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Review

Psychological Capital and Entrepreneurial Behavior: A Scoping Review and Co-Word Analysis from a Positive Psychology Perspective

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Abstract

Psychological capital (PsyCap), encompassing hope, self-efficacy, resilience, and optimism, has established itself as a key psychological resource for individuals. However, research in this field remains fragmented, which limits a comprehensive understanding of its role in the psychological mechanisms underlying entrepreneurial behavior, particularly in terms of motivation, coping with stress, and resilience in the face of uncertainty. This study aims to examine and organize the intellectual landscape of PsyCap. A scoping review of 215 articles indexed in Scopus and Web of Science over nearly two decades was conducted in accordance with PRISMA-ScR, using a co-thematic analysis based on text mining techniques. The results reveal a three-phase evolution of the field (emergence, growth, and maturity), built around individual functioning, entrepreneurial cognitions and attitudes, and psychosocial resources. The analysis also highlights unequal access to and use of PsyCap across contexts, as well as differences related to the specific characteristics of the populations studied, shedding light on underexplored groups such as women, refugees, rural and social entrepreneurs, migrants, and entrepreneurs with disabilities. These findings contribute to advancing knowledge in entrepreneurial psychology and offer a detailed analysis of future research avenues, including emerging research questions, methodological approaches, and theoretical interdisciplinary perspectives.

Keywords: psychological capital; psychosocial resources; hope; self-efficacy; resilience; optimism; entrepreneurial psychology; bibliometrics; co-thematic analysis

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1. Introduction

The current economic environment is characterized by successive disruptions and persistent uncertainty (Audretsch & Kariv, 2025; Arend, 2025; Estrada-Cruz et al., 2024). These unstable conditions affect firms of all sizes and place increasing psychological demands on entrepreneurs. While the VUCA framework has long been used to describe volatility and complexity, recent research argues that current conditions are even more brittle, anxious, and non-linear than previously assumed as captured by the dynamics of a BANI environment (Mieszajkina & Ostapińska, 2024). In such contexts, understanding the psychological resources that enable entrepreneurs to adapt, persist, and perform acquires particular relevance. Entrepreneurs and intrapreneurs increasingly face pressures that can trigger stress, burnout, or failure (Pandey et al., 2021; St-Jean et al., 2022; De Hoe & Janssen,

2022). Coping and adaptation depend on psychological resources that enable individuals to absorb shocks, pivot business models, and sustain action under uncertainty (Fang et al., 2020; Ahmed et al., 2022).

Within this landscape, PsyCap stands out as a rare and malleable resource that complements human and social capital (Luthans & Youssef, 2004; Newman et al., 2014). PsyCap supports individual functioning and performance (Gunawan et al., 2021), relates to emotional intelligence (Tjimuku & Atiku, 2024), and shapes entrepreneurial outcomes such as creative innovation behavior and new venture performance (Q. Gao et al., 2020a; Y. Wang et al., 2019). Although originally conceptualized at the individual level, PsyCap was defined by Luthans et al. (2007) as "an individual's positive psychological state of development characterized by: (1) having confidence (efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" This definition reflects the foundational idea in positive psychology that PsyCap is a developable and dynamic resource, one that can strengthen, erode, or be rebuilt depending on experiences and contexts (Avey et al., 2011).

This conceptualization was later extended to the team level, where PsyCap reflects a collective state shared among group members regarding their positive evaluation of the team's environment and its prospects for development and success. It is operationalized as a group-level construct articulated around four interrelated dimensions: collective efficacy, hope, optimism, and resilience (West et al., 2009; M. Chen et al., 2023). At the organizational level, PsyCap has been described as "the organization's level of positive psychological resources: hope, optimism, resilience, and confidence [i.e., efficacy], reflecting the organization's positive psychological state" (McKenny et al., 2013; Grözinger et al., 2022).

This multilevel perspective plays a key role in entrepreneurship and intrapreneurship, where individual agency and collective dynamics jointly shape outcomes, especially in environments marked by uncertainty, transitions, and resource constraints. Despite this richness, research on PsyCap in entrepreneurial and intrapreneurial contexts remains highly fragmented across subfields. Existing reviews focus mainly on employees, leadership, or HRM (Newman et al., 2014; Luthans & Youssef-Morgan, 2017).

In this regard, several review studies have examined related thematic areas. However, these contributions differ from our work along multiple dimensions. For example, Newman et al. (2014) conducted a narrative review of PsyCap, mainly grounded in studies carried out in organizational contexts. Their work does not specifically focus on entrepreneurship and engages with this domain only marginally. Similarly, Margaça et al. (2023) mobilized a bibliometric approach in a comparable conceptual area. Their study covers a more recent period (2013–2022), whereas ours extends from 2006 onward. While their analysis provides useful insights into PsyCap, intrapreneurship remains absent from their scope, and their methodology relies primarily on co-occurrence clusters captured at a single point in time. Such a static view leaves unanswered the question of how themes evolve over time. The present study adopts a different posture. Building on a hybrid approach that combines bibliometric analysis with a critical reading of the key articles from each period, this design mobilizes density maps and temporal co-word analysis at each phase of the field's evolution. Often overlooked in bibliometric studies, these tools allow a finer reading of thematic dynamics. They also bring back into view less frequent but conceptually important contributions, which static analyses dilute in their global aggregation.

The contribution of Loi et al. (2025) is insightful in this regard. The authors conducted a systematic review focused on the mechanisms and effects of PsyCap. Our objective is

different. Here, the aim is to map the field, trace its evolution, and identify underexplored areas. This involves a broader perspective that integrates both entrepreneurship and intrapreneurship, as well as their different subdomains, such as social entrepreneurship, academic entrepreneurship, and intrapreneurial behavior.

Building on this positioning, bibliometric analysis offers a rigorous means to address this gap by uncovering thematic structures, identifying influential bodies of work, and tracing how knowledge evolves over time (Ellegaard & Wallin, 2015; Ellegaard, 2018; Donthu et al., 2021). This study conducts a bibliometric review of entrepreneurial and intrapreneurial PsyCap from 2006 to 2024, combining keyword co-occurrence networks with a diachronic segmentation of the literature.

Our goal is not only to map the field but also to structure a dispersed body of work and illuminate what remains overlooked. We show how core strands have formed and shifted, identify weak signals that are still underexplored, and outline promising directions for future inquiry.

Accordingly, the following research questions guide this study:

RQ1: How is the intellectual structure of research on entrepreneurial and intrapreneurial PsyCap organized?
RQ2: Who are the primary contributors (countries and journals) to this research?
RQ3: What insights do existing studies provide into the main themes and topics associated with entrepreneurial and intrapreneurial PsyCap?
RQ4: How have these themes and related research streams evolved over time?
RQ5: What future research directions can be identified in terms of themes, methodologies, and target populations?

In answering these questions, our review provides four key contributions.

First, it offers a structured trajectory of the field by organizing nearly two decades of research into coherent phases and thematic strands. Second, it exposes weak signals and overlooked populations, showing why PsyCap may be particularly relevant for underrepresented groups. Third, it highlights methodological and theoretical pathways that could deepen future research at individual, team, and organizational levels. Finally, it presents practical, educational, and policy implications, illustrating how PsyCap can be mobilized as a lever to strengthen entrepreneurial and intrapreneurial action.

2. Methods

2.1. Bibliometric Analysis

Bibliometric analysis refers to the application of a set of quantitative techniques designed to measure and examine bibliometric data, including citation patterns and other performance indicators (Broadus, 1987; Donthu et al., 2021; Passas, 2024). The initial reflections on bibliometric methods are not recent, which indicates that considerable time has passed since the inception of discussions regarding this analytical approach. Nevertheless, bibliometric analysis has been widely applied across several business-related and adjacent fields. Its growing use can be observed in areas such as marketing (e.g., Rosário et al., 2023), organizational psychology and occupational health (e.g., Karakitsiou et al., 2025), and the psychology of working students and work–study interface research (e.g., di Biase & Giusino, 2026). These applications highlight the versatility of bibliometric and review-based approaches in tracing the evolution of a research domain and identifying thematic shifts over time. This growth is driven by the ambition to (1) systematically structure and map cumulative and often voluminous bodies of literature, (2) obtain a comprehensive overview of a given research field, (3) identify gaps within its intellectual, conceptual and social structure, and (4) uncover emerging trends that may lead to new research perspectives. This type of analysis encompasses a wide range of material categories, including journal

articles, books, theses, and grey literature. Furthermore, bibliometric analysis techniques are generally classified into two well-defined categories (Donthu et al., 2021):

- Performance analysis is a descriptive approach that examines the contributions of research entities within a field. It uses publication-based metrics (e.g., Total Publications, TP), citation-based metrics (e.g., Total Citations, TC), and combined indicators such as the h-index.
- Scientific mapping focuses on the intellectual interactions and structural linkages among research entities. It encompasses techniques such as citation analysis, co-citation analysis, bibliographic coupling, co-word analysis, and co-authorship analysis.

2.2. Text Mining as a Method

Bibliometric methods transcend the simple presentation of scholarly production as mere lists or citation indexes. Bibliometric mapping provides a network visualization that depicts a field's evolution and the structure of its interconnections, thus implicitly recovering the genealogy of scholarly contributions (C. Chen, 2004). Hence, a plurality of bibliometric networks can be analyzed, encompassing publications, authors, journals, institutions, and countries (Van Eck & Waltman, 2010, 2022). In this regard, five different types of bibliometric mapping analyses can be conducted: co-word analysis, co-authorship, bibliographic coupling, co-citation, and citation analysis.

In the present study, a co-word analysis is undertaken through a text extraction technique that examines the semantic content of article titles, author keywords, and abstracts. Therefore, we applied a text mining procedure, to generate and display keyword co-occurrence networks (Van Eck & Waltman, 2011). Furthermore, the range of bibliometric analysis software is vast, including various tools such as Bibexcel, BiblioShiny, and CitNetExplorer, etc. However, several scholars have acknowledged the effectiveness of VOSviewer, particularly for studies focusing on thematic co-occurrence (e.g., Moral-Muñoz et al., 2020; Van Eck & Waltman, 2010). This software provides users with excellent text mining features, enabling (1) efficient data import and export from multiple sources, (2) the extraction of relevant words from a collection of scientific papers, and (3) the construction of networks using mapping and clustering methods for network-based visualization (Van Eck & Waltman, 2011; Waltman et al., 2010).

Furthermore, the VOS (Visualization of Similarities) enables the construction of distance-based network maps, where the position of nodes is algorithmically determined so that the distance between any pair of nodes reflects the strength of their relationship. The VOS technique is an alternative to multidimensional scaling (MDS) techniques. Unlike MDS approaches, the VOS approach avoids artifacts, such as the tendency to position the most important items at the center of the map and the less important ones at the periphery, or to arrange elements in a circular configuration (Van Eck et al., 2010). Bibliometric mapping, based on a co-occurrence matrix, is performed in three stages. First, a similarity matrix is derived. Next, the visualization technique is applied to the similarity matrix in order to generate a bibliometric map. Finally, transformation, rotation, and alignment procedures are performed to optimize the spatial configuration of the map for interpretability (Van Eck & Waltman, 2010). In the following section, we elaborate on our methodological strategy (Figure 1), adopted to examine the evolution of research trends in the field of PsyCap within (intra)entrepreneurship:

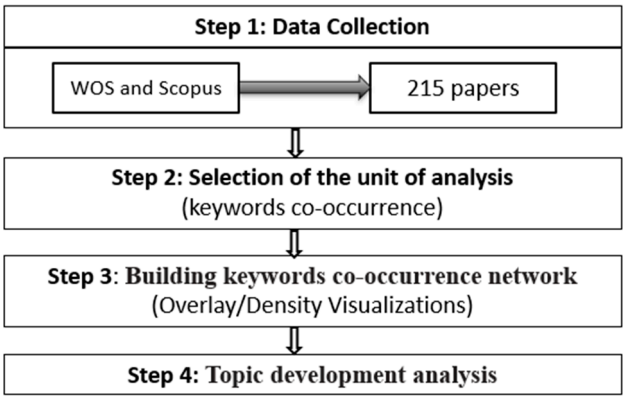


Figure 1. Methodological framework.

