



# Community empowerment through penta helix collaboration in infrastructure-impacted areas

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## ABSTRACT

**Background:** The development of Dhoho International Airport in Kediri Regency represents a strategic government effort to stimulate regional economic growth. Initiated by the private sector through PT SDHI, a subsidiary of PT Gudang Garam, the project has faced challenges from local communities regarding housing and livelihoods. Beyond social shifts, the airport's operation is expected to trigger broader transformations in education, culture, and economics, necessitating rapid community adaptation. This study aims to analyze the post-development impact on local residents. **Methods:** This research employs a descriptive qualitative approach grounded in Penta Helix theory, utilizing purposive and snowball sampling for data collection. **Findings:** The study identifies distinct roles for Penta Helix actors—government as regulators, academics as knowledge providers, private sectors as job creators, media as educators, and civil society as mediators. Strategic planning revealed that community empowerment must integrate local traditions with modern vocational training to optimize economic opportunities. **Conclusion:** Effective empowerment requires synchronized collaboration where the government acts as the primary controller and policymaker to ensure sustainable welfare. **Novelty/Originality of this article:** This research provides a localized strategic framework for community empowerment in airport-affected areas, specifically using the Penta Helix model integrated with SWOT-based survey validation.

**KEYWORDS:** community empowerment; empowerment model; empowerment strategy; Penta Helix actors.

## 1. Introduction

Kediri Regency is a regency located in East Java Province, geographically situated between 111°47'05" and 112°18'20" East Longitude and 7°36'12" to 8°00'32" South Latitude. The territory of Kediri Regency is bordered by five regencies, namely Tulungagung, Nganjuk, Jombang, Blitar, and Malang (Jatim, 2023). According to the Minister of Transportation, Budi Karya Sumadi, after years of assessments and feasibility studies, the government decided to construct an airport in Kediri, surpassing seven other candidate regencies. The presence of this airport is expected to provide positive benefits for the people of Kediri and surrounding regencies in supporting regional economic development (Wijaya,

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2019). The Decree of the Minister of Transportation of the Republic of Indonesia No. KM 28 of 2020 concerning the Determination of the Location of a New Airport in Kediri Regency, East Java Province, was issued on 4 February 2020, with an estimated land requirement of 454.5 hectares (Artanti, 2021).

Through the construction of Kediri Airport, the government is expected to improve the regional economic system, considering the strategic location of Kediri Regency relative to the five neighboring regencies (Safitri et al., 2023). However, several community groups were not prepared for, and even contested, the project because the land acquisition process for Dhoho International Airport had not reached a satisfactory resolution, while the compensation prices offered by the company were considered inadequate. This was particularly significant because residents were required to sacrifice both their homes and livelihoods (Sarti, 2023). Whether positive or negative, airport development affects the socio-economic life of the surrounding communities. It is not easy for residents who have received land compensation to find new agricultural land elsewhere to meet their daily needs, as most villagers in the surrounding area work as farmers. Nevertheless, if utilized effectively, the presence of the airport may improve the economic conditions of nearby communities (Susanto, 2020). Therefore, cooperation among the government, private sector, and especially the community is essential to address the challenges that may arise.

One of the most visible and tangible challenges is social change (Fatkhullah & Habib, 2023). Social change within the community is an impact generated by development initiatives undertaken by the government, as development aims to improve people's quality of life in the economic, political, social, and cultural spheres. Current socio-economic changes include the increasing use of transportation by local communities, particularly air transportation, which has experienced rapid growth within the country (Junari et al., 2022). The impact of airport development includes environmental transformation in the surrounding area, compelling communities to adapt quickly and determine future courses of action. Younger generations are expected to become more innovative and creative, rather than relying solely on compensation payments for acquired land. Post-compensation livelihoods are expected to achieve greater economic welfare and improved well-being. The existence of the airport can be optimally utilized through the potential and human resources possessed by the community (Magdalena, 2022).

In order to maximize the benefits of an international airport, the process must begin with strategic planning. Strategic planning is a process of making strategic decisions or providing methods to formulate and implement strategic decisions, as well as allocating resources to support work units and organizational levels (Agustin, 2018). Law No. 25 of 2004 regulates the National Development Planning System. Strategic planning is applied in the formulation of the Medium-Term Development Plan (RPJM). Based on the background above, this study is interested in examining "Strategic Planning for Empowering Communities in Areas Affected by Dhoho International Airport (A Study in Grogol District)."

The focus of this research is to examine the impact of the airport on communities surrounding Kalipang Village. Kalipang Village was selected because it is located directly adjacent to the airport area. Inevitably, social changes have emerged following the airport's establishment, particularly in economic, educational, and cultural aspects. In addition to social change, threats and challenges will also be faced by the community. Therefore, this research aims to formulate a community empowerment strategic plan for Kalipang Village. The primary objective of this study is to design community empowerment strategies that may subsequently be proposed to relevant stakeholders in order to empower and educate communities in the area surrounding Dhoho International Airport, Kediri.

