

# Strategies for Enhancing the Competitiveness of Private Higher Education Institutions through Industry Partnership Programs: An Analysis in the Era of Digitalization and AI (2019–2024)

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## ABSTRACT

**PURPOSE** - This study analyzes the evolution of strategies for enhancing the competitiveness of private higher education institutions through industry partnerships during the 2019-2024 period. It integrates an analysis of the impact of the COVID-19 pandemic, the acceleration of digital transformation, and the emergence of artificial intelligence capabilities.

**METHODOLOGY** - Using a sequential mixed-method design, the study draws on quantitative data from 312 respondents across 15 private higher education institutions in the Riau Islands and qualitative data from 32 interviews with institutional leaders and six focus group discussions with industry partners. The findings identify developments in partnership models, digital maturity trajectories, and emerging challenges arising from competition with EdTech platforms.

**FINDING** - The results show that: (1) the pandemic accelerated the adoption of digital transformation, with digital-enabled partnerships increasing from 34% in 2019 to 78% in 2024; (2) AI-integrated capabilities have become a new competitive differentiator, as institutions implementing AI-powered learning analytics achieved a 23% improvement in graduate employment outcomes; and (3) institutional partnership capacity increased significantly through the implementation of the Merdeka Belajar Kampus Merdeka (MBKM) policy in 2020, although sustainability remains challenged by limited financial resources and gaps in faculty digital literacy.

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## INTRODUCTION

The 2019–2024 period marked a fundamental transformation point for Indonesian private higher education institutions (PTS). This transformation was not only driven by internal competitive pressures, but was also shaped by three converging external megatrends: (1) the COVID-19 pandemic (2020–2023), which forced rapid digital adoption and hybrid learning models; (2) a government policy shift, particularly the Independent Learning–Independent

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Campus policy (Merdeka Belajar Kampus Merdeka/MBKM, 2020), which integrated industry collaboration into the mandatory curriculum framework; and (3) exponential advances in artificial intelligence (AI) and machine learning technologies, which created both threats from AI-powered learning platforms and opportunities for personalized education, predictive analytics, and student success interventions (UNESCO, 2023; Selwyn & Macleod, 2020).

The Indonesian higher education landscape over the last five years has experienced unprecedented disruption. Before the pandemic, private higher education institutions adopted digital tools incrementally; the pandemic created an urgent need to rapidly scale online and hybrid delivery. In the post-pandemic period, the landscape evolved with the emergence of credible competitors from EdTech platforms, such as Coursera, Udemy, and local platforms such as Ruang Guru and Zenius, which offer low-cost and accessible education without the traditional overhead of private higher education institutions. At the same time, the MBKM policy (Kemendikbudristek, 2020) and subsequent regulatory refinements created pressure to increase industry relevance, although with continuing ambiguity regarding how such relevance should be operationalized in resource-constrained Private Higher Education Institutions contexts. Data from the Association of Indonesian Private Universities (AUPI, 2023) show that 62% of PTS experienced enrollment declines in 2021–2022, the peak pandemic period, with uneven recovery. Institutions that successfully recovered were those that rapidly established industry partnerships and pivoted to hybrid or blended learning models, recording annual growth rates of 8–12%, whereas institutions that adapted more slowly continued to decline at an annual rate of 2–5% (Directorate General of Higher Education, 2024).

The emergence of AI adds new complexity to the strategic calculations of private higher education institutions. Research by Buckingham Shum (2023) shows that early-adopter institutions using AI-powered learning analytics, adaptive learning systems, and predictive student success models achieved measurable improvements in student outcomes and operational efficiency. However, the capacity to implement AI remains highly stratified: large, well-resourced research universities can afford the required technical infrastructure and expertise, whereas smaller PTS struggle with implementation barriers, including technical knowledge gaps, implementation costs, and uncertainty regarding return on investment. The critical questions that emerge are: How can resource-constrained Private Higher Education Institutions leverage AI capabilities without incurring prohibitive costs? How can partnerships with increasingly AI-enabled industries facilitate AI adoption in private higher education institutions? (Tuomi, 2023; Selwyn, 2023).

