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Entrepreneurial leadership research: a multilevel integration and agenda for future inquiry

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Abstract

Purpose – This study synthesizes fragmented entrepreneurial leadership (EL) research through a systematic-integrative review and develops an integrative multilevel framework explaining how EL creates value across individual, team and organizational levels, advancing theoretical coherence and proposing a focused research agenda. EL has emerged as a critical phenomenon bridging the leadership and entrepreneurship domains; however, the field remains theoretically fragmented, with unclear conceptual boundaries.

Design/methodology/approach – This systematic-integrative hybrid review combines a PRISMA-guided search (44 ABDC A/A* articles from four databases) with integrative synthesis. We employed iterative thematic analysis to reconceptualize entrepreneurial leadership across organizational levels, generating a multilevel theoretical framework rather than descriptively aggregating the findings.

Findings – The findings reveal that EL operates as a multilevel catalyst, enhancing employee creativity through psychological resources, fostering team performance through knowledge sharing and driving organizational innovation through strategic flexibility. However, the literature exhibits significant theoretical fragmentation, with most studies employing single-lens perspectives that fail to capture the complexity of EL.

Originality/value – An integrative multilevel framework that bridges micro-foundations and macro-outcomes through relational-processual mechanisms is proposed. The research agenda identifies critical gaps, including ecosystem-level dynamics, digital transformation contexts and sustainability imperatives, thereby advancing EL scholarship toward theoretical coherence in response to contemporary entrepreneurial challenges.

Keywords Entrepreneurial leadership, Systematic literature review, Multilevel framework, Organizational outcomes, Theoretical integration

Paper type Literature review

1. Introduction

Over the last decade, there has been an unprecedented increase in entrepreneurial activity worldwide, often attributed to the emerging momentum of the Industrial Revolution (Audretsch *et al.*, 2023; Leitch and Harrison, 2018). Entrepreneurs are the primary force driving economic growth through job creation, productivity, innovation, and the establishment of new sectors. However, the trait of entrepreneurship is not constant; rather, it is a dynamic mindset grounded in risk-taking capacity, proactivity, and innovation (Covin and Slevin, 1991). Such a mindset has extended to scholarly conversations beyond monetary outcomes to questions of leadership and creativity, where researchers have focused on the creative facet of

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leadership as crucial for success in turbulent environments (Cai *et al.*, 2019; Newman *et al.*, 2018b).

Studies on entrepreneurship are evolving rapidly, providing insights into diverse phenomena, such as innovation, leadership processes, and opportunity recognition (Troise *et al.*, 2022). Entrepreneurial leadership (EL) has gained newfound attention in policy and education, especially at the nexus of leadership and entrepreneurship. However, it remains fragmented at the theoretical level and unexplored in the literature (Leitch and Volery, 2017; Renko *et al.*, 2015; Leitch *et al.*, 2013). Consequently, the notion of EL lacks a single definition because of its varied implications across different contexts and interpretations (Leitch and Volery, 2017; Leitch *et al.*, 2013). This fragmentation at the definitional level reflects a broader concern within leadership discourse regarding the challenges of unifying theory and translating it into practical implications across diverse environments (Hunter *et al.*, 2007). The varying definitions of EL differ considerably, shaped mainly by two perspectives: the ability-based view, which focuses on traits such as risk-taking, vision, and innovation (Fontana and Musa, 2017; Kuratko, 2007), and the behavioral perspective, which emphasizes mobilizing teams and converting opportunities (Roomi and Harrison, 2011; Gupta *et al.*, 2004). In this study, we view EL as a hybrid form of leadership that integrates entrepreneurial opportunity-seeking with the mobilization of people and resources to achieve organizational outcomes.

Given the deep fragmentation of the field, simple cataloging of findings is insufficient. This field requires theoretical integration that moves beyond documenting outcomes to explaining multilevel processes. Therefore, we adopted an integrative approach that synthesizes how EL creates value across organizational levels, identifies the mediating mechanisms and boundary conditions through which it operates, and proposes a process-based multilevel framework (see Figure 3) that connects micro-foundations (individual cognitions and behaviors) with macro-outcomes (organizational performance) through meso-level processes (team dynamics).

Leadership theory has moved from trait-based and behavioral to transformational, distributed, and strategic models (Volk *et al.*, 2023), whereas entrepreneurship has shifted from personal traits to frameworks of thought, effectuation, and institutional logic (Bruton *et al.*, 2010; Baron, 2007; Sarasvathy, 2001). These evolutions have converged to create EL, which combines leadership's focus on influence and vision with entrepreneurship's emphasis on opportunity-seeking and innovation. Initially viewed as a combination of entrepreneurial orientation and leader influence, later studies (Renko *et al.*, 2015) defined EL as a behavioral capability for opportunity pursuit, while recent work (Uhl-Bien and Arena, 2018) places EL within complexity frameworks, emphasizing agility in turbulent environments.

Previous studies have linked EL to diverse firm-related outcomes, such as enhanced employee performance, better capacity for innovation, and sustained competitive advantage (Vivona, 2024; Bagheri *et al.*, 2022; Miao *et al.*, 2019). However, discourse within this domain remains fragmented in three key ways. First, methodologically, the field exhibits an overreliance on cross-sectional surveys, with limited longitudinal or mixed-methods approaches (Harrison *et al.*, 2016). Second, theoretically, studies adopt isolated lenses, such as social cognitive theory or social capital theory, without integrating perspectives to explain multilevel mechanisms (Renko *et al.*, 2015; Leitch *et al.*, 2013). Third, research has focused on narrow domains, with minimal cross-contextual analysis (Harrison *et al.*, 2016). This triple fragmentation prevents the field from developing a coherent understanding of how EL creates value across organizational levels. To address this, this study adopts an integrative review approach underpinned by a systematic search of 44 peer-reviewed ABDC A/A* journal articles.

What distinguishes this review from prior EL scholarship is its systematic-integrative hybrid approach, which combines PRISMA-guided search rigor with genuinely integrative theory-building rather than mere descriptive cataloging. Prior reviews, such as Harrison *et al.* (2016), which mapped definitional debates, and Simba and Thai (2019), which examined MSME contexts, remained descriptive and at the single level. This review makes three distinct and explicit multilevel contributions. First, we synthesized how EL operates across organizational levels, revealing that its effects are predominantly indirect, mediated by

psychological resources, team climate, and organizational capabilities. Second, we systematically mapped the mechanisms (psychological safety, knowledge sharing, and strategic flexibility) and boundary conditions (environmental hostility and governance structures) through which EL creates value. Third, we propose an integrative multilevel framework that bridges micro-foundations with macro-outcomes through meso-level processes, providing testable propositions to advance the field toward theoretical coherence, particularly in addressing contemporary challenges such as digital transformation, ecosystem dynamics (inter-organizational innovation networks), and sustainability (Lu *et al.*, 2026; Gerlich *et al.*, 2025). To build this integrative framework, we first examined the conceptual foundations and theoretical debates that have shaped EL scholarship.

2. Conceptual underpinnings and recent debate on entrepreneurial leadership

This section provides an overview of the different definitions and debates surrounding the concept of EL. Despite a two-decade push to integrate entrepreneurship and leadership (Vecchio, 2003), three reasons explain this ambiguity. First, the field lacks agreement on whether EL is conventional leadership applied in entrepreneurial contexts or a distinct construct altogether (Vecchio, 2003). Second, current measurement tools are either narrow, focusing on opportunity recognition while ignoring mobilization and influence, or general leadership measures that fail to capture entrepreneurship-specific behaviors (Renko *et al.*, 2015). Third, definitional inconsistencies prevent theory building: some researchers define EL as a personal attribute, such as vision or risk-taking (Kuratko, 2007; Fontana and Musa, 2017), whereas others perceive it as a behavior comprising opportunity conversion and team mobilization (Gupta *et al.*, 2004; Roomi and Harrison, 2011), while others view it as context-specific leadership within entrepreneurial firms (Leitch *et al.*, 2013).

