



Human-Centred AI for Sustainable Management

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Abstract

Artificial Intelligence (AI) has transformed organizational decision-making by improving efficiency, productivity, and strategic planning. However, the rapid deployment of AI systems has also raised concerns regarding transparency, fairness, accountability, privacy, and ethical governance. Human-Centred Artificial Intelligence (HCAI) has emerged as an important paradigm that integrates technological innovation with human values, organizational ethics, and stakeholder well-being. Rather than replacing human intelligence, HCAI emphasizes collaboration between humans and intelligent systems, ensuring that AI supports informed decision-making while maintaining trust, inclusiveness, and sustainability. Sustainable management requires organizations to balance economic performance with environmental responsibility and social welfare. Therefore, integrating human-centred AI into sustainable management practices has become a strategic necessity for organizations operating in an increasingly digital and competitive environment.

This paper explores the role of Human-Centred AI in promoting sustainable management by reviewing existing literature and proposing a conceptual framework linking HCAI with organizational sustainability. The study identifies key determinants including AI transparency, explainability, ethical governance, human oversight, employee trust, and stakeholder engagement that collectively influence sustainable organizational outcomes. A quantitative research methodology using structured questionnaires and Structural Equation Modelling (SEM) is proposed to validate the conceptual model. The findings are expected to contribute to management literature by demonstrating how organizations can utilize AI responsibly while achieving long-term economic, social, and environmental sustainability.

Keywords: Human-Centred Artificial Intelligence, Sustainable Management, Ethical AI, Explainable AI, Organizational Sustainability, Trust, Responsible Innovation, Human-AI Collaboration.

INTRODUCTION

Artificial Intelligence has become one of the most influential technological innovations of the twenty-first century, transforming industries including healthcare, manufacturing, education, finance, logistics, and public administration. Organizations increasingly rely on AI for predictive analytics, customer relationship management, process automation, and strategic decision-making. While these technological advancements enhance operational efficiency and competitive advantage, concerns regarding algorithmic bias, lack of transparency, privacy violations, and diminished human control continue to challenge organizational sustainability. Consequently, researchers and practitioners have emphasized the importance of designing AI systems that prioritize human values, ethical principles, and societal well-being rather than focusing exclusively on automation and efficiency.

Human-Centred AI represents a paradigm shift from technology-driven automation toward collaborative intelligence where humans remain central to decision-making processes. Sustainable management similarly emphasizes balancing economic growth with environmental protection and social responsibility. Integrating Human-Centred AI with sustainable management enables organizations to develop responsible AI governance mechanisms that foster transparency, fairness, accountability, and stakeholder trust. Such integration enhances organizational resilience, employee satisfaction, innovation capability, and long-term sustainability. Therefore, understanding the relationship between Human-Centred AI and sustainable management has become an emerging research priority in management and organizational studies.

LITERATURE REVIEW

Human-Centred Artificial Intelligence is founded on the principle that AI systems should augment rather than replace human intelligence. According to Shneiderman (2022), successful AI implementation requires transparency, explainability, accountability, and continuous human oversight. Human-centred AI promotes collaboration between humans and machines by ensuring that decision-makers understand AI-generated recommendations and retain ultimate authority over critical organizational decisions. This approach strengthens organizational trust while reducing resistance toward AI adoption.

Sustainable management extends beyond financial performance by incorporating environmental stewardship, social responsibility, and ethical governance. The Triple Bottom Line framework proposed by Elkington (1997) emphasizes balancing economic, environmental, and social objectives for long-term organizational success. AI technologies have considerable potential to improve sustainability through energy optimization, waste reduction, predictive maintenance, and efficient resource utilization. However, these benefits can only be realized when AI systems operate within ethical boundaries and respect stakeholder interests.

Recent literature increasingly highlights the convergence between Human-Centred AI and sustainable management. Studies suggest that ethical AI governance, transparency, explainability, employee empowerment, and stakeholder participation significantly improve organizational sustainability outcomes. Nevertheless, empirical research examining these relationships remains limited, particularly within emerging economies. Existing studies often focus on technical AI performance while overlooking human behavioural factors such as trust, acceptance, organizational culture, and responsible leadership that determine sustainable AI adoption.

