# BUILDING A COLLABORATIVE ECOSYSTEM: THE ROLE OF HIGHER EDUCATION INSTITUTIONS, INDUSTRY, AND GOVERNMENT IN ENHANCING GRADUATES' EMPLOYABILITY

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**Abstract**

Improving the quality of human resources (HR) is a key factor in addressing global challenges and the Industrial Revolution 4.0, particularly concerning the employability of university graduates entering the workforce. However, the gap between graduates' competencies and labor market demands remains a significant issue in Indonesia. This study aims to understand how collaboration among universities, industries, and government—within the framework of the Triple Helix model—can effectively enhance graduates' employability. Using a descriptive qualitative approach through literature review, this research analyzes various sources, policies, and case studies related to the implementation of the Triple Helix collaboration and the Merdeka Belajar–Kampus Merdeka (MBKM) policy. The findings reveal that curriculum misalignment with industry needs, limited practical experience, and a lack of soft skills are the main factors contributing to the competency gap among graduates. Synergistic collaboration among the three sectors can strengthen the development of applied curricula, internship programs, and skills training that are responsive to labor market dynamics. Nevertheless, the implementation of such collaboration still faces regulatory barriers, inter-institutional coordination challenges, and insufficient incentives for industry participation. Government programs such as Kedaireka offer strategic opportunities to address these obstacles, but they require greater institutional capacity building and more intensive cross-sector coordination. This study recommends strengthening the integration of the Triple Helix model as an innovative and adaptive educational ecosystem to bridge the gap between higher education and the workforce in Indonesia.

**Keywords:** *Triple Helix, Graduate Employability, University–Industry–Government Collaboration*

## INTRODUCTION

The improvement of human resource (HR) quality is one of the main factors in enhancing a nation's competitiveness in the era of globalization. According to the World Economic Forum (2020), around 65% of future jobs will require skills that are not yet fully taught in current educational institutions. In Indonesia, data from the Ministry of Manpower (2023) shows that the open unemployment rate among university graduates remains at 2.09%, indicating a gap between higher education and labor market demands. Furthermore, the Industrial Revolution

4.0 and digitalization have increasingly demanded graduates who possess both technical skills and strong adaptability to economic and technological changes.

The issue of graduate relevance to the labor market is not only a challenge in Indonesia but also a global concern. A study by McKinsey & Company (2018) revealed that only 42% of employers worldwide consider new graduates to be work-ready, while 45% of graduates themselves feel they lack sufficient skills to enter the job market. This highlights the urgent need for higher education systems to undergo transformation to produce graduates who are better prepared to face industrial challenges. One approach that can be applied is the Triple Helix model, which emphasizes collaboration between universities, industries, and governments as a solution to creating a more relevant and applicable education ecosystem.

Theoretically, the concept of the Triple Helix was introduced by Etzkowitz and Leydesdorff (2000), explaining that synergy among universities, industries, and governments is a key factor in driving innovation and economic growth. Universities serve as centers of knowledge development and research, industries act as the implementers of research outcomes to meet market needs, while governments function as regulators that establish conducive policies for HR development. This collaboration is believed to accelerate the innovation process, enhance workforce quality, and ensure that graduates possess skills aligned with industry demands.

Several previous studies have discussed the importance of HR development through cross-sector collaboration. Juita et al. (2024), in their article The Importance of Human Resource Development in Educational Institutions, explain that educational HR development can be carried out through training, workshops, mentoring, and certification programs. Ghalib et al. (2024), in their study Collaboration: The Synergy of Universities, Industry, and Government in Enhancing Human Resources through Effective Development Programs, highlight how universities, industries, and governments can work together in building more applicable curricula so that graduates are better prepared to enter the workforce.

In addition, Pramesti et al. (2024), in their article The Relevance of University Graduates to the Labor Market, found a significant gap between the competencies acquired in higher education and the demands of the labor market, suggesting the need for improvements in the higher education system, including strengthening internship and industry-based skill programs. Diana & Hakim (2020), in Collaboration Strategies between Universities, Industry, and Government, also emphasize how the Merdeka Campus program can help increase student engagement with industry, though challenges in policy implementation remain and require further adjustment.

Based on the data and phenomena presented, as well as the theories and previous research reviewed, the author observes that the synergy between universities, industries, and governments is a crucial element in improving the employability of university graduates. Although several programs, such as Merdeka Campus, have been introduced, challenges still exist in aligning curricula, implementing internship programs, and coordinating between the education and industrial sectors. Therefore, this article will further discuss how optimizing the Triple Helix concept can serve as a solution in building a more collaborative, innovative, and market-relevant education ecosystem in Indonesia.

