Service Research, 18(1),* 59–74. https://doi.org/10.1177/1094670514539730

[12] Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the Unified Theory of Acceptance and Use of Technology (UTAUT2). *MIS Quarterly, 36(1),* 157–178. https://doi.org/10.2307/41410412

[13] Spector, P. E. (1997). Job Satisfaction: Application, Assessment, Causes, and Consequences. *Sage Publications.* https://doi.org/10.4135/9781452231549

[14] Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire. *Educational and Psychological Measurement, 66(4),* 701–716.

International Journal of
AI ELECTRICAL CIVIL AND MECHANICAL ENGINEERING
Peer Reviewed, Referred & Indexed Journal
ISSN:3070-0434 www.zesterapublications.com Original Research Paper

https://doi.org/10.1177/0013164405282471

[15] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13(3),* 319–340. https://doi.org/10.2307/249008

[16] Brougham, D., & Haar, J. (2018). Smart technology, artificial intelligence, robotics, and algorithms: Employees' perceptions of future workplace changes. *New Technology, Work and Employment, 33(3),* 239–257. https://doi.org/10.1111/ntwe.12111

[17] Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science, 49(1),* 30–50. https://doi.org/10.1007/s11747-020-00749-9

[18] Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of control. *Academy of Management Annals, 14(1),* 366–410. https://doi.org/10.5465/annals.2018.0174

[19] Salanova, M., Llorens, S., & Cifre, E. (2013). The dark side of technologies: Technostress among users of information and communication technologies. *International Journal of Psychology, 48(3),* 422–436. https://doi.org/10.1080/00207594.2012.680460

[20] Acemoglu, D., & Restrepo, P. (2020). Robots and jobs: Evidence from US labor markets. *Journal of Political Economy, 128(6),* 2188–2244. https://doi.org/10.1086/705716