

Triple Helix Governance for Strengthening Islamic Boarding School Agribusiness

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Abstract: Islamic boarding schools increasingly function not only as religious educational institutions but also as drivers of local economic development. This study aims to analyze the implementation of Triple Helix Governance in strengthening Islamic boarding school-based agribusiness through the Trubus Sentra Agrobisnis (TSA) Producer Cooperative in Paser Regency. This research applies a qualitative case study method using interviews, observation, and document analysis to explore collaboration among government institutions, business actors, and research organizations. The results show that the development of TSA is supported by strong collaboration among key stakeholders. Government institutions provide policy support and facilitation, research institutions contribute technological innovation, while business actors and zakat-based organizations strengthen economic networks and production capacity. This collaborative governance model enhances institutional capacity and supports sustainable agribusiness development. The study demonstrates that Islamic boarding schools can transform into community-based economic institutions through cooperative mechanisms. The integration of religious values, innovation, and policy support makes TSA a replicable model for strengthening local agribusiness governance and sustainable regional development.

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INTRODUCTION

This study discusses the application of the Collaborative Governance model in the management of Islamic boarding schools, particularly in strengthening the agribusiness sector. This approach refers to the concept of cross-actor collaboration developed by (Ansell & Gash, 2008), which emphasizes the importance of interaction between the state, community, and private sector in solving public problems. The focus of the study is directed at the activities of the Trubus Agribusiness Center at the Producer Cooperative of the Trubus

Iman Islamic Boarding School, which involves the government, business sector, and research institutions in supporting the strengthening of the Islamic boarding school economy. The relationship pattern is analyzed using the Triple Helix framework introduced by (Etzkowitz & Leydesdorff, 2000), where innovation is driven through interactions between universities, industry, and government. This study highlights the activities of the Trubus Agribusiness Center at the Producer Cooperative of the Trubus Iman Islamic Boarding School which involves various cross-actors in its implementation. The actors involved, such as the government, business sector, and research institutions, build relationships in agribusiness strengthening activities at the Trubus Iman Islamic Boarding School. The relationship patterns established by these actors are analyzed using the Triple Helix Governance model, first identifying the problems in agribusiness strengthening activities at the Trubus Iman Islamic Boarding School. Most Islamic boarding schools face serious obstacles in building economic independence due to limited human resources. Business unit management is generally still carried out traditionally without the support of managerial skills, financial literacy, or adequate marketing strategies. As a result, many business units are unable to develop or operate only on a small scale. This obstacle aligns with the findings of community institutional studies that identify low internal capacity as a major inhibiting factor for local economic development (Uphoff, 2000). This condition has caused many Islamic boarding school cooperatives to stall at the administrative stage, lacking reliable governance and reporting systems.

Over the past two decades, the number of Islamic boarding schools in Indonesia has increased rapidly, but this growth has not been accompanied by equitable economic strengthening. Although the government records tens of thousands of Islamic boarding schools, only a small proportion are able to manage their economic activities optimally. To date, statistical agencies such as the Statistics Indonesia (BPS) have not provided comprehensive data on the economic performance of Islamic boarding schools, in terms of business productivity, contribution to society, or cooperative effectiveness. The lack of standardized data indicates that economic development has not been a primary focus in policies to strengthen Islamic boarding schools (*pesantren*). This lack of standardized data indicates that economic development has not been a primary focus in policies to strengthen Islamic boarding schools (Azra, 1999). Access to financing is another challenge. Many Islamic boarding schools lack legal business registration and financial administration that meet the standards of financial institutions, making it difficult to obtain capital from banks or Islamic financial institutions. This situation makes economic activities dependent on internal funds with limited capacity, making business expansion and new innovations difficult. Limited external networks also hamper the economic development of Islamic boarding schools. Although there are several examples of Islamic boarding schools that have successfully established collaborations with the government, research institutions, or industry, the majority have not received technological assistance, access to research, or marketing support. This lack of cross-sector collaboration prevents Islamic boarding schools from developing their economic potential optimally.

