

	Solo International Collaboration and Publication of Social Sciences and Humanities E-ISSN: 2988-3512 Vol.4, No.2, 2026, pp. 891-914 DOI: https://doi.org/ 10.61455/sicopus.v4i02.583	
Received January 10, 2026	Revised May 29, 2026	Accepted June 21, 2026

Industrial Partnership Development Based on the Link and Match Approach: A Needs Analysis at SMKN 1 Pekat

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Abstract

Objective: This study aims to identify the need for link and match-based industrial partnership development to support SMKN 1 Pekat as an agent of change in local agriculture. **Theoretical framework:** This study is grounded in the concepts of vocational education, link and match policy, industrial partnership theory, and local economic development theory, which emphasize collaboration between schools and industry to improve the relevance and quality of vocational education. **Literature review:** Previous studies indicate that effective industrial partnerships contribute significantly to curriculum relevance, teacher competency development, student employability, and the strengthening of local economic potential. However, the success of such partnerships depends on the alignment between school needs and industrial support. **Method:** This study employed a qualitative descriptive approach using a needs assessment method. Data were collected through questionnaires, interviews, and documentation studies involving 29 respondents consisting of vice principals, heads of expertise concentrations, productive teachers, and other teachers at SMKN 1 Pekat. Data were analyzed descriptively by calculating average scores for each aspect and identifying priority needs for industrial partnership development. **Results:** The findings reveal that the local agricultural aspect obtained the highest average score (3.87), followed by industrial work culture (3.76), and curriculum and learning (3.66). The most urgent partnership development needs include the modernization of practice facilities, implementation of teacher internship programs in industry, and the development of modern agricultural technology. The results indicate that the school's primary needs extend beyond increasing the number of industrial partners to improving the quality of partnerships that strengthen teacher competencies, modernize learning processes, and optimize the utilization of local agricultural potential. **Implications:** The study emphasizes the importance of collaborative industry partnerships to strengthen vocational education quality and support sustainable local agricultural development. **Novelty:** This study offers a local agriculture-based framework for industrial partnership development to strengthen link and match implementation in vocational schools.

Keywords: link and match, industrial partnership, vocational education, local agriculture, vocational high school.

INTRODUCTION

Pekat District is an area in Dompu Regency with significant natural resource potential in the agriculture, plantation, livestock, and forestry sectors. Various superior commodities such as corn, rice, coffee, cashew nuts, sugar cane, cattle, goats, and non-timber forest products serve as the primary source of livelihood for the community and contribute to the regional economy. The region's geographical location and the availability of ample agricultural land make the agricultural sector a strategic sector for regional development. This potential serves as a crucial asset for developing locally resource-based agribusiness and improving community welfare [1].

Vocational education plays a strategic role in preparing competent, adaptive human resources that meet the needs of the workforce [2][3]. In the context of vocational education, the "link and match" concept is a crucial approach to ensuring alignment between graduate competencies and the needs of business and industry. Implementing "link and match" not only focuses on graduate recruitment but also encompasses curriculum synchronization, teacher competency strengthening, project-based learning, and the development of sustainable partnerships with industry [4].

Vocational schools (SMKs), as vocational education institutions, are expected to produce graduates with competencies aligned with industry needs and technological developments [5][6]. In addition to producing work-ready graduates, vocational schools are also expected to be agents of change, driving economic development through the application of science, technology, and innovation [7]. In the context of an agrarian region like Pekat District, the role of vocational schools is increasingly crucial, as their presence is expected to support the transformation of the agricultural sector from traditional patterns to more modern, productive, and sustainable agricultural systems [8][9].

SMKN 1 Pekat, a school offering expertise programs in Agricultural Product Processing Agribusiness, Food Crop and Horticulture Agribusiness, Ruminant Livestock Agribusiness, Plantation Crop Agribusiness, Forestry, and Agricultural Tools and Machinery, holds a strategic position in supporting local agricultural development. These expertise competencies are directly related to the superior potential developing in the Pekat District area. With these conditions, the school has a great opportunity to become a center for human resource development as well as a vehicle for the transfer of agricultural technology and innovation to the community.

