

THE ROLE OF HUMAN CAPITAL IN ENHANCING THE GROWTH OF STARTUP AND ITS FUTURE RESEARCH DIRECTION

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Abstract

In the era of innovation and digital transformation, startups have become vital contributors to economic development and technological progress. However, sustaining growth in high-risk and resource-constrained environments requires more than novel ideas; it necessitates strategic internal capabilities, particularly in human capital. This study aims to explore how human capital enables startups to achieve competitive advantage and organizational growth by applying the Resource-Based View (RBV) framework. Using a Systematic Literature Review (SLR) approach, this research identifies four main thematic clusters: (1) Founders' and team human capital, (2) Talent acquisition and management, (3) Knowledge and intellectual resources, and (4) Innovation and capability development. The findings also reveal several mediators and moderators that influence the relationship between human capital and startup outcomes. The study observes an increasing scholarly focus on digital skills and collective knowledge, while identifying research gaps in longitudinal, resource-constrained, and emerging market settings. This review provides both scholars and practitioners with a comprehensive foundation for designing more effective human capital strategies in early-stage ventures.

Keywords: Human capital, Growth, Seed-stage Startup

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As the global economy continues to prioritize innovation, startups have emerged as vital engines of disruption and progress. Startups are newly established businesses designed to scale rapidly through innovative business models, technology, and market-driven strategies (Kabous et al., 2023; Ousghir & Daoud, 2022). Startups are characterized by their agility, resource constraints, and focus on creating disruptive innovations (Coad et al., 2016). This agility allows them to pivot quickly in response to feedback or market conditions, a key feature distinguishing them from larger, more established firms. Unlike traditional businesses, start-ups often adopt non-traditional organizational structures to foster collaboration and innovation, which are essential for survival and scalability in competitive industries (Ousghir & Daoud, 2022). For instance, Startups often face high levels of uncertainty due to their innovative nature and the nascent stages of their business models. This uncertainty spans market demand, product development, and financial stability (AlHazza et al., 2019; Dykha et al., 2023) and relies on venture capital, angel investments, and incubator support to sustain their growth.

The term “start-up” is also associated with a high level of risk, given their limited resources and lack of established customer bases (Audretsch et al., 2023). This risk is balanced by the potential for high rewards, as start-ups can achieve rapid growth and market penetration, particularly when they leverage emerging technologies and innovative business models (Kollmann et al., 2021). The global startup ecosystem has experienced significant expansion, fueled by digital transformation, globalization, and increased access to funding (Blank & Dorf, 2020). However, despite the boom in start-up creation, survival remains a significant challenge, with a high failure rate, particularly in early-stage startups.

Early-stage startups often face major hurdles in proving their credibility, making it difficult to move from the idea stage to actual market entry (Islam, Fremeth & Marcus, 2018). These difficulties are particularly pronounced in product innovation and marketing (Sathaworawong, Thawesaengskulthai & Saengchote, 2019). To overcome these thresholds, startups often engage in signaling behaviors—costly and effort-intensive actions that aim to demonstrate the quality of their ventures and reduce information asymmetries with external stakeholders (Cordova, Dolci & Gianfrate, 2015; Kim & Wagman, 2016).

As organizations continue to evolve in response to technological transformation and complex stakeholder environments, theoretical frameworks that examine internal strategic advantage have gained prominence in entrepreneurship studies. One such perspective is the Resource-Based View (RBV), a theory that has become increasingly relevant in explaining how startups survive and grow beyond external stakeholder support. Initially developed by Barney (1991), RBV asserts that firms achieve sustainable competitive advantage by acquiring and effectively deploying resources that are valuable, rare, inimitable, and non-substitutable (VRIN).

Based on RBV, Studies have shown Human capital, mentioned as a crucial component of RBV, refers to the skills, knowledge, and expertise of employees that contribute to a company’s competitive edge (Becker et al., 1964). Workforce skills and capabilities impacting essential operational areas (Madhavi & Mehrotra, 2019) with talent development attracting and retaining top talent is a significant challenge for most organizations striving to remain competitive in the industry, and organizational style enhance the workplace environment, inspire the workforce with their expertise, and contribute to greater organizational efficiency also play vital roles (Rajagopal, 2018) play vital roles. Maintaining a competitive advantage is especially crucial for seed-stage startups, as they operate in uncertain environments where differentiation and sustainability are key to survival (E. Armstrong, 2013). Early-stage startups often struggle to establish a clear differentiation strategy due to a lack of resources, making it imperative to optimize internal capabilities. After examining 22 papers from the Scopus database, a notable gap was identified in the literature within the business, management, and accounting fields, particularly regarding the intersection of ethical leadership and sustainable organizations over the last decade. This study seeks to address this void through a systematic literature review spanning publications from 2015 to 2024. The review process began with an initial pool of 17,891 papers, which was meticulously narrowed down to 182. Scopus was selected as the primary database for its extensive coverage in business and management; however, the significant overlap with studies indexed in the Web of Science database is noted. Future research may benefit from including additional databases to overcome the limitations of this focus.