## *1.1 Theoretical framework*

### *1.1.1 Development planning*

According to Roza and Arliman (2017), planning is defined as "a process of systematically preparing activities to be implemented in the best possible manner by

utilizing limited resources (including economic resources) in order to achieve better socio-economic conditions efficiently and effectively.” Meanwhile, in the context of development, Christine & Suryono (2017) explain that the term “development” originates from the word “bangun,” meaning to rise, awaken, stand, or take shape. Development itself has become a fundamental objective pursued by all nations. Ndraha (Suryono, 2010) states that nations strive to move forward toward better conditions based on their respective systems, generating various forms of progress such as economic growth, reconstruction, modernization, social change, globalization, liberalization and emancipation, innovation, and national development.

Development planning in Indonesia is regulated under Law No. 25 of 2004 concerning the National Development Planning System. To ensure that development is carried out efficiently and effectively, appropriate development planning is essential. Regional development planning constitutes an integral part of the national planning system, aiming to ensure coherence and consistency among planning, budgeting, implementation, as well as control and supervision processes. From an international perspective, development planning is understood as a strategic and multidisciplinary process intended to direct social, economic, and institutional change toward more desirable conditions. Planning functions not only as a technical instrument but also as a structured decision-making mechanism for managing resources, setting priorities, and determining long-term development directions. Along with the evolution of planning theory, approaches that were initially rational and technocratic have shifted toward more adaptive and participatory models. In modern planning literature, planning is no longer viewed as a rigid “blueprint” process, but rather as a dynamic process shaped by interactions among actors, institutional contexts, and surrounding socio-political conditions (Calderon & Westin, 2021). Furthermore, contemporary approaches emphasize that development planning must be capable of accommodating the complexity of public issues through the involvement of multiple stakeholders with differing interests, resources, and perspectives. In this context, planning has evolved into a collaborative process that highlights the importance of dialogue, coordination, and integration among actors in achieving sustainable development goals (Linnenluecke et al., 2017).

Within the context of this study, development planning is understood not merely as a technocratic process, but also as a collaborative process involving multiple actors within a dynamic framework of interaction. This approach emphasizes that the success of development is determined not only by the quality of administrative planning, but also by the ability of the actors involved to establish effective coordination, communication, and synergy. Accordingly, development planning in this study is positioned as a collaborative process operationalized through the Penta Helix approach, involving academics, the business sector, government, the community, and the media in promoting community empowerment within the airport area. This approach is considered relevant given the high complexity of actors and the dynamics of socio-economic change that have emerged, thereby requiring a planning model that is not only integrated, but also adaptive and participatory.

### 1.1.2 Penta helix

The Penta Helix concept is an extension of the Triple Helix model, which was first introduced by Henry Etzkowitz and Loet Leydesdorff. The Triple Helix model emphasizes the interaction among three principal actors—academia, the business sector, and government—as the primary drivers of innovation within a knowledge-based economy. This model positions inter-institutional collaboration as a key mechanism for promoting economic growth and regional innovation (Pique et al., 2018). As the complexity of modern society has increased, the model evolved into the Quadruple Helix framework by incorporating civil society as the fourth actor. This addition was based on the understanding that innovation is no longer generated solely by formal institutions, but is also shaped by public participation, culture, and media as components of a “knowledge society” and

“knowledge democracy” (Cai & Lattu, 2022). In this context, society is understood as a media- and culture-based entity that actively contributes to the creation and diffusion of knowledge.

Furthermore, this development subsequently gave rise to the Penta Helix (or Quintuple Helix) model, which incorporates media as an additional actor, thereby creating a configuration of five key elements: academia, business, government, community, and media. This model emphasizes the importance of synergy among actors in establishing a more inclusive and sustainable innovation ecosystem. From this perspective, innovation is no longer driven solely by economic interests, but also involves social, cultural, and public communication dimensions as integral parts of the knowledge production process (Sudiana et al., 2020).

Accordingly, the Penta Helix can be understood as a systemic and dynamic multi-actor collaboration model that enables cross-sectoral integration and the simultaneous exchange of knowledge. The model also creates opportunities for more flexible and interdisciplinary network configurations, thereby fostering a more comprehensive process of community empowerment, not only in economic terms, but also in social and cultural dimensions.

The Penta Helix concept originally evolved from the Triple Helix model, which consisted of three main elements: academia, the business sector, and government. It was subsequently expanded through the addition of a fourth element—civil society (or community, as referred to in this study)—forming the Quadruple Helix model in order to accommodate societal perspectives. In this context, society is viewed as a “media- and culture-based society,” which has become an integral part of innovation in the twenty-first century. Furthermore, the inclusion of community creates opportunities for cross-disciplinary configurations and networks, while liberating the concept of innovation from being driven merely by economic considerations. Instead, it incorporates creativity as an essential component of the knowledge production and innovation process (Muhyi et al., 2017).



