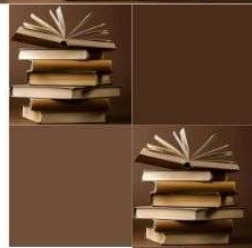
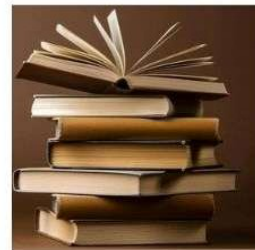


GLOBAL PERSPECTIVES IN INTERDISCIPLINARY RESEARCH

FIRST EDITION
2026

EDITOR-IN-CHIEF

DANIEL JAMES



ASDF UK

GLOBAL PERSPECTIVES IN INTERDISCIPLINARY RESEARCH 2026

**GPIR 2026
FIRST EDITION 2026**

GLOBAL PERSPECTIVES IN INTERDISCIPLINARY RESEARCH 2026

FIRST EDITION GPIR 2026

By
ASDF, UK

Financially Sponsored By
Association of Scientists, Developers and Faculties, India

Editor-in-Chief
Daniel James

Editors:
Anbuoli Parthasarathy and Katsuo Shichirou

Published by
Association of Scientists, Developers and Faculties
Address: 483 Green Lanes, London N13 4BS. England. United Kingdom.
Email: admin@asdf.res.in || www.asdf.international

Global Perspectives in Interdisciplinary Research 2026 (GPIR 2026)

First Edition

Editor-in-Chief: Daniel James
Editors: Anbuoli Parthasarathy and Katsuo Shichirou
Cover Design: ArishKannan B

Copyright © 2026 – ASDF International. All rights reserved

This book, or parts of it, may not be reproduced in any form or by any means — electronic, mechanical, photocopied, recorded, or through any storage and retrieval system, whether now known or developed in future — without prior written permission from the Publisher.

Disclaimer

The GPIR 2026 Publisher accepts no liability for any injury or damage to persons or property arising from products liability, negligence, or otherwise, or from the use or application of any method, product, or idea described in this material. Each article reflects the content submitted and approved by its contributor following any formatting changes. While every effort is made to keep the articles stylistically consistent, neither the GPIR 2026 Publisher nor the Editor(s) accept responsibility for the accuracy, correctness, or representation of any statement or material presented within the articles.

ISBN-13: 978-93-88122-15-3

ISBN-10: 93-88122-15-1

Table of Contents

CHAPTERS	PP
A Study on Career Self-Efficacy and Industry Readiness Among Generation Z Graduates: A Quantitative Study <i>Mrs. K. Lakshmi, Dr. A. Meenakshi</i>	1 – 5
Beyond The Glass Ceiling: Informal Organizational Networks, Perception Bias and The Old Boys' Club as Hidden Barriers to Women's Leadership Advancement – A Conceptual Review <i>Devi Nair R</i>	6 – 13
Determinants of Successful Startup Ecosystems: A Comparative Global Perspective <i>R. Pushpam, Dr. V. Geetha, G. Durga Devi</i>	14 – 20
Digital Leadership in The Era of Artificial Intelligence: Transforming Organizational Decision-Making <i>Dr. N. Vivek</i>	21 – 29
Resilience And Entrepreneurial Success in The Digital Economy: A Study Among Women Entrepreneurs in Southern Districts of Tamil Nadu <i>Dr. Anbuoli P</i>	30 – 36
Survey On Spectrum Sensing For 6G Networks <i>Pandeeswari. G, Velmurugan. M</i>	37 – 41
Sustainable Finance and ESG Integration in Modern Banking: An Indian Perspective <i>Praveen Asokan, Kokula Krishna Hari</i>	42 – 60
Technology Adoption and Digital Transformation: Drivers of Organizational Performance in The Digital Economy <i>G. Durga Devi, Dr. V. Geetha, R. Pushpam</i>	61 – 67
The Gig Economy, Remote Work, and Digital Transformation: An Economic Analysis <i>Mrs. Poongodi P</i>	68 – 75
The Startup Ecosystem in The Age of Artificial Intelligence: Opportunities, Challenges, And Future Prospects <i>Dr. P. Mangayarkarasi</i>	76 – 80

A Study on Intuitionistic Soft Set Topological Spaces <i>Balamurugan, Dr. A. Arivu Chelvam</i>	81 – 87
Adoption Of Digital Transformation Practices by Business Organizations in Madurai City <i>Dr. M. Sakthivel</i>	88 – 94
Artificial Intelligence and green innovation: driving sustainable business transformation <i>Dr. A. Nixon Jesuraj</i>	95 – 99

Artificial Intelligence and Green Innovation: Driving Sustainable Business Transformation

Dr. A. Nixon Jesuraj

Assistant Professor, PG Department of Commerce, The American College, Madurai

Abstract

The increasing emphasis on environmental sustainability has encouraged organizations to adopt innovative technologies that support green business practices. Artificial Intelligence (AI) has emerged as a transformative technology capable of enhancing green innovation, optimizing resource utilization, reducing environmental impacts, and promoting sustainable business transformation. This study investigates the role of AI in driving green innovation and its influence on sustainable business transformation. A quantitative research design was employed, and primary data were collected from 420 managers, sustainability professionals, and business executives from various industries in India. Statistical tools including descriptive analysis, chi-square analysis, cluster analysis, and Structural Equation Modeling (SEM) were utilized to examine the relationships among AI adoption, green innovation, and sustainable business transformation. The findings reveal that AI significantly contributes to green innovation by improving energy efficiency, waste reduction, sustainable product development, and environmental decision-making. The study concludes that organizations integrating AI-driven green innovations achieve superior sustainability performance and long-term competitive advantages.