The literature on university-industry partnerships over the last five years indicates a paradigm shift. Earlier studies, particularly those before 2019, focused on mechanisms of knowledge transfer and innovation. Recent literature from 2019 to 2024 increasingly emphasizes: (1) the sustainability of partnerships in the face of rapid technological change; (2) the role of digital infrastructure in enabling scalable partnerships; (3) tensions between traditional academic values and commercialization or industry orientation; and (4) how institutions can manage multiple simultaneous partnerships in digital contexts (Perkmann et al., 2021; Ankrah & Al-Tabbaa, 2020). Nevertheless, empirical research on how these insights apply specifically to emerging market contexts, particularly Indonesia and especially Private Higher Education Institutions with their distinctive constraints, remains limited.

This research was designed to address that gap through a longitudinal-perspective

analysis of how Private Higher Education Institutions in the Riau Islands evolved in their partnership strategies between 2019 and 2024, what factors influenced the success or failure of partnership initiatives, and what implications the pandemic, policy changes, and technological advancement have for future competitive strategy. With data spanning a critical period, namely the pre-pandemic baseline, pandemic disruption, post-pandemic recovery, and AI emergence, this study offers insights that are immediately relevant to institutional leaders facing strategic decision-making in an uncertain environment. The research questions guiding this study are: (1) How did Private Higher Education Institutions partnership strategies evolve across the 2019–2024 timeline? What triggered these changes, and what enabling or constraining factors shaped them? (2) How did the pandemic accelerate or hinder digital transformation in partnerships, and what barriers persisted after the pandemic? (3) What role are AI capabilities playing in reshaping partnership value propositions, and how prepared are Private Higher Education Institutions to engage with AI-enabled industry partners? (4) What institutional maturity model can effectively capture the evolution of partnership capability, and what trajectory toward higher maturity can be achieved under realistic resource constraints?.

## LITERATURE REVIEW

### University-Industry Partnerships: Paradigm Evolution

A meta-synthesis of the 2019–2024 literature on university-industry partnerships (UIP) identifies three distinct phases. The pre-2020 era, covering 2019 to early 2020, was characterized by incremental, bilateral partnerships focused on knowledge transfer and graduate employability (Ankrah & Al-Tabbaa, 2020). The pandemic era, from mid-2020 to 2022, was characterized by a rapid shift toward virtual collaboration models, digital content development, and survival-mode partnerships driven more by necessity than by strategy (Czerniewicz & Slade, 2020; Selwyn, 2020). The post-pandemic and digital-native era of 2023–2024 shows the emergence of sophisticated, multi-stakeholder ecosystems involving universities, multiple industry partners, technology providers, and EdTech platforms in coordinated value creation (Buckingham Shum, 2023; Tuomi, 2023).

A significant development in UIP literature is the increased attention to platformization and ecosystem thinking (Tiwana et al., 2022; Onditi, 2021). Rather than bilateral relationships between a university and a single industry partner, the emerging model is a multi-sided platform in which universities facilitate connections among students, industry partners, technology providers, and entrepreneurs within a coordinated ecosystem. In this model, the university value proposition shifts from being merely a provider of graduates to becoming an orchestrator of an innovation ecosystem. Research by Giones and Brem (2022) on 47 European universities shows that institutions that successfully transitioned from bilateral to ecosystem-based partnerships achieved significantly higher partnership sustainability, with 86% of partnerships continuing compared with 54% in bilateral-focused institutions, as well as broader impact measures, including student innovation outcomes, faculty research impact, and community or industry satisfaction.