Fig. 1. Penta helix 2.1

### 1.1.3 Community empowerment

Soetarso (2003), as cited in Huraerah (2008), explains that the concept of community empowerment fundamentally refers to the utilization of community resources that have

been enhanced through understanding and the provision of information, in order to further improve capacity, motivation, and roles within society. Furthermore, Suhendra & Amir (2006) define community empowerment as “a concept that emphasizes economic development initially developed based on community values.” This concept reflects a new paradigm that highlights public participation, sustainability, and people-centered development approaches. In this regard, community empowerment functions as an alternative development approach that transforms the traditional paradigm of national development. Conceptually, community empowerment is understood both as a process and as an outcome aimed at enhancing the ability of communities to control decisions and resources that affect their lives. From a theoretical perspective, empowerment is not limited to improving individual capacities, but also encompasses collective and structural dimensions within society. According to Marc A. Zimmerman in empowerment theory, empowerment is a theoretical model explaining how individuals and communities gain control over decisions affecting their lives at the individual, organizational, and community levels (Zimmerman, 2000). This implies that empowerment does not stop at skill enhancement, but also includes the capacity to influence social systems and public policy.

Further research published in the *Journal of Advanced Nursing* explains that community empowerment is a process that enables communities to establish priorities, make decisions, and develop as well as implement strategies to improve their quality of life (Kruahong et al., 2023). In this context, empowerment serves as a tool to reduce social inequality and improve community welfare. Theoretically, community empowerment is also understood as a multi-level concept. A study published in *BMJ Open* indicates that empowerment consists of several levels, namely individual empowerment (psychological empowerment), community empowerment, and socio-political empowerment (Babatunde et al., 2022). This approach emphasizes that empowerment cannot be limited solely to increasing individual capacity, but must evolve toward collective action and structural change.

In addition, Kenneth E. Pigg (2002), in the *Journal of the Community Development Society*, argues that empowerment has three principal dimensions: self-empowerment (individual capability), mutual empowerment (interaction among individuals), and social empowerment (collective community action) (Pigg, 2002). These three dimensions demonstrate that empowerment is a complex social process that cannot be separated from interactions among actors within society. In the context of development, community empowerment is also viewed as an effort to transform conditions of powerlessness into self-reliance through improved access to resources, knowledge, and active participation in development processes (Kruahong et al., 2023). This underscores that empowerment is not merely an end goal, but also a development strategy.

#### *1.1.4 SWOT analysis*

Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis is a well-established method in strategic management. SWOT represents key factors analyzed to evaluate the internal and external conditions of an organization. The primary objective of SWOT analysis is to identify strategies that align with the organization's resources and capabilities in order to meet the demands of the industry environment in which it competes (Gunasekera et al., 2008). According to Rangkuti (2017), this method is based on the logic of maximizing alignment between internal strengths and external opportunities, while simultaneously minimizing internal weaknesses and external threats that may affect the organization.

The SWOT framework generates four strategic directions based on the combination of internal and external factors. The S–O strategy reflects an approach focused on utilizing internal strengths to capitalize on external opportunities, and is considered an aggressive strategy as the organization seeks to maximize its strengths in order to capture the greatest possible opportunities (Rangkuti, 2017); in this study, it plays an important role in identifying and projecting potential opportunities within the research context. In contrast,

the S-T strategy aims to address external threats by utilizing the organization's internal strengths, thereby enabling such threats to be managed or avoided, and is commonly associated with diversification strategies (Rangkuti, 2017), making it important for minimizing unforeseen threats during the observation process. Meanwhile, the W-O strategy, often referred to as a recovery strategy, focuses on minimizing internal weaknesses in order to take advantage of external opportunities that may potentially be achieved by the organization (Rangkuti, 2017), and is highly relevant in this study for utilizing available opportunities for the community despite the loss of employment opportunities. Finally, the W-T strategy serves as a defensive approach aimed at minimizing internal weaknesses while simultaneously avoiding external threats that may affect the organization (Rangkuti, 2017), functioning in this research to reduce internal limitations and prevent potential external risks.

Table 1. SWOT analysis 2.1

	Strenght	Weaknesses
Opportunities	S-O Utilizing Potential to Seize Opportunities	WO Overcoming Weaknesses to Seize Opportunities
Threath	S-T Utilizing Potential to Overcome Threats	W-T Minimizing Weaknesses to Overcome Threats

Source: Rangkuti (2016)

### 1.1.5 Previous studies

In the study conducted by Junari et al. (2022), the objective was to analyze the socio-economic impacts of the development of Dhaha Airport on surrounding communities, particularly in Tiron Village. The research employed a qualitative method using purposive sampling. The findings indicated that airport development generated social impacts, including changes in community perspectives and mindsets toward education, as well as improvements in the quality of human resources. The study by Ramadhan et al. (2024) aimed to examine Dhaha Kediri International Airport as a privately developed airport and to identify the social and economic impacts resulting from its construction as a form of social learning. The findings revealed that strong policy interventions are required to improve community welfare, particularly for those directly affected by airport development.