This study aims to offer deep insights into the field’s development, revealing trends, patterns, and research gaps while proposing future research directions. The comprehensive SLR process ensures a detailed and transparent examination, providing a robust understanding of the practices of human capital in a startup context helping the growth and survival ability.

The research is guided by the following questions:

- RQ1) What are the principal findings and topics related to the role of human capital in enhancing the growth of a startup?
- RQ2) How do various variables influence or moderate the relationship between human capital and the growth of a startup?
- RQ3) What are the significant patterns, trends, and gaps in understanding the role of human capital in enhancing the growth of a startup?
- RQ4) What future research directions could address the identified gaps and enhance comprehension of the role of human capital in enhancing the growth of a startup?

LITERATURE STUDY

Startups

The term "startup" was initially seldom used and broadly referred to the early phases of any business and became a buzzword in contemporary policies and public debate (Audretsch & Acs, 1994). It indicated a fundamental characteristic of all companies, such as the time when a company first started, the initial "start-up" costs (Inderst & Müller, 2004) or the challenge of limited funding, which was seen as a common "startup problem" for all businesses (Seley, 1981).

(Cockayne, 2019) attempts to define the concept of startups by highlighting a blend of informality and hard work, which might initially seem contradictory. Startups are often characterized by a relaxed and flexible work environment with minimal hierarchy, where there are no strict dress codes, meetings are informal, and there is a strong sense of camaraderie among team members. This informal atmosphere promotes open communication and team bonding, making the workplace welcoming and friendly. Additionally, venture capital funds backing startups are structured around short-term investments in a portfolio of high-risk firms, with the understanding that most will fail, but a few will achieve significant growth and provide substantial returns.

Resource-Based View on Human Capital

"How and why organizations are formed is therefore highly aligned with the resource-based view" (McGahan, 2021). The Resource-Based View (RBV) is a prominent theory in strategic management that seeks to explain why some firms consistently outperform others by focusing on the internal resources and capabilities that a firm possesses (Barney & Clark, 2007). In short explanation, RBV examines and evaluates an organization's resources to determine how they contribute to achieving a sustainable competitive advantage (Madhani, 2010). The resources that are not easily transferable or purchasable, demand a long learning process, or require significant shifts in organizational culture and climate are more likely to be distinctive to the organization, making them harder for competitors to replicate. It means that the views of people are strategic assets, utilizing them as a means to attain competitive advantage and enhance firm performance (Gerhart & Feng, 2021).

For a firm resource to contribute to a sustained competitive advantage, it must possess four key attributes, or its called VRIO (Barney & Clark, 2007): 1) Valuable: Resources must provide value by enabling a firm to implement strategies that improve efficiency and effectiveness. For instance, knowledge assets and human capital are often cited as valuable resources that drive firm performance and innovation, 2) Rare: Resources must be uncommon and not easily available to competitors. Empirical studies have shown that firms with rare resources, such as unique knowledge bases or specialized human capital, tend to achieve higher competitive advantage and performance (Baia et al., 2020), 3) Imperfectly imitable: Resources should be difficult for competitors to replicate. This can be due to unique historical conditions, causal ambiguity, or social complexity, and 4) Organization: The firm must be organized to exploit these resources effectively. This involves having the right processes, systems, and structures in place to harness the full potential of valuable, rare, and inimitable resources. Studies highlight the importance of strategic orientation and supply chain capabilities in organizing resources for competitive advantage (Chakraborty & Biswas, 2019).

Based on the resource-based view of the firm (Barney, 1991), human capital can be resources that are rare, valuable, difficult to imitate, and non-substitutable, and thus provide a means for organizations to achieve a competitive advantage.

The concept of human capital on RBV has significantly shaped strategic human resource and human capital research, serving as a foundational framework for organizing and interpreting various studies (Table II.4), even those that do not explicitly adopt RBV as their guiding model (Gerhart & Feng, 2021). The studies focus on the value that individuals contribute to organizations. Human capital serves as a key differentiator for organizations and forms the foundation of competitive advantage (Baron & Armstrong, 2007).