2.3. Methodological Strategy

This study adopts a scoping review approach following PRISMA-ScR guidelines (Tricco et al., 2018). Given the hybrid nature of this research, combining a scoping review with bibliometric analysis, some adaptations were made in the structure and reporting. The protocol was registered on the Open Science Framework (OSF). The scoping review protocol was registered on the Open Science Framework (OSF) under a CC0 1.0 Universal license (osf.io/cgvdn). The PRISMA-ScR checklist is provided in the supplementary materials (Table S1).

Step 1: Data collection

Following the recommendation to mobilize multiple bibliographic databases for a more comprehensive coverage (Pranckutė, 2021), we relied on Scopus and Web of Science. Both databases are widely used in bibliometric research and meet stringent coverage and accuracy criteria (Karimi et al., 2021; Thompson & Walker, 2015). Once the data sources were identified, selection criteria were defined to delineate the scope of the review. Table 1 presents the inclusion and exclusion criteria adopted in this study. The final search was conducted in July 2025.

Table 1. Eligibility criteria applied in the review.

	Inclusion Criteria	**Exclusion Criteria**
Database	Web of Science Scopus	Other databases
Field	PsyCap in entrepreneurship/intrapreneurship	PsyCap in HRM, education, healthcare, etc.
Period	Until 2024	Post 2024
Type de documents	Articles	Books, conference proceedings, book chapters, editorials, doctoral theses, research dissertations, etc.
Language	English	Other languages
Keywords	(“psychological capital” OR PsyCap) AND (“self-employ*” OR self employ* OR “business owner*” OR (independ* AND worker*) OR entrepre* OR intrapre* OR “corporate entrepreneurship” OR “corporate venturing” OR “strategic entrepreneurship” OR “entrepreneurial orientation” OR “strategic renewal”)	
Total	215 papers	

* indicates a truncation/wildcard operator used in the search strategy to retrieve multiple variants of the same root word (e.g., “self-employ*” retrieves self-employment, self-employed; “entrepre*” retrieves entrepreneur, entrepreneurship, entrepreneurial; “intrapre*” retrieves intrapreneur, intrapreneurship, intrapreneurial).

Based on these criteria, the study selection process followed the PRISMA flow diagram. As shown in Figure 2, the process followed four stages: identification, screening, eligibility assessment, and inclusion.

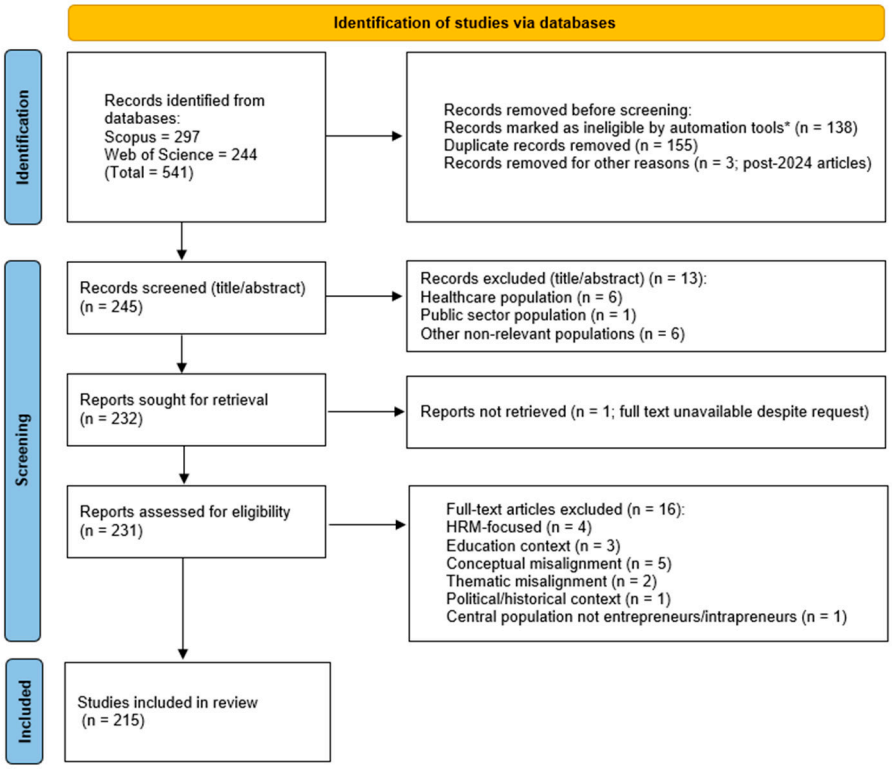


Figure 2. PRISMA flow diagram of the study selection process. * Automatic filters: English language, 2006–2024, journal articles only.

The selected databases yielded a total of 541 records. After removing duplicate records (n = 155), records excluded by automated tools (n = 138), and records removed due to publication dates beyond the 2006–2024 timeframe (n = 3), 245 records were retained for screening. Following the evaluation of titles and abstracts, 13 records were excluded, resulting in 232 reports sought for retrieval, of which one could not be accessed. Consequently, 231 reports were assessed for eligibility. After full-text assessment, 16 records were excluded for reasons such as HRM focus, conceptual misalignment, or non-entrepreneurial populations. Ultimately, 215 articles were included in the final review.

The selection process was conducted by two reviewers. Titles and abstracts were first screened independently, followed by full-text assessment. Disagreements were resolved through discussion, and when necessary, a third researcher was consulted.

The data charting process followed a hybrid approach combining automated text mining and manual extraction. We first extracted bibliometric data using VOSviewer (version 1.6.20), based on metadata imported in RIS format from the selected databases. Titles, abstracts, and author keywords were used to perform the co-word analysis. At the same time, we carried out a complementary manual extraction using a structured Excel file; to identify and organize additional information that is not fully captured by bibliometric tools, such as country, population studied, methodological approach, and theoretical framework.

Step 2: Selection of the unit of analysis

Various units can be considered in bibliometric studies, such as countries, authors, journals, or keywords (Van Eck & Waltman, 2010, 2022), along with different approaches

including co-authorship, citation, or co-word analysis (Donthu et al., 2021). The present study focuses on co-word analysis to examine the thematic evolution of PsyCap research in (intra)entrepreneurship, where keywords serve as proxies for research themes. This analysis draws on text-mining techniques applied to titles, abstracts, and author keywords. Co-word analysis is a content-based approach that focuses on the textual elements of publications (Callon et al., 1983).

To ensure the relevance and accuracy of our analysis, a standardization and correction process was applied to the extracted keywords. Two filtering criteria were mobilized. First, generic keywords (e.g., variable, approach, methodology) were removed. Second, semantically similar keywords were unified under a single standardized label. For instance, "PsyCap" and "psychological capital" were merged into one term. To this end, a thesaurus file was prepared and integrated into VOSviewer.

Step 3: Construction of co-occurrence networks

We used the VOS method developed by Van Eck and Waltman (2007) to construct the co-occurrence network. This method enables the visualization of similarities between keywords by positioning related themes closer to each other in a low-dimensional space (Van Eck et al., 2010), where distances reflect the strength of their relationships. More specifically, the VOS technique is based on the idea that the more frequently two themes co-occur, the stronger their link and the closer they are positioned in the map.

Compared to other mapping techniques, VOS reduces common visual distortions, such as circular or "horseshoe" layouts, which may lead to misinterpretations of the knowledge structure (Diaconis et al., 2008; Van Eck & Waltman, 2010). Based on this approach, bibliometric mapping is constructed through three fundamental stages (Van Eck & Waltman, 2010); (1) calculating similarities between keywords based on their co-occurrence, (2) visualizing these relationships in a network structure, and (3) optimizing the layout to improve readability and interpretation.

Step 4: Presentation and analysis of results

In order to visualize the relationships within the co-occurrence matrix, VOSviewer provides different types of maps: network, overlay, and density visualizations (Van Eck & Waltman, 2010). In this study, we mainly rely on overlay and density visualizations. The density visualization, presented as a heat map, highlights areas where research is more or less developed. It allows us to identify well-established themes as well as underexplored ones. The overlay visualization is particularly useful as it introduces a temporal dimension (Van Eck & Waltman, 2010), allowing us to better understand how themes evolve over time and identify emerging topics. Maps are presented across different time intervals to improve readability and avoid overlapping labels. In density visualizations, warmer tones (yellow and red) point to areas of the map where keywords occur frequently and form strong co-occurrence patterns, while cooler tones (green and blue) signal zones of lower keyword concentration. Overlay visualizations follow a different logic: colors here track the average publication year of the documents in which each keyword appears, with cooler shades (blue and purple) pointing to earlier years of the period under study and warmer shades (yellow) to more recent ones, as shown by the color bar embedded in each figure. Across both types of maps, label and node size mirror the occurrence frequency of each keyword, and the lines connecting items capture co-occurrence links, their thickness reflecting the strength of the relationship.

3. Results

Before moving to a detailed thematic analysis of knowledge in entrepreneurial and intrapreneurial PsyCap research, we first provide a descriptive overview to situate the

field. This overview highlights the evolution of scientific output between 2006 and 2024, the countries that contribute most, and the journals most engaged with this topic. It also offers a first look at the most frequent and most connected themes across the period, giving an initial picture of the mainstream topics as well as those that remain less explored. This step sets the stage for the in-depth thematic analysis that follows.

3.1. Annual Publication Trends and Journal Distribution

The descriptive analysis of the overall evolution in the volume of publications linked to PsyCap in entrepreneurship and intrapreneurship from 2006 to 2024, reveals three-stage trajectory (Figure 3). The nascent phase (2006–2016) is characterized by a very low and inconsistent academic production output, which at this stage lacked a clearly defined structure, and reflecting an emerging interest in this research domain.

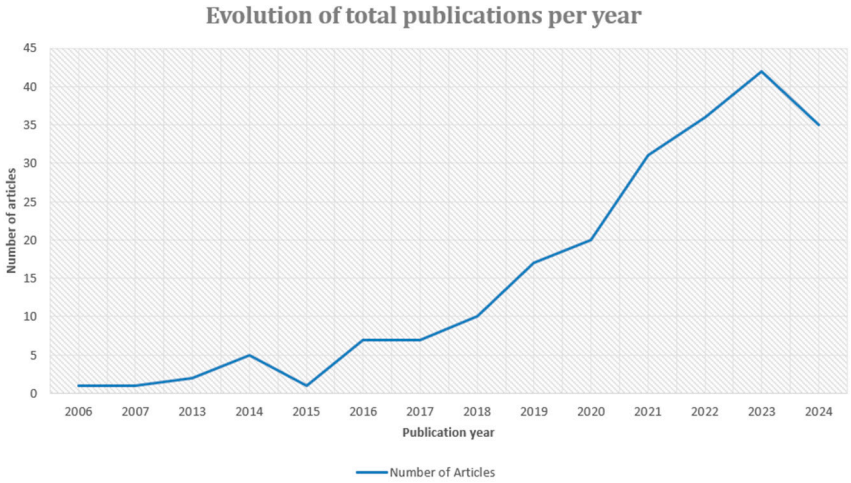


Figure 3. Changes in publication quantity between 2006 and 2024.

From 2016 onwards, the field enters a transition phase, initiating a second phase of steady growth, which results in an accumulation of 132 publications by the year 2022. As this gradual research expansion unfolds, we noticed that the thematic co-occurrence maps progressively become denser. As a result, the field has gained in visibility, legitimacy, and thematic diversity. The third and final phase, which can be described as a maturity stage (2023–2024) is marked by the field reaching its peak in scientific production (i.e., 56 publications in 2023), which signals a well-established academic interest in the subject.

Furthermore, when we examine the publication trends of the five most productive countries over the entire study period (2006–2024), it is evident that China takes the lead in this area of research (Figure 4).