RESEARCH GAP

Although previous studies have extensively examined Artificial Intelligence adoption and organizational sustainability separately, limited research integrates Human-Centred AI principles with sustainable management practices. Most existing literature emphasizes algorithmic efficiency, automation, and technological innovation while providing insufficient attention to ethical governance, employee participation, explainability, and stakeholder engagement as drivers of sustainability.

Furthermore, empirical evidence validating the relationship between Human-Centred AI dimensions and organizational sustainability remains scarce. Few studies employ comprehensive theoretical models incorporating AI transparency, human oversight, trust, ethical governance, and sustainable organizational performance simultaneously. Therefore, significant opportunities exist to develop an integrated conceptual framework that explains how human-centred AI contributes to sustainable management.

RESEARCH OBJECTIVES

The primary objective of this study is to examine the influence of Human-Centred Artificial Intelligence on sustainable management practices within organizations. The research aims to investigate how AI transparency, explainability, ethical governance, and human oversight contribute to sustainable organizational performance.

A second objective is to explore the mediating role of employee trust and stakeholder engagement in strengthening the relationship between Human-Centred AI and organizational sustainability. Understanding these behavioural mechanisms will provide valuable insights for managers implementing responsible AI systems.

The final objective is to develop and empirically validate a conceptual framework explaining the interactions among Human-Centred AI practices, organizational trust, ethical governance, and sustainable management outcomes. The study intends to provide practical recommendations for policymakers and organizational leaders promoting responsible AI adoption.

HYPOTHESIS DEVELOPMENT

Based on the literature, Human-Centred AI positively influences sustainable management by improving transparency, accountability, and employee trust. Organizations implementing explainable AI systems are more likely to achieve sustainable decision-making because employees understand algorithmic recommendations and actively participate in organizational processes. Therefore, AI transparency and ethical governance are expected to positively affect organizational sustainability.

Furthermore, employee trust and stakeholder engagement are likely to strengthen this relationship. Organizations fostering collaborative human-AI interactions create greater acceptance of AI technologies while reducing resistance toward organizational change. Accordingly, the following hypotheses are proposed:

H₁: Human-Centred AI positively influences Sustainable Management.

H₂: AI Transparency positively influences Employee Trust.

H₃: Employee Trust positively influences Sustainable Management.

H₄: Ethical AI Governance positively influences Sustainable Management.

H₅: Stakeholder Engagement mediates the relationship between Human-Centred AI and Sustainable Management.

CONCEPTUAL FRAMEWORK

The proposed conceptual framework positions Human-Centred AI as the primary independent variable influencing sustainable management outcomes. Human-Centred AI comprises AI transparency, explainability, ethical governance, fairness, accountability, and human oversight. These dimensions collectively encourage responsible organizational decision-making and strengthen employee confidence in AI-supported operations.

Employee trust and stakeholder engagement function as mediating variables connecting Human-Centred AI with sustainable management. Trust encourages employees to adopt AI technologies responsibly, while stakeholder engagement ensures organizational decisions align with societal expectations, environmental responsibility, and ethical standards. These mediators enhance organizational commitment toward sustainable development goals.

The dependent variable, Sustainable Management, includes economic sustainability, environmental sustainability, and social sustainability. Organizations implementing Human-Centred AI are expected to improve operational efficiency, reduce environmental impacts, enhance employee well-being, and strengthen corporate governance. The framework therefore establishes an integrated model connecting responsible AI implementation with long-term organizational sustainability.

RESEARCH METHODOLOGY

This study adopts a quantitative research design using a cross-sectional survey approach. Primary data will be collected through structured questionnaires administered to managers, AI professionals, sustainability officers, and employees working in organizations utilizing AI-enabled technologies. Respondents will be selected using stratified random sampling to ensure adequate representation across industries.

Measurement items will be adapted from validated scales reported in previous studies. Human-Centred AI will be measured using dimensions such as transparency, explainability, accountability, ethical governance, and human oversight. Employee trust, stakeholder engagement, and sustainable management will similarly be measured using five-point Likert scales ranging from strongly disagree to strongly agree.

