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Academic Engagement as a Driver of Institutional Capabilities: Evidence from the Knowledge, Innovation, and Collaboration Pathways

Hari Moektiwibowo[1], Hapzi Ali[2]
[1]Universitas Dirgantara Marsekal Suryadarma, East Jakarta, Indonesia, harimoekti@gmail.com.
[2]Universitas Bhayangkara Jakarta Raya, South Jakarta, Indonesia, hapzi.ali@gmail.com.

Corresponding Author: harimoekti@gmail.com[1]

Abstract: This study aims to develop a conceptual model explaining how academic engagement contributes to the development of dynamic capabilities in higher education institutions in Asia through internal capability mechanisms. The research adopts a literature review design using a semi-systematic approach to integrate diverse theoretical perspectives. The data consist of peer-reviewed academic articles analyzed through thematic synthesis to identify patterns and relationships among variables. The findings indicate that academic engagement contributes indirectly to dynamic capabilities through three key mediating capabilities, namely knowledge creation, innovation capability, and research collaboration. These capabilities operate as an integrated system that enhances institutional adaptability and competitiveness. However, the existing literature remains fragmented and tends to examine these capabilities in isolation, limiting a comprehensive understanding of their interrelationships. This study provides conceptual implications for developing an integrated capability-based model and recommends further empirical testing by incorporating digital transformation and institutional context variability.

Keyword: Academic Engagement, Dynamic Capabilities, Knowledge Creation, Innovation Capability, Research Collaboration.

INTRODUCTION

Global competition in higher education has intensified significantly due to rapid digital transformation, increasing socio-economic pressures, and the growing demand for knowledge-based innovation. Universities are no longer confined to their traditional roles in education and research but are increasingly expected to strengthen their third mission through technology transfer, research commercialization, and collaboration with industry and society (Guerrero & Menter, 2024; Heaton et al., 2023; Muneeb et al., 2025). This transformation has reshaped the competitive landscape of higher education institutions, requiring them to continuously adapt and develop strategic capabilities to remain relevant and competitive.

In this context, institutional adaptability is closely associated with the concept of dynamic capability, which refers to an organization's ability to sense opportunities, seize them

effectively, and reconfigure resources in response to environmental changes Teece (2023). For higher education institutions, dynamic capability is essential to respond to rapid technological developments, policy shifts, and evolving stakeholder expectations. Institutions that fail to develop such capabilities risk losing their strategic positioning in increasingly complex and innovation-driven ecosystems.

One of the key mechanisms that has emerged in the literature as a driver of institutional transformation is academic engagement. Academic engagement encompasses active interactions between academics and external stakeholders through research collaboration, knowledge exchange, consulting, and innovation-related activities (Beier et al., 2025; Yin et al., 2023) Through these interactions, universities gain access to external knowledge, strengthen learning processes, and enhance their capacity for innovation. As such, academic engagement plays a crucial role in connecting higher education institutions with broader innovation ecosystems.

Despite its recognized importance, the role of academic engagement in building institutional capabilities remains insufficiently explored. Much of the existing literature tends to position academic engagement as a direct determinant of performance, such as research productivity or innovation output, without adequately explaining the underlying mechanisms through which engagement contributes to capability development. This perspective limits the understanding of how engagement is transformed into sustainable institutional advantage.

Recent developments in the literature indicate a shift toward a more process-oriented and capability-based perspective. Studies employing Structural Equation Modeling (SEM) demonstrate that knowledge creation and integration processes strengthen absorptive capacity and technology-based capabilities, which in turn drive digital innovation and support the development of dynamic capabilities (Han & Zhao, 2026; Kapoor & Aggarwal, 2021; Sherani et al., 2025). Furthermore, cross-organizational collaboration enhances innovation performance through knowledge transfer and relational mechanisms, highlighting the importance of interaction-based processes in capability building (Kapoor & Aggarwal, 2021).

