

Optimizing Policy Frameworks for Innovation and Entrepreneurship Education in Local Applied Universities to Enhance Regional Economic Integration

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Abstract

Amidst the global transition toward innovation-driven economies, Local Applied Universities (LAUs) have emerged as pivotal agents for regional development. However, a systemic "institutional decoupling" often exists between university-led innovation and entrepreneurship education (IEE) and actual regional industrial demands. This study employs a qualitative policy analysis, utilizing the Triple Helix model and Symbiosis Theory, to examine the structural bottlenecks in current IEE policy frameworks within Chinese LAUs. The research identifies that fragmented organizational governance and a lack of industry-specific standards significantly hinder the effectiveness of talent cultivation. To address these gaps, the paper constructs a symbiotic "5+1" policy optimization framework, emphasizing the integration of academic structures with regional industrial chains. The findings contribute to the theoretical understanding of LAUs as regional innovation hubs and provide a strategic roadmap for policymakers. Practically, the study suggests that optimizing IEE requires shifting from a generic teaching model to a multi-dimensional ecosystem involving co-governance between universities, local governments, and industrial clusters.

Keywords

Local Applied Universities; Innovation and Entrepreneurship Education; Policy Framework; Regional Economic Integration; Industry-Education Integration.

1. Introduction

The global economic landscape is undergoing a profound transformation characterized by the rapid integration of regional markets and the rise of innovation-driven development strategies. Within this context, Higher Education Institutions (HEIs), particularly Local Applied Universities (LAUs), are no longer peripheral academic observers but have evolved into central agents of regional economic vitality. Unlike research-oriented universities that prioritize theoretical breakthroughs, LAUs are strategically positioned to bridge the gap between academic knowledge and industrial application. Their primary mission—to cultivate high-level applied talents—aligns directly with the needs of local industrial clusters, making them indispensable "engines" for regional economic integration.

However, despite the proliferation of national policies advocating for "mass entrepreneurship and innovation" in China and beyond, a significant gap remains between policy intent and actual regional economic outcomes. Current Innovation and Entrepreneurship Education (IEE) policies in many LAUs suffer from several critical bottlenecks. First, there is a pronounced "institutional decoupling" where IEE is treated as an isolated extracurricular activity rather than a core component of professional training. Second, existing policy frameworks often fail to account for the specificities of regional industrial chains, leading to a mismatch between the skills of graduates and the demands of local enterprises. Furthermore, the lack of a synergistic governance mechanism between local governments, industries, and universities has resulted

in fragmented resource allocation and low efficiency in technology transfer. This "silo effect" severely hinders the potential of IEE to serve as a catalyst for regional economic integration. This research aims to address these deficiencies by constructing an optimized policy framework specifically tailored for LAUs. By analyzing the structural, cultural, and systemic barriers in current IEE implementation, this paper proposes a symbiotic "5+1" talent training model designed to harmonize educational standards with regional economic goals. The objective is to provide a coherent strategic roadmap that facilitates the seamless flow of talent, technology, and capital within the regional ecosystem.

The significance of this study is twofold. Theoretically, it enriches the Triple Helix model by specifically examining the "applied" dimension of university-industry-government relations, offering new insights into how geographical and industrial proximity can enhance symbiotic innovation. Practically, it provides actionable policy recommendations for university administrators and regional policymakers to optimize curriculum design, incentive mechanisms, and incubation platforms.

2. Literature Review

The following review synthesizes existing scholarship across three interconnected domains to situate the role of Local Applied Universities (LAUs) within the broader landscape of innovation and regional economic integration.

2.1. Innovation and Entrepreneurship Education (IEE) in Applied Universities

Innovation and Entrepreneurship Education (IEE) has evolved from a narrow focus on start-up creation to a comprehensive educational paradigm aimed at fostering sustainable innovative competencies. For LAUs, this transition is particularly critical. Lv et al. (2022) emphasize that unlike research-oriented institutions, technical and applied universities require a "sustainable framework" that integrates professional education with practical project-based learning to meet the immediate needs of industrial production.

