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Enhancing graduate competitiveness: The role of the *MBKM* policy in Indonesian higher education

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Abstract

This study examines the influence of the *Merdeka Belajar Kampus Merdeka (MBKM)* policy implementation on graduate competitiveness in Indonesian higher education, using Actor–Network Theory (ANT) as the mediating analytical lens. A quantitative research design using Structural Equation Modeling (SEM-AMOS) was applied to responses from 250 graduates across various universities and fields of study, including MBKM participants and non-participants. The findings indicate that the effective implementation of the MBKM policy significantly enhances graduate competitiveness, both directly and indirectly, as influenced by actor-network dynamics involving universities, industry partners, and technical systems. Key elements, including communication, resource support, and collaborative engagement, are demonstrated to drive improvements in employability and labor-market readiness. The study advances higher education policy discourse by empirically demonstrating that policy success depends not only on structural design but also on the capacity of stakeholder networks to translate policy into meaningful graduate outcomes.

Keywords

Actor-Network theory, employability skills, graduate competitiveness, *Merdeka Belajar Kampus Merdeka (MBKM),* policy implementation

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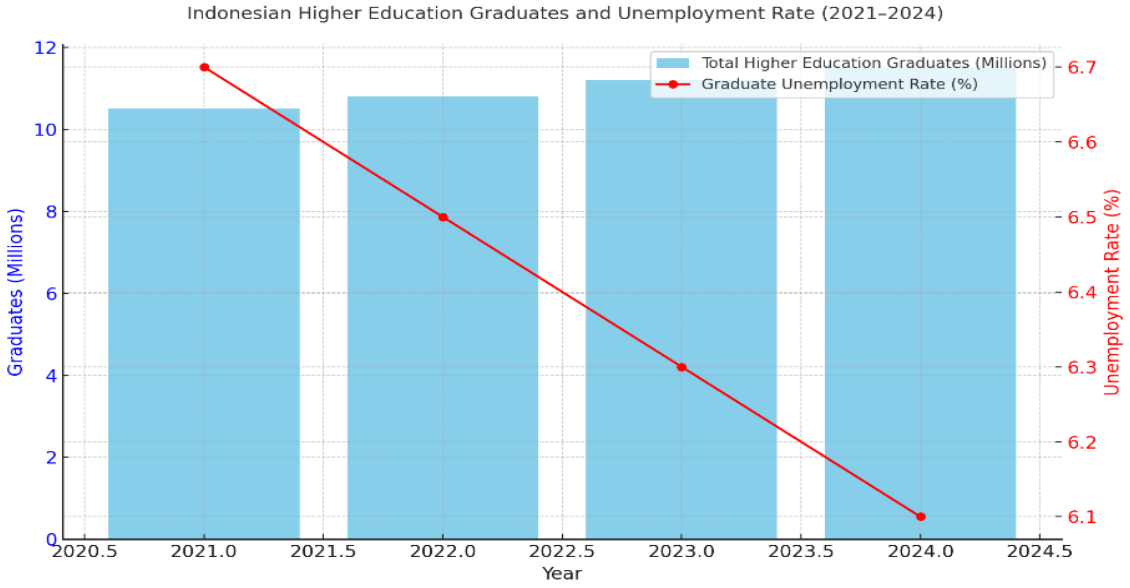
Introduction

The rapid transformation of the global economy in the 21st century has intensified competition in labor markets, generating a demand for graduates who are not only academically proficient but also adaptable, innovative, and equipped with transferable skills to navigate dynamic professional environments (Dobrovic et al., 2019; Finch et al., 2016; Malik & Ahmad, 2020). Consequently, higher education institutions face increasing pressure to ensure that graduates possess the competencies required for employability, industrial alignment, and sustainable career development.

In Indonesia, the challenge of workforce readiness remains persistent. Despite increasing higher education enrollment, graduate unemployment remains among the highest across all educational levels. Statistics Indonesia reports that from 2021 to 2024, the total number of graduates increased from 10.5 million to 11.5 million; however, unemployment among this group declined only slightly, from 6.7% to 6.1% (BPS, 2024). This slow progress indicates a structural mismatch between university-produced skills and labour market demands, reflecting a broader problem of relevance and responsiveness in higher education (Alhamuddin et al., 2020; Ashiq et al., 2020).

