



# Innovation Intermediaries in Regional Startup Ecosystems

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## Abstract

Regional startup ecosystems depend not merely on the presence of entrepreneurs, investors, universities, corporations, government agencies, incubators, accelerators, and professional-service providers, but also on the quality of relationships connecting these actors. Fragmentation can prevent promising startups from identifying relevant expertise, financing, research infrastructure, mentors, customers, and institutional support even when these resources exist within the same region. This study examines innovation intermediaries as connective organizations that reduce such coordination gaps through knowledge brokerage, resource matching, network formation, capability development, and institutional translation. Howells' foundational work conceptualizes innovation intermediaries as organizations or actors performing a wide range of functions between parties in innovation processes, while subsequent research demonstrates that incubation and accelerator organizations increasingly combine infrastructure, business support, networking, mentoring, and external-resource access.

The present study integrates intermediary theory with entrepreneurial-ecosystem research and develops a simulation-based explanatory framework. Because no primary regional startup dataset was supplied, five synthetic ecosystem scenarios were generated representing innovation-intermediary maturity from 20% to 100%. The scenarios evaluate knowledge brokerage, investor connectivity, university–startup linkage, capability-building access, coordination friction, and startup resource access. Simulated Startup Resource Access rises from 46 to 88 across the maturity conditions, while ecosystem coordination friction declines from 77 to 31. The results are analytical illustrations rather than empirical regional estimates. The study argues that effective intermediaries do more than provide services to individual startups: they can strengthen the relational organization of the ecosystem by identifying structural gaps, creating trusted connections, translating expectations among actors, and widening access to otherwise disconnected resources. However, intermediary proliferation without specialization, accountability, or coordination can create duplication and additional complexity. Regional innovation policy should therefore focus on intermediary functionality and connectivity, rather than simply maximizing the number of support organizations.

**Keywords:** innovation intermediaries, startup ecosystems, entrepreneurial ecosystems, regional innovation, knowledge brokerage, business incubators, accelerators, startup networks, regional entrepreneurship



## 1. Introduction

Entrepreneurial activity is embedded within regional environments containing financial, cultural, institutional, social, and material resources. The entrepreneurial-ecosystem perspective emerged partly from recognition that productive entrepreneurship cannot be explained adequately by analyzing entrepreneurs independently from their surrounding context. Stam's synthesis argues that entrepreneurship is both an outcome of an ecosystem and an activity through which entrepreneurs themselves contribute to ecosystem development. This relational understanding shifts attention from counting isolated support institutions toward examining how regional resources become accessible to entrepreneurs.

Regional availability and entrepreneurial accessibility are not equivalent. A city may contain strong universities, investors, laboratories, established companies, skilled professionals, public agencies, and incubators yet still present substantial coordination problems for early-stage ventures. Startups often lack established legitimacy, complete market knowledge, specialized networks, or sufficient information to determine which regional actors can solve a particular problem. From the opposite direction, universities, corporations, public institutions, and investors may have difficulty identifying credible startups with relevant technological or market potential. Innovation intermediation addresses this matching problem. Howells' influential review demonstrated that intermediaries can perform numerous functions, including information scanning, knowledge processing, partner matching, technology transfer, evaluation, validation, commercialization support, and other bridging activities within innovation processes.

Startup-support organizations represent an important subset of this broader intermediary landscape. Incubators historically evolved beyond the provision of physical space toward combinations of business support and network access. Bruneel, Ratinho, Clarysse, and Groen's comparison of incubator generations confirms that incubation services expanded substantially across successive models. Accelerator research similarly identifies a distinctive time-limited and cohort-oriented organizational form designed around combinations of mentoring, entrepreneurial education, networking, and investment-related preparation. Pauwels and colleagues' analysis of 13 European accelerators identifies multiple design parameters and accelerator types, showing that intermediary organizations themselves can differ significantly in strategy and service architecture.

Intermediaries become particularly important when entrepreneurial ecosystems are understood relationally. Spiegel argues that ecosystems consist of interconnected cultural, social, and material attributes and that relationships among those attributes enable regional resources to support entrepreneurs. Theodoraki, Messeghem, and Rice similarly use social-capital theory to examine sustainable entrepreneurial ecosystems and show the relevance of network relationships surrounding university-based incubators. These perspectives imply that intermediary value cannot be evaluated solely through the number of workshops delivered or startups housed. Intermediaries may create regional value when they improve the quality, diversity, and usability of relationships across the ecosystem.