However, the literature identifies persistent structural weaknesses in the current implementation within LAUs. Ding and Yang (2022) argue that many local undergraduate institutions suffer from a "practice-theory gap," where intelligent blended learning environments are proposed but often fail to sync with real-time industrial dynamics. Furthermore, Wang et al. (2022) provide empirical evidence suggesting that while many LAUs have established dedicated Schools of Innovation and Entrepreneurship, these entities often operate under a rigid administrative logic that stifles the "entrepreneurial spirit" they are meant to cultivate. The current research gap lies in the lack of differentiated evaluation standards; most existing metrics for IEE success are homogenized across all university types, failing to account for the specific "local" and "applied" contributions of LAUs to regional talent pools.

2.2. Policy Frameworks in Higher Education for Regional Development

Policy frameworks serve as the primary steering mechanism for aligning higher education with regional development goals. Farinha et al. (2020) demonstrate that governmental support and targeted policies are essential for improving Entrepreneurial Framework Conditions (EFCs), especially in peripheral regions where market forces alone are insufficient to stimulate innovation. In the Chinese context, the Ministry of Education has shifted from general advocacy to more specific mandates for "applied transformation" (Zhou & Xu, 2012).

Despite this policy density, recent studies highlight a "transmission failure" between policy supply and student behavior. Meng et al. (2023) utilize the Model of Attraction (MOA) to show that while entrepreneurship policies exist, their impact is heavily mediated by "entrepreneurial willingness." Current frameworks often focus on macro-level incentives (tax breaks, subsidies)

but neglect the micro-level institutional adjustments needed within LAUs to make these policies accessible to students. A significant research gap persists in understanding how to move beyond "fragmented" policy implementation toward a "holistic" framework that synchronizes university internal governance with regional industrial planning.

2.3. University-Industry-Government Collaboration (Triple Helix) and Regional Integration

The Triple Helix model provides the theoretical foundation for understanding the synergy between universities, industry, and government. In the era of regional economic integration, this model has shifted toward a "symbiotic" perspective. Ng and Au (2022) observe that in metropolitan clusters like Hong Kong, the university serves as a "catalyst" for innovation only when its educational output is deeply embedded in the city's policy and industrial infrastructure.

Emerging scholarship highlights the concept of "Co-creation" within these partnerships. Okuogume and Toledano (2024) argue that sustainable IEE requires a shift from passive "internships" to active "educational partnerships" where businesses and universities co-design curriculum and share R&D risks. This symbiotic relationship is the "glue" of regional integration. However, the Triple Helix literature often focuses on "high-tech" clusters and elite research universities, leaving a gap regarding the "Mid-range" or "Local Applied" institutions. There is a need to explore how the Triple Helix functions when the "Industry" component consists primarily of Small and Medium Enterprises (SMEs) and the "University" component is focused on technical application rather than basic research.

In summary, while the importance of Industry-Education Integration (IEE), policy support, and Triple Helix synergy is well-documented, three primary research gaps persist in the literature. First, there is a lack of contextual specificity: existing studies predominantly treat universities as a monolithic group, thereby overlooking the unique missions, resources, and structural constraints faced by Local Application-oriented Universities (LAUs). Second, a significant implementation decoupling exists, as current frameworks often fail to bridge the critical gap between "top-down" regional industrial policies and "bottom-up" institutional educational reforms. Third, prevailing assessments of regional synergy suffer from a narrow focus on quantitative metrics (e.g., patents, spin-offs), while largely neglecting the "soft" but vital dimensions of integration, such as talent chain development and socio-cultural alignment cultivated through IEE practices. Directly addressing these identified gaps, this paper aims to develop and propose an optimized, symbiotic policy framework specifically tailored for LAUs, designed to effectively catalyze deeper and more sustainable regional economic integration.

3. Theoretical Framework

The theoretical architecture of this study is built upon three interlinked pillars: the Triple Helix Model, Entrepreneurial Ecosystem Theory, and the "One Core and Five Abilities" Strategic Construct. These frameworks collectively elucidate how institutional policies can bridge the gap between academic pedagogical output and regional economic requirements.