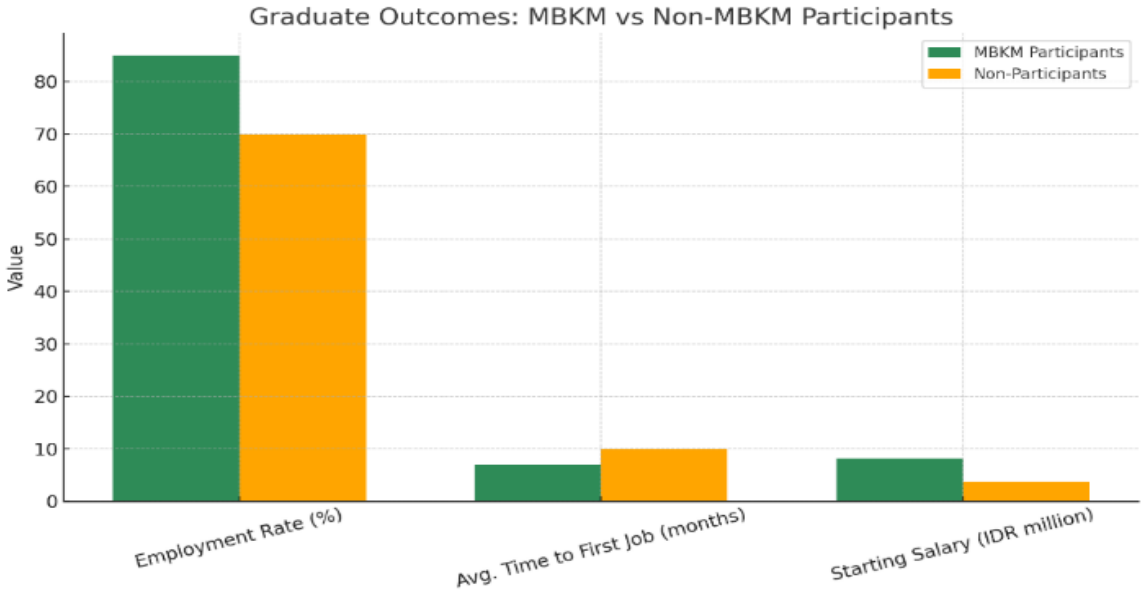
Figure 1. *Total higher education graduates and unemployment rate in Indonesia, 2021–2024 (BPS)*



To address this misalignment, the Ministry of Education, Culture, Research, and Technology launched the *Merdeka Belajar Kampus Merdeka* (MBKM) policy in 2020 to promote experiential and flexible learning. By enabling students to engage in up to three semesters of certified off-campus activities—including internships, research, entrepreneurship, community service, and student exchanges—the program aims to enhance practical competencies and accelerate graduate employability. Initial government evaluations report that MBKM participants achieve

higher employment rates (85%) than non-participants (70%), secure jobs sooner, and earn higher starting salaries.

Figure 2. *Graduates' outcomes of MBKM participants*



Despite these promising results, MBKM outcomes vary across institutions due to disparities in program integration, industry partnerships, and resource availability. This complexity suggests that effective implementation relies not only on policy design but also on the robustness of interactions among policy stakeholders, including universities, industries, students, regulatory frameworks, and digital infrastructures. Actor–Network Theory (ANT) provides a relevant analytical lens for examining how human and non-human actors collaborate, negotiate interests, and translate policy into practice (Callon, 1986; Latour, 2005). ANT further reveals that implementation challenges such as unequal access, administrative constraints, and uneven institutional engagement represent points of fragility within the policy network (Dwinarko et al., 2023; Rahmawati et al., 2022).

Existing studies primarily evaluate MBKM from outcome-based perspectives, focusing on improvements in employability but overlooking the underlying socio-technical dynamics that shape success. There remains limited empirical evidence integrating ANT with quantitative modeling to explain how network mechanisms influence graduate competitiveness.

Therefore, this study examines the direct and indirect effects of MBKM policy implementation on graduate competitiveness in Indonesia, with Actor–Network Theory serving as the mediating construct. Using Structural Equation Modeling (SEM-AMOS), this research aims to:

a. analyze the influence of MBKM implementation on graduate competitiveness,
b. investigate the role of ANT-based network interactions as an intervening factor, and

c. provide empirical insights to strengthen higher education policy and stakeholder collaboration.

By linking policy design, actor networks, and employability outcomes, this study contributes to the analysis of higher education reform. It provides strategic recommendations to enhance the effectiveness of MBKM in optimizing graduate competitiveness.

Literature Review

Policy implementation analysis

Policy implementation refers to the process of translating policy objectives into institutional and societal outcomes, which requires alignment among multiple actors, resources, regulations, and communication channels (Alwi & Susanti, 2022). This process involves various interacting factors that must align to achieve the intended objectives. Public policy is essentially designed to translate policymakers' goals into concrete actions that produce significant impacts (Alwi & Susanti, 2022; Ardiansyah, 2023; Bowman, 2005). In the education sector, policies encompass objectives, funding, curriculum, teaching methods, and assessment, which are shaped by multiple stakeholders, including government agencies, schools, teachers, parents, and intermediary organizations (Honig, 2004). Policy analysis, therefore, does not only focus on implementation but also on formulation and evaluation, especially given the increasing complexity of modern governance (Dunn, 2004). Dunn (2004) defines policy analysis as a multidisciplinary discipline aimed at producing and communicating knowledge to improve policy quality. Similarly, Bardach (2012) emphasizes that policy analysis is a social and political activity requiring both moral and intellectual responsibility, with its outcomes influencing society through multiple channels, including reports, presentations, and interviews.

Approaches to policy analysis have evolved from the policy cycle model first introduced by Lasswell (1956) and later popularized by Fischer et al. (2007), which highlights the stages of agenda-setting, formulation, decision-making, implementation, and evaluation. Despite its widespread use, critics often point out that the policy cycle oversimplifies a dynamic and nonlinear process. Nevertheless, it remains a valuable framework for structuring policy research. Patton et al. (2013) classify policy analysis into two types: in-depth research analysis and quick analysis, tailored to practical needs and resource constraints. In addition, Edwards III's implementation model—which emphasizes communication, resources, disposition, and bureaucratic structure—has been considered relevant in evaluating policy effectiveness (Hutagalung & Indrajat, 2021). Multi-level evaluation of implementation is also crucial, as it can reveal barriers and opportunities in practice, thus supporting more proactive and responsive planning in the future (Gregorič et al., 2015).