The present study therefore examines Innovation Intermediaries in Regional Startup Ecosystems. It conceptualizes innovation intermediaries as connective organizations or programs that enable startups to access knowledge, capital, technology, customers, expertise, and institutional resources that would otherwise be costly or difficult to locate. The study uses simulation because no verified regional dataset



has been supplied. Its objective is to demonstrate theoretically plausible relationships between intermediary maturity and ecosystem connectivity without presenting fabricated startups, regions, investment outcomes, or institutional performance as factual evidence.

## 2. Objectives of the Study

### 2.1 To Examine Innovation Intermediaries as Ecosystem Connectors

The first objective is to examine intermediary organizations through their connective functions rather than through organizational labels alone. An incubator, accelerator, technology-transfer office, cluster organization, innovation center, university entrepreneurship center, public development agency, or specialized broker may all perform intermediation, but the nature and intensity of that activity can differ considerably. Howells' intermediary framework is particularly useful because it concentrates on functions performed between actors rather than assuming that a particular organizational category inherently produces intermediation.

This functional interpretation allows the study to distinguish service delivery from ecosystem brokerage. Providing workspace or generic training can support individual startups, but intermediary maturity becomes greater when organizations can also diagnose startup needs, identify relevant actors, establish credible introductions, translate knowledge across institutional boundaries, and maintain relationships long enough to enable useful collaboration.

### 2.2 To Assess Intermediation and Regional Startup Resource Access

The second objective is to examine whether increasingly mature intermediation can theoretically improve startup access to knowledge, investment, university resources, commercialization expertise, experienced mentors, customers, and specialized support. This proposition is consistent with incubation research showing that network-related support has become an increasingly important dimension of incubator activity.

The study also examines coordination friction. Resource-rich ecosystems can remain inefficient if founders repeatedly navigate duplicative programs, unclear referral pathways, or weak communication among support providers. Stronger intermediation should theoretically reduce the search and coordination burden by making ecosystem pathways more intelligible and improving the probability that startups reach the actors most relevant to their development stage.

### 2.3 To Develop an Intermediary-Maturity Framework for Future Regional Research

The third objective is to develop measurable dimensions that can be tested in actual regional startup ecosystems. The framework incorporates intermediary maturity, knowledge brokerage, investor connectivity, university–startup linkage, capability-building access, coordination friction, and overall startup resource access.

Future empirical studies could combine social-network analysis with startup surveys, accelerator and incubator records, referral data, funding histories, university collaboration records, mentor-network information, and longitudinal startup outcomes. Such research could distinguish whether intermediary organizations genuinely create additional connections or primarily reproduce relationships that would have formed without their involvement.

### 3. Review of Literature

#### 3.1 Innovation Intermediation and Knowledge Brokerage

Howells provides one of the most widely used conceptual foundations for innovation intermediation. His review demonstrates that intermediation extends beyond simple technology transfer and may include foresight, information processing, partner search, knowledge combination, evaluation, testing, commercialization, accreditation, and regulatory activities. This breadth is particularly relevant to startup ecosystems because young ventures simultaneously encounter technological, market, financial, organizational, and institutional knowledge gaps.

De Silva, Howells, and Meyer subsequently show that innovation intermediaries use knowledge-based practices while collaborating with client organizations and that intermediaries must also generate internal knowledge and value if they are to sustain their facilitating role over time. This finding is important because intermediary effectiveness depends partly on accumulated brokerage capability. An intermediary that repeatedly connects startups, investors, scientists, corporations, and public institutions can develop knowledge about which types of connections are productive, what information different actors require, and where communication commonly breaks down.

Intermediation is therefore not merely the transmission of contact information. Effective knowledge brokerage involves translation. A technically sophisticated university research team may describe value differently from an investor, industrial customer, policymaker, or early-stage startup founder. Intermediaries can create value when they understand these different institutional languages sufficiently well to make collaboration intelligible and actionable.

#### 3.2 Incubators, Accelerators, and Entrepreneurial Support Infrastructure

Incubator research provides substantial evidence concerning the evolution of startup-support mechanisms. Bergek and Norrman develop a framework for analyzing incubator best practice and emphasize components such as selection, business support, and mediation. Bruneel and colleagues later demonstrate that business incubation evolved through successive generations with changing combinations of infrastructure, coaching, business services, and access to networks. These studies show that the intermediary role of incubators cannot be evaluated solely by occupancy or physical infrastructure.

