DEVELOPMENT OF THE INNOVATION AND STARTUP ECOSYSTEM IN VIETNAM: THE ROLE OF GOVERNMENT AND THE PRIVATE SECTOR

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Abstract: ***Vietnam's innovation and startup ecosystem has expanded in recent years, as reflected in improved global innovation rankings and increased startup activity. This paper examines the development of the ecosystem in Vietnam, with a focus on the complementary roles of government and the private sector. Based on qualitative synthesis of policy documents and reliable secondary data, the study identifies key enabling factors and structural constraints. The findings indicate that state-led institutional building has supported early-stage ecosystem formation, while growth remains constrained by limited scale-up finance, weak university–industry linkages, and uneven private-sector engagement. The paper discusses policy implications aimed at improving regulatory coherence, mobilizing long-term innovation finance, and strengthening public–private coordination to support sustainable ecosystem development.***

• Keywords: *government role; innovation ecosystem; private sector; startups; Vietnam.*

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1. Introduction

Innovation-led growth has become increasingly important for Vietnam's efforts to move beyond factor-driven development and enhance competitiveness in a volatile global economic environment. In recent years, the government has promoted entrepreneurship and innovation through national programs, institutional reforms, and the establishment of dedicated coordination mechanisms. These initiatives have contributed to greater ecosystem visibility and a rise in early-stage startup formation. However, the transition from startup creation to sustainable scaling remains constrained by limited growth-stage financing, fragmented policy implementation, and weak commercialization of research outcomes.

While existing literature and comprehensive reports from international organizations such as the World Bank, OECD, and the National Innovation Center (NIC) have provided extensive mappings of Vietnam's startup landscape and policy frameworks, most tend to focus on descriptive status updates or independent evaluations of state-led initiatives. There remains a significant scholarly gap in understanding the dynamic complementarity between government interventions and private sector engagement. This paper departs from traditional descriptive approaches by analyzing the ecosystem through the lens of institutional synergy. It shifts the focus from merely listing infrastructure and legal documents to evaluating how public policies catalyze private investment and, conversely, how private sector dynamics necessitate regulatory evolution. By examining this reciprocal relationship, the study offers a more nuanced perspective on the structural bottlenecks and provides a strategic roadmap for a self-sustaining innovation ecosystem in Vietnam.

2. Literature Review and Analytical Framework

The concept of the "startup ecosystem" and "innovation ecosystem" has appeared frequently in management and economics research since the early 21st century. The theoretical foundation of this topic is based on the national innovation system theory of Freeman (1987) and Lundvall (1992), which emphasizes the interactive roles of key actors: the state, businesses, and academia. Following that, Etzkowitz & Leydesdorff's (2000) Triple Helix model describes the close relationship between government, industry, and universities in promoting

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innovation. According to this model, the government creates the environment and rules of the game and can directly invest in R&D; the private sector is at the center of technology commercialization and innovation; and research institutes/universities provide knowledge and human resources. An effective innovation ecosystem often forms where these three helices are tightly interconnected and support each other.

More recent literature introduces the concept of startup ecosystems as networks of entrepreneurs, investors, support organizations, markets, and regulatory environments that jointly influence startup creation and growth (Isenberg, 2010). Empirical studies identify core ecosystem components, including access to finance, human capital, supportive regulation, infrastructure, and entrepreneurial culture. While this body of work provides important insights, much of the evidence is drawn from advanced economies and tends to emphasize market-driven dynamics, with relatively limited attention to the specific role of government in emerging contexts.

In developing and transition economies, government involvement often plays a more prominent role in shaping innovation and startup ecosystems. Studies on East Asian economies suggest that state-led coordination, public investment, and targeted policy support can facilitate ecosystem formation, particularly in early stages when private capital and institutional capacity remain limited (OECD, 2020). At the same time, the literature also cautions that fragmented governance or excessive administrative intervention may constrain private initiative and weaken market incentives. This suggests that ecosystem performance depends less on the scale of government intervention and more on how effectively public actions complement private-sector dynamics.