The collected data will be analyzed using SPSS and SmartPLS/AMOS. Reliability will be assessed using Cronbach's Alpha and Composite Reliability, while validity will be examined through Average Variance Extracted (AVE), convergent validity, and discriminant validity. Structural Equation Modelling (SEM) will be employed to test the proposed hypotheses and evaluate the conceptual framework.

DATA ANALYSIS

Descriptive statistics will summarize respondents' demographic characteristics including age, gender, education, industry, and managerial experience. Mean values, standard deviations, skewness, and kurtosis will be examined to evaluate data normality. Reliability analysis using Cronbach's Alpha values exceeding 0.70 will confirm internal consistency of measurement scales.

Inferential statistical techniques including Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) will be applied to examine relationships among study variables. Model fitness will be evaluated using indices such as CFI, TLI, RMSEA, and SRMR. Path coefficients, t-values, p-values, and mediation analysis will determine the significance of the proposed hypotheses.

RESULTS

The proposed analysis is expected to demonstrate that Human-Centred AI significantly enhances sustainable management practices. AI transparency, explainability, ethical governance, and human oversight are anticipated to positively influence employee trust and organizational sustainability. Organizations implementing responsible AI practices are expected to report higher operational efficiency, improved stakeholder relationships, and stronger environmental performance.

The mediation analysis is also expected to indicate that employee trust and stakeholder engagement partially mediate the relationship between Human-Centred AI and sustainable management. These findings would support the argument that sustainable AI implementation requires not only advanced technologies but also organizational commitment toward ethical governance and human participation.

DISCUSSION

The anticipated findings reinforce the growing recognition that technological innovation alone cannot guarantee organizational sustainability. Human-Centred AI ensures that AI systems remain transparent, accountable, explainable, and aligned with human values. These characteristics foster organizational trust, encourage responsible decision-making, and reduce resistance to technological transformation.

The study also contributes to sustainable management literature by integrating ethical AI governance with organizational sustainability. While previous research frequently emphasized automation efficiency, this framework highlights the importance of balancing technological performance with employee welfare, stakeholder interests, and environmental responsibility. Consequently, Human-Centred AI emerges as a strategic capability supporting sustainable competitive advantage.

From a managerial perspective, organizations should invest in explainable AI systems, establish ethical governance committees, provide employee AI literacy training, and develop transparent AI policies. Such initiatives can improve stakeholder confidence, organizational resilience, and long-term sustainability while minimizing ethical and reputational risks associated with AI deployment.

LIMITATIONS

The study is conceptual and proposes a quantitative framework that requires empirical validation across different organizational contexts. Since organizational AI maturity varies significantly among industries, the findings may not be universally generalizable without extensive cross-sectoral investigation.

Additionally, the proposed framework primarily considers organizational-level variables while excluding broader institutional influences such as national AI regulations, cultural differences, technological infrastructure, and government policies. Future studies should incorporate these contextual variables to provide more comprehensive explanations.

FUTURE RESEARCH DIRECTIONS

Future researchers may extend this framework by conducting longitudinal studies investigating the long-term effects of Human-Centred AI on organizational sustainability. Comparative

studies across developed and developing economies could also reveal contextual differences affecting AI adoption and sustainable management practices.

Further research should explore emerging technologies such as Generative AI, Explainable AI (XAI), Responsible AI, and AI Governance Frameworks in relation to environmental, social, and governance (ESG) performance. Mixed-methods research combining quantitative and qualitative approaches may provide richer insights into employee experiences, ethical dilemmas, and organizational transformation associated with Human-Centred AI.

CONCLUSION

Human-Centred Artificial Intelligence represents a transformative approach that balances technological advancement with ethical responsibility, human values, and sustainable organizational development. Rather than replacing human decision-makers, Human-Centred AI strengthens collaboration between humans and intelligent systems through transparency, explainability, accountability, and ethical governance. These characteristics are essential for achieving long-term organizational sustainability in increasingly digital business environments.

This study proposes an integrated conceptual framework demonstrating how Human-Centred AI contributes to sustainable management through employee trust, stakeholder engagement, and responsible governance. The proposed model provides valuable theoretical and managerial implications for organizations seeking sustainable competitive advantage while ensuring responsible AI adoption. Future empirical validation will further strengthen understanding of Human-Centred AI as a critical driver of sustainable management.

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