Keywords: *Artificial Intelligence, Green Innovation, Sustainability, Business Transformation, Environmental Management*

INTRODUCTION

Environmental concerns, climate change, resource depletion, and increasing stakeholder expectations have compelled organizations to integrate sustainability into their business strategies. Green innovation has emerged as a critical approach through which firms develop environmentally friendly products, processes, and business models. Simultaneously, Artificial Intelligence (AI) has transformed organizational operations by enabling data-driven decision-making, predictive analytics, process automation, and intelligent resource management.

The convergence of AI and green innovation presents significant opportunities for organizations seeking sustainable business transformation. AI technologies facilitate efficient energy management, optimize supply chains, monitor environmental performance, and support sustainable product design. By leveraging AI, businesses can reduce operational costs, minimize environmental footprints, and enhance overall sustainability performance.

Despite the growing adoption of AI technologies, many organizations face challenges related to implementation costs, data quality, technological complexity, and workforce readiness. Understanding the relationship between AI and green innovation is essential for developing sustainable business strategies that align economic objectives with environmental responsibilities.

This study examines how AI contributes to green innovation and sustainable business transformation, identifies key opportunities and challenges, and proposes strategies for fostering environmentally sustainable business practices.

Objectives of the Study

1. To examine the impact of Artificial Intelligence on green innovation practices in organizations.
2. To analyze the role of AI-driven green innovation in promoting sustainable business transformation.

Review of Literature

Porter and van der Linde (1995) argued that environmental innovation enhances both sustainability and organizational competitiveness. Chen, Lai, and Wen (2006) found that green innovation positively influences corporate environmental performance and competitive advantage. Davenport and Ronanki (2018) highlighted the potential of AI in improving operational efficiency and strategic decision-making. Dwivedi et al. (2021) emphasized that AI technologies support sustainable development through intelligent resource optimization.

Mikalef and Gupta (2021) reported that AI capabilities significantly improve organizational innovation and performance outcomes. George et al. (2023) observed that digital technologies play a critical role in advancing sustainability initiatives. Verhoef et al. (2021) demonstrated that digital transformation contributes to sustainable business development through technological innovation. Raisch and Krakowski (2022) highlighted the importance of balancing AI automation with human judgment in sustainable decision-making. Fernando, Jabbour, and Wah (2019) emphasized that green innovation enhances environmental sustainability and organizational resilience. Awan, Kraslawski, and Huiskonen (2021) concluded that AI-driven sustainability initiatives improve organizational competitiveness and environmental performance.

Research Methodology

Research Design: Descriptive and analytical research design.

Population: Managers, sustainability officers, environmental consultants, and business executives from manufacturing, service, retail, and technology sectors.

Sample Size: 420 respondents.

Sampling Technique: Stratified Random Sampling.

Sources of Data

- Primary Data: Structured questionnaire.
- Secondary Data: Journals, reports, books, and sustainability publications.

Reliability Test

Cronbach's Alpha = 0.916.

Variables

Independent Variables

- AI Adoption
- Predictive Analytics
- Process Automation
- Resource Optimization

- Environmental Monitoring

Dependent Variable

- Sustainable Business Transformation

Statistical Tools

- Percentage Analysis
- Descriptive Statistics
- Chi-Square Analysis
- Cluster Analysis
- Structural Equation Modeling (SEM)

Descriptive Analysis
Table 1 Descriptive Statistics

Variables	Mean	SD
AI Adoption	4.35	0.58
Green Product Innovation	4.28	0.63
Energy Efficiency	4.31	0.61
Waste Reduction	4.17	0.68
Environmental Monitoring	4.12	0.70
Sustainable Business Transformation	4.39	0.56

Interpretation

Sustainable Business Transformation recorded the highest mean score (4.39), indicating strong agreement among respondents that AI significantly contributes to sustainability initiatives. AI Adoption also exhibited a high mean score (4.35), reflecting the growing importance of intelligent technologies in promoting green innovation.

Chi-Square Analysis

Hypothesis

H_0 : There is no significant association between organizational size and AI-driven green innovation adoption.

H_1 : There is a significant association between organizational size and AI-driven green innovation adoption.

Table 2 Chi-Square Results

Chi-Square Value	df	p-value
38.724	12	0.000

Interpretation

Since $p < 0.05$, the null hypothesis is rejected. Organizational size significantly influences the adoption of AI-driven green innovation practices.

Cluster Analysis

Three clusters were identified using K-Means clustering.