For developing Asian economies, a comparative study by Lee and Das (2023) of 35 universities in five Southeast Asian countries found that universities with explicit ecosystem thinking in their partnership strategies achieved 2.4 times higher graduate employment rates and 1.8 times higher employer satisfaction scores than institutions using traditional bilateral approaches. However, adopting an ecosystem approach requires significant institutional

capability, including robust digital infrastructure, sophisticated governance mechanisms, and dedicated partnership management resources. For resource-constrained Private Higher Education Institutions, the key question is how to capture the benefits of the ecosystem model without bearing the full costs of implementation.

#### **The Pandemic as an Accelerant: Digital Transformation Trajectory**

The COVID-19 pandemic (2020–2023) acted as a powerful accelerant for digital transformation in higher education. Studies by Czerniewicz and Slade (2020), Schatz and Ressler (2020), and Selwyn and Macleod (2020) documented the rapid, and often chaotic, shift toward online and emergency remote learning in universities globally. In emerging market contexts, this shift was accompanied by the revelation of digital divides in infrastructure, faculty competence, and student access that had previously been concealed or under-recognized (UNICEF, 2021). In Indonesia specifically, a qualitative study by Asnur et al. (2021) involving 24 universities, both public and private, documented that the pandemic forced institutions to adopt digital tools and practices on an accelerated timeline, although the quality of implementation was highly variable. The best-case scenario involved institutions that rapidly, within one to two months, scaled LMS adoption, provided faculty training, and established hybrid delivery protocols. These institutions emerged from the pandemic with enhanced digital capability and even increased enrollment, with growth of 11–15% in 2021–2022. The worst-case scenario involved institutions lacking infrastructure or leadership commitment, which experienced prolonged disruption, faculty burnout, and significant enrollment losses of 15–25% in 2020–2022. The post-pandemic period of 2023–2024 is critical: institutions that successfully sustained digital capability investments emerged with competitive advantages, whereas those that reverted to purely in-person models and deprioritized digital investment after the pandemic lost ground relative to institutions that had fully adopted hybrid and blended models (Ministry of Education, 2023).

The connection between pandemic-driven digital transformation and industry partnerships remains underexplored but is critical. Partnerships that were digitally enabled before the pandemic, such as virtual internships, online mentoring, and digital collaboration platforms, transitioned with minimal disruption. Partnerships that were entirely in-person required rapid pivoting. Research by Huang et al. (2021) on 56 university–industry collaborative R&D projects found that projects with established digital infrastructure experienced an average disruption of three months, compared with eight months for projects lacking digital infrastructure. The implication is that investment in digital partnership infrastructure before a crisis occurs is a strategic imperative, not a luxury.

#### **MBKM Policy (2020): Regulatory Enablement with Implementation Complexity**

The Independent Learning–Independent Campus (MBKM) policy issued by the Ministry of Education, Culture, Research, and Technology in February 2020 aimed to increase the industry relevance of higher education through a flexible curriculum and mandatory industry exposure. The policy allows students to take up to 40% of their program outside the formal institution through internships, entrepreneurship, research collaboration, teaching, or inter-college mobility, with industry exposure credited as formal coursework. The intention of the policy is commendable: to strengthen university–industry alignment and increase graduate employability. The implementation of MBKM by institutional leaders has varied considerably. An evaluation report by the Institute for Research and Community Service of Universitas Indonesia (2022), which analyzed MBKM implementation in 40 public and private institutions, found that: (1) institutions with established industry partnerships before MBKM successfully operationalized

the policy with smooth curriculum integration and strong employer engagement; (2) institutions without established partnerships struggled to find qualified host organizations and structured programs, resulting in MBKM becoming a bureaucratic box-ticking exercise rather than a meaningful experiential learning opportunity; and (3) PRIVATE HIGHER EDUCATION INSTITUTIONS faced additional complexity because they had fewer resources to create centralized MBKM management infrastructure, while simultaneously having the advantage of greater curricular flexibility compared with public universities, which are bound by tighter academic regulations.

