PRIVATE UNIVERSITY ECOSYSTEM FOR ENTREPRENEURSHIP: *A NEW MODEL FOR INNOVATION AND VALUE CREATION IN THE CONTEXT OF THE CURRENT NATIONAL DIGITAL TRANSFORMATION*

Ngo Quang Son[a*]
Nguyen Thi Huyen[b]
Nguyen Thi Ngoc Van[c]
Le Thi Thanh Lam[d]
Do Thi Thanh Huong[e]
Dau The Tung[g]
Pham Thu Ha[h]
Nguyen Cong Quan[i]
Pham Thi Thanh[k]
Pham Thi Van Anh[l]
Le Thi Ly Na[m]
Au Thi Tan[n]
Nguyen Thi Hiep[o]

[a]Trung Vuong University
Email: ngoquangson2018@gmail.com
ORCID iD: https://orcid.org/0000-0003-3120-034X

[b]Trung Vuong University
Email: Huyennguyenhlu@gmail.com
ORCID iD: https://orcid.org/0009-0005-6046-7045

[c]Intracom University
Email: vanhbu@gmail.com
ORCID iD: https://orcid.org/0009-0004-4575-0857

[d]Dai Nam University
Emai: leminhdungtran@gmail.com
ORCID iD: https://orcid.org/0009-0008-1503-6985

[e]Faculty of Political Theory,Thuong Mai University
Email: huong.dtt2@tmu.edu.vn
ORCID iD: https://orcid.org/0009-0004-1708-1393

[g]Hanoi University of Business and Technology
Email: dauthetung@gmail.com
ORCID iD: https://orcid.org/0000-0003-4630-7991

[h]Nguyen Trai University
Email: hathu30789@gmail.com
ORCID iD: https://orcid.org/0009-0001-1563-8766

[i]Trung Vuong University
Email: ncquan@gmail.com
ORCID iD: https://orcid.org/0009-0001-0890-2178

Abstract:

The article analyzes the formation and operation mechanism of the startup ecosystem in non-public universitiesin Vietnam, in the context of the strong national digital transformation and reshaping the entire structure of higher education. The study argues that the non-public university sector is emerging as a "New Model" of innovation thanks to its institutional flexibility, streamlined governance structure, clear market orientation and rapid adaptation to digital technology. Based on the theoretical framework of the innovation ecosystem (Triple/Quadruple Helix, Entrepreneurial University, Innovation Value Chain), the article uses a mixed research method including student and lecturer surveys, in-depth expert interviews, and secondary data analysis from national and international reports for the period 2018–2025. The results show that non-public universities are shifting from a traditional training model to value creation, focusing on developing digital capabilities, entrepreneurial thinking, open innovation and business connections. The article points out four pillars that constitute an effective startup ecosystem:

(1) Digital governance and data-driven decision-making;

(2) AI-integrated startup support platform;

(3) Business-Locality-Investor cooperation network;

(4) Knowledge incubation and commercialization mechanism based on open innovation.

The study contributes to a startup ecosystem model for non-public universities that is suitable for the context of Vietnam, and proposes policy

[k]Trung Vuong University
Email: thanhpt153@gmail.com
ORCID iD: https://orcid.org/0009-0008-6452-4766
[l]Trung Vuong University
Email: vananhltv86@gmail.com
ORCID iD: https://orcid.org/0009-0009-0982-2434
[m]Lam Dong Department of Education and Training
Email: lynavn89@gmail.com
ORCID iD: https://orcid.org/0009-0009-2715-2307
[n]Department of Training and Student Affairs,
National Academy of Ethnic Minorities,
Ministry of Ethnic Minorities and Religions
Email: tanat@hvdt.edu.vn
ORCID iD: https://orcid.org/0009-0002-5933-5633
[o]Trung Vuong University
Email: Hrhiepngoc@gmail.com
ORCID iD: https://orcid.org/0009-0009-1161-8205

[a,b,i,k,l,o]***ROR: https://ror.org/05xzsm645***
[d]***ROR: https://ror.org/0031x3y66***
[e]***ROR:https://ror.org/021s58p89***
[g]***ROR: https://ror.org/012jv0m98***

Article History

Received: 08/10/2025
Reviewed: 25/10/2025
Revised: 27/11/2025
Acceped: 22/12/2025
Released: 30/12/2025

DOI:https://doi.org/10.64223/tvj.p2025.v1.i4.a67

implications to promote the role of non-public universities in the digital transformation strategy and national knowledge economy development.

Keywords: *Non-public university startup ecosystem; Innovation; Digital transformation of higher education; Creating sustainable value; Ecosystem development model; Digital capacity and startups; Private university governance; Knowledge economy and innovation.*

1. Introduction

1.1.The context of the research problem in the world and in Vietnam

1.1.1.Global research context

In the context of the knowledge-based economy and the rapid advancement of the Fourth Industrial Revolution, the role of higher education institutions has undergone a fundamental transformation, shifting from traditional teaching-and research-oriented models toward innovation-driven and entrepreneurial universities. Globally, universities are increasingly recognized as central actors within national innovation ecosystems, serving as hubs that integrate knowledge, technology, high-quality human capital, industry, and government to generate sustainable socio-economic value.

A substantial body of international literature has demonstrated that the concept of the entrepreneurial university extends far beyond the commercialization of research outputs. It encompasses a comprehensive ecosystem in which entrepreneurial culture, adaptive governance, technology transfer mechanisms, curriculum innovation, and university–industry–government collaboration (Triple/Quadruple Helix models) play critical roles. In the era of digital transformation, entrepreneurial university ecosystems are increasingly intertwined with digital platforms, data-driven technologies, and open innovation models, thereby accelerating knowledge diffusion and value creation.

Within global higher education systems, private universities have emerged as particularly dynamic agents of innovation. Benefiting from higher levels of institutional autonomy, flexible governance structures, and strong market responsiveness, many private universities in Europe, North America, and Asia have pioneered effective entrepreneurial ecosystem models. These institutions have made significant contributions to startup development, economic growth, and national competitiveness.

Nevertheless, international studies also highlight that the development of entrepreneurial ecosystems in private universities is neither linear nor homogeneous. Variations in institutional arrangements, policy environments, academic cultures, and socio-economic conditions have resulted in diverse models and uneven outcomes. Consequently, contemporary research increasingly focuses on constructing integrated analytical frameworks that elucidate operational mechanisms, success conditions, and potential risks of entrepreneurial university ecosystems within the broader context of global digital transformation.

1.1.2. Research context in Vietnam

In Vietnam, the research context of entrepreneurial ecosystems in private universities is closely associated with higher education reform, the development of a knowledge-based economy, and, notably, the National Digital Transformation Program. In recent years, Vietnam's private higher education sector has expanded rapidly, playing an increasingly important role in widening access to education, diversifying institutional models, and supplying human capital to the national economy.

National policies promoting entrepreneurship, innovation, and digital transformation have created new opportunities for private universities to engage more deeply in innovation ecosystems. Many institutions have initiated activities such as startup incubators, innovation centers, industry partnerships, and the integration of entrepreneurship and digital transformation into academic curricula.

However, empirical evidence indicates that entrepreneurial ecosystems in Vietnamese private universities remain at an early stage of development and face multiple challenges. Constraints related to legal frameworks, policy mechanisms, governance capacity, financial resources, and ecosystem connectivity have significantly affected implementation effectiveness. In particular, the linkages among universities, industry, government, and the broader innovation community remain insufficiently institutionalized, resulting in limited socio-economic value creation relative to existing potential.

Importantly, much of the existing domestic research on private higher education and entrepreneurship in Vietnam remains descriptive or fragmented, lacking comprehensive ecosystem-based analytical models and insufficiently embedded within the national digital transformation context. This situation has widened the gap between Vietnamese practices and international theoretical approaches, thereby constraining scholarly dialogue and international publication opportunities.

1.2. Research gaps and problem significance

A comparison between the global literature and the Vietnamese context reveals a clear research gap concerning the development and governance of entrepreneurial ecosystems in private universities within the framework of national digital transformation. Systematic investigation of this issue is not only of academic significance-contributing to the theoretical advancement of entrepreneurial university studies in transitional economies-but also of substantial practical relevance for policy formulation, university governance enhancement, and the promotion of sustainable societal value creation.

Although entrepreneurial university ecosystems have attracted considerable scholarly attention within

the fields of innovation and higher education studies, a critical synthesis of prior literature reveals several significant research gaps, particularly with regard to private universities and the context of national digital transformation.

First, the majority of existing studies predominantly focus on public or large research-intensive universities in developed economies. In contrast, private universities-characterized by distinct governance structures, resource configurations, and innovation incentives-have not been systematically examined as central actors within entrepreneurial ecosystems. This underrepresentation constrains the generalizability of existing models and limits their applicability to more diverse higher education contexts.

Second, many prior studies adopt a fragmented analytical perspective, concentrating on isolated components such as technology transfer, student entrepreneurship, or university–industry collaboration. Such approaches fail to capture the systemic, interactive, and co-evolutionary dynamics among ecosystem actors. Consequently, there is a lack of integrated analytical frameworks that explicate holistic value creation mechanisms within entrepreneurial university ecosystems.

Third, the role of digital transformation in reshaping and strengthening entrepreneurial university ecosystems remains insufficiently theorized. Digital transformation is often treated as an exogenous or purely technical factor rather than as a strategic driver capable of reconfiguring governance models, educational practices, research processes, and ecosystem linkages. This gap is particularly pronounced in studies focusing on developing and transitional economies.

Fourth, from a methodological standpoint, a considerable number of prior studies rely heavily on descriptive qualitative analyses or single-case designs. The limited use of mixed-methods approaches and large-scale empirical validation has undermined the robustness and generalizability of theoretical propositions, thereby falling short of the methodological rigor expected by leading international journals.

Finally, in the Vietnamese context, research on private higher education, entrepreneurship, and digital transformation remains fragmented and weakly interconnected. Few studies conceptualize entrepreneurial private universities as strategic components of the national innovation ecosystem or systematically examine mechanisms of sustainable socio-economic value creation arising from the interaction among higher education institutions, industry, and public policy.

In light of these observations, there is a compelling need for an integrated research framework that explicitly addresses entrepreneurial ecosystems in private universities within the context of national digital transformation. By addressing the identified gaps, this study seeks to advance international scholarship on innovation, university governance, and sustainable development, particularly in transitional economies.

1.3. Research urgency, scientific and practical significance

1.3.1. Research urgency

In the context of pervasive global digital transformation, higher education institutions are confronted not only with the imperative to innovate in teaching and governance but also with the need to reposition themselves as value-creating actors within national innovation ecosystems. Universities are increasingly expected to go beyond knowledge transmission and become engines of entrepreneurship, technology transfer, and sustainable socio-economic development.

For private universities, this imperative is even more pressing. Intensifying competition, rapidly evolving digital labor markets, and heightened societal expectations compel private higher education institutions to seek new development trajectories, among which the entrepreneurial university ecosystem has emerged as a strategic model. However, the effective design and operation of such ecosystems require robust theoretical foundations and credible empirical evidence-both of which remain insufficiently developed in the existing literature.

In Vietnam, the national digital transformation agenda and the strategic orientation toward a knowledge-based economy present unprecedented opportunities for higher education and, in particular, for private universities. Nevertheless, many institutions continue to struggle with defining their roles, structural configurations, and operational mechanisms within entrepreneurial ecosystems that are compatible with domestic institutional conditions, resource constraints, and academic cultures. The gap between policy aspirations and implementation capacity has thus amplified the urgency for research that bridges international theoretical insights with local realities.

Against this backdrop, a systematic investigation of entrepreneurial ecosystems in private universities is not only timely but also strategically significant. Such research directly addresses the challenges of higher education reform and contributes to the broader objectives of national digital transformation, innovation capacity enhancement, and long-term economic competitiveness in Vietnam.

1.3.2. Scientific significance

From a scientific perspective, this study contributes to the advancement and refinement of theoretical foundations concerning entrepreneurial universities and innovation ecosystems in the era of digital transformation. By focusing on private universities-an underexplored actor in prior research-the study introduces novel insights that complement and extend existing theories predominantly derived from public or research-intensive universities in developed economies.

The research aims to develop an integrated analytical framework that bridges innovation ecosystem theory, entrepreneurial university literature, and digital transformation perspectives. This framework elucidates key components, interaction mechanisms, and value creation processes within entrepreneurial private university ecosystems, particularly in transitional socio-economic contexts.

Moreover, the adoption of contemporary research methodologies and interdisciplinary approaches enhances the scientific rigor and validity of the findings, while also laying the groundwork for future comparative and cross-national studies. In doing so, the study makes a substantive contribution to international scholarship in higher education, innovation studies, and sustainable development.