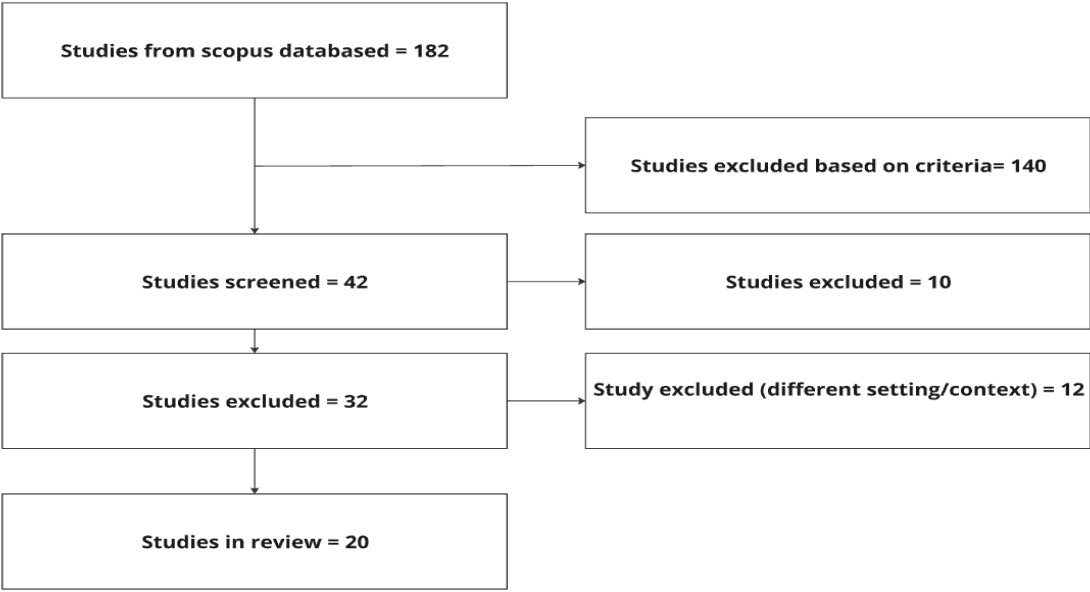
In his book, Collins (2022), title “*Expanding the resource-based view model of strategic human resource management*,” mentions that human resources have leveraged the Resource-Based View (RBV) to suggest that a High-Commitment Human Resource enhances a firm's competitive advantage by fostering rare and valuable employee-based resources at the organizational level. When human resource practices in performance management focus on ensuring alignment between the organization's strategy and objectives with employee behaviors and outcomes, it will extend from the individual level to the overall firm performance (Ployhart, 2021).

RESEARCH METHODOLOGY

Our exploration into the Scopus database was initiated on March 23, 2025. The term “Startup*” was employed to target titles, abstracts, and keywords yielding an initial expansive pool of 17,891 articles (2015-2025). To narrow the research objectives, extra search terms were included using the connector “AND,” for the “Human capital” term. By incorporating the additional search terms, the number of articles was reduced to 182, enabling a more precise study of the subject matter. To refine this vast collection, strategic and well-defined parameters were set below, and 20 papers were selected:

- Inclusion criteria: only articles that:
 - Were published within the past decade (2015-2025).
 - Were authored in English.
 - Were Sources from journals in the realms of business, management, and accounting.
- Exclusion criteria: articles were discarded if they:
 - Deviated from the core research theme.
 - Were not authored in English.
 - Were published before our defined ten-year window.
 - Were not Sources from Journals in the realms of business, management, and accounting.

Figure 1.
Paper selection
process



Data synthesis, analysis, and the role of Covidence

Among the 20 articles selected, a rigorous thematic synthesis was conducted to elucidate dominant patterns, emergent themes, and intricate nuances related to Ethical leadership and Sustainable business practices. This analytical endeavor not only foregrounded salient findings but also underscored discernible gaps in contemporary scholarship, suggesting directions for future research. In our pursuit of methodological rigor and to optimize the systematic review process, we incorporated Covidence, an esteemed digital platform dedicated to systematic reviews. Covidence was indispensable, providing invaluable support from the preliminary screening stages to data extraction and the conclusive analytical phase. While our systematic review has yielded rich insights, we understand the inherent limitation of relying exclusively on Scopus. Though Scopus provides comprehensive coverage, the incorporation of other databases might have rendered a broader spectrum of literature, capturing more nuanced or regional perspectives. We acknowledge this limitation and suggest that future studies might expand their literature search across multiple databases to ensure even more extensive coverage

RESULT AND DISCUSSION

RQ1) What are the principal findings and topics related to human capital's role in enhancing a startup's growth?

Based on a systematic synthesis of 16 selected articles, this study identifies four key thematic groups that reflect how human capital contributes to the growth and development of startups. These themes illustrate the multidimensional ways in which individual capabilities, team dynamics, knowledge systems, and innovation capacity shape startup success.

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Table 1.
Thematic analysis
key findings

