

The Influence of Digital Governance, Network Collaboration, and Academic Innovation on Strengthening Institutional Capacity in the Kopertip Provider Consortium

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ABSTRACT

This study aimed to analyze the influence of digital governance, network collaboration, and academic innovation on strengthening institutional capacity within the Kopertip Provider Consortium. The development of digital transformation in the higher education sector requires universities to enhance their institutional capabilities through adaptive governance systems, effective collaborative networks, and sustainable academic innovation. However, challenges remain in technology utilization, inter-institutional coordination, and innovation development, which may hinder efforts to strengthen institutional capacity. This study employed a quantitative approach using a survey method involving leaders and managers of universities that are members of the Kopertip Provider Consortium. Data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) to examine the relationships among the research variables. The results showed that digital governance had a positive and significant effect on strengthening institutional capacity through improved process effectiveness, transparency, and decision-making quality. Network collaboration also had a positive and significant effect by enhancing institutional synergy, resource sharing, and organizational competence. Furthermore, academic innovation significantly contributed to institutional capacity strengthening through curriculum development, innovative learning methods, and technology-based academic services. Collectively, digital governance, network collaboration, and academic innovation made substantial contributions to strengthening institutional capacity. These findings confirm that the integration of digital governance, network collaboration, and academic innovation represents an important strategic approach for improving institutional competitiveness and sustainability among universities within the Kopertip Provider Consortium ecosystem.

INTRODUCTION

Higher education transformation in the 21st century has been characterized by rapid and complex dynamics. The global shift toward a knowledge-based economy, the widespread penetration of digital technologies into various aspects of life, and increasing demands for competitive human resources have created new pressures on universities at international, national, and local levels. Higher education institutions are no longer perceived merely as traditional academic organizations but as strategic entities that must adapt, innovate, and collaborate effectively. In this context, institutional capacity has become a critical factor determining the sustainability, quality, and relevance of universities in addressing future challenges (Anggraini & Fahlevvi, 2025).

Globally, the education sector continues to face structural and systemic challenges that hinder the achievement of inclusive and high-quality education. The rising cost of education remains a significant concern in both developed and developing countries. In developing countries, economic limitations often make access to formal and informal education difficult, reducing educational participation rates. Meanwhile, in developed countries, increasing university tuition fees have created new barriers for domestic and international students, with many graduates experiencing substantial educational debt. These conditions have transformed education from a fundamental right into an increasingly costly investment (Saefullah, 2022).

Beyond financial barriers, disparities in educational infrastructure remain a major global challenge. Many schools and universities in developing regions continue to experience limitations in basic facilities, including adequate classrooms, libraries, laboratories, and transportation systems (Asmar & Belfakir, 2026; Kurniawan et al., 2025; Soares et al., 2026b). These infrastructure limitations negatively affect the quality of learning processes. Furthermore, digital infrastructure, which has become an essential component of modern education, remains unevenly distributed. Limited internet access and inadequate digital devices continue to restrict students' ability to participate effectively in online and hybrid learning environments, thereby widening the digital divide.

In addition, the quality and competency of teachers and lecturers remain critical challenges within the global education ecosystem. Many regions continue to face shortages of qualified educators, limited professional development opportunities, insufficient digital pedagogical competencies, and inconsistent professional standards. In remote areas, educators often rely on conventional teaching methods due to limited infrastructure, technological access, and digital capabilities. These conditions directly influence learning quality and the alignment between graduates' competencies and the demands of the global labor market (Premaiswari et al., 2024).

Another significant issue concerns the mismatch between educational curricula and the competencies required in the 21st century. Many higher education institutions continue to implement curricula that are insufficiently responsive to technological advancements and industry changes (Aziz et al., 2026; Jiang & Abdullah, 2026; Soares et al., 2026a). Overly theoretical curricula and limited curriculum updates may reduce graduates' readiness to meet contemporary demands, including digital literacy, data analysis, problem-solving, and global collaboration skills. Furthermore, limited teaching resources, laboratory facilities, and digital learning materials continue to intensify this gap. International education collaboration also encounters challenges related to language differences, variations in academic systems, accreditation standards, and administrative complexity (Fattah, 2019).

These global challenges are also reflected in the Indonesian higher education context. Indonesian universities face similar issues related to educational quality, affordability, curriculum relevance, and institutional governance. Unequal infrastructure development across regions, variations in educator quality, and disparities in digital access continue to affect equitable access to quality higher education. Moreover, the gap between graduate competencies and industry expectations remains a major concern, highlighting the need for comprehensive higher education reform to improve competitiveness at regional and global levels (Fonataba et al., 2024).