This situation indicates that the economic stagnation of Islamic boarding schools is largely caused by a weak supporting ecosystem, both internally and externally. Strengthening the *pesantren* economy therefore requires an integrated approach, including human resource development, improved cooperative governance, access to financing, modernization of production facilities, and strategic partnerships. Without these efforts, many Islamic boarding schools will continue to lag behind innovative and collaborative institutions such as Trubus Iman. External constraints also hinder economic development. Collaboration with government institutions, Islamic financial organizations, higher education institutions, and industry remains limited, restricting access to technology, capital, and innovation. These challenges are further compounded by weak marketing capacity, limited distribution networks, lack of product certification, and insufficient readiness for digital markets. Strengthening cross-sector collaboration is therefore essential to improve the sustainability and economic capacity of Islamic boarding schools

Previous research has not extensively discussed the application of Triple Helix governance in the context of Islamic boarding school cooperatives as new economic actors (Febrianty, 2024; Yusuf, 2020). Previous research by Ramadhan et al. (2024) highlights the important role of Islamic boarding school cooperatives in strengthening economic independence through improving the welfare of students and surrounding communities. Various international studies show that the Triple Helix model plays an important role in promoting innovation, entrepreneurship, and sustainable economic development through collaboration among government, industry, and research institutions (Etzkowitz & Leydesdorff, 2000; Dzisah & Etzkowitz, 2008; Etzkowitz et al., 2023; Etzkowitz, 2018; Gálvez, 2022). However, the study mainly focuses on cooperative management and institutional challenges and does not specifically analyze collaborative governance through the Triple Helix approach. This study offers a novel contribution by analyzing the application of Triple Helix Governance through the Trubus Iman Islamic Boarding School Producer Cooperative (Trubus Sentra Agrobisnis), which demonstrates tangible collaborative practices among government institutions, research organizations, and socio-economic actors. The cooperative has successfully established professional governance, strengthened research collaboration, and developed sustainable funding partnerships. In contrast, the Trubus Iman Islamic Boarding School Producer Cooperative (Trubus Sentra Agrobisnis) has demonstrated more tangible achievements. This Islamic boarding school has successfully established professional cooperative governance, strengthened collaboration with research institutions, and established funding partnerships. Through collaboration with BRIN, Trubus Iman is involved in field research and cultivation of Sinta PonSoe oranges, including assistance with plant disease control. Furthermore, partnerships with the Paser Regency BAZNAS and East Kalimantan BAZNAS support the development of productive zakat-based sheep farming, from providing livestock and building pens to processing feed and waste into fertilizer.



Figure.1 Cooperation between Baznas East Kalimantan and Trubus Iman Islamic Boarding School

Source: Official Website of Trubus Iman Islamic Boarding School

In 2024, this Islamic boarding school cooperative even received the Achievement Cooperative Award from the East Kalimantan Provincial Government in recognition of its contribution to the agriculture, plantation, fisheries, and MSME sectors. This collaboration with various parties illustrates the practice of the Triple Helix Governance model, namely the synergy between government, research, and industry as the basis for developing innovation and economic sustainability. Based on the background and theoretical review, the comparison between Islamic boarding schools facing stagnation and the success of the Trubus Iman Islamic Boarding School Producer Cooperative shows that the economic transformation of Islamic boarding schools can be achieved through modern governance, strategic collaboration, and strengthening the supporting ecosystem. With the right strategy and long-term commitment, Islamic boarding schools can develop into centers of productive and sustainable economic activity. Therefore, this study aims to analyze the implementation of Triple Helix Governance in strengthening Islamic boarding school-based agribusiness through the

Trubus Iman Islamic Boarding School Producer Cooperative as a model of collaborative economic development.

RESEARCH METHOD

This research employed a qualitative approach, aiming to gain a deeper understanding of the phenomenon through direct interaction with informants (Creswell & Creswell, 2017). This study employed a descriptive qualitative approach to gain a deeper understanding of the collaborative process with various parties, reflecting the practice of the Triple Helix Governance model, namely the synergy between government, research, and industry as the basis for developing innovation and economic sustainability. This approach was chosen because it is suitable for exploring complex, contextual, and quantitatively immeasurable social realities. Qualitative research allows researchers to comprehensively explore the perspectives of local actors, inter-institutional relationships, and social factors influencing the success or obstacles in implementing Triple Helix Governance in managing Islamic boarding schools' economies. In-depth interviews were used to explore the actors' broader understanding, as recommended by Moleong & Surjaman, 1989, in qualitative research. Several parties were selected as interview informants in this study as presented in Table 1.