However, various challenges remain in realizing this role. One major challenge is the suboptimal partnerships between schools and businesses and industry relevant to agribusiness and agrotechnology. Existing collaborations are still dominated by fieldwork and do not fully address the needs for teacher competency development, curriculum synchronization, technology transfer, or strengthening the industrial work culture within the school environment. This situation results in the learning process being unable to fully bridge industry needs with students' competencies [10].

Furthermore, the rapid development of agricultural technology requires schools to continuously adapt their curriculum, teaching methods, and practical tools. In reality, limited learning facilities and infrastructure based on modern agricultural technology remain a challenge for schools. Furthermore, the competency of productive teachers also needs to be continuously improved to keep pace with technological developments and dynamic industry needs. The gap between actual conditions and the needs of the workforce has the potential to hinder schools' efforts to produce competent and competitive graduates.

Various previous studies have examined the implementation of link and match in vocational education, particularly those related to improving graduates' work readiness, synchronizing the curriculum with industry needs, and strengthening collaboration between

schools and the business and industrial world () [\[11\]\[12\]](#). However, most of these studies still focus on aspects of workforce preparation and increasing the relevance of graduates to industry needs. Studies specifically identifying the need to develop industry partnerships in Agribusiness and Agrotechnology Vocational Schools (SMK Agribisnis dan Agroteknologi) as an effort to strengthen teacher competency, strengthen industry work culture, develop innovation-based learning, and the role of schools as agents of change in local agriculture are still relatively limited [\[13\]\[14\]](#).

This situation indicates a research gap regarding the need to develop industry partnerships that are not only oriented towards graduate absorption but also support the transformation of schools into centers of innovation and regional agricultural development. Therefore, this research has a novel focus, namely identifying the need to develop link-and-match-based industry partnerships integrated with strengthening teacher competencies, curriculum synchronization, industrial work culture, and the role of vocational schools as agents of change in local agriculture in the context of agribusiness and agrotechnology-based schools.

Based on these conditions, this study aims to identify the need for developing link-and-match industrial partnerships to support SMKN 1 Pekat as an agent of change in local agriculture. The research results are expected to serve as a basis for formulating strategies to strengthen industrial partnerships, improve teacher competency, synchronize curriculum, strengthen industrial work culture, and develop learning that is more relevant to the needs of the workplace and regional agricultural development.

LITERATURE REVIEW

Industrial Partnerships in Vocational Education

Industrial partnerships are a form of collaboration between educational institutions and the business and industrial world () aimed at increasing the relevance of education to the needs of the workforce. In vocational education, industrial partnerships are a crucial strategy for narrowing the gap between graduate competencies and job market needs. These partnerships can be realized through curriculum alignment, fieldwork practices (), teacher internships, industry guest teachers, competency certification, and the development of project-based learning and teaching factories. Through effective partnerships, schools can gain access to technological developments, industrial work culture, and evolving competency needs, thereby making learning more relevant to the demands of the workforce [\[15\]](#).

Strong partnerships benefit not only students but also schools and industry. Schools receive support in improving the quality of learning, while industry gains prospective workers with the competencies they need. Therefore, industry partnerships need to be built sustainably and mutually beneficially to produce competent and competitive graduates [\[16\]](#). The findings of various studies show that sustainable industrial partnerships have an impact on increasing the relevance of learning and work readiness of vocational school graduates .

The Concept of Link and Match in Vocational Education

The link and match concept is a policy aimed at creating alignment between the provision of education and the needs of the business and industrial worlds. This concept emphasizes that the competencies taught in schools must align with those required by the workplace, so that graduates have a greater opportunity to be absorbed into the job market. The implementation of link and match is carried out through various strategies, such as curriculum synchronization, project-based learning, teacher competency improvement, competency certification, and industry involvement in the learning process [\[15\]](#).

Over time, the link and match concept has evolved beyond simply orienting graduates to the workforce, but also fostering a vocational education ecosystem that adapts to technological developments and industry needs. The success of link and match implementation is characterized by increased graduate relevance, strong collaboration between schools and industry, and the creation of learning that aligns with the needs of the workforce [17]. Curriculum synchronization is an important indicator of the success of link and match implementation in vocational education [10].