Accelerators extend the intermediary landscape through intensive and time-limited programs. Pauwels, Clarysse, Wright, and Van Hove's European accelerator research identifies five principal design building blocks and multiple accelerator types. This variety demonstrates why startup-support organizations should not be treated as homogeneous. One accelerator may prioritize investor readiness, another corporate innovation, another regional economic development, and another technology commercialization.

For regional ecosystems, the question is therefore not simply whether incubators and accelerators exist. The more important issue is whether their services complement one another and whether startups can transition efficiently among programs as their needs change. Multiple support institutions can strengthen an ecosystem when they provide differentiated capabilities, but excessive program overlap may create confusion and fragmented public investment.



### 3.3 Regional Entrepreneurial Ecosystems and Relational Connectivity

Stam's entrepreneurial-ecosystem framework emphasizes productive entrepreneurship and systemic regional conditions while also warning that the ecosystem concept requires stronger causal and empirical foundations. Spigel advances the relational perspective by showing that ecosystems consist of cultural, social, and material attributes whose relationships determine how resources become available to entrepreneurs. His case comparisons of Waterloo and Calgary demonstrate that successful ecosystems need not share an identical configuration.

Theodoraki, Messeghem, and Rice further demonstrate the relevance of social capital in sustainable entrepreneurial ecosystems, drawing attention to relationships, trust, and structural connectivity surrounding entrepreneurial support organizations. These insights are especially important for innovation intermediation because a broker without credibility may possess extensive contacts but remain unable to mobilize them effectively. Trust and legitimacy therefore operate as intermediary resources.

Taken together, the literature suggests an important research gap. Entrepreneurial-ecosystem scholarship emphasizes regional relationships, while innovation-intermediary research emphasizes brokerage functions, and incubation research examines organizational support mechanisms. The present study integrates these streams by asking how intermediary maturity may affect the accessibility and coordination of resources across a regional startup ecosystem.

## 4. Research Methodology

### 4.1 Research Design and Simulation Context

The study employs a simulation-based explanatory design because no real regional startup ecosystem, startup sample, intermediary records, investment transactions, or institutional-network dataset was supplied. Every numerical observation reported in the analytical section is therefore synthetic. The values illustrate the proposed framework and must not be interpreted as measurements of any actual city, region, incubator, accelerator, university, investor network, or government program.

Five hypothetical ecosystem conditions were constructed corresponding to Innovation Intermediary Maturity levels of 20%, 40%, 60%, 80%, and 100%. Higher maturity represents increasingly coordinated brokerage capability, stronger ecosystem knowledge, more structured referral systems, wider relationships with capital and knowledge providers, and greater capacity to direct startups toward stage-appropriate resources.

### 4.2 Construct Operationalization

Knowledge Brokerage measures the intermediary's ability to identify, translate, and transfer relevant information between ecosystem actors. Investor Connectivity represents credible access to angel investors, venture funds, corporate investors, lenders, and other financial actors. University-Startup Linkage reflects the ability to connect founders with research expertise, laboratories, intellectual-property support, entrepreneurial faculty, or technology-transfer resources.

Capability-Building Access represents access to mentoring, market-development expertise, specialist professional services, commercialization knowledge, and entrepreneurial learning. Coordination Friction captures duplicated referrals, unclear support pathways, disconnected institutions,



repeated information requests, and unnecessary search costs. Startup Resource Access is the overall index representing the practical accessibility of regional resources to startups.

**Table 1: Operationalization of the Innovation Intermediary Framework**

| Construct                        | Operational Meaning                                                                                    | Measurement        | Expected Direction    |
|----------------------------------|--------------------------------------------------------------------------------------------------------|--------------------|-----------------------|
| Innovation Intermediary Maturity | Capacity to broker, coordinate, translate, match, and develop relationships across ecosystem actors    | Scenario: 20%–100% | Independent condition |
| Knowledge Brokerage              | Ability to identify and transfer relevant technical, market, managerial, and institutional knowledge   | Index: 0–100       | Increase              |
| Investor Connectivity            | Credible pathways connecting startups with appropriate financial actors                                | Index: 0–100       | Increase              |
| University–Startup Linkage       | Access to academic knowledge, research capability, commercialization support, and technology resources | Index: 0–100       | Increase              |
| Capability-Building Access       | Availability of mentorship, business development, professional services, and entrepreneurial learning  | Index: 0–100       | Increase              |
| Coordination Friction            | Duplication, search burden, disconnected support pathways, and institutional communication difficulty  | Index: 0–100       | Decrease              |
| Startup Resource Access          | Practical ability of startups to reach and use ecosystem resources                                     | Index: 0–100       | Increase              |