No.	Informant	Position/Role	Rationale for Selection
1	Informant 1	Advisor of the Trubus Iman Islamic Boarding School Cooperative	Waqf administrator who understands strategic policy direction.
2	Informant 2	Head of the Trubus Iman Islamic Boarding School Cooperative	Key decision-maker and liaison between school, government, and industry.
3	Informant 3	Head of Agribusiness Division	Responsible for agribusiness operations.
4	Informant 4	Representative from BRIN	Represents research, technology, and innovation.
5	Informant 5	Representative from BAZNAS East Kalimantan	Provides zakat-based economic support.
6	Informant 6	Community Representative of Paser Regency	Direct beneficiary providing community insights.

Table 1. Research Informants and Selection Rationale

Source: author's work

The research location focused on the Trubus Iman Islamic Boarding School Agribusiness Center, which was purposively selected based on the cooperative's implementation of the Triple Helix Governance concept in managing the economic sector, leading to Islamic boarding school independence and socio-economic impacts for the local community. The success of the Trubus Iman Islamic Boarding School Producer Cooperative demonstrates that Islamic Boarding school economic transformation can be achieved through modern governance, strategic collaboration, and strengthening the supporting ecosystem.

Data analysis was conducted using an interactive qualitative approach, with stages of data reduction, data presentation, and conclusion drawing, as developed by Miles et al., 2013. Data validity was maintained through triangulation of sources and methods, and data validity was checked through discussions with informants and peer debriefing. This study did not use hypotheses because it aimed to build contextual understanding, not to test relationships between variables. The primary focus was to produce reflective and interpretive findings on Triple Helix Governance in strengthening Islamic boarding school agribusiness.

RESULT AND DISCUSSION

Trubus Iman Islamic Boarding School Transformation Strategy: Integrated Productive Waqf & Agribusiness from a Triple Helix Governance Perspective

Research results show that the transformation of waqf land management at Trubus Iman Islamic Boarding School toward an integrated productive waqf and agribusiness model demonstrates innovative collaboration-based governance practices. The utilization of 375 hectares of waqf land at Trubus Iman Islamic Boarding School for productive economic activities is a crucial strategy for strengthening the independence of religious institutions (Febrianty, 2024). This change not only generates economic value but also strengthens social,

educational, and community empowerment functions. In this context, the Triple Helix Governance approach, which emphasizes synergy between the government, business, and educational institutions, serves as an analytical framework for understanding the success of the waqf development model at this Islamic boarding school.

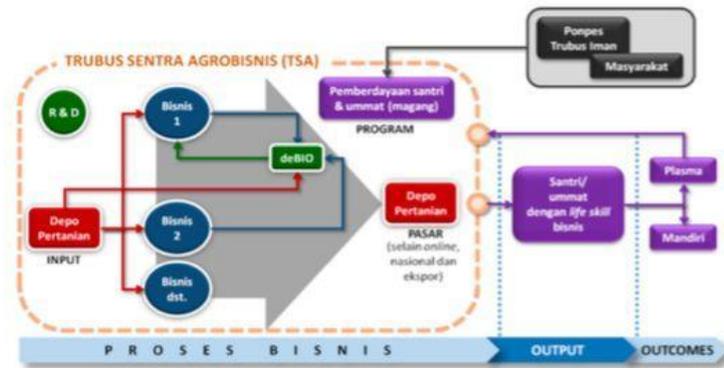


Figure.2 Productive Waqf Asset Empowerment Process Model for Islamic Boarding Schools
Source: Profile Of The Trubus Iman Islamic Boarding School Cooperative

Based on the Trubus Agribusiness Center (TSA) Model developed by the Trubus Iman Islamic Boarding School, it depicts an integrated agribusiness ecosystem based on productive waqf that connects three main actors within the Triple Helix Governance framework: educational or knowledge institutions, the business sector (agroindustry), and the community (government as a network facilitator).

1. First Helix: Islamic Boarding Schools as Centers of Knowledge and Innovation (Knowledge/Academy)

Within the Pentahelix framework, the first helix (Knowledge/Academy) refers to actors responsible for generating knowledge, innovation, and enhancing human resource capacity. This component is typically represented by universities, research institutions, or educational institutions, which serve as primary sources of science, technology, and innovation in the development process. In other words, this helix plays a strategic role as a knowledge producer and technology disseminator within the Pentahelix collaborative ecosystem. In the context of this research, the academic helix is represented by the Trubus Iman Islamic Boarding School Producer Cooperative (Trubus Agribusiness Center). Although traditionally known as religious educational institutions, research has found that Islamic boarding schools (pesantren) are capable of performing academic functions similar to universities within the Triple Helix model: generating innovation, building human resource capacity, and serving as centers for knowledge development. This role is highly relevant to the research focus on how Islamic Boarding School Producer Cooperatives can become drivers of Pentahelix-based agribusiness, as innovation and capacity building are key prerequisites for successful collaboration between actors.