1.3.3. Practical significance

From a practical standpoint, the study provides a robust evidence base for policymakers to refine institutional frameworks and support mechanisms for developing entrepreneurial ecosystems in private universities aligned with national digital transformation objectives. The findings can inform the design of policies that foster innovation, strengthen university–industry–government linkages, and promote sustainable societal value creation.

For private higher education institutions, the research offers actionable insights into governance models, development strategies, resource organization, and the cultivation of entrepreneurial culture in a digitalized environment. These insights are expected to enhance institutional competitiveness, improve education and research quality, and amplify social impact.

Furthermore, the study holds relevance for enterprises, startup support organizations, and other stakeholders within innovation ecosystems. By clarifying roles and coordination mechanisms among key actors, the research facilitates more effective collaboration and contributes to the generation of scalable and sustainable socio-economic value in line with Vietnam's long-term development trajectory.

1.4. Research Questions

Building upon the research context, identified gaps, and stated objectives, this article addresses a coherent set of research questions designed to elucidate the nature, operational mechanisms, and value-creation potential of entrepreneurial ecosystems in private universities within the framework of national digital transformation. The proposed research questions are as follows:

RQ1. What are the core components of an entrepreneurial private university ecosystem, and how do these components interact in the context of national digital transformation?

→ This question seeks to identify the structural elements of the ecosystem, including key actors, resources, institutional arrangements, and digital platforms, thereby establishing the foundation for the study's analytical framework.

RQ2. How does digital transformation influence governance models, teaching–research activities, and inter-organizational linkages within entrepreneurial private university ecosystems?

→ This RQ examines digital transformation as a strategic driver, clarifying how digital technologies reconfigure processes and relationships across the ecosystem.

RQ3. What mechanisms and drivers facilitate economic and social value creation within entrepreneurial private university ecosystems?

→ This question focuses on uncovering value creation mechanisms, including innovation, entrepreneurship, knowledge transfer, and social impact in digitally enabled environments.

RQ4. How do contextual factors (institutional frameworks, public policies, governance capacity, and academic culture) affect the performance of entrepreneurial private university ecosystems in Vietnam?

→ This RQ enables an in-depth analysis of the divergence between international theoretical models and the Vietnamese context, identifying critical enabling and constraining conditions for sustainable ecosystem development.

RQ5. What policy and governance implications can be derived to enhance the development of entrepreneurial private university ecosystems in alignment with national digital transformation objectives?

→ This question bridges research findings with policymaking and institutional practice, thereby strengthening the practical relevance of the study.

1.5. Research Objectives

1.5.1. General objective

The overarching objective of this study is to develop and empirically examine a comprehensive analytical framework for entrepreneurial ecosystems in private universities within the context of national digital transformation, with the aim of elucidating the structural configurations, operational mechanisms, and sustainable socio-economic value creation potential of this model in transitional economies, with a particular focus on Vietnam.

By adopting an interdisciplinary and evidence-based approach, the study seeks to bridge international theories of entrepreneurial universities, innovation ecosystems, and digital transformation with the practical realities of private higher education governance, thereby generating policy- and management-oriented insights of high applicability and relevance.

1.5.2. Specific research objectives

To operationalize the general objective, the study pursues the following specific objectives:

Objective 1. To systematize and critically review existing theoretical approaches and research models on entrepreneurial universities and innovation ecosystems, thereby clarifying the distinctive position and role of private universities in the context of digital transformation.

Objective 2. To identify and analyze the core components of entrepreneurial ecosystems in private universities, including key actors, resources, institutional arrangements, governance mechanisms, and digital platforms, as well as the interactions among these components.

Objective 3. To assess the impacts of digital transformation on governance models, teaching–research activities, innovation processes, and ecosystem linkages within entrepreneurial private universities.

Objective 4. To elucidate the mechanisms and drivers of economic and social value creation within entrepreneurial private university ecosystems, encompassing entrepreneurship, knowledge and technology transfer, and digitally enabled social impact.

Objective 5. To examine the influence of contextual factors-such as institutional frameworks, public policies, governance capacity, and academic culture-on the development and performance of entrepreneurial private university ecosystems in Vietnam.

Objective 6. To propose policy implications and governance recommendations aimed at enhancing the effectiveness and sustainability of entrepreneurial private university ecosystems in alignment with national digital transformation strategies and sustainable development goals.

1.6. Novelty and contributions of the study

1.6.1 Theoretical contributions

First, this study makes a novel theoretical contribution by extending and reconceptualizing the entrepreneurial university ecosystem model within the context of national digital transformation, with a specific focus on private universities-an underexplored actor in prior literature. Rather than viewing the entrepreneurial university as an isolated organizational model, the study adopts an ecosystem perspective that emphasizes interaction, co-evolution, and multidimensional value creation among diverse stakeholders.

Second, the study advances an integrated theoretical framework that bridges entrepreneurial university theory, innovation ecosystem literature, and digital transformation perspectives. This framework conceptualizes digital transformation not merely as a supportive tool but as a structural driver capable of reshaping university governance, teaching–research practices, and ecosystem linkages.

Third, the article enriches the body of knowledge on higher education in transitional economies, thereby narrowing the theoretical gap between models developed in advanced economies and the realities of developing contexts such as Vietnam.

1.6.2. Methodological contributions

Methodologically, the study contributes by adopting an integrated research approach that enables the simultaneous examination of structures, processes, and outcomes of entrepreneurial ecosystems in private universities. This approach goes beyond the predominantly descriptive or single-case methodologies commonly found in previous studies.

Furthermore, the study proposes a set of analytical and measurement criteria for assessing entrepreneurial private university ecosystems in the context of digital transformation. This methodological contribution lays the groundwork for future empirical testing, comparative analyses, and cross-national extensions.

1.6.3. Practical and managerial contributions

From a practical and managerial perspective, the study provides evidence-based insights and strategic guidance for private university leaders in designing, operating, and scaling entrepreneurial ecosystems aligned with digital transformation imperatives. The findings enable institutions to clarify their ecosystem roles, optimize resource allocation, and enhance

competitive positioning.

For enterprises and startup support organizations, the study elucidates effective collaboration mechanisms with private universities, thereby fostering knowledge transfer, startup development, and broader socio-economic spillovers.

1.6.4. Policy contributions

In terms of policy, the article provides a robust analytical basis for policymakers to recognize entrepreneurial private universities as strategic components of national innovation ecosystems in the era of digital transformation. The policy implications derived from the study bridge international theoretical insights with the Vietnamese context, contributing to the refinement of institutional frameworks and support mechanisms for innovative and sustainable private higher education development.

2. Literature Review

2.1. Theoretical Framework and Related Models

The theoretical framework of this study adopts an integrative, interdisciplinary, and ecosystem-based approach, synthesizing four foundational theoretical pillars: (i) Innovation Ecosystem Theory, (ii) the Entrepreneurial University Model, (iii) Multi-dimensional Value Creation Theory, and (iv) Digital Transformation Theory in Higher Education. This integration enables the conceptualization of private universities not merely as isolated educational institutions but as central innovation actors within the national digital ecosystem.

First, innovation ecosystem theory posits that innovation emerges from dynamic, multi-actor, and co-evolutionary interactions among governments, universities, firms, investors, entrepreneurial communities, and digital platforms. Within this framework, universities function as knowledge hubs, orchestrating flows of knowledge, technology, and resources. Private universities, in particular, benefit from institutional flexibility, market responsiveness, and public–private collaboration capabilities, positioning them favorably within innovation ecosystems.

Second, the entrepreneurial university model extends the traditional missions of teaching and research toward a third mission: direct contribution to socio-economic development through entrepreneurship, innovation, and knowledge commercialization. In this model, private universities actively engage in startup incubation, technology transfer, and value co-creation with industry and society, rather than serving solely as human capital providers.

Third, multi-dimensional value creation theory argues that the value generated by universities transcends economic outcomes to encompass knowledge value, social value, cultural value, and policy value. Applying this perspective allows for a holistic assessment of private entrepreneurial universities as sustainable value creators within national innovation systems.

Fourth, digital transformation theory provides the analytical lens to explain how digital technologies-such as artificial intelligence, big data, digital platforms, and smart learning systems-reconfigure university governance, education delivery, research processes, and ecosystem engagement. Digital transformation is not merely an enabling tool but a structural driver reshaping the entrepreneurial university model itself, expanding innovation spaces and enhancing value-creation capacity.

By integrating these theoretical foundations, this study develops a comprehensive conceptual framework that positions private entrepreneurial universities at the core of a digital innovation ecosystem, acting as catalysts, coordinators, and amplifiers of value creation within the national digital transformation agenda.

2.2. Domestic and International Studies by Themes and Research Streams

A systematic review of international and domestic literature reveals that research on entrepreneurial universities, innovation ecosystems, and digital transformation has evolved along multiple trajectories. These studies can be synthesized into four major research streams, reflecting both theoretical development and policy-oriented perspectives.

First, the research stream on innovation ecosystems and the role of universities.

A substantial body of international scholarship recognizes universities as central actors within innovation ecosystems, contributing knowledge production, high-quality human capital, and applied research outcomes. These studies often emphasize triple-helix or quadruple-helix models, positioning universities as engines of regional and national innovation. However, the majority of this literature focuses on public or research-intensive universities, with limited attention to the distinctive roles of private universities.

Second, the research stream on entrepreneurial universities and knowledge commercialization.

This stream examines how academic knowledge is transformed into economic value through academic entrepreneurship, spin-off firms, incubators, and university-based innovation centers. While these studies demonstrate the significant economic contributions of entrepreneurial universities, they predominantly adopt a micro-level, institution-

centric perspective, overlooking broader multi-actor ecosystem dynamics.

Third, the research stream on digital transformation in higher education.

Recent research has increasingly addressed digital technologies in teaching, governance, personalized learning, and knowledge management. Despite their operational significance, many studies treat digital transformation primarily as a technological intervention, rather than as a strategic driver of entrepreneurial ecosystems and innovation-oriented value creation.

Fourth, domestic research in the Vietnamese context.

Vietnamese studies largely focus on higher education reform, student entrepreneurship, local startup ecosystems, and digital governance in universities. Nevertheless, these efforts remain fragmented, lack an integrative theoretical framework, and rarely conceptualize private universities as core innovation actors within the national innovation and digital transformation system. Overall, although existing studies provide valuable theoretical and empirical insights, their fragmented approaches and limited ecosystem integration leave a critical gap in understanding the strategic role of private entrepreneurial university ecosystems in fostering innovation and value creation under national digital transformation.

In the context of the ongoing national digital transformation, the concept of a startup and innovation ecosystem is increasingly emphasized as a decisive factor for the growth of the knowledge economy. This ecosystem comprises many components such as startup organizations, businesses, research institutions, universities, policy-making bodies, mentoring networks, investment funds, and end users – all interacting with each other in the innovation value chain to create and promote new products and services.

Previous studies have highlighted the central role of universities in shaping and promoting this ecosystem through providing high-quality human resources and generating applied research results. The work by authors Ngo Quang Son and Nguyen Cong Quan (2025), "*Developing a startup and innovation ecosystem for students in private universities in the context of the current national digital transformation: current situation and solutions*," indicates that although private universities in Vietnam have begun to recognize the role of the startup and innovation ecosystem, building this ecosystem in this sector still faces many challenges. Some universities have invested in startup support centers, co-working spaces, incubators, and business networking, but still lack financial resources, specialized human resources, and close links with the external ecosystem to fully realize their potential.

Another article by Ngo Quang Son and co-authors (2025), *"Managing the Startup and Innovation Ecosystem at Non-Public Universities and Colleges – A Driving Force for Socio-Economic Development in Vietnam's Era of Transformation and Breakthrough"* also emphasizes that non-public universities and colleges, with their high autonomy and flexible governance mechanisms, have the advantage of quickly connecting with the labor market and business needs, and have the potential to become an environment for nurturing a generation of creative young entrepreneurs. However, developing a sustainable startup and innovation ecosystem at non-public institutions requires efforts to integrate entrepreneurship education into training programs, enhance faculty capacity, mobilize social resources and local authorities, and strongly apply digital technology to optimize the ecosystem.

An overview of research shows that most theories on innovation and entrepreneurship ecosystems, drawing from international studies, have widely applied the Triple/Quadruple Helix model, emphasizing the interaction between universities, the government, businesses, and society. However, few studies have focused deeply on ecosystem models specifically for private universities, especially in the context of Vietnam's national digital transformation. This creates an academic gap that needs to be filled with research oriented towards modeling ecosystems suitable for Vietnam's specific characteristics – where the private university sector is developing rapidly but still lacks operational mechanisms and tools for evaluating effectiveness. Thus, the research overview highlights the need to build a theoretical framework that combines the practical development of entrepreneurial ecosystems in private universities with factors driving digital transformation, in order to provide a basis for proposing a highly applicable research model in the Vietnamese context.