**LITERATURE REVIEW**

The improvement of human resources (HR) quality has become a central theme in global competitiveness and national development. As stated by the World Economic Forum (2020), future employment trends will be dominated by jobs requiring advanced and adaptive skills, many of which are not yet fully addressed in current education systems. This finding is supported by the Ministry of Manpower (2023), which highlights the persistent unemployment rate among university graduates in Indonesia, indicating a skill mismatch between educational outcomes and labor market needs. These studies emphasize the urgency for higher education institutions to align their curricula and learning models with industrial and technological transformations, especially in the context of the Fourth Industrial Revolution.

In response to this challenge, several theoretical frameworks have been developed to strengthen the linkage between education and the labor market, among which the Triple Helix model introduced by Etzkowitz and Leydesdorff (2000) stands out. This model proposes a dynamic collaboration among universities, industries, and governments as the foundation of innovation systems. Recent studies, such as Ghalib et al. (2024) and Juita et al. (2024), reaffirm the relevance of this model by demonstrating how cross-sectoral partnerships can improve graduate readiness and foster applied knowledge in higher education. These studies align with the idea that sustainable innovation and workforce quality can only be achieved when higher education institutions actively engage in collaborative ecosystems involving stakeholders beyond academia.

Furthermore, contemporary research emphasizes the necessity of reforming higher education policies to ensure curriculum relevance and employability. Pramesti et al. (2024) identified a significant competency gap between what universities teach and what industries demand, suggesting the importance of internship-based and industry-oriented learning. Similarly, Diana and Hakim (2020) discuss how the Merdeka Campus policy serves as a bridge between universities and industry through experiential learning, though its implementation still faces regulatory and structural barriers. These studies collectively support the hypothesis that optimizing the Triple Helix collaboration framework can enhance graduate employability by creating an innovative and market-driven education ecosystem, thus serving as the theoretical foundation for the present research.

**RESEARCH METHOD**

**(1) Research Design and Approach**

This study employs a descriptive qualitative approach, which aims to gain an in-depth understanding of how collaboration between universities, industries, and governments can enhance graduate employability. This approach was chosen because it allows for a comprehensive exploration of social phenomena and educational policies, particularly in the context of implementing the Triple Helix concept in Indonesia. According to Creswell (2014), a qualitative approach enables researchers to interpret meaning and perception based on data collected from multiple sources such as interviews, observations, and documents. In this research, library research serves as the primary method, focusing on the analysis of relevant written and published materials.

**(2) Population and Sample (Research Target)**

The target of this study is to identify effective collaboration patterns among universities, industries, and governments in improving graduate employability, while also recognizing the challenges and opportunities in implementing Triple Helix–based higher education policies. The research subjects include academic documents and literature, policy reports, and case studies related to university–industry–government collaboration, human resource development, higher education reform policies such as *Merdeka Campus* and *Kedaireka*, and the linkage between graduate employability and industry needs.

The population of this research comprises all documents and literature addressing the relationship between higher education and the labor market, including scientific journals, national and international case studies on Triple Helix implementation, government policies related to higher education and employment, and reports from international institutions such as McKinsey, OECD, and WEF on 21st-century skills. The sample was selected using a purposive sampling technique, emphasizing relevance to the research focus. It includes scientific articles published within the last ten years, policy documents such as regulations from the Ministry of Education, Culture, Research, and Technology (Permendikbudristek), the *Kedaireka* program, and case studies of Triple Helix implementation across different countries.

**(3) Data Collection and Instrument Development Techniques**

Data were collected through document analysis, involving the identification, review, and selection of relevant academic literature and policy documents. These include national and international journal articles, academic books, reports from government agencies (such as Bappenas and the Ministry of Higher Education), and secondary data from official websites of international organizations. According to Bowen (2009), document analysis enables researchers to evaluate textual content to uncover themes, patterns, and meanings that enrich understanding of the studied social phenomenon.

The research instrument used is a document analysis worksheet, which records:

1. Source identity (author, year, title, publisher);
2. Research focus (main theme);
3. Key concepts discussed (synergy, employability skills, Triple Helix challenges); and
4. Key findings and their relevance to this study.

**(4) Data Analysis Techniques**

The study uses a content analysis approach to interpret data. This technique involves:

1. Coding data based on emerging thematic categories;
2. Classifying data into categories such as forms of collaboration, constraints, and success strategies; and
3. Deriving meanings and linking interrelated themes within the Triple Helix framework. According to Krippendorff (2018), content analysis is a systematic and objective technique for inferring meaning from text, suitable for understanding complex phenomena as reflected in written documents.