3.1. The Triple Helix Model: Relational Synergy

The integration of Local Application-oriented Universities (LAUs) into regional development is primarily examined through the Triple Helix Model of University-Industry-Government relations (Etzkowitz & Leydesdorff, 2000). This model posits that for LAUs, the innovation process should evolve from a linear transfer of knowledge to a recursive and triadic interaction among the three helices. Within this framework, the government functions as the policy architect and initial financier, supplying the essential "Entrepreneurial Capital" and regulatory incentives, a role substantiated by recent longitudinal evaluations. Industry acts as the demand -

side catalyst, articulating the precise skill sets and technological solutions necessary for enhancing regional resilience. The university, specifically the LAU, serves as the core knowledge generator and talent incubator. A critical advancement of this model in the context of regional economic integration is the concept of "structural coupling." This process entails universities adopting proactive entrepreneurial roles while industries engage in the co-governance of educational curricula. Such deep intertwining is essential for minimizing the persistent "policy-practice gap" and fostering a genuinely synergistic ecosystem.

3.2. Entrepreneurial Ecosystem Theory: Systemic Embeddedness

While the Triple Helix focuses on actors, Entrepreneurial Ecosystem Theory provides the environmental perspective. According to Ng and Au (2022), entrepreneurship in a metropolis or regional cluster is not a solitary act but a result of a complex web of interdependent actors and factors. For LAUs, the ecosystem encompasses:

- (1) Framework Conditions: Regional policies, tax incentives, and legal structures that encourage university spin-offs.
- (2) Resource Endowments: Access to local venture capital, industrial labs, and mentorship from regional business leaders.
- (3) Cultural Norms: The institutional "entrepreneurial spirit" that permeates both the faculty and student body. By adopting this theory, the proposed policy framework views IEE not as a closed-loop academic exercise, but as an open-system interface that facilitates Knowledge Spillover from the campus to local industrial clusters (Farinha et al., 2020).

3.3. The "One Core and Five Abilities" Strategy: Pedagogical Anchoring

To operationalize the aforementioned macro-theoretical perspectives at the institutional level, this study adopts the "One Core and Five Abilities" model (Liu & Liu, 2025). This model posits "Innovation and Entrepreneurship Consciousness" as its central psychological core, which fundamentally drives and sustains entrepreneurial intention. This core is supported by five key competencies: technical proficiency, market discernment, risk management, collaborative leadership, and sustainable problem-solving. Within the specific context of local applied education, this model serves as the micro-foundation of the proposed policy framework. It functions as a crucial translational mechanism, ensuring that macro-level policy interventions—such as the implementation of "Intelligent Blended Learning" pedagogical models—are not merely technological or infrastructural upgrades. Rather, it strategically aligns these interventions to systematically cultivate the specific portfolio of human capital competencies required to drive and sustain regional economic structural transformation.

The synthesis of these theories posits that the optimization of IEE policy in LAUs requires a transition from "Institutional Logic" (focusing on internal academic metrics) to "Ecosystem Logic" (focusing on external regional impact). The theoretical framework suggests that when government policy aligns the university's pedagogical "Core" with the industry's "Ecosystem" needs through a "Triple Helix" mechanism, a self-sustaining cycle of regional innovation is established.

4. Policy Analysis

4.1. Current Landscapes and Constraints

The landscape of Innovation and Entrepreneurship Education (IEE) policy in China has undergone a significant transformation, evolving from peripheral experimental initiatives to a central component of the national innovation-driven development strategy. Despite this macro-level prioritization, Local Applied Universities (LAUs) continue to face substantial challenges in translating ambitious national policies into tangible regional economic impact. This analysis

delineates the evolution of the prevailing top-down policy paradigm and examines the consequent structural constraints—including systemic resource asymmetry, institutional decoupling, evaluative paradoxes, and spatial mismatches—that collectively undermine the efficacy of IEE as a catalyst for localized industrial upgrading.