**Source:** Author-developed simulation framework informed by innovation-intermediary, incubation, accelerator, and entrepreneurial-ecosystem scholarship. Howells identifies multiple intermediary functions, while incubation and accelerator research establishes the importance of business support and network-related access.

### 4.3 Simulation Procedure and Evaluation Criteria

At the 20% condition, intermediaries exist but operate in a comparatively fragmented manner. Startup referrals are largely relationship-dependent, ecosystem mapping is weak, university and investor pathways are uneven, and support organizations have limited knowledge of one another's capabilities.



Intermediate scenarios progressively introduce shared referral systems, specialized brokerage expertise, stronger investor relationships, university collaboration, and cross-program coordination.

The 100% maturity condition does not represent a perfectly centralized ecosystem. Excessive centralization could itself create dependency and reduce entrepreneurial initiative. Instead, the scenario represents highly connected but distributed intermediation, in which startups retain multiple direct relationships while intermediaries improve their ability to identify and activate additional resources. The evaluation therefore distinguishes direct ecosystem access from intermediary-enabled access in the graphical analysis.

## 5. Analysis

### 5.1 Ecosystem Outcomes Across Intermediary-Maturity Conditions

At the lower intermediary-maturity condition, Coordination Friction remains high at 77, indicating an ecosystem where substantial resources may be available but startups still experience difficulty navigating and accessing them. As intermediary maturity increases, Coordination Friction declines to 55, reflecting stronger structured referrals and improved connections between startups and specialized regional actors rather than reliance on internally focused programming alone. At the highest simulated maturity condition, Knowledge Brokerage reaches 92, Investor Connectivity 89, University–Startup Linkage 88, Capability-Building Access 91, and Startup Resource Access 88, while Coordination Friction falls to 31. Overall, the pattern suggests that mature intermediaries can improve ecosystem accessibility, strengthen cross-actor connections, and reduce the coordination barriers faced by startups.

**Table 2: Simulated Outcomes Across Innovation Intermediary Maturity Levels**

| Intermediary Maturity | Knowledge Brokerage | Investor Connectivity | University–Startup Linkage | Capability-Building Access | Coordination Friction | Startup Resource Access |
|-----------------------|---------------------|-----------------------|----------------------------|----------------------------|-----------------------|-------------------------|
| 20%                   | 48                  | 43                    | 45                         | 52                         | 77                    | 46                      |
| 40%                   | 60                  | 55                    | 56                         | 62                         | 66                    | 57                      |
| 60%                   | 72                  | 68                    | 69                         | 73                         | 55                    | 69                      |
| 80%                   | 84                  | 80                    | 80                         | 83                         | 42                    | 79                      |
| 100%                  | 92                  | 89                    | 88                         | 91                         | 31                    | 88                      |

