

Interdisciplinary Collaborative Innovation Mechanism for Sustainability Challenges

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Abstract : Aim: This study presents Interdisciplinary Collaborative Innovation Mechanism as a medium to enable the effective generation of innovations for sustainability challenges facing humanities. Background: Interdisciplinary approach of fusing disparate knowledge and perspectives from diverse expertise and subject areas is one of the key requirements to address the intricate nature of sustainability issues. There is a lack of rigorous empirical study of the systematic structure of interdisciplinary collaborative innovation for sustainability to date. Method: To address this research gap, the action research approach is adopted to develop the Interdisciplinary Collaborative Innovation Mechanism (ICIM) framework based on an empirical study of a total of 28 open innovation competitions in the format of MAKEathons between 2016 to 2023. First, the conceptual framework was formulated based on the literature findings, and the framework was subsequently tested and iterated. Outcomes: The findings provide the ICIM framework composed of five elements: Discipline Diversity Quadruple; Systematic Structure; Inspirational Stimuli; Supportive Collaboration Environment; and Hardware and Intellectual Support. The framework offers a discussion of the key elements when attempting to facilitate interdisciplinary collaboration for sustainability innovation. Contributions: This study contributes to two burgeoning areas of sustainable development and open innovation studies by articulating the concrete structure to bridge the gap. In practice, the framework helps facilitate effective innovation processes and positive social and environmental impact created for real-world sustainability challenges.

Keywords : action research, interdisciplinary collaboration, open innovation, problem-solving, sustainable development, sustainability challenges

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