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Empowering SMEs And Local Authorities To Participate In Megaprojects Through Information Technology

RC Mmakhuthu & C Marnewick

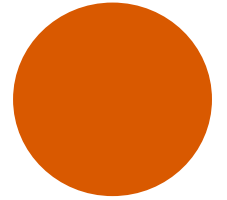
Department of Applied Information Systems, University of Johannesburg, Auckland Park, Johannesburg 2092

rmmakhuthu@uj.ac.za



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Introduction



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Megaprojects are large-scale, capital-intensive initiatives designed to create long-lasting infrastructure and drive economic development, job creation, and sustainable growth.

Despite their potential, megaprojects often fail to effectively involve **local communities**, such as **local authorities and SMEs**.

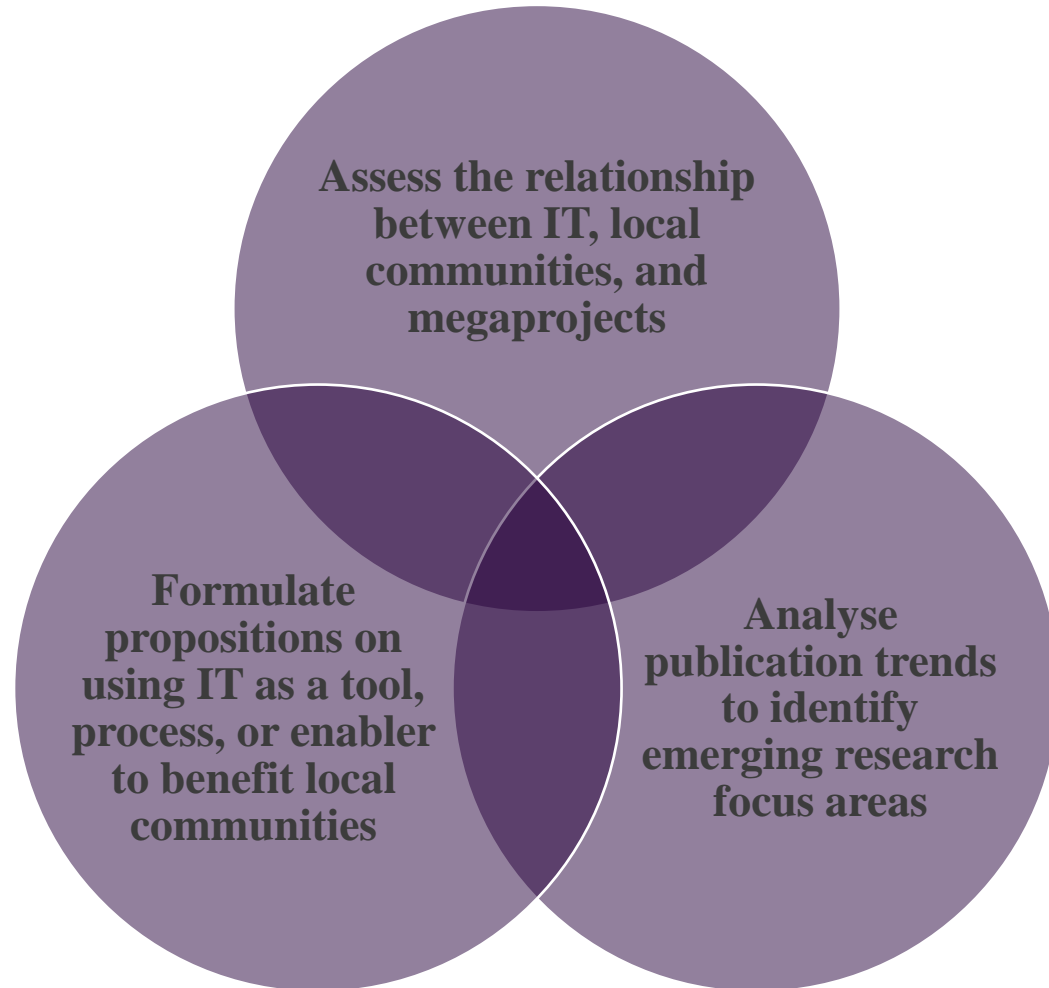
The exclusion of local authorities and SMEs from the early stages of the megaproject lifecycle remains a persistent challenge in theory and practice.

Caron et al. (2024) and Babaei et al. (2023) noted that stakeholders, especially from local communities, are usually brought into decision-making processes only during the implementation phase of megaprojects after key decisions have already been made.

Information Technology (IT) presents a significant opportunity to bridge this gap, yet it is often underutilised, and its application to integrate local communities into megaprojects from the inception phase remains underexplored.



Therefore, this study aimed to gain insights into understanding how IT can be strategically employed as a tool, process, or enabler for connecting or linking local communities with megaproject stakeholders to ensure that they are part of the megaproject life cycle to help achieve the SDGs and contribute positively to the economy.



OBJECTIVES



Local community engagement

- **Local Community Engagement**

- The term "local community" encompasses diverse groups such as residents, SMEs, NGOs, and local authorities, each playing unique roles (George & Binza, 2011; Monama & Mokoale, 2023).
- **Local Authorities:** Govern through formal bodies (municipalities) or traditional leaders, ensuring compliance, policy enactment, and community representation (Babaei et al., 2023).
- **SMEs:** Critical economic drivers, accounting for 98% of businesses in South Africa, fostering employment, entrepreneurship, and productivity (Surya et al., 2021; UNCTDA, 2024).