Table 3 Cluster Distribution

Cluster	Description	Percentage
Green Innovators	High AI and sustainability adoption	42%
Emerging Adopters	Moderate adoption levels	34%
Traditional Organizations	Limited adoption	24%

Interpretation

Green Innovators represent the largest cluster, indicating a growing commitment among organizations toward AI-enabled sustainability practices.

Structural Equation Modeling (SEM)**Model Fit Indices**

Index	Value
CFI	0.961
GFI	0.938
TLI	0.952
RMSEA	0.051

The model demonstrates an excellent fit.

Path Analysis

Relationship	Beta	p-value
AI Adoption → Green Innovation	0.734	0.000
Green Innovation → Sustainability Performance	0.682	0.000
AI Adoption → Sustainable Business Transformation	0.597	0.000
Environmental Monitoring → Sustainability Performance	0.544	0.000

Interpretation

AI adoption significantly enhances green innovation, which subsequently improves sustainability performance and supports sustainable business transformation.

Findings

1. AI significantly enhances green innovation capabilities within organizations.
2. AI-driven predictive analytics improves environmental decision-making.
3. Resource optimization contributes to reduced operational waste and energy consumption.
4. Green innovation positively influences sustainability performance.
5. Larger organizations demonstrate higher adoption rates of AI-driven sustainability initiatives.
6. AI-enabled environmental monitoring strengthens compliance and environmental management.
7. Organizations with higher AI maturity achieve better sustainability outcomes.
8. Green Innovators outperform traditional organizations in sustainability performance.

Suggestions

1. Organizations should invest in AI technologies that support sustainability goals.
2. Green innovation should be integrated into long-term business strategies.

3. Governments should provide incentives for AI-driven environmental initiatives.
4. Organizations should strengthen employee training in AI and sustainability.
5. Businesses should adopt AI-based environmental monitoring systems.
6. Cross-functional sustainability teams should be established.
7. Ethical AI frameworks should be developed to support responsible innovation.

CONCLUSION

Artificial Intelligence has emerged as a powerful enabler of green innovation and sustainable business transformation. The study demonstrates that AI technologies significantly improve resource efficiency, environmental monitoring, waste reduction, and sustainable product development. The findings indicate that organizations adopting AI-driven green innovation achieve superior sustainability performance, enhanced competitiveness, and long-term business resilience. As environmental challenges continue to intensify, businesses must strategically integrate AI and sustainability initiatives to create value for stakeholders while contributing to global sustainable development objectives.

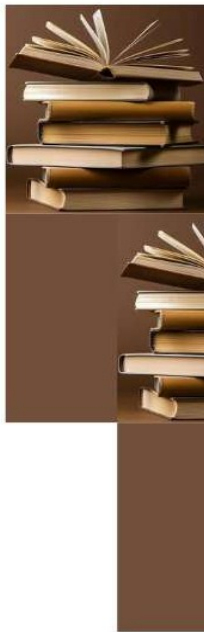
REFERENCES

1. Awan, U., Kraslawski, A., & Huiskonen, J. (2021). Governing sustainable innovation through artificial intelligence. *Journal of Cleaner Production*, 295, 126483.
2. Chen, Y. S., Lai, S. B., & Wen, C. T. (2006). The influence of green innovation performance on corporate advantage. *Journal of Business Ethics*, 67(4), 331–339.
3. Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review*, 96(1), 108–116.
4. Dwivedi, Y. K., Hughes, L., Ismagilova, E., et al. (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges and opportunities. *International Journal of Information Management*, 57, 101994.
5. George, G., Merrill, R. K., & Schillebeeckx, S. J. D. (2023). Digital sustainability and entrepreneurship. *Entrepreneurship Theory and Practice*, 47(1), 15–32.
6. Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability and firm performance. *Information & Management*, 58(3), 103434.
7. Porter, M. E., & van der Linde, C. (1995). Green and competitive: Ending the stalemate. *Harvard Business Review*, 73(5), 120–134.
8. Verhoef, P. C., Broekhuizen, T., Bart, Y., et al. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901.

This article is prepared exclusively for *Global Perspectives in Interdisciplinary Research 2026* (ISBN: 978-93-88122-15-3) which is published by ASDF International, registered in London, United Kingdom under the directions of the Editor-in-Chief Dr Daniel James and others of the Editorial Team. Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage, and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s). Copyright Holder can be reached at copy@asdf.international for distribution.

2026 © Reserved by Association of Scientists, Developers and Faculties [www.asdf.international]

£ 45/ ₹ 5500

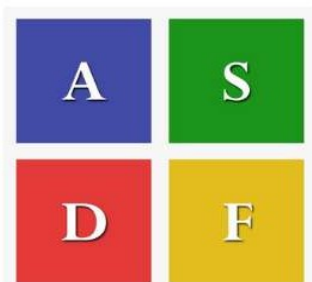


ASSOCIATION OF SCIENTISTS, DEVELOPERS AND FACULTIES

483 Green Lanes, London N13 4BS

India | Thailand | South Korea | United Kingdom

+44 20 8144 5548 | asdf@asdf.international | www.asdf.international



ISBN 978-93-88122-15-3