Thematical groups	Key findings
Founders' and Team Human Capital	"Most key decisions and processes in startup firms are linked to their founders... namely to their bundles of pre-entry experience and knowledge" (Rocha & Pozzoli, 2024)
	"Startups, in their early stages, rely heavily on their founding team and are yet to formalize their organizational structure" (Lee & Kim, 2024)
	"Founders' attributes, including their experience or demographic characteristics,...attracting new hires during the early stages of business development"(Hietaniemi et al., 2024)
	"Human capital is defined as the awareness of managers about digital transformation, developing digital management skills, digital capabilities and digital culture, improving adaptability and mobility, creative and intellectual capacity in digital technology" (Nguyen et al., 2023)
	"In our framework... 'industry-specific human capital obtained by founders through prior work experience in the same industry' and 'entrepreneur-specific human capital'... developed by founders through leadership experience"(Grilli et al., 2023)
	"Founders are central individuals who supply and embody the knowledge that undergirds the creation and growth of new firms"(J. D. Kim, 2022)
	"Human capital refers to the abilities, competencies and know-how of the founder/employees"(Nigam et al., 2021)
Talent Acquisition and Management	"Hiring is indeed a high-stakes decision for entrepreneurs—failing to attract and retain employees in the early stages... may jeopardize a startup's long-term survival" (Rocha & Pozzoli, 2024)
	"Knowledge-based HRM includes practices designed to improve the knowledge-processes within the enterprise... selecting and hiring employees, designing jobs, planning compensation"(Chaudhuri et al., 2023)
Knowledge and Intellectual Resources	"According to human capital theory, human capital comprises several attributes, such as knowledge and experiences... These attributes have long been argued to be vital for entrepreneurial success" (Sansone et al., 2024)
	Entrepreneurial experience and management competency... were important factors in entrepreneurial competency... human capital includes various concepts such as experience and education level"(D. H. Kim, 2023)
	"awareness of digital transformation, self-development, digital management skills, create a digital culture... and develop digital capabilities for adaptive capacity and mobility...and...Creativity and intelligence play an important role in the digital transformation of startups"(Nguyen et al., 2023)
	"Domain knowledge refers to experience in similar work in a similar sector, industry, or company. There are three reasons why domain knowledge is an important human capitalDomain knowledge refers to experience in similar work in a similar sector, industry, or company. There are three reasons why domain knowledge is an important human capital" (Chung, 2023)
	"Such congenital learning enables the transfer of founders' knowledge to the new firm, transplanting useful routines, cognitive templates, and capabilities" (Hashai & Zahra, 2022)
	"The most valuable forms of knowledge tend to be tacit and hard to imitate... departing employees are conduits of knowledge" (J. D. Kim, 2022)

Thematical groups	Key findings
Innovation and Capability Development	“Innovation is considered an iterative process which aims to create new practices by using new or existing knowledge” (Chaudhuri et al., 2023)
	“Specific human capital is especially relevant in positively shaping entrepreneurship dynamics, particularly in knowledge-intensive sectors and new venture growth” (Grilli et al., 2023)
	“High human capital founders are less likely to switch to distant industries due to loss of knowledge relevance” (Sakakibara & Balasubramanian, 2020)
	“Entrepreneurs with better cognitive capability and more experience are able to generate more creative and productive applications from resources” (Xu, 2019)
	“Entrepreneurs with stronger education backgrounds are better able to develop and communicate a business plan” (Talaia et al., 2016)
	“Absorptive capacity allows a startup to benefit more from collaborative R&D” (Toole et al., 2015)

The first thematic group captures the foundational role of startup founders and early team members capital in shaping the potential of this venture. In early-stage startups, the organizational structure mostly informal, since they tend to be established by small members, which makes the competencies and experiences of the founding members particularly really decide how they future will be (Lee & Kim, 2024). The reliance can be a strategic asset or constraint, depending on the situation. For example, industry-specific experience and entrepreneurial background, such as prior startup involvement or leadership roles, contribute to stronger decision-making and strategic alignment of the startup (Grilli et al., 2023; Nguyen et al., 2023). Furthermore, founders with experience in the same exact industry or prior firm can apply context-specific insights that help streamline coordination and execution (Hashai & Zahra, 2022). This experiential knowledge also facilitates the transfer of knowledge routines, cognitive templates, and decision-making logic, which are often embedded in tacit form and cannot easily be taught or outsourced (J.D. Kim, 2022; Nigam et al., 2021).

The second thematic group addresses how the startup acquires and manages its talent as part of its strategies. In the paper reviewed in this study, hiring decisions are the main strategy, especially when resource constraints amplify the impact of every new recruitment. because poor recruitment decisions can impact long-term consequences on performance and adaptability which lead to whether they survive or collapse (Rocha & Pozzoli, 2024). Therefore, some startups implement knowledge-based human resource management (HRM) practices such as competency-based hiring, job design, and tailored compensation planning, which align individual capabilities with the startup’s evolving strategic goals (Chaudhuri et al., 2023). These practices enable startups to integrate HR activities into their knowledge-building processes, enhancing resilience and adaptability over time.

The third thematic group highlights the knowledge-carrying functions of human capital within startups. They capture the importance of not only the explicit but also the tacit knowledge, such as domain expertise and intuition, which develop from experience and time and will support better decision-making in a dynamic environment (Sansone et al., 2024; Chung, 2023). The knowledge includes ingrained routines, mental models, and industry-specific knowledge, which shape how the organization learns, adapts, and grows (Hashai & Zahra, 2022; J.D. Kim, 2022). Moreover, digital skills and technological literacy further enable startups to leverage tools, interpret data, and respond quickly to changing market dynamics (Nguyen et al., 2023).

The final theme explores the role of human capital in fostering innovation and building dynamic capabilities. Entrepreneurs with diverse professional backgrounds and a strong learning orientation tend to show greater flexibility and are more likely to iterate, pivot, and adapt as new challenges emerge (Xu, 2019). Importantly, absorptive capacity—the ability to recognize, assimilate, and apply external knowledge—enables startups to benefit from partnerships and co-development, especially in research-driven ecosystems (Toole et al., 2015). When these capabilities are supported by high levels of human capital, founders can transform abstract knowledge into actionable strategies, positioning the startup for innovation and long-term evolution in dynamic markets (Grilli et al., 2023; Chaudhuri et al., 2023).

