

Social Capital and Entrepreneurial-Specific Knowledge as Key Drivers of Innovation

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Abstract: Innovation in startups is frequently attributed to technological novelty or access to financial capital. However, Contemporary Entrepreneurship Research Increasingly Recognizes Innovation As A Knowledge-Based And Socially Embedded Process. This Article Examines How Entrepreneurial-Specific Knowledge And Social Capital Jointly Shape Innovation Outcomes In Startups And Explores The Implications Of These Mechanisms For Brazilian Public Policy And University-Based Entrepreneurial Ecosystems. Building On The Knowledge-Based View Of The Firm, Social Capital Theory, And The Knowledge Recombination Perspective, Innovation Is Conceptualized As The Outcome Of Interactions Between Tacit And Explicit Knowledge Mediated By Trust-Based Networks. Methodologically, The Study Adopts A Qualitative, Theory-Driven Multiple-Case Approach Based On Secondary Data From Twelve Brazilian Startups. A Structured Coding Protocol Was Used To Classify Entrepreneurial Knowledge (Tacit, Explicit, Or Mixed) And Forms Of Social Capital (Relational, Institutional, And Market-Based), Thereby Enhancing Analytical Transparency And Rigor. The Findings Show That Startup Innovation Rarely Emerges From Isolated Technological Invention. Instead, It Results From The Recombination Of Entrepreneurial-Specific Knowledge Accumulated Through Professional Experience, Academic Training, And Sectoral Immersion, Combined With Social Capital Embedded In Networks Of Customers, Partners, Universities, Investors, And Regulators. The Study Extends Prior Research By Showing That Innovation Outcomes Depend On The Alignment Between Knowledge Type And Network Structure. The Article Contributes To Theory By Refining The Concept Of Entrepreneurial-Specific Knowledge As A Dynamic Capability And To Practice By Advocating A Shift In Innovation Policy From *Finance-First* To *Capability-And-Network-First* Approaches.

Keywords: Social Capital; Entrepreneurial-Specific Knowledge; Innovation; University-Based Entrepreneurial Ecosystems; Finance-First; Capability-And-Network-First

1. Introduction

Innovation is a central mechanism through which startups create value and achieve competitive advantage (Shane & Venkataraman, 2000). Unlike established firms, startups typically operate under conditions of high uncertainty, limited resources, and weak legitimacy. Under these constraints, innovation depends less on proprietary technologies and more on founders' prior knowledge and their ability to mobilize social relationships that provide access to complementary resources (Grant, 1996; Nahapiet & Ghoshal, 1998).

Entrepreneurship research increasingly conceptualizes innovation as a knowledge-based and socially embedded process (Galunic & Rodan, 1998; Shane, 2000). Entrepreneurs identify opportunities by recombining experiential, technical, and market knowledge accumulated through education, professional trajectories, and repeated interaction with external actors. These processes are mediated by social capital—networks of trust, shared norms, and relational proximity that facilitate knowledge exchange and coordination (Adler & Kwon, 2002).

Despite this theoretical advancement, innovation policies in many emerging economies, including Brazil, remain disproportionately focused on financial instruments and infrastructure. This article argues that such approaches are incomplete unless they explicitly address how entrepreneurial knowledge and social capital are formed, recombined, and scaled, particularly within university-based entrepreneurial ecosystems.

2. Theoretical Background

2.1 Innovation as a Knowledge-Based Outcome

From the knowledge-based view of the firm, innovation results from creating, recombining, and applying knowledge (Grant, 1996). It rarely stems from isolated invention; rather, it emerges through novel combinations of existing knowledge elements (Schumpeter, 1934; Galunic & Rodan, 1998). This recombination logic is particularly relevant for startups, which typically lack the resources for large-scale R&D but excel at creatively integrating dispersed knowledge.

Recent research emphasizes that innovation depends not only on knowledge diversity but also on the capability to integrate and recombine knowledge effectively (Xiao, Makhija, & Karim, 2022).

2.2 Entrepreneurial-Specific Knowledge

Entrepreneurial-specific knowledge refers to the idiosyncratic set of cognitive frameworks, experiential insights, and domain expertise accumulated by entrepreneurs through education, industry experience, and entrepreneurial activity (Shane, 2000). This knowledge shapes opportunity recognition, problem framing, and the development of innovative solutions.

Contemporary research extends this concept by incorporating entrepreneurial cognition, emphasizing that entrepreneurs interpret information through mental models and heuristics shaped by prior experience (Baron, 2006). These cognitive schemas influence how opportunities are perceived and acted upon.

From a human capital perspective, entrepreneurial-specific knowledge reflects both general and domain-specific human capital (Becker, 1993; Marvel, Davis, & Sproul, 2016). Domain knowledge is particularly important for innovation because it helps entrepreneurs identify inefficiencies and unmet needs within specific industries.