Graduate employability challenges in Indonesia

Graduate competitiveness refers to the ability of graduates to compete effectively in the labor market, influenced by educational quality, market demand, and the relevance of skills (Li, 2016; Ma, 2019). It encompasses not only academic qualifications but also work readiness, adaptability, and institutional reputation (Rahmawati & Saputra, 2022). In today's highly

competitive job market, universities are engaged in a "reputation race," where prestige and global standing significantly influence employability, prompting them to enhance practical skills through industry partnerships (Rahmawati & Saputra, 2022).

Traditional education often lags evolving market needs, failing to provide essential process skills such as reasoning, problem-solving, teamwork, communication, creativity, and risk-taking (Hergnyan & Williams, 2017). Porter's model emphasizes the importance of optimizing inputs, demand conditions, and educational strategies to enhance graduate competitiveness (Sukardi et al., 2019). In contrast, Finch et al. (2016) stress the importance of lifelong learning and dynamic capabilities for sustained employability. Competencies—encompassing knowledge, skills, and attitudes that enable effective professional performance (Chyung et al., 2010)—include efficiency, resilience, collaboration, creativity, and adaptability (Armstrong, 2003; Crebert et al., 2004; Field, 2017; Velasco, 2012). Generic skills, such as communication, ICT literacy, and teamwork, remain crucial (Harvey, 2002).

Studies have shown that innovation, industry linkages, and practice-oriented education significantly enhance employability (Komarek et al., 2017). However, Indonesia still faces challenges, as reflected in its Global Talent Competitiveness Index ranking, which dropped from 65th (2020) to 82nd (2022) before slightly recovering to 80th (2023), lagging behind ASEAN peers (Sukmayadi & Rofii, 2025), while high open unemployment among graduates (BPS, 2024) underscores the persistent gap between higher education outcomes and labor market expectations.

Actor–network theory (ANT)

Actor–Network Theory (ANT), developed in the 1980s by Bruno Latour, John Law, and Michel Callon at the Centre de Sociologie de l'Innovation in Paris, emerged as a post-structuralist approach to problematize how scientific and technological knowledge is produced through networks of human and non-human actors (Denis et al., 2007; Gorur, 2015). ANT emphasizes the heterogeneity of networks and the agency of both people and objects, framing social realities as effects of relations rather than predetermined structures (Latour, 2005; Law, 1992). Key concepts, such as materiality, multiplicity, ordering, punctualities, obligatory passage points, and irreversibility, highlight how networks are assembled, maintained, and transformed (Callon, 1986; Law & Hassard, 1999; Wickramasinghe et al., 2012).

Translation, comprising problematization, interest, enrolment, and mobilization, is central to explaining how actors align their interests and stabilize networks (Callon, 1984; Prado & Baranauskas, 2012). In policy analysis, ANT has been used to examine how heterogeneous assemblages of actors—documents, technologies, institutions, and people—interact to shape policy processes, revealing the fragility, multiplicity, and contested nature of governance (Fenwick & Edwards, 2011; Garcia et al., 2019; Koyama, 2011). Within education, ANT provides insights into curriculum reform, policy implementation, ICT projects, exchange programs, and innovative education initiatives by foregrounding the material and relational complexity of learning environments (Chen, 2014; Fenwick, 2012; Wang et al., 2021). Studies show that curricula, policies, and leadership are not static but dynamic networks, shaped by collaboration, technological mediation, and shifting power relations (Carroll, 2018; Dussel, 2020; Kamp, 2018; Unsworth, 2023).

In the Indonesian context, ANT provide an excellent lens for mapping the implementation of *Merdeka Belajar–Kampus Merdeka* (MBKM) by tracing how diverse actors—government, universities, lecturers, students, industries, and technologies—become enrolled in policy networks that are heterogeneous, overlapping, and evolving (Law, 1992). Through negotiation, translation, and alignment of interests, ANT helps explain both the opportunities and challenges of adaptation across varied institutional settings, where success depends on the stability of networks, the distribution of resources, and the capacity of actors to continuously reproduce cooperation (Gao, 2005).

Implementation challenges as network weaknesses

Despite its promise, the MBKM network faces several vulnerabilities. First, industry engagement tends to be concentrated in metropolitan areas, limiting opportunities for students in rural or resource-constrained institutions. Second, variations in curriculum integration mean that MBKM activities are sometimes treated as optional add-ons rather than integral components of degree programs. Third, unequal access to program information and selection processes can exclude students from disadvantaged backgrounds.

From an ANT perspective, these challenges can be considered points of fragility in the actor–network, where connections between key actors are weak or misaligned. Strengthening these links—through more inclusive access mechanisms, diversified industry partnerships, and robust institutional support—can enhance the policy's overall effectiveness.

Research gap and contribution

While a growing body of literature exists on MBKM outcomes, few studies explicitly apply ANT to analyze the policy as a socio-technical network. Most existing evaluations focus on outcome metrics without considering the underlying network dynamics that enable or hinder those outcomes. By integrating ANT into a quantitative research framework, this study not only measures the statistical impact of MBKM participation on graduate competitiveness but also examines the mediating role of institutional and industry factors as key components of the network.