The architecture of contemporary IEE policy in China has been predominantly shaped by a state-led, top-down governance model. Its development can be categorized into three distinct phases: an initial pilot phase (2002–2010) focused on elite universities and entrepreneurial awareness, an expansion phase (2010–2015) marked by the formal integration of IEE into national higher education credit systems, and a systemic integration phase (2015–present) driven by the “Mass Entrepreneurship and Innovation” national strategy. While this centralized approach has facilitated rapid policy dissemination, it has also generated significant isomorphic pressure on LAUs, compelling them to emulate the research-intensive, high-tech commercialization models of top-tier universities despite considerable disparities in institutional mission, resource endowments, and regional industrial contexts. This homogenization of IEE formats frequently results in a misalignment with local economic realities, thereby limiting their practical relevance and impact.

A persistent and critical constraint is the gap between policy-induced entrepreneurial intention and actual entrepreneurial outcomes. Longitudinal studies identify a pronounced “policy-practice gap,” wherein high levels of student entrepreneurial willingness fail to translate into sustainable venture creation. This discrepancy stems largely from a systemic deficit in accessible entrepreneurial capital—encompassing financial resources, industry networks, mentorship, and institutional risk-mitigation mechanisms. For LAUs, which typically lack the substantial endowment funds, venture capital access, and influential alumni networks of metropolitan research universities, this asymmetry is particularly acute. While national policies effectively provide the foundational “spark” of entrepreneurial education, they often fail to supply the sustained “fuel” of patient capital and integrated incubation support necessary for early-stage ventures to survive the “valley of death” and achieve regional market embeddedness.

Further compounding these challenges is a prevalent state of institutional decoupling, characterized by a misalignment between academic curricula and the practical demands of local industries. This decoupling operates through several mechanisms: rigid, discipline-siloed curricula that prioritize theoretical knowledge over experiential learning; a chronic shortage of dual-qualified faculty with substantive industry experience, exacerbated by incentive structures that reward academic publication over applied engagement; and the organizational marginalization of IEE within specialized administrative units rather than its integration across core academic departments. These factors collectively weaken the cultivation of practical innovation competencies and limit the systemic impact of IEE within LAUs.

The evaluation framework for IEE effectiveness is similarly constrained by a focus on short-term, easily quantifiable outputs—often termed “vanity metrics”—such as student participation rates in entrepreneurship competitions or numbers of newly registered businesses. This creates an evaluative paradox, incentivizing institutions to optimize for superficial indicators rather than long-term regional economic contribution. As a result, the system fails to adequately reward activities that foster deep-tech transfer, intellectual property commercialization, or the development of small- and medium-sized enterprises that enhance local industrial resilience.

Finally, the “one-size-fits-all” nature of current IEE policy overlooks the significant spatial heterogeneity of China’s regional economies. The industrial structures, technological bases, and developmental priorities of coastal high-tech hubs differ fundamentally from those of inland manufacturing regions or resource-dependent areas. Yet standardized policy toolkits provide limited scope for contextual adaptation, preventing LAUs from designing and implementing IEE

strategies that are responsive to local economic conditions. Without mechanisms for place-based policy co-creation involving local governments and industries, IEE within LAUs risks remaining an academic exercise rather than evolving into a genuine driver of regionally attuned structural transformation.

4.2. Case Analysis

A comparative case analysis of two LAUs illuminates the concrete manifestations of the aforementioned constraints and highlights the consequences of policy misalignment.

Case A: A Coastal LAU in a High-Tech Zone: This university, situated within a national high-tech park, has leveraged its geographic advantage to secure numerous superficial internship agreements with tech companies. It consistently ranks highly in provincial evaluations due to strong "vanity metrics"—high student competition participation rates and numerous registered startups. However, a deeper analysis reveals a "hollow innovation" phenomenon. Most student ventures are light-asset, service-oriented apps with limited technological depth and tenuous links to the region's core semiconductor or biotech clusters. The university's curriculum, while modern, remains generic, and faculty lack deep industry R&D experience. Despite impressive numbers, its contribution to solving the region's strategic "bottleneck" technologies is minimal, exemplifying the evaluation paradox and institutional decoupling.