Vietnam-related studies generally acknowledge notable progress in startup activity since the mid-2010s, driven by national support programs and improvements in the business and digital environment (World Bank, 2024). Existing research highlights the government's role in establishing early-stage support mechanisms, enhancing institutional visibility, and promoting entrepreneurship. However, these studies consistently point to structural challenges, including weak university–industry linkages, limited domestic venture capital, regulatory rigidity, and low commercialization of research outcomes. Most analyses focus on individual constraints or policy instruments, rather than examining the interaction between government and private-sector roles in a systematic manner.

Comparative international research indicates that successful innovation ecosystems typically exhibit a functional division of roles, whereby governments focus on institutional quality, coordination, and long-term investment, while the private sector drives experimentation, investment selection, and market expansion (Mazzucato, 2018). When these roles are misaligned, ecosystems may experience high startup entry but weak scaling performance, or strong policy presence without sustained private investment. This pattern is increasingly relevant for Vietnam, where early-stage ecosystem indicators have improved more rapidly than scale-up outcomes.

Despite a growing body of literature on Vietnam's innovation and startup ecosystem, two gaps remain. First, existing studies often describe government and private-sector roles without sufficiently analyzing their interaction effects. Second, there is limited synthesis linking ecosystem outcomes to the alignment between state-led enabling mechanisms and private-sector-driven innovation and investment. Addressing these gaps is essential for understanding the imbalance between ecosystem expansion and sustainable growth.

To address these issues, this study adopts an analytical framework that conceptualizes the innovation and startup ecosystem as an interaction between two core role clusters: (i) the government's enabling and coordinating role, encompassing policy design, institutional infrastructure, and public investment; and (ii) the private sector's driving role, including entrepreneurship, venture investment, corporate innovation, and market formation. Ecosystem performance is assessed through observable outcomes such as startup formation, investment dynamics, and international competitiveness indicators. This framework provides a structured basis for analyzing how role alignment between government and private actors shapes the development of Vietnam's innovation and startup ecosystem.

3. Research Methodology

This study employs a qualitative research approach combined with descriptive statistical analysis to examine the development of Vietnam's innovation and startup ecosystem, with particular

attention to the respective roles of the government and the private sector.

Secondary data are collected from authoritative domestic and international sources for the period 2021–2024. These include the Global Innovation Index (GII) reports published by the World Intellectual Property Organization (WIPO), global startup ecosystem rankings by StartupBlink, national reports on innovation and startup investment issued by the National Innovation Center (NIC), and official statistics from the General Statistics Office of Vietnam. Together, these sources provide a consistent and reliable basis for assessing ecosystem performance and Vietnam's international positioning.

Regarding analytical methods, qualitative synthesis is applied to review key government policies, legal documents, and national programs related to startup development, such as Project 844 and the Law on Support for Small and Medium Enterprises. This approach helps clarify the government's role in institutional formation and ecosystem coordination. Descriptive statistical analysis is used to examine indicators, including the number of startups, venture capital investment flows, and international rankings, thereby illustrating the private sector's role in driving entrepreneurial activity and market-oriented innovation.

The analytical framework of the study draws on the National Innovation System approach and the Triple Helix perspective, which emphasize interactions among the state, enterprises, and universities or research institutions. This framework supports a systematic assessment of role alignment within the ecosystem, facilitates the identification of key structural constraints, and provides a coherent basis for the policy implications discussed in subsequent sections.

4. Results and Discussion

4.1. Overall development of Vietnam's innovation and startup ecosystem

The indicators reported in Table 1 indicate a notable expansion of Vietnam's innovation and startup ecosystem during the period 2021–2024. The number of innovative startups increased from approximately 1,600 in 2021 to around 4,000 by 2024, reflecting sustained entrepreneurial momentum and the expansion of early-stage ecosystem activity. This trend suggests that institutional support mechanisms and startup promotion programs have contributed to reducing entry barriers and encouraging new venture formation.