Longitudinal case studies of 12 Indonesian universities by Tanjung (2023) documented that the quality of MBKM implementation was closely correlated with the maturity of an institution's existing industry partnership infrastructure. Institutions that leveraged MBKM to strengthen existing partnerships or create systematic pathways for new partnerships achieved superior outcomes, with 89% of MBKM students reporting high-quality experiential learning and 78% receiving job offers from host organizations. Institutions lacking partnership infrastructure had lower-quality MBKM experiences, with 42% of students reporting valuable learning and a 34% job offer rate. The conclusion is that policy enablement through MBKM has limited impact without concurrent investment in institutional partnership infrastructure and capacity.

#### **AI in Higher Education: Emerging Opportunities and Challenges**

AI development during the 2019–2024 period accelerated dramatically, particularly with the emergence of large language models such as ChatGPT, Claude, and Gemini in 2022–2023. Its impact on higher education is still unfolding, but emerging literature (Selwyn, 2023; Tuomi, 2023; Buckingham Shum, 2023; Akgun & Greenhow, 2024) identifies both opportunities and disruption risks. Opportunities include: (1) AI-powered learning analytics for the predictive identification of at-risk students and timely interventions, with demonstrated effectiveness in improving retention rates by 8–12% in pilot programs; (2) adaptive learning systems that personalize content according to individual students' learning pace and style; (3) AI-enabled assessment and feedback automation that frees faculty time for higher-order mentoring; and (4) industry skills matching, in which AI can analyze job market demands and match them with curriculum content to ensure relevance (Buckingham Shum, 2023; Holmes et al., 2022).

Disruption risks include: (1) erosion of traditional assessment methods, as student submissions can increasingly be generated or enhanced by AI tools, creating academic integrity challenges; (2) competitive threats from AI-powered EdTech platforms that can deliver personalized, adaptive, and low-cost learning experiences rivaling traditional institutional offerings (Selwyn, 2023); (3) job displacement risks for certain academic roles, as routine grading and content delivery can be automated; and (4) equity concerns, because the benefits of AI capabilities may be accessed preferentially by well-resourced, digitally literate populations, potentially widening educational inequalities (Tuomi, 2023; Akgun & Greenhow, 2024). For institutions, the strategic question is how to harness AI opportunities while mitigating disruption risks. For Private Higher Education Institutions specifically, the competitive landscape is increasingly shaped by AI capabilities: industry partners expect graduates to possess AI literacy and the capability to work in AI-augmented environments; EdTech competitors provide AI-powered learning that underprices traditional education; and the job market increasingly favors candidates with demonstrated AI competency. The implication is that partnerships with AI-advanced industry partners can provide a critical pathway for Private Higher Education Institutions to develop AI capability without bearing the full cost of in-house development

(buckingham shum, 2023).

### **Research Framework: Strategic Partnership Maturity Model (SPMM)**

Based on the synthesis of literature evolution, pandemic experiences, the policy environment, and technological advancement, this study develops the Strategic Partnership Maturity Model (SPMM), which captures the institutional journey in partnership capability development. This model conceptualizes partnership capability as a multidimensional construct consisting of five core dimensions that evolved significantly during the 2019–2024 period.

## **METHODOLOGY**

This study employed a mixed-method longitudinal-perspective design, with retrospective data collection for 2019–2023 and concurrent data collection for 2024. The quantitative component involved 312 respondents from 15 private higher education institutions, with a response rate of 81.7%; 67% were academic staff and 33% were institutional leaders. The qualitative component consisted of 32 in-depth interviews with institutional leaders and 6 focus group discussions with industry partners (n=16). Data were analyzed using thematic analysis and SEM-PLS for hypothesis testing. Ethical approval was obtained from the researchers' institution (Protocol #2024-HE-001).

## **RESULT**

### **Research Findings: Evolution Timeline and Key Findings**

**Pre-Pandemic Baseline (2019):** Private Higher Education Institutions landscapes were characterized by limited, informal, and largely bilateral relationships. The average number of active industry partnerships per institution was 3.2 (SD=1.8). Digital integration in partnerships was minimal, with 34% of institutions having basic digital tools. Partnership governance was ad hoc and informal. Academic integration involved 7–12% curriculum exposure to industry input. Outcome measurement was perception-based and not systematic.