In addition, the increasing role of digital technologies has expanded the scope and impact of academic engagement. The integration of digital platforms, artificial intelligence, and data-driven systems enables universities to improve knowledge management processes and accelerate innovation cycles (Leih & Teece, 2022). In this regard, digital capability becomes an important contextual factor that reinforces the effectiveness of academic engagement in building institutional capabilities (Manurung et al., 2021).

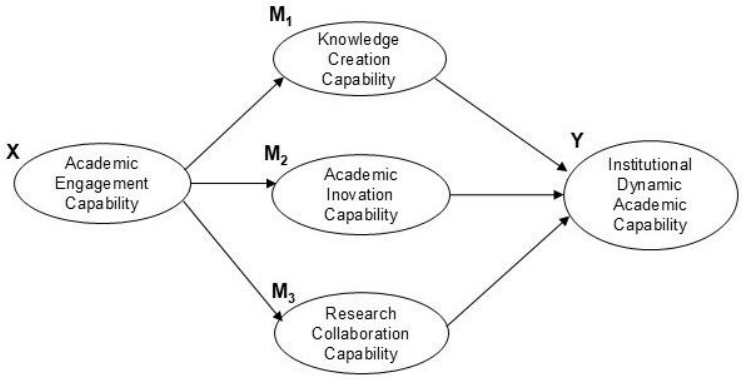
From the perspective of the Resource-Based View (RBV) and Dynamic Capability Theory, competitive advantage depends not only on the possession of resources but also on the ability to transform those resources into strategic capabilities (Leih & Teece, 2022; Teece, 2023). Within this framework, academic engagement can be understood as a strategic input that facilitates the development of internal capabilities, particularly knowledge creation capability, innovation capability, and research collaboration capability (Li & Li, 2024; Sherani et al., 2025). These capabilities serve as mechanisms through which institutions convert external interactions into internal strengths.

However, two major gaps remain in the literature. First, most studies still examine the relationship between academic engagement and performance in a direct manner, without incorporating mediating mechanisms based on internal capabilities. Second, studies on institutional capabilities tend to treat knowledge creation, innovation, and collaboration as separate constructs, resulting in a fragmented understanding of capability development. Consequently, the process through which academic engagement is transformed into institutional dynamic capability remains insufficiently explained.

Therefore, this study aims to develop a conceptual model that explains the role of academic engagement as an antecedent of institutional dynamic capability through the mediating roles of knowledge creation capability, innovation capability, and research

collaboration capability. By positioning these capabilities as interconnected mechanisms rather than isolated constructs, this study offers a more integrative perspective on how academic engagement is transformed into strategic institutional capability.

Furthermore, this study emphasizes that the development of institutional dynamic capability is not driven by a single pathway but emerges from the complementary interaction among knowledge, innovation, and collaboration processes. This integrative approach addresses the fragmentation in prior studies and provides a more comprehensive explanation of capability-building mechanisms within higher education institutions.



Source: Developed by the authors (2026)

Figure 1. Conceptual Model of Academic Engagement snd Institutional Dynamic Capability

Based on this theoretical synthesis, the proposed conceptual framework highlights the indirect role of academic engagement in shaping institutional dynamic capability through multiple mediating pathways.

To provide a clearer and more systematic understanding of the relationships among the proposed constructs, the conceptual model of this study is presented in Figure 1.

These three capabilities are complementary and jointly contribute to the formation of institutional dynamic capability. Thus, academic engagement acts as a mechanism that transforms institutional resources into strategic capabilities.

More importantly, the proposed model represents a synthesis of prior empirical and conceptual studies that have examined these relationships in a fragmented manner. Previous research has independently highlighted the roles of knowledge creation processes in enhancing absorptive capacity and sensing capability (Han & Zhao, 2026; Kapoor & Aggarwal, 2021; Sherani et al., 2025; Teece, 2023), innovation capability in driving opportunity exploitation and performance outcomes (Sherani et al., 2025), and research collaboration in strengthening relational capital and adaptive capacity (Guerrero & Menter, 2024; Leih & Teece, 2022). However, these studies have largely been conducted in isolation, without integrating these capabilities into a unified explanatory framework.