However, this persistent ambiguity should not be viewed as a simple failure of the field. Rather, we posit that it is a symptom of the construct's boundary-spanning nature, which sits at the intersection of leadership (a social process) and entrepreneurship (an opportunity-focused process). This ambiguity is precisely why a new multilevel integrative framework is necessary, as a single definition may be insufficient to capture the construct's varied functions at the individual, team, and firm levels.

Inspired by Kuratko's (2007) entrepreneurial viewpoint, leadership can be regarded as a component of the entrepreneurial field, as an entrepreneurial mindset and behavior are necessary for effective leadership. However, some scholars believe that neither position is absolute. These scholars believe that EL is situated at the intersection of entrepreneurship and leadership (Vechhio, 2003). Within this intersection, there is a wide range of approaches, characterized by the absence of a broadly accepted definition of EL.

Initial definitions focused on personal characteristics, risk-taking, vision, and proactiveness within leadership (Gupta *et al.*, 2004), providing a foundation that emphasizes entrepreneurial capacity in formal leadership roles. Other definitions highlight behaviors and contexts in EL (Renko *et al.*, 2015; Roomi and Harrison, 2011), transitioning from characteristics to action while creating value amid ambiguity. Recent work (Bagheri *et al.*, 2022; Fontana and Musa, 2017) extended EL by incorporating innovation enablement and resource orchestration; definitions have converged around vision, innovation, and group mobilization, while shifting from psychological characteristics to behavioral competencies. This shift reflects a broader transition in leadership and entrepreneurship theory. Entrepreneurship has evolved from attribute-centered opportunity recognition to an effectual, processual lens focusing on adaptation (Sarasvathy, 2001; Bruton *et al.*, 2010). Leadership theory has transformed from transformational frameworks to complexity-based perspectives that emphasize interrelations (Uhl-Bien and Arena, 2018). The convergence of these paradigms recognizes EL as suitable for volatile environments, where leaders must enact opportunity-driven behaviors while orchestrating adaptive processes. However, if leadership

development requires long-term perspectives (Murphy and Johnson, 2011), what makes EL development unique? Current research has not examined whether entrepreneurship-specific antecedents differ fundamentally from other leadership forms. This gap determines whether EL requires a distinct developmental theory or represents leadership in entrepreneurial contexts (Vecchio, 2003). While intentional leader development requires structured experiences, entrepreneurial contexts lack such pathways, with learning through trial and error (Zahoor *et al.*, 2023). This creates tension: either EL develops differently from other leadership forms, or the lack of structured development explains venture failure.

Recent theoretical developments have further complicated EL conceptualizations. Digital leadership scholarship (Kanbach *et al.*, 2024) challenges the way EL operates in platform ecosystems and AI-enabled decision-making contexts. Paradox leadership theory (Volk *et al.*, 2023) illuminates how entrepreneurial leaders manage competing demand exploration–exploitation tensions and stakeholder conflict dynamics, which are underexplored in the EL literature. Research on entrepreneurial identity construction (Sieger *et al.*, 2016) shifts the focus from EL as a stable trait to processual identity work through narrative sensemaking and role transitions. Ecosystem perspectives (Audretsch *et al.*, 2023) challenge firm-centric EL research, suggesting that leaders orchestrate value across organizational boundaries through network mobilization and resource coordination. These emerging streams underscore EL's fragmentation while pointing toward integration opportunities that our framework addresses.

3. Methodology

Consistent with prior reviews in management and entrepreneurship (Dana *et al.*, 2024; Caputo *et al.*, 2021; Pizzi *et al.*, 2020), this review maps and critically assesses the field. We employ a systematic-integrative hybrid approach (Torraco, 2016) that combines PRISMA-guided search protocols (Page *et al.*, 2021) with integrative synthesis for theory building (Kraus *et al.*, 2022; Marzi *et al.*, 2025). Through iterative thematic analysis, we reconceptualize the multilevel mechanisms of entrepreneurial leadership and generate a theoretical framework that advances conceptual coherence rather than merely aggregating findings descriptively.

The search spanned four databases (Scopus, Web of Science, ProQuest, and ScienceDirect) using combined search terms for entrepreneurship (entrepreneur*, founder*, new venture*, startup*) AND leadership (leader*, leadership) in titles, abstracts, and keywords. The search covered January 2000 to October 2024, justified by Gupta *et al.*'s (2004) formal construct operationalization and pilot searches confirming minimal pre-2000 relevant work. After deduplication (278 removed), two researchers independently screened 768 titles/abstracts (Cohen's $\kappa = 0.91$), yielding 150 articles for full-text assessments. Full-text screening excluded articles that did not meet the ABDC A/A* threshold ($n = 73$), with EL not as a central construct ($n = 21$), wrong domain ($n = 8$), and duplicate samples ($n = 4$), resulting in 44 included articles. Robustness checks included citation chaining (0 additional articles identified), journal hand-searching (0 unique additions), and sensitivity analysis confirming the appropriateness of the criteria. Table 1 presents the inclusion criteria. The search yielded 1,046 records; after

Table 1. Inclusion criteria

Feature	Inclusion criteria
Discipline	"Business, Management and Accounting," "Social Sciences," "Economics, Econometrics and Finance"
Source Type	Peer-Reviewed Journal Articles from ScienceDirect, ProQuest, Scopus, and Web of Science
Language	English
Journal Ranking	ABDC A and A* Category Journals

Source(s): Authors' own elaboration

deduplication and title–abstract screening, 44 articles were retained for full-text review. In line with best practices (Marzi *et al.*, 2025), we adopted a quality criteria and restricted our sample to ABDC A/A* journals in the 2022 ABDC Journal Quality List to ensure the theoretical rigor and methodological quality essential for building an integrative theory. This addresses the "quality-quantity trade-off" in systematic reviews (Marzi *et al.*, 2025; Tranfield *et al.*, 2003): while creating a selection bias toward well-resourced contexts, it ensures that our synthesis reflects the best empirical evidence in the field. The 44 studies represent scholarship that survived the highest peer-review scrutiny, providing a conservative foundation for the framework (see Appendix A, Table A1 for full inclusion/exclusion logic and rationale).

Figure 1 shows the PRISMA flow diagram of the selection and screening procedures. Appendix A presents the details of the search strings, databases, and time coverage, search parameters, inclusion logic, exclusion rationale, screening criteria, and robustness check protocols.