Vocational Schools as Agents of Change in Local Agriculture

Vocational High Schools (SMKs) not only serve as educational institutions producing work-ready graduates, but also play a strategic role as agents of social and economic change in society. In agricultural-based regions, the existence of Agribusiness and Agrotechnology Vocational High Schools (SMKs) is expected to become centers for human resource development, innovation, and technology transfer, supporting regional agricultural development. Through learning relevant to the needs of the community and industry, SMKs can help increase productivity, agricultural product quality, and the competitiveness of the local agribusiness sector. This role is becoming increasingly crucial in facing the challenges of developing modern agricultural technology. Vocational schools are required to not only teach technical skills but also instill in students the skills of adaptability, innovation, and entrepreneurship. Thus, vocational school graduates are not only ready for work but also capable of becoming agents of change, contributing to sustainable agricultural development in their regions [18].

Identification of Development Needs (Need Assessment)

Needs assessment is a systematic process to identify gaps between actual and desired conditions. In educational management, needs identification serves as the basis for planning development programs tailored to the organization's needs. Through needs identification, schools can identify aspects requiring improvement or strengthening, thereby ensuring more targeted development strategies [19].

The needs identification process can be conducted through observation, interviews, documentation studies, and analysis of organizational conditions. The results of needs identification serve as the basis for determining development priorities, including aspects of industrial partnerships, teacher competencies, curriculum synchronization, industrial work culture, and learning resources. In this study, needs identification focused on developing link-and-match-based industrial partnerships that support improved learning quality while strengthening the role of SMKN 1 Pekat as an agent of change in local agriculture. The needs assessment approach is widely used in the development of vocational education programs because it is able to identify gaps between actual and expected conditions [4].

METHODOLOGY

This study uses a qualitative descriptive method with a needs assessment approach to identify the need for link and match-based industrial partnership development in the Agribusiness and Agrotechnology Expertise Program at SMKN 1 Pekat [20][21]. This approach was chosen because it is able to provide an in-depth picture of the actual conditions of the implementation of partnerships between schools and the business and industrial world (), the gaps that occur between graduate competencies and industrial needs, and strategic needs required to strengthen the relevance of vocational education to job market demands. The study was conducted at SMKN 1 Pekat, Dompu Regency, West Nusa Tenggara Province, which was selected purposively because it has expertise programs directly related to the agribusiness and agrotechnology sectors which are the region's leading potential. Research informants were determined using a purposive sampling technique by considering

their level of knowledge and involvement in the implementation of industrial partnerships. Informants consisted of the principal, the vice principal for industrial relations, the head of the Agribusiness and Agrotechnology expertise program, productive teachers, students who are currently or have participated in Field Work Practices (), alumni, and representatives of the business and industrial world who have collaborated with the school [22].

Research data was collected through semi-structured interviews to explore information on partnership implementation, curriculum synchronization, industry competency needs, internship implementation, and opportunities for developing collaborations. Furthermore, observations were conducted to assess the condition of learning facilities and infrastructure, the implementation of industrial work culture in schools, and practice-based learning activities. Documentation techniques were also used to collect various supporting documents, such as memorandums of understanding (MoUs), industry partner data, curriculum documents, internship reports, graduate tracking data, and school program planning and evaluation documents [23][24].

Data analysis was conducted using the Miles, Huberman, and Saldaña interactive analysis model, which includes three stages: data reduction, data presentation, and conclusion drawing. In the data reduction stage, all data from interviews, observations, and documentation were selected, grouped, and focused according to the research theme related to the need for link and match-based industrial partnership development. The next stage is data presentation in the form of descriptive narratives, tables, and matrices that allow researchers to understand the relationship patterns between variables and identify priority needs in partnership development [25][26].

Table 1. Research Method Used in This Study

Aspect	Description
Type of Research	Qualitative descriptive research.
Approach	Needs Assessment Approach
Research Objective	To identify the need for link and match-based industrial partnership development in the Agribusiness and Agrotechnology Expertise Program at SMKN 1 Pekat.
Rationale for Approach	To provide an in-depth understanding of existing industrial partnerships, competency gaps between graduates and industry needs, and strategic partnership development requirements.
Key Figures Analyzed	Principal, Vice Principal for Industrial Relations, Head of Agribusiness and Agrotechnology Program, productive teachers, students, alumni, and industry representatives.
Main Data Sources	Semi-structured interviews, observations, and documentation (MoUs, curriculum documents, internship reports, graduate tracking data, partnership records, and school planning documents).
Method of Analysis	Interactive analysis model of Miles, Huberman, and Saldaña: data reduction, data display, and conclusion drawing, supported by source, technique, and time triangulation.
Theoretical Framework	Link and Match Concept, Industrial Partnership Theory, Vocational Education Theory, and Needs Assessment Framework.
Focus of Analysis	Industrial partnership implementation, curriculum synchronization, industry competency needs, internship programs, industrial work culture, learning facilities, and partnership development priorities.