Figure 1 consolidates these dispersed findings by positioning knowledge creation, innovation, and collaboration capabilities as interconnected mediating mechanisms that collectively explain how academic engagement contributes to institutional dynamic capability. In doing so, the model bridges the gap between resource-based perspectives and dynamic capability theory by explicitly illustrating the transformation process from external engagement into internal capability development.

Furthermore, the model reflects a process-based view in which academic engagement initiates a sequence of capability-building activities that are mutually reinforcing. Knowledge creation facilitates learning and opportunity recognition, innovation capability translates knowledge into actionable outcomes, and research collaboration expands the institutional

capacity to adapt and reconfigure resources within broader innovation ecosystems. This integrated perspective provides a more comprehensive understanding of how higher education institutions develop sustainable competitive advantage.

METHOD

This study employs a literature review approach using a semi-systematic strategy to develop a conceptual model of academic engagement and institutional dynamic capability. Unlike a purely descriptive review, this approach is oriented toward theory development by systematically integrating empirical findings and conceptual arguments to uncover underlying patterns and relationships among key constructs (Snyder, 2019). The semi-systematic design allows flexibility in capturing diverse streams of literature while maintaining analytical rigor in synthesizing fragmented knowledge.

The research process was conducted in several iterative stages. First, a comprehensive literature search was performed using major academic databases, including Scopus, Web of Science, and ScienceDirect. The selection of these databases ensures the inclusion of high-quality and peer-reviewed publications. Keywords such as "academic engagement," "dynamic capability," "knowledge creation capability," "innovation capability," and "research collaboration" were used in various combinations to capture relevant studies. The search was limited to articles published between 2020 and 2026 to ensure the recency and relevance of the theoretical and empirical developments.

Second, a systematic screening process was conducted through three levels: title screening, abstract evaluation, and full-text assessment. This step aimed to ensure conceptual alignment with the research objectives and to filter out studies that did not directly address capability development or engagement mechanisms in higher education. Both empirical and conceptual studies were retained to enable a comprehensive understanding of the phenomenon and to support theory-building efforts (Machdar, 2025).

Third, the selected literature was analyzed using a thematic synthesis approach. This process involved coding key constructs, identifying recurring themes, and mapping relationships among variables across studies (Manurung et al., 2021). Rather than treating each study independently, this analysis emphasizes cross-study comparison to identify convergence, divergence, and complementarities in prior findings. Through this process, three dominant capability dimensions knowledge creation capability, innovation capability, and research collaboration capability emerged as consistent mediating mechanisms linking academic engagement to institutional outcomes.

Fourth, this study incorporates insights from prior research employing Structural Equation Modeling (SEM), including both Partial Least Squares (PLS-SEM) and Covariance-Based SEM (CB-SEM), to understand the structural relationships among variables. These studies provide empirical evidence that relationships among organizational constructs are often indirect and mediated by intermediate capabilities (Barney et al., 2021; Machdar, 2025). By synthesizing these findings, this study identifies a recurring causal pattern in which external engagement influences organizational outcomes through internal capability-building processes.

Based on this iterative synthesis, the study adopts an abductive reasoning approach, moving back and forth between theory and empirical evidence to refine the conceptual model. This process allows the identification of a higher-order explanation that integrates previously fragmented insights into a coherent framework. The resulting model positions academic engagement as an antecedent that activates multiple, interrelated capability-building pathways leading to institutional dynamic capability.

It is important to note that this study does not involve empirical testing but focuses on conceptual development. The proposed model is intended to serve as a theoretical foundation for future empirical research. Further studies are recommended to test the model using quantitative approaches, particularly Structural Equation Modeling, to validate both direct and

indirect relationships among the proposed constructs and to examine the robustness of the mediating mechanisms across different institutional contexts.