Case B: An Inland LAU in a Traditional Manufacturing Base: This university serves a region dominated by small and medium-sized manufacturers. It faces acute resource asymmetry; local firms have limited R&D budgets and offer few high-quality internships. The university struggles with curricular rigidity, teaching outdated manufacturing paradigms, and suffers from a severe lack of "dual-qualified" faculty. Its performance on standard IEE metrics is poor, leading to lower policy support and funding—a vicious cycle. However, a nascent, informal collaboration with a local machinery association to offer tailored skill workshops has shown promise in improving graduate employment. This case underscores the spatial mismatch: the national IEE toolkit is ill-suited to its context, yet bottom-up, grassroots co-creation efforts hint at a more viable, albeit unsupported, pathway.

This comparative analysis demonstrates that without a policy framework that acknowledges and accommodates such contextual divergence—shifting from isomorphism to contextual isomorphism—the potential of LAUs to act as tailored engines of regional development will remain largely untapped.

5. Policy Optimization Framework: From Institutional Logic to Ecosystem Synergy

This study proposes an Integrated Policy Optimization Framework (IPOF) to directly address the identified policy-practice gaps and resource asymmetries. The IPOF represents a paradigm shift from evaluating LAUs based on internal academic metrics toward a "Regional Integration" model, positioning them as the central nodes within a dynamic regional innovation network. The framework is structured across four interdependent and synergistic dimensions: Governance, Pedagogy, Resources, and Evaluation.

The Governance Dimension centers on fostering strategic coupling and deepening Triple Helix synergy. This requires a transition from rigid, top-down mandates to a collaborative model where university strategic plans are systematically aligned with regional industrial roadmaps. Key governance optimizations include granting LAUs decentralized policy autonomy in curriculum design to enable rapid, modular responses to industrial shifts, and establishing formal Triple Helix Coordination Committees. These committees, comprising university leadership, government policymakers, and industry CEOs, ensure that IEE strategy is co-

designed to tackle specific regional technological bottlenecks, transforming policy from an isolated academic exercise into a shared economic development instrument.

The Pedagogical Dimension is redefined through the adoption of a multidimensional competency model. Anchored in the “One Core and Five Abilities” framework, it places “Innovation Consciousness” at its core and systematically integrates the five critical abilities—Technical Proficiency, Market Discernment, Risk Management, Collaborative Leadership, and Sustainable Problem-Solving—across all applied disciplines. Policy must actively incentivize the deployment of Intelligent Blended Learning (IBL) environments. By leveraging AI-driven adaptive platforms and virtual simulation labs that utilize real regional market data, IBL enables experiential, project-based learning. This ensures students accumulate practical “Entrepreneurial Capital” prior to market entry, effectively bridging the theory-practice divide. The Resource Dimension advocates for a fundamental transformation of LAUs from passive service providers to active co-creators within the regional economy. This is operationalized through deepened Business-University Educational Partnerships (BUEPs) that prioritize “Knowledge Co-production”. Policy should facilitate the establishment of shared R&D centers and living labs where students and local SMEs collaboratively solve industrial problems, ensuring a continuous flow of “Knowledge Spillover.” Concurrently, addressing resource asymmetry requires creating a diversified entrepreneurial capital ecosystem. This involves launching “Regional Seed Funds” and “Incubation-as-a-Service” programs that provide LAU graduates with not only early-stage funding but also integrated legal and business mentorship, thereby helping ventures traverse the “Valley of Death” between ideation and sustainable operation.

Finally, the Evaluation Dimension is designed to resolve the “Evaluation Paradox” by replacing output-centric vanity metrics with outcome-oriented indicators of real economic integration. Impact-oriented metrics—such as the long-term survival rate of alumni ventures, local patent commercialization rates, and graduate contribution to regional Gross Regional Product (GRP)—become the primary measures of success. To enable continuous improvement, policy must institute dynamic feedback loops. By employing analytical tools like Multidimensional Significance Analysis, policymakers and institutions can assess the efficacy of various IEE interventions in real-time, fostering an “Agile Policy” environment where strategies are perpetually refined in response to the evolving regional ecosystem.