- **Importance of Engagement**

- Effective community engagement ensures legal compliance, conflict mitigation, and social value creation, while leveraging local insights for sustainable infrastructure integration (Di Maddaloni & Davis, 2017; Wang et al., 2023).
- Early inclusion fosters smoother progression and addresses public opposition, but IT-enabled mechanisms for engagement remain underexplored (Di Maddaloni & Sabini, 2022).



Community Engagement



Role of IT in Local Community Inclusion in Megaprojects



Tool



Process



Enabler



Research Methodology

**Bibliometric
analysis**

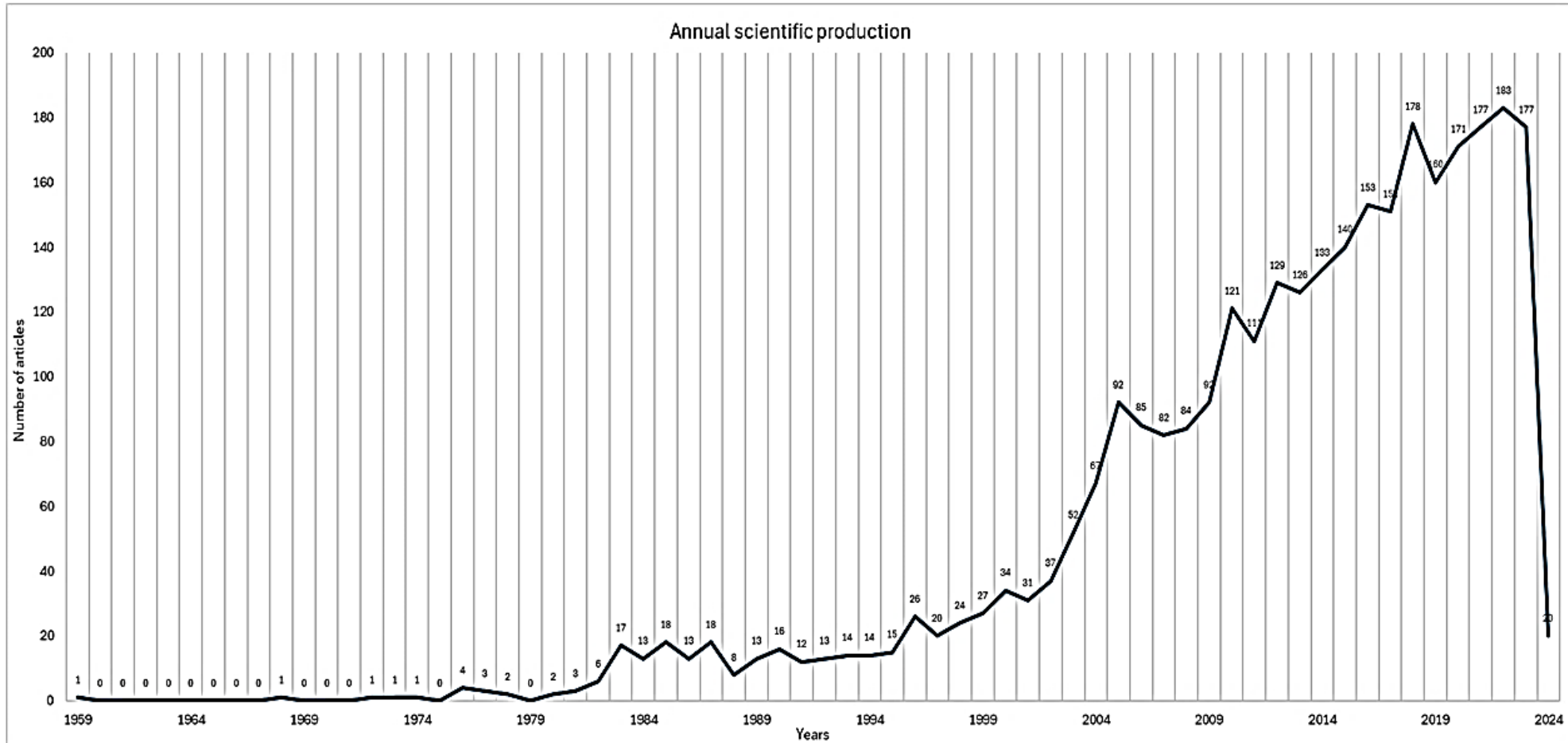
Scopus

**3092 articles from
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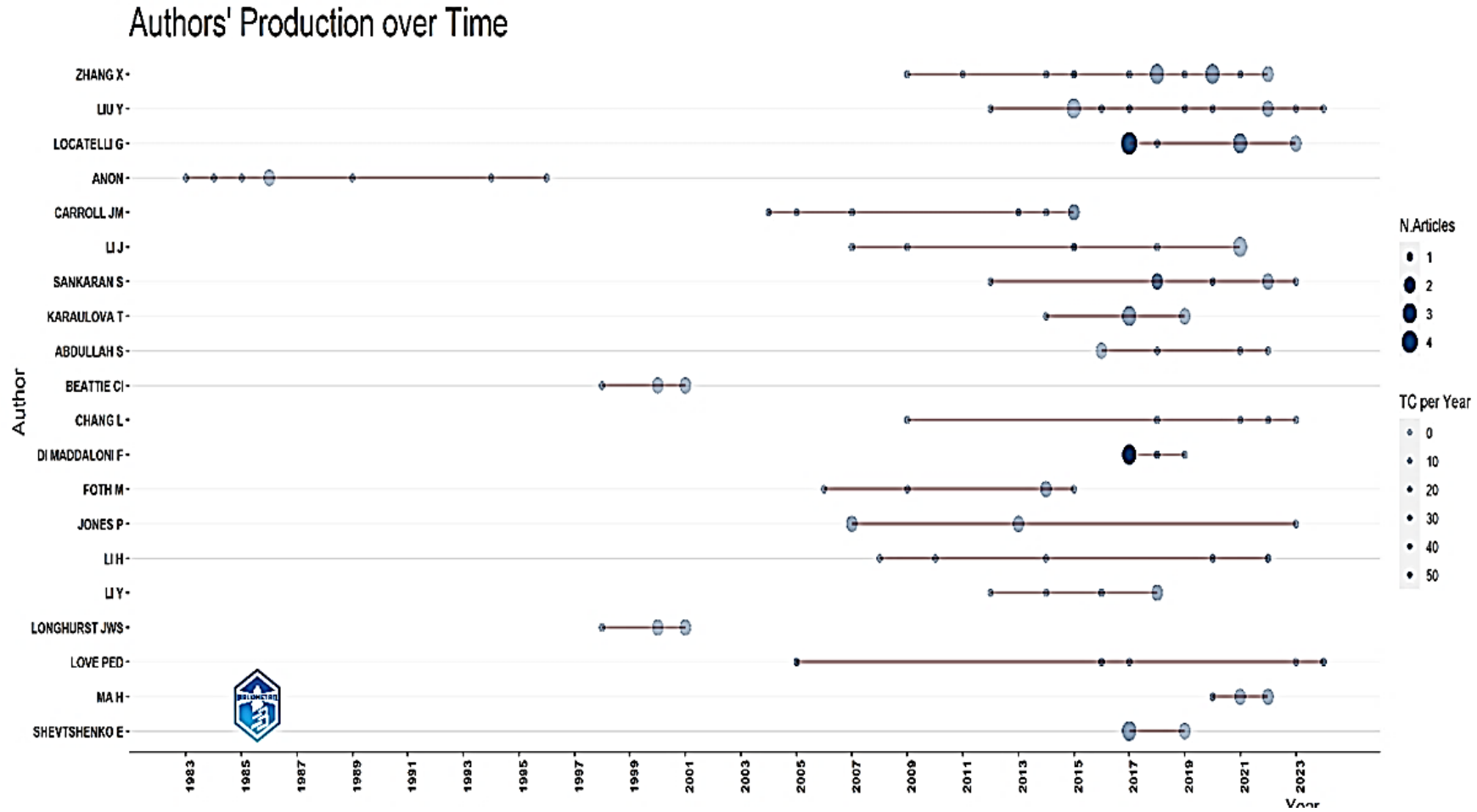
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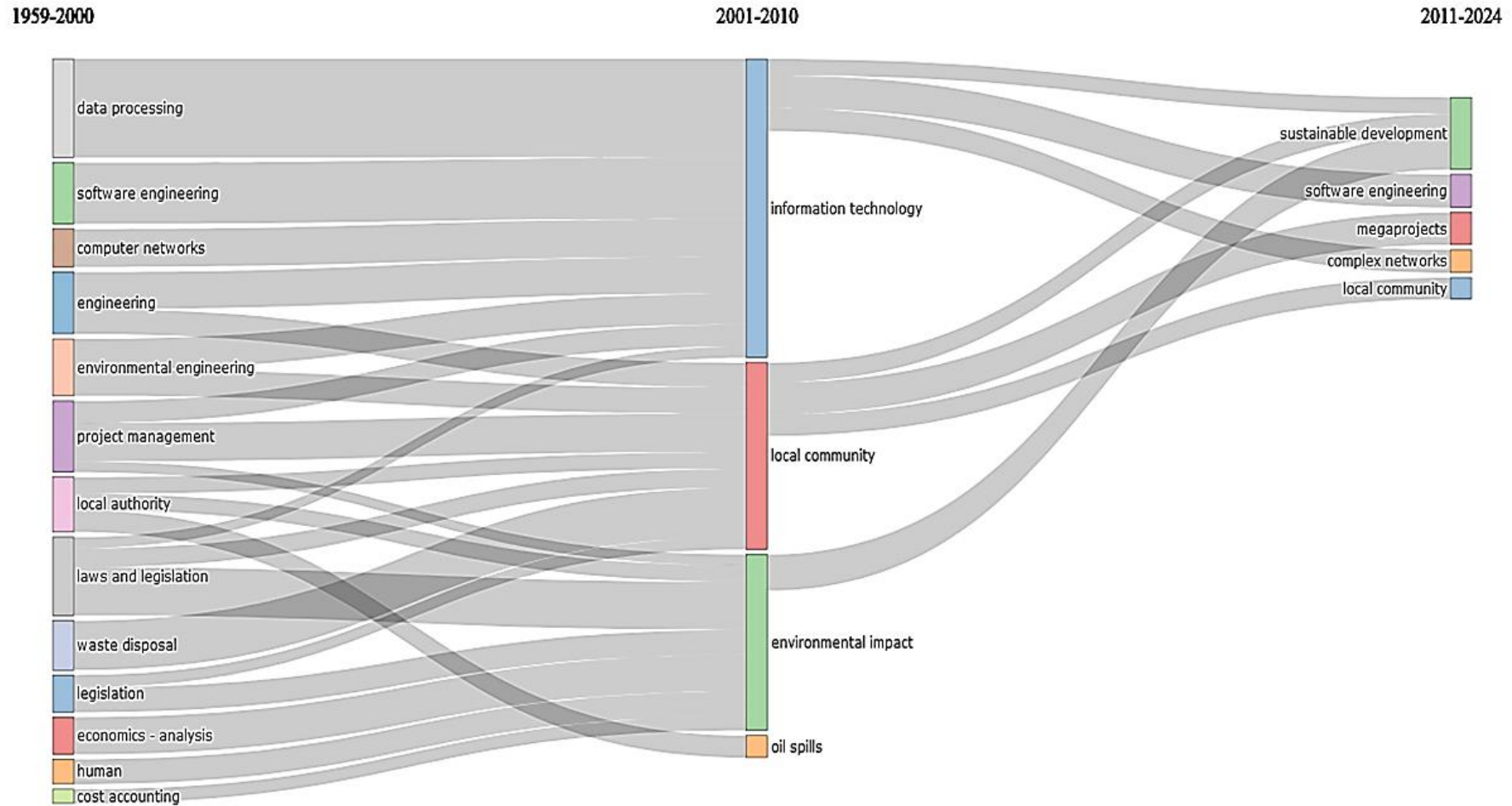
Bibliometric results and analysis