RESULTS AND DISCUSSION

The literature consistently indicates that academic engagement plays a significant role in strengthening institutional capabilities, particularly in knowledge creation, innovation, and research collaboration (Guerrero & Menter, 2024; Leih & Teece, 2022; Li & Li, 2024). Across studies, these capabilities are not merely outcomes of engagement but represent critical mechanisms through which institutions develop dynamic capabilities, enabling continuous adaptation to environmental changes (Teece, 2023). However, a closer examination reveals that the existing body of knowledge remains fragmented, with limited integration across these interrelated capability dimensions.

Synthesis of Prior Findings

A synthesis of prior research reveals three dominant yet interrelated streams of findings. First, studies on knowledge creation consistently highlight that academic engagement facilitates knowledge exchange, strengthens absorptive capacity, and enhances organizational learning processes. Across this stream, interaction with external stakeholders emerges as a key mechanism through which institutions generate and integrate new knowledge (Han & Zhao, 2026; Teece, 2023).

Second, research on innovation capability shows that academic engagement enables access to diverse knowledge sources and supports open innovation practices, thereby improving innovation outcomes. Importantly, these studies collectively suggest that innovation capability is not solely driven by external inputs but depends on how effectively knowledge is recombined and applied within institutional contexts (Li & Li, 2024; Sherani et al., 2025).

Third, studies on research collaboration emphasize that academic engagement expands institutional networks and builds relational capital, which in turn enhances access to resources and adaptive capacity. Across this stream, collaboration is consistently viewed as a mechanism that extends institutional boundaries and facilitates resource mobilization within broader innovation ecosystems. (Guerrero & Menter, 2024; Leih & Teece, 2022).

Despite strong empirical support across these streams, the literature largely treats these capabilities in isolation. As a result, existing studies provide only a partial explanation of how academic engagement contributes to broader institutional transformation.

Critical Review: What is Known and What Remains Unresolved

The literature demonstrates several consistent patterns. First, there is broad agreement that academic engagement enhances access to external knowledge and strengthens organizational learning processes. Second, prior studies converge in showing that internal capabilities particularly knowledge creation, innovation, and collaboration mediate the relationship between resources and performance outcomes. Third, the dynamic capability framework provides a well-established theoretical lens for explaining institutional adaptability.

However, important gaps remain. Most notably, the integrative mechanism linking academic engagement to dynamic capability has not been fully articulated. Existing studies tend to adopt linear and isolated perspectives, overlooking the interdependencies among capability dimensions. Consequently, the process through which engagement is transformed into institutional dynamic capability remains conceptually underdeveloped.

Moreover, empirical studies often rely on simplified causal models that do not capture the complexity of capability-building processes. In particular, knowledge creation, innovation, and collaboration are frequently treated as independent constructs rather than as mutually reinforcing mechanisms. This limits the explanatory power of existing models and constrains a holistic understanding of institutional capability development.

Assumption Mapping in Prior Studies

A closer synthesis of prior research reveals several implicit assumptions. First, many studies assume that knowledge flows generated through academic engagement are automatically transformed into usable organizational knowledge, overlooking the role of knowledge integration mechanisms. Second, research on innovation capability often assumes a direct link between external knowledge access and innovation outcomes, without adequately considering internal absorptive capacity and technological readiness. Third, studies on collaboration frequently assume that network expansion inherently improves performance, while underestimating the complexity of managing inter-organizational relationships.

Taken together, these assumptions indicate the need for a more process-oriented perspective that explicitly accounts for the mechanisms linking engagement to capability development.

Academic Engagement and Innovation Capability

The literature indicates that academic engagement contributes to innovation capability by enabling access to diverse knowledge sources and strengthening learning processes. Across studies, collaboration with external stakeholders supports the development of innovations that are more aligned with practical and societal needs (Li & Li, 2024).

