
Envisioning entrepreneurial ecosystem in India: a systematic review and research agenda

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Abstract

Several studies have examined the entrepreneurial ecosystem (EE) in India, but no review has been conducted to date. Thus, this study aims to provide a comprehensive overview of EE research within the Indian context through a systematic literature review (SLR) using the TCCM (theory, context, characteristics, and methodology) framework. The study examines 85 articles published between 2010 and 2024, sourced from the Scopus database, by adopting the PRISMA framework. The findings highlight that Indian EE research is dominated by quantitative methods, concentrated in Bangalore and Delhi, and extensively covers the technology and education sectors, with the Resource-Based View as the leading theory. This study identifies 11 EE components across sectors and proposes a comprehensive EE framework that integrates them, addresses regional disparities, and supports a more inclusive and sustainable entrepreneurial ecosystem in India. Additionally, this study offers several directions for future research and implications for policymakers and entrepreneurs in the Indian context.

Keywords: Entrepreneurial Ecosystem; India; Systematic Literature Review; TCCM Framework.

JEL Classification: L26; M13; O10; O53

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1. Introduction

Over the last few decades, entrepreneurship has experienced a remarkable growth both as an academic discipline and a practical pursuit (Thai et al., 2023). This expansion is evident with the increasing number of individuals stepping away from traditional employment to pursue their own business ventures (Mohammadi & Karimi, 2022; Maroufkhani et al., 2018). To successfully establish and sustain these ventures, entrepreneurs need an encouraging environment that supports new ideas and accelerates growth, thereby driving job creation, household income, and sustainable economic development (Maroufkhani et al., 2018; Kansheba & Wald, 2020). This supportive environment is commonly referred to as the entrepreneurial ecosystem (EE). Isenberg (2010) defined it as “a set of interconnected elements such as leadership, culture, capital, markets, human skills, and support that foster entrepreneurial development.” Given its crucial role, the concept of EE is gaining significant attention across various disciplines such as entrepreneurship, education, agriculture, and management (Kandakatla et al., 2021; Isher, 2024; Dzingirai, 2021; Maroufkhani et al., 2018; Mago & Van Der Merwe, 2023). A well-functioning entrepreneurial ecosystem serves as a catalyst for inclusive and sustainable economic development by encouraging innovation and new ideas, enhancing productivity, generating employment, and empowering marginalized communities, thereby reducing poverty and fostering broader socio-economic resilience (Maroufkhani et al., 2018; Dzingirai, 2021; Sahu & Panda, 2024). In this way, EE contributes directly to broader sustainable development objectives reflected in the United Nations Sustainable Development Goals (SDGs), particularly “SDG 1 (No Poverty)”, “SDG 8 (Decent Work and Economic Growth)”, “SDG 9 (Industry, Innovation,



and Infrastructure)", "SDG 16 (Peace, Justice and Strong Institutions)" and "SDG 17 (Partnership for the Goals)".

Table 1. Comparative analysis of prior SLRs

Author(s) & Year	Analysis Methods	Scope & Context	Focus	Limitations	Contribution of the Present Study
Mago and Van der Merwe (2023)	Bibliometric Analysis	Developed countries	Examined EE dimensions in developed economies using Isenberg's framework and dynamic capabilities theory	Lacks emerging economy and India-specific insights	Provides a context-specific synthesis of entrepreneurial ecosystem research in India, using a TCCM framework
Thai et al. (2023)	SLR Matrix analysis	Global EE literature	Reviewed evolution, definitions, frameworks, and nomological structure of EE research	Provides aggregated global insights without examining country-specific contextual divergences	Identify theoretical, contextual, thematic, and methodological patterns specific to an emerging economy.
Wadichar et al. (2024)	Descriptive analysis	Global EE research	Identified conceptual foundations and future directions in EE literature	Limited contextual analysis of emerging economies.	
Kansheba & Wald (2020)	Descriptive analysis & Content analysis	Global EE literature	Explored EE quality and productive entrepreneurship relationships	Limited attention to country-specific analysis of the EE framework.	
Maroufkhani et al. (2018)	Descriptive analysis & Content analysis	Global EE research	Synthesized major EE themes and theoretical developments	Limited engagement with country-level methodological and theoretical variations	

Source: Author's own work

Owing to its significant role in fostering long-term socio-economic resilience and inclusive development, the entrepreneurial ecosystem (EE) has increasingly become a central focus for academicians, policymakers, and practitioners. Various studies have explored distinct dimensions of EE, including support system (Valliere & Nicholls-Nixon, 2024), educational support (Aggarwal & Chauhan, 2022), networking competencies (Singh & Kovid, 2023), innovation and entrepreneurship (Narwal et al., 2025), and finance (Shahi & Parekh, 2022; Kumar et al., 2024a). Moreover, researchers have conducted several systematic literature reviews (SLRs) to synthesize and map the global landscape of EE research (Maroufkhani et al., 2018; Kansheba & Wald, 2020; Mago & Van der Merwe, 2023; Thai et al., 2023; Wadichar et al., 2024). These prior studies have significantly advanced our understanding of the global entrepreneurial ecosystem. However, they have predominantly focused on global or developed economy contexts, with limited attention to country-specific dynamics in emerging economies such as India. To critically position the present study within this body of literature, Table 1 provides a comparative analysis of these review studies, highlighting their analysis method, scope/context, key focus, and key limitations.