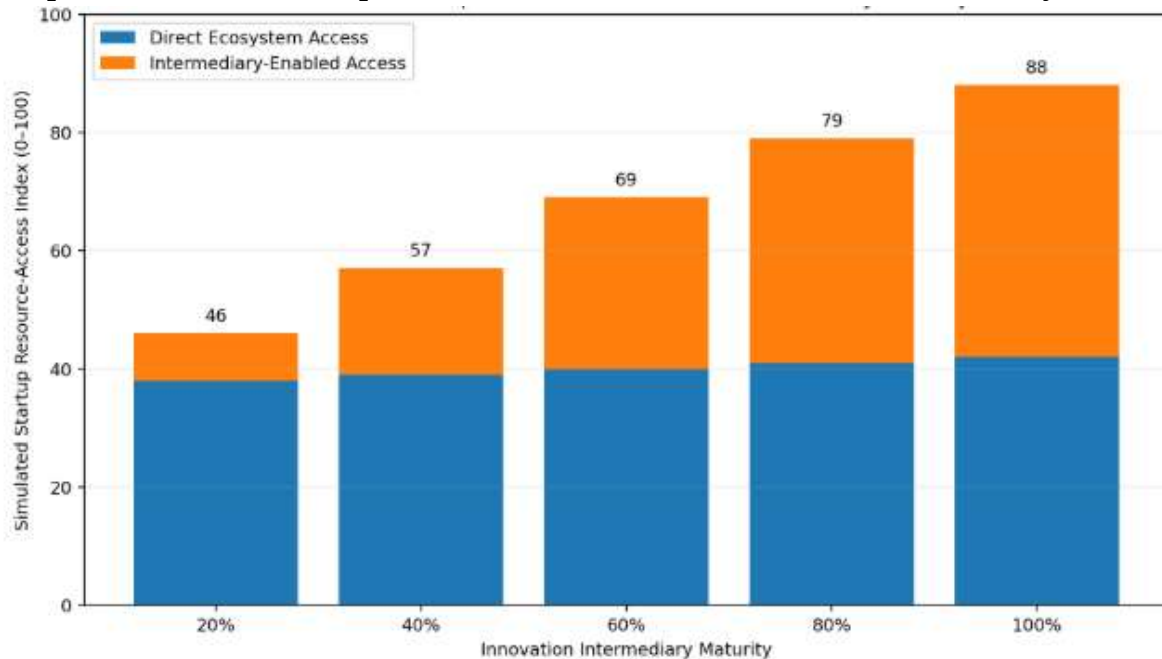
**Note:** All values are synthetic indices created solely to demonstrate the theoretical model. They are not measurements of actual startup ecosystems.

### 5.2 Direct and Intermediary-Enabled Resource Access

The graph separates direct access from the additional access created through intermediary connections. Direct resource access rises only modestly from 38 to 42 across the scenarios because the underlying

regional resource base is assumed to remain broadly similar. The major simulated improvement arises from intermediary-enabled access, which increases from 8 to 46 index points.

**Graph 1: Simulated Startup Resource Access Across Innovation Intermediary Maturity**



This distinction captures the central theoretical contribution of intermediation. The availability of universities, investors, experienced entrepreneurs, corporations, and professional expertise does not guarantee that a particular founder can identify and activate those resources. Intermediaries potentially convert regional resource presence into startup resource accessibility. This interpretation aligns with Howells' emphasis on intermediation functions and Spigel's relational understanding of entrepreneurial ecosystems.

The overall Startup Resource Access Index increases from 46 to 88, an illustrative increase of approximately 91.3% relative to the starting synthetic value. This percentage is not an empirical effect estimate. It visualizes the proposition that improved brokerage can substantially alter the usability of an otherwise broadly similar regional resource base.

### 5.3 Coordination Friction and Ecosystem Efficiency

Coordination Friction declines from 77 to 31 across the five scenarios. This is analytically important because startup ecosystems can suffer not only from resource shortages but also from coordination overload. Founders may be required to approach multiple institutions, repeatedly explain the same venture, attend duplicative programs, or navigate unclear boundaries among funding, technical, regulatory, and commercialization services.

Innovation intermediaries can theoretically reduce such friction by understanding the division of labor among regional organizations and establishing credible referral pathways. Incubator and accelerator research demonstrates that support organizations increasingly combine internal capability

development with network access, making their external coordination functions relevant to startup development.

However, intermediaries can also contribute to friction if too many organizations attempt to perform identical brokerage functions without exchanging information. The study therefore interprets declining friction as the result of intermediary coordination, not simply intermediary proliferation.

## 6. Discussion

### 6.1 Innovation Intermediaries as Relational Infrastructure

The principal implication is that innovation intermediaries should be conceptualized as relational infrastructure within startup ecosystems. Physical infrastructure determines where startups can work and experiment, while financial infrastructure determines whether capital is available. Relational infrastructure influences whether entrepreneurs can navigate the people and institutions holding those resources.

Howells' framework demonstrates the breadth of intermediary functions, and De Silva, Howells, and Meyer show that intermediation depends on sophisticated knowledge practices rather than simple matchmaking. This suggests that high-performing intermediaries require organizational learning of their own. They need current knowledge of investor preferences, university capabilities, startup needs, policy requirements, corporate innovation interests, and the specialist expertise available throughout the region.