**RESULT AND DISCUSSION**

Many studies have shown that there is a significant gap between university graduates' competencies and the real demands of the labor market. Pramesti et al. (2024) emphasize that this mismatch is caused by curricula that are not yet fully responsive to industrial needs, limited practical experience among students, weak mastery of soft skills such as communication and teamwork, and the rapid changes in the world of work driven by digitalization that have not been matched by curriculum adaptation. This gap is also reflected in global reports: McKinsey & Company (2018) noted that only 42% of employers worldwide believe university graduates are ready for their first jobs, while 45% of graduates themselves feel they do not yet possess sufficient skills to compete. This indicates a structural mismatch between educational processes and the ever-evolving needs of the labor market. The World Economic Forum (2020) further estimates that 65% of children entering elementary school today will work in jobs that do not yet exist, making learning agility and adaptability key competencies for future graduates.

Within this framework, the Triple Helix model developed by Etzkowitz and Leydesdorff (2000) becomes crucial. This model describes a systematic synergy among three main actors: universities as producers of knowledge, industries as users and developers of applied technologies, and governments as facilitators of regulation and funding. Diana and Hakim (2020) note that such collaboration must go beyond incidental cooperation and evolve into a long-term strategic framework to be effective. They highlight that, in Indonesia, collaboration often remains limited to a "double helix" format (two-party relationships), such as between universities and industries or between governments and universities alone. This limitation constrains the formulation of innovation-based policies and programs that are responsive to employment challenges.

Government initiatives such as Merdeka Campus (Kampus Merdeka) represent important steps toward establishing more concrete Triple Helix collaborations. This program provides opportunities for students to gain direct experience in the workforce through internships, social projects, and applied research. However, its implementation continues to face challenges. Haryono et al. (2022), in a case study of the defense industry, observed that the main obstacles include weak collaborative planning, overlapping interagency regulations, and the absence of attractive incentive models for industries to actively engage in higher education. Thus, the presence of programs such as Kedaireka, launched by the Ministry of Education and Culture, becomes essential to bridge these needs, though institutional capacity strengthening is still required at both university and industry levels.

A deeper analysis of the Merdeka Belajar–Kampus Merdeka (MBKM) policy reveals its implications for higher education curriculum development in Indonesia, particularly in terms of regulation, curriculum structure, and implementation challenges and opportunities. The MBKM policy is formally governed by Ministerial Regulation No. 3 of 2020 on National Standards for Higher Education, with key provisions including:

1. *Article 15(1):* Learning activities may take place both within and outside the study program, including student exchanges, internships/work practices, teaching assistance, research, humanitarian projects, entrepreneurship, independent studies/projects, and community development through Thematic Field Work Courses (KKNT).

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2. *Article 18(1):* Students in bachelor's and applied bachelor's programs may fulfill their learning requirements either entirely within their study program or partially within and partially outside the study program.

These provisions provide flexibility for students to acquire broader learning experiences relevant to labor market needs and encourage universities to build partnerships with various external stakeholders. The implementation of MBKM requires universities to reform curricula from content-based to Outcome-Based Education (OBE), which focuses on achieving specific learning outcomes. In this context, the curriculum should be designed to (1) integrate MBKM activities—such as internships, research, and humanitarian projects—into the credit system; (2) align course syllabi with expected learning outcomes; and (3) establish strategic partnerships with industries, governments, and communities to facilitate MBKM activities.

Jufriadi et al. (2022) found that MBKM curriculum implementation significantly enhances students' 21st-century skills—communication, collaboration, critical thinking, and creativity. Activities such as KKNT and teaching assistance have proven effective in developing soft skills essential in today's workforce. However, despite its potential, MBKM implementation still faces challenges, including: (1) institutional readiness, as not all universities have adequate resources and infrastructure; (2) coordination with external partners, which requires continuous engagement; and (3) credit recognition, where converting MBKM activities into accredited coursework remains problematic.

To address these challenges, several strategies are recommended: (1) strengthening institutional capacity through human resource training and development; (2) developing clear and comprehensive implementation guidelines; and (3) creating academic information systems that support MBKM activity documentation and recognition.

The MBKM policy cannot be separated from the Triple Helix framework, which emphasizes the importance of strategic collaboration among universities, industries, and governments in building an adaptive and innovative higher education ecosystem. In this research, the Triple Helix model serves as the main analytical lens to understand how these three actors interact to facilitate the transition of graduates from academia to the workforce. The MBKM policy provides a formal and legal platform for such collaboration, as stipulated in Articles 15 and 18 of Ministerial Regulation No. 3/2020, allowing students to learn outside campus through internships, independent projects, and community service facilitated by external partners.