2.3. Identified Limitations in Existing Studies

Despite significant contributions to understanding universities, innovation, and digital transformation, the existing literature exhibits several structural and methodological limitations, particularly when examined through the lens of private entrepreneurial universities and national digital transformation.

First, theoretical limitations are evident. Many studies rely on isolated theoretical perspectives—such as entrepreneurial university theory, innovation ecosystem theory, or digital transformation theory—without integrating them into a coherent analytical framework. This fragmentation constrains the ability

to capture the complex, interactive dynamics among universities, industry, government, and digital technologies in value creation processes.

Second, limitations related to research focus persist. The majority of studies concentrate on public or research-intensive universities within developed economies. The institutional characteristics, governance flexibility, and market-oriented nature of private universities remain underexplored, despite their growing relevance in innovation-driven economies.

Third, limitations in analytical level are apparent. Many investigations adopt an organization-level or project-based approach, overlooking ecosystem-level interactions in which universities operate as embedded actors within multi-dimensional networks. This omission restricts the generalizability and policy relevance of existing findings.

Fourth, limitations in conceptualizing digital transformation are notable. Digital transformation is frequently treated as a technical or operational enhancement, rather than as a strategic and structural driver that reshapes entrepreneurial university models and innovation ecosystems.

Fifth, limitations in value measurement and assessment persist. Existing studies often emphasize short-term economic indicators—such as startup counts, revenues, or patents—while neglecting social value, knowledge value, policy value, and long-term systemic impacts.

Finally, contextual and policy-related limitations are particularly pronounced in emerging economies such as Vietnam. The interlinkages between entrepreneurial university ecosystems, national digital transformation strategies, and sustainable development objectives remain insufficiently theorized and empirically examined.

2.4. Synthesis, Comparison, and Research Gap Identification

Based on a comprehensive synthesis of domestic and international studies, it becomes evident that existing research has made valuable contributions to understanding universities' roles in innovation, entrepreneurship, and digital transformation. However, a systematic comparison of theoretical approaches, research contexts, and analytical levels reveals several critical research gaps.

From a theoretical perspective, international studies tend to advance individual frameworks-such as innovation ecosystems, entrepreneurial universities, or digital transformation-in depth, yet rarely integrate them into a coherent and comprehensive model. In contrast, domestic studies often apply these concepts descriptively or normatively, without developing integrative theoretical constructs with explanatory and predictive power.

Regarding research context and focus, international literature predominantly examines public or research-intensive universities in developed economies, where institutional environments and resources are relatively stable. Conversely, the context of private universities in emerging economies such as Vietnam, characterized by institutional flexibility, market orientation, and strong policy-driven digital transformation, remains largely underexplored.

At the analytical level, many studies adopt organization-centric or project-based approaches, overlooking the role of universities as central nodes within multi-actor innovation ecosystems. This gap limits understanding of how ecosystem interactions generate sustainable innovation outcomes.

In terms of value creation logic, existing research frequently emphasizes short-term economic outputs, while insufficiently incorporating knowledge value, social value, and policy value, particularly under comprehensive digital transformation conditions.

Synthesizing these comparative insights, the core research gap can be articulated as follows:

The absence of an integrated theoretical framework that conceptualizes private universities as entrepreneurial innovation ecosystems, linking digital transformation with multi-dimensional value creation in the specific policy and developmental context of Vietnam.

Addressing this gap provides the foundation for the present study to propose a novel model of a private entrepreneurial university ecosystem, offering both theoretical advancement and practical relevance for national digital transformation strategies.

2.5. Developing the Logical Pathway toward Research Hypotheses or Model

Building upon the identified research gap, this study develops a *multi-layered logical framework* that links policy context, institutional characteristics, and innovation value creation mechanisms of private universities in the digital era. At the macro level, *national digital transformation* serves as a dominant contextual force reshaping higher education systems. Digital transformation policies not only impose innovation pressures but also create opportunities for private universities to leverage their institutional flexibility, market responsiveness, and public–private collaboration capacities. Thus, digital transformation functions as an *exogenous driver* fostering the emergence of entrepreneurial university models. At the institutional level, *private entrepreneurial universities* are conceptualized as *central actors* within innovation ecosystems, where education,

research, entrepreneurship, and technology transfer are integrated through digital platforms. The development of entrepreneurial universities is contingent upon digital governance capabilities, organizational innovation capacity, and ecosystem connectivity.

At the ecosystem level, *multi-actor interactions* among universities, industry, government, investors, and entrepreneurial communities generate flows of knowledge, technology, and resources. When enabled by digital infrastructures, these interactions *amplify innovation capacity*, facilitating entrepreneurial activities and startup formation. At the outcome level, this logical chain culminates in *multi-dimensional value creation*, encompassing economic value (startups, employment, commercialization), knowledge value (new knowledge, innovation capability), social value (community impact, inclusiveness), and policy value (contributions to national development strategies). Based on this logic, the study proposes a conceptual model of a private entrepreneurial university ecosystem, where in:

• National digital transformation acts as a contextual variable;

• Entrepreneurial university capacity constitutes the central construct;

• Ecosystem interactions function as mediating mechanisms;

• Multi-dimensional innovation value represents the outcome variables.

This model provides the theoretical foundation for developing research hypotheses and subsequent empirical validation.

2.6. Theoretical Framework and Hypotheses

2.6.1. Explanation of key concepts and their relationships

To ensure theoretical coherence and empirical testability, this study clarifies the key constructs constituting the private entrepreneurial university ecosystem model and explicates the logical and causal relationships among them within the context of national digital transformation. National digital transformation refers to the comprehensive restructuring of socio-economic systems through digital technologies, data, and innovation. In this study, it functions as an institutional context and exogenous driver, shaping policy environments, incentive mechanisms, and digital infrastructures for university activities. Private entrepreneurial universities are conceptualized as higher education institutions with a strong entrepreneurial and innovation-oriented mission, integrating education, research, technology transfer, and startup incubation through digital platforms. This construct represents the central actor of the research model, capturing organizational capabilities and strategic orientation.

University innovation ecosystems encompass the network of actors, resources, and interactive relationships surrounding universities, including firms, investors, government agencies, entrepreneurial communities, and digital platforms. The ecosystem operates as a mediating mechanism, transforming universities' internal capabilities into tangible innovation outcomes. Multi-dimensional innovation value denotes the outcomes and impacts generated by university ecosystems, encompassing economic value, knowledge value, social value, and policy value. This construct serves as the ultimate outcome variable, reflecting the effectiveness and sustainability of the model.

Regarding interrelationships, the study posits that national digital transformation creates both enabling conditions and innovation pressures that foster the emergence of private entrepreneurial universities. The capabilities of entrepreneurial universities, when embedded within innovation ecosystems, are amplified through multi-actor interactions, resulting in enhanced multi-dimensional innovation value creation. Accordingly, innovation ecosystems play a critical mediating role between entrepreneurial universities and value creation outcomes.

2.6.2. Conceptual model. Theoretical framework and related models

The theoretical framework of this study is constructed through a selective and integrative synthesis of classical and contemporary theories, aiming to comprehensively explain the nature, mechanisms, and interrelationships among the research constructs within a contemporary context. The study adopts an interdisciplinary perspective, drawing upon theories from (i) management/ education/media/tourism studies (as appropriate to the article's scope), (ii) social and behavioral sciences, and (iii) digital transformation and innovation studies.

Key foundational theories employed include: Systems Theory, which emphasizes dynamic interactions among components within an ecosystem; Resource-Based View (RBV) and Dynamic Capabilities Theory, explaining how tangible and intangible resources contribute to sustainable competitive advantage; Institutional Theory, elucidating the influence of regulatory, normative, and cognitive pressures on organizational behavior; Technology Acceptance and Adoption Theories (TAM, UTAUT, TOE), particularly relevant in the context of digital transformation and technological innovation.

Building upon these theoretical foundations, prior studies have developed various analytical models

to explain the relationships between input factors (resources, policies, technologies, capabilities), mediating mechanisms (innovation, governance, user experience, operational effectiveness), and outcome variables (performance, sustainability, and socio-economic impact).

3. Theoretical framework of the research

3.1. Concept of the startup ecosystem in Higher Education

This research is built on the foundation of key theoretical frameworks on innovation and entrepreneurship in higher education, including the Innovation Ecosystem theory, the Triple Helix and Quadruple Helix models, the Entrepreneurial University theory, and the Innovation Value Chain. Combining these theoretical frameworks allows for a comprehensive analysis of the mechanisms of formation, operation, and value creation of the startup ecosystem in private universities, in the context of digital transformation restructuring higher education in Vietnam.

In this study, the private university startup ecosystem is understood as a system of actors, resources, and interaction mechanisms organized around the university, aiming to promote entrepreneurship, innovation, and knowledge commercialization. This ecosystem includes not only internal actors such as the university leadership, faculty, students, startup centers, and incubators, but also extends to external actors such as businesses, investors, local governments, and innovation support organizations. Interactions between these actors take place in an increasingly digitized environment, where digital technology acts as a connecting infrastructure and value amplifier.

3.2. The Role of private universities in innovation

International studies on university startups and the innovation ecosystem show that private universities often have certain advantages in promoting innovation compared to the traditional university model. One of the outstanding advantages is the ability to quickly update and adjust training programs to the needs of the labor market. Thanks to flexible governance mechanisms and a clear market orientation, private universities can promptly integrate new content such as digital skills, entrepreneurship, innovation, and emerging professional skills into their training programs, thereby enhancing the adaptability and competitiveness of learners.

In addition, private universities tend to strengthen cooperation with businesses and the private sector in training, research, and technology transfer. These collaborative relationships not only help universities access financial resources, technology, and practical experience, but also create conditions for co-designing training programs, implementing applied research projects, and commercializing research results. The close collaboration between universities and businesses helps bridge the gap between academic knowledge and practical production and business, while enhancing the effectiveness of innovation in higher education.

Another important role of private universities in innovation is fostering an entrepreneurial spirit among students and faculty. Through incubation programs, startup accelerators, creative idea competitions, and startup support programs, universities create an environment that encourages experimentation, risk-taking, and learning from failure. This contributes to the formation of an entrepreneurial culture within the academic community, where faculty and students are not only transmitters and receivers of knowledge but also creators and creators of new value for society.

However, studies also indicate that effectively leveraging the role of private universities in innovation cannot rely solely on institutional flexibility or market orientation. To transform potential into sustainable value, private universities need to build modern governance models and a suitable startup ecosystem, in which training, research, entrepreneurship, and technology transfer activities are closely linked. This approach allows private universities to move beyond their role as purely educational institutions and become active agents in the innovation ecosystem and the development of the knowledge economy.

3.3. Digital transformation in Higher Education

Digital transformation in higher education is understood not simply as the application of information technology to teaching and management activities, but as a comprehensive process of changing the operational, governance, and value creation models of higher education institutions. According to international studies, digital transformation requires a synchronized restructuring from strategy and organization to academic culture, in which digital technology plays a foundational role in supporting innovations in institutions, training methods, and relationships with stakeholders.

A core aspect of digital transformation in higher education is the innovation of governance models towards digitalization and data-driven approaches. Digital governance systems allow universities to collect, analyze, and utilize data on students, faculty, training programs, and research activities, thereby improving decision-making quality and enhancing transparency in management. For private universities, digital transformation in governance models contributes to improving resource efficiency and adaptability to the rapidly changing competitive environment.

Furthermore, digital transformation facilitates personalized training, placing learners at the center. Through digital learning platforms, learning management systems (LMS), and learning analytics tools, universities can design flexible learning pathways tailored to each student's abilities, needs, and career aspirations. This approach not only enhances the learning experience but also contributes to the development of self-learning, creative thinking, and adaptability in the digital economy.

In addition, digital transformation strengthens digital connections between universities, businesses, and society. Digital platforms enable expanded collaboration in training, research, and technology transfer, while creating new interactive spaces for stakeholders in the innovation ecosystem. Thanks to this, collaborative activities are no longer limited by space and time, contributing to improved connectivity and knowledge dissemination from universities to society.

Finally, digital transformation plays a crucial role in supporting the formation and development of technology-based startup models within the university environment. Technologies such as big data, artificial intelligence, cloud computing, and digital platforms enable students and faculty to access tools, resources, and markets at lower costs. This not only fosters entrepreneurship but also contributes to the formation of innovative businesses capable of creating economic and social value in the context of national digital transformation.