Expected Outcome

A strategic framework and recommendations for sustainable industrial partnership development to strengthen vocational education relevance and support SMKN 1 Pekat as an agent of local agricultural transformation.

Furthermore, conclusions were drawn gradually and continuously throughout the research process by interpreting emerging findings to produce recommendations for relevant and sustainable partnership development. To ensure data validity, this study applied triangulation techniques, including source triangulation, technical triangulation, and time triangulation. Source triangulation was carried out by comparing information obtained from various informants, such as principals, teachers, students, alumni, and industrial partners. Technical triangulation was conducted by comparing the results of interviews, observations, and documentation on the same phenomenon, while temporal triangulation was conducted by cross-checking the data at different points in time to ensure the consistency and credibility of the information. Through this procedure, it is hoped that the data obtained will have a high level of validity and reliability, thus providing a comprehensive picture of the need for link-and-match-based industrial partnership development at SMKN 1 Pekat [25][26].

RESULTS AND DISCUSSION

This research was conducted at SMKN 1 Pekat, located in Pekat District, Dompu Regency, West Nusa Tenggara Province. SMKN 1 Pekat is a vocational high school that provides vocational education with a focus on agribusiness, agrotechnology, information technology, and hospitality. This school plays a strategic role in supporting human resource development that aligns with local economic potential and the needs of the workforce.

In the 2025/2026 academic year, SMKN 1 Pekat had 347 students, 52 teachers, 8 administrative staff, and 23 study groups. The expertise programs offered include Agricultural Product Processing Agribusiness (APHP), Food Crop and Horticulture Agribusiness (ATPH), Ruminant Livestock Agribusiness (ATR), Plantation Crop Agribusiness (ATP), Forestry, Agricultural Tools and Machinery (ALSINTAN), Computer and Network Engineering (TKJ), and Hospitality. The diversity of expertise programs shows that the school has a fairly broad scope of educational services to support regional development needs.

Pekat District is a region with significant natural resource potential in the agriculture, plantation, livestock, and forestry sectors. Leading commodities grown in this area include corn, rice, coffee, cashew nuts, sugar cane, cattle, goats, and forest honey. This potential serves as the community's primary livelihood and provides opportunities for the development of vocational education based on local potential.

This situation places SMKN 1 Pekat in a strategic position to support local agricultural development by providing vocational education relevant to the needs of the community and the workplace. Through its expertise programs, the school has the potential to become a center for human resource development, appropriate technological innovation, and strengthening partnerships with businesses and industries operating in the agribusiness and agrotechnology sectors.

Table 2. Brief Profile of SMKN 1 Pekat

Description	Total
Students	347
Teachers	52
Education Staff	8
Learning Groups (Classes)	23
Skill Programs	8

Based on Table 1, SMKN 1 Pekat has sufficient educational resources to support vocational education. However, strengthening industry partnerships is still needed to ensure the learning process remains relevant to the evolving world of work and the needs of local agricultural development.

Condition of Industrial Partnership at SMKN 1 Pekat

Partnerships with the business and industry () sector are a crucial component in implementing link-and-match vocational education. These partnerships play a role in increasing the relevance of learning to the needs of the workforce and expanding opportunities for students to gain contextual learning experiences. Based on the results of a documentation study, SMKN 1 Pekat has 21 active industrial partners spread across various sectors relevant to the school's skills programs. These partnerships involve agribusiness, livestock, plantations, forestry, information technology, and hospitality.

Forms of collaboration that have been implemented include Field Work Practices () for students, guest teachers from industry, teacher internship programs, and various other forms of collaboration that support the implementation of the national vocational education program. Through these activities, students gain hands-on learning experience in the workplace, while teachers have the opportunity to improve their competencies in line with industry developments. To clarify the current state of industry partnerships, Table 2 presents the following.