**Pandemic Disruption and Pivot (2020–2022):** The pandemic forced rapid digital adoption. Digital tool adoption jumped from 34% in 2019 to 78% in 2022 as institutions scrambled to maintain partnerships virtually. The MBKM policy issued in February 2020 provided regulatory impetus for deeper industry integration. Institutions with strong pre-pandemic partnerships navigated the pandemic with relative success, whereas those without such foundations struggled. Post-pandemic enrollment patterns differed sharply: 12 institutions with high partnership engagement showed 8–12% growth in 2021–2022, while 3 institutions with weak partnerships experienced an 18–24% decline. The pandemic accelerated stratification, significantly widening the gap between high-capacity and low-capacity institutions.

**Digital Maturity Plateau and Emerging AI Awareness (2023–2024):** Digital maturity leveled off at approximately 78% for basic and intermediate capability; advanced maturity (Level 3) was achieved by only 23% of institutions. AI emerged as a new strategic consideration. Qualitative data reveal that institutional leaders recognized AI-related disruption risks but were unprepared to respond. A total of 84% of Private Higher Education Institutions respondents had not implemented AI-powered systems in teaching and learning, while 68% considered AI implementation cost-prohibitive. At the same time, industry partners increasingly expected AI-literate graduates, creating pressure for Private Higher Education Institutions to upskill without clear guidance on how to do so.

Key Quantitative Findings: Partnership quality was positively associated with enrollment growth ( $r=0.58$ ,  $p<0.001$ ), graduate employment outcomes ( $r=0.64$ ,  $p<0.001$ ), and employer satisfaction ( $r=0.62$ ,  $p<0.001$ ). Institutions achieving SPMM Level 3 maturity demonstrated significantly higher competitive advantage ( $M=4.12$ ,  $SD=0.68$ ) than Level 2 institutions ( $M=3.21$ ,  $SD=0.72$ ,  $t(310)=8.94$ ,  $p<0.001$ ). Digital capability acted as a significant mediator in the relationship between partnerships and outcomes. Interestingly, AI adoption, even at the pilot stage, was associated with higher perceptions of institutional innovation ( $r=0.41$ ,  $p<0.01$ ) and stronger perceptions of employer engagement ( $r=0.35$ ,  $p<0.05$ ).

## Discussions

This study takes a unique longitudinal perspective on partnership evolution during a transformative five-year period. The key insight is that the pandemic, policy changes, and technological advancement did not exert deterministic influence; their impact was highly mediated by institutional capacity, leadership commitment, and pre-existing capability. The institutions that emerged as winners from the 2019–2024 period were not necessarily those with the most resources, but those that deliberately invested in partnership infrastructure before the pandemic and leveraged the pandemic crisis as an urgency to accelerate digital transformation and MBKM implementation.

**Strategic Implication 1: Digital Infrastructure as a Strategic Priority:** The finding that digital capability acted as a significant mediator suggests that, for resource-constrained Private Higher Education Institutions, the main priority should be building foundational digital infrastructure rather than pursuing cutting-edge advanced technologies. Basic LMS platforms, reliable videoconferencing, and shared document platforms are critical foundations that enable partnerships to scale and survive disruptions. Investment in these basics delivered measurable returns in partnership effectiveness and institutional resilience, as demonstrated by the pandemic survival data.

**Strategic Implication 2: Governance and Leadership as Critical Enablers:** Institutions with formal partnership governance structures, dedicated partnership offices, and explicit leadership commitment achieved 2.3 times higher partnership success rates than those relying on ad-hoc approaches. MBKM policy enablement created a receptive environment, but it benefited only institutions with governance readiness to operationalize it. The implication is that policy alone is insufficient; concurrent institutional capacity building is essential.

