

Grassroots Innovation Actors: Their Role and Positioning in Economic Ecosystems

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ABSTRACT

Innovation is no longer only dominated by large corporations or formal institutions. Grassroots innovation actors now play an important role in shaping the dynamics of local and global economic ecosystems. This research aims to examine how community innovation actors interact, build networks, and position themselves in the economic ecosystem. The research approach employed was qualitative, utilizing a multi-case study of 10 local innovation communities in Indonesia, which involved in-depth interviews, participatory observation, and document analysis. Data analysis was conducted using Social Network Analysis (SNA) and assisted by NVivo 14 software. The results show that grassroots innovation actors who successfully build cross-sectoral collaboration networks with governments, businesses, and educational institutions have higher levels of sustainability than communities that operate in closed networks. They are not only beneficiaries, but also catalysts for local change. The implications of these findings are the need to design a national innovation policy that is more inclusive of community innovation, strengthening digital collaborative platforms, and developing the managerial capacity of the innovation community. This research contributes to the development of a more participatory and sustainable innovation ecosystem model.

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1. INTRODUCTION

In an era of rapid global economic change, innovation no longer comes just from large research laboratories or multinational corporations. Grassroots *innovation actors* have been integral in driving local solutions to global challenges such as climate change, social inequality, and economic resilience. The role of local communities in creating innovations based on their real needs demonstrates how economic systems can evolve to become more inclusive and adaptive to change (Ziegler, 2019).

According to a report from the World Economic Forum (2022), more than 30% of new social and economic innovations in developing countries come from local community initiatives or grassroots actors. Data from the UNDP (2023) also show that in many developing countries, including those in Asia and Africa, the contribution of grassroots innovation to local economic growth has increased by 15% over the last five years. This highlights the importance of paying attention to their role and position within the global economic ecosystem.

Although important, the role of grassroots innovation actors is often overlooked within national and global innovation policy frameworks. They tend to be treated as marginal initiatives, despite their local collaboration networks making significant contributions to sustainable economic development. Moreover, in

formal innovation ecosystems, these actors often face challenges of legitimacy, limited resources, and gaps in access to markets and funding (Tedesco & Soria, 2023).

Research by Martin, Upham, and Budd (2015) found that community-based social innovations, such as energy cooperatives and local food initiatives, play a crucial role in driving the transformation of economic systems to become more sustainable. Wierenga (2025) also highlights the important role of these actors in connecting local innovators with external resources, thereby accelerating their integration into the national economic ecosystem.

While research on grassroots innovations has been conducted, much of it still focuses on individual case studies without a thorough analysis of how these actors interact within the broader economic ecosystem. There is a lack of studies examining their strategic positions in innovation networks and relational dynamics between grassroots actors, the private sector, governments, and donor agencies (Vlasov & Bonnedahl, 2018). This research seeks to fill this gap.

The urgency of this research is particularly high given the enormous challenges facing the world in terms of socio-economic injustice, environmental crises, and community resilience. By strengthening an understanding of how grassroots innovation actors function in economic ecosystems, we can design more inclusive and effective policies to drive sustainable development from the bottom up (Moldovan, 2022).

The novelty of this research lies in the integration of a strategic position analysis of grassroots innovation actors within the economic ecosystem, utilizing a *complex network analysis* approach. This differs from previous studies, which tend to be descriptive. With this approach, research can identify the patterns of relationships, positions of influence, and adaptation strategies employed by grassroots innovators in responding to global economic dynamics.

This research aims to (1) analyze how grassroots innovation actors interact in economic ecosystems, (2) identify factors that influence the success or failure of their integration, and (3) provide strategic recommendations to strengthen their role in national and global innovation systems. With this in mind, this research hopes to enrich the community-based innovation literature and offer a new approach to sustainable economic development.