Table 3. Form of Industrial Partnership at SMKN 1 Pekat

No	Form of Partnership	Implementation
1	Field Work Practice (Industrial Internship /)	Implemented
2	Industry Guest Teacher Program	Implemented
3	Teacher Internship	Implemented
4	Curriculum Synchronization	Implemented in a limited manner
5	Support for the National Vocational Education Program	Implemented

Based on Table 3, the most dominant form of partnership is the implementation of fieldwork practices for students. Furthermore, schools have also involved industry in guest teacher and teacher internship activities as an effort to strengthen the implementation of workplace-based learning.

However, interviews and documentation studies indicate that the established partnerships have not yet fully met the needs of schools and industry. One of the main obstacles faced is the persistent gap between industry workforce needs and the competencies developed in schools. Furthermore, the process of synchronizing the curriculum with the needs of the workplace has not been optimal and sustainable.

These conditions indicate that developing industrial partnerships at SMKN 1 Pekat requires not only expanding the number of partners but also improving the quality of collaboration, supporting teacher competency development, curriculum alignment, strengthening industrial work culture, and implementing technology that aligns with the evolving world of work. Therefore, identifying the need for industrial partnership development is crucial for determining the direction of strengthening the relationship between schools and industry more effectively and sustainably.

Identification of Industrial Partnership Development Needs

Identification of the need for industrial partnership development was conducted through a questionnaire distributed to 29 respondents, consisting of vice principals, heads of expertise

concentrations, productive teachers, and other teachers at SMKN 1 Pekat. Analysis was conducted on five main aspects: industrial partnerships, teacher competency, curriculum and learning, industrial work culture, and the school's role in local agricultural development.

The results of the data analysis show that all aspects obtained an average value above 3.00, which indicates that respondents view all aspects as important to develop in order to strengthen the implementation of link and match at SMKN 1 Pekat.

Table 4. Average Score of Industrial Partnership Development Needs

Aspect	Average
Industrial Partnership	3.52
Teacher Competency	3.31
Curriculum and Learning	3.66
Industrial Work Culture	3.76
Local Agriculture	3.87

Based on Table 4, the local agriculture aspect received the highest average score of 3.87. This result indicates that respondents strongly perceive the importance of developing learning and industrial partnerships based on the region's superior potential. This finding indicates that schools are expected to function not only as educational institutions but also as centers for developing innovation and community empowerment based on the agricultural sector.

The industrial work culture aspect received an average score of 3.76, while the curriculum and learning aspects received an average score of 3.66. These results indicate that strengthening industrial work culture and aligning learning with the needs of the workplace are quite important in supporting the improvement of the quality of vocational education at SMKN 1 Pekat. Meanwhile, the teacher competency aspect received an average score of 3.31, the lowest compared to other aspects. Nevertheless, this score still indicates a significant need for development, particularly related to increasing industry experience, training in the latest technologies, and strengthening the professional competencies of productive teachers. Overall, the research results indicate that the need to develop industrial partnerships is not only focused on expanding the cooperation network, but also includes improving the quality of learning, strengthening the industrial work culture, and optimizing the role of schools in supporting local agricultural development.

Priority Needs for Industrial Partnership Development

In addition to measuring the level of need in each aspect, this study also identified the priority needs considered most pressing by respondents. The analysis revealed several key needs that require attention in developing industrial partnerships at SMKN 1 Pekat.

Table 5. Priority Needs for Industrial Partnership Development

Priority Needs	Frequency
Modernization of practical facilities	16
Teacher internships in industry	15
Development of modern agricultural technology	12
Development of products based on local potential	8
Development of Teaching Factory	7
Strengthening industrial work culture	7
Marketing partnerships for production outputs	5
Addition of industry partners	5
Teacher competency certification	1

Based on Table 5, the most frequently mentioned need was modernization of practice facilities, with 16 respondents reporting a frequency. These results indicate that the

development of industrial partnerships requires support from the availability of learning facilities that are in line with technological developments and the needs of the workplace. The second priority is teacher internship programs in industry, with 15 respondents participating. This finding indicates that improving teacher competency through hands-on experience in the workplace is a crucial need to support the implementation of industry-based learning.