RQ2) How do various variables influence mediate or moderate the relationship between human capital theory and the growth of a startup?

To address RQ2, this study examines how various variables function as independent, mediating, or moderating elements in the relationship between human capital and startup growth. These roles help to explain how, why, and under what conditions human capital leads to different outcomes in entrepreneurial contexts.

Table 2.
Variables on
research regarding
the human capital
domain in the
startup context

Role	Variables	Source
Independent	Domain Knowledge	Chung (2023)
	Specific Human Capital	Grilli et al. (2023)
	Same Industry/Firm Experience	Hashai & Zahra (2022)
	Human Capital Redeploy ability	Hietaniemi et al. (2024)
	Relocation	J.D. Kim (2022)
	Timing of Scaling	Lee & Kim (2024)
	Social Capital	Nguyen et al. (2023)
	Elite Education	Nigam et al. (2021)
	Hiring Strategy	Rocha & Pozzoli (2024)
	Prior Entrepreneurial Experience	Rocha & Pozzoli (2024)
	Industry-Specific Human Capital	Sakakibara & Balasubramanian (2020)
	Coding Skills	Sansone et al. (2024)
	MBA/Elite Education	Talaia et al. (2016)
Mediating	University Alliance	Toole et al. (2015)
	Founders' Education/Experience	Xu (2019)
	Innovation Capability	Chaudhuri et al. (2023)
	Product Market Fit	Lee & Kim (2024)
Moderating	Human Capital	Nguyen et al. (2023)
	Absorptive Capacity	Toole et al. (2015)
	Founding Asset Level	Xu (2019)

The independent variables directly shape or represent human capital-related inputs into the startup process. For instance, founders' education, prior entrepreneurial experience, industry-specific knowledge, and digital competencies such as coding skills (Sansone et al., 2024) are all recognized as key inputs that influence startup performance. Variables like domain knowledge (Chung, 2023), human capital redeployability (Hietaniemi et al., 2024), and relocation decisions (J.D. Kim, 2022) reflect nuanced aspects of human capital that enable or constrain entrepreneurial action. In addition, elite educational background (Nigam et al., 2021; Talaia et al., 2016) and social capital (Nguyen et al., 2023) further expand the scope of human capital by including relational and reputational elements. These independent variables act as the primary drivers in most models that investigate startup innovation, hiring success, or scaling trajectories.

Moving to see the pattern on mediating variables explain how human capital is converted into performance outcomes. For example, innovation capability is identified as a key mediator that transforms general human capital into entrepreneurial ecosystem development (Chaudhuri et al., 2023). Likewise, product-market fit (Lee & Kim, 2024) and absorptive capacity (Toole et al., 2015) demonstrate how knowledge and skills must be contextually adapted and absorbed for impact. Interestingly, in some models, human capital itself acts as a mediating variable, particularly in the case of derived or second-order constructs. For example, Nguyen et al. (2023) show how ethical and digital leadership practices improve human capital, which in turn affects startup transformation. The Moderating variables on this study did not found a lot in selected literature, the moderating variable itself shape the strength or direction of the relationship between human capital and outcomes. In this dataset, the founding asset level (Xu, 2019) plays a crucial role. It enhances or restricts the utility of human capital depending on whether the startup has enough resources to support execution. Even highly educated founders may struggle to grow if the initial resource base is limited.

RQ3) What are the significant patterns, and trends in understanding the role of human capital in enhancing the growth of a startup?

If we conclude the findings from thematic analysis and the pattern of variables used, it shows 4 trend domains in the topic of human capital and the growth of startups:

- 1) Founder-centric
Studies focus on founder education, prior experience, and industry-specific knowledge as primary drivers of startup success (e.g., Hashai & Zahra, 2022; Grilli et al., 2023).
- 2) Domain specificity matters
Human capital is more valuable when it is contextually relevant, i.e., experience from the same sector or market (Chung, 2023; Sakakibara & Balasubramanian, 2020).
- 3) Role of digital skills
A growing body of literature that positions digital management capabilities and coding skills as key aspects of modern human capital (Nguyen et al., 2023; Sansone et al., 2024).

- 4) Human capital interaction
Repeated emphasis on mediation and moderation through variables like innovation capability, absorptive capacity, or coachability.

Beyond the identified patterns, the literature reveals emerging trends that suggest shifting perspectives and new areas of emphasis on human capital in the growth of the startup:

- 1) Earlier literature emphasized general education; recent works stress domain knowledge and context-specific application (Chaudhuri et al., 2023; Chung, 2023), there is a need to shift from general to specific capital
- 2) Human capital is increasingly studied through psychological, cognitive, and behavioral dimensions such as learning orientation.
- 3) Startups in the technology sector are prompting scholars to explore technical and specific knowledge, skills, and literacy as human capital extensions.