Meanwhile, research conducted by Muchson & Kumar (2023) sought to assess social environmental conditions and community circumstances, identify environmental impacts caused by airport development, and explore efforts to minimize such impacts. This study applied a quantitative descriptive analysis method. The study by Ahmad & Esposito (2025) emphasized the necessity of collaborative governance in addressing waste management issues in the Campania region. Through inclusive decision-making, trust-building among citizens, and highlighting the transformative nature of leadership, the study demonstrated how these aspects are crucial for achieving social change and ensuring community resilience. Understanding governmental social dynamics and the value placed on transformative leadership is essential for fostering change within local and cultural settings.

In the recent development of the literature, collaborative approaches such as the Penta Helix model do not always operate ideally as assumed in normative frameworks. The study by Muzaqi et al. (2025) showed that in the context of Dhoho Airport development, collaboration among actors was often symbolic, as community participation remained limited due to inadequate access to information and low transparency. These findings indicate that although multi-actor involvement formally existed, substantive inequalities in power relations persisted.

A similar conclusion was found in studies of Penta Helix-based collaboration within the creative economy sector, which demonstrated that collaborative effectiveness depends greatly on the level of community participation and government responsiveness (Rachman

& Thalib, 2025). However, the study also highlighted structural barriers such as inefficient bureaucracy and limited resources, which may hinder optimal policy implementation. On the other hand, in the context of tourism development, the Penta Helix model has proven capable of increasing community participation and economic welfare when collaboration is conducted in a balanced manner (Afandi et al., 2024). Nevertheless, other studies indicate that weak coordination among actors and minimal community involvement may lead to failure in collaborative implementation (Idris et al., 2025).

Furthermore, research on collaborative governance in the context of village development shows that multi-actor collaboration frequently faces challenges in the form of unequal access to resources and the dominance of certain actors (Muhammad Jaiz et al., 2025). This condition is reinforced by studies on Environmental Impact Assessment (AMDAL) processes, which found that although all actors were formally involved, decision-making remained dominated by government and private-sector actors (Muklis et al., 2022). Within the context of Penta Helix-based development, other studies indicate that the success of collaboration is strongly determined by the quality of interaction among actors, including communication, trust, and balanced role distribution (Reski Lestari, 2024). However, without strong control mechanisms, collaboration risks becoming ineffective and merely ceremonial. In addition, collaborative governance approaches also face challenges in ensuring the sustainability of empowerment programs. Studies show that many collaboration-based empowerment programs fail to achieve long-term impacts due to weak community capacity and inadequate policy integration (Wijaya et al., 2026).

## **2. Methods**

### *2.1 Research design*

This study employed an exploratory sequential mixed-methods design, beginning with a qualitative approach to identify phenomena, followed by a quantitative approach to test and strengthen the findings. This design allows for an in-depth exploration of complex social realities before proceeding to measurement and validation, thereby enhancing the robustness of the results. The integration of qualitative and quantitative approaches ensures that the findings are both contextually grounded and empirically supported.

### *2.2 Study area and population*

The research was conducted among communities affected by the development of Dhoho International Airport in Grogol District. The study population consisted of individuals directly affected by airport development. The inclusion criteria were: (1) individuals who experienced residential relocation, (2) individuals who lost or experienced changes in their livelihoods, and (3) local business actors in the affected area. These criteria were established to ensure that participants had direct and relevant experiences related to the socio-economic impacts of the development project.

### *2.3 Sampling and participants*

In the qualitative phase, informants were selected using purposive sampling, which was subsequently expanded through snowball sampling. This approach enabled the identification of key stakeholders and the inclusion of participants with rich and relevant information. The total number of informants consisted of four affected community members, two representatives from local government, two representatives from the private sector, one academic, and one media representative. In addition, two Focus Group Discussions (FGDs) were conducted, each involving 6–8 participants. The combination of individual interviews and FGDs allowed for both depth and interaction in data collection, capturing diverse perspectives and validating emerging insights through group dynamics.

## 2.4 Research instrument

The research instrument for the qualitative phase was a semi-structured interview guide covering aspects of social and economic impacts, as well as community adaptation strategies. The semi-structured format provided flexibility for probing deeper into participants' responses while maintaining consistency across interviews. This ensured that key themes were systematically explored without restricting the emergence of new insights from the field. In the quantitative phase, a questionnaire using a five-point Likert scale was employed to measure the level of importance and influence of each factor. An example questionnaire item was: "Airport development increases economic opportunities for the community." The instrument was pilot-tested on 70 respondents to ensure the clarity and relevance of the questions. This pilot testing phase was essential to refine the instrument and improve its validity before full-scale data collection.