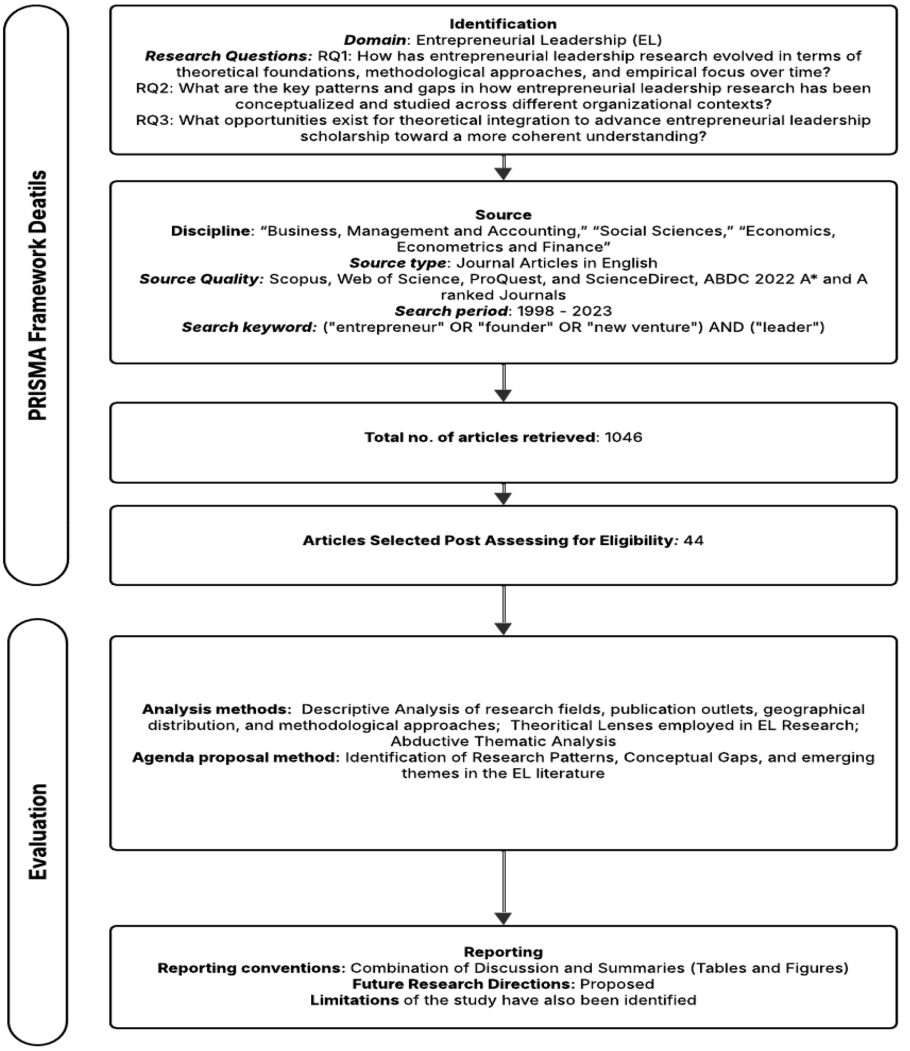

Figure 1. Research design flow diagram. Source: Authors' own elaboration

Each article was systematically coded to capture bibliographic details (year, journal, authorship), conceptual foundations (theoretical lenses, constructs, levels of analysis), methodological features (design, sample, context), and findings and contributions (antecedents, mediators, moderators, outcomes). Two researchers independently coded all articles, with an initial agreement of 87.3%. Cohen's $\kappa = 0.82$ ($p < 0.001$) for categorical variables and ICC = 0.94 for continuous measures demonstrate substantial-to-excellent reliability. Discrepancies were resolved through consensus discussions referencing the source texts, with expert arbitration for unresolved cases ($n = 3$). This protocol ensures coding validity, consistent with qualitative synthesis standards (Chhabra *et al.*, 2023; Vaio *et al.*, 2022).

Iterative categorization was used to move from codes to themes. First-order categories clustered similar constructs (e.g. creativity, innovativeness, and commitment) and outcomes (e.g. performance, growth, and legitimacy). Second-order themes grouped categories into broader domains (employee-, team-, and organization-level- outcomes), culminating in aggregate clusters that capture major EL streams (e.g. employee creativity, team collaboration, and organizational innovation). The process was iterative and abductive: categories emerged inductively but were interpreted through established EL and leadership theories. The final structure reflects EL's multilevel nature, with subthemes within the largest cluster at the organizational level.

4. Findings

This section presents the findings in three parts: first, a descriptive analysis of the research fields, publication outlets, geographical distribution, and methodological approaches; second, the theoretical lenses employed in EL research; and third, a core thematic analysis. The findings reveal how EL operates as a multilevel phenomenon, cascading from individual processes through team dynamics to organizational outcomes, while identifying the mediating mechanisms and boundary conditions that shape its effectiveness.

4.1 Descriptive analysis

EL research is anchored primarily in Strategy, Management, and Organizational Behavior, comprising over half of the identified studies (23 of 44), with Marketing and Tourism as emerging domains, indicating interdisciplinarity. Publications concentrate in leading management and entrepreneurship outlets (e.g. Journal of Small Business Management; Journal of Business Research), evidencing alignment with mainstream business scholarship and increasing visibility. Overall, EL is gaining cross-disciplinary- recognition grounded in strategic and organizational research with rising cross-domain- integration.

In addition, EL research exhibits a broad global footprint across 33 countries, reflecting collaboration and growing cross-country comparative interest in both developed and developing contexts. As shown in Table 2, 25 of the 44 studies were quantitative, 10 were qualitative, five were conceptual, and four were literature reviews. Qualitative work predominantly employs semi-structured interviews and case studies; two studies are longitudinal, and one is ethnographic. Gupta *et al.* (2004) developed the EL construct and introduced an empirical measure using GLOBE leadership data, drawing on a cross-cultural sample of 62 societies and over 15,000 middle-level managers. Subsequent extensions of the EL's role and measurement remain limited (Harrison *et al.*, 2018; Renko *et al.*, 2015). Most quantitative EL studies use the Renko *et al.* (2015) EL scale, while two employ the Gupta *et al.* (2004) measures. These scales rest on the view that entrepreneurial leaders exemplify opportunity-seeking and opportunity-exploiting behavior.

Our review shows that EL research largely mirrors what Hunter *et al.* (2007) describe as a "typical leadership study": reliance on cross-sectional, single-respondent survey designs, often with self-reported perceptions of both leadership and outcomes collected from the same source at a single point in time. This pattern raises familiar concerns about common method

Table 2. Methodological and geographical profiles

Parameter	Observation
Methodological Profile	
Quantitative	25 articles
Qualitative	10 articles
Conceptual	5 articles
Literature Review	4 articles
Geographical Profile	
Total Countries Represented	33
Multi-Country Studies	8
Most Represented Continent	Asia (40%)
Developed vs Developing	Balanced (approx. 50–50)
Cross-country Collaborations	Increasing, especially post-2015
Regional Concentrations	Asia, Europe, North America

Source(s): Authors' own elaboration

bias, mono-source inflation of effect sizes, and the limited capacity to capture the temporal and processual character of leadership. Similar critiques apply to entrepreneurship research, where opportunity processes are frequently studied with static instruments that underplay emergence and context (Langley *et al.*, 2013; McMullen and Dimov, 2013). In our sample, longitudinal, experimental, multilevel, or mixed-method designs were the exception rather than the rule, and qualitative studies were rarely used to unpack mechanisms or "dark side" dynamics that survey instruments may miss. Taken together, these patterns suggest that methodological gaps in EL reflect broader field-level debates about how leadership and entrepreneurship should be studied to do justice to their inherently dynamic and multilevel nature.

4.2 Theoretical lenses employed

This review identifies 44 studies with diverse theoretical frameworks. Studies often combine theories (e.g. Hou *et al.*, 2024; Zahoor *et al.*, 2023), with our analysis revealing three conceptual clusters: individual cognitive, relational network, and critical-contextual theories that illuminate different EL dimensions while creating productive tensions and complementarities.

Individual Cognitive Theories: Social cognitive theory (SCT), the most prevalent lens (12 studies), emphasizes learnable capabilities through self-efficacy, wherein individuals control their actions (Bandura, 1977). Research has demonstrated that entrepreneurial education influences self-efficacy and mediates the relationship between education and entrepreneurial intention (Neneh, 2022). Upper Echelons Theory (UET; Hambrick and Mason, 1984) posits that executives' characteristics, backgrounds, values, and experiences shape strategic decisions and performance (Wang *et al.*, 2023).

Relational Network Theories: Social capital theory emphasizes networks and relationships that provide resource access and facilitate entrepreneurial behavior (Lin, 2017). Integration with human capital theory explains how social relations develop entrepreneurial skills (Leitch *et al.*, 2013), although the effects vary across contexts. Dynamic capability theory examines ventures' capacity to integrate and reconfigure competencies to address transforming environments (Teece *et al.*, 1997), with applications showing how leaders leverage knowledge infrastructure and market sensing to drive competitive advantage (Hoang *et al.*, 2024).

Critical-Contextual Theories: Post-structuralist feminist theory questions gender-biased entrepreneurship views, revealing how cultural complexities impact women entrepreneurs' leadership experiences and legitimacy (Kimbu *et al.*, 2021; Foss *et al.*, 2018). Self-determination theory posits that entrepreneurial leaders foster autonomous environments that enable innovation (Faridian, 2023).