In this regard, as of 2019, China becomes a major contributor in scientific production on the subject, reaching a peak of 15 publications in 2022 (and 13 in 2023). Overall, China has accumulated 58 publications since 2006, confirming its leading role in this research domain. Meanwhile, the United States shows a much more linear trend. Its contribution is modest but steady, which means it plays a regular role in this field, even if it is not expanding.

Other countries, such as Indonesia, Malaysia or India, display a fluctuating publication trend, with some occasional peaks in their scientific publications, such as in 2021 or 2023, which reflect more efforts to contextualize research. These countries may represent promising areas in the field. However, in 2024, there is a clear slowdown in China's research output, whereas the other countries keep their usual publication patterns. The trend implies a possible shift in scientific leadership, as China's dominance wanes.

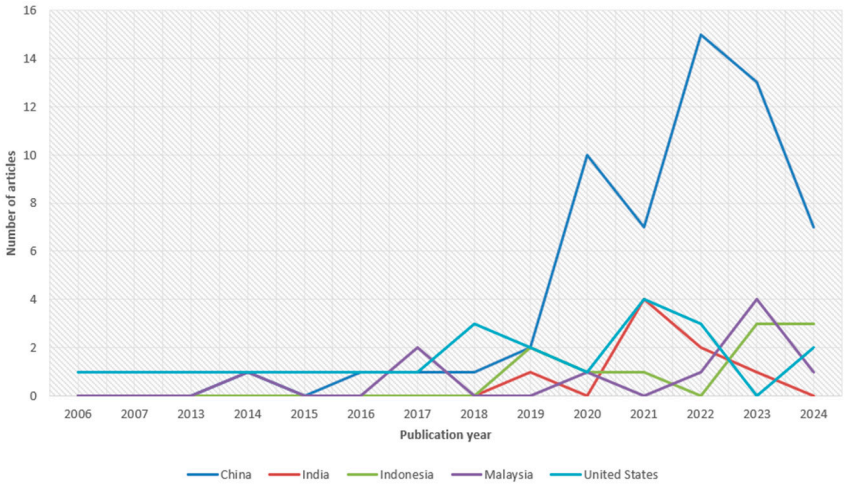


Figure 4. Top five countries with the most publications between 2006 and 2024.

If we shift our attention to how this body of scientific work is spread across journals, we can identify the publication channels that are most actively contributing to this particular research stream. Table 2 presents the ten journals that are most represented within our dataset. However, this approach does not aim to assess the quality or establish a hierarchy among these journals. Rather, it seeks to highlight their respective tendencies, which are inherently shaped by their editorial focus and thematic scope.

Table 2. Distribution of articles by journal (Top 10 by volume).

Journal	Number of Publications
Frontiers in Psychology	43
Sustainability	9
Journal of Small Business and Entrepreneurship	6
Small Business Economics	5
Journal of Business Venturing	4
International Journal of Entrepreneurial Behavior and Research	3
Journal of Social Entrepreneurship	3
International Journal of Management Education	3
Journal of Small Business Management	3
Journal of Technical Education and Training	3

This distribution provides an indicative insight into the editorial dynamics of each journal and may assist researchers in identifying the publication venues that are more likely to welcome their submissions.

3.2. Core Research Themes in the Field

In order to obtain an initial overview of the dominant themes of PsyCap research in entrepreneurial and intrapreneurial contexts, a keyword co-occurrence analysis was first carried out using VOSviewer software. Of the 994 keywords extracted from the bibliographic database, only 40 were retained for analysis, in accordance with a threshold set at a minimum of five occurrences. This preliminary mapping provides a global picture of the most significant and widely used terms across the entire period 2006–2024.

Thus, our findings (Table 3) reveal that this field of research is centered on psychological capital (151; TLS = 419), which is naturally surrounded by its components (i.e.,

self-efficacy, optimism, resilience, hope). This central theme is followed by two broad thematic categories that include antecedents or situational contexts (e.g., social capital, resources, human capital, entrepreneurial education) and behavioral or attitudinal consequences (e.g., entrepreneurial intention, behavior, performance). Subsequently, we identify themes that focus on the quality of the entrepreneurial experience, including satisfaction (6; 34) and well-being (8; 31), which have a high TLS relative to their occurrence.

Table 3. Most relevant keywords from 2006 to 2024.

Keyword	Occurrences	Total Link Strength
Psychological capital	151	419
Self-efficacy	57	263
Performance	64	239
Entrepreneurship	44	145
Entrepreneurial intention	40	140
Social capital	27	101
Optimism	21	101
Resilience	18	92
Gender	15	81
Entrepreneurial education	21	78
Resources	15	68
Entrepreneurial orientation	18	68
Business	14	68
Behavior	12	62
Hope	13	61
Management	19	61
Human capital	17	56
Students	14	53
Innovation	14	52
Entrepreneur	17	48
Attitudes	9	42
Women entrepreneurs	10	36
Satisfaction	6	34
Leadership	6	31
Well-being	8	31
Success	11	29
Positive organizational-behavior	5	28
Psychology	6	28
Personality	6	27
Employment	6	25
Creativity	5	22
China	5	20
Stress	6	19

Table 3. *Cont.*

Keyword	Occurrences	Total Link Strength
Self-employment	6	19
COVID-19	8	19
Empowerment	5	19
Social entrepreneurship	6	18
Mindfulness	6	16
Sustainability	5	14
South Africa	5	9

Indeed, contextual and organizational resources form a stable foundation for PsyCap. Thus, studies on social capital (27; 101) and human capital (17; 56) are likely to highlight a potential synergy among the resources available to entrepreneurs. Furthermore, the presence of terms such as entrepreneurial orientation (18; 68), management (19; 61), and leadership (6; 31) is indicative of increased interest in the organizational level of analysis.

In addition, this initial overview allows us to identify specific target populations that are less frequently studied. This is reflected in the presence of the terms gender (15; 81) and women entrepreneurs (10; 36), which could signal opportunities for comparative analyses based on gender within PsyCap. Some emerging psychological themes, namely social entrepreneurship (6; 18), Stress (6; 19), mindfulness (6; 16), and empowerment (5; 19), are still infrequent. Geographic terms (i.e., South Africa) and shock-related terms (COVID-19) have modest TLS, indicating recent niches. This analysis provides an overview of the main recurring constructs and themes, points to mainstream research areas, and indicates avenues that remain underexplored. In the subsequent sections, we segment the analysis by the field's developmental phases (emergence, growth, maturity) to capture thematic transitions over time.

3.3. Thematic Evolution Analysis

Building on the publication trends presented in Figure 3, the analysis is structured around three main periods: the nascent stage (2006–2016), the growth phase (2017–2022), and the maturity phase (2023–2024). Within each period, the main themes are identified and analyzed by pairs of consecutive years, an approach that avoids overlapping labels on the bibliometric maps and refines the detection of central themes, emerging topics, and semantic shifts within the scholarly corpus.

Two complementary visualizations are mobilized for each period, both produced with VOSviewer (Van Eck & Waltman, 2010). The density map identifies the dominant thematic concentrations through a color gradient, where warmer colors (red, orange) signal the most central clusters and cooler colors (green, blue) signal peripheral or marginal themes. The temporal co-word map represents the network of co-occurrences between terms, with a chronological coloring that distinguishes established themes from emerging ones over the period considered. Read together, these two maps articulate two distinct analytical perspectives: the structural intensity of thematic clusters and their temporal dynamics within each phase.

3.3.1. Nascent Phase (2006–2016)

During this initial phase, research on PsyCap in entrepreneurial and intrapreneurial settings remained emergent and conceptually fragmented (Figure 5). The dominant focus

concerned the relationship between PsyCap and performance, encompassing both economic and non-economic dimensions (Hmieleski et al., 2015; Kim & Noh, 2016).

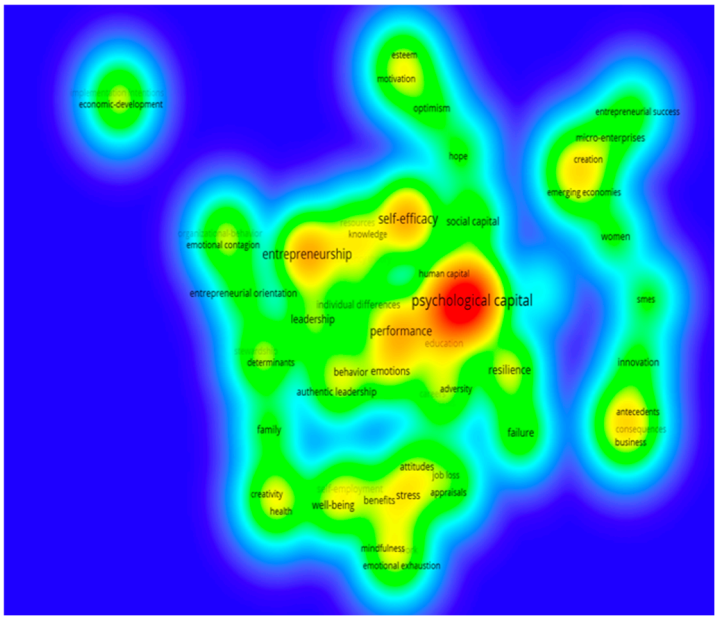


Figure 5. Density map (2006–2016).

Around this nucleus, other topics appeared in dispersed fashion, such as entrepreneurial orientation (Zbierowski, 2016), innovation, creativity, and entrepreneurial success (Baluku et al., 2016; Luthans et al., 2007). Weak signals also pointed to leadership, examined both as an antecedent and as a potential outcome of PsyCap (Jensen & Luthans, 2006; Memili et al., 2014; Zbierowski, 2016), while complementary forms of capital, particularly human and social capital, began to be mobilized (Chankseliani & Relly, 2016; Hmieleski et al., 2015).

Although scarce, some studies opened the field to contextual factors such as gender (Ali et al., 2014) and family (Memili et al., 2014). Others foregrounded resilience, adversity, and failure (Jenkins et al., 2014; Hmieleski et al., 2015). Early contributions (Figure 6) also engaged with psychological well-being and mental health, through themes such as motivation (Kim & Noh, 2016), mindfulness (Roche et al., 2014), well-being (Baron et al., 2016; Roche et al., 2014), stress (Baron et al., 2016), and emotional exhaustion (Roche et al., 2014).

At this stage, early extensions of PsyCap research into SMEs, micro-businesses, and developing economies (Newman et al., 2014) signaled an initial effort to contextualize the construct across both organizational size and geographical settings, moving beyond traditional Western contexts.

Critical insights. The PsyCap–performance nexus emerged as a foundational research object in the field. Such centrality reflects, in part, an effort to confer empirical legitimacy upon the construct within entrepreneurial contexts. Yet this empirical anchoring rests on the assumption that a construct developed in salaried organizational settings (Luthans et al., 2007) can be transposed directly into entrepreneurial ones. Hence, this first period is marked by a research field insufficiently delineated, both theoretically and empirically. In other words, PsyCap begins to be mobilized in entrepreneurial environments characterized by distinctive attributes (e.g., informational asymmetry, risk exposure), which are likely to reshape the conditions under which psychological resources operate. A rigorous contextualization therefore becomes necessary. Compounding this conceptual difficulty, a persistent psychometric weakness already flagged by Dawkins et al. (2013) regarding the second-order factor structure of the PCQ-24 has remained underexplored, particularly

when the construct migrates toward entrepreneurial populations whose profiles differ substantially.