In doing so, the study contributes to both theory and practice, as it operationalizes ANT concepts within the context of higher education policy. It offers practical recommendation for strengthening the actor–network to maximize graduate competitiveness in Indonesia.

Methodology

This study employed a quantitative research design using Structural Equation Modeling (SEM) with AMOS version 26.0 to examine the direct and indirect effects of MBKM policy implementation on graduate competitiveness through Actor–Network Theory (ANT) factors. SEM was selected due to its capability to assess complex latent variable relationships simultaneously while accounting for measurement error (Byrne, 2016; Hair et al., 2019).

Research design

The research design adopted in this study was a causal–explanatory design, aiming to test and explain causal relationships among latent constructs within the theoretical framework. This design was appropriate, as the study sought to evaluate:

a. The causal influence of MBKM policy implementation on graduate competitiveness
b. The effect of MBKM implementation on ANT-based network dynamics
c. The mediating role of ANT in strengthening graduate outcomes.

The model was developed based on theory-driven structural pathways, and hypothesis testing was conducted to validate the causal assumptions through SEM.

Population, sample, and sampling technique

The study population consisted of Indonesian higher education graduates who completed their studies between 2021 and 2024 at accredited public and private universities in Indonesia. Respondents included both MBKM participants and non-participants to ensure representation of diverse learning experiences. Following SEM sample size recommendations (Kline, 2016), a minimum of 250 participants was required. A total of 300 valid responses were obtained using a purposive sampling technique, targeting those who were graduates reachable via alumni networks and career centre databases.

Data collection procedure

Data were collected from March to April 2025 using an online questionnaire distributed via alumni groups, university career services channels, and professional networking platforms, such as LinkedIn. Participation was voluntary, and respondents were provided informed consent before accessing the survey.

Research instrument

The instrument comprised four sections:

a. Demographic Profile (gender, study program, university type, MBKM participation status)
b. MBKM Policy Implementation: communication, resources, institutional support, and program accessibility, adapted from Bardach (2012) and Nugroho and Suryanto (2022)
c. Graduate Competitiveness: employability skills, labour market relevance, career opportunities (Finch et al., 2016; Haris et al., 2024)
d. ANT-Based Network Factors: actor enrolment, translation, collaboration, and non-human mediators such as digital platforms and regulatory systems (Callon, 1986)

All items used a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Likert scores were converted to interval scale data using the Method of Successive Interval (MSI) to meet SEM assumptions (Sugiyono, 2020).

Validity and reliability testing

Instrument quality was evaluated in two steps:

- Confirmatory Factor Analysis (CFA) ensured indicator validity with factor loadings ≥ 0.50 (Brown, 2015; Hair et al., 2019).
- Construct reliability was assessed using Cronbach's Alpha and Composite Reliability (CR), with a minimum requirement of 0.70 (Nunnally & Bernstein, 1994).

Convergent validity was assessed using Average Variance Extracted (AVE ≥ 0.50), and discriminant validity was assessed using the Fornell–Larcker (1981) criterion.

Structural model evaluation

The two-step SEM procedure of Anderson and Gerbing (1988) was used:

1. Assessment of the measurement model
2. Structural model hypothesis testing

Model fit was evaluated using multiple indices:

- $\chi^2/df \leq 3.00$
- CFI ≥ 0.90
- TLI ≥ 0.90
- RMSEA ≤ 0.08
- SRMR ≤ 0.08 (Hu & Bentler, 1999)

Direct, indirect, and mediating effects were examined to confirm the role of ANT in strengthening the impact of MBKM policy implementation on graduate competitiveness.

Ethical considerations

The appropriate institutional review board granted ethical approval. Respondents were informed of the research's purpose, and anonymity and confidentiality were ensured throughout the data handling and reporting process.

Findings

The findings of this study empirically demonstrate the dynamic interplay between policy implementation, actor-network interactions, and graduate competitiveness within the implementation of the *Merdeka Belajar Kampus Merdeka* (MBKM) framework. The quantitative results derived from the structural equation model provide strong support for the hypothesized causal relationships and highlight the central role of Actor–Network Theory (ANT) elements in mediating policy effectiveness.

Measurement model assessment

Before conducting structural evaluations, the measurement model was tested to assess internal consistency and construct validity. All latent constructs — Policy Implementation,

Actor-Network Theory (ANT), and Graduate Competitiveness — exhibited high reliability as indicated by Composite Reliability (CR) values exceeding the cut-off of 0.70 (Hair et al., 2019). These results confirm that the indicators consistently represent the variables they are intended to measure.

However, the Average Variance Extracted (AVE) values were below 0.50 for some constructs. This indicates that the constructs did not capture an optimal level of variance from their respective indicators, suggesting limited convergent validity. Despite this weakness, according to Fornell and Larcker (1981), CR values above the threshold may compensate for lower AVE scores, allowing the analysis to proceed. Thus, the measurement model is considered adequate for further structural testing; however, refinement of the construct is recommended for future studies.

Normality and data suitability for SEM

A Bollen–Stine bootstrap normality assessment involving 200 resamples yielded a significance value of p = 0.067, surpassing the 0.05 threshold. This confirms that multivariate normality assumptions were not violated, supporting the suitability of SEM-AMOS as the analytical method. This strengthens the credibility of the subsequent path analysis and mediation testing.