Nevertheless, literature reviews reveal that the implementation of the Triple Helix within MBKM in Indonesia still faces serious challenges. Diana and Hakim (2020) assert that existing collaborations tend to be sporadic and project-based rather than structured and institutionalized. As a result, many MBKM activities lose their transformational value because they are not integrated into a systematic and standardized curriculum. Most universities are still in the process of identifying willing industrial and governmental partners who share a common vision of student development. However, the Triple Helix requires a continuous, two-way communication flow among the three actors to ensure the sustainability of innovation, knowledge transfer, and policy formulation based on labor market needs.

Furthermore, Ghalib et al. (2024) found that many human resource development programs based on collaboration fail due to the lack of long-term commitment from industries and insufficient policy incentives from the government. Ideally, the government should serve as a key actor that creates regulatory frameworks and supportive ecosystems, including fiscal incentives, infrastructure support, and program evaluation systems. Universities, as providers of research-based human resources, have not fully aligned their curricula with market demands, while industries are not yet consistently ready to serve as competence-oriented learning partners.

Additionally, MBKM's off-campus learning activities should serve as ideal arenas for Triple Helix practice. For instance, industrial internships should not only provide students with work experience but also serve as meeting points between university research and industrial application. In practice, as stated by the Ministry of Education and Culture (2023), many MBKM activities have not been maximized as instruments for cross-sector integration, instead remaining as complementary programs without continuity.

In terms of curriculum, MBKM-driven reforms require universities to develop Outcome-Based Education curricula that harmonize theory and practice. This creates space for industries to actively participate in designing project-based courses, while governments ensure sustainable funding and evaluation mechanisms. However, as Pramesti et al. (2024) noted, most universities still lag in comprehensive curriculum reform, particularly in integrating MBKM activities into academic structures. Limited administrative capacity, weak collaboration with industries, and high bureaucratic burdens remain major obstacles.

Therefore, the success of the MBKM policy as a higher education reform initiative depends largely on how concretely Triple Helix principles are translated into curriculum structures, partnership models, and technical regulations among stakeholders. The synergy between research, industrial practice, and policy facilitation is a prerequisite for Indonesian graduates to meet global challenges with holistic competence—academically, technically, and character-wise. This study underscores that incomplete and unsystematic collaboration among Triple Helix actors remains a critical issue that must be addressed to ensure the relevance and competitiveness of Indonesian higher education in the current era of disruption.

Based on these findings, several strategies are recommended:

1. Aligning curricula and vocational training through formal industrial partnerships.
2. Strengthening incentive policies for industries that collaborate with higher education institutions.
3. Establishing regular communication forums among universities, industries, and governments to align visions and needs.
4. Conducting continuous monitoring and evaluation of collaborative program effectiveness in enhancing graduate competitiveness.

The analysis of these research documents shows that the Triple Helix collaboration model holds great potential to align higher education outputs with labor market demands. However, its implementation in Indonesia still faces structural, communicative, and ecosystemic challenges. Strategic policy actions, curriculum renewal, and cross-sector commitment are urgently needed to build an excellent human resource base capable of meeting global challenges.

## CONCLUSION

Many studies reveal a significant gap between university graduates' competencies and the increasingly dynamic demands of the labor market, driven by digitalization, weak soft skills, and limited student practical experience. The Triple Helix model, which emphasizes strategic synergy among universities, industries, and the government, serves as an essential framework to address this mismatch; however, in Indonesia, such collaboration remains sporadic and has not yet been integrated systemically. The *Merdeka Belajar–Kampus Merdeka* (MBKM) policy, regulated under Ministerial Regulation No. 3 of 2020, provides an opportunity for curriculum reform based on more flexible learning outcomes and encourages students to learn beyond campus through internships, projects, and community service, thereby ideally becoming a real platform for the implementation of the Triple Helix concept. Nevertheless, the implementation of MBKM faces several challenges, including limited institutional resources, weak coordination with external partners, and a suboptimal credit recognition system, while industries have yet to demonstrate full commitment and the government provides insufficient incentives. Therefore, strategic efforts are required to align curricula and vocational training, strengthen industrial incentive mechanisms, establish regular communication forums among stakeholders, and conduct consistent monitoring and evaluation of collaborative programs so that Indonesian university graduates can develop holistic, relevant, and competitive competencies to face global changes in the era of disruption.

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