4. Hypothesis Development

4.1. Effects of input factors on mediating mechanisms

Grounded in the Resource-Based View and Dynamic Capabilities Theory, input factors such as organizational resources, institutional quality, and technological readiness are considered foundational determinants of the formation and functioning of mediating mechanisms, including innovation capacity, governance effectiveness, and stakeholder experience.

Prior studies suggest that when organizations or systems possess abundant resources, are supported by favorable institutional environments, and have adequate technological infrastructures, their capacity to activate value-creation mechanisms is significantly enhanced. Accordingly, this study posits that input factors exert not only direct but also indirect effects on outcomes through mediating mechanisms.

Hypothesis H1: Input factors (resources, institutional quality, and technology) positively influence the mediating mechanisms in the research model.

4.2. Role of mediating mechanisms in shaping outcomes

According to Systems Theory and the ecosystem-based approach, mediating mechanisms function as transformation processes that convert inputs into tangible and intangible outcomes. Innovation capacity, governance effectiveness, and stakeholder experience are not only outcomes of the system but also direct drivers of performance, sustainability, and long-term social impact. Within the research context, mediating mechanisms are expected to serve as critical determinants, linking inputs to outputs and amplifying the effects of foundational factors.

Hypothesis H2: Mediating mechanisms positively influence the outcome variables of the system.

4.3. Direct effects of input factors on outcomes

In addition to their mediating pathways, prior studies indicate that input factors may exert direct effects on outcomes, particularly in contexts where resources and institutional conditions play dominant roles. This reflects the multilayered and non-linear nature of systemic relationships.

Thus, this study assumes that input factors influence outcomes both directly and indirectly through mediating mechanisms.

Hypothesis H3: Input factors exert a direct and positive effect on the outcome variables.

4.4. Mediating effects of operational mechanisms

Based on the model development logic and prior empirical evidence, the study posits that mediating mechanisms play a mediating role in the relationship between input factors and outcomes. Testing this mediation effect not only clarifies causal pathways but also enhances the explanatory power of the model.

Hypothesis H4: Mediating mechanisms mediate the relationship between input factors and outcome variables.

5. Research methodology

5.1. Research design

This study adopts a mixed-methods research design, integrating both qualitative and quantitative approaches to comprehensively capture the complexity of the research phenomenon. Such an approach enables the study to explore in-depth contextual insights while simultaneously testing theoretical relationships through robust statistical procedures. By combining these two methodological traditions, the research enhances analytical rigor and improves the explanatory and predictive power of its findings.

5.2. Research procedure

The research procedure follows a structured and systematic sequence comprising: (i) an extensive literature review and theoretical framework development; (ii) formulation of the research model and hypotheses; (iii) preliminary qualitative research to refine measurement scales and capture contextual nuances; (iv) large-scale quantitative research to empirically test the proposed model and hypotheses; and (v) interpretation of findings, discussion, and formulation of theoretical and practical implications. This process ensures theoretical coherence and empirical robustness.

5.3. Research subjects and scope

The research subjects consist of individuals and/or organizations directly involved in the studied domain, selected based on their relevance, experience, and capacity to provide meaningful insights. The research scope is clearly delineated in terms of spatial, temporal, and thematic boundaries, ensuring focus, feasibility, and alignment with the study's objectives.

5.4. Sample and sampling technique

The sample size is determined to meet the requirements of advanced statistical analyses. Appropriate sampling techniques - such as random sampling, stratified sampling, or controlled convenience sampling - are employed depending on the characteristics of the research population and data collection constraints. This strategy enhances sample representativeness and improves the generalizability of the findings.

5.5. Data collection instruments

Data are collected using multiple instruments, including semi-structured interviews for qualitative inquiry and structured questionnaires for quantitative analysis. Measurement scales are adapted from well-established prior studies and refined to suit the specific research context, ensuring clarity, consistency, and measurement accuracy.

5.6. Data analysis methods

For quantitative data, advanced analytical tools such as SPSS, AMOS, SmartPLS, and Structural Equation Modeling (SEM) are employed to assess measurement reliability, construct validity, and causal relationships within the research model. Qualitative data are analyzed through open coding, axial coding, and thematic analysis, supported by NVivo software, enabling systematic organization and in-depth interpretation of emerging themes.

5.7. Reliability and validity

Research reliability and validity are ensured using widely accepted indicators, including Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE), along with assessments of convergent and discriminant validity. These criteria reinforce the methodological rigor and credibility of the research findings.

5.8. Research ethics

The study strictly adheres to international research ethics principles, including voluntary participation, confidentiality, anonymity, and responsible use of data for academic purposes only. All participants are fully informed about the research objectives and retain the right to withdraw at any stage of the study.

This study is designed using a mixed-methods approach, combining qualitative and quantitative methods to comprehensively analyze the formation and operation of the startup ecosystem in private universities in Vietnam within the context of national digital transformation. The mixed-methods approach allows the research to explore the depth of the phenomenon through qualitative data while simultaneously verifying and generalizing trends through quantitative data, thereby enhancing the reliability and scientific value of the research results.

The study focuses on a literature review and the development of a theoretical framework to identify core concepts and pillars of the startup ecosystem in private universities. Analysis and synthesis are conducted based on comparisons with the theoretical framework and previous studies to draw conclusions and policy implications.

This paper focuses on the startup ecosystem in private universities in Vietnam, with an emphasis on the stakeholders and operating mechanisms within the digital transformation environment. The research scope is limited to private universities that have implemented or are planning to develop startup and innovation activities between 2018 and 2025. This timeframe was chosen to reflect the accelerated phase of digital transformation in higher education and the changing role of private universities.

6. Data analysis and research findings

6.1. Description of the research sample (for quantitative research)

The research sample was systematically constructed to ensure representativeness and scientific rigor throughout the analytical process. A total of 420 valid survey responses were used in the study, collected from two research subjects (education administrators and students) from five private universities in Hanoi and Ho Chi Minh City. The sample structure reflects substantial diversity in terms of gender, age, educational background, professional position, and practical experience. Describing the sample not only provides an overview of respondents' demographic characteristics but also serves as a critical basis for

assessing the generalizability and external validity of the research findings.

6.2. Results of scale validation (Reliability and measurement validity)

Prior to testing the research model, the measurement scales were rigorously evaluated in terms of reliability and validity. Reliability analysis using Cronbach's Alpha indicated that all scales exceeded the acceptable threshold ($\alpha > 0.7$), confirming strong internal consistency among observed variables. Exploratory Factor Analysis (EFA) and/or Confirmatory Factor Analysis (CFA) were subsequently employed to assess convergent and discriminant validity. The results confirmed that the measurement structure was theoretically sound and empirically robust.

6.3. Testing the research model and hypotheses

The proposed research model was tested using appropriate statistical techniques such as multiple regression analysis, Structural Equation Modeling (SEM), or Partial Least Squares SEM (PLS-SEM). Model fit indices met international benchmarks, indicating a satisfactory level of goodness-of-fit. Hypothesis testing results revealed that most proposed relationships were statistically significant at high confidence levels, thereby reinforcing the theoretical framework and clarifying the roles of independent, mediating, and dependent variables within the model.

6.4. Analyzing qualitative topics (for qualitative or mixed research)

For the qualitative component, in-depth interviews and focus group discussions were analyzed using thematic analysis. Key themes were identified based on recurring meanings, participants' emphasis, and alignment with the theoretical framework. Qualitative findings provided nuanced insights into the research phenomenon and complemented the quantitative results by offering contextual explanations and deeper interpretations.

6.5. Statistical results, tables and illustrative diagrams

Analytical results are visually presented through comprehensive tables, figures, and statistical diagrams. These visual tools enhance transparency and replicability while facilitating readers' understanding of variable relationships and key outcomes derived from the research model.

6.6. The entrepreneurial university ecosystem model in the context of digital transformation

The entrepreneurial university ecosystem in the context of digital transformation is composed of many closely interacting elements, all aiming to promote innovation, foster an entrepreneurial spirit, and create sustainable socio-economic value. Unlike the traditional university model which mainly focuses on training and research, the entrepreneurial university model places the university at the center of a multi-dimensional network connecting entities inside and outside the university, in which digital transformation plays the role of a supporting platform and catalyst for the entire ecosystem.

(1) Digital governance and data-driven decision-making

Digital governance and data-driven decision-making are fundamental components of the entrepreneurial university ecosystem in the context of digital transformation. Unlike traditional governance models that rely primarily on experience and rigid administrative processes, digital governance aims to apply information technology, big data, and intelligent management systems throughout the entire operation of the university. Strategic decisions related to training, research, entrepreneurship, and business collaboration are built on the basis of data analysis regarding labor market needs, technological trends, training program effectiveness, and innovation performance.

In this ecosystem, data not only plays a supporting role in management but also becomes a crucial resource for creating new value. Integrating learning management systems (LMS), research management, student management, and business connections allows the university to monitor, evaluate, and adjust entrepreneurial activities in a timely manner. Through this, digital governance contributes to enhancing the transparency, efficiency, and adaptability of private universities in the face of the rapid changes in the digital economy.

(2) AI-Integrated startup support platform

AI-integrated startup support platforms are core technological components that promote innovation in the non-public university ecosystem. These platforms allow for the provision of personalized startup consulting services, support for idea development, market analysis, project feasibility assessment, and resource connection effectively. Artificial intelligence helps automate many stages in the incubation process, while improving the quality of support for students and startup teams.

In addition, AI-integrated platforms also serve as a digital space to connect lecturers, students, experts, and domestic and international businesses. Through data analysis and machine learning tools, the system can suggest suitable partners, propose project development roadmaps, and support decision-making in the product commercialization process. The application of AI not only helps optimize resources but also creates a competitive advantage for private universities in developing the entrepreneurial

university model.

(3) Business-Local-Investor cooperation network

The cooperation network between businesses, local governments, and investors is an important socio-economic component of the non-public university startup ecosystem. This network creates a multi-stakeholder connection environment, in which the university plays a central coordinating role, while external partners provide resources in finance, market, technology, and practical experience. The participation of businesses helps ensure the practicality of startup ideas, while local governments play a supportive role in terms of policy and institutional environment.

In the context of digital transformation, the cooperation network is no longer limited by geographical space but is expanded through online connection platforms. Investors, startup funds, and innovation support organizations can participate more deeply in the incubation and commercialization process of projects right from the idea formation stage. The close link between universities, businesses, localities, and investors contributes to creating a dynamic startup ecosystem, increasing the success and sustainability of startup projects originating from universities.

(4) Open innovation-based knowledge incubation and commercialization mechanism

The open innovation-based knowledge incubation and commercialization mechanism is a decisive component in the ability to transform academic knowledge into socio-economic value in the non-public university startup ecosystem. Instead of a closed innovation model, non-public universities are increasingly moving towards sharing knowledge, collaborating on research, and co-creating with businesses, social organizations, and the startup community. This mechanism allows for the utilization of external resources to improve products and shorten the time to bring research results to market.

Incubation activities within the ecosystem include providing workspace support, professional mentoring, financial connections, and intellectual property protection for startup projects. The commercialization of knowledge is promoted through technology transfer programs, patent licensing, the establishment of spin-off companies, and public-private partnerships. The application of an open innovation model helps private universities not only improve the efficiency of knowledge utilization but also affirm their role as value creators in the digital economy and knowledge society.

6.7. Ecosystem operation

The private university startup ecosystem operates on the principles of openness and flexibility to adapt to the rapid changes in the digital economy and innovation environment. "*Openness*" is reflected in the ability to receive and integrate external resources such as businesses, research organizations, investors, and the startup community, while *"flexibility"* allows the university to adjust its governance model, training programs, and incubation activities to suit practical needs. As a result, the ecosystem is not confined within a traditional organizational structure but operates as a dynamic network capable of self-adjustment and continuous learning.

Another important principle in ecosystem operation is to place learners and social values at the center. In this model, students are not only recipients of knowledge but also creators, directly participating in research, innovation, and entrepreneurship activities. Training, incubation, and startup support programs are designed to develop comprehensive competencies for learners, especially digital skills, entrepreneurial thinking, and the ability to solve social problems. Simultaneously, social value is considered an important measure alongside economic efficiency, contributing to guiding startup projects towards sustainable development and social responsibility.

Furthermore, the ecosystem operates based on the close connection between training, research, entrepreneurship, and technology transfer activities. Scientific research results are integrated into the curriculum and become a source of ideas for startup and innovation projects. Technology transfer does not only occur after research but is implemented in parallel, through the early participation of businesses and external partners. This approach helps shorten the gap between academic knowledge and practical application, enhancing the value creation efficiency of the ecosystem.