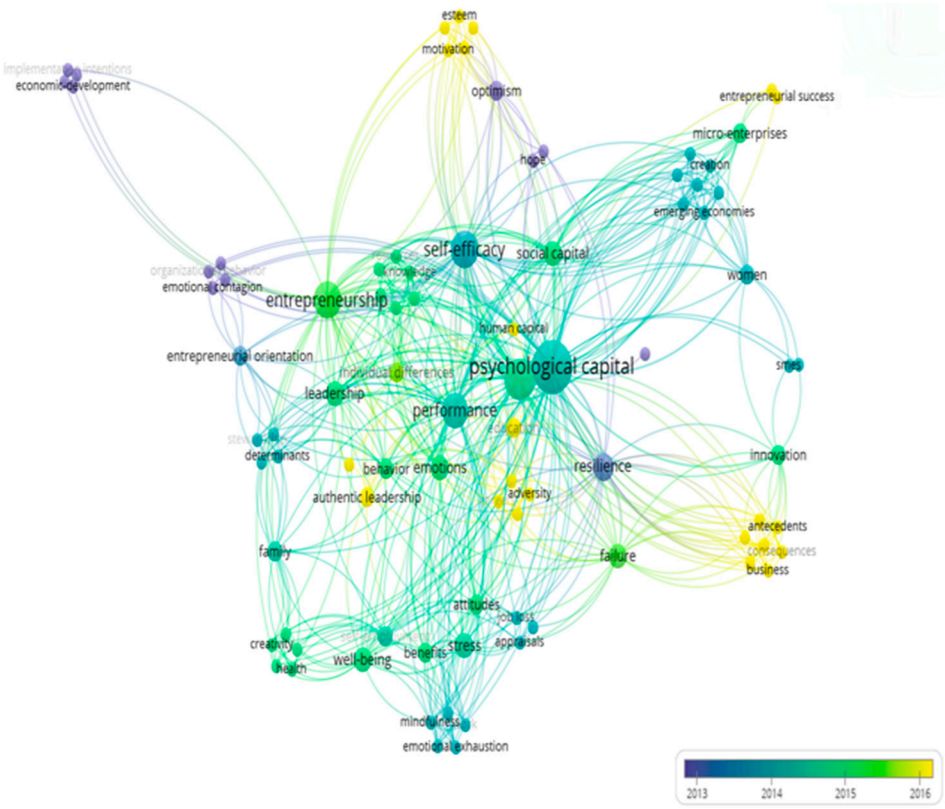


Figure 6. Temporal co-word map (2006–2016).

3.3.2. Expansion Phase (2017–2018)

PsyCap research expanded considerably during this period, with denser clustering and stronger interconnections around the core themes.

The PsyCap–performance nexus retained its preeminence throughout this period, becoming increasingly tied to social and human capital (Figure 7). Of these, the social capital–PsyCap relationship gained particular momentum, eventually surpassing human capital in scholarly attention (Anglin et al., 2018; Juma & Sequeira, 2017; Ma et al., 2018). The notion of performance itself grew more nuanced, encompassing financial and non-financial entrepreneurial outcomes (Baluku et al., 2018a; C. H. Jin, 2017; Y. Wang et al., 2018) and extending toward crowdfunding performance (Anglin et al., 2018).

Other themes retained strong appeal, including innovation (Dutta & Banerjee, 2018; Worthington & Kasouf, 2018), entrepreneurial success (Baluku et al., 2018b), leadership (Y. Wang et al., 2018), and stress (Worthington & Kasouf, 2018). Alongside these established lines, secondary inquiries emerged around emotional intelligence (Larijani & Saravi-Moghadam, 2018), organizational justice (Y. Wang et al., 2018), and international entrepreneurial orientation (Ismail et al., 2017). Such openings attest to a broader diversification of the field, as reflected in the temporal co-word map (Figure 8).

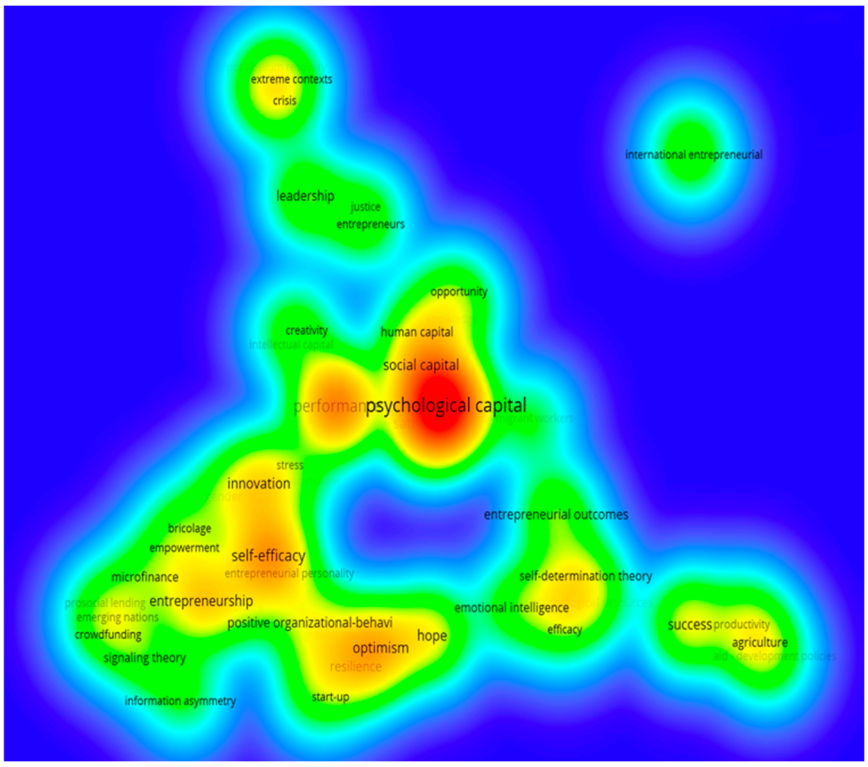


Figure 7. Density map (2017–2018).

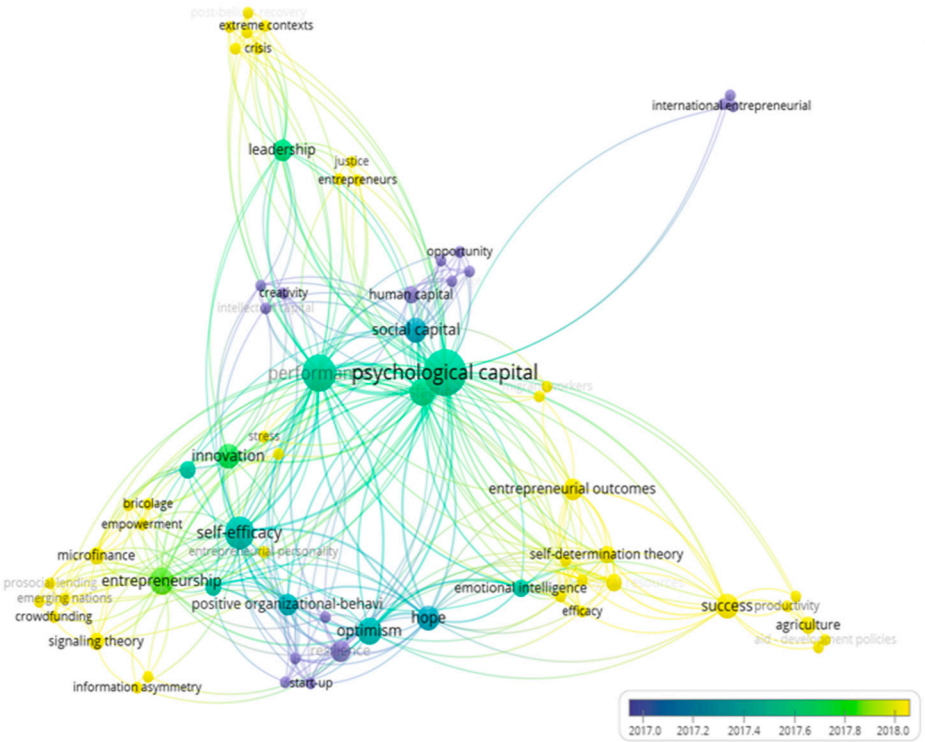


Figure 8. Temporal co-word map (2017–2018).

Beyond these thematic shifts, PsyCap was increasingly examined in specific environments, such as agriculture (Chipfupa & Wale, 2018), microfinance (Dutta & Banerjee, 2018), start-ups (C. H. Jin, 2017; Juma & Sequeira, 2017), and crowdfunding ventures (Anglin et al., 2018; Jancenelle et al., 2018). Migrant entrepreneurs likewise entered the scene as a

population of growing interest (Ma et al., 2018). This move points to a stronger commitment to contextual sensitivity.

However, the most consequential development of this phase lies elsewhere. It concerns the adoption of more robust theoretical frameworks, particularly self-determination theory (e.g., Baluku et al., 2018b) and signaling theory (e.g., Jancenelle et al., 2018), whose integration marked a pivotal stage in enhancing the explanatory power of PsyCap studies. PsyCap research also began moving beyond conventional business contexts, being tested in high-stakes or turbulent environments such as crises, agriculture, and microfinance, as well as in emerging international ventures (Ismail et al., 2017).

Critical insights. PsyCap ceases to be conceived as a strictly intra-individual reservoir and begins to be approached as a socially embedded resource, signaled to third-party evaluators. This shift becomes observable through the introduction of signaling theory (Spence, 1973) into the literature on entrepreneurial crowdfunding (e.g., Anglin et al., 2018; Jancenelle et al., 2018). Thus, the focal object has shifted from the question of the what of PsyCap (its composition) toward that of the how of its transmission (its visibility to external stakeholders). As Luthans and Youssef-Morgan (2017) emphasize in their review of the construct, PsyCap studies continue to draw on foundational theories: social cognitive theory (Bandura, 1986), conservation of resources theory (Hobfoll, 1989), and broaden-and-build theory (Fredrickson, 2001). This grounding has conferred upon the construct an undeniable conceptual robustness. The field would benefit from extending toward complementary theories: self-determination theory (Deci & Ryan, 1985), social embeddedness theory (Granovetter, 1985), and signaling theory (Spence, 1973).

3.3.3. Expansion Phase (2019–2020)

This period saw PsyCap–performance research extends toward the field of entrepreneurship education (Digan et al., 2019; Q. Gao et al., 2020a; Lux et al., 2020; Memili et al., 2020; Yousaf et al., 2020).

PsyCap is increasingly examined at the early stages of the entrepreneurial trajectory, when intentions take shape among students and academic populations (Baluku et al., 2019; Ephrem et al., 2019; Mahfud et al., 2020; Zhao et al., 2020). Hence, a coherent cluster forms around terms such as entrepreneurial intention, student PsyCap, and academic PsyCap (Figure 9).

Innovation also gains traction, examined at the individual level through intrapreneurial behaviors (Suvonova et al., 2019) and at the multilevel through studies examining how entrepreneurs' PsyCap influences employees' innovation (Q. Gao et al., 2020b). Some contributions push this framing further; some studies have tested the undesirable effects of PsyCap on deviant innovation behavior (Q. Gao et al., 2020b; Xu & Zhao, 2020). Scholarly interest in PsyCap and entrepreneurial success gains further ground during this period (Robusto et al., 2019; Suksod et al., 2019).

Beyond academic populations, this period also opens toward new contexts. Family firms and entrepreneurial teams emerge as a privileged terrain of analysis, particularly through the lens of intergenerational transfers of intangible resources (Baluku et al., 2020; Memili et al., 2020). Immigrants and refugees also enter the field as a population of growing scientific interest.

The conceptual architecture also broadens (Figure 10). New dimensions enter the field, namely opportunity recognition and entrepreneurs' political skills (Guo et al., 2020). Among these, social capital retains a particularly prominent position (Macht & Chapman, 2019; Mahfud et al., 2020), whereas attention to human capital declines (Bockorny & Youssef-Morgan, 2019).