## 2.5 Data analysis

Qualitative data analysis was conducted through open coding, categorization, and theme development using a thematic analysis approach. The results of this analysis were used to identify internal and external factors, which were then classified within the SWOT framework. This step ensures that qualitative insights are systematically organized and translated into strategic components. Subsequently, quantitative analysis was carried out by calculating scores and weights using the formula  $\text{weight} \times \text{rating}$  to determine strategic priorities. This approach allows for the prioritization of factors based on their relative importance and influence. Data processing was conducted using Microsoft Excel, ensuring transparency and replicability in the analytical procedures.

## 2.6 Ethical considerations

This study also considered ethical aspects by ensuring informed consent from respondents, maintaining the confidentiality of identities, and taking into account the social sensitivity of affected communities throughout the data collection process. These ethical safeguards are essential given the potentially vulnerable position of participants affected by development projects. By adhering to these principles, the study ensures that data collection was conducted responsibly and respectfully.

# 3. Results and Discussion

## 3.1 Research findings

The development of Dhoho International Airport has generated significant impacts on the socio-economic conditions of communities in Grogol District, Kediri Regency. Based on data collection, this study involved 10 informants in the qualitative phase, consisting of affected community members, government representatives, private-sector actors, academics, and media representatives, as well as 70 respondents in the survey phase. The results of the qualitative analysis indicate that the primary impact experienced by the community was changes in livelihoods resulting from the loss of agricultural land. Most informants reported decreased income and difficulties in adapting to new types of employment. As stated by one informant, "Since my land was acquired, I lost my main source of income and have not yet obtained permanent employment" (Informant M3). In addition, social changes occurred, particularly in patterns of community interaction and shifts in economic activities.

On the other hand, airport development also created new economic opportunities, such as the emergence of small businesses around the airport area and increased trading activities. Several informants reported transitioning to the informal sector as a form of adaptation to these changes. Based on the identification of internal and external factors,



several strategic factors were identified and classified through SWOT analysis. Strengths included government support and a strategic location, while the primary weakness was the low skill level of the community in responding to economic change. Opportunities included the growth of new economic activities around the airport, whereas threats included loss of livelihoods and potential economic inequality.

The results of the quantitative analysis showed that opportunity factors obtained the highest score compared with other factors, placing the strategic position in Quadrant I (Strengths–Opportunities). This position indicates that the resulting strategy is oriented toward utilizing strengths to capture available opportunities. Based on these findings, several alternative community empowerment strategies were formulated, involving the roles of Penta Helix actors, including government, the private sector, academia, media, and the community.

These findings are consistent with the argument of Ansell & Gash (2008), who state that collaborative governance often fails to achieve substantive participation when significant power imbalances exist among stakeholders, resulting in symbolic involvement rather than genuine collaboration. Furthermore, empowerment should not be understood merely as capacity enhancement, but also as a process of gaining control over decision-making and resources, as emphasized by Perkins (1995). This perspective highlights that without structural inclusion, empowerment programs risk becoming procedural rather than transformative.

### 3.2 Discussion

#### 3.2.1 General description of respondents

This study involved informants representing the Penta Helix actors, namely government, the private sector, the community, academia, and mass media. A total of eight informants participated in this study, consisting of two informants from the government sector, one informant from the private sector, three informants from the community, one informant from academia, and one informant from the mass media. Within the government sector, informants were selected from Regional Development Planning Agency of Kediri Regency (BAPPEDA) and the Kalipang Village Government, chosen because of their roles in planning and implementing development in areas affected by the airport. From the private sector, the informant was a partner collaborating with PT Surya Dhoho Investama (PT SDHI), which was involved in the airport development and expansion process. In the community sector, informants consisted of community leaders and affected residents, selected to obtain information regarding the direct impacts of airport development on the social and economic conditions of local communities. From academia, the informant was a lecturer from University of Kediri, selected based on their capacity to provide academic perspectives on development policy.

Meanwhile, from the mass media sector, the informant was from Radar Kediri, representing the role of media in disseminating information and reporting airport developments. The selection of informants was conducted purposively, taking into account each actor's involvement and knowledge regarding the phenomenon under investigation.

#### 3.2.2 Qualitative analysis results

Community empowerment strategies in areas affected by Dhoho International Airport in Kediri, as well as the roles of Penta Helix actors in supporting the process. Interview data obtained from various informants were subsequently analyzed qualitatively to identify problem patterns, resulting impacts, and forms of intervention undertaken by each actor. The results of this analysis are presented as follows.