By contrast, venture capital investment shows a more volatile and downward pattern. Total investment declined sharply from USD 1,442 million in 2021 to USD 634 million in 2022 and continued to decrease in subsequent years, reaching approximately USD 460 million in the first nine months of 2024. A similar decline is observed in the number of investment deals. These developments reflect both global capital market uncertainty and structural vulnerabilities within Vietnam's ecosystem, particularly its strong dependence on external funding sources and the limited availability of domestic growth-stage capital.

Vietnam's Global Innovation Index (GII) ranking remained relatively stable during the period, fluctuating between 44th and 48th place. This stability indicates that the country has broadly maintained its institutional and innovation capacity despite external economic shocks. However, the StartupBlink ecosystem ranking shows only modest variation and lacks a clear upward trend, suggesting that improvements in institutional readiness have not yet translated into significant gains in ecosystem depth or international competitiveness.

Notably, the number of unicorn startups remained unchanged at two throughout the period. This outcome highlights the persistent gap between rapid ecosystem expansion in terms of startup numbers and limited scaling outcomes. Taken together, the indicators in Table 1 suggest that Vietnam's innovation and startup ecosystem has primarily expanded in breadth, while challenges related to capital depth, scale-up capacity, and global positioning remain substantial.

Table 1 summarizes key indicators reflecting the development of Vietnam's innovation and startup ecosystem during the 2021-2024 period

Indicator	2021	2022	2023	2024
Number of innovative startups	~1.600	~3.000	~3.800	~4.000
Total venture capital investment (Million USD)	1.442	634	529	~460
Number of investment deals	165	134	122	~118
Global Innovation Index (GII) ranking	44	48	46	44
Startup Ecosystem Ranking (StartupBlink)	59	54	58	56
Number of "Unicorn" companies	02	02	02	02

Source: Compiled from WIPO (Global Innovation Index), StartupBlink, National Innovation Center (NIC), and secondary synthesis by the authors

Table 1 presents selected indicators reflecting the development of Vietnam's innovation and startup ecosystem during the period 2021–2024. The data

show a rapid increase in the number of innovative startups, indicating sustained entrepreneurial momentum and the expansion of early-stage ecosystem activity. Venture capital investment and the number of investment deals, however, display notable fluctuations, reflecting both global market volatility and the ecosystem's vulnerability at the growth stage. Vietnam's Global Innovation Index (GII) ranking remains relatively stable, suggesting a maintained level of institutional capacity for innovation, while the StartupBlink ecosystem ranking shows only modest variation, highlighting challenges in translating policy efforts into greater ecosystem depth. The unchanged number of unicorn startups further indicates that ecosystem expansion has not yet been accompanied by significant breakthrough scaling outcomes. Overall, the indicators suggest that Vietnam's ecosystem has expanded in breadth, while structural constraints continue to limit its progression toward maturity.

4.2. Venture investment dynamics and ecosystem depth

A closer examination of venture investment indicators in Table 1 reveals important implications for ecosystem sustainability. The sharp decline in total venture capital investment after 2021, together with a gradual reduction in the number of investment deals, points to a contraction in funding availability, particularly for later-stage startups. While early-stage ventures continue to emerge in large numbers, reduced capital flows constrain their capacity to scale, commercialize innovations, and expand into international markets.

The persistence of a relatively stable but modest StartupBlink ranking further suggests that ecosystem depth has not advanced at the same pace as startup formation. Despite improvements in institutional indicators such as the GII, the ecosystem has yet to generate a sufficient number of high-growth firms capable of strengthening its global position. This gap reflects limited domestic venture capital capacity, cautious investment behavior during periods of uncertainty, and relatively weak participation by large domestic enterprises in startup investment and innovation partnerships.

The unchanged number of unicorn startups provides additional evidence of these structural constraints. Although Vietnam has produced a small number of high-valuation firms, the absence of new unicorns over several years indicates persistent barriers in moving beyond early success stages. These barriers are closely linked to capital availability, market access, and the limited integration of startups into broader industrial and value-chain networks.