The relational perspective also implies that intermediary success should not be evaluated entirely through internal program metrics. A support organization may graduate many startups yet contribute little to wider ecosystem connectivity if relationships terminate at program boundaries. Regional value becomes greater when the intermediary helps founders establish durable relationships that remain useful after formal program participation ends.

### 6.2 From Organizational Support to Ecosystem Orchestration

The second implication concerns the difference between supporting startups and orchestrating connections. Incubators and accelerators provide legitimate internal services such as mentoring, training, infrastructure, and structured venture-development processes. Bruneel and colleagues and Pauwels and colleagues document how these organizational forms have evolved toward increasingly sophisticated service architectures. Yet the ecosystem perspective requires asking how these organizations relate to one another and to actors outside their programs.

A region may possess numerous competent intermediaries but still perform poorly if founders repeatedly encounter isolated organizational silos. Ecosystem orchestration therefore requires mechanisms such as cross-referral protocols, complementary specialization, shared ecosystem mapping, mentor and investor networks, university liaison pathways, and post-program transition arrangements. Such coordination does not require one institution to control the ecosystem.

This distributed model is consistent with Stam's emphasis on the entrepreneurial actor and Spigel's relational interpretation of ecosystem attributes. Ecosystems emerge through interaction rather than centralized command. Intermediaries can facilitate those interactions but should avoid becoming gatekeepers through which every meaningful relationship must pass.

## 6.3 Implications for Regional Innovation Policy and Ecosystem Governance

The third implication is that public policy should evaluate intermediaries by additionality, connectivity, accessibility, and specialization rather than by organizational count. Creating another accelerator or innovation center is not automatically beneficial when comparable services already exist. Bergek and Norrman's incubation framework emphasizes the importance of analyzing how incubators actually operate rather than assuming uniform best practice. Similarly, accelerator research identifies multiple organizational models rather than one universally appropriate structure.

Regional funders should therefore ask whether an intermediary closes a genuine ecosystem gap. A region may need stronger investor brokerage, university commercialization, international market access, industrial pilot opportunities, specialized regulatory expertise, or support for founders who are poorly connected to established networks. Different gaps justify different intermediary designs.

The social-capital perspective adds an inclusion concern. Theodoraki and colleagues demonstrate the importance of relational and social-capital dimensions within entrepreneurial ecosystems. Intermediaries should therefore be evaluated on whether they broaden access to regional networks rather than merely intensify opportunities for founders who already possess strong connections. A region can appear highly connected at the aggregate level while particular groups remain structurally peripheral.

## 7. Conclusion

Regional startup ecosystems are frequently discussed in terms of the number of founders, investors, universities, incubators, accelerators, support programs, and established firms they contain. This study has argued that connection quality is at least as important as actor availability. Regional resources generate entrepreneurial value only when startups can identify, reach, understand, and use them at the stage when those resources are needed.

Innovation intermediaries provide a theoretical mechanism for converting resource presence into resource accessibility. Through knowledge brokerage, network formation, translation, capability development, and institutional coordination, intermediaries can reduce the search and relationship-building burdens faced by young ventures. The simulation illustrates this proposition through an increase in Startup Resource Access from 46 to 88 as intermediary maturity rises, accompanied by a reduction in Coordination Friction from 77 to 31. These values are deliberately synthetic and must not be represented as empirical regional results.

The study also cautions against interpreting intermediary expansion as automatically beneficial. A region containing many overlapping support organizations may experience duplication, confused referral pathways, fragmented funding, and competition among intermediaries for the same startups. The appropriate policy objective is therefore functional ecosystem connectivity, not the maximum possible number of intermediary organizations. Mature ecosystems require differentiated intermediaries that understand their own roles, recognize the capabilities of complementary organizations, and transfer startups efficiently when another actor can provide superior support.

Future empirical research should map innovation-intermediary networks using longitudinal regional data. Particularly valuable studies could trace startup referrals among intermediaries, measure whether brokerage produces new university or investor relationships, compare startups with and without intermediary-mediated connections, and analyze whether ecosystem brokerage improves survival,



innovation, financing, internationalization, or knowledge acquisition. Research should also evaluate intermediary additionality: whether supported connections would have occurred without brokerage. Such evidence would permit policymakers to move from institution-counting toward a more rigorous understanding of how relational architecture shapes the performance and inclusiveness of regional startup ecosystems.

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