The contribution of this research is to expand the framework of understanding of innovation by highlighting the importance of horizontal and vertical linkages in the innovation ecosystem. The study also provides practical insights for policymakers, innovation support agencies, and international development organizations on how to design more effective interventions to support and empower grassroots innovation actors (Hermans et al., 2016).

The practical implications of this research include the development of a more equitable collaborative framework to support grassroots innovators, the creation of digital platforms to expand their market networks, and the formulation of policies that integrate formal and informal innovations. At the academic level, this research is expected to pave the way for new explorations of the relationship between innovation, social justice, and sustainable economic transformation.

2. METHOD

This study employs an exploratory qualitative approach with a multi-case study design to understand the role and position of grassroots innovation actors within the economic ecosystem. This approach was chosen because the primary focus of the research is to explore social interactions, adaptation strategies, and relationship dynamics in the context of community-based innovation, which requires deep digging of meaning. The population in this study comprises various grassroots innovation communities spread across five economic zones in Indonesia, including local food innovation communities, village-based renewable energy initiatives, and appropriate technology projects. The sample was selected using purposive sampling, with the criteria of a community that has been active for at least three years, demonstrates local need-based innovation, and is involved in external networks. A total of 10 innovation communities were selected as the analysis unit, with key actors, including community leaders, active members, and external partners, serving as key informants.

The research instrument used was a semi-structured interview guide developed based on the results of a literature review of grassroots innovation and innovation ecosystem theory. The validity of the instrument was tested through expert judgment involving two community innovation experts and one local economic development practitioner. To maintain the validity and reliability of the data, the research employed source triangulation (involving community leaders, members, and partners) and triangulation methods (including interviews, participatory observations, and community document analysis). Data collection techniques are employed through in-depth interviews, direct observation of community activities, and analysis of internal documents, including annual reports, project proposals, and partnership networks. The research procedure

includes a preparation stage (licensing and pre-interview), data collection in the field over three months, and data verification through discussions of provisional results with most of the informants.

The data analysis process is carried out with the help of NVivo 14 software to facilitate the coding, categorization of themes, and mapping of relationships between actors in the innovation network. The analysis was conducted using a social network analysis (SNA) approach to understand the relationship patterns and strategic positions of each actor within the local economic ecosystem. Data was analyzed through the stages of data familiarization, open coding, theme categorization, network relationship analysis, and the preparation of conceptual models on the dynamics of grassroots innovation in the economic ecosystem. With this method, the research is expected to provide a comprehensive picture of how grassroots innovators contribute and are strategically positioned in strengthening the economic resilience and sustainability of their communities.

3. RESULTS AND DISCUSSION

Research Data Presentation

This research involves 10 grassroots innovation communities in various regions of Indonesia that are active in the local food, renewable energy, and appropriate technology sectors. Based on the analysis of social networks using NVivo 14, a mapping of the connectivity between the innovation community and external actors was obtained. The graph above shows that Local Innovation Communities have the highest level of connectivity (15 connections), followed by Local Governments (12 connections) and Local Entrepreneurs (11 connections).

The following table shows the breakdown of the actors' connections:

Categories Actors	Number of Connections in the Network
Local Innovation Community	15
Supporting NGOs	10
Educational Institutions	8
Local Government	12
Local Business Actors	11

This data shows that grassroots innovators do not stand alone, but rather build dynamic networks that allow them to survive and thrive in economic ecosystems.

Research Data Analysis

Network analysis shows that the more connections the innovation community has with external actors, the greater their chances of accessing resources, new markets, and institutional support. Communities with more than 12 connections, for example, perform better in terms of financial sustainability and member network growth.

In contrast, communities with limited connections, especially to NGOs or the informal sector, struggle to develop further innovations. This suggests that the success of grassroots innovation is highly dependent on its ability to establish relationships across various sectors, including those with businesses and government.

Research Data Interpretation

The interpretation of the results reveals that strategic positions within the network, rather than the number of connections alone, determine the level of influence of the innovation community. Communities that act as "brokers" or liaisons between various actors (e.g., NGOs and governments) can maximize available resources to strengthen their innovations.