Table 2. Qualitative analysis results by penta helix actor

Government	
Regional Development Planning Agency (BAPPEDA)	The government has undertaken various efforts to empower the community through skills training programs and the provision of employment access around the airport, particularly in operational jobs. The training provided has been adjusted to the needs of the airport and its supporting sectors; however, the outcomes remain limited because community members tend to enter only positions requiring basic skills. Cooperation between the government and the private sector has become an important factor in creating new economic opportunities, including in the tourism sector and community-based enterprises. The main constraint lies in the low quality of human resources and the limited readiness of the community, which has prevented them from fully utilizing available opportunities. Airport development has generated positive impacts on the regional economy, but this has not yet been accompanied by a clear long-term plan to ensure the sustainability of community empowerment.
Kalipang Village Government	The government does not have sufficient authority over the airport's development, operation, and expansion.
Private Sector	
PT. SDHI Partner	There is a lack of awareness regarding the problems that have emerged and are being faced by the local community as a result of the closure of Dhoho International Airport.
Academia	
Social and Political Expert, University of Kediri	There is no access or opportunity for the community to provide input or suggestions regarding airport operations.
Community	
Airport-Affected Community	The human resources in Kalipang Village are insufficient to become skilled workers in airport operational sectors. There is a lack of funding to develop the tourism potential in Kalipang Village. Access to roads has improved. However, as a consequence, some community members have lost their jobs and the distance to schools has become greater. There is a phenomenon of social "shock," in which compensation funds received for land sold to PT Surya Dhoho Investama (PT SDHI) have been spent on non-essential items, including the purchase of vehicles that some residents are unable to operate.
Media	
Radar Kediri	It is difficult to report on developments in airport operations because the company overseeing it is highly closed and lacks transparency.

The results of the qualitative analysis can be explained as follows: First, from the resource perspective, both the local government and the community highlighted limitations in human and financial resources. Local human resources were considered to lack the competencies required to participate in airport operations, while budget constraints hindered the development of alternative economic potential such as tourism villages. This indicates insufficient internal readiness within the region to respond to a large-scale development program. Second, from an institutional perspective, there were indications of weak distribution of authority, particularly at the village government level. The Kalipang Village Government stated that it did not possess sufficient authority in the development process or in airport management. This condition reflects an imbalance of roles among

actors, as well as a tendency toward a top-down approach that limits local government capacity in decision-making.

Third, from the social perspective, the airport development program has generated significant impacts on the community. Changes in accessibility have caused some residents to lose employment and to face mobility difficulties, including in accessing education. In addition, a phenomenon of “social shock” has emerged due to land compensation not accompanied by adequate financial education, resulting in unproductive, consumptive behavior. Fourth, from the communication and transparency perspective, there were limitations in access to information and minimal involvement of external actors. The academic community had not been given sufficient space to provide input, the mass media faced difficulties in conducting coverage, and the private sector was perceived as lacking a comprehensive understanding of the actual conditions of the community. This indicates that communication processes among stakeholders have not been conducted openly and participatively.

Overall, these findings indicate that program implementation has not been supported by adequate readiness, both in terms of regional internal capacity and collaborative governance among actors. This lack of synergy could hinder program effectiveness and reinforce the negative impacts on the local community. These conditions collectively underscore the urgency of a more structured and inclusive approach to empowerment. Without meaningful redistribution of roles, improved transparency, and capacity-building at the community level, the collaborative framework risks remaining procedural rather than transformative. Accordingly, the findings from this qualitative analysis serve as the foundation for the subsequent SWOT-based strategic formulation, which aims to translate the identified gaps into actionable empowerment strategies that involve all Penta Helix actors. Each actor—government, private sector, academia, community, and media contributed distinct perspectives that reflect both the challenges and the potential entry points for intervention. The diversity of these viewpoints reinforces the importance of a multi-stakeholder approach in designing empowerment strategies that are both contextually grounded and structurally responsive. To provide a clearer and more systematic overview of the qualitative findings across all five actor groups, the key results are summarized in the following table.

### 3.2.3 SWOT analysis results

Based on the integration of qualitative analysis findings and quantitative data obtained from 70 respondents, this study identified strategic factors influencing community empowerment in areas affected by Dhoho International Airport in Kediri. These factors were subsequently analyzed using the SWOT framework to map the internal and external conditions encountered. The following presents the percentage results of the questionnaire survey data:

Table 3. Factor scoring and strategic position determination

Factor	Item	Weight	Rating	Score
Strengths	Driving factors in community empowerment	10	13	30.3
Weaknesses	Inhibiting factors in community empowerment	10	13.35	27.1
Opportunities	Empowerment opportunities	10	14.4	29.2
Threats	Empowerment threats	10	13.53	27.68

Based on the SWOT analysis table, the highest score was found in the strength factor, with a score of 30.3 compared with the other factors. Based on this result, the strategic position lies in Quadrant I (Strengths–Opportunities), indicating an aggressive strategy. The findings of this study indicate that although the Penta Helix model has been implemented,

the collaboration that has occurred does not yet fully reflect the principles of ideal collaborative governance. This is consistent with the findings of Muzaqi et al. (2025), which state that community participation in airport development tends to be symbolic and has not reached the level of substantive participation.