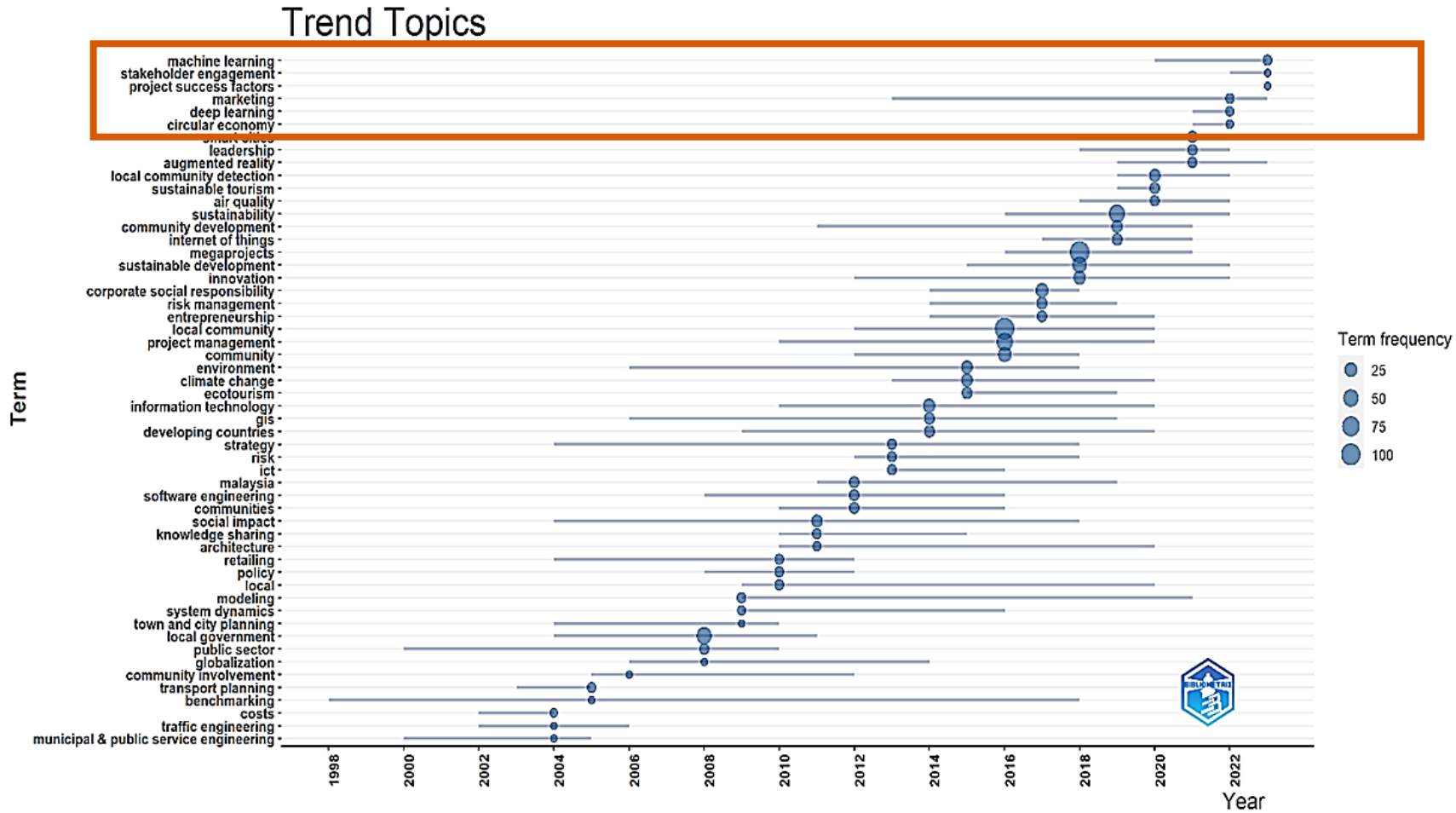
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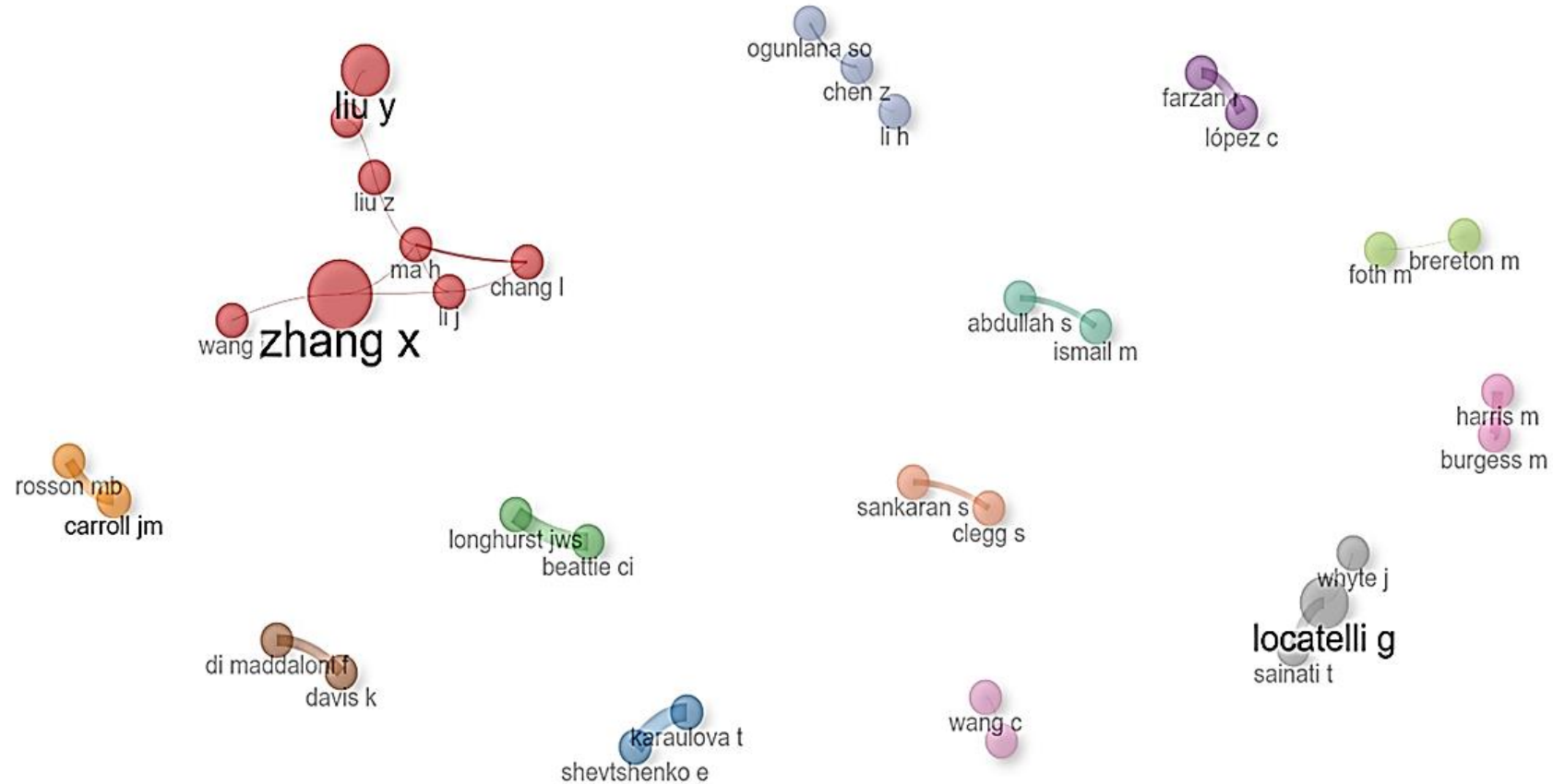