In addition, the data shows that grassroots innovators not only act as recipients of assistance but also as catalysts that strengthen cross-sector collaboration. This signifies the importance of viewing the innovation community as an active participant in the economic ecosystem, rather than a passive party or merely a recipient of the program.

Specific Findings

The study found that innovation communities that can build close partnerships with educational institutions tend to be more innovative in adopting new technologies and expanding the scale of their projects. This collaboration provides access to technical knowledge, applied research, and the development of locally-based business models.

On the other hand, communities that focus on cooperation with local business actors tend to exhibit better performance in market development and financial sustainability. This means that the ecosystem supporting the success of grassroots innovation is not only based on grant support, but also on building a balanced, multi-actor network.

Discussion

Positioning Grassroots Innovation in Economic Ecosystems

1. The Power of Relationships in the Innovation Ecosystem

The data shows that the strength of grassroots innovation cooperatives lies in their ability to build relationships across actors. A strong network opens up opportunities for access to resources such as financing, new technologies, and broader market opportunities. This aligns with the theory of the innovation ecosystem proposed by Adner (2017), which emphasizes the importance of collaboration among actors in driving sustainable innovation.

However, the biggest challenge for the community is maintaining relevance in an ever-changing network. Therefore, communities need to adapt to new dynamics, such as digitalization and the need for cross-sector collaboration, in order to remain strategic players in the ecosystem.

2. Transformation from Receiver to Driver

The study found that the most successful innovation communities are those that are not only recipients of resources but also drivers of collaboration. They actively create joint projects, connect other actors, and build benefit-sharing mechanisms within the ecosystem.

This transformation is crucial in strengthening the community's bargaining position with the government, donors, and the private sector. As initiators, communities can more freely direct the course of innovation according to their local needs and potential.

3. Integration of Grassroots Innovation with Formal Policies

The research also highlights the importance of integrating grassroots innovation into national and regional innovation policies. Today, most policies still focus on corporate innovation or high technology, while grassroots initiatives are often overlooked.

Encouraging dedicated funding schemes for community innovation, strengthening social incubators, and providing direct access to markets through local procurement can be concrete steps in integrating the power of grassroots innovation into formal economic systems.

4. Collaborative Network-Based Development Model

Based on the results of this study, an adaptive collaborative network-based development model is recommended that connects communities with educational institutions, the business sector, NGOs, and governments. This model will create a resilient innovation ecosystem, shares risks, and leverages the strengths of each actor.

Thus, the grassroots innovation community is no longer a fringe entity, but a significant player in promoting equitable, inclusive, and sustainable local economic development.

Practical Involvement

This research provides important implications for policymakers and innovation development institutions. The design of innovation support programs must take into account the context of community social networks and strengthen strategic connections between actors. In addition, innovation training programs should include not only the technical aspects of innovation but also networking skills.

At the community level, fostering a collaborative innovation culture should be emphasized from the inception of the innovation community. With this approach, communities can build long term resilience in the face of changing global economic dynamics.

5. CONCLUSION

This research confirms that grassroots innovation actors play a strategic role in building community economic resilience through dynamic collaborative networks. The findings show that the main strength of innovation communities lies in their ability to build cross-sector connections with governments, businesses, educational institutions, and NGOs, which significantly expands access to resources and market opportunities. Innovation communities that can transform from mere recipients to drivers of collaboration have succeeded in increasing competitiveness and strengthening their position within the economic ecosystem. The practical

implications of this study emphasize the need to develop collaborative digital platforms, strengthen community managerial capacity, and integrate grassroots innovation into national innovation policies. For further research, it is recommended to conduct longitudinal studies to examine changes in the position of innovation actors in networks over time, as well as to expand the analysis of contextual influences, such as local political dynamics and socio-economic changes, on the sustainability of community innovation.

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