

Review of: "Successful Community Infrastructure Risk Management in a Decarbonized Future"

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Potential competing interests: No potential competing interests to declare.

General Comments

This paper presents a comprehensive approach to managing community infrastructure risks in the context of decarbonization. The author advocates for a systems-based approach to infrastructure development, emphasizing the importance of understanding infrastructure as a holistic system rather than a collection of individual assets. The paper introduces several key concepts, including the Vitae System of Systems (VSOS), common reference models, and intelligent resourcing, which form the backbone of the proposed risk management strategy.

The author effectively links these concepts to current challenges in climate change adaptation, decarbonization, and sustainable development. The paper also addresses the importance of stakeholder engagement and community ownership in successful infrastructure transitions.

1. The title is suitable and clear.
2. The abstract is comprehensive, well-structured, and well-written.
3. The paper is not structured according to a conventional method.
4. References are sufficient and recent.

Strengths

1. **Comprehensive Framework:** The paper presents a well-structured framework for understanding and managing infrastructure systems, incorporating physical, natural, and virtual domains.
2. **Integration of Multiple Disciplines:** The author successfully integrates concepts from various fields, including risk management, urban planning, climate science, and financial reporting.
3. **Practical Application:** The paper provides concrete examples of how the proposed concepts can be applied, such as the decarbonization transition plan for a plastics company.
4. **Alignment with Current Standards:** The author demonstrates how the proposed approach aligns with emerging financial reporting standards and sustainability disclosure requirements.

Weaknesses

1. **Complexity:** The paper introduces numerous concepts and models, which may be overwhelming for readers not familiar with the field.

2. **Limited Empirical Evidence:** While the paper presents theoretical frameworks and some case examples, it lacks extensive empirical evidence to support the effectiveness of the proposed approaches.
3. **Focus on High-Level Concepts:** The paper primarily deals with high-level concepts and strategies, with limited discussion on practical implementation challenges at the ground level.
4. **Assumption of Stakeholder Cooperation:** The proposed approach assumes a high level of cooperation among various stakeholders, which may not always be achievable in real-world scenarios.

Suggestions to Improve the Paper

1. The paper should be reorganized to follow a conventional academic structure: Abstract, Introduction, Literature Review, Methodology, Results and Discussion, Conclusion, and References. This reorganization would improve clarity, separate theoretical concepts from practical applications, highlight unique contributions, and enhance accessibility for academic readers. The revised structure would also better align with standard journal publication formats, potentially increasing its publishability.
2. The paper would benefit from a more detailed methodology section. This should clearly outline the systems-based approach used, including specific analytical tools and frameworks employed. It should describe data collection methods, if any, and explain how the VSOS and common reference models were applied. The section should also detail the process of developing and validating the proposed risk management strategies.
3. Include a comparison of the proposed approach with other existing infrastructure risk management strategies to highlight its unique advantages.

By addressing these points, the paper could further strengthen its argument and provide more practical value to practitioners in the field of infrastructure risk management and sustainable development.