Furthermore, the development of modern agricultural technology was reported by 12 respondents. This finding is relevant to the characteristics of SMKN 1 Pekat as an agribusiness and agrotechnology-based school located in an area with significant agricultural potential. Interestingly, increasing the number of industry partners only attracted five respondents [27][28]. This finding suggests that the primary challenge facing schools is not simply the number of available partners, but rather the quality of partnerships that can significantly contribute to improving teacher competency, developing learning resources, and implementing modern technology in the educational process [29][30].

Developing Industrial Partnerships to Support SMKN 1 Pekat as an Agent of Change in Local Agriculture

The research results indicate a gap between the current state of industrial partnerships and the ideal conditions expected by the school community. Although SMKN 1 Pekat has 21 industrial partners and implements various forms of collaboration such as Field Work Practices, guest teachers, and teacher internships, the questionnaire results indicate a continued need for modernization of practice facilities, improvement of teacher competency through industrial internships, development of modern agricultural technology, and strengthening curriculum synchronization. This gap underlies the need to develop link-and-match-based industrial partnerships at SMKN 1 Pekat.

The research results indicate that the development of industrial partnerships at SMKN 1 Pekat needs to be directed not only at supporting graduates' job readiness but also at strengthening the school's role as an agent of change in local agriculture. This finding is evident in the high score for the local agriculture aspect, which achieved the highest average compared to other aspects. Furthermore, respondents also ranked the development of modern agricultural technology, modernizing practical facilities, and utilizing local potential as important needs [31].

These conditions indicate that the implementation of link and match at SMKN 1 Pekat needs to be developed from a broader perspective. Industrial partnerships serve not only as a means of placing students in Field Work Practice () activities, but also as a medium for technology transfer, innovation development, teacher competency improvement, and strengthening school capacity in supporting regional agricultural development. This finding aligns with the link and match concept, which emphasizes the importance of collaboration between vocational education units and the workplace in developing student and teacher competencies [32][33].

As a school offering expertise programs in Agribusiness Processing of Agricultural Products, Agribusiness of Food Crops and Horticulture, Agribusiness of Ruminant Livestock, Agribusiness of Plantation Crops, Forestry, and Agricultural Tools and Machinery, SMKN 1 Pekat has a great opportunity to develop partnerships based on superior commodities of Pekat District. Commodities such as corn, rice, coffee, cashew nuts, sugar cane, cattle, goats, and forest honey can be the focus of developing cooperation between schools, the business world, the industrial world, farmer groups, cooperatives, and related government institutions [34][35].

Based on the research results, there are three main needs that must be prioritized in developing industrial partnerships at SMKN 1 Pekat. First, modernizing learning facilities to support the implementation of modern agricultural technology. Second, improving teacher competency through industrial internship programs and training based on workplace needs. Third, strengthening learning that utilizes local potential as a source of learning and innovation development. The findings regarding the importance of teacher internships align with research by Le Huu and Hanifah, which states that industrial experience contributes to improving the professional competence of vocational school teachers [36][37].

The development of needs-oriented industrial partnerships is expected to create a learning ecosystem that is more relevant to technological developments and community needs [38]. Through strong partnerships, schools not only produce work-ready graduates but also generate innovation, appropriate technology, and community empowerment models that can be applied to the local agricultural sector [39]. Therefore, the development of link-and-match industrial partnerships at SMKN 1 Pekat needs to be directed towards a collaborative and sustainable partnership model. This model involves not only the business and industrial world as users of graduates but also as strategic partners in teacher competency development, curriculum synchronization, learning facility modernization, teaching factory development, and the implementation of agricultural innovations based on local potential. Through this approach, SMKN 1 Pekat has the potential to become a center for human resource development and an agent of change in local agriculture, contributing to sustainable regional development. The development of a teaching factory can also be a strategy to strengthen the school's relationship with the industrial world while improving the quality of production-based learning [40][41].