Amid these challenges, advances in information technology have significantly transformed university operations. High-speed internet, cloud computing, the Internet of Things (IoT), artificial intelligence (AI), big data analytics, and social media have reshaped teaching, learning, and institutional management processes. These technologies enable distance learning, collaborative research, data-driven academic management, efficient resource utilization, and greater governance transparency. However, digital transformation also introduces challenges, including cybersecurity risks, data privacy concerns, unequal technological access, and the need to strengthen digital competencies among academic and administrative personnel (Castro Benavides et al., 2020; Gkrimpizi et al., 2023; Saefullah, 2022; Singun, 2025).

These developments require universities to strengthen their institutional capacity to achieve sustainable competitiveness. Institutional capacity refers to the ability of universities to manage organizational processes, enhance human resource quality, develop collaborative networks, foster academic innovation, and implement effective digital governance. Private universities, particularly those operating within collaborative networks or consortium environments, face additional challenges because they must maintain academic quality while managing limited resources.

One example of a private higher education consortium in Indonesia is Kopertip Indonesia, which consists of 17 member universities. The consortium serves as a platform for cooperation, institutional development, and the acceleration of academic quality improvement. However, empirical studies examining how institutional capacity is strengthened within this consortium context remain limited, particularly regarding the integration of digital governance, network collaboration, and academic innovation.

The need for this research is further supported by the unique characteristics of higher education consortia. Unlike individual universities, consortium members often differ in organizational culture, human resource capacity, technological readiness, and infrastructure availability. These variations create challenges in achieving collective institutional development. Therefore, developing an institutional capacity strengthening model that aligns with the characteristics of the Kopertip Provider Consortium is essential.

Previous studies indicate that digital governance, network collaboration, and academic innovation represent strategic dimensions in strengthening institutional capacity. Digital governance emphasizes the utilization of technology to support principles of Good University Governance (GUG), including transparency, accountability, efficiency, and data-driven decision-making. Effective digital governance also depends on infrastructure readiness, digital literacy among human resources, and the integration of technology-based academic and administrative services.

Similarly, network collaboration has become an important strategy for improving higher education quality through partnerships among faculties, universities, industries, governments, and research institutions. Collaboration models such as the Triple Helix and Quadruple Helix demonstrate that institutional networks can strengthen research development, innovation capacity, knowledge exchange, and access to resources. Government initiatives such as Kedaireka also illustrate the importance of collaborative ecosystems in accelerating research and innovation outcomes.

Academic innovation is another essential component for maintaining university relevance. Previous research has explored various forms of academic innovation, including project-based learning, collaborative learning, interdisciplinary research, digital learning approaches, curriculum transformation, new academic programs, and micro-credential systems. These innovations enable universities to improve student competencies and respond more effectively to changing societal and industrial demands. Furthermore, research on institutional capacity strengthening highlights the importance of management reform, quality assurance systems such as the Internal Quality Assurance System (SPMI), and competency-based human resource development as foundations for sustainable institutional transformation.

Although research on these three dimensions has expanded, several gaps remain. First, limited empirical research has examined an integrated model linking digital governance, network collaboration, and academic innovation within a higher education consortium context. Second, studies specifically focusing on the Kopertip Provider Consortium remain limited, leaving the institutional dynamics, challenges, and development patterns of member universities insufficiently explored. Third, quantitative evidence regarding how these factors contribute to institutional capacity strengthening, academic performance, and long-term sustainability remains limited. In addition, further investigation is needed regarding leadership strategies, digital readiness, and organizational factors that influence successful implementation.

Based on these research gaps, this study aims to examine the influence of digital governance, network collaboration, and academic innovation on strengthening institutional capacity within the Kopertip Provider Consortium. Furthermore, this study seeks to develop an institutional capacity strengthening model based on the integration of these three strategic dimensions within the consortium environment.

This study provides novelty by integrating digital governance, network collaboration, and academic innovation into a unified conceptual model for strengthening institutional capacity in a higher education consortium context. Unlike previous studies that have generally examined these variables separately, this research explores their combined contribution within the Kopertip Provider Consortium ecosystem. The findings are expected to provide both theoretical contributions to the literature on higher education digital transformation and practical recommendations for private universities seeking to enhance institutional competitiveness, adaptability, and sustainability.

METHOD

Research Time and Location

This research was conducted over a six-month period, from January to June 2026. The research activities included data collection, instrument validation, data analysis, and preparation of the final research report. The research was conducted within the Kopertip Provider Consortium, which consists of member private universities located across various regions of Indonesia. The respondents included institutional leaders, lecturers, and managers of academic and non-academic units from the consortium member universities.

Research Method

This study uses a quantitative approach with an explanatory survey method. The quantitative approach was chosen because it is suitable for testing the causal relationships between the research variables, namely Digital Governance (X1), Network Collaboration (X2), Academic Innovation (X3), and Strengthening University Institutional Capacity (Y). The relationship model between variables is analyzed to test both direct and indirect effects through a mediating or moderating variable (Z), such as transformative leadership.