However, synthesis of prior findings suggests that innovation capability is contingent upon the alignment between external knowledge inputs and internal technological and organizational capacities. Technology-enabled capabilities, in particular, play a crucial role in translating knowledge into innovation outcomes (Sherani et al., 2025). This indicates that innovation capability emerges from the interaction between external engagement and internal capability configuration.

Academic Engagement and Research Collaboration Capability

Academic engagement increases the ability to collaborate on research through network expansion and the development of relational capital. Studies show that collaboration enables organizations to access complementary resources and skills outside of their organizational boundaries (Leih & Teece, 2022).

However, research also indicates that an institution's capacity to maintain and manage intricate relationships within innovation ecosystems is a key factor in the success of collaboration. This emphasizes how governance and coordination systems play a crucial role in ensuring that cooperation fosters competence growth rather than adding to organizational complexity.

The Mediating Role of Capabilities

According to a review of the literature, internal capabilities act as a mediator in the largely indirect relationship between academic engagement and institutional dynamic capability. Sensing processes are supported by knowledge creation, opportunities are seized via innovation, and resource reconfiguration is made easier by collaboration. (Teece, 2023).

Taken together, these capabilities function not as independent pathways but as an interconnected system that collectively shapes institutional adaptability. This reinforces the view that academic engagement acts as a catalyst that transforms external interactions into internally embedded strategic capabilities (Sherani et al., 2025).

Theoretical Contribution

This study advances the literature by shifting the perspective from direct-effect models toward a capability-based and process-oriented framework. By integrating knowledge creation, innovation, and collaboration capabilities into a unified model, this study addresses the

fragmentation in prior research and offers a more comprehensive explanation of institutional capability development.

The proposed model contributes by clarifying the transformation mechanism through which academic engagement is converted into dynamic capability. It also strengthens the integration between the Resource-Based View and Dynamic Capability Theory by explicitly positioning internal capabilities as mediating pathways.

CONCLUSION

A synthesis of prior research indicates that the competitiveness of higher education institutions in Asia is built through the interaction of dynamic capabilities, knowledge management, innovation, and external engagement (Amjad et al., 2021; Elistia et al., 2024; Guerrero & Menter, 2024; Leih & Teece, 2022; Muneeb et al., 2025; Phiri et al., 2024).

Across studies, dynamic capabilities encompassing sensing, seizing, and reconfiguring consistently emerge as higher-order mechanisms that strengthen competitive advantage through strategic collaboration, knowledge repositioning, and the university's entrepreneurial orientation (Amjad et al., 2021; Elistia et al., 2024; Guerrero & Menter, 2024; Leih & Teece, 2022; Muneeb et al., 2025; Phiri et al., 2024).

At the same time, knowledge management, including knowledge-sharing activities, absorptive capacity, and the utilization of digital systems such as HRIS, functions as a critical integrative mechanism linking internal resources with sustainable competitive advantage (Elistia et al., 2024).

Taken together, these findings suggest that institutional competitiveness is not driven by isolated factors but by the alignment and interaction of multiple capability domains.

Practical Recommendations for Improving Quality and Competitiveness

Building on the synthesis of prior studies, several strategic directions can be translated into actionable institutional practices to enhance the quality and competitiveness of higher education institutions. These directions emphasize not only what institutions should develop, but also how these developments can be operationalized in practice.

The institutionalization of knowledge management emerges as a fundamental priority. Higher education institutions need to design formal and integrated systems that enable effective knowledge sharing, strengthen absorptive capacity, and support the integration of knowledge across teaching, research, and community engagement. This requires the development of digital platforms that systematically capture and disseminate knowledge, the establishment of dedicated knowledge management units, and the implementation of incentive mechanisms that encourage interdisciplinary collaboration. Without such structured systems, knowledge remains fragmented and cannot be effectively transformed into institutional capability.