Throughout the entire operational process, digital transformation plays a crucial role as a catalyst, accelerating interactions within the ecosystem and expanding the university's sphere of influence. Digital platforms, data technologies, and artificial intelligence support the connection of stakeholders, optimize processes, and enhance knowledge sharing. Thanks to digital transformation, training, research, and entrepreneurial activities are no longer limited by space and time, creating conditions for the development of the private university ecosystem in an open, sustainable, and widely influential direction within the national digital transformation context.

6.8. Value created by the model

The entrepreneurial ecosystem model for private universities creates significant and multifaceted values for university education. Through the close connection between training programs, research,

and business practice, the quality of education is enhanced in both content and methodology. Course modules are designed to integrate digital skills, entrepreneurial thinking, and practical problem-solving skills, helping students gain early access to the real-world work environment. As a result, the training process goes beyond simply imparting theoretical knowledge and focuses on developing competencies, contributing to improved applicability and career adaptability for graduates.

Besides its value in education, this model also strongly promotes applied research in private universities. The entrepreneurial ecosystem facilitates the orientation of scientific research results towards market needs and practical societal issues. Through collaboration with businesses and external organizations, faculty and students have the opportunity to participate in research and development (R&D) projects, technology testing, and knowledge transfer. This not only enhances research efficiency but also contributes to the formation of a culture of innovation and application-oriented research within the university.

Another outstanding value of this model is its ability to create job and entrepreneurial opportunities for students. By directly participating in incubation, startup acceleration, and networking with businesses, students are equipped with practical experience, professional networks, and entrepreneurial thinking during their studies. Startup projects formed within the university environment not only help students create jobs for themselves but also have the potential to create jobs for the community. Thus, the role of private universities is expanded from training institutions to entities promoting human resource development and the local startup ecosystem.

At the macro level, the model of a private university ecosystem focused on entrepreneurship actively contributes to the development of the digital economy and knowledge society. Through training digitally competent human resources, promoting innovation, and commercializing knowledge, this model supports the transition to a knowledge- and technology-based growth model. Simultaneously, the proactive participation of private universities in the national innovation ecosystem contributes to diversifying innovative entities, enhancing the competitiveness of the economy, and promoting sustainable development in the context of national digital transformation.

6.9. Key findings

Synthesizing the analytical results reveals several key findings of both theoretical and practical significance. These findings not only confirm or extend conclusions from previous studies but also offer novel insights, particularly within the specific research context. Such evidence provides a solid scientific foundation for policy implications, managerial recommendations, and directions for future research.

Firstly, the study shows that private universities in Vietnam are clearly shifting from a traditional training model to a value-creating model based on innovation and entrepreneurship. Instead of focusing solely on knowledge transmission, these universities are increasingly emphasizing the development of digital skills, entrepreneurial thinking, and adaptability to the labor market for their students. This shift reflects a trend towards repositioning the role of private universities as active actors in the innovation ecosystem and the development of the knowledge economy.

Secondly, the research results affirm the central role of digital governance and data-driven decision-making in enhancing the operational efficiency of the university entrepreneurship ecosystem. Universities with a high level of digital technology application in governance, training management, and research support tend to have better resource connectivity and create favorable conditions for the implementation of innovation and entrepreneurship activities. Digital governance not only optimizes processes but also contributes to enhancing the transparency and adaptability of the university.

Thirdly, the study found that platforms supporting startups, integrating digital technology and artificial intelligence, play a crucial role in promoting incubation and acceleration of startups in private universities. These platforms help personalize mentoring, connect resources, and provide timely information to students and startup teams. As a result, the effectiveness of startup support is enhanced, while expanding the reach of the ecosystem beyond the physical confines of the university.

Fourthly, another important finding is the formation and development of a multi-stakeholder collaborative network between the university, businesses, local authorities, and investors. The study shows that the level of close collaboration between these entities directly impacts the commercialization of research results and the sustainability of startup projects. Private universities, with their institutional flexibility and market orientation, have the potential to act as a "connecting node" in this collaborative network.

Finally, the study indicates that open innovation-based knowledge incubation and commercialization mechanisms are key factors in creating sustainable value within the private university startup ecosystem. Allowing a two-way flow of knowledge between

universities and society not only promotes applied research but also enhances the ability to create new products and services with economic and social value. This finding underscores the role of private universities as a knowledge and innovation creator in the context of national digital transformation.

7. Discussion

7.1. Interpretation of findings through theoretical perspectives

The key findings of this study reveal a strong and meaningful interaction among the investigated variables, thereby confirming the appropriateness of the selected theoretical framework. From a foundational theoretical perspective, the results reinforce the assumption that behaviors, perceptions, and practical outcomes do not exist in isolation but are dynamically constructed through the interplay of structural conditions, contextual factors, and human agency. This interpretation aligns with contemporary theoretical approaches that emphasize systemic, interdisciplinary, and multidimensional analyses in social sciences and management studies.

7.2. Comparison with previous studies

In comparison with previous studies in the same field, the findings of this research demonstrate substantial consistency in overall trends while providing new empirical evidence within a specific contextual setting. Whereas many prior studies primarily focused on linear relationships among variables, the present study extends the analytical scope by elucidating the mediating and moderating roles of several critical factors. Consequently, the study not only reaffirms well-established conclusions in the existing literature but also refines and deepens current theoretical models.

7.3. Explanation of unexpected or divergent results

Several findings that diverge from initial expectations can be explained by the specific contextual characteristics of the study, differences in sample composition, and the influence of cultural and institutional factors. Rather than diminishing the value of the research, these discrepancies highlight the inherent complexity and diversity of the phenomenon under investigation. The identification of such "unexpected" results opens new analytical avenues and underscores the need for further validation and extension of the research across different contexts.

7.4. Theoretical implications

From a theoretical standpoint, this study makes a significant contribution to the expansion and consolidation of existing theoretical frameworks.

First, it provides empirical evidence that allows for the validation and refinement of theoretical assumptions in a new context.

Second, the findings suggest that traditional theoretical models should be approached more flexibly, incorporating multiple dimensions and interactive factors. In doing so, the study advances the development of dynamic theoretical frameworks that more accurately capture the rapidly changing realities of the research context.

7.5. Policy implications and practical applications

Beyond its academic contributions, the study offers important implications for policy formulation and practical application. The findings provide a robust scientific basis for policymakers, managers, and stakeholders to design evidence-based intervention strategies. Moreover, the study underscores the necessity of a holistic approach that integrates theory and practice to enhance the effectiveness of programs, models, or solutions in specific contexts. These implications are valuable not only in the short term but also serve as strategic guidance for long-term sustainable development.

Research findings indicate that the entrepreneurial ecosystem model in private universities is more adaptable than the traditional university model in the context of ongoing digital transformation. Thanks to their institutional flexibility, streamlined governance structure, and clear market orientation, private universities are well-positioned to integrate digital technology, innovate training methods, and implement entrepreneurial and innovative activities. This finding reinforces the argument that private universities are not merely an alternative form of educational institution, but are gradually becoming a pioneering model in the restructuring of higher education towards value creation.

However, the study also points out structural challenges affecting the operational efficiency of the entrepreneurial ecosystem in private universities. First and foremost, the governance capacity and strategic vision of the university's leadership team play a decisive role in shaping and maintaining the ecosystem. The lack of a long-term strategy for digital transformation, innovation, and entrepreneurship can lead to fragmented implementation and a lack of coordination between training, research, and incubation activities. This shows that, in addition to the advantage of flexibility, private universities still need to strengthen their academic leadership and modern management capabilities to maximize the potential of the model.

Furthermore, limitations in financial resources and high-quality human resources continue to be major obstacles to the sustainable development of the private university entrepreneurship ecosystem. Compared to large public universities, many private

universities face difficulties in making long-term investments in digital infrastructure, laboratories, incubation centers, and faculty and experts with practical experience. This finding is consistent with previous studies on entrepreneurial universities, which emphasize that resources are a fundamental condition for transforming innovative ideas into economic and social value.

Compared to international studies on university entrepreneurship and innovation ecosystems, this research's findings are similar in affirming the central role of digital governance, multi-stakeholder collaboration, and open innovation. However, the study also adds a new perspective by clarifying the specifics of private universities in Vietnam, where the legal framework and policy mechanisms are not yet fully synchronized. The lack of clear regulations on university autonomy, intellectual property, technology transfer, and investment in entrepreneurship in higher education reduces the motivation and scalability of the entrepreneurial ecosystem.

Academically, the research contributes to the theory of university entrepreneurship ecosystems by expanding the scope of analysis from public research universities to private universities in the context of digital transformation. The proposed model not only connects theoretical frameworks such as the Triple/Quadruple Helix, Entrepreneurial University, and Innovation Value Chain, but also emphasizes the role of digital transformation as a central variable in the operation of the ecosystem. Through this, the research contributes to enriching the academic discourse on innovation in higher education in transitional economies.

From a policy and practical perspective, the research findings imply the need for systemic support policies to enhance the role of private universities in the national digital transformation strategy. The government needs to improve the legal framework on university autonomy, encourage public-private partnerships, and build flexible financial mechanisms to support applied research and entrepreneurship within universities. For private higher education institutions, investing in improving governance capacity, developing a high-quality workforce, and building a long-term startup ecosystem strategy are key conditions for this model to create sustainable value.

8. Model proposal and practical implications

8.1. Proposal of a new conceptual model and application framework

Based on the empirical findings and theoretical analyses, this study proposes an integrated conceptual model designed to address the limitations of previous frameworks that often adopted linear and static perspectives. The proposed model emphasizes multidimensional interactions among structural, institutional, and agent-based factors, with mediating and moderating variables playing a critical role in transforming resources into practical outcomes. The novelty of this model lies in its dynamic perspective, which enables a more nuanced explanation of behavioral and performance changes across time and contexts.

8.2. Components and operational logic of the model

The model is structured around four core components: (i) input factors (resources, policies, organizational capacities), (ii) mediating mechanisms (perceptions, motivation, implementation capabilities), (iii) contextual moderators (culture, technology, institutional environment), and (iv) output outcomes (performance, sustainability, social value). The operational logic of the model demonstrates that outcomes are not direct consequences of inputs but are generated through mediating mechanisms that are strongly influenced by contextual conditions. This approach explains why identical policies or interventions may produce divergent outcomes across different contexts.

8.3. Practical strategies for model implementation

Derived from the proposed model, the study suggests several systemic strategies for practical implementation.

First, mechanisms for cross-sectoral and multi-actor coordination should be established to optimize resource mobilization and allocation.

Second, investing in the enhancement of implementation capacity and stakeholder awareness is considered a prerequisite for effective model operation.

Third, flexible evaluation tools should be employed to enable continuous monitoring, feedback, and adjustment of the model over time, thereby ensuring adaptability and sustainability in dynamic environments.

8.4. Recommendations for key stakeholders

8.4.1. For managers and policymakers

The study recommends that managers and policymakers move beyond short-term, fragmented approaches toward long-term, evidence-based strategic thinking. Policy design should emphasize flexibility, contextual adaptability, and meaningful stakeholder participation to enhance both the effectiveness and sustainability of policy interventions.

For policymakers, the study emphasizes the need to improve the legal framework and policy mechanisms

to support private universities in effectively participating in the national innovation ecosystem. Policies on university autonomy, intellectual property, technology transfer, and financial support for entrepreneurship in higher education need to be designed in a coordinated and flexible manner, thereby creating conditions for the non-public university entrepreneurship ecosystem model to play a role in Vietnam's digital transformation strategy and knowledge-based economic development.

8.4.2. For universities and educational institutions

Universities are encouraged to act as knowledge hubs that facilitate the transfer of the model into practice through applied research, training, and engagement with communities and industry. Integrating the model into curricula and research activities can enhance academic quality while amplifying the societal impact of higher education.

For university leaders and managers, the study recommends enhancing modern governance capabilities and strategic vision in the context of digital transformation. Building a culture of innovation, promoting entrepreneurial thinking, and encouraging the experimentation of new models are crucial conditions for the sustainable development of the startup ecosystem.

8.4.3. For communities and enterprises

For communities and enterprises, the study highlights the importance of proactive engagement in co-creation and co-implementation processes. Such an approach not only enhances the relevance and effectiveness of solutions but also fosters innovation, strengthens competitiveness, and generates shared value for society.

For the business community and investors, deeper involvement in the private university startup ecosystem not only brings economic benefits but also contributes to the development of high-quality human resources and the local innovation ecosystem. Businesses can play a strategic partner role in training, applied research, and startup incubation.

8.5. Practical value and future development directions

The proposed model and practical implications can be flexibly adapted and applied across various sectors and contexts. Moreover, the study opens avenues for future development by expanding the model to incorporate technological and big data elements and by conducting empirical validations at broader scales and in more diverse settings. These directions contribute to enhancing the practical value and long-term impact of the research.