Theoretical Tensions and Complementarities: These lenses reveal fundamental tensions. First, SCT emphasizes learnable capabilities through self-efficacy (Bandura, 1977), whereas upper echelons theory attributes outcomes to stable executive traits (Hambrick and Mason, 1984), creating an unresolved question: Can EL be developed, or is it trait-based? Second, individualist perspectives (SCT and UET) contrast with relational perspectives (social capital): Does EL reside within individuals or between actors in networks (Lin, 2017)?

However, complementarities also exist. Dynamic capability theory bridges individual cognition, social capital, and structural factors (Teece *et al.*, 1997). Poststructuralist feminist theory challenges both individualist and structural determinism (Foss *et al.*, 2018). Our integrative framework (see Figure 3) resolves these tensions by positioning theories at appropriate levels: micro-theories explain individual mechanisms, meso-theories illuminate team processes, and macro-theories account for organizational dynamics. Rather than competing, these lenses become complementary when mapped onto a multilevel architecture.

4.3 Thematic insights into entrepreneurial leadership (EL) research

Thematic analysis of the 44 selected studies revealed that EL operates as a multilevel phenomenon, cascading from individual processes through team dynamics to organizational outcomes. Rather than directly driving performance, EL functions as a catalyst that activates psychological resources, shapes climate, and builds adaptive capabilities. Our synthesis identified three interconnected levels: employee, team, and organizational outcomes, each with distinct mediating mechanisms and boundary conditions, with effects unfolding through complex processes contingent on contextual moderators.

4.3.1 EL as a catalyst for employee creativity and innovativeness. A growing body of evidence highlights EL as a critical driver of employee creativity and innovation, particularly in service-intensive and knowledge-driven contexts. Our cross-study analysis reveals a consistent indirect pathway: across Chinese hospitality (Hou *et al.*, 2024), Vietnamese tourism (Hoang *et al.*, 2023b), and high-technology ventures (Bagheri *et al.*, 2022), EL's employee-level impact operates through psychological resources, creative self-efficacy (Bagheri *et al.*, 2022; Newman *et al.*, 2018b), intrinsic motivation (Hoang *et al.*, 2023b), and work-related flow (Hou *et al.*, 2024). However, the specific resources vary by industry context: service sectors emphasize emotional labor mechanisms, such as surface acting and flow states, while knowledge sectors foreground cognitive mechanisms, including passion for invention and self-efficacy. This pattern suggests that, while the indirect pathway is universal, industry demands shape the psychological resources that EL mobilizes.

These psychological mechanisms require high-quality leader–follower relationships to be activated. Hoang *et al.* (2023b) demonstrate that trust moderates the relationship between EL, intrinsic motivation, and innovation, while Newman *et al.* (2018b) show EL outperforms transformational leadership when relational quality is high. Hoang *et al.* (2024) found that EL boosts service innovation via knowledge acquisition and market-sensing capability, with competitive intensity moderating these relationships. Thus, the efficacy of EL rests on fostering both motivational resources and high-quality relationships.

One important exception challenges this purely indirect pathway. Newman *et al.* (2018a) found EL strengthens the creativity-innovation link directly when high-performance work systems are present, bypassing psychological mediators. This suggests that organizational infrastructure may enable more proximal EL impacts, positioning EL as distinctly suited to contexts that require both adaptability and innovation. In contrast, transactional leadership failed to predict innovation-based outcomes despite its impact on employee commitment, highlighting EL's unique role in innovation contexts.

A critical contradiction emerges regarding gender issues. Kacperczyk *et al.* (2023) found that employees perceive female entrepreneurial leaders' demands as more difficult, contributing fewer work hours to women-founded enterprises. This contradicts all other positive findings and reveals that gender-based perceptions can override EL's motivational

effects. As the only study examining leader gender at the employee level, it remains unclear whether this reflects broader patterns or context-specific dynamics; however, it highlights a crucial equity-based barrier to entrepreneurship.

Methodologically, all studies, except for two, employed cross-sectional, single-source designs, preventing the temporal ordering of the proposed EL mediator–outcome sequences. We cannot distinguish between causal processes and correlational patterns, which undermines mediation claims and represents a critical limitation that requires longitudinal designs.

In summary, EL's employee-level impact requires three elements: (1) context-appropriate psychological resources (varying by industry), (2) relational foundations (trust, LMX), and (3) organizational capabilities (knowledge acquisition, market sensing). Studies capturing all three elements (Hoang *et al.*, 2024) show stronger effects than those examining one or two factors, suggesting a configurational rather than an additive logic. As summarized in Table 3, EL consistently fosters innovation and service performance by activating psychological and motivational resources through supportive relationships; however, its effectiveness depends on contextual moderators such as competitive intensity, high-performance systems, and gender dynamics.

Table 3. Entrepreneurial leadership and employee-level outcomes

Study	Antecedent(s)	Outcome(s)	Moderators	Mediators	Controls
Hou *et al.* (2024)	EL	Employee creativity	–	Surface acting; work-related flow	Gender, age, education, tenure
Hoang *et al.* (2024)	EL	Service innovation	Competitive intensity	Knowledge acquisition; market-sensing capability	Firm size; firm age
Hoang *et al.* (2023b)	EL; Ethical leadership	Employees' service innovation	Trust in leader	Intrinsic motivation	Gender; age; education; tenure
Hoang *et al.* (2022)	EL	Employees' innovative behavior	Leader–member exchange (LMX)	Intrinsic motivation; trust in leader	Gender, age, education, tenure
Bagheri *et al.* (2022)	EL	Employees' innovative behavior	–	Creative self-efficacy; passion for inventing	Age, gender, education, business experience
Kacperczyk *et al.* (2023)	Gender of EL	Employment effort	–	Unfairness; task difficulty	Gender, education, race, experience, age
Newman *et al.* (2018a)	EL	Organizational commitment; innovative behavior	–	–	Age, gender, nationality, tenure
Newman *et al.* (2018b)	EL	Creative self-efficacy innovative behavior	–	–	Gender, age, education, tenure
Mahfouz *et al.* (2022)	Transactional leadership	Employee commitment; performance	–	–	–

Source(s): Authors' own elaboration

4.3.2 Team-level outcomes of EL. At the team level (Table 4), EL is consistently associated with higher creativity and collaboration. Unlike employee-level effects, which are driven by individual motivation, team-level outcomes depend on a shared psychological climate. Our cross-study analysis revealed that in operational teams (Cai *et al.*, 2019), project teams (Mehmood *et al.*, 2022), and top management teams (Miao *et al.*, 2019), EL operates through a sequential pattern: psychological safety enables knowledge sharing, which drives creativity. This finding contrasts with employee-level findings in which individual efficacy dominates.

Mehmood *et al.* (2022) demonstrate this layered pathway, while Miao *et al.* (2019) found that EL enhances TMT performance through psychological safety, enabling teams to voice concerns and take risks. Cai *et al.* (2019) revealed that team creative efficacy moderates the EL-creativity relationship, showing that team-level factors create boundary conditions for individual outcomes, a multilevel interdependence absent from employee-level studies.

However, functional differences emerge: TMT studies emphasize empowerment and risk-taking, whereas operational teams focus on knowledge sharing and idea generation, potentially reflecting their distinct roles in the organization. Methodologically, all studies measure mediators via aggregated individual perceptions rather than actual team interactions, leaving process dynamics unexplored.

In summary, team outcomes depend on emergent collective properties (shared climate and collective efficacy) rather than aggregated individual attributes, representing a fundamentally different causal architecture than employee-level effects.

4.3.3 Organizational outcomes of EL. The organizational-level outcomes of EL (Table 5) represent the largest cluster in the literature, reflecting how EL scales beyond individuals and teams to shape firm-wide results. We identified three sub-themes: innovation and learning, performance and growth, and attractiveness and legitimacy.