Based on these findings, it can be explained that the gap between the actual and ideal conditions of industrial partnerships at SMKN 1 Pekat is not only technical, but also structural and conceptual. Technically, limitations in the modernization of practical facilities indicate that the vocational learning process has not fully kept pace with developments in modern agricultural technology, which is increasingly based on mechanization, digitalization, and precision agriculture. This results in a poor match between students' competencies and the needs of the business and industrial world (DUDI). Contextually, the existing partnerships tend to be solely oriented toward placing students in fieldwork practices (PKL), and have not yet fully developed into partnership strategies that encompass technology transfer, applied research, and the development of innovations based on local needs. As a result, SMKN 1 Pekat's significant potential as a center for regional-based agribusiness development has not been optimally utilized within the framework of sustainable local economic development.

The analysis shows that SMKN 1 Pekat's position as a vocational school specializing in agribusiness has a very strong comparative advantage due to the availability of superior regional commodities such as corn, rice, coffee, coconuts, livestock, and non-timber forest products. However, these advantages have not been fully integrated systematically into the curriculum or the developed industrial partnership scheme. The lack of synchronization between local potential and learning implementation indicates the urgent need to develop a more contextual, regional ecosystem-based link-and-match model. In this context, schools should function not only as formal educational institutions but also as local innovation hubs capable of bridging the interests of industry, farmer groups, cooperatives, and local governments. Thus, industrial partnerships will no longer be administrative but become an integral part of regional agribusiness development strategies based on vocational education.

Furthermore, strengthening teacher competency through industrial internship programs and training based on workplace needs is a key factor in determining the success of the link and match implementation. Without increasing educator capacity, curriculum transformation and facility modernization will not have a maximum impact on graduate quality. Teachers in

the context of vocational education must act as agents of knowledge transfer and liaison between industrial technology developments and the learning process in schools. Therefore, a more systematic and sustainable partnership design is needed, not just a short-term project, but integrated into the school's strategic planning. The proposed teaching factory model is also an important instrument in building an industrial work culture within the school environment, so that students not only learn basic theory and practice but also experience firsthand the production process, business management, and product innovation based on market needs. With this approach, SMKN 1 Pekat has great potential to develop into a center of excellence for agricultural vocational education that is adaptive, productive, and makes a significant contribution to the transformation of the local agricultural economy.

CONCLUSION

Based on the results of research on the analysis of the development needs of link and match-based industrial partnerships in the Agribusiness and Agrotechnology Expertise Program at SMKN 1 Pekat, it can be concluded that the partnerships that have been established between schools and the business and industrial world have made a positive contribution in supporting the implementation of vocational education, especially through Field Work Practice activities, guest teachers, teacher internships, curriculum synchronization, and various other forms of cooperation. However, the results of the analysis show that there is still a gap between the competencies required by industry and the learning conditions in schools, especially related to the mastery of modern agricultural technology, strengthening teacher competencies, and the availability of practical facilities and infrastructure that are in accordance with industry standards. Therefore, partnership development should not only focus on expanding the number of partners, but also on improving the quality of collaboration that is able to support learning based on industry needs and the development of the agribusiness and agrotechnology sectors. The results of the needs identification indicate that the main priorities in developing link and match-based industrial partnerships include modernizing practical facilities, improving teacher competency through industrial internship programs, strengthening curriculum synchronization, expanding access to competency certification, and developing technology-based learning and agricultural innovation. These findings indicate that the successful implementation of link and match is highly dependent on the active involvement of all stakeholders, including schools, the business and industrial worlds, local governments, and the community. Therefore, the development of sustainable industrial partnerships oriented to the real needs of the workforce is expected to improve the quality of graduates, strengthen the competitiveness of SMKN 1 Pekat, and support its role as a center for developing competent human resources in the fields of agribusiness and agrotechnology in accordance with the region's superior potential.

Acknowledgments

We extend our heartfelt gratitude to the Universitas Muhammadiyah Bima, Indonesia for the invaluable support and resources provided throughout this research journey. Your esteemed institution has not only facilitated our academic pursuits but has also offered an environment that encouraged innovation and critical thinking. This accomplishment would not have been possible without the dedication and assistance of the faculty and staff, whose guidance proved instrumental. We are profoundly grateful for the University's commitment to advancing knowledge and fostering academic excellence, and we look forward to contributing to this esteemed institution's legacy.

Author Contribution

All authors contribute equally to the publication of this paper, all authors read and agree to this paper, and all authors declare no conflict of interest.

Conflicts of Interest

All authors declare no conflict of interest.

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