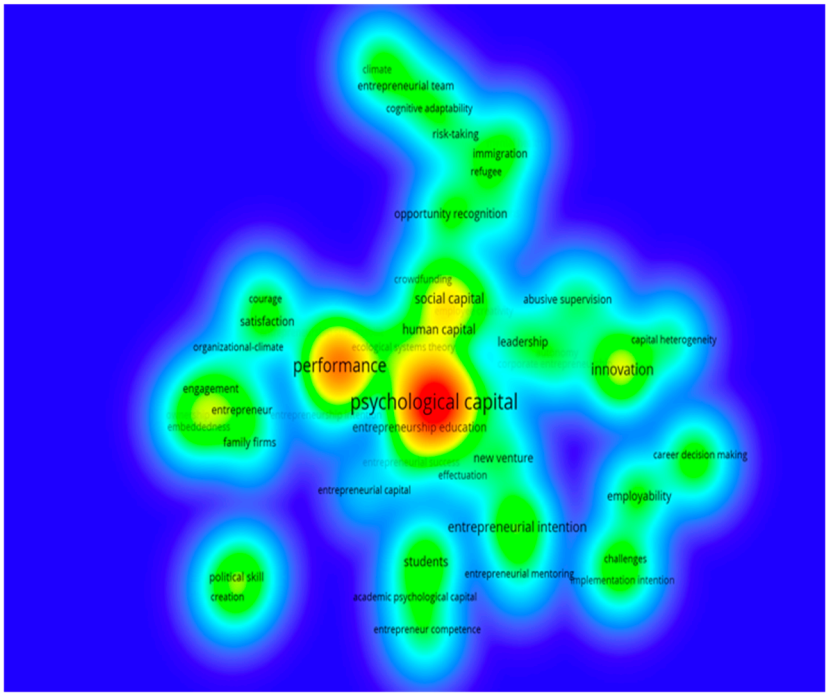


Figure 9. Density map (2019–2020).

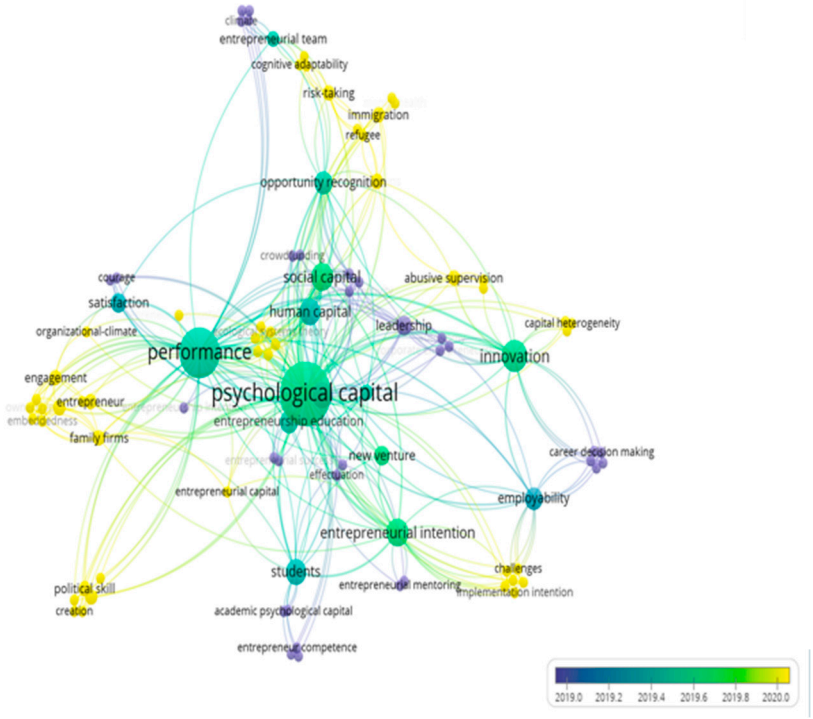


Figure 10. Temporal co-word map (2019–2020).

Critical insights. The PsyCap–entrepreneurial intention pairing, observed in particular among student populations, raises a recurrent methodological concern in entrepreneurship research; the reliance on intention as a substitute for action (Krueger et al., 2000; Kautonen et al., 2015). The gap between stated intention and actual behavior has been empirically confirmed (van Gelderen et al., 2015), which limits the explanatory reach attributed to PsyCap in such designs. However, another finding deserves attention, namely the identification of undesirable effects of PsyCap, particularly through the lens of deviant innovation (Q. Gao et al., 2020b; Xu & Zhao, 2020). This result may challenge certain normative assumptions

of positive organizational behavior (Luthans, 2002), yet it also opens a promising research avenue around the dark side of PsyCap. In other words, if positive psychological resources can fuel both prosocial and counterproductive innovations, the axiological valence of the construct itself becomes ambivalent.

3.3.4. Expansion Phase (2021–2022)

Two simultaneous movements characterize this period: the densification of established clusters and the multiplication of new thematic ramifications (Figure 11).

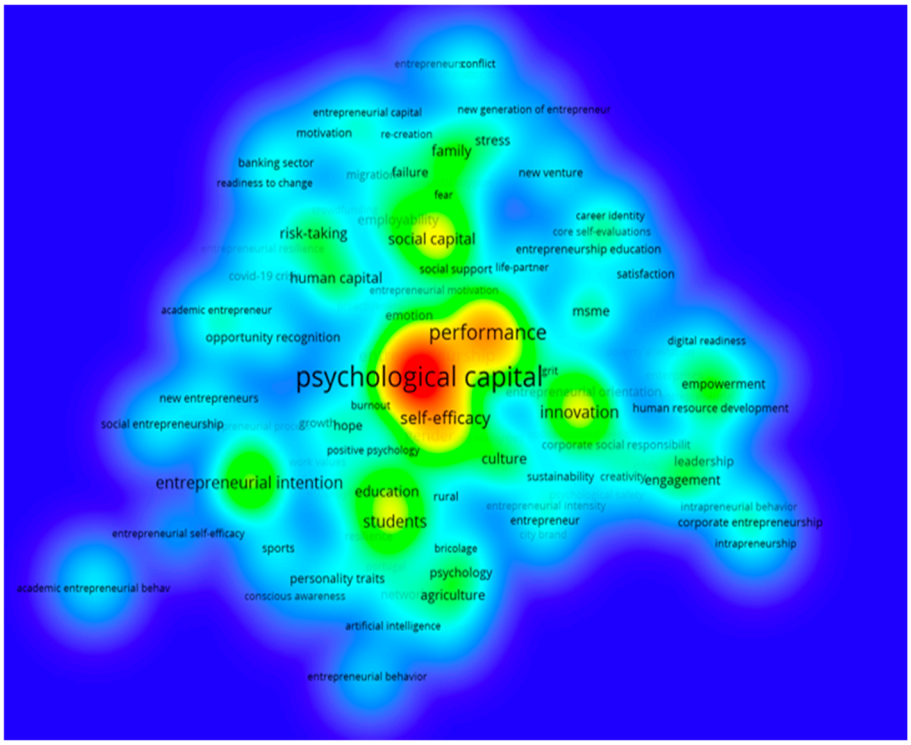


Figure 11. Density map (2021–2022).

Performance-related outcomes diversify across financial performance, growth, survival, and profitability (Huang et al., 2022; Y. Jin, 2022; Lyu et al., 2022; Ma et al., 2022; R. Q. Wang et al., 2022; Zhou et al., 2022).

A more distinctive development of this period lies in the multilevel extension of the analytical agenda Studies now examine the effect of entrepreneurs' PsyCap on the performance of their teams and employees (Gunawan et al., 2021), as well as on the long-term growth of micro-enterprises (Jalil et al., 2022). Some contributions even establish a link between PsyCap and macroeconomic patterns such as national growth (Yu & Liu, 2021). Entrepreneurial intention also declines into more contextualized variants, particularly social (Margaça et al., 2021), female (Villanueva-Flores et al., 2021), and agripreneurial intentions (J. Choi et al., 2021; Ephrem et al., 2021).

PsyCap research also moves beyond traditional business environments toward sectors and domains (e.g., agriculture, sports, artificial intelligence) and new target populations (e.g., athlete entrepreneurs, intrapreneurs, social entrepreneurs). This contextual extension confirms a sustained commitment to transposing the construct across different settings and testing its applicability (Figure 12).

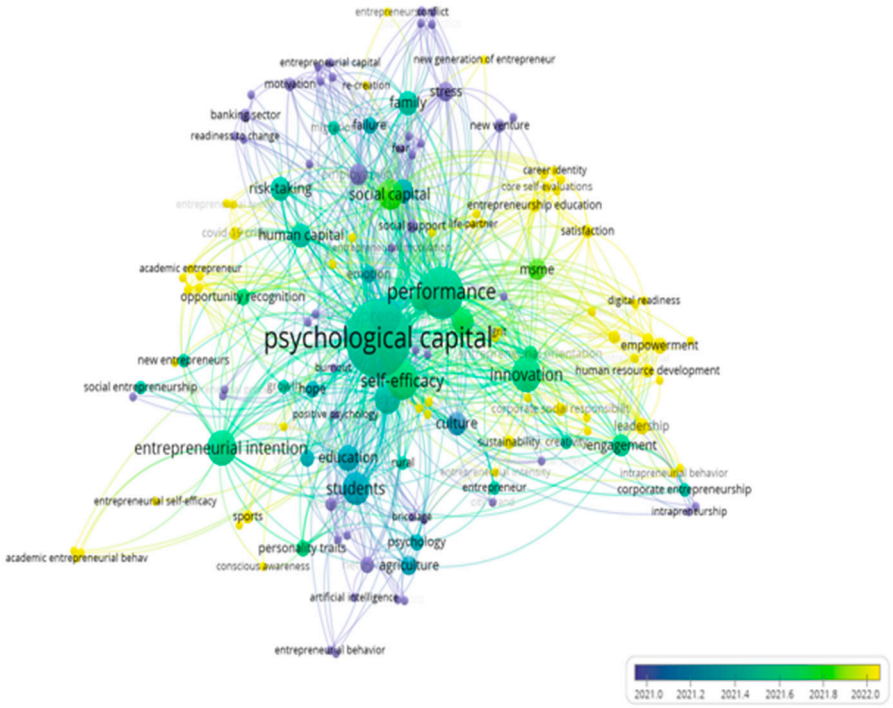


Figure 12. Temporal co-word map (2021–2022).

The PsyCap–innovation link gains further structuration during this period. At the organizational level, PsyCap is examined in relation to technological upgrades, business model innovation, and social innovation (Daskalopoulou et al., 2022; Yu & Liu, 2021; Zhou et al., 2022). At the individual level, entrepreneurial innovative behavior, particularly among women, becomes a focal object of analysis (Daskalopoulou et al., 2022). Intrapreneurship also enters the field, although it remains peripheral (Pandey et al., 2021). Other research streams reflect the broader economic climate of this period, with attention to entrepreneurial stress, burnout, and coping with entrepreneurial failure (Allen et al., 2021; De Hoe & Janssen, 2022; Ross et al., 2021). Some studies examine the monetization of PsyCap and its role in facilitating access to financing (Zhou et al., 2022), while entrepreneurial commitment becomes a new object of investigation (Sarwar et al., 2021; Wale & Chipfupa, 2021).

The most consequential inflection of this period concerns the systematic investigation of PsyCap antecedents. Structural conditions such as economic growth (H. Li et al., 2022), social and family support (J. L. Gao et al., 2021; Villanueva-Flores et al., 2021), and entrepreneurial passion (Hu et al., 2022; Oradini et al., 2022) are now examined as factors that shape the construct itself. This diversification, which extends to farmers, athletes, migrants, and rural entrepreneurs (Karadal et al., 2021; Wale & Chipfupa, 2021; Q. L. Wang et al., 2021), confirms a turn toward context-sensitive and multilevel approaches in PsyCap research.

Critical insights. Among the major contributions of this phase stands the proliferation of multilevel analyses. The growing recourse to such analyses (e.g., Gunawan et al., 2021; Yu & Liu, 2021) responds to a long-standing call from organizational behavior research, which invites researchers to consider the different levels of analysis: the micro, meso, and macro levels (Klein & Kozlowski, 2000). However, the move from individual to collective PsyCap raises problems of aggregation and isomorphism. In other words, how does one move from the PsyCap of an individual to the PsyCap of a team? Is it a simple average of individual scores, or a measure specific to the collective level? The answer is not self-evident, since collective PsyCap cannot be mechanically reduced to the sum of individual PsyCaps. Whether the PsyCap of a team or a firm refers to the same phenomenon as

the PsyCap of an entrepreneur, or to a distinct phenomenon requiring its own theoretical framework, remains a live question in the field.