In parallel, institutions must actively develop dynamic capabilities and strategic agility. This involves strengthening sensing capabilities through the use of data analytics and environmental scanning tools, enabling institutions to identify emerging trends and opportunities. At the same time, seizing capabilities can be enhanced by designing flexible academic programs, expanding international partnerships, and adopting innovative academic business models. Reconfiguring capabilities require continuous adjustment of curricula, organizational structures, and research priorities to ensure alignment with changing global demands. Embedding these processes into institutional planning cycles is essential to ensure that adaptability becomes a sustained capability rather than a reactive response.

Beyond internal development, strengthening the third mission and digital engagement is equally critical. Universities must integrate teaching, research, and societal engagement in a coherent manner, ensuring that academic activities remain relevant to industry and community needs. This can be achieved by expanding collaborative research initiatives, leveraging digital platforms for outreach and knowledge exchange, and developing hybrid engagement models

that combine physical and virtual interactions. Such approaches enable institutions to extend their impact beyond traditional academic boundaries and actively participate in broader innovation ecosystems.

Furthermore, institutional competitiveness is closely linked to the quality of human capital, leadership, and governance. Universities must invest in the continuous development of faculty competencies, promote leadership that is both strategic and entrepreneurial, and cultivate an organizational culture that supports innovation and experimentation. At the governance level, greater flexibility and streamlined administrative processes are required to facilitate timely decision-making and responsiveness to external changes. These elements collectively shape the institution's ability to sustain long-term performance and global competitiveness.

Roadmap for Further Research

Future research should move beyond conceptual development toward empirical validation and contextual refinement. In the first stage, studies are needed to empirically test models that position academic engagement as a key driver of knowledge creation, innovation, and collaboration. This can be achieved by applying quantitative approaches such as structural equation modeling across diverse institutional contexts, while also incorporating mediating variables such as absorptive capacity, strategic agility, and digital capability to better capture underlying mechanisms.

The second stage should focus on in-depth contextual analysis, particularly through cross-country comparisons within Asia. Differences between regions, as well as variations between public and private institutions or research and teaching universities, need to be systematically examined to understand how institutional characteristics influence capability development. Such studies will provide a more nuanced and context-sensitive understanding of academic engagement dynamics.

In the third stage, future research should integrate digital transformation into capability development frameworks. The role of technologies such as artificial intelligence and digital knowledge systems should be explored not only as supporting tools but also as critical enablers that shape how knowledge is integrated and how collaboration is sustained. This perspective is essential for understanding how institutions can remain competitive in increasingly digitalized environments.

Finally, the fourth stage should incorporate social and sustainability dimensions into the analysis of institutional competitiveness. Issues such as faculty well-being, gender equity, and the distribution of collaboration opportunities need to be examined to ensure that capability development does not come at the expense of social sustainability. At the same time, institutions must balance global competitiveness with local relevance, ensuring that their contributions remain meaningful within their societal contexts.

Remaining Research Gaps and Closing Alignment

Despite the growing body of literature, several important gaps remain. There is still no fully integrated model that simultaneously links academic engagement, internal capabilities, dynamic capabilities, and competitive advantage within a unified framework. Existing studies also tend to rely on cross-sectional designs, limiting the understanding of how capabilities evolve over time. In addition, insufficient attention has been given to institutional heterogeneity, particularly differences across types of universities. The role of digital capabilities as key enablers of knowledge integration and collaboration also remains underexplored.

Taken together, these gaps highlight the need for a more integrative, process-oriented, and context-sensitive framework that captures the complexity of institutional capability development. In particular, advancing the field requires moving beyond fragmented and linear

approaches toward a model that explains how academic engagement is transformed into dynamic capabilities through interconnected mechanisms of knowledge, innovation, and collaboration. By addressing these challenges, future research can provide a stronger theoretical foundation as well as more actionable insights for enhancing the competitiveness of higher education institutions.

By filling in these gaps, the current study advances the literature by creating a cohesive conceptual framework that clarifies the underlying transformation processes that propel institutional competitiveness in the context of Asian higher education while also integrating important capability dimensions.

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