Our cross-study synthesis reveals that in hospitality (Hoang *et al.*, 2023a), international ventures (Zahoor *et al.*, 2023), and post-merger contexts (Strobl *et al.*, 2020), EL drives innovation through learning processes and dynamic capabilities, knowledge acquisition, explorative/exploitative learning, and strategic flexibility rather than direct performance effects. Hensellek *et al.* (2023) emphasize strategic flexibility as the mediating mechanism linking EL to venture performance. However, Sarabi *et al.* (2020) found that these mechanisms weaken under high organizational inertia, suggesting that rigid structures resist EL's influence. A critical environmental distinction emerges: Strobl *et al.* (2020) found that industry/market hostility weakens EL's innovation effects, while Hoang *et al.* (2024) showed that competitive intensity amplifies them, suggesting a curvilinear relationship that remains untested.

EL drives organizational performance and growth by aligning strategic orientation with contextual conditions. Djalil *et al.* (2023) show that EL strengthens market orientation and innovativeness, improving bank performance. Wang *et al.* (2023) demonstrate that

Table 4. Entrepreneurial leadership and team-level outcomes

Study	Antecedent(s)	Outcome(s)	Moderators	Mediators	Controls
Mehmood *et al.* (2022)	EL	Team creativity	–	Psychological safety; knowledge sharing	–
Cai *et al.* (2019)	EL	Employee creativity; Team creativity	Team creative efficacy	Creative self-efficacy; team creative efficacy	Individual (age, gender, education, tenure, job type); Team (size, age, leader tenure)
Miao *et al.* (2019)	EL	Team performance	–	Psychological safety	–

Source(s): Authors' own elaboration

Table 5. Entrepreneurial leadership and organizational-level outcomes

Cluster	Study	Antecedent(s)	Outcome(s)	Moderators	Mediators
Innovation *and* Learning	Hoang *et al.* (2023a)	EL	Product *and* process innovation	–	Knowledge acquisition; innovation strategy
	Hensellek *et al.* (2023)	EL; Strategic flexibility	Venture performance	Founder-to-employee ratio	Strategic flexibility
	Zahoor *et al.* (2023)	EL	Organizational growth	Gender diversity in senior management	Explorative and exploitative learning
	Faridian (2023)	EL	Value creation in open innovation	–	Resource orchestration; institutionalization
	Strobl *et al.* (2020)	EL	Post-merger innovation (exploration and exploitation)	Environmental hostility	–
	Dabić *et al.* (2021)	Employees' intellectual agility	Business innovativeness	–	EL
Performance and Growth	Djalil *et al.* (2023)	EL	Market orientation; innovativeness; bank performance	–	–
	Sarabi *et al.* (2020)	EL	Subsidiary performance (MNEs)	Inertia; autonomy; task complexity	–
	Wang *et al.* (2023)	Responsible/ entrepreneurial CEO	CSR and firm performance	CEO founder status	Ethical, service, initiative climates
Attractiveness and Legitimacy	Hubner *et al.* (2023)	EL	Organizational attractiveness	Age; gender	Perceived authenticity
	Vivona (2024)	EL; Democratic culture	Organizational effectiveness	–	Interaction of EL and culture
	Moon *et al.* (2020)	EL; Confucian values; Ethical climate	Public entrepreneurship; performance	–	Public entrepreneurship

Source(s): Authors' own elaboration

organizational climates (ethical, service, and initiative) mediate the effect of entrepreneurial CEOs on CSR and firm performance. Governance structures critically moderate these effects. Wang *et al.* (2023) show that EL's impact is significantly stronger when CEOs are founders, while Hensellek *et al.* (2023) confirm that the founder-to-employee ratio moderates the EL-performance pathway. These findings reveal that EL operates differently in founder-led and professionally managed ventures.

EL enhances organizational legitimacy by cultivating ethical, service-oriented, and initiative-driven climates that shape stakeholder perceptions (Wang *et al.*, 2023; Vivona, 2024). However, only three studies have addressed legitimacy in specific contexts, leaving generalizability unclear.

Methodologically, organizational studies rely disproportionately on single-source CEO surveys that measure both leadership and outcomes, creating a common-source bias. Only Zahoor *et al.* (2023) triangulated the archival data.

4.3.4 Theoretical integration: why these mediators dominate and how they connect. Our cross-study synthesis reveals the specific mediators that dominate and how they are interconnected across levels. Psychological safety and knowledge acquisition emerge consistently because they address two fundamental deficits in entrepreneurial contexts: epistemic (incomplete market/technology knowledge) and relational (uncertainty threatening security) deficits. Knowledge processes market sensing (Hoang *et al.*, 2024) and explorative learning (Zahoor *et al.*, 2023), converting information into actionable intelligence. Psychological safety enables risk-taking without fear (Mehmood *et al.*, 2022; Miao *et al.*, 2019). Other mediators, such as self-efficacy (Bagheri *et al.*, 2022) and motivation (Hoang *et al.*, 2023b), amplify these pathways but cannot substitute for them. Moderators operate at distinct leverage points: relational factors (trust; Hoang *et al.*, 2022) govern activation, structural factors (governance; Wang *et al.*, 2023) govern activation, structural factors (governance; Wang *et al.*, 2023) govern institutionalization, and environmental factors (hostility; Strobl *et al.*, 2020) govern translation. This moderated mediation architecture explains why pathways are inherently contingent.

4.3.5 Synthesis: a conceptual framework of EL outcomes. Grounded in the four cross-study multilevel patterns elaborated in Section 4.4, our synthesis reveals three theoretically distinct pathways (Figure 2) that operate through a sequential process model (Figure 3).

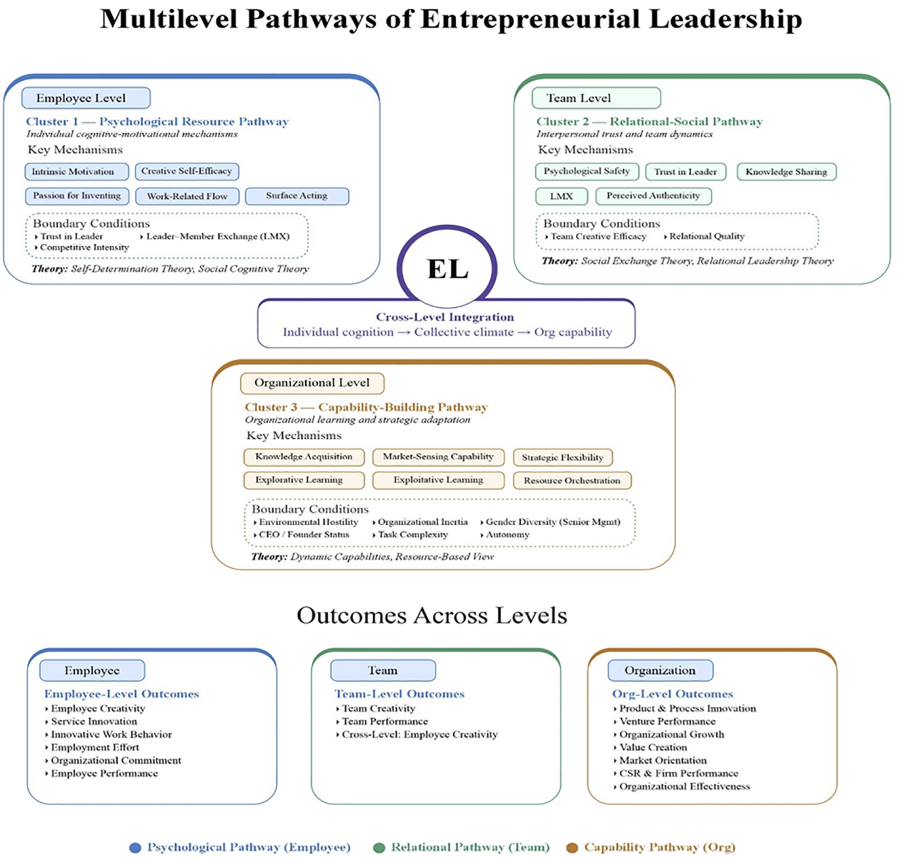

Figure 2. Multilevel pathways, and outcomes of entrepreneurial leadership. Source: Authors' presentation