A second point retains our attention. It concerns the causal reversal introduced by emerging research on PsyCap antecedents (Hu et al., 2022; H. Li et al., 2022), which brings back into the research agenda a long-marginalized question: no longer what PsyCap produces, but what produces it as much as what depletes and weakens it.

3.3.5. Maturity Phase (2023–2024)

The 2023–2024 period marks a stabilization of the field around its core thematic axes, alongside the entry of new psychological dimensions and a sharper attention to the conditions of access to PsyCap.

The density map (Figure 13) confirms the persistence of a strong central cluster around performance, resilience, entrepreneurial intention, and social capital (Abidi & Bechri, 2024; X. Chen et al., 2024; Elshaer et al., 2024; Villanueva-Flores et al., 2023a; X.-H. Wang et al., 2023). Beyond this stability, social capital studies extend toward a digital dimension, with research on how online networks contribute to PsyCap development (X. Chen et al., 2024). The PsyCap–entrepreneurial intention link also extends to social, green, and agribusiness contexts (Baloyi et al., 2024; Y. Choi & Chang, 2023; Ghodbane & Alwehabie, 2023).

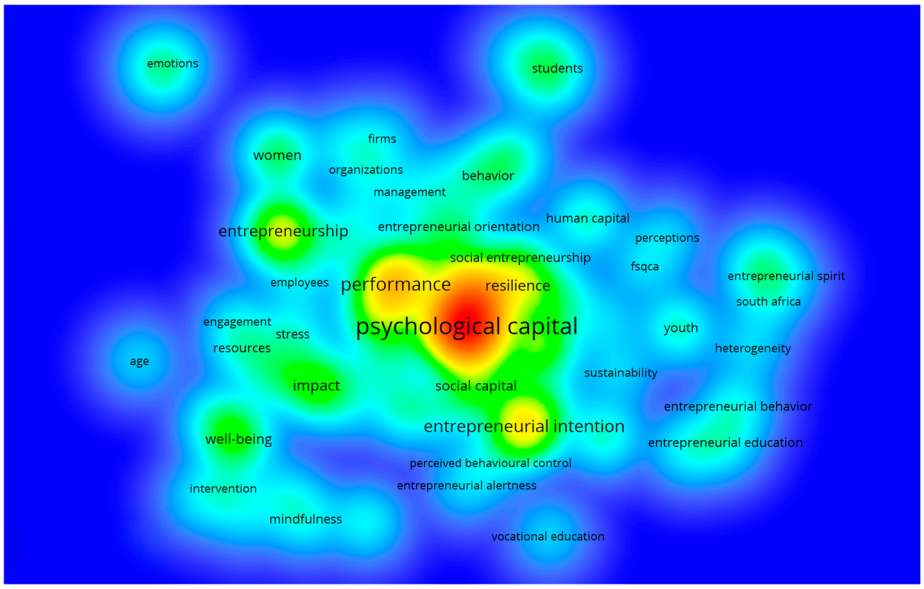


Figure 13. Density map (2023–2024).

Two emerging psychological themes gain visibility during this period: mindfulness (Baluku, 2024) and well-being (Kibler et al., 2024). Although these clusters remain peripheral on the density map, they signal a research avenue around the integration of mental health into PsyCap studies (Figure 14).

Target populations also diversify substantially. Growing attention is given to women entrepreneurs (Jalil et al., 2023), students (Abubakar et al., 2023), youth (Baloyi et al., 2024), intrapreneurial employees (Kanısoy et al., 2024), refugees (Baluku et al., 2023), social entrepreneurs (Abidi & Bechri, 2024), and rural entrepreneurs (Baloyi et al., 2024; F. Wang et al., 2023). A stronger territorial focus also emerges, with South Africa appearing as a recurrent term on the bibliometric map (Baloyi et al., 2024; Sooknannan et al., 2024).

What sets this period apart concerns the systematic investigation of differential access to PsyCap. Studies examine in particular the role of age and gender in shaping access to and mobilization of the construct (J. Choi et al., 2023; Kibler et al., 2024; Lanchimba et al., 2024). This new orientation is characterized by a socio-psychological dimension

that connects demographic and contextual factors to the development of PsyCap among entrepreneurs.

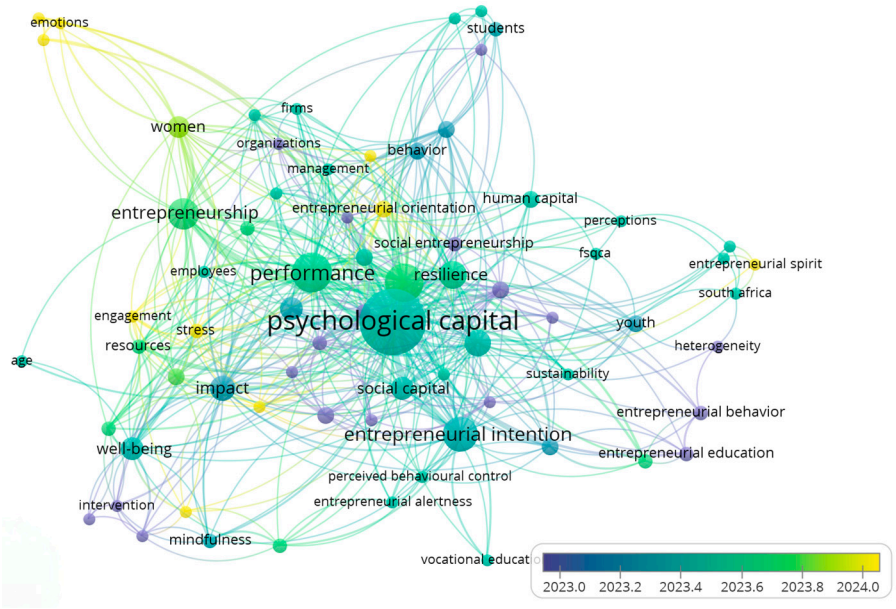


Figure 14. Temporal co-word map (2023–2024).

Critical insights. The label of maturity calls for a degree of caution. In the bibliometric sense proposed by Cobo et al. (2011), it refers to a stabilization of central themes and a densification of links between clusters, conditions effectively observed during this period. However, the question of contextualizing measurement scales remains open. What dominates in the literature is still the direct transposition of scales, without contextual or cultural consideration, and without attention to the specificity of each referent. Consequently, the diversification of populations under study (e.g., refugees, rural entrepreneurs, intrapreneurs, social entrepreneurs) reactivates a question already raised by Newman et al. (2014) and still unresolved, namely the measurement invariance of the PCQ across research contexts and populations. Furthermore, the more recent attention given to psychosocial approaches and to inequalities of access to PsyCap by age and gender (J. Choi et al., 2023; Lanchimba et al., 2024) opens an interesting perspective. This perspective can question the agentic presuppositions and the individualistic approach that dominated until now. Thus, PsyCap is a construct whose access depends on social and demographic conditions. These two perspectives, individual and structural, could therefore enrich one another in integrative research.

3.4. Core Theoretical Frameworks Mobilized

In management research, and entrepreneurship is no exception, there is often a glaring lack of precision in the specification of theoretical frameworks (Hollebeek et al., 2025). The studies examined in this research also show signs of this limitation. However, without an appropriate framework, the interpretation of results becomes fragile and it is theory that allows us to make sense of the phenomena observed and explain how variables may actually be related (Shepherd & Suddaby, 2017; Suddaby, 2010). Furthermore, referring to the theoretical framework only superficially, without articulating it with the phenomena or variables studied, is not sufficient, since an inaccurate selection of the framework undermines rigor and diminishes the scope of the results (Suddaby, 2010; Corley & Gioia, 2011; Shepherd & Suddaby, 2017). Thus, this section aims to enumerate the theories that are explicitly declared in studies on PsyCap in entrepreneurial or intrapreneurial contexts.

The purpose of this approach is to ensure that future publications in this field avoid the shortcomings of implicit or absent theorization. Indeed, as Shepherd and Suddaby (2017) point out, theoretical frameworks are essential for understanding the mechanisms at play between variables, but also for ensuring the cumulative development of knowledge. From a more operational perspective, the absence or weakness of a theoretical framework hinders the clarity of the supposed cause-and-effect relationships and compromises the utility of the results. In line with this approach, our objective is to identify the theories explicitly employed in research on entrepreneurial PsyCap and to organize them according to their level of analysis. Table 4 presents this structure, offering a concise overview of the theories observed in the field.

Table 4. Theories mobilized by level of analysis in entrepreneurial PsyCap research.

Theory	Level of Analysis	Core Assumptions	PsyCap in Entrepreneurship	Key Outcomes Studied
Conservation of Resources Theory (COR) (Hobfoll, 1989, 2002)	Individual De Hoe and Janssen (2022)	People strive to acquire, conserve, and protect valued resources to cope with stress and challenges.	PsyCap is conceptualized as a personal resource that buffers entrepreneurs against losses and helps them cope and recover in challenging or stressful situations.	Stress, resilience, learning from failure, etc.
Theory of Planned Behavior (TPB) (Ajzen, 1991)	Individual Bhunia and Shome (2023); Ephrem et al. (2019); Ephrem et al. (2021); Liao et al. (2022); Margaça et al. (2021)	Behavior is driven by intention, shaped by attitudes, subjective norms, and perceived control.	PsyCap dimensions reinforce intention: optimism/efficacy strengthen attitudes and perceived control; hope/resilience complement TPB predictors.	Entrepreneurial intention (general, social, green, female, agripreneurial), opportunity recognition, etc.
Upper Echelons Theory (UET) (Hambrick & Mason, 1984)	Individual/Top management Hmieleski et al. (2015)	Organizational outcomes reflect the values, cognition, and demographics of executives and founders.	PsyCap is viewed as part of the psychological attributes of founders/CEOs influencing strategic choices.	Firm performance, innovation, strategic orientation of entrepreneurial firms, etc.
Job Demands–Resources Model (JD-R) (Bakker et al., 2014; Demerouti, 2001)	Individual/Work environment Obschonka et al. (2023)	Job demands (stressors) and job resources (supports) jointly determine motivation, burnout, and performance.	PsyCap acts as a personal resource mitigating the negative effects of job demands in entrepreneurial contexts.	Stress and burnout, engagement, entrepreneurial commitment, etc.

Table 4. *Cont.*

Theory	Level of Analysis	Core Assumptions	PsyCap in Entrepreneurship	Key Outcomes Studied
Leader–Member Exchange Theory (LMX) (Graen & Uhl-Bien, 1995)	Interpersonal/Dyadic T. Y. Li et al. (2020); Memili et al. (2014)	High-quality leader–follower relationships rely on reciprocity, trust, and emotional exchange.	Entrepreneurial leaders' PsyCap fosters trust, fairness, and reciprocity within teams, reinforcing organizational PsyCap.	Innovation in family firms, employee engagement, trust-based entrepreneurial leadership, fairness, and harmony, etc.
Signaling Theory (ST) (Spence, 1973; Connelly et al., 2011)	Market/Stakeholder Anglin et al. (2018); Jancenelle et al. (2018); Zhou et al. (2022)	Signals reduce information asymmetry between insiders (entrepreneurs) and outsiders (investors, lenders).	PsyCap can be considered a cost-free signal, providing stakeholders with cues of entrepreneurs' credibility.	Access to finance, crowdfunding performance, etc.
Resource-Based View (RBV/RBT) (Barney, 1991)	Organizational Allen et al. (2021); Fernández-Alles et al. (2022)	Firms gain advantage from valuable, rare, inimitable, and organized resources.	PsyCap is considered an intangible, idiosyncratic strategic resource that can be developed and leveraged at the firm level.	Sustainable competitive advantage, performance, firm survival and growth, etc.

