

ECOSYSTEM MANAGEMENT FOR INDUSTRIAL DECARBONIZATION

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Introdução

Innovation ecosystems are interorganizational arrangements of autonomous yet interdependent actors. The literature predominantly explains how value is created and captured but focuses on economic outcomes, overlooking social and environmental dimensions. In manufacturing industries, highly carbon-intensive are central to sustainability transitions. Ecosystems may offer pathways for collective responses to climate change through social and environmental value creation.

Problema de Pesquisa e Objetivo

Most studies of innovation ecosystems emphasize economic aspects, neglecting how they can co-create value addressing societal challenges such as climate change. Manufacturing, a sector responsible for significant CO₂ emissions, faces lock-ins and path dependencies that hinder decarbonization. This study aims to investigate how manufacturing organizations manage ecosystems to collectively innovate in reducing Scope 3 emissions.

Fundamentação Teórica

Innovation ecosystem research has advanced on complementarities, roles, and governance but underexplores the type and purpose of value creation. The environmental dimension, especially in hard-to-abate industries, remains marginal. Recent studies highlight the complexity of Scope 3 emissions, given measurement difficulties and relational dependencies, which require new coordination mechanisms for joint mitigation efforts.

Metodologia

The study adopts a qualitative interpretivist approach using the Gioia methodology. Data derives from section C.12 (“Engagement”) of the CDP Climate Change reports, focusing on engagement regarding Scope 3 emissions. Filtering led to a sample of 969 manufacturing organizations worldwide. Open and axial coding organized evidence and enabled the identification of interorganizational coordination mechanisms in ecosystem engagement practices.

Análise e Discussão dos Resultados

The analysis of the CDP dataset is currently in progress. Preliminary coding indicates diverse forms of engagement in addressing Scope 3 emissions. The final discussion will focus on identifying interorganizational coordination mechanisms and contrasting them with existing innovation ecosystem literature, in order to expand the understanding of how ecosystems can support industrial decarbonization.

Considerações Finais

This study is expected to advance ecosystem theory by broadening the debate on value creation beyond economic outcomes. By examining collaborative practices for Scope 3 emissions mitigation in manufacturing, the research highlights the potential of innovation ecosystems to co-create social and environmental value. Anticipated contributions include insights for both academic debates and the design of public and private initiatives that foster collective action for decarbonization.

Referências

ADNER, R. (2017). Ecosystem as Structure. ALLWOOD, J. et al. (2012). Sustainable Materials with both eyes open. HERTWICH, E.; WOOD, R. (2018). The growing importance of scope 3. GIOIA et al. (2012). Seeking qualitative rigor. GOMES et al. (2018). Unpacking Innovation Ecosystem. GU et al. (2021). Innovation ecosystem research. MARKARD, J. et al. (2012). Sustainability transitions. SETO, K. et al. (2016). Carbon lock-in. TERSTRIEP et al. (2022). Favourable social innovation ecosystem. VIEIRA, L. C. et al. (2024). The hidden challenges of Scope 3. (Basic references limited for space).

Palavras Chave

ECOSYSTEM, MANAGEMENT, DECARBONIZATION