

Session – Forum Innovation 2025

Environmental, Social and Governance (ESG) Controversies and Green Innovation: Emerging Challenges and Recent Developments

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Description of the theme:

In this rapidly changing global era, two leading forces are emerging to advance and reshape the business landscape: the growing push for global sustainability and the metaverse rise. These dynamics are distinct paradigms but intersect and converge to cater ethical requirements, refine corporate disclosures, and construct resilient business models. By adopting these immersive innovations, the environmental footprint, social and governance shortcomings must also be addressed. Similar to Corporate Social Responsibility (CSR) principles, these innovations may exacerbate inequalities if they are not supported by more democratic governance and collective stakeholder actions (Chanteau et al., 2019).

In this context, Environmental, Social, and Governance (ESG) criteria serve as a fundamental framework for assessing a company's non-financial performance in terms of sustainability and CSR. These criteria enable investors, regulators, and other stakeholders to evaluate a company's impact on the environment, society, and its internal governance.

The present track provides an overview of the intersection of ESG controversies, green innovation, and biodiversity issues in the context of the immersive technologies of Metaverse and sustainability. In addressing these themes, we aim to uncover emerging topics that present promising avenues for research (Ed-Dafali et al., 2024, Ben Ameur et al, 2024; Ziegler et al., 2022).

In the current area, ESG controversies are at the forefront of global discussions and require tackling major and complex concerns. Academic bodies have revealed that ESG controversies have detrimental impacts on the ecological and societal spheres, and firm value (Brinette et al., 2024; Elamer & Boulhaga, 2024), investment efficiency (Xue et al., 2023), etc. However,

there are still significant gaps in assessing the environmental risks, social implications, and governance issues based on virtual environments and technologies such as blockchain, AI, and others to track data and practices relating to ESG controversies. Indeed, the development of these technologies often comes at an environmental cost, mainly related to biodiversity risks. This issue has emerged as one of the central risk elements not to be overlooked (Pi et al., 2025), as biodiversity management stands crucial to economic sustainability (Kalhor & Kyaw, 2024). yet, it is not clear whether ESG ratings effectively take biodiversity concerns into account (Zhu & Carrasco, 2025), emphasizing the impact of integrating biodiversity considerations into ESG frameworks and disclosure guidelines. Besides, Green innovation is another main pillar of sustainability, contributing to the development of technologies and solutions that reduce carbon emissions, support the circular economy, and reduce the harmful environmental impact (Kahia & Omri, 2024; Kharb et al., 2024). With the recent advancement of blockchain, AI, virtual reality, machine learning, big data, and other disruptive related technologies, green innovation offers a way forward, enabling us to leverage the power of technology while minimizing its ecological footprint. However, the challenge is to shift the world's consumption and manufacturing systems towards sustainable economic processes and structures based on digital applications and metaverse technologies. This highlights the urgent need to embed sustainability into the metaverse by means of green innovations, energy efficiency, and adequate business practices (Dhayal et al., 2025), and emphasizes the critical necessity to advance ESG guidelines to better account for biodiversity (Kopnina et al., 2024). This underlines the necessity of a systemic approach to understanding innovation (Coppin, 2002). Indeed, green innovation can only be effective if it is accompanied by a reconfiguration of existing systems. It must be embedded within a systemic innovation dynamic, involving a transformation of economic models, regulatory frameworks, and collective practices (Uzunidis, 2020).

This track highlights the need to rethink how to balance technological progress with sustainability, emphasizing that ESG controversies management, green innovation advancement, and biodiversity protection must be at the center of these efforts. Topics of interest include, but are not limited to:

- Biodiversity-Related Risks and ESG Controversies;
- Business Model Innovation and ESG Performance;
- Corporate Green Innovation Strategies and ESG Controversies;
- ESG Controversies and Corporate Governance;
- ESG disclosure and Industry 5.0 technologies;
- ESG Implications in Addressing Biodiversity Risks;
- Fintech Technological Innovation and Corporate ESG Disclosure;
- Metaverse Applications for Green Innovation Testing;
- Metaverse Integration in ESG Reporting and Disclosure Practices;
- Ownership, Board Composition, and Biodiversity-Related ESG Strategies;
- The Dark-Side Paradoxes of ESG Reporting;

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