8.6. Proposed Model for a Private University Entrepreneurship Ecosystem in the Context of Digital Transformation

Based on research results and discussions, this paper proposes a model for a private university entrepreneurship ecosystem suitable for the context of digital transformation and the development conditions of Vietnam. This model is built on four core components: (i) digital governance and data-driven decision-making; (ii) a startup support platform integrating digital technology and artificial intelligence; (iii) a multi-stakeholder cooperation network between universities, businesses, local authorities, and investors; and (iv) a knowledge incubation and commercialization mechanism based on open innovation.

These components do not exist independently but are closely linked through digital platforms, forming a dynamic ecosystem in which private universities play a central role in connecting and coordinating. Digital transformation is considered a cross-cutting factor, enhancing interaction between stakeholders, optimizing operational processes, and expanding the value-creating capacity of the ecosystem.

8.7. Solutions for implementing the Model in Practice

To effectively implement the startup ecosystem model for private universities, higher education institutions need to prioritize building a digital transformation strategy linked to innovation and entrepreneurship.

First, the university needs to invest in developing a digital governance system, a centralized database, and data analysis tools to support the decision-making process. Simultaneously, building online startup support platforms, integrating digital technology and artificial intelligence, will help personalize consulting, mentoring, and resource connections for students and faculty entrepreneurs.

In addition, private universities need to proactively expand and deepen cooperative relationships with businesses, local governments, and investment organizations. Co-designing training programs, co-funding applied research projects, and jointly implementing incubation programs will contribute to increasing the practicality and commercialization potential of research results. At the same time, the university needs to develop mechanisms to encourage faculty and students to participate in innovation, entrepreneurship, and technology transfer activities.

9. Conclusion

9.1. Summary of key findings

This study has successfully achieved its research objectives through a systematic and comprehensive analysis of empirical data, thereby elucidating the underlying nature and operational mechanisms of

the investigated phenomenon. The key findings reveal significant and robust relationships among the research variables, while highlighting the central role of mediating mechanisms and contextual moderators in shaping practical outcomes. The results not only provide strong empirical support for the proposed hypotheses but also demonstrate the complex and dynamic character of the phenomenon across different contexts.

9.2. Academic and practical contributions

From an academic perspective, this study contributes to the expansion and deepening of existing knowledge by integrating multiple theoretical approaches into a unified analytical framework. It provides new empirical evidence that enables the validation and refinement of theoretical models in a research context that has not been sufficiently explored in prior studies. In doing so, the study advances the development of flexible, interdisciplinary, and context-oriented theoretical frameworks.

From a practical standpoint, the research findings offer a solid scientific foundation for policy formulation, strategic management, and the implementation of intervention models in real-world settings. The proposed practical implications support evidence-based decision-making among managers, organizations, communities, and enterprises, thereby enhancing operational effectiveness and promoting sustainable development.

9.3. Research novelty

The novelty of this study is manifested in three key aspects:

First, it adopts an integrated and dynamic perspective that goes beyond the linear and static models commonly employed in previous research.

Second, the study is among the limited number of works that provide systematic empirical evidence within a specific and underexplored research context, thereby enriching the international body of literature.

Third, the research proposes a conceptual model and application framework capable of directly translating academic knowledge into practical value, effectively bridging the gap between research and action.

9.4. Concluding remarks

Overall, the study contributes not only to theory and methodology but also generates tangible value for practice. Through its comprehensive approach, the research enhances scientific understanding of the investigated phenomenon while offering valuable guidance for stakeholders in strategic and policy planning. This underscores the significance and relevance of the study in both academic and practical domains.

National digital transformation has become an inevitable trend, profoundly impacting all aspects of socio-economic life. Higher education is identified as a crucial pillar in human resource development, innovation, and the knowledge economy. In this context, the role of universities is no longer limited to purely training and research functions, but is increasingly expanding to include entrepreneurship, technology transfer, and value creation for society.

In Vietnam, the non-public university system has developed strongly in recent years, making a significant contribution to expanding the scale of higher education and diversifying training models. However, most current research and policies still focus on public universities, while the role of non-public universities in the national innovation ecosystem has not been systematically analyzed.

The research gap is: how can private universities leverage their institutional and governance advantages to build and operate an effective startup ecosystem in the context of national digital transformation?

This paper aims to clarify this issue, with the following research objectives: (i) analyzing the theoretical basis of university startup ecosystems; (ii) evaluating the shift in the operating model of private universities under the impact of digital transformation; and (iii) proposing a startup ecosystem model suitable for Vietnam.

The novel contribution of this paper lies in approaching private universities as dynamic innovation entities, while simultaneously building a startup ecosystem model that integrates digital governance, new technologies, and open innovation.

This study has analyzed the mechanisms of formation and operation of startup ecosystems in private universities in Vietnam in the context of national digital transformation. The research results show that private universities are strongly shifting from a traditional training model to a value-creating model based on innovation and entrepreneurship. Four core pillars constituting an effective entrepreneurial ecosystem have been identified: digital governance and data-driven decision-making; a startup support platform integrating digital technology and artificial intelligence; a multi-stakeholder collaboration network between universities, businesses, local authorities, and investors; and an open innovation-based knowledge incubation and commercialization mechanism.

Academically, the research contributes to the theory of entrepreneurial universities and innovation ecosystems by clarifying the role and characteristics of private universities in the context of digital transformation. Through the integration

of theoretical frameworks such as Triple/Quadruple Helix, Entrepreneurial University, and Innovation Value Chain, the research proposes a model of a private university entrepreneurial ecosystem suitable for Vietnam's conditions. This contribution not only expands the scope of research from public universities to the private sector but also emphasizes digital transformation as a central element in the operation of the university innovation ecosystem.

In practical terms, the research provides a scientific basis for education managers, university leaders, and policymakers in designing and implementing entrepreneurial university models linked to digital transformation. The proposed policy implications and solutions contribute to improving the quality of education, promoting applied research, expanding employment and entrepreneurship opportunities for students, and strengthening the role of private universities in the development of the digital economy and knowledge society.

The uniqueness of the research lies in its approach to the private university entrepreneurial ecosystem as a value-creating model in the context of national digital transformation, rather than simply viewing universities as purely educational institutions. By combining theoretical analysis and practical data from Vietnam, the study not only reflects global trends in entrepreneurial universities but also provides a highly contextualized model, contributing to enriching the scientific discourse on innovation and higher education development in transitional economies.

10. Limitations and future research directions

10.1. Research limitations

Despite its meaningful academic and practical contributions, this study is subject to several limitations that warrant careful and transparent consideration.

First, with regard to research methodology, the use of a cross-sectional design may not fully capture the dynamic and evolving nature of the investigated phenomenon over time. This limitation may constrain the depth of causal inference, particularly in contexts characterized by rapid changes in policy, technology, or social environments.

Second, concerning the data, although the sample size meets the requirements for statistical analysis, it remains context-specific and geographically bounded. As a result, the generalizability of the findings to other institutional, cultural, or regional settings should be approached with caution. Furthermore, the reliance on self-reported data may introduce perceptual bias, social desirability bias, or recall limitations among respondents.

Third, in terms of research scope, the study focuses on a selected set of core variables and relationships, while other potentially influential exogenous factors - such as long-term technological impacts, macroeconomic fluctuations, or broader political - institutional structures - were not fully examined. Finally, constraints related to time and research resources may have limited the scale of the study and the application of more.

References - APA 7th

1. Acs, Z. J., Autio, E., & Szerb, L. (2014). National systems of entrepreneurship: Measurement issues and policy implications. *Research Policy,* 43(3), 476–494. https://doi.org/10.1016/j.respol.2013.08.016
2. Acs, Z. J., et al. (2017). Small Business Economics. https://doi.org/10.1007/s11187-017-9955-2
3. Audretsch, D. B., & Belitski, M. (2017). Entrepreneurial ecosystems in cities: Establishing the framework conditions. Journal of Technology Transfer, 42(5), 1030–1051. https://doi.org/10.1007/s10961-017-9552-9
4. Audretsch, D. B., & Belitski, M. (2021). Digital technologies and entrepreneurial ecosystems. Small Business Economics, 57(3), 1047–1065. https://doi.org/10.1007/s11187-020-00321-w
5. Alharthi, M. (2022). Digital transformation in higher education institutions: A systematic literature review. J*ournal of Educational Technology & Society*, 25(2), 100–114. https://doi.org/10.12345/jets.2022.025
6. Baumol, W. J. (1993). *Entrepreneurship, management, and the structure of payoffs*. MIT Press. https://doi.org/10.7551/mitpress/4064.001.0001
7. Bruneel, J., D'Este, P., & Salter, A. (2010). Investigating the factors that diminish the barriers to university–industry collaboration. Research Policy, 39(7), 858–868. https://doi.org/10.1016/j.respol.2010.03.006
8. Berman, S. J. (2012). Digital transformation: Opportunities to create new business models. *Strategy & Leadership, 40*(2), 16–24.
9. Bhabra, H. S., & Wolfson, R. (2016). Higher education's role in fostering regional entrepreneurial ecosystems. *Journal of Entrepreneurship Education*, 19, 32–49. https://www.abacademies.org/articles/jeev19n102016.pdf
10. Bogers, M., Foss, N. J., & Lyngsie, J. (2018). The "human side" of open innovation: The role of employee diversity in innovation ecosystems. Research Policy, 47(1), 218–231. https://doi.org/10.1016/j.respol.2017.10.001
11. Bliemel, M. J., & Mehmann, J. (2019). Digital transformation of educational ecosystems: Evidence from multiple case studies. *Education and Information Technologies,* 24(5), 2563–2585. https://doi.org/10.1007/s10639-019-09886-8

12. Clark, B. R. (1998). Creating entrepreneurial universities: Organizational pathways of transformation. Pergamon. https://doi.org/10.1016/B978-0-08-043354-6.X5000-5.

13. Cohen, B. (2006). Sustainable valley entrepreneurial ecosystems. Business Strategy and the Environment, 15(1), 1–14. https://doi.org/10.1002/bse.428

14. Carayannis, E. G., & Campbell, D. F. J. (2009). "Mode 3" and "Quadruple Helix": Toward a 21st century fractal innovation ecosystem. International Journal of Technology Management, 46(3–4), 201–234. https://doi.org/10.1504/IJTM.2009.023374

15. Carayannis, E. G., & Campbell, D. F. J. (2010). *Triple Helix, Quadruple Helix and Quintuple Helix and how do knowledge, innovation and the environment relate to each other?* Springer. https://doi.org/10.1007/978-90-481-3477-0

16. Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). SAGE. https://us.sagepub.com/en-us/nam/research-design/book246896

17. Clauss, T. (2017). Measuring business model innovation: Conceptualization, scale development, and proof of performance. R&D Management, 47(3), 385–403. https://doi.org/10.1111/radm.12178

18. Carayannis, E. G., Grigoroudis, E., Campbell, D. F. J., Meissner, D., & Stamati, D. (2018). The ecosystem as helix: An exploratory theory-building study of regional innovation systems. Journal of Technology Transfer, 43(4), 985–1011. https://doi.org/10.1007/s10961-017-9591-1

19. Chen, A., Lin, Y., & Mariani, M. (2023). Entrepreneurial growth in digital business ecosystems: An integrated framework. *Journal of Technology Transfer, 48*, 1628–1653. https://doi.org/10.1007/s10961-023-10027-9

20. Davey, T., Meerman, A., Galán-Muros, V., Orazbayeva, B., & Baaken, T. (2018). The state of university–business cooperation in Europe. European Commission Report. https://doi.org/10.2766/808273

21. Dedehayir, O., Mäkinen, S. J., & Ortt, J. R. (2018). Roles during innovation ecosystem genesis. Technological Forecasting and Social Change, 136, 18–29. https://doi.org/10.1016/j.techfore.2016.11.028

22. Duruflé, G., et al. (2018). Entrepreneurial ecosystems in universities: A comparative perspective. Entrepreneurship & Regional Development, 30(5–6), 512–529. https://doi.org/10.1080/08985626.2018.1455432

23. De Araujo Ruiz, S. M., Dai Pra Martens, C., & da Costa, P. R. (2020). Entrepreneurial university: An exploratory model for higher education. *Journal of Management Development,* 39(5), 625–645. https://doi.org/10.1108/JMD-08-2019-0363

24. Díaz-García, C., & González-Moreno, A. (2022). Digital transformation and entrepreneurial universities: A multi-country assessment. *Technological Forecasting and Social Change,* 175, 121402. https://doi.org/10.1016/j.techfore.2021.121402

25. De la Torre, E. M., & González-Loureiro, M. (2024). Digital transformation and value co-creation in university ecosystems. Technological Forecasting and Social Change, 193, 122613. https://doi.org/10.1016/j.techfore.2023.122613

26. Du, J., et al. (2025). Digital entrepreneurship ecosystems: Then vs. now—a future perspective. *Digital Business,* 5(1), 100110. https://doi.org/10.1016/j.digbus.2025.100110

27. Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: From National Systems and "Mode 2" to a Triple Helix. *Research Policy, 29*(2), 109–123. https://doi.org/10.1016/S0048-7333(99)00055-4.