Structural model and hypothesis testing

a. Direct effects

Table 1. *Structural path analysis revealed three significant and positive causal relationships*

Path Relationship	B	CR	P-value	Interpretation
Policy Implementation → ANT	0.685	6.680	< 0.001	Strong positive effect
Policy Implementation → Graduate Competitiveness	0.628	6.452	< 0.001	Direct contribution to employability outcomes
ANT → Graduate Competitiveness	0.468	4.806	< 0.001	Network collaboration enhances competitive skills

These results indicate that policy implementation is the strongest predictor of both network strengthening and graduate competitiveness.

In practical terms, clear communication, sufficient institutional resources, and coordinated bureaucratic mechanisms significantly enhance stakeholder alignment and facilitate the translation of policy action. Similarly, graduate competitiveness — including problem-solving ability, adaptability, industry alignment, and job-seeking readiness — improves significantly when MBKM programs are implemented effectively.

b. Indirect effects (Mediation analysis)

The bootstrapping test confirmed partial mediation of ANT in the relationship between policy implementation and graduate competitiveness. This means that:

1. Policy execution itself improves the competitiveness of graduates
2. Networked collaboration amplifies this effect

Thus, effective MBKM outcomes occur not only because policies exist, but also because stakeholders — including universities, lecturers, industries, and students — successfully negotiate, interact, and align their interests.

This highlights the success of MBKM not merely as a top-down reform, but as a co-produced transformation sustained through human–non-human actor relationships.

Model fit evaluation

Six indices met recommended thresholds, confirming the model's overall adequacy and interpretability:

Table 2. *Summary of model fit indices*

Fit Index	Value	Threshold	Interpretation
CMIN/DF	3.075	≤ 3.0	Acceptable
RMSEA	0.090	≤ 0.08	Marginal but tolerable
NFI	0.822	≥ 0.90	Close to acceptable
CFI	0.871	≥ 0.90	Approaching ideal
IFI	0.873	≥ 0.90	Approaching ideal
PNFI	0.717	≥ 0.60	Good model parsimony
PCFI	0.760	≥ 0.60	Good parsimony level

Although incremental fit indices were slightly below the ideal of 0.90, they remained within acceptable tolerance levels for complex educational models (Hair et al., 2019). The model, therefore, provides a reasonable representation of real-world MBKM dynamics.

Interpretation based on empirical findings

These findings collectively show that:

a. Effective policy design and execution directly improve graduate outcomes → better readiness, stronger skills portfolio, and faster job acquisition.
b. Collaboration processes — not just program availability — are key → Universities with strong industry networks outperform others.
c. ANT-based mechanisms (alignment, enrolment, mobilization) → Strengthen ecosystem support for employability.
d. Structural and relational factors produce outcomes together → Human and non-human actors (platforms, regulations, tasks) co-shape success.

Strengthened theoretical contribution

This study extends MBKM research by demonstrating:

a. MBKM is most effective when viewed as a networked policy system, not merely a curriculum innovation.
b. ANT provides a robust analytical lens for mapping hidden implementation mechanisms.
c. Graduate competitiveness emerges from both policy and interactional infrastructure.

Taken together, these results confirm the robustness of the research model and highlight the importance of collaborative governance in higher education reform. The success of MBKM — and thus graduate competitiveness — is achieved when policy execution is strengthened through actor-network synergy, institutional structures, relational dynamics, and technological infrastructures working in alignment.

Discussions

The results of this study provide substantial empirical evidence that the effective implementation of the *Merdeka Belajar Kampus Merdeka* (MBKM) policy plays a central role in strengthening graduate competitiveness in Indonesia. The significant positive effect of MBKM policy implementation on graduate competitiveness supports the policy's intended purpose—to reduce the gap between academic qualifications and labour market expectations by enabling students to develop real-world experience, adaptability, and applied skills (Nugroho & Suryanto, 2022). This finding is consistent with existing studies, which show that structured higher education reforms can improve graduates' employability when learning outcomes are aligned with industry requirements (Arifin, 2020; Finch et al., 2016).

The significant influence of policy implementation on Actor–Network Theory (ANT) factors highlight the importance of socio-technical collaboration in shaping policy outcomes. Effective communication, adequate institutional resources, and well-coordinated administrative mechanisms under MBKM contribute to aligning the roles, interests, and motivations of human and non-human actors—including lecturers, students, industry partners, digital systems, and regulatory structures. This finding reinforces ANT's foundational perspective that program success emerges from negotiated relationships among diverse actors (Callon, 1986; Latour, 2005). It implies that MBKM cannot be fully understood as a purely policy-driven change; instead, its implementation relies on the strength of actor networks that translate intentions into practice.

The significant relationship between ANT and graduate competitiveness indicates that graduate readiness is not solely determined by policy design but by the relational infrastructure supporting its implementation. When universities successfully enrol external actors (especially industry) into their learning ecosystems, graduates benefit from improved professional exposure and competence development. This aligns with earlier findings arguing that actor-network collaboration drives higher education transformation by facilitating relevance, innovation, and mutually beneficial knowledge exchange (Gregorič et al., 2015; Xu et al., 2022).