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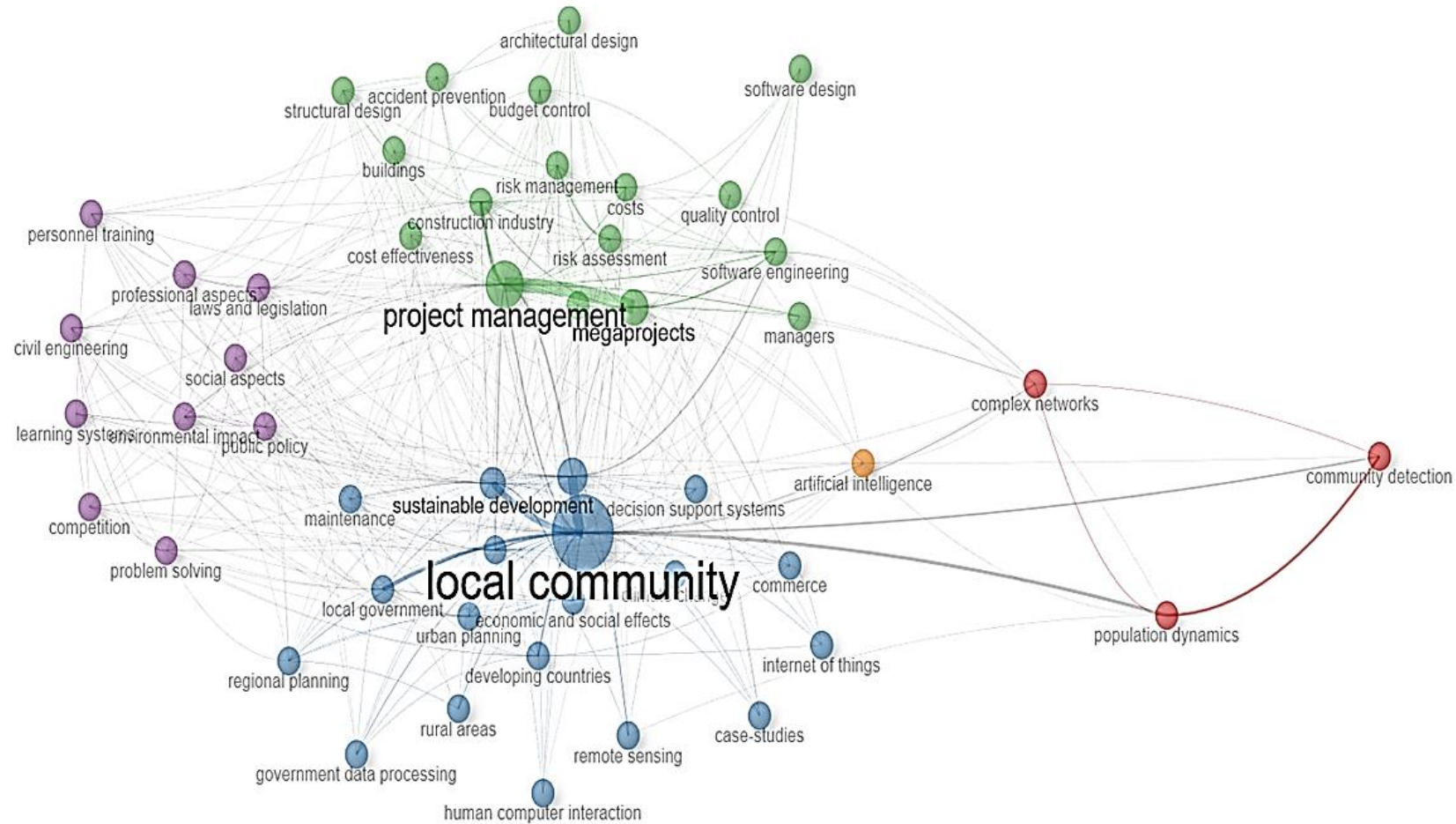
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