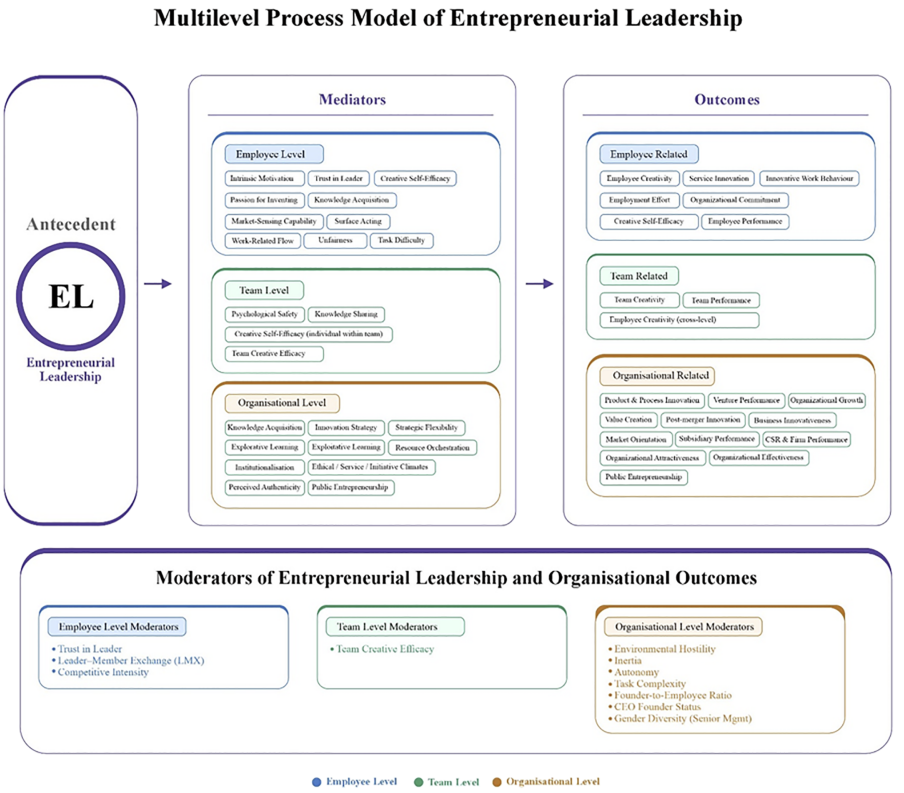

Figure 3. A multilevel process model of entrepreneurial leadership. Source: Authors' own presentation

Building on this empirical foundation, we propose an integrative multilevel framework (Figure 4) that positions diverse theoretical lenses at appropriate organizational levels and provides a roadmap for future research in this area.

Figure 2 addresses theoretical fragmentation in EL research by clustering mechanisms into three distinct pathways grounded in theoretical foundations and empirical patterns. The psychological resource pathway (depicting employee-level outcomes) operates through individual cognitive-motivational mechanisms based on self-determination and social cognitive theory. The relational-social pathway bridges the individual and team levels through interpersonal trust and knowledge sharing, anchored in social exchange theory. The capability-building pathway (exclusive to organizational-level outcomes) develops dynamic learning through knowledge acquisition and strategic flexibility, drawing on dynamic capabilities' theory.

The framework specifies boundary conditions at each level that moderate the effectiveness of pathways, trust quality, and LMX at the individual level; team creative efficacy at the team level; and environmental hostility and governance structures at the organizational level. Most critically, the framework explicates four cross-level transmission mechanisms with empirical grounding: aggregation of individual behaviors into shared norms (Cai *et al.*, 2019), emergence of trust in a collective climate (Mehmood *et al.*, 2022), institutionalization of learning into organizational routines (Zahoor *et al.*, 2023), and crystallization of team norms into capabilities (Hoang *et al.*, 2023a). These pathways operate through distinct theoretical logics but complement each other in driving organizational outcomes.

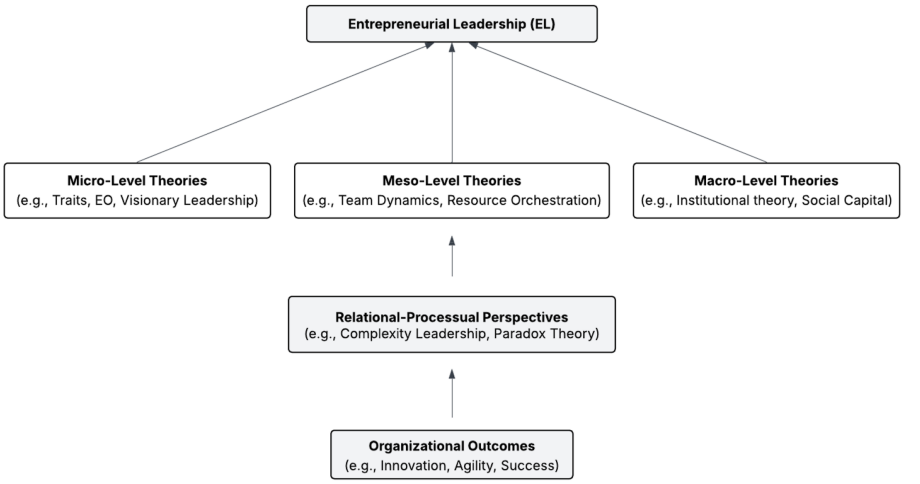

Figure 4. A multilevel integrative framework for understanding entrepreneurial leadership. Source: Authors' own elaboration

Figure 3 complements this clustering logic by presenting the multilevel process architecture through which EL influences outcomes via sequential mediation at the employee, team, and organizational levels. At the employee level, EL activates psychological resources (intrinsic motivation, creative self-efficacy, and work-related flow) that drive creativity and innovative behavior, moderated by relational quality (trust and LMX) and competitive intensity. At the team level, EL fosters psychological safety and knowledge sharing, leading to team creativity and performance, with team creative efficacy as a boundary condition. At the organizational level, EL builds dynamic capabilities (knowledge acquisition, strategic flexibility, and explorative/exploitative learning) that yield innovation, growth, and competitive advantage, constrained or amplified by environmental hostility, organizational inertia, and governance configuration.

The framework illustrates a cascading architecture in which individual psychological resources aggregate into shared team climates, which crystallize into organizational capabilities. However, this cascade remains largely theoretical, and only three studies have empirically traced connections across levels. Employee outcomes feed team performance as individual behaviors converge into collective norms, which are then institutionalized into organizational routines. Each level requires the previous level as a foundation; yet, most studies examine single levels in isolation. This reveals a critical gap in the field: rich evidence at each level but limited understanding of integrative transmission mechanisms connecting micro-foundations to macro-outcomes.

The following section builds on these empirical foundations to propose future research directions that can advance both the theoretical understanding and practical application of entrepreneurial leadership.

4.4 From synthesis to integration: identifying the gaps

Our synthesis, culminating in Figures 2 and 3, reveals not only what we know but, more importantly, what we do not. Four cross-study multilevel patterns distilled from the synthesis define both the current state of knowledge and priority gaps. First, EL effects are consistently indirect at all three levels, operating through psychological resources, relational climate, and dynamic capabilities, respectively. Second, boundary conditions operate level-specifically: relational quality and LMX at the individual level, team creative efficacy at the team level, and

environmental hostility and governance structures at the organizational level, each governing a different stage of the EL value-creation process. Third, cross-level transmission follows a cascade logic, wherein individual behaviors aggregate into shared norms, which emerge into collective climates and crystallize into organizational capabilities. Fourth, methodological biases, particularly overreliance on cross-sectional, single-source designs, limit causal inference across all levels. Crucially, however, the full cascade connecting micro-foundations to macro-outcomes has never been empirically tested as an integrated sequence; team-level (meso) processes mediating individual-to-organizational links remain poorly understood, and the external ecosystem is almost entirely absent from the literature. These gaps confirm that a simple descriptive summary is insufficient and motivate the integrative framework (Figure 4) developed in the following section.