The mediation analysis further shows that ANT partially mediates the relationship between policy implementation and graduate competitiveness. This demonstrates that while

policy execution directly strengthens graduate capabilities, the full potential of MBKM is realized only when actors actively engage in the translation processes of problematisation, enrolment, and mobilization. This study supports the perspective that co-creation between universities and stakeholders is necessary to produce meaningful educational outcomes (Marginson, 2016; Perkmann et al., 2021). Simply put, policies are not transformative on their own; collaboration operationalizes transformation.

Although the overall structural model demonstrated acceptable fit, the marginal fit on RMSEA and incremental indices suggests that further refinement may improve predictive accuracy. One reason may be the abstract nature of constructs such as graduate competitiveness and actor-network collaboration, which are challenging to represent exclusively through quantitative indicators. This methodological limitation suggests the potential value of future mixed-methods approaches in capturing the contextual, behavioural, and relational intricacies of MBKM implementation more effectively. Nonetheless, the strong Composite Reliability (CR) indicates that instrument consistency remains robust despite AVE limitations (Fornell & Larcker, 1981).

Theoretical and practical implications

Theoretically, this study contributes to higher education policy scholarship by demonstrating the value of ANT as a mediating mechanism in policy–outcome relationships. While ANT has been applied extensively in the adoption of technology and organizational systems (Fenwick & Edwards, 2010; Law, 1992), this research extends its relevance to educational policy studies, showing that graduate outcomes emerge from networks of actors, rather than from policies or resources alone. The findings thus reinforce ANT as a valid analytical lens for examining the complexity of Indonesian higher education reforms.

Practically, the results underscore several strategic implications:

a. Strengthening stakeholder partnerships sustainable collaboration with industry partners should be institutionalized to ensure continuous alignment between learning and employment ecosystems.
b. Enhancing policy communication and support systems administrative clarity, standardized procedures, and adequate support services must be prioritized so that all institutions—regardless of geographic or resource disparities—can translate MBKM effectively.
c. Ensuring monitoring of inclusive access across universities as network maturity varies significantly across institutions, policymakers must develop targeted interventions to support campuses with limited industry linkages or weaker digital infrastructures.
d. Institutional dedication to quality assurance continuous evaluation must be integrated to ensure MBKM activities are not only implemented but also have a meaningful impact on student learning trajectories.

These implications closely align with national education directions that emphasize synergy among the government, higher education institutions, and industry to advance Indonesia's human capital development goals (Sukmayadi & Rofii, 2025).

Taken together, the findings confirm that graduate competitiveness is shaped not only by curricular change but by the coherence and resilience of socio-technical networks supporting policy translation. By emphasizing the mediating role of ANT, this study highlights the collective responsibility of stakeholders to ensure that MBKM becomes more than a compliance-driven initiative—transforming it into a collaborative, sustainable strategy for producing globally competitive graduates.

Conclusion

This study examined the influence of the *Merdeka Belajar Kampus Merdeka* (MBKM) policy on graduate competitiveness in Indonesia by incorporating Actor–Network Theory (ANT) as a mediating mechanism within a Structural Equation Modeling (SEM) framework. The findings confirmed that the implementation of MBKM significantly enhances graduate competitiveness, both directly and through strengthened collaboration among network actors. Indicators such as policy communication, resource allocation, administrative coordination, and institutional commitment were shown to play a crucial role in ensuring that MBKM implementation contributes to labour market readiness. At the same time, graduate competitiveness is strengthened when students gain exposure to practical learning experiences, industry-relevant skill development, and improved access to career pathways.

The mediation results highlight that ANT-based components—stakeholder alignment, partnership quality, and effective integration of technological and regulatory instruments—represent key mechanisms through which MBKM policies are translated into tangible learning outcomes. These results emphasize the significance of collaborative governance, wherein policy efficacy relies on the active participation of interconnected stakeholders, including universities, industries, lecturers, students, and non-human intermediaries such as digital systems and assessment frameworks.

Theoretically, this study advances the use of ANT in higher education policy analysis by demonstrating its relevance in explaining how social and technical networks contribute to the success of national education reforms. Practically, the results suggest that strengthening institutional–industry linkages, ensuring equitable access to MBKM opportunities, and enhancing support systems for program implementation are crucial strategies for enhancing graduate competitiveness at a national scale.

Although the structural model demonstrated satisfactory robustness, limitations remain regarding measurement refinement and model optimization. Future research should explore mixed-methods approaches or longitudinal studies to capture socio-material interactions over time better and broaden the generalizability of findings across different institutional contexts. Overall, this study reinforces that MBKM's effectiveness lies not only in its policy design but also in the collective action and networked collaboration that sustain its implementation.

Disclosure Statement

No potential conflict of interest was reported by the authors.

References

Alhamuddin, A., Suryadi, R., & Priyatna, A. (2020). Challenges of graduate employability in Indonesian higher education. *Journal of Technical Education and Training, 13*(1), 45–58. https://doi.org/10.30880/jtet.2021.13.01.005

Alwi, R., & Susanti, E. (2022). Analisis implementasi kebijakan pendidikan tinggi di Indonesia (Analysis of the implementation of higher education policy in Indonesia). *Jurnal Kebijakan Pendidikan, 11*(2), 101–115. https://doi.org/10.21009/jkp.112.03

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A recommended two-step approach. *Psychological Bulletin, 103*(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Ardiansyah, F. (2023). Policy implementation in Indonesian higher education: Challenges and opportunities. *Indonesian Journal of Public Policy, 5*(1), 15–28.