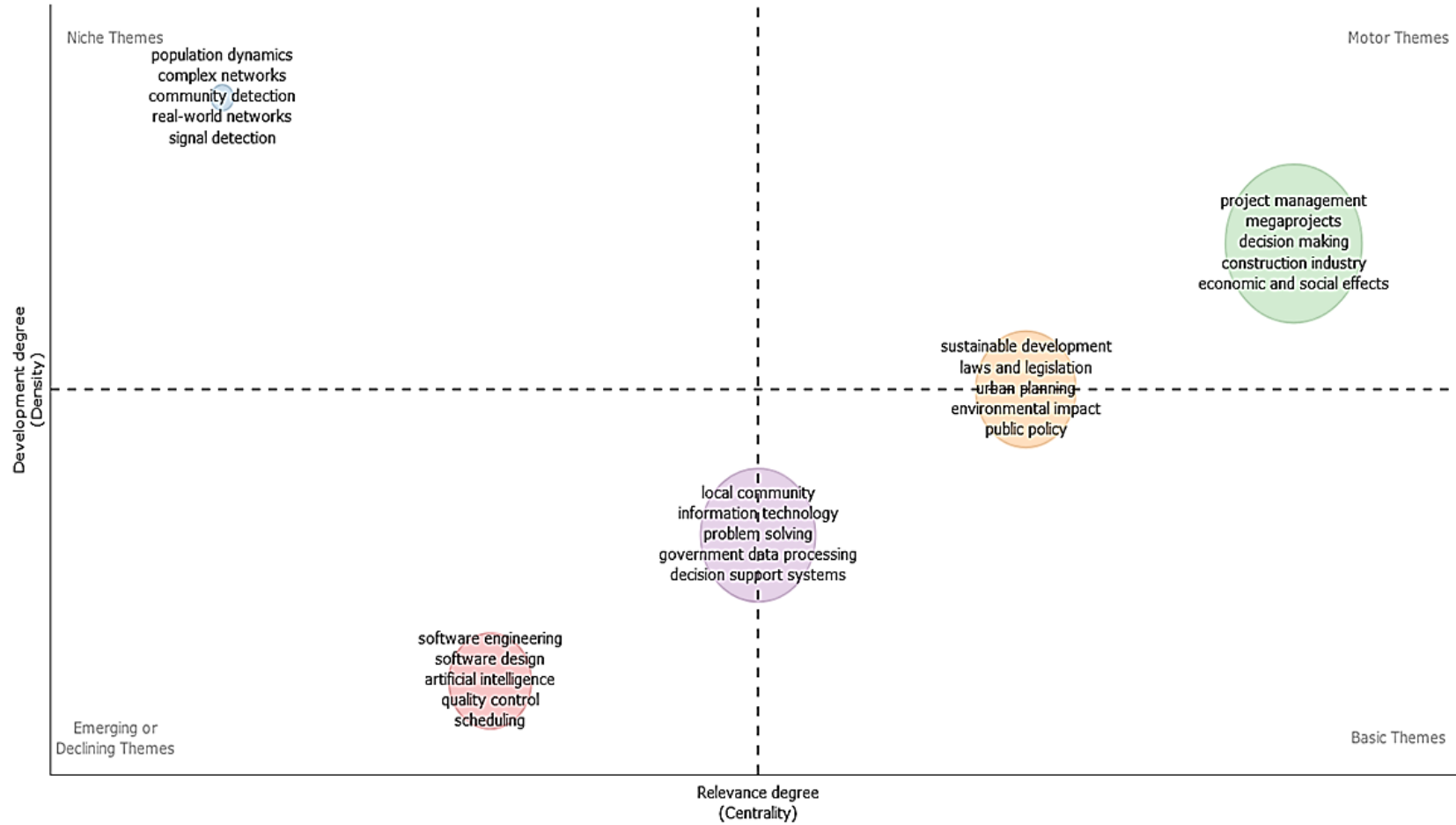
Bibliometric results and analysis: Co-authorship analysis