6. Implementation Pathways for Local Applied Universities

The transition from a supply-driven educational model to a regional-integrated ecosystem requires a multi-layered implementation strategy. For local applied universities (LAUs), this involves reconfiguring internal academic structures and external industrial interfaces to ensure that Innovation and Entrepreneurship Education (IEE) serves as a genuine engine for regional economic resilience.

6.1. Digital Transformation through Intelligent Blended Learning

To overcome the limitations of traditional, rigid curricula that often fail to meet dynamic regional needs, Local Application-oriented Universities (LAUs) must implement a strategic Intelligent Blended Learning (IBL) model. This model integrates two synergistic components. First, it requires deep technological integration. By leveraging artificial intelligence and big data analytics, as conceptualized by Ding and Yang (2022), institutions should develop adaptive learning platforms. These platforms dynamically tailor entrepreneurial education content—from case studies to skill modules—to align with the specific technological trajectories and skill demands of key regional industries, such as smart manufacturing or green energy. Second, this technological foundation must be coupled with robust experiential learning. The pedagogical

pathway must shift decisively from passive "knowledge-transfer" to active "project-based" simulation. Utilizing immersive technologies like virtual reality (VR) to create digital twins of local industrial parks allows students to engage in risk-free entrepreneurial experimentation, prototyping solutions and testing business models within a controlled yet authentic virtual environment. This approach directly addresses the critical "policy-practice gap" by enabling students to apply theoretical frameworks to concrete, regionally-relevant challenges, thereby enhancing both competency development and innovation readiness, as supported by recent sustainability research (Meng et al., 2023).

6.2. Cultivating "Dual-Qualified" Faculty and Mentorship Networks

Dismantling the persistent "silo effect" between academia and industry necessitates a fundamental reform of institutional human resource policies. This reform centers on two critical initiatives. First, LAUs must institutionalize a "dual-qualified" mandate through a formal "revolving door" policy. This policy should actively encourage and provide financial incentives for faculty members to undertake extended sabbaticals in local small and medium-sized enterprises (SMEs) or to lead university spin-off ventures. The objective is to ensure that the pedagogical content of the "One Core and Five Abilities" model is delivered by instructors with current, hands-on industry experience, thereby bridging the gap between theoretical knowledge and practical application. Second, to complement internal faculty development, a structured cross-border mentorship program must be established. This involves creating a curated "Regional Entrepreneurial Mentor Pool," comprising seasoned industry CEOs, venture capitalists, and policy experts. This external network provides students with direct access to vital forms of "Entrepreneurial Capital"—including social networks, market intelligence, and strategic guidance—which are indispensable for successfully navigating the complexities of regional market entry and scaling their ventures.

6.3. Operationalizing Business-University Educational Partnerships (BUEP)

To effectively implement deep Industry-Education Integration (IEE), institutions must transcend superficial internship arrangements and commit to substantive, long-term Co-creation. This commitment is operationalized through two key mechanisms. First, following the Business-University Educational Partnership (BUEP) framework, LAUs should establish joint R&D centers with leading local enterprises. These centers function as "living labs," where faculty-led student teams and industry experts collaboratively tackle authentic production challenges and technological bottlenecks. This model of knowledge co-production ensures that innovations are both "born local"—rooted in specific regional needs—and "stay local," thereby directly enhancing the competitiveness of the host industrial cluster. Second, facilitating shared infrastructure is crucial. Policymakers and institutions should incentivize and formalize the co-utilization of high-cost assets—such as advanced testing laboratories and specialized incubation spaces—between the university and regional technology parks or industry consortia. This strategy significantly lowers the capital barrier for student startups while simultaneously amplifying the frequency and density of knowledge spillover interactions, thereby weaving the university more tightly into the fabric of the regional innovation ecosystem.