Arifin, S. (2020). Higher education and the challenges of graduate employability in Indonesia. *Journal of Education and Learning, 14*(3), 473–479. https://doi.org/10.11591/edulearn.v14i3.16732

Armstrong, M. (2003). *A handbook of human resource management practice*. Kogan Page.

Ashiq, M., Rehman, S. U., & Nazar, N. (2020). Skills mismatch and employability crisis among university graduates in developing economies. *Education + Training, 62*(9), 1061–1078. https://doi.org/10.1108/ET-11-2019-0268

Bardach, E. (2012). *A practical guide for policy analysis: The eightfold path to more effective problem solving*. CQ Press.

Bowman, J. S. (2005). The success of public policy implementation. *Public Administration Review, 65*(2), 157–160. https://doi.org/10.1111/j.1540-6210.2005.00435.x

BPS. (2024). *Statistik Indonesia 2024 (Indonesian Statistics 2024)*. Badan Pusat Statistik. https://www.bps.go.id

Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. Guilford Press.

Byrne, B. M. (2016). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Routledge.

Callon, M. (1986). *Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St. Brieuc Bay*. Routledge.

Carroll, K. (2018). *Curriculum as an actor-network: Translating a new literacy curriculum into practice*. *Pedagogy, Culture & Society*, 26(4), 557–574. https://doi.org/10.1080/14681366.2018.1438401

Chen, B. (2014). *Designing MOOCs as interactive places for learning: A study of learning in massive open online courses* [Doctoral dissertation, The Pennsylvania State University].

Chyung, S. Y., Stepich, D., & Cox, D. (2010). Building a competency-based curriculum architecture to educate 21st-century business practitioners. *Journal of Education for Business, 85*(6), 307–313. https://doi.org/10.1080/08832320903449535

Crebert, G., Bates, M., Bell, B., Patrick, C., & Cragnolini, V. (2004). Developing generic skills at university, during work placement, and in employment: Graduates' perceptions. *Higher Education Research & Development, 23*(2), 147–165. https://doi.org/10.1080/0729436042000206636

Denis, J. L., Langley, A., & Rouleau, L. (2007). Strategic change in pluralistic organizations. In T. B. Lawrence, R. Suddaby, & B. Leca (Eds.), *Institutional work: Actors and agency in institutional studies of organizations*. Cambridge University Press.

Dobrovič, J., Korauš, A., & Polák, J. (2019). Quality management system as an effective tool for enhancing the competitiveness of higher education institutions. *Quality & Quantity, 53*(3), 1551–1566. https://doi.org/10.1007/s11135-018-0831-5

Dunn, W. N. (2004). *Public policy analysis: An introduction*. Pearson.

Dussel, I. (2020). *Reconfiguring the Material Conditions of Learning: The Entanglement of Screens, Algorithms, and Bodies*. *Studies in Philosophy and Education*, *39*, 621–637. https://doi.org/10.1007/s11217-020-09691-0

Dwinarko, D., Sumarsono, R. B., & Setiawan, F. (2023). Actor-network theory and the complexity of educational policy implementation. *Journal of Social Research, 12*(2), 155–170. https://doi.org/10.1234/jsr.v12i2.4567

Fenwick, T. (2012). *Matters of learning and matter: The materiality of educational policy and practice*. *Educational Philosophy and Theory*, *44*(S1), 15–27.

Fenwick, T., & Edwards, R. (2010). *Actor-Network Theory in education*. Routledge.

Fenwick, T., & Edwards, R. (2011). *Reclaiming and renewing actor-network theory for educational research*. *Educational Philosophy and Theory*, 43(S1), 1–14. https://doi.org/10.1111/j.1469-5812.2010.00795.x

Field, J. (2017). *Lifelong learning and the new educational order*. Trentham Books.

Finch, D. J., Hamilton, L. K., Baldwin, R., & Zehner, M. (2016). Factors affecting undergraduate employability. *Education + Training, 58*(1), 19–38. https://doi.org/10.1108/ET-07-2014-0077

Fischer, F., Miller, G. J., & Sidney, M. S. (Eds.). (2007). *Handbook of public policy analysis: Theory, politics, and methods*. CRC Press.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Gao, P. (2005). Using actor-network theory to analyse strategy formulation. *Information Systems Journal*, *15*(3), 255–275.

García, M., Álvarez, L., & García, E. (2019). Policy networks and actor–network theory: A framework to study policy processes. *Policy and Society*, *38*(1), 123–144. https://doi.org/10.1080/14494035.2019.1573052

Gorur, R. (2015). Producing calculable worlds: Education at the science–policy interface. *Discourse: Studies in the Cultural Politics of Education*, *36*(4), 578–595. https://doi.org/10.1080/01596306.2014.920247

Gregorič, M., Javrh, P., & Kalin, J. (2015). Multi-level policy implementation in education. *European Journal of Education, 50*(4), 471–486. https://doi.org/10.1111/ejed.12144

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

Haris, M., Sari, R. A., & Yusuf, R. (2024). Assessing employability skills in higher education graduates: A measurement framework. *Indonesian Journal of Educational Research, 12*(2), 145–159.