In conclusion, these emerging trends reflect a broadening scope of human capital in enhancing the growth of startups, where the shift of demand that human capital should be context-specific application, also the psychological, cognitive, and behavioral dimensions but also to proactively side by side with technology advancement.

RQ4) What future research directions could address the identified gaps and enhance comprehension of the role of human capital in enhancing the growth of a startup?

In addition to the patterns and trends, several research gaps were identified in the existing literature, indicating areas where further research is needed to enhance our understanding of the role of human capital in enhancing a startup’s growth

Research Gap 1: Team-Level Human Capital Dynamics

Much of the existing literature focuses on individual-level human capital, especially the founding teams, such as education, prior experience, or domain knowledge. However, startups usually work in highly dynamic and collaborative environments where success depends on collective effort. Future research should explore team-level human capital, including diversity, learning dynamics, and sharing knowledge agenda. Examining how heterogenous skill sets influence performance could provide better insight into startup team effectiveness.

Research Gap 2: Longitudinal Impact of Human Capital Across Startup Stages

Current studies predominantly use cross-sectional methods, capturing only a glimpse of human capital’s effect on startup growth. However, the influence of human capital is able to change over time, especially as startups evolve from ideation to scaling, or we call it the early stage. Longitudinal studies are needed to examine how human capital develops and interacts with organizational learning, resource acquisition, and capability building across different startup lifecycle stages. This study agenda would also help assess whether early human capital advantages persist, diminish, or transform over time.

Research Gap 3: Contextual Moderators in Emerging Markets and Sectors

While many studies are conducted in mature entrepreneurial ecosystems, the role of human capital in startups from emerging economies or niche industries remains underexplored. Contextual factors such as institutional voids, market informality, or access to digital infrastructure may significantly alter how human capital translates into performance. Comparative studies across different regions, industries, or regulatory environments could reveal which types of human capital matter most under specific conditions and how entrepreneurs adapt to overcome contextual limitations.

Table 3.
Research
suggestion for
future research

Research gap			Research question
Team-Level Dynamics	Human Capital		How do team-level human capital configurations, such as diversity, shared learning, and complementary skills, affect startup performance and innovation outcomes?
Longitudinal Impact of Human Capital Across Startup Stages			How does the role of founder and team human capital evolve throughout different stages of the startup lifecycle (e.g., ideation, scaling, maturity)?
Contextual Moderators in Emerging Markets and Sectors			How do institutional, regional, or sector-specific contexts moderate the impact of human capital on startup success, particularly in emerging markets or industries?

Based on the presented discussion and the four research questions, it can be concluded that human capital, in relation to startup growth, is influenced by a range of interrelated variables. These can be broadly grouped into four themes identified in response to RQ1: (1) Founders' and team human capital, (2) Talent acquisition and management, (3) Knowledge and intellectual resources, and (4) Innovation and capability development. The findings of RQ2 reveal that several variables act as mediators or moderators of the relationship between human capital and startup performance, including innovation capability, absorptive capacity, domain knowledge, digital capabilities, product-market fit, coachability, and founding asset levels. The results of RQ3 indicate that significant trends are emerging in the literature, such as the growing emphasis on digital literacy, team-based human capital, and contextual application of experience. However, notable research gaps remain, including team-level human capital dynamics, the longitudinal impact of human capital across startup stages, and contextual moderators in emerging markets and sectors. Finally, RQ4 suggests that future research should investigate how team configurations influence startup effectiveness, assess how human capital evolves throughout the startup lifecycle, explore how institutional and regional conditions moderate its effects, and examine how human capital is utilized strategically under resource constraints. These directions will help build a more comprehensive and context-sensitive understanding of human capital's role in entrepreneurial success.

CONCLUSION

In conclusion, this research highlights the pivotal role of human capital in enhancing the growth of startups. Through a systematic literature review, the study finds that founders' human capital not only drives the core operations of a startup but also plays a crucial role in securing funding, an essential factor that influences nearly all aspects of startup development by attracting investors and key industry stakeholders. Moreover, human capital is consistently discussed in the literature as a foundation for knowledge and intellectual resources, which are critical for achieving sustainable success. Effective hiring and talent development strategies are therefore essential to align the capabilities of team members with the founder's vision, particularly in driving innovation and adaptability.

Despite these insights, the review also reveals several important research gaps, including the need to better understand the dynamics of team-level human capital, the longitudinal impact of human capital across different stages of startup development, and the role of contextual moderators in emerging markets and underrepresented sectors. Furthermore, the influence of human capital within resource-constrained environments such as SMEs, as well as across cross-national and cultural contexts, remains underexplored. Addressing these gaps through future research will provide a more nuanced and comprehensive understanding of how human capital, as a key internal resource, can be strategically leveraged to support startup growth across various industries and development levels.

