



Editorial

Artificial Intelligence at the Core of Circular Futures: Introducing ACCESS

Tzong-Ru Lee^{1*}

¹Department of Marketing, National Chung Hsing University, Taichung, Taiwan

*trlee@dragon.nchu.edu.tw

Abstract

The accelerating convergence of artificial intelligence (AI) and the circular economy marks a decisive shift in how societies design, manage, and regenerate economic systems under planetary constraints. AI-Centered Circular Economy Systems & Solutions (ACCESS) is launched to serve as a dedicated, international, open-access platform for rigorous and impactful research at this critical intersection. This inaugural editorial outlines the intellectual vision, thematic scope, and scholarly mission of ACCESS. It situates the journal within contemporary debates on sustainability, digital transformation, and systems thinking, while highlighting foundational research streams that inform AI-enabled circular strategies—ranging from consumer behavior and community-driven business models to supply chain resilience, stakeholder governance, agricultural intelligence, and digitalized waste management. ACCESS also aspires to function as a scientific bridge between East Asia and the European Union, fostering cross-regional collaboration and joint innovation. By emphasizing ethical publishing, interdisciplinary integration, and real-world relevance, ACCESS aims to accelerate the transition toward intelligent, data-driven, and regenerative economic systems.

Keywords: Artificial intelligence; Circular economy; Sustainable systems; AI ethics

INTRODUCTION

The global transition from linear “take–make–dispose” economic models toward circular and regenerative systems has become an urgent necessity rather than a long-term aspiration. Resource scarcity, climate change, biodiversity loss, and systemic supply chain vulnerabilities demand solutions that are not only sustainable but also intelligent, adaptive, and scalable. In this context, artificial intelligence has emerged as a transformative enabler—capable of sensing, learning, optimizing, and coordinating complex socio-technical systems across multiple scales. The circular economy, by its very nature, is a systems paradigm. It requires the integration of production, consumption, waste management, logistics, governance, and human behavior into coherent feedback-driven loops. AI technologies—such as machine learning, optimization algorithms, digital twins, agent-based modeling, and intelligent decision-support systems—provide the computational and analytical backbone necessary to operationalize circular principles in



practice. Yet, despite rapid growth in both AI and circular economy research, scholarly work that meaningfully integrates these domains remains fragmented across disciplines, regions, and application areas.

AI-Centered Circular Economy Systems & Solutions (ACCESS) is established to address this gap. The journal's mission is to advance high-quality, interdisciplinary research that places AI at the core of circular economy design, implementation, and evaluation. ACCESS welcomes theoretical developments, methodological innovations, empirical studies, and applied solutions that demonstrate how intelligent systems can enhance resource efficiency, enable sustainable production and consumption, support regenerative environmental practices, and improve data-driven decision-making for policymakers and industry leaders. A distinctive feature of ACCESS is its commitment to serving as a scientific bridge between East Asia and the European Union. These regions bring complementary strengths: advanced manufacturing and digital innovation ecosystems, diverse socio-economic contexts, and strong policy commitments to sustainability. By fostering cross-regional dialogue and collaboration, ACCESS seeks to catalyze joint innovation and shared learning in AI-enabled circular transitions.

The intellectual foundations of ACCESS are informed by a rich body of prior research that, while not always explicitly AI-centered, provides essential building blocks for intelligent circular systems. Consumer behavior studies, such as Kassim's (2023) [1] investigation of e-waste recycling intentions, underscore the importance of values, social norms, and perceived control—factors that AI-driven nudging, personalization, and behavioral analytics can increasingly address. Community-mediated business models, exemplified by Wang's (2023) [2] C2C2B framework, highlight the role of digital platforms and social networks in scaling sustainable consumption, an area where AI can optimize matching, trust, and engagement. From an organizational and governance perspective, research on Triple Bottom Line dominant logic and stakeholder frameworks [3–5] emphasizes the need for integrated performance measurement across economic, environmental, and social dimensions. AI-based analytics offer new possibilities for dynamically measuring, forecasting, and balancing these dimensions in real time. Studies on B2B relationships and noneconomic satisfaction (Guan, 2022) [6] further reveal the relational and behavioral complexities that intelligent systems must account for when supporting sustainable value networks.

At the systems level, contributions on supply chain resilience (Narassima, 2022) [7] and sustainability-oriented negotiation and learning tools, such as the Phosphorus Negotiation Game, demonstrate the growing relevance of simulation, modeling, and decision-support approaches. These methods align naturally with AI-driven scenario analysis and optimization under uncertainty. In the agricultural domain, Lee's and Jaroenwanit's works [3,8] on the Agriculture Purchasing Managers' Index illustrates how machine learning techniques can generate robust, assumption-light indicators to support sectoral sustainability and food security. More explicitly linking digitalization and circularity, recent review work by Seyyedi (2024) [9] highlights the critical role of IoT, soft computing,

and simulation methods in digitalized waste management systems. Such research exemplifies the type of integrative, AI-centered circular economy scholarship that ACCESS aims to promote and expand. Collectively, these studies point toward a shared conclusion: the future of the circular economy is inseparable from intelligent systems. ACCESS positions itself as a focal point for this emerging research frontier.