5. An integrative agenda for future research

Drawing on our integrative review findings, we identify four multilevel research priorities that exploit the integrative framework and address its key empirical and theoretical gaps.

We identified four critical research priorities ranked by urgency. First, EL must be examined within the context of innovation ecosystems. All 44 studies treat organizations as standalone entities; however, contemporary innovation occurs through inter-organizational collaboration (Autio *et al.*, 2014). Understanding how entrepreneurial leaders orchestrate ecosystem relationships is essential, as firms adopt platform-based and open innovation strategies that directly address the external environment gap in our framework, hierarchical linear modeling (HLM), examining cross-level interactions between macro-institutional conditions and micro-level EL behaviors, grounded in social capital theory, can be the appropriate design. Second, longitudinal research is urgently required. With only two longitudinal studies, we cannot explain how EL evolves through venture lifecycles or cascades across organizational levels (Langley *et al.*, 2013; McMullen and Dimov, 2013). For example, three-wave panel designs (18–24 months) spanning early, growth, and scaling phases, testing the UET and dynamic capability cascade, that is, how EL behaviors sequentially activate psychological resources, team climates, and organizational learning routines, providing temporal evidence currently absent from the field. Third, research must illuminate meso-level team processes, the "missing middle" linking individual EL behaviors to organizational outcomes. Although EL influences employee creativity and firm innovation, team-level mediating mechanisms remain unexplored, which is a critical gap in the coherent multilevel theory. Three-level HLM designs (employee–team–venture) testing how team psychological safety climate moderates the SCT-predicted pathway from EL to creative self-efficacy would directly fill this gap. Fourth, EL research must address sustainability imperatives. This includes examining how leaders enable circular business models (Bocken *et al.*, 2023), navigate sustainability-profitability tensions (Hahn *et al.*, 2018), and tackle grand challenges (George *et al.*, 2023), ensuring scholarly relevance beyond traditional profit-focused outcomes. These priorities address our framework's empirical gaps (ecosystem and temporal dynamics), theoretical fragmentation (meso-level mechanisms), and practical relevance (sustainability), collectively providing a focused roadmap for transforming EL scholarship.

5.1 Toward an integrative multilevel framework

To address the theoretical fragmentation identified in our review and advance the research trajectories outlined above, we propose an integrative multilevel framework (see Figure 4) that synthesizes disparate theoretical perspectives scattered across EL scholarship. This framework responds to our finding that existing EL research operates in theoretical silos, with studies employing single-lens perspectives that fail to capture the multilevel complexity through which EL creates organizational value. The framework architecturally represents how

EL phenomena span and interconnect across micro-level theories (focusing on individual traits, emotional intelligence, and visionary leadership behaviors), meso-level theories (addressing team dynamics and resource orchestration processes), and macro-level theories (encompassing institutional environments and social capital structures).

Critically, this framework introduces relational-processual perspectives, emphasizing how EL effects unfold through ongoing interactions and temporal sequences, drawing on complexity leadership and paradox theories (Volk *et al.*, 2023) as the connective tissue that binds these levels together. Our framework theorizes three previously unspecified mechanisms: (1) meso-level "missing middle" team processes mediating individual-to-organizational effects; (2) the cascade logic by which EL operates indirectly through the sequential activation of psychological resources, team climates, and organizational capabilities; and (3) contingent configurations of identical EL behaviors producing divergent outcomes depending on governance and environmental conditions.

This integrative approach directly enables our research priorities: the macro-level institutional component provides a foundation for examining EL in emerging economy contexts; the relational-processual layer offers tools for navigating digital transformation and sustainability paradoxes; and the multilevel structure necessitates methodological innovations, from configurational analysis to longitudinal designs. Rather than treating micro-, meso-, and macro-perspectives as competing explanations, this framework positions them as complementary lenses that illuminate how entrepreneurial leaders simultaneously drive innovation, agility, and success.

Thus, this framework serves as both a synthesis of our review findings and a roadmap for future research, providing the theoretical architecture necessary to transform EL scholarship from its current fragmented state into a coherent, multilevel field of inquiry.

6. Conclusion

This integrative review examined EL's theoretical lenses, methodological approaches, and multilevel outcomes. The findings reveal that EL scholarship has progressed from early trait-based constructs to more complex behavioral, cognitive, and institutional frameworks in recent years. EL consistently emerges as a critical antecedent to innovation, team adaptability, and firm-level success, a pattern that underscores its practical significance for contemporary leadership practice.

However, conceptual fragmentation persists. Many studies adopt a single-lens perspective, favoring either micro-level traits, behavior-based models, or institutional contexts, without integrating these views. This siloed literature limits the explanatory power required to engage with the complexities of real-world leadership. In response, we offer an integrative, multilevel framework (illustrated in Figure 3) that aligns with complexity leadership theory and paradox perspectives, enabling a more robust interpretation of how EL operates across individual, team, and organizational boundaries.

This integrative lens resonates with the current thought in management and leadership, where scholars emphasize bridging academic rigor with managerial relevance (Willmott, 2025) and challenge traditional paradigms to enable discontinuous growth in leadership research (Hunter *et al.*, 2007). These priorities align with broader calls across leadership scholarship to embrace theoretical plurality (Holm, 2023) and adopt dynamic contextually embedded frameworks suited to understanding EL in turbulent environments (Volk *et al.*, 2023).

6.1 Theoretical, practical, and societal implications

Our primary theoretical contribution is the "reimagining" of the EL field through a shift from descriptive synthesis to prescriptive, multilevel integration. This advances EL scholarship in three ways. First, by positioning SCT, UET, social capital theory, and dynamic capability

theory at appropriate organizational levels (see Figure 4), the framework resolves longstanding tensions between individualist and relational perspectives, treating them as complementary rather than competing lenses. Second, relational-processual mechanisms, serving as "connective tissue" across levels, extend complexity leadership theory (Uhl-Bien and Arena, 2018) and paradox theory (Volk *et al.*, 2023) into EL, offering theoretically grounded propositions for future empirical testing. Third, explicitly mapping the "missing middle" meso-level team processes that transmit individual EL behaviors into organizational outcomes charts a path toward a genuinely multilevel field, aligned with calls for theoretical plurality (Holm, 2023).

Our framework offers actionable guidance explicitly linked to the findings, with each practice anchored to an underlying theoretical mechanism. At the individual level, SCT predicts that EL drives employee creativity by building creative self-efficacy through mastery experiences and vicarious modeling (Bandura, 1977). Accordingly, given the mediating role of psychological safety (Cai *et al.*, 2019; Miao *et al.*, 2019), entrepreneurial leaders should model opportunity-seeking behaviors under uncertainty rather than merely delegating tasks, use structured "failure reflection" sessions framed explicitly as self-efficacy builders, allocate 10–15% of budgets to employee pilots, and adopt daily feedback to reinforce trust building (Hoang *et al.*, 2023b). At the team level, social capital theory identifies trust and network closure as the mechanisms through which EL converts relational assets into knowledge sharing and team innovation. Because knowledge sharing drives performance (Mehmood *et al.*, 2022), enterprises should invest in cross-functional "ecosystem liaison" roles, designate members maintaining boundary-spanning relationships with external partners, and dedicate 20–30% time to boundary-spanning partnerships (Hoang *et al.*, 2024); rotate members quarterly to prevent network dependency; and establish debrief protocols. At the organizational level, UET establishes that EL effects on strategic outcomes are contingent on TMT composition and cognitive diversity (Hambrick and Mason, 1984). Organizational practice should therefore include deliberate TMT heterogeneity policies, ensuring at least one TMT member with prior new venture failure experience to activate the risk-taking climate that dynamic capability theory identifies as a prerequisite for explorative learning. Enterprises can additionally create autonomous innovation units with distinct metrics while maintaining knowledge bridges (Hensellek *et al.*, 2023) and implement dual exploitation and exploration accountability.