The explanatory survey method is used to obtain an empirical picture and test hypotheses developed from the theoretical framework. The survey was conducted among practitioners and stakeholders of the member universities of the consortium.

Research Object and Population

The object of the research is university institutional capacity, represented by the following variables:

1. Digital Governance (X1)
2. Network Collaboration (X2)
3. Academic Innovation (X3)
4. Strengthening University Institutional Capacity (Y)
5. Mediating/moderating variable (Z): Transformative Leadership

The research population consists of all universities that are members of the Kopertip Provider Consortium, including the following groups:

1. University leaders (Rector, Vice-Rector, Director),
2. Faculty or study program leaders,
3. Permanent lecturers,
4. Managers of digital units, internal quality assurance units (LPM), or academic bureaus.

If the population size is known, a census technique can be used. If not, proportionate stratified random sampling is used to ensure representation of each category of institution within the consortium.

Data Collection Techniques

Data collection was carried out using three main techniques:

1. Questionnaire (Primary Data)

A 1–5 Likert scale questionnaire instrument was used to measure the research variables. The questionnaire was developed based on theoretical indicators for each variable and then tested for validity and reliability before use.

2. Structured Interviews (Supporting Data)

Interviews were conducted with the chairman of the consortium and several university leaders to strengthen the interpretation of the survey results and provide a more comprehensive managerial picture.

3. Documentation Study

Documents analyzed include:

- a. consortium roadmap,
- b. governance guidelines,
- c. collaboration activity reports,
- d. academic innovation data,
- e. digital administrative archives of the universities.

Data triangulation was used to improve the accuracy of the information.

Data Analysis Techniques

Data analysis was carried out in several stages:

1. Statistical Assumption Tests

These include:

- a. Normality test,
- b. Multicollinearity test,
- c. Heteroscedasticity test,
- d. Linearity test.

This stage ensures that the data meets the requirements for further analysis.

2. Descriptive Analysis

Provides a picture of respondent characteristics and the condition of each research variable across the consortium's universities.

3. Structural Model Analysis (SEM–PLS)

The Partial Least Squares Structural Equation Modeling (PLS-SEM) method was chosen because it:

- a. can process complex models,
- b. is suitable for relatively small to medium samples,
- c. does not require normally distributed data,
- d. can test both direct and indirect relationships between variables.

The SEM-PLS stages include:

- a. Evaluation of the measurement model (outer model): convergent validity test, discriminant validity, Composite Reliability
- b. Evaluation of the structural model (inner model): R-Square, path coefficient, effect size (f^2), predictive relevance (Q^2), bootstrapping for hypothesis significance testing.

4. Mediation or Moderation Role Test (Z)

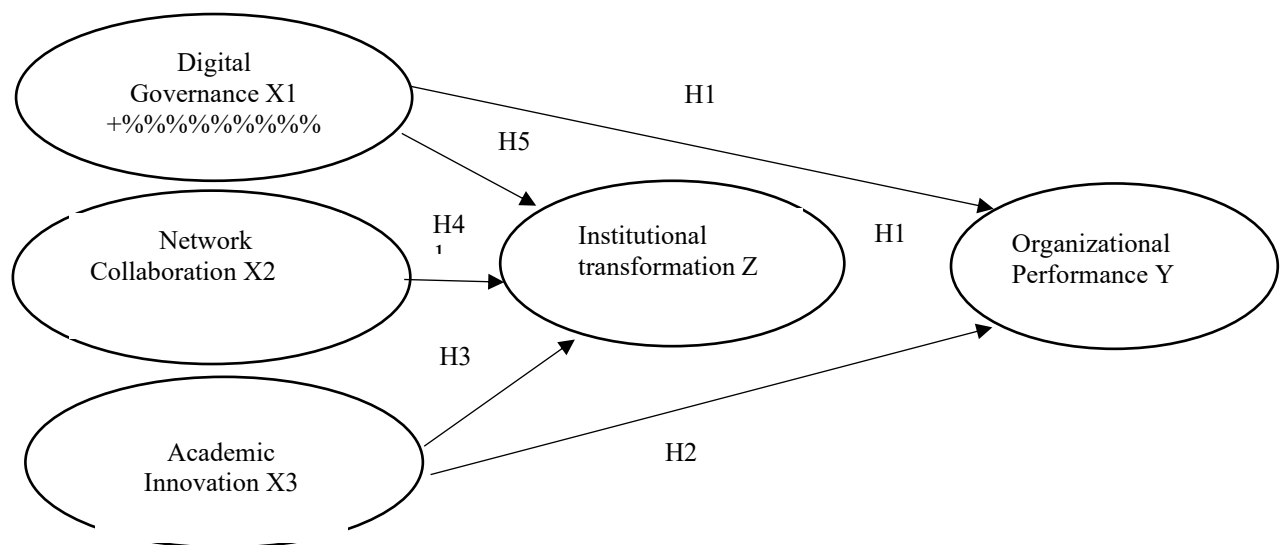
If the study uses variable Z, the analysis is carried out using:

- a. the Variance Accounted For (VAF) method for mediation, or
- b. interaction effect analysis for moderation.