Reference

- Audretsch, D. B., & Acs, Z. J. (1994). New-firm startups, technology, and macroeconomic fluctuations. *Small Business Economics*, 6(6), 439–449. <https://doi.org/10.1007/BF01064858>
- Audretsch, D. B., Belitski, M., Caiazza, R., & Siegel, D. (2023). Effects of open innovation in startups: Theory and evidence. *Technological Forecasting and Social Change*, 194. <https://doi.org/10.1016/j.techfore.2023.122694>
- Baia, E., Ferreira, J. J., & Rodrigues, R. (2020). Value and rareness of resources and capabilities as sources of competitive advantage and superior performance. *Knowledge Management Research and Practice*, 18(3), 249–262. <https://doi.org/10.1080/14778238.2019.1599308>
- Barney, & Clark. (2007). *Resource-Based Theory Creating and Sustaining Competitive Advantage*.
- Baron, Angela., & Armstrong, Michael. (2007). *Human capital management : achieving added value through people*. Kogan Page Ltd.
- Becker, G. M., Degroot, M. H., & Marschak, J. (1964). *MEASURING UTILITY BY A SINGLE-RESPONSE SEQUENTIAL METHOD*.
- Chakraborty, D., & Biswas, W. (2019). Evaluating the impact of human resource planning programs in addressing the strategic goal of the firm: An organizational perspective. *Journal of Advances in Management Research*, 16(5), 659–682. <https://doi.org/10.1108/JAMR-01-2019-0007>
- Chaudhuri, R., Chatterjee, S., Vrontis, P. D., & Vicentini, F. (2023). Effects of human capital on entrepreneurial ecosystems in the emerging economy: the mediating role of digital knowledge and innovative capability from India perspective. *Journal of Intellectual Capital*, 24(1), 283–305. <https://doi.org/10.1108/JIC-07-2021-0177>
- Chung, E. (2023). Domain Knowledge-Based Human Capital Strategy in Manufacturing AI. *IEEE Engineering Management Review*, 51(1), 108–122. <https://doi.org/10.1109/EMR.2022.3215074>
- Coad, A., Frankish, J. S., Roberts, R. G., & Storey, D. J. (2016). Predicting new venture survival and growth: Does the fog lift? *Small Business Economics*, 47(1), 217–241. <https://doi.org/10.1007/s11187-016-9713-1>