This research also demonstrates the role of the Trubus Iman Islamic Boarding School in empowering students and the community. The Islamic boarding school not only carries out educational functions but also acts as an innovation center (knowledge hub) through: Research & Development (R&D) developing organic farming technologies (e.g., deBIO); internship programs conducted in collaboration with vocational schools in Paser Regency; and the empowerment of students across all TSA business units; and the transfer of modern agricultural technology from research to field practice. This role demonstrates that Islamic boarding schools fulfill the "university" function within the Triple Helix, producing knowledge, innovation, and skilled human resources (HR). Islamic boarding school-based agribusiness has proven to be a driving force for empowering village communities through the creation of employment opportunities and increasing the capacity of residents (Fauroni, 2011).



Figure.3 Internship Program

Source: Documentation of the Trubus Iman Islamic Boarding School Producers Cooperative

The internship program, run by Vocational High Schools (SMK) and Trubus Agribusiness Center, plays a crucial role in introducing students to the world of work in modern agriculture. Through this activity, students can learn firsthand how to manage a farm, from cultivation processes and the use of organic fertilizers to the application of technologies developed within the TSA environment. This field experience helps them understand the difference between classroom theory and real-world practice in the industry. Internships also help schools and TSA establish a mutually beneficial relationship. SMKs can ensure that students' skills align with industry needs, while TSAs have the opportunity to develop potential workers who are already familiar with their work systems. Furthermore, this activity serves as a means of knowledge transfer, as students can follow production processes, understand business unit management, and observe firsthand how innovation is applied in daily farming activities. Overall, this internship program strengthens vocational learning and supports the development of human resources ready to participate in the agribusiness sector. From the perspective of Collaborative Governance theory, the partnership between SMK and Trubus Agribusiness Center demonstrates how cross-actor collaboration can be formed through interactions governed by shared interests, trust, and clear role allocation (Ansell & Gash, 2008). In this context, schools, TSA, and Islamic boarding schools serve as key actors involved in joint decision-making regarding practical curriculum design, student placement, and internship evaluation. This collaboration illustrates how public-community-educational institution collaboration can overcome each party's limited resources through shared responsibility for developing agribusiness human resource competencies.

When viewed through the Triple Helix Model framework, which emphasizes interactions between academia, industry, and government, this internship program demonstrates the dominant role of the academic helix, played by Islamic boarding schools and SMK as knowledge producers. TSA plays a role in the industrial helix, providing space for applied innovation and professional practice. Although the government is not directly present at the operational level, its presence remains significant through the provision of vocational education regulations, support for MSME development policies, and facilitation of vocational - based partnerships. Thus, this collaboration reflects the knowledge creation and application processes that are at the core of the Triple Helix dynamics. The integration of these two theories explains that the internship program is not simply a routine vocational learning activity, but rather a governance mechanism that brings together the interests of educational institutions, religious institutions, the business world, and the government in a single collaborative system. This collaboration strengthens institutional capabilities, increases the relevance of student skills to industry, and creates an innovation-based agribusiness human resource empowerment model. Through this academic foundation, this study demonstrates that the success of the SMK-Trubus Sentra Agrobisnis internship program is the result of systemic interactions between actors within the Pentahelix and Triple Helix ecosystems, not simply the accumulation of empirical data.

2. Second Helix: The Business Sector as an Economic Driver (Industry/Agro-

Commercial)

The second helix in the Pentahelix model refers to the industrial or business sector elements that function as key economic actors in creating added value, driving the supply chain, and connecting innovations to the market. In the context of this research, the industrial helix is represented by the Trubus Sentra Agrobisnis (TSA) business units, which include Business 1, Business 2, and the Distribution Business. These three units form a complementary production ecosystem, from processing agricultural raw materials and developing processed products to distribution to consumers through offline, online, national, and export channels. With this function, the second helix serves as the center of economic activity, transforming inputs from the Agricultural Depot into commercially valuable commodities.