Bibliometric results and analysis: Co-occurrence and cluster analysis



Bibliometric results and analysis: Co-occurrence and cluster analysis



Discussion of the Results



Although megaprojects have significant opportunities to generate value, collaboration with local communities to increase the megaprojects' success rate and provide opportunities to local communities is unfortunately ineffective (Cuganesan and Floris, 2020).



The decision-making process for megaprojects is often influenced by factors such as technology, politics, economics and aesthetics, rather than being based on the actual needs of society (Di Maddaloni and Davis, 2018).



There is limited knowledge about the effects of megaprojects on the local community and how these effects can be reduced by involving these stakeholders in a more comprehensive manner. The need for the local community to participate in megaprojects can be achieved by using IT to intergrate these stakeholders together to help them grow and contribute positively to the economy.



Aiming to achieve the above, the bibliometric results are discussed based on the **performance and scientific mapping results.**

Scientific Mapping

Scientific mapping primarily examines **co-authorship, collaboration between countries and the analysis of co-occurrences and clusters.**

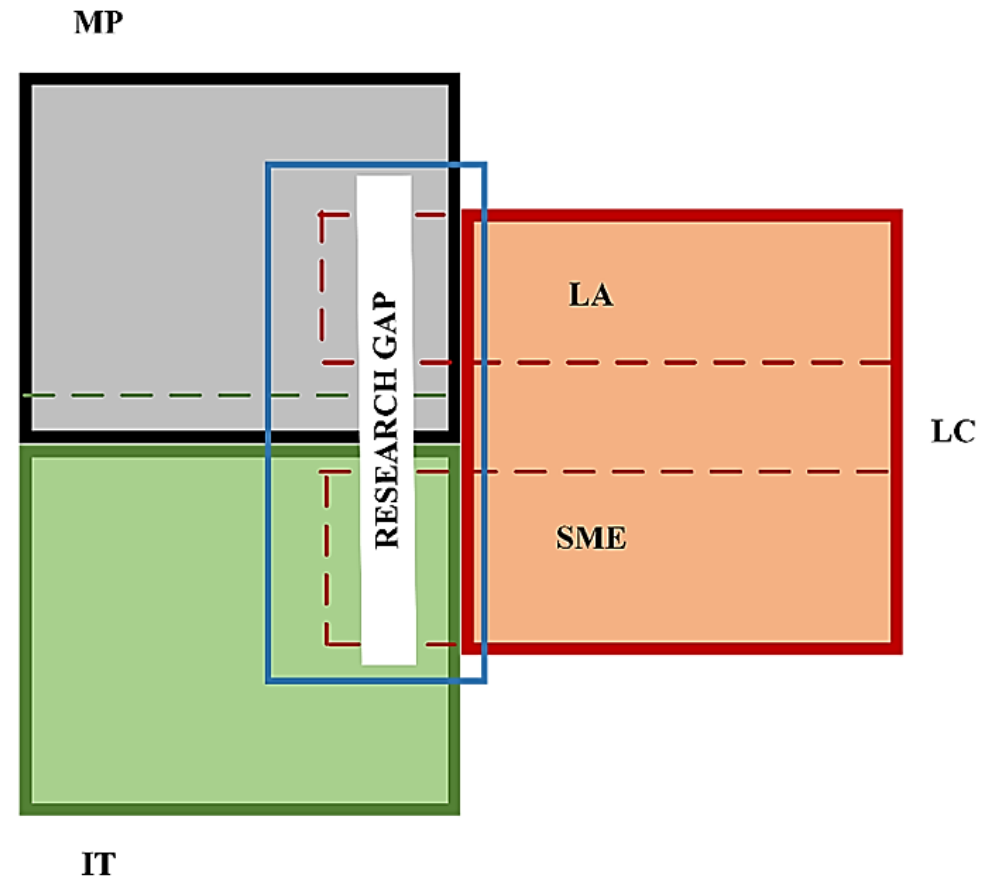
- The **co-authorship analysis** highlighted that collaborations are primarily within the same institution or nation.
- Cross-institutional and interdisciplinary collaboration is essential to advancing research, benefiting researchers, countries, and institutions (Katz & Martin, 1997; Armstrong & Drotar, 2000).
- **Broader participation from researchers in this field is critical to prevent the study's direction from being dominated by external fields with differing priorities** (Marnewick & Marnewick, 2022).