Moreover, entrepreneurial-specific knowledge can be understood as a dynamic capability (Teece, 2014). Entrepreneurs continuously sense opportunities, seize them, and reconfigure resources, relying on accumulated knowledge to make decisions under uncertainty.

A key characteristic of this knowledge is its predominantly tacit nature. Tacit knowledge is experiential, context-dependent, and difficult to codify (Polanyi, 1966; Nonaka, 1994). Innovation often arises from the interaction between tacit and explicit knowledge through iterative learning processes (Autio et al., 2014).

Entrepreneurial learning is also inherently social. Entrepreneurs develop and refine knowledge through interaction with customers, partners, and mentors (Cope, 2005).

Thus, entrepreneurial-specific knowledge is best understood as a dynamic, socially embedded capability that combines cognition, experience, and learning processes to enable innovation under uncertainty.

2.3 Social Capital and Innovation

Social capital encompasses the actual and potential resources embedded in networks of relationships (Nahapiet & Ghoshal, 1998). It facilitates innovation by enabling access to external knowledge, fostering trust, and reducing coordination costs (Tsai & Ghoshal, 1998; Adler & Kwon, 2002).

Different configurations of social capital produce distinct innovation outcomes. Dense, trust-based networks support the transfer of tacit knowledge, whereas bridging and institutional networks facilitate access to diverse and codified knowledge (Stam, 2015).

3. Methodology

3.1 Research Design

This study adopts a qualitative, theory-driven multiple-case research design to support analytical generalization (Yin, 2018).

3.2 Data Source and Sample Selection

The empirical material was collected from the Startups section of *Revista PEGN*, focusing on startups featured in 2022. Twelve cases (startups) were selected based on the richness of available qualitative information and the clarity with which innovation and network relationships were described.

3.3 Analytical Procedure and Coding Strategy

To enhance methodological rigor, the study employed a structured, multi-stage coding procedure:

Stage 1: Case profiling: Each startup was summarized using a standardized template capturing founders' backgrounds, innovation characteristics, and salient network relationships.

Stage 2: Open coding: Case narratives were coded inductively to identify themes related to entrepreneurial knowledge sources and social relationships.

Stage 3: Theory-driven categorization: Codes were consolidated into theoretically informed categories:

Entrepreneurial knowledge:

- Tacit
- Explicit
- Mixed

Social capital:

- Relational
- Institutional
- Market-based

Classification was conducted at the case level based on the dominant entrepreneurial knowledge type and the primary mechanism of value creation. Cross-validation across sources for each case was used to enhance analytical consistency.

4. Findings

Table 1: Entrepreneurial-specific knowledge, social capital, and innovation in selected startups

Startup	Sector	Year Founded	Entrepreneurial-Specific Knowledge	Dominant Social Capital	Core Innovation
Spotx	Logistics	2020	Industrial logistics experience	Client and partner networks	Real-time delivery tracking
Galena	Edtech/Fintech	2020	Education and finance expertise	Employers and investors	Income Share Agreement
Bombordo	Marketplace	2021	Nautical tourism knowledge	Trust with asset owners	Boat rental platform
Gringo	Mobility	2020	Regulatory and bureaucratic expertise	Institutional partnerships	Vehicle management app
Dolado	B2B Commerce	2020	Small retail operations	Merchant relationships	B2B marketplace
CondoConta	Fintech	2020	Banking and financial services	Property manager networks	Digital condominium bank
AkinTec	Fintech	2019	Informal finance and retail knowledge	Community networks	Retail-based banking
Ambi Real Food	Biotech/Foodtech	2021	Academic and scientific research	University and lab ties	Cultivated meat
Agrolend	Agrifintech	2020	Agribusiness finance	Farmer networks	Rural credit platform
Compra Rápida	SaaS/E-commerce	2021	Conversion optimization	Platform partnerships	One-click checkout
Lubs	Consumer Goods	2020	Consumer behavior insights	Influencer communities	Sustainable sexual wellness
Liqi	Fintech/Blockchain	2021	Capital markets and blockchain	Investor–regulator ties	Asset tokenization

Note: Developed by the author based on secondary qualitative data from *Revista PEGN* and startups' official websites.

Table 2: Startups grouped by predominant type of entrepreneurial knowledge

Predominant Knowledge Type	Startups	Typical Innovation Characteristics	Policy-Relevant Implications
Tacit knowledge	Spotx; Bombordo; Gringo; Dolado; AkinTec; Lubs	Rapid iteration, strong problem–solution fit, reliance on trust	Policies should emphasize mentoring, networks, and experiential learning
Explicit knowledge	Ambi Real Food; CondoConta; Compra Rápida; Liqi	Technological or regulatory complexity, slower diffusion	Policies should strengthen market access and regulatory bridges
Mixed (tacit + explicit)	Galena; Agrolend	Higher scalability, institutional integration	Support university–industry interfaces and hybrid programs

Note: Tacit knowledge is experiential and difficult to codify, whereas explicit knowledge is formalized and transferable (Nonaka, 1994).