- Cockayne, D. (2019). What is a startup firm? A methodological and epistemological investigation into research objects in economic geography. *Geoforum*, 107, 77–87. <https://doi.org/10.1016/j.geoforum.2019.10.009>
- Collins, C. J. (2022). *Expanding the resource based view model of strategic human resource management*. Routledge.
- Dykha, M., Dykha, V., Pylypyak, O., Poplavska, O., Tanasiienko, N., & Tanasiienko, V. (2023). Risk Management Of The Startup Projects. 2023 IEEE 4th KhPI Week on Advanced Technology, KhPI Week 2023 - Conference Proceedings. <https://doi.org/10.1109/KhPIWeek61412.2023.10311582>
- E. Armstrong, C. (2013). Competence or flexibility? Survival and growth implications of competitive strategy preferences among small US businesses. *Journal of Strategy and Management*, 6(4), 377–398. <https://doi.org/10.1108/JSMA-06-2012-0034>
- Gerhart, B., & Feng, J. (2021). The Resource-Based View of the Firm, Human Resources, and Human Capital: Progress and Prospects. *Journal of Management*, 47(7), 1796–1819. <https://doi.org/10.1177/0149206320978799>
- Grilli, L., Mrkajic, B., & Giraudo, E. (2023). Industrial policy, innovative entrepreneurship, and the human capital of founders. *Small Business Economics*, 60(2), 707–728. <https://doi.org/10.1007/s11187-022-00611-y>
- Hashai, N., & Zahra, S. (2022). Founder team prior work experience: An asset or a liability for startup growth? *Strategic Entrepreneurship Journal*, 16(1), 155–184. <https://doi.org/10.1002/sej.1406>
- Hietaniemi, L., Santamaria, S., Kacperczyk, A., & Peltonen, J. (2024). Human resource redeployability and entrepreneurial hiring strategy. *Strategic Management Journal*, 45(2), 272–300. <https://doi.org/10.1002/smj.3547>
- Inderst, R., & Müller, H. M. (2004). The effect of capital market characteristics on the value of start-up firms. *Journal of Financial Economics*, 72(2), 319–356. <https://doi.org/10.1016/j.jfineco.2003.06.001>
- Kabous, L., Hinz, A., Philippi, S., & Ch, S. P. (n.d.). *Linking Effectuation Logic with Business Model Innovation: An Investigation in the Context of Swiss Startups*.
- Kim, D. H. (2023). The Mediation Effect of Human Capital on the Relationship between Senior Entrepreneurial Competency and Entrepreneurial Performance Using Mediation Model. *Global Business and Finance Review*, 28(7), 138–154. <https://doi.org/10.17549/gbfr.2023.28.7.138>
- Kim, J. D. (2022). Startup acquisitions, relocation, and employee entrepreneurship. *Strategic Management Journal*, 43(11), 2189–2216. <https://doi.org/10.1002/smj.3408>
- Kollmann, T., Stöckmann, C., Niemand, T., Hensellek, S., & de Cruppe, K. (2021). A configurational approach to entrepreneurial orientation and cooperation explaining product/service innovation in digital vs. non-digital startups. *Journal of Business Research*, 125, 508–519. <https://doi.org/10.1016/j.jbusres.2019.09.041>
- Lee, S., & Kim, J. D. (2024). When do startups scale? Large-scale evidence from job postings. *Strategic Management Journal*, 45(9), 1633–1669. <https://doi.org/10.1002/smj.3596>
- Madhani. (n.d.). *Resource Based View (RBV) of Competitive Advantage An Overview*. [http://ssrn.com/abstract=1578704Electroniccopyavailableat:http://ssrn.com/abstract=1578704https://ssrn.com/abstract=1578704https://ssrn.com/abstract=1578704Electroniccopyavailableat:http://ssrn.com/abstract=1578704Electroniccopyavailableat:http://ssrn.com/abstract=1578704](http://ssrn.com/abstract=1578704Electroniccopyavailableat:http://ssrn.com/abstract=1578704https://ssrn.com/abstract=1578704Electroniccopyavailableat:http://ssrn.com/abstract=1578704Electroniccopyavailableat:http://ssrn.com/abstract=1578704)
- Madhavi, T., & Mehrotra, R. (2019). Competency-Based Talent Management—An Effective Management Tool. *Lecture Notes in Electrical Engineering*, 556, 291–299. https://doi.org/10.1007/978-981-13-7091-5_27
- McGahan, A. M. (2021). Integrating Insights From the Resource-Based View of the Firm Into the New Stakeholder Theory. *Journal of Management*, 47(7), 1734–1756. <https://doi.org/10.1177/0149206320987282>
- Nguyen, T. T. Q., Tran, N. G., & Nguyen, T. T. (2023). Social Capital and Digital Transformation of Startups in Vietnam during the Covid-19 Pandemic: The Mediating Role of Human Capital and Access to Resources. *Management Systems in Production Engineering*, 31(1), 33–42. <https://doi.org/10.2478/mspe-2023-0005>
- Nigam, N., Mbarek, S., & Boughanmi, A. (2021). Impact of intellectual capital on the financing of startups with new business models. *Journal of Knowledge Management*, 25(1), 227–250. <https://doi.org/10.1108/JKM-11-2019-0657>
- Ousghir, S., & Daoud, M. (2022). EXPLORATORY STUDY ON INNOVATION MANAGEMENT IN STARTUPS, AN ATTEMPT TO DESIGN IT THROUGH THE BUSINESS MODEL. *Eastern-European Journal of Enterprise Technologies*, 1(13–115), 20–26. <https://doi.org/10.15587/1729-4061.2022.251845>
- Ployhart, R. E. (2021). Resources for What? Understanding Performance in the Resource-Based View and Strategic Human Capital Resource Literatures. *Journal of Management*, 47(7), 1771–1786. <https://doi.org/10.1177/01492063211003137>
- Rajagopal, A. (2018). Relationship between employee mobility and organizational creativity to improve organizational performance: A strategic analysis. In *Business Governance and Society: Analyzing Shifts, Conflicts, and Challenges* (pp. 237–250). Palgrave Macmillan. https://doi.org/10.1007/978-3-319-94613-9_14
- Rocha, V., & Pozzoli, D. (2024). Do hiring strategies change in successive entrepreneurial stints? *Strategic Management Journal*. <https://doi.org/10.1002/smj.3681>

- Sakakibara, M., & Balasubramanian, N. (2020). Human capital, parent size, and the destination industry of spinouts. *Strategic Management Journal*, 41(5), 815–840. <https://doi.org/10.1002/smj.3108>
- Sansone, G., Ghezzi, A., Landoni, P., & Rangone, A. (2024). Students' Entrepreneurial Engagement and Student Entrepreneurship: Do Coding and Digital Skills Matter? *IEEE Transactions on Engineering Management*, 71, 5733–5743. <https://doi.org/10.1109/TEM.2024.3367893>
- Seley, J. E. (1981). Clark University Targeting Economic Development: An Examination of the Needs of Small Businesses. In *Source: Economic Geography* (Vol. 57, Issue 1). <http://www.jstor.orgURL:http://www.jstor.org/stable/144223> Accessed: 12-03-2015 11:48UTC
- Talaia, M., Pisoni, A., & Onetti, A. (2016). Factors influencing the fund raising process for innovative new ventures: an empirical study. *Journal of Small Business and Enterprise Development*, 23(2), 363–378. <https://doi.org/10.1108/JSBED-07-2014-0111>
- Toole, A. A., Czarnitzki, D., & Rammer, C. (2015). University research alliances, absorptive capacity, and the contribution of startups to employment growth. *Economics of Innovation and New Technology*, 24(5), 532–549. <https://doi.org/10.1080/10438599.2014.988519>
- Xu, Y. (2019). The moderating effect of founding assets on the founders' human capital: New venture growth relationship. *New England Journal of Entrepreneurship*, 22(2), 126–142. <https://doi.org/10.1108/NEJE-05-2019-0027>