6.4. Reforming Resource Allocation and Financial Support

To address the persistent challenge of "Resource Asymmetry", the establishment of a diversified and purpose-driven funding mechanism is essential. First, moving beyond conventional one-time competition prizes, it is critical for Local Application-oriented Universities (LAUs) to collaborate with regional government agencies in creating dedicated "Local Innovation Seed Funds." These funds should provide high-potential student-led ventures with strategic early-stage capital in the form of convertible debt or micro-equity. This shift from

grants to investment-oriented financing serves as crucial "fuel," aligning stakeholder incentives and enhancing the ventures' prospects for long-term sustainability and growth. Second, to create immediate market opportunities, a complementary strategy of policy-guided procurement should be implemented. Regional governments should be encouraged to adopt formal "Innovation Procurement" policies, preferentially awarding public sector contracts for local projects to qualified startups originating from university ecosystems. This policy not only validates the commercial viability of student entrepreneurship but also provides a vital initial customer base, effectively bridging the gap between academic innovation and regional market demand.

6.5. Establishing a Multidimensional Significance Feedback Loop

Finally, the effectiveness of policy implementation must be rigorously monitored through a data-driven, multi-stakeholder evaluation system. This system should incorporate a dynamic assessment mechanism, wherein Local Application-oriented Universities (LAUs) employ advanced analytical methods—such as the principal component analysis (PCA) framework recommended by Wang et al. (2022)—to move beyond traditional vanity metrics (e.g., course registrations). Instead, the focus should shift to tracking substantive outcome indicators, such as the three-year survival rate and the direct contribution to regional Gross Regional Product (GRP) by university-affiliated spin-offs. Complementing this quantitative dashboard, a qualitative stakeholder feedback loop is essential. This can be institutionalized through a formal "Regional Impact Committee," comprising key local government officials and industry leaders. By convening on a biannual basis to review the university's IEE performance and strategic alignment, this committee ensures that institutional policy remains agile, evidence-informed, and directly responsive to the evolving needs of the regional economic landscape.

7. Conclusion

This paper has explored the strategic imperative of optimizing Innovation and Entrepreneurship Education (IEE) policy frameworks within Local Applied Universities (LAUs) to bolster regional economic integration. By synthesizing the Triple Helix model and Entrepreneurial Ecosystem theory, we have argued that the current "institutional logic"—characterized by top-down isomorphic pressure and a reliance on vanity metrics—is insufficient for addressing the specific needs of regional industrial clusters. The proposed Integrated Policy Optimization Framework (IPOF) provides a systemic roadmap for transitioning toward an "ecosystem logic." Our analysis indicates that when LAUs align their pedagogical "Core" with regional "Entrepreneurial Capital" and "Knowledge Spillover" mechanisms, they cease to be mere educational providers and become pivotal anchors of regional innovation.

The findings of this study offer several critical implications for policymakers at both the national and regional levels. First, there is an urgent need for policy differentiation; LAUs should be evaluated based on their localized economic impact rather than global academic rankings. Second, the transition toward Business-University Educational Partnerships (BUEP) requires regulatory support, such as tax incentives for co-creation and "revolving door" policies for dual-qualified faculty. Third, addressing the "Policy-Practice Gap" necessitates the creation of regional seed funds and legal support systems that mitigate the risks associated with student-led deep-tech ventures.

As a non-empirical policy analysis, this study is primarily conceptual. While it draws on a robust synthesis of recent longitudinal data and theoretical constructs, it lacks specific cross-regional empirical validation. Future research should employ Longitudinal Case Studies or Comparative Quantitative Analysis to measure the long-term socio-economic impact of IPOF implementation across different geographic and industrial contexts (e.g., comparing LAUs in high-tech coastal

zones versus inland industrial belts). Furthermore, the role of Artificial Intelligence and "Intelligent Blended Learning" in shaping entrepreneurial outcomes warrants further empirical investigation to refine the technological dimensions of the proposed framework.

In conclusion, the optimization of IEE policy is not merely an academic reform but a strategic necessity for regional resilience. By fostering a co-creative ecosystem between universities, government, and industry, LAUs can effectively fulfill their "Third Mission" and drive sustainable regional economic integration.

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