3.5. Synthesis of Results

The co-occurrence maps analyzed over time identify several distinct thematic trajectories structuring the field of PsyCap in (intra)entrepreneurship. Based on cluster density, their position within the network, as well as their evolution over time, we propose a typology based on five trajectories of trends:

(1) Core and stable themes: Specific keywords hold a consistently prominent position throughout all the analyzed periods. These include performance, resilience, self-efficacy, entrepreneurial intention and social capital. These themes form a stable conceptual core of the field, and they remain strongly connected. Thus, their high frequency, high density, and interconnection with other nodes confirm their role as cornerstone constructs of the field. They served as the basis for structuring explanatory models of entrepreneurial behavior, and continue to be central to current scientific concerns.

(2) Emerging themes: Certain themes gradually emerged to gain increasing relevance in later periods. For instance, access to financing, growth, engagement, empowerment, digital readiness, emotional intelligence, mindfulness, and intrapreneurship. These themes were marginal or even absent at the outset, but have been reinforced over the last few periods, in line with the influence of new contexts on entrepreneurship research.

(3) Cross-cutting themes: Some terms demonstrate a significant ability to link across clusters, spanning different periods and categories without necessarily forming a hard core. Such as stress, success, well-being, opportunity recognition, entrepreneurial orientation, leadership, human capital, and innovation. They operate as interconnecting nodes in the networks.

(4) Contextual and specific themes: These are more marginal but highly contextual topics that tend to appear at the periphery of some networks. They include refugee entrepreneur, rural entrepreneurs, athlete entrepreneurs, agriculture, international entrepreneurship, micro-enterprises, gendered entrepreneurship, and entrepreneurial teams. This indicates a growing focus on specific populations and on particular geographical, social, or economic contexts. While not yet major themes, these avenues of research open the way toward more inclusive approaches.

4. Discussion

The findings answer our review questions by showing how the field has evolved over time, which themes dominate the literature, which populations remain underexplored, and which methodological directions deserve further attention. Building on these findings, this section outlines key directions for future research.

4.1. Future Research Agenda

4.1.1. Future Research Themes

Beyond the central themes identified through bibliometric analysis, particularly entrepreneurial performance, resilience, and entrepreneurial intention, certain less frequent or weakly connected topics within co-occurrence networks appear particularly promising for advancing research on PsyCap in entrepreneurial contexts. In line with Snyder's (2019) recommendation to go beyond purely quantitative bibliometric analyses and include a critical evaluation of the corpus, we outline in the next section several thematic avenues with strong potential for future research.

(1) Entrepreneurial engagement: As the thematic analysis shows, entrepreneurial engagement remains largely underexplored and has attracted attention from only a few researchers (Baluku et al., 2018a, 2018b). Even in the post-COVID context, entrepreneurial demands have intensified, while successive crises have affected entrepreneurs' well-being and increased stress, often leading to burnout and weakened commitment (St-Jean et al., 2022). Future studies could examine how different configurations of resources, including relational, psychological, and spiritual capital, may sustain entrepreneurial engagement after career shocks.

(2) International orientation: While recent work has examined the internationalization of firms, the role of PsyCap in shaping entrepreneurs' international orientation has been scarcely addressed (Fernández-Alles et al., 2022; Villanueva-Flores et al., 2023b). Yet, evidence suggests its potential as an organizational asset supporting entrepreneurs in overcoming barriers to international expansion. Clarifying the underlying mechanisms would be a promising direction for research on PsyCap in international contexts.

(3) Growth intentions, growth, and hypergrowth: Firm growth, growth intentions, and hypergrowth are key strategic drivers of national economic development, as they are closely linked to job creation (Hizam-Hanafiah et al., 2017; Jalil et al., 2022; Yousaf et al., 2020). Prior research highlights three main drivers of growth: contextual conditions, the entrepreneur's profile and strategic choices, and internal organizational mechanisms (Sahut et al., 2019). Future research could examine how entrepreneurs' PsyCap influences growth trajectories across different firm sizes, from micro-enterprises to SMEs.

(4) Access to financial resources: Studies suggest that entrepreneurs mobilize multiple forms of capital when seeking finance: human capital (knowledge, viability of the project), social capital (networks), and PsyCap (Macht & Chapman, 2019). PsyCap may also function as a low-cost signal in fundraising, increasing the chances of securing external resources (Anglin et al., 2018; Jancenelle et al., 2018). Future research could

adopt recursive approaches, examining PsyCap both as an antecedent and as an outcome of financing processes.

(5) Cultural and contextual factors: One persistent limitation is the weak contextualization of PsyCap research, which raises concerns about the transferability of findings across settings (Igalens & Tahri, 2017). A contextual lens would allow a more accurate understanding of PsyCap in entrepreneurship, particularly in emerging economies. Future work could: (a) assess the applicability of the Western-based PsyCap construct in new contexts; (b) explore entrepreneurial PsyCap dimensions; (c) identify convergences and divergences across settings; and (d) conduct comparative cross-cultural studies.

(6) Gender differences: Several studies have addressed gender differences in entrepreneurial intention, leadership, and constraints (Huarng et al., 2012; Jennings & Brush, 2013). Positive psychology provides an empirical lens to uncover these differences. Women entrepreneurs often face structural barriers, discrimination, and family-related constraints (Dutta & Banerjee, 2018), shaping their approach to risk-taking, resilience, and self-efficacy (Hazudin et al., 2023; Liyanagamage et al., 2024; Villanueva-Flores et al., 2021). Yet, the literature on PsyCap and gender remains limited (J. Choi et al., 2023; Margaça et al., 2021; Maslakçı et al., 2022), pointing to future studies on differential access, commitment, and socio-cultural influences on women's PsyCap.

(7) Intrapreneurship: PsyCap in intrapreneurship remains at an early stage, as shown by the low occurrence of related terms on the maps. Few studies explicitly address it, but initial evidence highlights its potential relevance for innovation. Research should continue to investigate how PsyCap drives intrapreneurial behavior and creativity within organizational settings. To document this gap more systematically, we compiled the very limited set of studies explicitly linking PsyCap to intrapreneurship (Table 5). This highlights the scarcity of research and the need for further investigation.

Table 5. Identified studies on PsyCap in intrapreneurship.

Authors	Methodology & Context	Main Findings & Limitations
Zbierowski (2016)	▪ Conceptual paper	▪ Identifies four levers of positive leadership as conducive to corporate entrepreneurship: - Authentic leadership (self-awareness, ethics, relational transparency); - Fundamental state of leadership (values alignment, openness to change) - Positive deviance (voluntary, exceptional behaviors that challenge norms) - PsyCap (hope, optimism, resilience, self-efficacy enabling opportunity recognition, perseverance, and risk-taking). ▪ Limitation: the paper advances theoretical propositions but offers no empirical validation. The proposed conceptual framework remains untested.

Table 5. *Cont.*

Authors	Methodology & Context	Main Findings & Limitations
Ardelean (2021)	▪ Conceptual paper	▪ PsyCap plays a mediating role between entrepreneurial orientation, technological knowledge, and entrepreneurial success. ▪ Limitation: Model not empirically verified.
Pandey et al. (2021)	▪ Quantitative study; ▪ 309 employees in India; ▪ Various sectors.	▪ PsyCap partially mediates the link between intrapreneurship and work engagement. ▪ Limitation: - Unexplored reciprocal relationship; - Potential common method bias; - Sample heterogeneous across sectors.
Suvonova et al. (2019)	▪ Quantitative study ▪ Sample: 217 middle managers in South Korean SMEs.	▪ The effect of organizational preparedness for corporate entrepreneurship on PsyCap is stronger among senior managers than among lower-level managers; ▪ Management level moderates all relationships. ▪ Limitation: PsyCap mediation was not tested. Job characteristics (e.g., autonomy, task complexity, level of responsibility) were not included as control variables.
Kanısoy et al. (2024)	▪ Quantitative study; ▪ Northern Cyprus; 236 faculty members at five universities (fields: management, finance, engineering, medicine, architecture).	▪ Self-leadership, self-efficacy, and PsyCap influence academic intrapreneurial intention through attitudes, subjective norms, and perceived behavioral control (TPB model). ▪ Limitation: Geographically and disciplinarily limited sample; organizational variables such as organizational culture, managerial support, and institutional context were not considered, although they could influence intrapreneurial intention.

Intrapreneurship is a relatively unexplored area of PsyCap studies. Indeed, we observe that theoretical contributions endure in the absence of empirical evidence, and it is becoming increasingly important for future research to distinguish between perspectives that focus on the organizational level and those that investigate individual level of intrapreneurship. In other words, determine whether it is a top-down strategy within an organization or a bottom-up approach linked to employees' intrapreneurial behavior, in order to understand how PsyCap affects these two levels of intrapreneurship and vice versa. In this regard, the literature on intrapreneurship is marked by continuing conceptual ambiguity, particularly in the interchangeable use of the terms, intrapreneurship, entrepreneurial orientation, corporate entrepreneurship and innovative behaviors. Furthermore, many studies do not identify the level of analysis (individual versus organizational) or the logic of action (top-down vs. bottom-up).

4.1.2. Future Research on Target Populations

A number of scholars have attempted to investigate certain groups with distinct characteristics, such as migrant entrepreneurs, farmers, social entrepreneurs, and so on. Nonetheless, these research avenues need to be explored further. These profiles are rarely highlighted in mainstream studies, which often focus on students or typical entrepreneurs.

However, these groups face unique contexts that require more sustained attention. Table 6 presents thecontext and significance of these targets which have been less studied to date, as well as proposals for research perspectives that warrant further examination.

Table 6. Novel and under-studied populations.

Target Population	Related Studies	Context and Relevance	Research Topics Needed
Entrepreneurs from diverse migration backgrounds (e.g., rural–urban migrants, refugees, asylum seekers, work or study permit holders, second-generation migrants, etc.)	Baluku et al. (2023); Ma et al. (2018, 2022); Modesti et al. (2020); Kanısoy et al. (2024); Zbierowski (2016)	▪ Migrants face numerous psychological and social problems related to their experiences in their country of origin and the conditions of their new environment; ▪ In a context of transition that is sometimes forced and uncertain, PsyCap can strengthen resilience and entrepreneurial agency.	▪ Examine whether Psycap could help entrepreneurs mitigate the post-migration adversities (perceived discrimination, socioeconomic insecurity, etc.); ▪ Analyze the impact of PsyCap on perceived cultural distance and entrepreneurial agency; ▪ Assess the effectiveness of interventions aimed at strengthening PsyCap (e.g., mentoring programs, coaching) in supporting entrepreneurs from different migration trajectories; ▪ Explore the combined configurations of PsyCap and other forms of capital (social, cultural, economic) to understand their synergistic role in building entrepreneurial careers for migrant entrepreneurs.
Agricultural entrepreneurs	Chipfupa and Wale (2018); Wale and Chipfupa (2021); Wale et al. (2021)	▪ Agricultural entrepreneurship has the potential to address several challenges, such as food shortages, youth unemployment, and rural poverty reduction; ▪ Faced with climate risks and economic uncertainty, agricultural entrepreneurs may rely on PsyCap to promote innovation and maintain their perseverance; ▪ Current research indicates a lack of understanding of how psychological factors influence the development of entrepreneurship in the agricultural sector.	▪ Examine the impact of climate stress on entrepreneurial commitment and analyze whether PsyCap can buffer its effects on a specific undesirable outcome; ▪ Explore the role of PsyCap in fostering entrepreneurial resilience when facing recurring environmental hazards, such as drought, crop losses, or the unpredictability of natural resources; ▪ Examine whether specific PsyCap dimensions may facilitate the adoption of adaptive entrepreneurial behaviors in response to climate risks.