Taken together, the investment-related indicators in Table 1 suggest that Vietnam's startup ecosystem remains exposed to external shocks and internal structural limitations. Without more effective mechanisms to mobilize long-term capital and support scale-up processes, continued ecosystem expansion may become increasingly disconnected from sustainable innovation and growth outcomes.

4.3. Private sector as the main driver of entrepreneurial activity

Evidence from startup formation and venture capital flows indicates that the private sector plays a central role in driving entrepreneurial activity within Vietnam's innovation ecosystem. Most startup creation, innovation initiatives, and capital mobilization originate from private entrepreneurs, domestic firms, and foreign investors. The increasing participation of private capital in early-stage funding reflects growing market confidence and entrepreneurial dynamism.

However, private-sector contributions remain largely concentrated at early stages of development. Domestic venture capital funds are relatively limited in scale, and systematic engagement by large domestic corporations in startup investment and innovation partnerships is still emerging. As a result, many high-potential startups rely heavily on foreign capital for scaling. This dependence increases exposure to external shocks and constrains domestic value capture, a pattern commonly observed in emerging innovation ecosystems.

4.4. Gaps in research–industry linkages and innovation commercialization

The results also highlight weak linkages between universities, research institutes, and startups as a persistent structural constraint. Despite recent improvements in entrepreneurship education and academic engagement, technology commercialization remains limited. Only a small share of startups originate from research institutions, and collaboration between academia and enterprises is often informal and project-based rather than institutionalized.

This finding is consistent with insights from the National Innovation System literature, which emphasizes that effective innovation depends on

strong knowledge transfer mechanisms. In Vietnam, institutional barriers, unclear intellectual property arrangements, and limited incentives for researchers continue to hinder the formation of research-based startups. Without stronger integration between research and business sectors, upgrading the ecosystem toward higher-value innovation will remain challenging.

4.5. Human capital and entrepreneurial capabilities

Human capital emerges as both a strength and a constraint within the ecosystem. Vietnam benefits from a young workforce and a growing pool of technically trained graduates, which supports startup formation, particularly in digital and service-oriented sectors. At the same time, the ecosystem faces shortages of experienced entrepreneurs, startup managers, and specialized technical experts required for scaling and deep-tech development.

These findings suggest that recent improvements in education and training have not yet translated into advanced entrepreneurial capabilities. Addressing this gap requires sustained investment in innovation-oriented human capital, including managerial skills, interdisciplinary training, and greater mobility between industry and academia.

4.6. Discussion: role alignment and ecosystem sustainability

Taken together, the results indicate that Vietnam's innovation and startup ecosystem is characterized by effective state-led initiation and increasing private-sector participation, but limited role alignment at the scale-up stage. Government policies have been effective in establishing early-stage conditions, while private actors have responded dynamically through startup creation and market experimentation. However, insufficient coordination between institutional support and private investment continues to constrain ecosystem sustainability.

This pattern supports the analytical framework adopted in this study, which emphasizes the interaction between government enabling functions and private-sector driving forces. Where these roles are complementary, ecosystem performance improves; where misalignment persists, growth remains fragile. Vietnam's experience highlights the need to move from policy-driven expansion toward a more balanced ecosystem model that strengthens private-sector leadership while refining institutional frameworks.

5. Policy Implications

The empirical findings presented in Sections 4.1 and 4.2 indicate that Vietnam's innovation and startup ecosystem has expanded rapidly in terms of startup formation, while remaining constrained by volatility in venture capital flows, limited ecosystem depth, and weak scaling outcomes. These patterns suggest that policy priorities should move beyond broad ecosystem activation toward more targeted interventions addressing the structural bottlenecks identified.

First, strengthening regulatory coherence is essential to consolidate early-stage ecosystem expansion. The sharp increase in the number of innovative startups shown in Table 1 indicates that entry barriers have been effectively reduced. However, the absence of corresponding improvements in ecosystem rankings and scaling indicators suggests that regulatory frameworks have not sufficiently supported growth beyond the initial stage. Policy efforts should therefore focus on improving consistency and predictability in regulations related to startup investment, venture capital operations, and intellectual property protection. Rather than expanding the number of support schemes, refining and harmonizing existing policies would better contribute to ecosystem deepening.