CONCLUSION

The launch of AI-Centered Circular Economy Systems & Solutions (ACCESS) reflects both a scholarly need and a societal imperative. As sustainability challenges grow in scale and complexity, incremental and siloed approaches are no longer sufficient. Intelligent, data-driven, and systemically integrated solutions are required to enable meaningful circular transitions across industries, regions, and governance levels. ACCESS is committed to advancing this agenda by providing an open, ethical, and rigorous publication platform for interdisciplinary research at the nexus of AI and the circular economy. By embracing methodological diversity, real-world relevance, and cross-regional collaboration—particularly between East Asia and the European Union—the journal seeks to contribute not only to academic knowledge but also to practical impact. The inaugural issue marks the beginning of a scholarly dialogue focused on designing smarter circular systems, enhancing decision-making through AI, and aligning technological innovation with environmental and social responsibility. We invite researchers, practitioners, and policymakers to engage with ACCESS as authors, reviewers, and readers, and to jointly shape a future where artificial intelligence serves as a catalyst for a truly sustainable and regenerative global economy.

ACKNOWLEDGMENT

The author would like to express gratitude to the Editorial Board of ACCESS for their academic guidance, commitment, and support in launching the inaugural issue of the journal. Appreciation is also extended to the editorial staff of the TULTECH Association for their dedicated efforts, professionalism, and continuous support in the development, coordination, and realization of this medium.

CONFLICT OF INTERESTS

The author confirms that there is no conflict of interest associated with this publication.

REFERENCES

1. Kassim, E.S.; Hassan, M.F.; Nor, F.M.; Lee, T.-R. To Recycle E-Waste or Not: Understanding Consumers' Intention from the Lens of Behavioral Theories. *Information Management and Business Review* 2023, 15, 72–85, doi:10.22610/imbr.v15i1(I)SI.3409.
2. Wang, Y.J.; Lee, T.R.; Isoherranen, V.; Sinnarong, N. A Novel C2C2B Business Model Based on the Sustainability of the Social Media Community. *International Journal of Web Based Communities* 2023, 19, 198–221, doi:10.1504/IJWBC.2023.131409.

3. Lee, T.-R.; Lee*, C.-P. Developing Agriculture Purchasing Managers' Index for Describing Taiwan's Agriculture Industry by Using Automatic Weighted k-Means Algorithm. *Curr Appl Sci Technol* 2021, 21, 618–628.
4. Lee, T.-R.; Lin, K.-H.; Chen, C.-H.; Otero-Neira, C.; Svensson, G. A Framework of Firms' Business Sustainability Endeavours with Internal and External Stakeholders through Time across Oriental and Occidental Business Contexts. *Asia Pacific Journal of Marketing and Logistics* 2022, 34, 963–986, doi:10.1108/APJML-12-2020-0911.
5. Lee, T.-R. (Jiun-S.; Lin, K.-H.; Chen, C.-H.; Otero-Neira, C.; Svensson, G. TBL Dominant Logic for Sustainability in Oriental Businesses. *Marketing Intelligence & Planning* 2022, 40, 837–853, doi:10.1108/MIP-03-2022-0093.
6. Guan, W.; Bao, M.; Lou, X.; Zhou, Z.; Yin, K. Monitoring, Modeling and Projection of Harmful Algal Blooms in China. *Harmful Algae* 2022, 111, 102164, doi:10.1016/j.hal.2021.102164.
7. Narassima, M.S.; Anbuudayasankar, S.P.; Mathiyazhagan, K.; Ganesh, K.; Lee, T.-R. (Jiun-S. Supply Chain Resilience: Conceptual Model Building and Validation. *International Journal of Logistics Research and Applications* 2024, 27, 781–813, doi:10.1080/13675567.2022.2056584.
8. Jaroenwanit, P.; Lee, T.R.; Kaenprom, T.; Hwang, S.Y. Value Chain Analysis of Thai Agricultural Social Enterprises. *International Journal of Agriculture Innovation, Technology and Globalisation* 2022, 3, 47, doi:10.1504/IJAITG.2022.126874.
9. Seyyedi, S.R.; Kowsari, E.; Gheibi, M.; Chinnappan, A.; Ramakrishna, S. A Comprehensive Review Integration of Digitalization and Circular Economy in Waste Management by Adopting Artificial Intelligence Approaches: Towards a Simulation Model. *J Clean Prod* 2024, 460, 142584, doi:10.1016/j.jclepro.2024.142584.