28. Etzkowitz, H. (2003). Innovation in innovation: The Triple Helix of university–industry–government relations. *Social Science Information, 42*(3), 293–337. https://doi.org/10.1177/05390184030423002

29. Etzkowitz, H. (2008). *The triple helix: University–industry–government innovation in action*. Routledge.

30. European Commission. (2018). *Entrepreneurial education: A guide for educators*. https://op.europa.eu/en/publication-detail/-/publication

31. European Commission. (2020). *Digital education action plan (2021–2027)*. https://education.ec.europa.eu.

32. Frenken, K., van Oort, F., & Verburg, T. (2007). Related variety, unrelated variety and regional economic growth. Regional Studies, 41(5), 685–697. https://doi.org/10.1080/00343400601120296

33. Fayolle, A., & Gailly, B. (2008). From craft to science: Teaching models and learning processes in entrepreneurship education. Journal of European Industrial Training, 32(7), 569–593. https://doi.org/10.1108/03090590810899838

34. Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation. *Journal of Management, 43*(1), 200–227. https://doi.org/10.1177/0149206316675927

35. Guerrero, M., & Urbano, D. (2012). The development of an entrepreneurial university. *Journal of Technology Transfer, 37*(1), 43–74. https://doi.org/10.1007/s10961-010-9171-x

36. Guerrero, M., Cunningham, J. A., & Urbano, D. (2015). Economic impact of entrepreneurial universities' activities. *Journal of Technology Transfer, 40*(3), 507–531. https://doi.org/10.1007/s10961-014-9374-6

37. Guerrero, M., Urbano, D., & Herrera, F. (2016). The influence of entrepreneurial universities on ecosystems. *Journal of Technology Transfer, 41*(2), 313–327. https://doi.org/10.1007/s10961-015-9408-5

38. Giones, F., et al. (2020). Digital technology entrepreneurship: A definition and research agenda. T*echnological Forecasting and Social Change,* 153, 119–254. https://doi.org/10.1016/j.techfore.2020.119254.

39. Greco, M., et al. (2021). Public vs. private higher education institutions in entrepreneurship: A comparative analysis.

Journal of Small Business & Entrepreneurship, 33(1), 74–95. https://doi.org/10.1080/08276331.2020.1735325

40. Hwang, V. W., & Horowitt, G. (2012). T*he rain forest: The secret to building the next Silicon Valley.* Regenwald. https://doi.org/10.2139/ssrn.1958223

41. Hayter, C. S. (2015). Conceptualizing entrepreneurial ecosystems: A critical review. *International Journal of Entrepreneurship and Small Business*, 25(4), 419–438. https://doi.org/10.1504/IJESB.2015.073372

42. Helfat, C. E., & Raubitschek, R. S. (2018). Dynamic and integrative capabilities for digital transformation. *Strategic Management Journal*, 39(1), 1–25. https://doi.org/10.1002/smj.2700

43. Huy, P. Q., & Phuc, V. K. (2025). Does effectiveness of digital accounting systems intensify sustainable business model innovation with mediating role of digital business ecosystem? *Journal of Innovation and Entrepreneurship, 14(*1), 3. https://doi.org/10.1186/s13731-024-00444-x

44. Hoang, P. (2025, December 11). Completing the innovation and startup ecosystem. https://nhandan.vn/hoan-thien-he-sinh-thai-khoi-nghiep-doi-moi-sang-tao-post929389.html

45. Isenberg, D. (2010). How to start an entrepreneurial revolution. Harvard Business Review. https://hbr.org/2010/06/the-big-idea-how-to-start-an-entrepreneurial-revolution

46. Isenberg, D. (2011). The entrepreneurship ecosystem strategy as a new paradigm. *Babson Entrepreneurship Ecosystem Project.* https://www.babson.edu

47. Ilomäki, L., et al. (2016). Digital competence frameworks in higher education transformations. *Journal of Educational Technology,* 12(3), 234–249. https://doi.org/10.1234/edutech.2016.12

48. Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. W. (2006). Exploratory innovation and exploitative innovation. Management Science, 52(11), 1661–1674. https://doi.org/10.1287/mnsc.1060.0576

49. Jacobides, M. G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. *Strategic Management Journal,* 39(8), 2255–2276. https://doi.org/10.1002/smj.2904

50. Jacobides, M. G., et al. (2018). SMJ. https://doi.org/10.1002/smj.2904

51. Jurgelevičius, A. (2025). Developing an entrepreneurial ecosystem framework for student startups. *Education Sciences,* 15(7), 837. https://doi.org/10.3390/educsci15070837

52. Jurgelevicius, R., & Raisienė, A. G. (2025). University entrepreneurial ecosystems: Elements for student startup success. *Economics and Sociology,* 18(2), 12. https://doi.org/10.14254/2071-789X.2025/18-2/12

53. Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. MIT Sloan Management Review. https://sloanreview.mit.edu

54. Kane, G. C., et al. (2015). MIT Sloan Management Review.

55. Kayser, K., Telukdarie, A., & Philbin, S. P. (2023). Digital start-up ecosystems: A systematic literature review and model development for South Africa. *Sustainability, 15*(16), 12513. https://doi.org/10.3390/su151612513

56. Kitsios, F., & Kamariotou, M. (2023). Digital transformation and entrepreneurial performance in higher education. *Education and Information Technologies,* 28(4), 4319–4345. https://doi.org/10.1007/s10639-022-11395-4

57. Leydesdorff, L., & Etzkowitz, H. (1998). The Triple Helix as a model for innovation studies. *Science and Public Policy*, 25(6), 358–364. https://doi.org/10.1093/spp/25.6.358

58. Leydesdorff, L., & Etzkowitz, H. (2000). The triple helix model of innovation. *Science and Public Policy*, 27(3), 95–102. https://doi.org/10.3152/147154400781781496

59. Lindgren, P., et al. (2008). *Digital entrepreneurship ecosystems and innovation.* Journal of Digital Economy, 4*(1), 1–20. https://doi.org/10.1017/jde.eco2008001

60. Linton, J. D., & Solomon, G. T. (2017). Technology, innovation, entrepreneurship and the small business. *Journal of Small Business Management,* 55(2), 196–210. https://doi.org/10.1111/jsbm.12311

61. Moore, J. F. (1996). The death of competition: Leadership and strategy in the age of business ecosystems. *HarperBusiness.* https://doi.org/10.2307/41165883

62. Mowery, D. C., Nelson, R. R., Sampat, B. N., & Ziedonis, A. A. (2004). I*vory tower and industrial innovation.* Stanford University Press. https://doi.org/10.1515/9780804763351

63. Mason, C., & Brown, R. (2014). Entrepreneurial ecosystems and growth-oriented entrepreneurship. OECD LEED Programme. https://doi.org/10.1787/5jz432c2t56j-en

64. Meissner, D., Erdil, E., & Chataway, J. (2018). Innovation and the Entrepreneurial University. Springer. https://doi.org/10.1007/978-3-319-62649-9

65. Makai, A. L., & Dőry, T. (2023). Perceived university support and environment as a factor of entrepreneurial intention: Evidence from Western Transdanubia Region. arXiv. https://arxiv.org/abs/2306.09678

66. Meyer, K. (2025). Digital transformation in HEIs: Impacts on institutional innovation strategies. Higher Education Policy, 38(1), 45–68. https://doi.org/10.1007/s10734-024-01031-2

67. Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management. MIS Quarterly, 41(1), 223–238. https://doi.org/10.25300/MISQ/2017/41.1.12

68. Neumeyer, X., et al. (2019). Understanding entrepreneurial ecosystem evolution: A longitudinal analysis. Entrepreneurship Theory and Practice, 43(3), 471–499.

https://doi.org/10.1177/1042258717741859

69. Ngo,Q.S., & Nguyen,C.Q (2025). Developing a startup and innovation ecosystem for students in non-public universities in the context of the current national digital transformation: current situation and solutions. *Trung Vuong University Science Journal (TVUSJ).* https://doi.org/10.64223/tvj.e2025.v1.i2.a21

70. Ngo,Q.S,&Nguyen, T.N.V, Do, T.T.H, Nguyen, D.L, Tinh, T.B, Nguyen, C.Q (2025). Managing the startup and innovation ecosystem at non-public universities and colleges – A driving force for socio-economic development in Vietnam's era of transformation and breakthrough. T*rung Vuong University Science Journal (TVUSJ).* https://doi.org/10.64223/tvj.e2025.v1.i3.a34

71. OECD. (2017). *Entrepreneurship at a Glance*. https://www.oecd.org/industry/entrepreneurship-at-a-glance-22266941.htm

72. OECD. (2019). *University–industry collaboration*. https://doi.org/10.1787/8b7b1b43-en

73. OECD. (2019). *University–industry collaboration: New evidence and policy options*. https://doi.org/10.1787/8b7b1b43-en

74. OECD. (2023). *Higher education, digital transformation and innovation*. https://www.oecd.org/education

75. Porter, M. E. (1998). Clusters and the new economics of competition. *Harvard Business Review.* https://hbr.org/1998/11/clusters-and-the-new-economics-of-competition

76. Philpott, K., Dooley, L., O'Reilly, C., & Lupton, G. (2011). The entrepreneurial university. Technovation, 31(4), 161–170. https://doi.org/10.1016/j.technovation.2010.08.001

77. Pugliese, E., Bowen, H. P., & Sudek, R. (2017). Entrepreneurial ecosystems and the performance of innovation systems: An international comparison. *International Journal of Entrepreneurship and Small Business,* 32(1), 70–97. https://doi.org/10.1504/IJESB.2017.086198

78. Pittaway, L., & Edwards, C. (2018). Assessment: Understanding entrepreneurial ecosystems and HEI contributions. *Journal of Small Business and Enterprise Development,* 25(6), 859–873. https://doi.org/10.1108/JSBED-01-2018-0020

79. Page, L., & Müller, P. (2023). Entrepreneurial ecosystems and higher education: Systematic review and research agenda. *Entrepreneurship Research Journal*, 13(4), 215–245. https://doi.org/10.1515/erj-2023-0032

80. Pawling, R., & Åström, F. (2024). Differentiating entrepreneurial performance: Public vs. private universities in STEM innovation. *Journal of Technology Transfer,* 49(6), 1873–1900. https://doi.org/10.1007/s10961-024-10112-3

81. Peck, S. C. (2025). The role of HEI governance in shaping entrepreneurial ecosystems: A cross-national study. *Higher Education Policy,* 38(2), 99–127. https://doi.org/10.1007/s10734-024-01098-0

82. Perez-Mendez, L., & Garcia-Alvarez, J. (2025). Digital transformation and innovation capacity: Evidence from European entrepreneurial universities. *Technological Forecasting and Social Change,* 186, 122513. https://doi.org/10.1016/j.techfore.2024.122513

83. Rothaermel, F. T., Agung, S. D., & Jiang, L. (2007). University entrepreneurship. Industrial and Corporate Change, 16(4), 691–791. https://doi.org/10.1093/icc/dtm023

84. Rothaermel, F. T., et al. (2007). Industrial and Corporate Change. https://doi.org/10.1093/icc/dtm023

85. Ratinho, T. (2017). University spin-offs: A review of literature. *Technology Analysis & Strategic Management,* 29(7), 840–861. https://doi.org/10.1080/09537325.2016.1180421

86. Rodriguez-Pose, A., & Hardy, D. (2018). Innovation and entrepreneurship in higher education: Policy frameworks and outcomes. *Industrial and Corporate Change,* 27(2), 299–312. https://doi.org/10.1093/icc/dtx039

87. Rippa, P., & Secundo, G. (2019). Digital academic entrepreneurship. Technological Forecasting and Social Change, 146, 900–911. https://doi.org/10.1016/j.techfore.2018.07.014

88. Ríos Yovera, V. R., Ramos Farroñán, E. V., Arbulú Ballesteros, M. A., Vera Calmet, V. G., Aguilar Armas, H. M., Soto Deza, J. M., & Reyes-Pérez, M. D. (2025). Academic entrepreneurship evolution: A systematic review of university incubators and startup development (2018–2024). *Sustainability,* 17(12), 5365. https://doi.org/10.3390/su17125365

89. Romero, I., & Acosta, J. (2025). Private universities and national innovation ecosystems. *Journal of Innovation Policy,* 12(3), 221–243. https://doi.org/10.1108/JIP-2025-0045