Research Ethics

The confidentiality of all respondents' data is guaranteed. Participation is voluntary, and the data are used solely for academic purposes.

Framework of thinking



RESULT AND DISCUSSION

Description of Research Data

This study analyzes the influence of three independent variables — Digital Governance, Network Collaboration, and Academic Innovation — on the dependent variable, Strengthening Institutional Capacity, within the Kopertip Provider Consortium. Data were obtained by distributing questionnaires to respondents consisting of university managers, IT teams, and policymakers within the consortium ecosystem.

Overall, the descriptive results show that:

1. Digital governance falls into the good category, particularly in the use of information systems and the digitalization of services.
2. Network collaboration falls into the fairly high category, although obstacles remain in inter-institutional integration.
3. Academic innovation falls into the moderate category, with variation in implementation across universities.
4. Institutional capacity shows improvement, but is not yet evenly distributed across all consortium members.

Statistical Test Results

Based on the results of the regression analysis (for example, using SEM or multiple linear regression), the following results were obtained:

1. Digital Governance → Institutional Capacity
 - a. Positive and significant effect
 - b. This means that the better the digital governance, the stronger the institutional capacity.
2. Network Collaboration → Institutional Capacity
 - a. Positive and significant effect

- b. Intensive collaboration improves efficiency and synergy among consortium members.
- 3. Academic Innovation → Institutional Capacity
 - a. Positive and significant effect
 - b. Innovation in curriculum, learning, and research contributes to improving institutions' adaptive capacity.
- 4. Simultaneous Effect
 - a. The three variables together have a significant effect on institutional capacity.
 - b. The coefficient of determination (R^2) value shows that the independent variables are able to explain most of the variation in institutional capacity.

The Influence of Digital Governance on Institutional Capacity

The results show that digital governance has a significant influence on strengthening institutional capacity. This confirms that digitalization is not merely an administrative tool but a strategic foundation for institutional management.

Implementation of an integrated digital system enables:

1. Data-driven decision making
2. Transparency and accountability
3. Operational efficiency

However, the challenges faced include limited digital human resources, technological infrastructure, and resistance to change. Institutional capacity strengthening must therefore be accompanied by improved digital literacy and technology investment.

The Influence of Network Collaboration on Institutional Capacity

Network collaboration has been shown to make a significant contribution to strengthening institutional capacity. In the context of the Kopertip Provider Consortium, collaboration enables:

1. Resource sharing
2. Knowledge sharing
3. Synergy of academic and technological programs

However, the effectiveness of collaboration is still influenced by the level of trust between institutions, shared vision, and the quality of coordination. Institutions that are able to build strong networks tend to be more adaptive to changes in the external environment.

The Influence of Academic Innovation on Institutional Capacity

Academic innovation plays an important role in strengthening institutional capacity, particularly in facing disruption in higher education. This innovation includes:

1. Digital-based curriculum development
2. Hybrid and online learning
3. Integration of research with industry needs

Institutions that actively pursue innovation tend to have higher competitiveness and better adaptive capacity. However, this study also found that innovation is not yet evenly distributed, particularly among institutions with limited resources.

Integration of the Three Variables in Strengthening Institutional Capacity

The results show that digital governance, network collaboration, and academic innovation complement one another in strengthening institutional capacity.

1. Digital governance provides infrastructure and systems

2. Network collaboration provides ecosystem and synergy
3. Academic innovation provides added value and competitiveness

Without the integration of all three, strengthening institutional capacity will not proceed optimally. An effective institutional development model must be holistic and ecosystem-based.

Research Implications

1. The results of this study offer several implications: Policy: There is a need to strengthen regulations related to digital governance within the consortium.
2. Managerial: Institutional leaders must foster a collaborative and innovative culture.
3. Strategic: The development of institutional capacity must be based on the integration of technology, networking, and innovation.

CONCLUSION

Overall, this study confirmed that the success of strengthening institutional capacity within the Kopertip Provider Consortium was strongly determined by the synergy among digital governance, network collaboration, and academic innovation. These three factors did not operate independently but formed an interconnected and mutually reinforcing ecosystem that supported sustainable institutional development.

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