The TSA business units, consisting of Business 1, Business 2, and the Distribution Business (Distributor Business), function as economic drivers by processing inputs from the Agricultural Depot into market-ready commodities, optimizing deBIO technology for production efficiency and quality, expanding markets through online, national, and export channels, and connecting Islamic boarding school production with the needs of modern consumers. Industry becomes a helix that integrates the value chain business model with waqf resources and Islamic boarding school human resources, thus creating a productive economic cycle. The role of the industrial helix is clearly visible in the process of knowledge application and value creation. TSA transforms innovations (e.g., deBIO) and vocational education outcomes (internships) into productive business processes. This dynamic aligns with Etzkowitz & Leydesdorff's view that the industrial helix serves as an arena for internalizing knowledge in the production process, thus generating sustainable economic innovation. At the macro level, this helix interaction demonstrates that the Islamic boarding school industry does not function as a single economic entity, but rather as an actor interconnected with other helixes in driving regional innovation and empowering rural communities.

3. Third Helix: Government & Society as a Supporting Ecosystem (Governance / Social Community)

The third helix in the Pentahelix model refers to government and society as actors that provide the policy environment, regulations, social participation, and collective support for innovation and economic activity. Within the framework of this research, the third helix is understood as a supporting ecosystem that enables effective synergy between the Trubus Iman Islamic Boarding School (Trubus Agribusiness Center) through policies, coordination, social legitimacy, and community-based collaboration. The government plays a role in providing regulations, facilitation, and incentives that enable the growth of the Islamic boarding school-based agribusiness sector, including support from the Department of Agriculture, the Department of Cooperatives & MSMEs, halal certification programs, distribution permits, and development of producer cooperatives. Meanwhile, the community plays a role through social trust, involvement as a workforce, farmer partnerships, and consumption support, thereby ensuring legitimacy and sustainability for TSA business activities. Thus, the third helix serves as the foundation for governance and social cohesion for the Islamic boarding school economic ecosystem.

From a collaborative governance perspective, the third helix functions as an enabler and facilitator of cross-actor collaboration processes (Ansell & Gash, 2008), emphasizing that effective collaboration occurs when the government provides space for participation, process transparency, and institutional support for non-governmental actors. In the context of the Trubus Agribusiness Center (TSA):

1. The local government facilitates synergy between Islamic boarding schools (pesantren), cooperatives, and local farmers through agricultural mentoring programs, MSME development, and business legality support.
2. The community acts as co-producers, directly involved in the production, distribution, and consumption of TSA products.
3. Islamic boarding schools serve as centers of collaboration connecting communities, government, and the business sector as a single agribusiness ecosystem.



Figure 4. Trubus Iman Islamic Boarding School Producers Cooperative Receives Award from the Governor of East Kalimantan
Source: East Kalimantan Baznas Website

This interaction illustrates that the success of TSA is not merely the result of internal work, but rather the product of collaborative governance that unites the interests and capacities of various actors within a single policy and social network. When analyzed through the Triple Helix model (academy–industry–government), the third helix occupies a strategic position as a regulatory and facilitative actor that bridges Islamic boarding school academic innovation and the industrial implementation of TSA. The government provides a policy framework that enables innovation to take place, while the community provides social support so that the innovation is accepted and implemented at the local level. In the Quadruple Helix variant, the community is considered a crucial actor in creating social acceptance and local wisdom, while in the Pentahelix variant, the community is a key component in creating social sustainability. Thus, the third helix in this study functions as a strengthening link between: social acceptance (community acceptance), institutional legitimacy (institutional legitimacy), and business sustainability (economic sustainability). This role ensures that innovations generated by the academic and industrial helixes do not stop at the production level, but receive stable support from the social environment and government.



Figure.5 Empowering Local Communities and Gaining Economic Benefits
Source: Documentation of the Trubus Iman Islamic Boarding School Producers Cooperative

Furthermore, this study also shows the third Helix of the Government and the community through local community and community empowerment programs that produce outcomes in the form of students/congregants with business life skills, farmer plasma networks, MSME partnerships, and economic independence. The local government has a strategic role in strengthening the Islamic boarding school economy through targeted and sustainable community empowerment policies (Fadhilah & Hidayah, 2025). This Islamic Boarding School Cooperative has grown as a center of economic activity that provides many benefits to the surrounding community. Currently, around 350 employees, all of whom are local residents, work in various business units managed by the Islamic boarding school. The Trubus Iman Islamic Boarding School Cooperative also empowers local people who are above productive

age to work, widows, and several productive age groups who cannot continue to higher education. From the results of the interview, one employee said, "I have worked here for decades, from this Islamic Boarding School was not as big as it is now, until it developed to what it is now, from the oil palm plantation division until now I handle oyster mushroom production." This shows TSA's consistency in helping create employment opportunities for the surrounding community. Its business sectors are quite diverse, ranging from oil palm plantations, tropical date palms, and sugar palm cultivation, to oyster mushroom cultivation, to vanilla plantations, citrus and corn plantations, which are emerging commodities.