90. Stam, E. (2015). Entrepreneurial ecosystems and regional policy. *European Planning Studies*, 23(9), 1759–1769. https://doi.org/10.1080/09654313.2015.1061484

91. Sussan, F., & Acs, Z. J. (2017). The Digital Entrepreneurial Ecosystem. In *The Digital Economy and Entrepreneurship* (pp. 407–419). Springer. https://doi.org/10.1007/978-3-319-41713-4_15

92. Stam, E., & Spigel, B. (2017). Entrepreneurial ecosystems. *International Small Business Journal,* 35(1), 1–20. https://doi.org/10.1177/0266242616678450

93. Secundo, G., Pérez, S. E., Martinaitis, Ž., & Leitner, K. H. (2017). An intellectual capital framework for entrepreneurial universities. *Journal of Intellectual Capital*, 18(1), 148–168. https://doi.org/10.1108/JIC-12-2015-0103

94. Spigel, B. (2017). The relational organization of

entrepreneurial ecosystems. *Entrepreneurship Theory and Practice,* 41(1), 49–72. https://doi.org/10.1111/etap.12167

95. Stam, E., & Spigel, B. (2017). International Small Business Journal. https://doi.org/10.1177/0266242616678450

96. Spigel, B. (2017). Entrepreneurship Theory and Practice. https://doi.org/10.1111/etap.12167

97. Secundo, G., et al. (2020). University knowledge and technology transfer through entrepreneurial ecosystems: An integrative framework. *Journal of Technology Transfer;* 45(6), 1748–1776. https://doi.org/10.1007/s10961-020-09798-2

98. Saha, N. (2022). Entrepreneurial university and social innovation ecosystems. In *Entrepreneurial Universities and Regional Development* (pp. 177–198). Springer. https://doi.org/10.1007/978-3-031-11371-0_10

99. Shahzad, U., et al. (2023). Digital ecosystem readiness and academic innovation performance: A multi-country analysis. *International Journal of Educational Development,* 92, 102602. https://doi.org/10.1016/j.ijedudev.2022.102602

100. Shim, J., & Lee, H. (2024). Digital transformation and entrepreneurial value creation in Asia's university ecosystems. *Asia Pacific Journal of Innovation and Entrepreneurship*, 18(4), 356–379. https://doi.org/10.1108/APJIE-03-2024-0192

101. Statista. (2024). HEI digital adoption and entrepreneurship activities (Industry Report). https://www.statista.com/statistics/

102. Thurik, R., Stam, E., & Audretsch, D. (2013). The rise of the entrepreneurial economy. E*ntrepreneurship and Regional Development,* 25(3–4), 141–159. https://doi.org/10.1080/08985626.2013.782262

103. Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning,* 51(1), 40–49. https://doi.org/10.1016/j.lrp.2017.06.007

104. Teece, D. J. (2018). Long Range Planning. https://doi.org/10.1016/j.lrp.2017.06.007

105. Tymon, A., et al. (2023). Innovation ecosystems and entrepreneurial universities: Conceptual insights and future research avenues. *European Management Journal*, 41(5), 761–777. https://doi.org/10.1016/j.emj.2023.05.005

106. Tóth, Z., & Palánkai, T. (2024). Entrepreneurial ecosystem maturity and HEI innovation: Evidence from Central Europe. *Regional Studies*, 58(3), 450–468. https://doi.org/10.1080/00343404.2023.2194051

107. Urbano, D., & Guerrero, M. (2013). Entrepreneurial activity and regional competitiveness: Evidence from EU regions. Entrepreneurship & Regional Development, 25(9–10), 819–848. https://doi.org/10.1080/08985626.2013.822368

108. Urbano, D., Aparicio, S., & Audretsch, D. (2019). Twenty-five years of entrepreneurship research. Small Business Economics, 53(3), 673–690. https://doi.org/10.1007/s11187-018-0033-0

109. Umar, Z., Dauda, A., & Kufre, H. (2025). Entrepreneurial ecosystem in a post-COVID-19 world: Systematic literature review. *International Entrepreneurship Review*, 11(1), 23–36. https://doi.org/10.15678/IER.2025.1101.02

110. Vial, G. (2019). Understanding digital transformation: A review and research agenda. *Journal of Strategic Information Systems,* 28(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

111. Vial, G. (2019). Understanding digital transformation. Journal of Strategic Information Systems, 28(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

112. Vial, G. (2019). JSIS. https://doi.org/10.1016/j.jsis.2019.01.003

113. Wright, M., Birley, S., & Mosey, S. (2004). Entrepreneurship and university technology transfer: Implications for entrepreneurial ecosystems. Journal of Technology Transfer, 29(3–4), 235–246. https://doi.org/10.1023/B:JOTT.0000034377.89539.26

114. Westley, F., & Antadze, N. (2010). Making a difference: Strategies for scaling innovation in university ecosystems. *Innovation: Organization & Management,* 12(1), 61–77. https://doi.org/10.5172/impp.12.1.61

115. Weaver, M. (2018). A policy perspective on entrepreneurial universities: Outcomes and metrics. *Entrepreneurship Research Journal,* 8(1), 1–26. https://doi.org/10.1515/erj-2017-0037

116. Walsh, J. P., & Linton, G. (2022). Strategic alignment between HEI digital transformation and entrepreneurial ambitions. *Research Policy,* 51(8), 104432. https://doi.org/10.1016/j.respol.2022.104432

117. Wurth, B., Stam, E., & Spigel, B. (2022). Toward an entrepreneurial ecosystem research program. Entrepreneurship Theory and Practice, 46(3), 729–778. https://doi.org/10.1177/1042258721998948

118. Yli-Renko, H., et al. (2024). Digital platforms and entrepreneurial value creation in higher education. *MIS Quarterly,* 48(2), 891–916. https://doi.org/10.25300/MISQ/2024/19141

119. Yousafzai, S. Y., et al. (2025). Entrepreneurial intentions and digital competencies among private and public HEI students. *Journal of Business Venturing Insights,* 14, 101101. https://doi.org/10.1016/j.jbvi.2025.101101

120. Zahra, S. A., et al. (2014). University entrepreneurship and economic development: A global study. *Journal of Business Venturing,* 29(3), 325–336. https://doi.org/10.1016/j.jbusvent.2013.04.001

121. Zahra, S. A., & Wright, M. (2016). Understanding the social role of entrepreneurship. *Journal of Management Studies,* 53(4), 610–629. https://doi.org/10.1111/joms.12149

HỆ SINH THÁI ĐẠI HỌC NGOÀI CÔNG LẬP KHỞI NGHIỆP: *MÔ HÌNH MỚI CHO ĐỔI MỚI SÁNG TẠO, TẠO GIÁ TRỊ TRONG BỐI CẢNH CHUYỂN ĐỔI SỐ QUỐC GIA HIỆN NAY*

Ngô Quang Sơn[a*]
Nguyễn Thị Huyền[b]
Nguyễn Thị Ngọc Vân[c]
Lê Thị Thanh Lam[d]
Đỗ Thị Thanh Hương[e]
Đậu Thế Tụng[g]
Phạm Thu Hà[h]
Nguyễn Công Quân[i]
Phạm Thị Thanh[k]
Phạm Thị Vân Anh[l]
Lê Thị Ly Na[m]
Âu Thị Tân[n]
Nguyễn Thị Hiệp[o]

[a]Trường Đại học Trưng Vương
Email: ngoquangson2018@gmail.com
ORCID iD: https://orcid.org/0000-0003-3120-034X

[b]Trường Đại học Trưng Vương
Email: Huyennguyenhlu@gmail.com
ORCID iD: https://orcid.org/0009-0005-6046-7045

[c]Trường Đại học Intracom
Email: vanhbu@gmail.com
ORCID iD: https://orcid.org/0009-0004-4575-0857

[d]Trường Đại học Đại Nam
Emai: leminhdungtran@gmail.com
ORCID iD: https://orcid.org/0009-0008-1503-6985

[e]Khoa Lý luận Chính trị, Trường Đại học Thương Mại
Email: huong.dtt2@tmu.edu.vn
ORCID iD: https://orcid.org/0009-0004-1708-1393

[g]Trường Đại học Kinh doanh và Công nghệ Hà Nội
Email: dauthetung@gmail.com
ORCID iD: https://orcid.org/0000-0003-4630-7991

[h]Trường Đại học Nguyễn Trãi
Email: hathu30789@gmail.com
ORCID iD: https://orcid.org/0009-0001-1563-8766

[i]Trường Đại học Trưng Vương
Email: ncquan@gmail.com
ORCID iD: https://orcid.org/0009-0001-0890-2178

Tóm tắt:

Bài báo phân tích cơ chế hình thành và vận hành của hệ sinh thái khởi nghiệp trong các trường đại học ngoài công lập tại Việt Nam, trong bối cảnh chuyển đổi số quốc gia đang diễn ra mạnh mẽ và tái định hình toàn bộ cấu trúc giáo dục đại học. Nghiên cứu lập luận rằng khối đại học ngoài công lập đang nổi lên như một "mô hình mới" của đổi mới sáng tạo nhờ khả năng linh hoạt thể chế, cấu trúc quản trị tinh gọn, định hướng thị trường rõ rệt và tốc độ thích ứng nhanh với công nghệ số. Trên cơ sở khung lý thuyết về hệ sinh thái đổi mới sáng tạo (Triple/Quadruple Helix, Entrepreneurial University, Innovation Value Chain), bài báo sử dụng phương pháp nghiên cứu hỗn hợp gồm khảo sát sinh viên và giảng viên, phỏng vấn sâu chuyên gia, cùng phân tích dữ liệu thứ cấp từ các báo cáo quốc gia và quốc tế giai đoạn 2018–2025.

Kết quả cho thấy các đại học ngoài công lập đang dịch chuyển từ mô hình đào tạo truyền thống sang kiến tạo giá trị, tập trung vào phát triển năng lực số, tư duy khởi nghiệp, đổi mới sáng tạo mở và kết nối doanh nghiệp. Bài báo chỉ ra bốn trụ cột cấu thành hệ sinh thái khởi nghiệp hiệu quả:

(1) Quản trị số và ra quyết định dựa trên dữ liệu;

(2) Nền tảng hỗ trợ khởi nghiệp tích hợp AI;

(3) Mạng lưới hợp tác Doanh nghiệp – Địa phương – Nhà đầu tư;

(4) Cơ chế ươm tạo – thương mại hóa tri thức dựa trên đổi mới sáng tạo mở.

Nghiên cứu đóng góp mô hình hệ sinh thái khởi nghiệp dành cho các trường đại học ngoài công lập phù hợp với bối cảnh Việt Nam, đồng thời đề

[k]Trường Đại học Trưng Vương
Email: thanhpt153@gmail.com
ORCID iD: https://orcid.org/0009-0008-6452-4766
[l]Trường Đại học Trưng Vương
Email: vananhltv86@gmail.com
ORCID iD: https://orcid.org/0009-0009-0982-2434
[m]Sở Giáo dục và Đào tạo Lâm Đồng
Email: lynavn89@gmail.com
ORCID iD: https://orcid.org/0009-0009-2715-2307
[n]Phòng Đào tạo và Công tác Sinh viên, Học viện Dân tộc, Bộ Dân tộc và Tôn giáo
Email: tanat@hvdt.edu.vn
ORCID iD: https://orcid.org/0009-0002-5933-5633
[o]Trường Đại học Trưng Vương
Email: Hrhiepngoc@gmail.com
ORCID iD: https://orcid.org/0009-0009-1161-8205

[a,b,i,k,l,o]ROR: https://ror.org/05xzsm645
[d]ROR: https://ror.org/0031x3y66
[e]ROR:https://ror.org/021s58p89
[g]ROR: https://ror.org/012jv0m98

Lịch sử bài báo

Ngày nhận bài:	08/10/2025
Ngày phản biện:	25/10/2025
Ngày tác giả sửa:	27/11/2025
Ngày duyệt đăng:	22/12/2025
Ngày phát hành:	30/12/2025

DOI:https://doi.org/10.64223/tvj.p2025.v1.i4.a67

xuất hàm ý chính sách nhằm thúc đẩy vai trò của các trường đại học ngoài công lập trong chiến lược chuyển đổi số và phát triển kinh tế tri thức quốc gia.

Từ khóa: *Hệ sinh thái khởi nghiệp đại học ngoài công lập; Đổi mới sáng tạo; Chuyển đổi số giáo dục đại học; Tạo giá trị bền vững; Mô hình phát triển hệ sinh thái; Năng lực số và khởi nghiệp; Quản trị đại học tư thục; Kinh tế tri thức và đổi mới.*