Harvey, L. (2002). Employability and diversity. *Quality in Higher Education, 8*(2), 131–138. https://doi.org/10.1080/1353832022000004870

Hergnyan, M., & Williams, G. (2017). Higher education transformation and graduate employability. *International Journal of Education Research, 82*, 123–134. https://doi.org/10.1016/j.ijer.2017.01.004

Honig, M. I. (2004). Bottom-up reform in educational governance. *Teachers College Record, 106*(4), 639–668. https://doi.org/10.1111/j.1467-9620.2004.00347.x

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis. *Structural Equation Modeling, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Hutagalung, M., & Indrajat, R. (2021). Evaluating education policy implementation using Edwards III's model. *Jurnal Administrasi Publik, 18*(2), 211–225.

Kamp, A. (2018). *Organizing uncertainty: actor-network theory and the performativity of strategy in educational institutions. Management & Organizational History*, *13*(2), 174–193.

Kline, R. B. (2016). *Principles and practice of structural equation modeling.* Guilford Press.

Komarek, A. M., McMillan, M. S., & Wouterse, F. (2017). *Labor market linkages and educational outcomes in Sub-Saharan Africa: Evidence from Ghana. World Development*, 99, 509–522.

Koyama, J. (2011). *Making failure pay: For-profit tutoring, high-stakes testing, and public schools.* University of Chicago Press.

Lasswell, H. D. (1956). *The decision process: Seven categories of functional analysis*. University of Maryland Press.

Latour, B. (2005). *Reassembling the social: An introduction to Actor-Network-Theory*. Oxford University Press.

Law, J. (1992). Notes on the theory of the actor-network: Ordering, strategy, and heterogeneity. *Systems Practice, 5*(4), 379–393. https://doi.org/10.1007/BF01059830

Law, J., & Hassard, J. (1999). *Actor network theory and after*. Blackwell Publishers/The Sociological Review.

Li, G. (2016). Employability of college graduates in China. *China Economic Review, 40*, 211–220. https://doi.org/10.1016/j.chieco.2016.07.006

Ma, X. (2019). Graduate employability in the context of globalization. *International Journal of Educational Development, 70*, 10-20. https://doi.org/10.1016/j.ijedudev.2019.102080

Malik, M., & Ahmad, M. (2020). Higher education and employability. *Education + Training, 62*(3), 282–297. https://doi.org/10.1108/ET-08-2019-0190

Marginson, S. (2016). High participation in higher education: Dynamics of social stratification. *Higher Education, 72*(4), 413–434. https://doi.org/10.1007/s10734-016-0016-x

Nugroho, A., & Suryanto, T. (2022). The implementation of MBKM policy to improve graduates' employability in Indonesia. *International Journal of Educational Development, 92*, 10-26. https://doi.org/10.1016/j.ijedudev.2022.102605

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. McGraw-Hill.

Patton, C. V., Sawicki, D. S., & Clark, J. J. (2013). *Basic methods of policy analysis and planning.* Routledge.

Perkmann, M., Salandra, R., Tartari, V., McKelvey, M., & Hughes, A. (2021). Academic engagement: A review of the literature 2011–2019. *Research Policy, 50*(1), 104114. https://doi.org/10.1016/j.respol.2020.104114

Prado, A. R., & Baranauskas, M. C. C. (2012). A socio-technical perspective on requirements elicitation. *Requirements Engineering*, *17*(3), 171–186. https://doi.org/10.1007/s00766-011-0123-7

Rahmawati, I., & Saputra, R. (2022). Reputasi akademik dan daya saing lulusan (Academic reputation and competitiveness of graduates). *Jurnal Pendidikan Tinggi, 6*(2), 55–68.

Rahmawati, N., Sari, D. P., & Pratama, Y. (2022). Inequality of access to MBKM programs. *Jurnal Pendidikan Tinggi Indonesia, 9*(1), 22–34. https://doi.org/10.21009/jpti.9122

Sugiyono. (2020). *Quantitative, qualitative, and R&D research methods*. Alfabeta.

Sukardi, S., Firmansyah, D., & Prasetyo, A. (2019). Porter's model and graduate competitiveness. *Journal of Competitiveness, 11*(4), 92–107. https://doi.org/10.7441/joc.2019.04.06

Sukmayadi, V., & Rofii, A. (2025). Human capital challenges and the Global Talent Competitiveness Index. *Indonesian Journal of Human Resource Development, 12*(1), 33–49.

Unsworth, L. (2023). *Exploring curriculum reform through actor–network theory: Digital texts, multiliteracies, and educational change. Australian Journal of Education*, *67*(1), 25–42. https://doi.org/10.1177/00049441231150123

Velasco, M. S. (2012). More than just good grades: Candidates' perceptions about employability skills. *Journal of Business Economics and Management, 13*(3), 499–517. https://doi.org/10.3846/16111699.2011.620150

Wang, T., Huang, X., & Xu, C. (2021). Actor–network theory and educational technology: A framework for analyzing online learning systems. *British Journal of Educational Technology*, *52*(6), 1893–1909.

Wickramasinghe, N., Bali, R. K., & Tatnall, A. (2012). *Theories to inform superior health informatics research and practice*. Springer.

Xu, Q., Zhang, H., & Yang, L. (2022). Educational governance and actor networks. *International Journal of Educational Development, 92*, 102594. https://doi.org/10.1016/j.ijedudev.2022.102594

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