- **Central Role of Local Communities:** The analysis highlights "**local community**" as a key node linked to clusters like "**project management,**" "**sustainable development,**" and "**decision support systems,**" emphasizing its importance in the project management lifecycle.
- **Integration of Community Needs:** Connections to "project management" and "sustainable development" reflect the critical integration of community feedback and IT's role in achieving sustainable, community-focused outcomes.
- **Advanced IT for Decision-Making:** The "decision support systems" cluster demonstrates how advanced IT solutions improve decision-making, directly enhancing local community involvement in megaprojects.

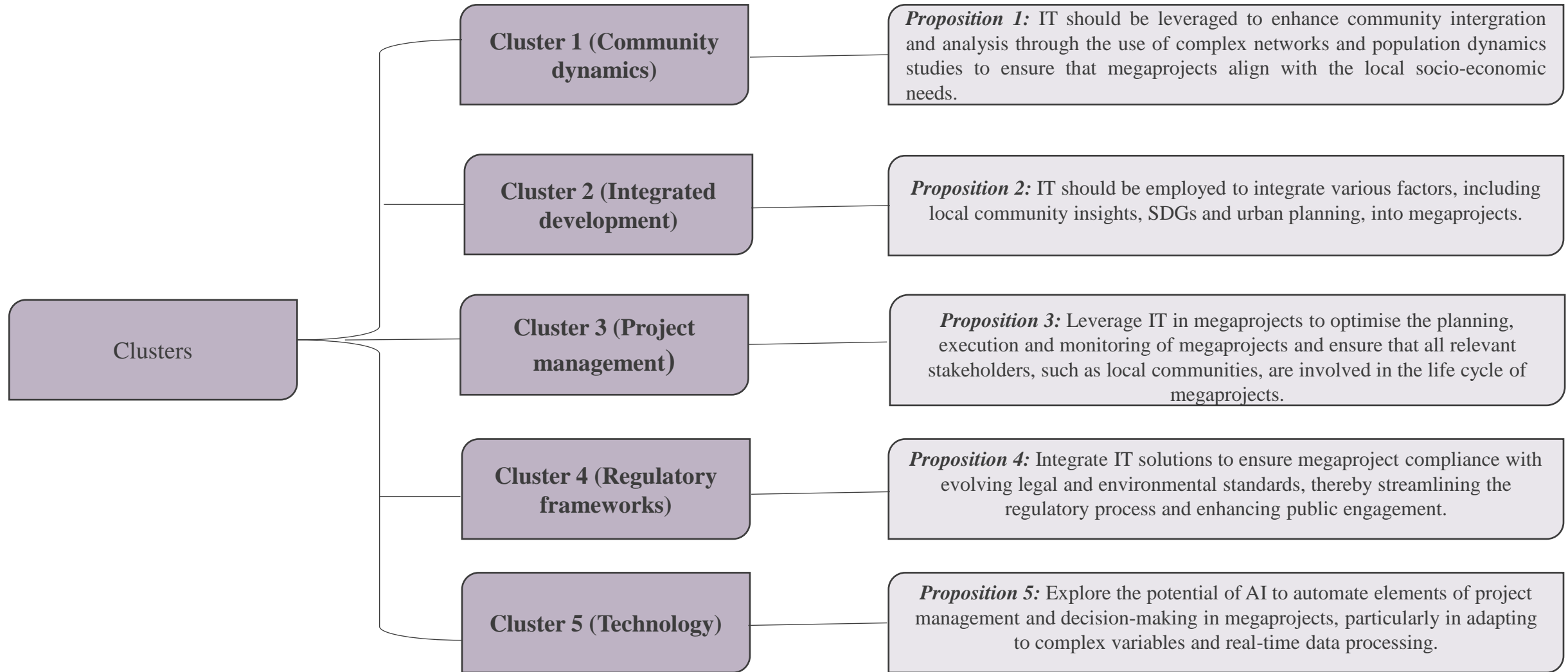
- The analysis reveals that basic themes like "local community" and "information technology" dominate, while emerging themes such as "artificial intelligence" and "software engineering" show limited connection.
- This indicates a focus on basic aspects, with insufficient exploration of advanced IT's potential to link local communities with megaprojects.
- Future research could investigate AI for community decision support, complex networks for project planning, and IT's role in promoting community sustainability.



Gaps Identified – The Relationship between Megaprojects, Local Community and IT



Need for Propositions to integrate IT with Local Communities in Megaprojects



Conclusion

Study Objectives Achieved:

- **Role of IT:** IT can serve as a tool, process, or enabler to integrate SMEs and local authorities into megaprojects, enhancing communication, collaboration, and decision-making.
- **Key Findings:** IT can also optimise project outcomes and fosters sustainable development through better stakeholder integration.

Highlights from Objectives:

- **Objective 1:** IT promotes active local community participation but reveals gaps in using advanced tools like AI for more comprehensive stakeholder involvement.
- **Objective 2:** Publication trends show a shift from traditional management to IT-driven strategies focusing on sustainability and decision-support systems.
- **Objective 3:** Propositions derived from thematic clusters show IT's potential to align project governance with SDGs and enhance stakeholder integration.

Key Insights and Future Suggestions:

- IT can bridge the gap between megaprojects and local communities, promoting sustainable and inclusive development.
- Future research should explore advanced IT technologies, such as AI, to further integrate local communities into megaproject lifecycles.



**Thank
you!**