Table 6. *Cont.*

Target Population	Related Studies	Context and Relevance	Research Topics Needed
Social entrepreneurs	J. Choi et al. (2021, 2023); Y. Choi and Chang (2023); Pathak and Muralidharan (2023)	▪ Social entrepreneurs play a key role in innovation and the development of the social economy; ▪ Social entrepreneurship has made a decisive contribution during the COVID-19 pandemic, providing innovative solutions to critical social problems; ▪ Social entrepreneurs face a higher risk of failure and are therefore required to recover from the shocks they experience; ▪ PsyCap could support social entrepreneurs in complex institutional environments lacking tangible resources.	▪ Explore the differences in PsyCap dimensions between social entrepreneurs and entrepreneurs whose primary focus is economic performance; ▪ Explore how the prosocial characteristics of social entrepreneurs (e.g., values of fairness, social justice, solidarity) influence the mobilization and development of their PsyCap; ▪ Distinguish between the effects of each dimension of PsyCap on economic performance and on social performance.
Athlete entrepreneurs	Lyu et al. (2022); X. Wang and Wang (2023)	▪ Professional athletes often retire at a relatively young age, which leaves room for the emergence of a second entrepreneurial career; ▪ Athletes often acquire behavioral and psychological patterns that are useful for an entrepreneurial career; ▪ At present, further research is still needed to understand the interactions between athletes' psychological aspects and the development of the entrepreneurial process.	▪ Examine the extent to which experiences and skills acquired through a sports career influence the development of PsyCap among athlete entrepreneurs; ▪ Explore the role of PsyCap in identity transition after an athletic career and its impact on commitment to an entrepreneurial path; ▪ Testing the link between PsyCap levels and entrepreneurial risk-taking propensity among athletes ▪ Exploring additional psychological resources such as courage, which could be integrated into the PsyCap of entrepreneurial athletes.

Table 6. *Cont.*

Target Population	Related Studies	Context and Relevance	Research Topics Needed
Pre-university students	Martínez-Gregorio and Oliver (2023)	▪ It is argued that adolescence and the transition to adulthood are key in shaping professional identity and career prospects, yet most previous studies rely on university student samples; ▪ A research gap remains regarding the effects of entrepreneurship training on the PsyCap of secondary school students	▪ Explore the relationship between PsyCap development and exposure to entrepreneurial activities and programs in higher education with particular attention to experiential approaches ▪ Analyze the differences in psychological profiles between adolescents who have received entrepreneurship training and those with no exposure to it.

4.1.3. Methodological Directions for Future Research

Several gaps identified in the literature invite researchers to move beyond traditional approaches based on simply replicating existing analytical models. Future research could therefore also innovate in terms of methodology in order to capture the complexity of the dynamics at play. This could be achieved by proposing multilevel analyses (e.g., Anwar et al., 2023), longitudinal studies (Arshi et al., 2021; Baluku et al., 2021), and intervention research using experimental research designs (e.g., Sumalrot et al., 2023; Zeng et al., 2023; Zhang & Gao, 2023), as well as, configurational approaches, which can be used to determine specific combinations of factors that promote an optimal level of PsyCap. Table 7 summarizes the main requirements identified and the suggested methodological approaches to address them.

Table 7. Recommended methodological approaches for future research on entrepreneurial PsyCap.

Major Research Questions	Required Methods/Approaches	Suggested Readings
How does an entrepreneur's PsyCap shape the development of their team's PsyCap, and how might reciprocal dynamics emerge between the two levels?	▪ Multilevel studies to explore psychological contagion in both directions: from entrepreneur to team and from team to entrepreneur;	M. Chen et al. (2023); Birani-Nasraldin et al. (2024)
How does collective PsyCap emerge in entrepreneurial teams, beyond the mere aggregation of individual members' PsyCap?	▪ Additional research on collective PsyCap and organizational PsyCap; ▪ Develop models that capture the factors contributing to the emergence of collective PsyCap, especially in the case of collective entrepreneurship; ▪ Unpack the core effect, which focuses on how certain members' characteristics can disproportionately shape the emergence and development of collective PsyCap in entrepreneurial teams; ▪ Examine the critical threshold, understood as the point at which enough members with high individual PsyCap trigger the emergence of collective PsyCap.	West et al. (2009); Peterson and Zhang (2011)

Table 7. *Cont.*

Major Research Questions	Required Methods/Approaches	Suggested Readings
To what extent could experiential interventions promote the development of entrepreneurs' PsyCap, and how could these interventions influence their entrepreneurial behavior?	▪ Experimental or quasi-experimental designs using pre- and post-intervention measurements (e.g., after a training or coaching program).	Dello Russo and Stoykova (2015)
Through what combinations of personal, social, and contextual resources can high entrepreneurial PsyCap be achieved?	▪ Using configuration approaches such (fsQCA) can help test different combinations of factors and identify typical profiles rather than relying solely on linear models; ▪ Given the complexity of PsyCap research, more sophisticated models that incorporate mediation, moderation, or other advanced analytical approaches are needed to go beyond simple direct effect tests.	Fiss (2011); Misangyi et al. (2017)
Which additional dimensions could enrich the PsyCap construct to better reflect the specific realities of the entrepreneurial context?	▪ Contextualization efforts, adaptation of measurement scales, and the use of qualitative or exploratory methods; ▪ Explore other psychological resources relevant to entrepreneurs (e.g., courage).	Robusto et al. (2019); Abbasi et al. (2020); M. Chen et al. (2023)
How do PsyCap dimensions fluctuate during the entrepreneurial process, and what events or factors influence these variations?	▪ Longitudinal studies tracking the evolution of PsyCap at different stages: before venture creation (volitional), during the launch phase (pre-actional), and after several years of operation.	Kibler et al. (2024); Baluku et al. (2019); Arshi et al. (2021)

4.2. Limitations

This scoping review is subject to several limitations. First, we restricted the dataset to journal articles indexed in Scopus and Web of Science. As a result, relevant studies available in other databases or in the grey literature may not have been captured. Second, only English-language publications were retained, which may have reduced the visibility of evidence produced in other linguistic and geographical contexts. Third, because of the bibliometric design of the study and the size of the corpus, the findings were synthesized at an aggregated level rather than presented study by study. Finally, other bibliometric techniques, such as co-citation analysis or bibliographic coupling, were not included in the present review.

5. Conclusions

In this article, we explored the thematic landscape of research on PsyCap in entrepreneurial and intrapreneurial contexts using keyword co-occurrence networks. Our purpose was not merely to map the terms mechanically but also to reveal the underlying conceptual structure and observe its evolution over time; shifts, reinforcements, and new directions.

By adopting this proposed method, we first collected a database of publications that met our inclusion and exclusion criteria, built keyword co-occurrence networks and then studied the entire field of PsyCap, with a focus on analyzing changes in network density at each stage of development from 2006 to 2024. The objective of this method is to reveal the main research topics, those that remain underexplored, and the changes in research

trends. This paper also offers a significant methodological contribution to the literature on entrepreneurship by using bibliometrics as an analytical tool to structure the existing body of knowledge.

The diachronic approach adopted here, which focuses on analyzing the co-occurrence of keywords across successive periods, enables us to trace the historical evolution of the field and identify its phases of emergence, growth, and maturity. Thus, this progressive temporal segmentation (2006–2016, 2017–2018, etc.) provides a rigorous basis for detecting patterns in thematic evolution and capturing conceptual changes occurring in the literature. Indeed, this rigorous segmentation has the distinct advantage of ensuring that topics with low co-occurrence rates are not omitted. In other words, it goes beyond highlighting dominant nodes, namely those that appear frequently in publications, and also opens up perspectives on topics that are still marginal but could prove promising.

Where bibliometric analyses often focus on what is dense and visible, our approach seeks to capture weak signals, those embryonic areas of scientific interest that would benefit from further exploration.

Our findings point to a clear evolution in research exploring PsyCap in both entrepreneurial and intrapreneurial spheres. Certain themes are becoming more established, gaining importance, and, over time, proving almost indispensable (e.g., social capital, performance, entrepreneurial intention, and innovation). Others, by contrast, remain in their early stages, emerging only tentatively (e.g., entrepreneurial engagement, international orientation, access to financing, and growth), topics that are still relatively unexplored but far from irrelevant. The same logic applies to the populations studied. There are many studies on traditional academic profiles, but few, if any, on agricultural or social entrepreneurs, athlete entrepreneurs, or on those with multiple migration backgrounds. Yet these profiles could shed entirely new light on the subject.

This gradual evolution, both thematic and empirical, is also accompanied by another phenomenon: models are becoming more complex and sophisticated. As a result, theoretical frameworks are expanding and adapting. PsyCap is no longer examined solely through simple direct effect models; it is now increasingly studied using more elaborate analytical designs, such as moderated mediation and other advanced configurations, progressively more rooted in specific contexts. (1) the dataset includes only journal articles, excluding other types of scholarly outputs such as book chapters, conference proceedings, or theses that could have enriched the analysis; (2) beyond keyword co-occurrence analysis, approaches such as co-author network analysis, bibliographic coupling, and co-citation analysis should be explored in future research; (3) to enrich the discussion of the results, drawing on the expertise of specialists in the field could provide valuable insights and lead to a more nuanced interpretation of the findings.

Beyond its analytical contributions, this review provides important implications for understanding psychological processes underlying entrepreneurial and intrapreneurial behavior. By highlighting the role of PsyCapas a dynamic resource, the findings contribute to a deeper comprehension of how individuals cope with stress, sustain motivation, and regulate their engagement in uncertain and demanding environments. These insights also translate into practical implications for various actors shaping entrepreneurial and intrapreneurial ecosystems.

For entrepreneurship educators, incubators, and accelerators: Given the strong PsyCap–intention link, curricula should integrate PsyCap-building modules early in the pipeline. For incubators and accelerators, tailoring support to underrepresented groups such as women, refugees, or rural and social entrepreneurs is especially important, since these groups often face contextual barriers that weaken PsyCap.

For entrepreneurs and founders: Our review indicates that PsyCap is consistently linked to performance. Entrepreneurs with higher PsyCap are more likely to sustain effort after crises, cope better with stress and uncertainty, and remain committed to their projects and careers. PsyCap also facilitates opportunity recognition and supports innovative behavior. Recent studies, however, underline that it can also foster deviant forms of innovation, depending on how these psychological resources are mobilized. At the same time, PsyCap reinforces resilience in the face of failure. In resource-constrained contexts, it may further act as a low-cost signal of credibility in fundraising and partnerships, complementing human and social capital.

For intrapreneurs and HR/innovation managers: Our review shows that PsyCap matters inside organizations. Intrapreneurs with higher levels of hope, resilience, optimism, and efficacy stay more engaged and are more likely to push new ideas, even when conditions are demanding. At the team level, shared PsyCap helps people collaborate and keep moving on innovative projects. Alongside human and social capital, PsyCap brings a psychological strength that sustains effort and reduces the risk of burnout. For HR and innovation managers, supporting PsyCap can make intrapreneurial initiatives more robust and adaptable.

For investors and lenders: Beyond hard metrics, research shows that PsyCap functions as a salient signal in entrepreneurial finance. In crowdfunding, positive PsyCap language increases the likelihood of reaching funding goals, especially in contexts where investors face high uncertainty and little hard information. In family lending, PsyCap operates as an intent signal that conveys authenticity and reliability, encouraging relatives to provide support. Across both settings, PsyCap gains strength when combined with costly signals such as prior entrepreneurial experience or established partnerships, which help investors interpret PsyCap as genuine.

For policymakers and ecosystem builders: Research shows that PsyCap is not only an individual resource but also shaped by broader economic and institutional conditions. Stable growth, supportive policies, and access to resources can strengthen hope, optimism, and resilience among entrepreneurs, while unstable environments often erode these capacities and discourage entrepreneurial action. Policymakers can therefore play a role in creating conditions that sustain PsyCap by reducing structural barriers (e.g., administrative burdens, uncertain access to finance), providing supportive resources (mentoring networks, targeted training, micro-grants), and promoting favorable environments where collective confidence and resilience can develop. These measures are particularly important for underrepresented groups, such as women, youth, migrants, and rural entrepreneurs, whose access to PsyCap is often more constrained.

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