Furthermore, the cooperative is developing the production of Trubus Hijau bottled drinking water (AMDK), already well-known in Paser Regency, stingless bee honey cultivation, and fisheries cultivation, which will also be transformed into an agro-tourism destination in Paser Regency. This diversity of sectors opens up numerous employment opportunities and strengthens economic ties between Islamic boarding schools and the community. With this model, cooperatives play a role not only as business actors but also as drivers of prosperity and independence for the surrounding community. Government recognition through designation as the best cooperative in East Kalimantan demonstrates the institutional success of the Trubus Iman Islamic Boarding School Producer Cooperative (trubusiman.sch.id, 2024). For its contributions and good governance, the government expressed appreciation by designating this cooperative as one of the best cooperatives in East Kalimantan. This achievement demonstrates that Islamic boarding school-based innovation and empowerment can have a real impact on regional development. This triple helix synergy has created a modern, sustainable Islamic boarding school agribusiness ecosystem capable of extending economic benefits to the surrounding community.

From a Triple Helix perspective, the third helix serves to create a social and regulatory ecosystem that enables innovation in the first helix (Islamic boarding school) and the second helix (business/industry) to run effectively. The local government acts as a facilitator, providing regulatory support and institutional recognition, for example through the Best Cooperative in East Kalimantan award (trubusiman.sch.id, 2024), which strengthens the legitimacy and institutional capacity of the Trubus Iman Islamic Boarding School Producer Cooperative. Meanwhile, the community is present not only as beneficiaries but also as co-innovators and co-producers in the agribusiness value chain. The involvement of 350 local employees in various business units demonstrates that the Islamic boarding school has created an innovation-driven community, a local community integrated into an innovation- and knowledge-based economic model. The diversity of plantation sectors, including oil palm, sugar palm, tropical date palm, vanilla, citrus, stingless bee honey, bottled drinking water (AMDK), fisheries, and agrotourism, demonstrates that the third helix provides social capital and community networks that support the economic diversification of Islamic boarding schools. This model strengthens economic ties between Islamic boarding schools and the community through job creation, knowledge transfer, and mobilization of local resources. Cooperatives function not only as business actors but also as drivers of community welfare and centers for community-based economic development. The government's appreciation of cooperative governance is evidence that the third helix makes a real contribution to formalizing, strengthening, and promoting the sustainability of the Islamic boarding school economic ecosystem.

BRIN and Islamic Boarding School Collaboration: Strengthening the Academic and Technological Helix

Based on the results of observations and interviews, collaboration between the Trubus Iman Islamic Boarding School Producer Cooperative and BRIN shows how the triple helix model of synergy between research (academic), government, and business communities is applied in the context of Islamic boarding schools to strengthen the agribusiness-based economy. The Waqf of the Trubus Iman Islamic Boarding School Cooperative explained that "this collaborative model makes our Islamic boarding school considered a research partner, not just a recipient of assistance, and this is in accordance with the triple helix concept of academics, government, and the community working together, Agriculture is very important in society, therefore it needs to be developed and through this TSA we invite all parties including the Paser Regency Government to have a single perception in developing agribusiness" (Interview, Waqf of Trubus Iman Islamic Boarding School, 2025). From the

research & innovation side (research helix): BRIN is actively involved in the multiplication of superior citrus variety seeds (for example Sinta PonSoe Orange) on Islamic boarding school waqf land. In addition, BRIN develops technology to overcome systemic diseases in citrus plants, supporting healthier and more efficient production. From the perspective of Islamic boarding schools / business communities (industrial / business helix): Trubus Iman as a BRIN partner not only plants oranges, but also integrates the cultivation results into cooperative business units or Islamic boarding school agribusinesses.