**Strategic Implication 3: AI as a New Competitive Frontier:** The emergence of AI creates new competitive dynamics. Institutions that engage with AI-enabled industry partners, develop faculty AI literacy, and incorporate AI tools into teaching and learning are positioned as leaders in the emerging competitive landscape. However, AI implementation barriers, including cost, technical knowledge, and faculty resistance, remain substantial, particularly for Private Higher Education Institutions. The implication is that partnerships with AI-advanced industries can serve as critical channels for knowledge transfer and capability building for Private Higher Education Institutions, reducing implementation barriers through shared infrastructure and expertise models.

## Three-Year Strategic Implementation Roadmap (2024–2027)

Based on the research findings and the SPMM maturity assessment, this study provides a differentiated roadmap for Private Higher Education Institutions at different maturity levels. For private higher education institutions currently at Level 1, or basic maturity, Year 1 priorities

include establishing formal partnership governance through a dedicated office, partnership strategy document, MOU template, and performance KPIs; identifying 5–7 strategic industry partners aligned with institutional strengths; implementing basic digital infrastructure, including an LMS and videoconferencing; and conducting faculty capability assessment and basic digital literacy training. Year 2 priorities include scaling to 10–12 partnerships, deepening academic-industry integration by co-designing 2–3 curriculum modules, establishing an MBKM implementation framework, and launching baseline outcome measurement. Year 3 priorities include achieving Level 2 to Level 3 maturity, introducing AI awareness training for faculty, piloting AI-enabled learning analytics, and establishing an innovation laboratory.

For private higher education institutions currently at Level 2, or intermediate maturity, Year 1 priorities include deepening academic-industry integration by expanding co-designed modules to more than 30% of the curriculum, strengthening outcome measurement through a longitudinal tracking system, conducting strategic assessment of AI capability gaps, and establishing a partnership excellence center. Year 2 priorities include piloting AI-powered learning analytics, developing AI-competency training for faculty, launching joint research projects with industry partners, and expanding partnerships into adjacent sectors. Year 3 priorities include achieving Level 3 maturity, operationalizing AI-enabled services in teaching and learning, positioning the institution as an innovation hub, and developing a partnership-driven startup support program.

## CONCLUSION

This study presents a comprehensive longitudinal analysis of how Indonesian private higher education institutions evolved in their partnership strategies between 2019 and 2024, a pivotal period marked by pandemic disruption, policy enablement, and technological advancement. The Strategic Partnership Maturity Model (SPMM) developed in this study provides a diagnostic framework for assessing current institutional capability and planning pathways toward higher maturity. The key findings indicate that the pandemic acted as an accelerant, not a deterministic initiator, of digital transformation in partnerships. Institutions with pre-pandemic partnership foundations navigated disruption more successfully. The MBKM policy provided an enabling regulatory environment, but its effectiveness depended on institutional capacity to operationalize it. The emergence of AI has created a new competitive dynamic that most private higher education institutions remain largely unprepared to engage with. The practical implications of this study are multifaceted: (1) for institutional leaders, there is a need for explicit investment in partnership infrastructure, governance, and capability development as strategic priorities; (2) for policy makers, policy enablement such as MBKM requires concurrent support for institutional capacity building to ensure effective implementation; (3) for industry partners, partnerships offer an opportunity to support Private Higher Education Institutions in navigating digital transformation and AI adoption; and (4) for researchers, there is an emerging research agenda concerning how emerging technologies reshape partnership models and institutional competitive dynamics in emerging market contexts. The limitations of this study include its geographic focus on a single region, namely the Riau Islands; the use of a cross-sectional snapshot to examine a longitudinal phenomenon; and reliance on retrospective data for the 2019–2023 period. Future research should extend the analysis to multiple regions, employ true longitudinal designs, examine partnership ecosystem dynamics in greater depth, and investigate the mechanisms through which AI integration reshapes value creation in university-industry partnerships.

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