In this context, the dominance of the private sector as the principal actor in airport development becomes a key factor influencing the distribution of power among actors. The private sector possesses greater control over resources and decision-making processes, thereby limiting the roles of other actors, particularly the community. This condition demonstrates the existence of a power imbalance within the collaborative structure, which has the potential to hinder the process of community empowerment. These findings also reinforce previous studies showing that in many cases of multi-actor collaboration, community involvement is often not accompanied by increased capacity or access to decision-making processes (Muhammad Jaiz et al., 2025). As a result, the empowerment that occurs tends to be more administrative than transformational.

In addition, weak transparency and communication among actors further aggravate collaborative conditions. This is in line with other research findings indicating that a lack of information openness may reduce public trust in government and the private sector (Muzaqi et al., 2025). Accordingly, it can be concluded that the implementation of the Penta Helix model in this context still faces structural challenges, particularly regarding the distribution of power, actor capacity, and the quality of interaction among stakeholders. Therefore, an approach is required that not only focuses on formal collaboration, but also on redistributing roles and strengthening community capacity as the principal actor in the empowerment process.

### *3.2.3.1 Community empowerment planning strategies*

After obtaining data through the snowball sampling method, a questionnaire survey was conducted targeting each Penta Helix actor. The results indicated a position in the Strengths–Opportunities (S–O) quadrant, serving as the basis for the following strategic formulations. The first strategy involves strengthening collaboration and training for economic growth by utilizing the traditional values of mutual cooperation (*gotong royong*) and community service in Kalipang Village to strengthen empowerment and training programs initiated by the Kediri government, aimed at better preparing the community to take advantage of employment opportunities created by airport development and to stimulate local economic growth. The second strategy focuses on tourism village development supported by infrastructure, integrating community empowerment programs and traditional values with the development of the tourism potential of Kalipang Village, including *Ngleyangan Waterfall*, supported by improved road access infrastructure, with the aim of attracting more tourists and enhancing the village economy.

The third strategy emphasizes the utilization of employment opportunities and skills improvement by maximizing government-provided training programs to enable residents to access employment opportunities within the airport and its development projects, thereby improving their living standards and welfare. The fourth strategy encourages active community participation in airport development through proposals that have been accommodated and addressed, ensuring that residents can be involved in airport development and its supporting infrastructure and obtain direct benefits from economic growth and improved facilities. Finally, the fifth strategy promotes collaboration for MSME and tourism development by utilizing traditional values and government empowerment programs to develop local micro, small, and medium enterprises (MSMEs) capable of meeting airport-related needs, while simultaneously promoting the tourism potential of Kalipang Village, creating synergy between economic growth and local tourism development.

### 3.2.3.2 Community empowerment model

In this study, the researchers formulated a community empowerment model that integrates the respective roles of each Penta Helix actor. The government acts as the principal controller and regulator of all roles, with responsibility as the policy maker in empowering the community, particularly in the economic, social, and cultural sectors. The private sector serves as an investor and capital provider, contributing to job creation, partnerships with micro, small, and medium enterprises (MSMEs), corporate social responsibility (CSR) programs, as well as innovation and product development. Academia is responsible for providing training to communities surrounding the airport and offering policy advocacy, while the mass media plays a role in providing broad access to information and functioning as a marketing channel to promote products related to community empowerment. The community itself functions as social capital through community leaders and local agents, actively participating in empowerment programs while maintaining social harmony and tolerance. The following is an illustration of the community empowerment model:

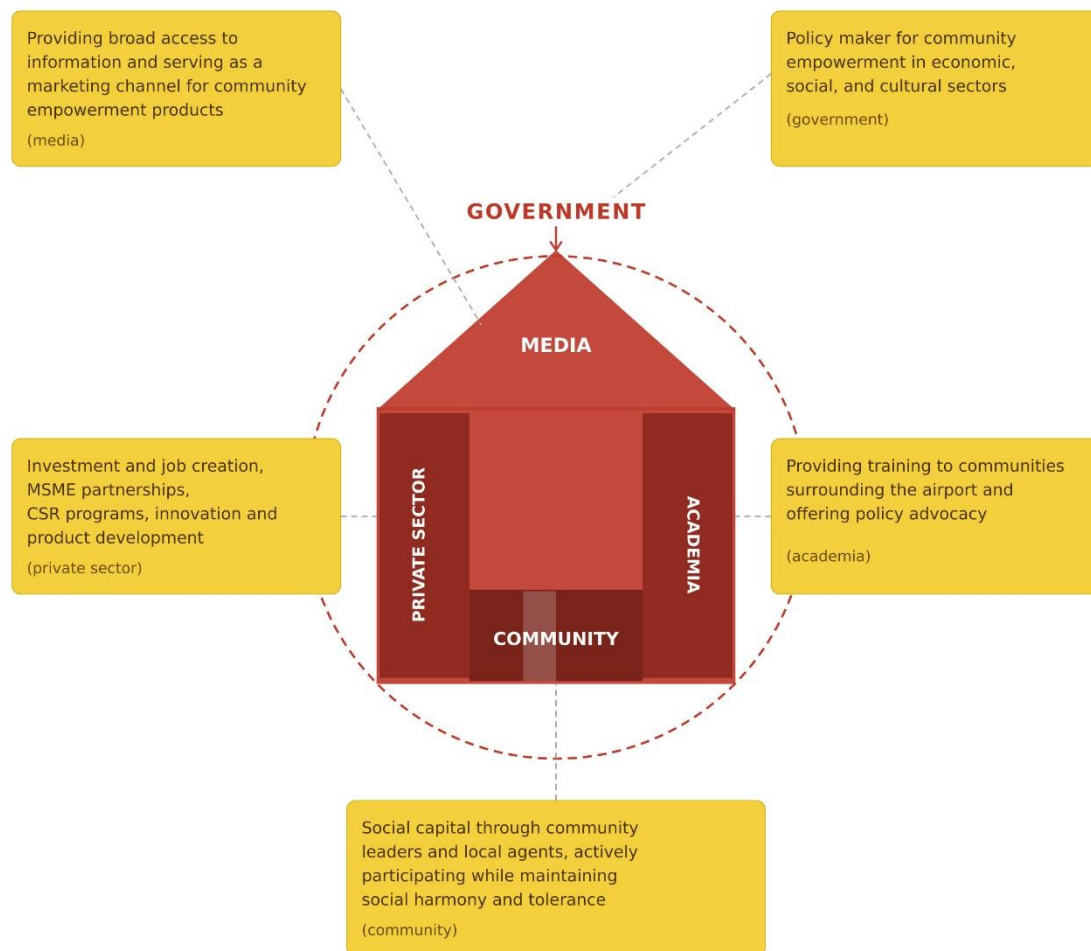


Fig. 2. Illustration of the community empowerment model

This reflects the collaboration of Penta Helix actors in the community empowerment process. In this model, the government is illustrated as a dashed circle, symbolizing its role as supervisor, regulator, and key actor in community empowerment. Second, academia and the private sector function as the foundation of community empowerment. These two elements serve as the main pillars supporting the empowerment process. The private sector acts as a provider of capital and contributes to economic circulation, while academia plays

a role in enhancing community human resources through training, knowledge transfer, and the provision of policy recommendations to empower communities in areas affected by Dhoho International Airport.

Furthermore, the community constitutes the core foundation of this empowerment model, as the primary focus of this study is the community itself. The community functions as social capital in the empowerment process and is therefore expected to collaborate actively and participate in empowerment initiatives. Finally, the mass media is positioned at the top of the model, representing its role in opening broad information networks and serving as a marketing channel to promote businesses and other activities related to community empowerment.

#### **4. Conclusions**

Based on the analysis conducted, it can be concluded that each Penta Helix actor plays an important role in supporting the community empowerment process in areas affected by airport development. The government acts as planner, facilitator, and supervisor through policy formulation, program socialization, and the monitoring and evaluation of empowerment initiatives. The private sector contributes through the provision of resources, training, job creation, and support for local economic development. Academia plays a role in providing scientific studies and innovation, the media functions as a channel for information dissemination and public education, and the community acts as the principal actor directly involved in the empowerment process. However, this study has several limitations that should be considered. First, there are limitations in the sampling technique that may generate bias, meaning that the findings may not fully represent all affected community groups. Second, the findings have limited generalizability because the study focuses on a specific regional context. Third, the use of SWOT analysis in this study is descriptive in nature, which limits its ability to examine causal relationships among the analyzed factors in greater depth.

Based on these limitations, future research is recommended to conduct comparative studies in other regions with similar characteristics in order to strengthen the validity and generalizability of the findings. In addition, longitudinal studies are needed to examine long-term social changes and livelihood recovery among affected communities. Further research may also develop intervention models based on collaborative governance among Penta Helix actors to improve the effectiveness of community empowerment programs. This study also confirms that the success of the Penta Helix model is determined not only by the presence of complete actors, but also by the quality of relationships among those actors. Without a balance of power and meaningful participation, collaboration risks becoming merely symbolic and unable to produce sustainable empowerment.

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#### **Author Contribution**

Conceptualization, A.F.B.D. and A.Y.R.; Data curation, A.F.B.D., N.S.M., and Y.E.W.; Formal analysis, A.F.B.D. and N.S.M.; Funding acquisition, n/a; Investigation, A.F.B.D., N.S.M., Y.E.W., and A.Y.R.; Methodology, A.F.B.D. and N.S.M.; Project administration, A.F.B.D.;

Resources, A.F.B.D.; Software, n/a; Validation, A.F.B.D. and E.D.C.; Visualization, A.Y.R.; Writing – original draft, A.Y.R.; Writing – review & editing, A.F.B.D. and E.D.C.

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Not available.

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The authors declare no conflict of interest.

### **Declaration of Generative AI Use**

During the preparation of this work, the author(s) used ChatGPT AI to assist in improving grammar, clarity, academic tone, and English translation of the manuscript. After using this tool, the author(s) reviewed and edited the content as needed and took full responsibility for the publication.

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