Figure.6 Empowering Local Communities and Gaining Economic Benefits
Source: BRIN Official Website

Multi-stakeholder collaboration in the agricultural sector requires adaptive, inclusive, and network-based governance mechanisms, as demonstrated by the collaborative governance model (RAZAK et al., 2025). The effects of this collaboration are highly strategic for the economic empowerment of Islamic boarding schools (pesantren): with the adoption of superior varieties and disease control technologies, the potential for citrus productivity in waqf gardens increases, which in turn can boost the schools' income and agribusiness capacity. This collaborative model emphasizes that productive Islamic boarding schools can become hybrid educational and economic institutions provided they are supported by cohesive research and regulations. Interpretations based on the triple helix governance framework reinforce the argument that research-government-business community (pesantren) partnerships are an effective strategy for fostering a more independent and modern Islamic boarding school economy. The collaboration between TSA and BRIN in the development of Sinta PonSoe oranges resulted in horticultural technology transfer, superior citrus breeding, assistance in plant disease control, and the integration of research with waqf land. This collaboration positions Islamic boarding schools as national research partners, aligned with the academic helix. Research collaboration between BRIN and regional governments in developing citrus commodities in East Kalimantan demonstrates the tangible support of the research helix in increasing agricultural productivity (BRIN, 2024). This demonstrates that Islamic boarding schools are not merely research objects but also active economic actors, operationalizing research findings into tangible products and business opportunities. From a government perspective (government helix): BRIN's presence as a national research institution reflects the state's involvement in encouraging agricultural innovation. Support for research and innovation policies (through BRIN) and collaborative research-agricultural programs demonstrate that the government provides an enabling environment for Islamic boarding schools to access modern agricultural technology.

Collaboration between BAZNAS and TSA: Strengthening the Productive Economy

This research also found that the application of Triple Helix Governance at the Trubus Agribusiness Center (TSA) demonstrates how collaborative governance can function as an instrument for local development based on Islamic boarding schools. From a government perspective, strengthening agribusiness at TSA demonstrates a shift in the state's role from a sole development actor to a facilitator, opening up space for the participation of socio-religious institutions and empowerment organizations.



Figure.7 Collaboration between Baznas and TSA on Sheep Farming
Source: Official Website of Trubus Iman Islamic Boarding School

The collaboration between Trubus Sentra Agribisnis (Trubus Iman Islamic Boarding School) and the National Azizah Zakat Agency (BAZNAS) of East Kalimantan Province in developing sheep farming marks the emergence of a co-governance mechanism, where resources, authority, and knowledge are managed jointly to achieve community welfare goals. BAZNAS of East Kalimantan Province acts as a supporting partner by providing capital, mentoring, and institutional access, while the local government provides regulations and environmental support that enable the program to run sustainably. TSA then utilizes this capacity to integrate agriculture, livestock, and waste management into one efficient production system. This synergy creates a governance model that not only increases economic productivity but also expands the space for community participation, particularly among Islamic boarding school students (*santri*) and local residents. Thus, the practice of Triple Helix Governance at TSA confirms that development can be more adaptive when the government, religious institutions, and social institutions work in a mutually reinforcing collaborative network. Based on interviews with sheep farm managers, the sheep farming program between TSA and BAZNAS includes: livestock assistance for students and *mustahik* (recipients of Islamic boarding schools), development of sheep colony pens (25 females and 1 male), management of fermented feed from local plants, processing waste into organic fertilizer, and economic empowerment of *mustahik* (recipients of Islamic boarding schools) based on *zakat* (*zakat*). This demonstrates the helix of the Islamic economy: a socio-economic industry that strengthens the independence of Islamic boarding schools.

Integration of Triple Helix Governance in the Transformation of the Trubus Iman Islamic Boarding School

The Trubus Agribusiness Center (Trubus Iman Islamic Boarding School Cooperative) is one of the economic pillars supporting various business activities within the Islamic boarding school environment. This cooperative grew out of an internal initiative of the Islamic boarding school to manage *waqf* land and local resources more productively, thereby creating economic value while providing social benefits to the surrounding community. The synergy between the Islamic boarding school (education), the business sector, and the government creates an adaptive and sustainable model of productive *waqf* governance. The Chairman of the Trubus Islamic Boarding School Cooperative, Iman Daniar, explained, "The food sector is one of the advantages of the *waqf* assets owned and will then be continuously developed. The Trubus Iman Paser Islamic Boarding School has succeeded in managing *waqf* land to become a center for plantations, fisheries, agriculture, and animal husbandry. In addition to being an agribusiness unit, the general public can also enjoy tourism there. Paser Regency has great potential not only in the agricultural sector" (Interview, Chairman of the Trubus Iman Islamic Boarding School Cooperative, 2025).