At the societal level, sustainability tensions (Hahn *et al.*, 2018) require navigating profitability-purpose trade-offs through stakeholder governance. Digital transformation demands AI-augmented protocols that preserve creativity and gender disparities (Kacperczyk *et al.*, 2023), thus necessitating inclusive interventions for women entrepreneurs in emerging economies.

6.2 Limitations and future research directions

Similar to other studies, this review has limitations. Only ABDC-2022 A* and A-ranked journals were included; subsequent work could add ABDC-2022 B and/or C journals. Incorporating related disciplines (e.g. sociology and anthropology) could also deepen these insights. The potential for subjectivity in selection and analysis remains, and coverage choices reflect trade-offs between breadth and rigor (Marzi *et al.*, 2025). These constraints present opportunities to broaden the sources in future studies while maintaining quality benchmarks.

We must acknowledge a central limitation that justifies this contribution. Our synthesis is built upon the literature we have critiqued for its overreliance on cross-sectional surveys and single-method designs. Therefore, we do not present the relationships as proven facts but as a map of the field's current assumptions. Our integrative framework is proposed as a corrective structure designed for testing with more robust methodologies.

We call on future researchers to move beyond cross-sectional methods and adopt three complementary approaches: (1) longitudinal, multi-wave studies to capture temporal dynamics and cascading effects across organizational levels; (2) multilevel modeling (MLM) to empirically test cross-level interactions in nested data structures; and (3) mixed-methods designs combining quantitative pattern identification with qualitative mechanism exploration, including QCA, to reveal configurational patterns and boundary conditions.

In addition to the methodological imperatives, two substantive gaps warrant further attention. First, the "dark side" of EL requires investigation. The current literature celebrates positive outcomes while overlooking potential costs: (1) leader burnout and decision fatigue, (2) ethical tensions when risk-taking becomes reckless, and (3) employee well-being compromised by a high-intensity work culture. This critical examination is essential for understanding when EL creates or destroys value.

Second, EL's antecedents and development remain undertheorized. Although our review focused on outcomes, developmental pathways warrant further investigation. Is EL a stable disposition, learnable competency, or context-dependent behavioral state? Although some scholars have begun to explore this (Harrison *et al.*, 2016; Leitch and Volery, 2017), the field lacks a coherent agenda addressing these fundamental questions, which have profound implications for entrepreneurship education and leadership training in the field.

Appendix
Complete Search Strategy and Database Parameters

A.1 Search String Development and Rationale

The search strategy was developed iteratively through pilot searches and expert consultation to balance sensitivity (capturing relevant studies) and specificity (excluding irrelevant material). The final search string combined three concept groups using Boolean operators:

CONCEPT 1 (Entrepreneurship): "entrepreneur*" OR "entrepreneurial" OR "founder*" OR "new venture*" OR "startup*" OR "start-up*"

CONCEPT 2 (Leadership): "leader*" OR "leadership"

CONCEPT 3 (Combined): Concepts 1 AND 2 were combined to identify articles addressing entrepreneurial leadership

Search Date: October 15, 2024.
Total Initial Results: 1,046 records.
Note: Asterisks (*) denote truncation for variant word forms (e.g. entrepreneur, entrepreneurs, entrepreneurship, entrepreneurial).

A.2 Timeframe Justification

The search covered publications from January 1, 2000 to October 15, 2024, for the following reasons:

(1) Gupta *et al*. (2004) published the first empirical measure of entrepreneurial leadership in 2004, establishing the construct's formal operationalization

(2) Pre-2000 literature used "entrepreneurial" and "leadership" without conceptual integration

(3) The 24-year window captures the field's evolution from definitional debates to empirical maturity

(4) Pilot searches (1990–1999) yielded only 3 relevant articles, confirming 2000 as the appropriate start point

A.3 Detailed Inclusion and Exclusion Criteria

Table A1. Inclusion and exclusion logic with rationale

Criterion	Inclusion	Exclusion	Rationale
Publication Type	Peer-reviewed journal articles	Conference papers, books, dissertations, working papers, editorials, commentaries	Ensure rigorous peer review and accessibility; conference proceedings often contain preliminary findings later published in journals
Language	English	Non-English publications	Ensure accurate interpretation and analysis; English dominates management scholarship
Timeframe	2000–2024	Pre-2000 publications	Captures modern conceptualization post-Gupta *et al*. (2004) pilot search confirmed minimal relevant pre-2000 work
Journal Quality	ABDC A/A* ranked journals (2022 list)	ABDC B, C, unranked journals	Ensures theoretical rigor and methodological quality for building integrative theory; addresses quality-quantity trade-off per Tranfield *et al*. (2003)
Disciplinary Focus	Business, Management, Accounting, Social Sciences, Economics, Finance	Natural sciences, medicine, engineering (unless business-focused)	Maintains relevance to organizational and entrepreneurship scholarship
Theoretical Relevance	Articles explicitly conceptualizing or empirically examining entrepreneurial leadership as a distinct construct	Articles mentioning "entrepreneur" and "leader" in unrelated contexts (e.g. political leaders as entrepreneurs)	Ensures construct validity; excludes false positives from keyword overlap

Source(s): Authors' own elaboration

A.4 Screening and Selection Process

The selection followed PRISMA's four-stage process:

Stage 1: Identification

(1) Initial database searches: 1,046 records

(2) Search date: October 15, 2024

Stage 2: Deduplication

(1) Duplicates removed using EndNote and manual verification: 278 records

(2) Unique records screened: 768

Stage 3: Title-Abstract Screening (Two Independent Reviewers)

Protocol:

(1) Two researchers independently screened all 768 titles and abstracts

(2) Inclusion decision required both reviewers or resolved through discussion

(3) Exclusion categories coded: Not peer-reviewed journal ($n = 89$), Wrong topic/not EL-focused ($n = 512$), Wrong language ($n = 14$), Pre-2000 publication ($n = 3$)

(4) Inter-rater reliability: Cohen's $\kappa = 0.91$ ($p < 0.001$)

(5) Records retained for full-text assessment: 150

Stage 4: Full-Text Eligibility Assessment
Protocol:

(1) Full texts independently assessed by two researchers

(2) Exclusion reasons documented: Not ABDC A/A* journal ($n = 73$), EL not central construct ($n = 21$), Wrong research domain ($n = 8$), Duplicate reporting of same sample ($n = 4$)

(3) Discrepancies resolved through consensus discussion ($n = 17$ articles)

(4) Expert arbitration for unresolved cases ($n = 3$ articles)

(5) Final inclusion: 44 articles

A.5 Robustness Checks Protocol

All included articles underwent quality assessment across five dimensions:
Robustness Checks Conducted:

(1) Inter-Rater Reliability Check

- Two researchers independently coded all 44 articles
- Cohen's $\kappa = 0.82$ ($p < 0.001$) for categorical variables (substantial agreement)
- ICC = 0.94 for continuous measures (excellent agreement)
- Discrepancies resolved through consensus discussions with source text reference; expert arbitration for 3 unresolved cases

(2) Database Coverage Validation

- Cross-checked included articles against Google Scholar to verify no major omissions
- 42 of 44 articles appeared in top 50 Google Scholar results for "entrepreneurial leadership" + journal name; 2 articles were recent publications still indexing

(3) Citation Chaining (Selective)

- Backward citation search of 10 most-cited articles yielded 0 additional eligible articles
- Forward citation search of Gupta *et al*. (2004) and Renko *et al*. (2015) yielded 3 additional articles, all already captured in database search

(4) Journal Hand-Search (Selective)

- Hand-searched 5 top entrepreneurship journals for 2020–2024; identified 2 additional articles, both already captured in database search

(5) Sensitivity Analysis: Journal Ranking Threshold

- Relaxing inclusion to ABDC B journals added 127 additional articles
- Preliminary screening showed 94% used same measures without advancing conceptualization; A/A* threshold balances comprehensiveness with quality

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