Overall, the findings indicate that innovation emerges from the interaction between entrepreneurial-specific knowledge and social capital.

- Startups grounded primarily in tacit knowledge rely on dense, trust-based networks and engage in rapid experimentation.
- Startups grounded primarily in explicit knowledge depend on institutional ties but often face diffusion challenges.
- Startups combining tacit and explicit knowledge tend to exhibit greater scalability.

5. Discussion

The findings indicate that startup innovation emerges from the *co-evolution of entrepreneurial-specific knowledge and social capital*. Startups relying predominantly on tacit knowledge draw on dense, trust-based networks to test assumptions and accelerate learning. By contrast, startups grounded mainly in explicit scientific or technical knowledge benefit from institutional ties but often face diffusion challenges when relational embeddedness is weaker.

Importantly, the most robust innovation outcomes appear when tacit and explicit knowledge are recombined under conditions of strong social capital. This finding highlights the role of *entrepreneurial ecosystems* as knowledge-orchestration mechanisms rather than merely funding channels.

5.1 Confirmation of Existing Theory

The findings align with work showing that innovation is driven by knowledge recombination (Galunic & Rodan, 1998) and facilitated by social capital (Nahapiet & Ghoshal, 1998).

5.2 Extension of Theory

This study extends prior research by showing that:

- Innovation outcomes depend on the alignment between knowledge type and network structure.
- Entrepreneurial-specific knowledge can function as a dynamic capability that enables opportunity recognition and resource reconfiguration under uncertainty.
- Mixed (tacit + explicit) knowledge configurations tend to enhance scalability by supporting both experimentation and diffusion.

5.3 Challenging Existing Assumptions

More broadly, the findings call into question *finance-first* assumptions in innovation policy by indicating that knowledge development and network formation are equally critical for innovation.

6. Implications for Brazilian Public Policy

The results suggest that Brazilian innovation policy should shift from a *finance-first* approach to a *capability-and-network-first* strategy. Accordingly, institutions such as BNDES, FINEP, SEBRAE, SENAI, and state development agencies should prioritize programs that deliberately build entrepreneurial capabilities and social capital.

Potential policy instruments include:

- Funding ecosystem intermediaries (accelerators, incubators, and Technology Transfer Offices (TTOs)) as network builders
- Expanding regulatory experimentation mechanisms (e.g., sandboxes) to reduce uncertainty and accelerate diffusion
- Adopting place-based strategies aligned with regional industrial strengths

7. Implications for Brazilian University-Based Entrepreneurial Ecosystems

Brazilian universities play a leading role in forming entrepreneurial knowledge but must strengthen their *third mission* by deepening engagement with startups and regional innovation systems. Key actions within university-based entrepreneurial ecosystems include:

- Revising promotion and tenure criteria to recognize entrepreneurial engagement
- Embedding experienced entrepreneurs as instructors, mentors, and advisors
- Professionalizing technology transfer beyond patenting
- Creating venture studios and living labs that connect students, researchers, firms, and government

Within university-based entrepreneurial ecosystems, universities should function as *boundary-spanning platforms* that recombine knowledge across institutional domains, consistent with the Triple Helix framework (Etzkowitz & Leydesdorff, 2000).

8. Limitations and Future Research

This study relies on secondary qualitative data, which may reflect editorial bias and limit causal inference. The modest sample size and single-country focus also constrain generalizability. Future research should draw on primary data, adopt longitudinal designs, and conduct cross-country comparisons. It should also examine how governance arrangements shape the orchestration of social capital within entrepreneurial ecosystems, including university-based entrepreneurial ecosystems.

Ethics Declaration

This study is based exclusively on secondary data derived from publicly-available sources, including journalistic case reports and information published on the official websites of the startups analyzed. No primary data were collected, and the study involved no direct interaction with human participants. Accordingly, the research did not require interviews, surveys, experiments, or any other procedures that would typically warrant ethical review. Given the nature of the data and methods used, ethical clearance from an institutional review board (IRB) or equivalent ethics committee was not required.

The author confirms that the research was conducted in accordance with accepted principles of academic integrity and transparency, including the responsible use of publicly available information.

AI Declaration

The author declares that *artificial intelligence (AI) tools were used to support writing and research tasks* during the preparation of this manuscript. Specifically, AI was used to (a) improve academic language, structure, and clarity; (b) help organize arguments and integrate theoretical perspectives; and (c) support the synthesis of publicly available information and academic literature identified by the author.

The AI tool did not generate original empirical data, conduct independent analysis, or make autonomous interpretive or normative decisions. All theoretical framing, methodological choices, data selection, interpretation of findings, policy recommendations, and final editorial decisions are the sole responsibility of the author.

The author reviewed and edited all AI-assisted content to ensure accuracy, coherence, originality, and compliance with academic standards, including appropriate citation and attribution of sources.

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