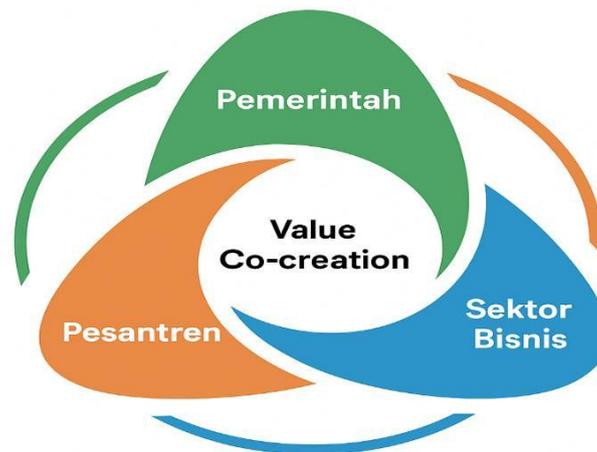


Figure.8 Triple Helix Governance Integration Model Diagram
 Source: author's work

In the context of governance, the Trubus Iman Islamic Boarding School Cooperative serves as an example of how a religious institution can build a structured, accountable, and long-term economic management model. Through partnerships with the National Agency for Research and Innovation (BRIN), the government, and various business partners, the cooperative has successfully demonstrated that productive waqf can be managed with a modern and collaborative approach. The cooperative's presence not only stimulates the Islamic boarding school's economy but also serves as a driving force for community welfare and regional innovation. This integration is evident in:

- a. Co-creation (creating shared value): The Islamic boarding school designs an agribusiness-based curriculum; the business sector provides markets and technology; and the government provides regulatory and program support.
- b. Co-governance (shared governance): Waqf land management is carried out professionally through a system of financial reporting, production management, and monitoring involving various stakeholders.
- c. Co-benefits (shared benefits): The benefits are felt not only by the Islamic boarding school, but also by students and students (business and agricultural literacy), local MSMEs (market access and collaboration), the local government (improved local economy), and the community (job opportunities and educational tourism).

This model makes the Trubus Iman Islamic Boarding School a role model for collaborative, productive waqf transformation that simultaneously creates economic, social, and educational impacts.

CONCLUSION

The research results show that the management of 375 hectares of waqf land by the Trubus Iman Islamic Boarding School has moved far beyond traditional patterns. The waqf land has been transformed into an integrated agribusiness area that not only generates economic value but also strengthens the Islamic boarding school's independence as an educational institution and community empowerment center. This transformation takes place through the collaboration of various complementary actors, particularly within the Triple Helix Governance framework. This research demonstrates that strengthening agribusiness within Islamic boarding schools can be effective if managed through collaborative governance involving multiple actors. The Trubus Agrobusiness Center, under the auspices of the Trubus Iman Islamic Boarding School Producers Cooperative, serves as an example of how Islamic boarding schools can transform into centers of community-based economic activity. Through the development of various commodities, the cooperative not only stimulates the local economy but also provides a learning space for students and the community to acquire production, processing, and marketing skills.

The synergy between Islamic boarding schools, BRIN, BAZNAS, and the local government strengthens the sustainability of this program. BRIN provides research and technology support so that agricultural cultivation can be carried out more effectively. The government is present through various facilitations, supporting regulations, and appreciation in the form of designating Trubus Sentra Agribisnis as one of the best cooperatives in East Kalimantan. This collaboration reflects the principles of good governance, where the government, community, and knowledge institutions share roles to encourage local development. From a governmental science perspective, this partnership pattern demonstrates that a community-based governance model can strengthen the capacity of local actors in managing resources. Islamic boarding schools, previously known only as religious educational institutions, are able to position themselves as economic empowerment institutions operating through cooperative mechanisms. The integration of religious values, technological innovation, and public policy support makes Trubus Sentra Agribisnis a best practice for sustainable agribusiness development in the region. Thus, this success can be replicated as a collaborative development model rooted in local knowledge while remaining adaptive to developments in science and technology.

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