Second, addressing the decline and volatility of venture capital investment requires mechanisms to mobilize long-term capital. The significant reduction in total venture capital and investment deals after 2021 highlights the ecosystem's exposure to external shocks and its reliance on foreign funding. To mitigate these risks, policy measures should promote public–private investment mechanisms that leverage state resources to crowd in private capital. Co-investment arrangements or matching funds can help stabilize funding availability for growth-stage startups while maintaining market discipline. Expanding domestic sources of venture capital would also reduce dependence on external capital cycles.

Third, improving ecosystem depth requires targeted support for startup scaling and market integration. Despite sustained startup formation, the unchanged number of unicorn startups over the 2021–2024 period indicates persistent barriers to scaling. Policy interventions should therefore emphasize support for startups' integration into

domestic and international value chains, rather than focusing primarily on new venture creation. Measures such as facilitating partnerships between startups and large domestic enterprises, supporting access to export markets, and strengthening linkages with global innovation networks can directly address the gap between ecosystem breadth and depth identified in the results.

Fourth, enhancing the effectiveness of innovation policy depends on stronger alignment between institutional support and private-sector participation. Although Vietnam's Global Innovation Index ranking remains relatively stable, this has not translated into improved startup ecosystem rankings. This divergence suggests that institutional readiness alone is insufficient without active private-sector engagement. Policymakers should thus adopt a more facilitative role, enabling private investors, enterprises, and ecosystem intermediaries to lead innovation activities, while the state focuses on coordination, transparency, and performance monitoring.

Finally, policy evaluation frameworks should place greater emphasis on outcome-based indicators rather than input measures. The contrast between rapid startup growth and weaker investment and scaling indicators highlights the need to reassess how ecosystem success is measured. Greater attention should be given to indicators related to startup survival, scale-up performance, and investment sustainability, rather than the number of programs or supported projects. Aligning evaluation criteria with ecosystem depth would improve policy learning and long-term effectiveness.

Taken together, these policy implications directly respond to the structural patterns identified in Sections 4.1 and 4.2. By addressing capital volatility, regulatory coherence, and scaling constraints, policymakers can support the development of a more resilient and sustainable innovation and startup ecosystem in Vietnam.

Conclusion

This study highlights the evolving nature of Vietnam's innovation and startup ecosystem as it moves from an initial expansion phase toward a more complex and sustainability-oriented stage. The analysis underscores that ecosystem performance depends not merely on the presence of policies or the number of startups, but on the quality of alignment between institutional frameworks and market-driven dynamics. In this context, the balance between government facilitation and private-sector leadership emerges as a key determinant of long-term ecosystem viability.

From an academic perspective, the study contributes to the literature on innovation ecosystems in emerging economies by emphasizing the importance of role alignment rather than isolated policy instruments or firm-level outcomes. It reinforces the view that innovation ecosystems function as interdependent systems in which institutional coherence, capital mobilization, knowledge flows, and human capabilities must evolve in a coordinated manner. This perspective helps explain why rapid ecosystem expansion does not automatically lead to sustainable scaling or high-value innovation.

In practical terms, the findings suggest that the next phase of ecosystem development in Vietnam should prioritize institutional refinement, deeper private-sector engagement, and stronger integration between knowledge creation and market application. A shift from quantity-based expansion toward quality-oriented consolidation will be essential to enhance ecosystem resilience and competitiveness. At the same time, empowering private actors to assume greater leadership in innovation investment and governance can help reduce administrative dependence and improve market responsiveness.

This study is subject to certain limitations. It relies primarily on secondary data and qualitative synthesis, which may not fully capture firm-level dynamics or regional variation within the ecosystem. Future research could incorporate micro-level evidence, comparative case studies, or longitudinal analyses to better assess causal relationships and policy impacts. Despite these limitations, the study provides a coherent analytical basis for understanding and advancing Vietnam's innovation and startup ecosystem in the coming period.

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