While existing global SLRs have been comprehensive in scope, the comparison shows they are insufficient to capture the specificities of EE research in emerging economies. This gap is highly relevant in the Indian context, where the entrepreneurial landscape is largely shaped by institutional voids, an extensive informal sector, and strong government intervention through policy initiatives. These attributes not only shape the structure of entrepreneurial ecosystems but also impact the behavior of actors within them. Thus, making it difficult for leading EE frameworks designed in Western contexts to be transferred directly to the Indian context. This leaves a significant gap in understanding how EE constructs are conceptualized, operationalized, and empirically tested in India, given its unique socio-economic and institutional setup. Addressing this gap is essential not only to consolidate fragmented knowledge but also to generate contextually grounded theoretical insights and policy-relevant implications to advance both EE research and entrepreneurship development in emerging economies.

Therefore, the present study addresses this gap by offering a comprehensive, context-sensitive synthesis of EE research in India. This study employs a systematic literature review (SLR), guided by the TCCM (theory-context-characteristics-methodology) framework, to provide deeper insights into the country's EE research landscape. SLR is a systematic method for gathering, appraising, and synthesizing existing research in a specific research area (Kansheba & Wald, 2020; Paul et al., 2024). This approach is further strengthened by the application of Systems theory, which provides a theoretical lens for examining the dynamic interactions and interdependencies within India's EE. The Systems theory asserts that the components of a system are interconnected and must be understood as an integrated whole (Laszlo & Krippner, 1998). In the context of our study, it will help in understanding the interaction between various elements of India's entrepreneurial ecosystem, identify patterns in its structure, offering a holistic view of the structure of the ecosystem in the Indian context. To fill the identified research gap, we designed the following research questions:

RQ1. *What are the major theories, context, characteristics, and methods that have been utilized in existing literature on EE in India?*

RQ2. *What should future research focus on to provide insights into the EE research in India?*

The rest of the paper is as follows: Section 2 outlines the research methodology. Section 3 presents the study's results, while Section 4 presents the proposed conceptual framework. Section 5 discusses the main findings of the study. Finally, Section 6 concludes the study, highlighting future research directions, implications, and limitations.

2. Methodology

This study conducted a detailed systematic review of EE literature in India, guided by the TCCM framework, providing an in-depth understanding of the country's research landscape on entrepreneurial ecosystems. The TCCM framework outlines the theoretical and empirical aspects of a research field, enabling a critical evaluation of theories, methods, key features, and different contexts (Paul et al., 2024). This study followed the PRISMA framework for systematically extracting data from the Scopus database (Mago & Van Der Merwe, 2023). This makes reporting consistent and transparent, maintains methodological rigor, and is also widely recognized in social science research (Thai et al., 2023) (see Figure 1). Further, we used MS Excel to organize data and synthesize the theories, contexts, characteristics, and methodologies used in the analyzed articles (Jaiswal et al., 2026).

2.1. Defining the appropriate terms for search

The current study analyzes articles from the Scopus database, chosen for its strict indexing standards and broader coverage of scholarly literature compared to other databases such as Web of Science (Paul et al., 2024; Pandey, 2026). The review timeframe was restricted to articles published between 2010 and 2024, as literature prior to 2010 did not explicitly engage with the concept of the entrepreneurial ecosystem, particularly within the Indian context. Additionally, we excluded 2025 because it is still ongoing and does not represent a complete publication cycle. To capture the relevant body of literature, we developed a comprehensive search string (see Figure 1), by synthesizing and expanding on keywords used in prior EE research such as “entrepreneurial ecosystem”, “ecosystem for entrepreneurship”, “ecosystem of entrepreneurship”, “startup ecosystem”, “start-up ecosystem” (Kansheba & Wald, 2020; Kang et al., 2021; Thai et al., 2023; Mago & Van Der Merwe, 2023). The final search string included “entrepreneur* ecosystem” OR “ecosystem for entrepreneur*” OR “ecosystem of entrepreneur*” OR “startup ecosystem” OR “start-up ecosystem” AND “India”. The search was performed in titles, abstracts, and keywords to maximize the comprehensiveness and relevance of the retrieved documents.

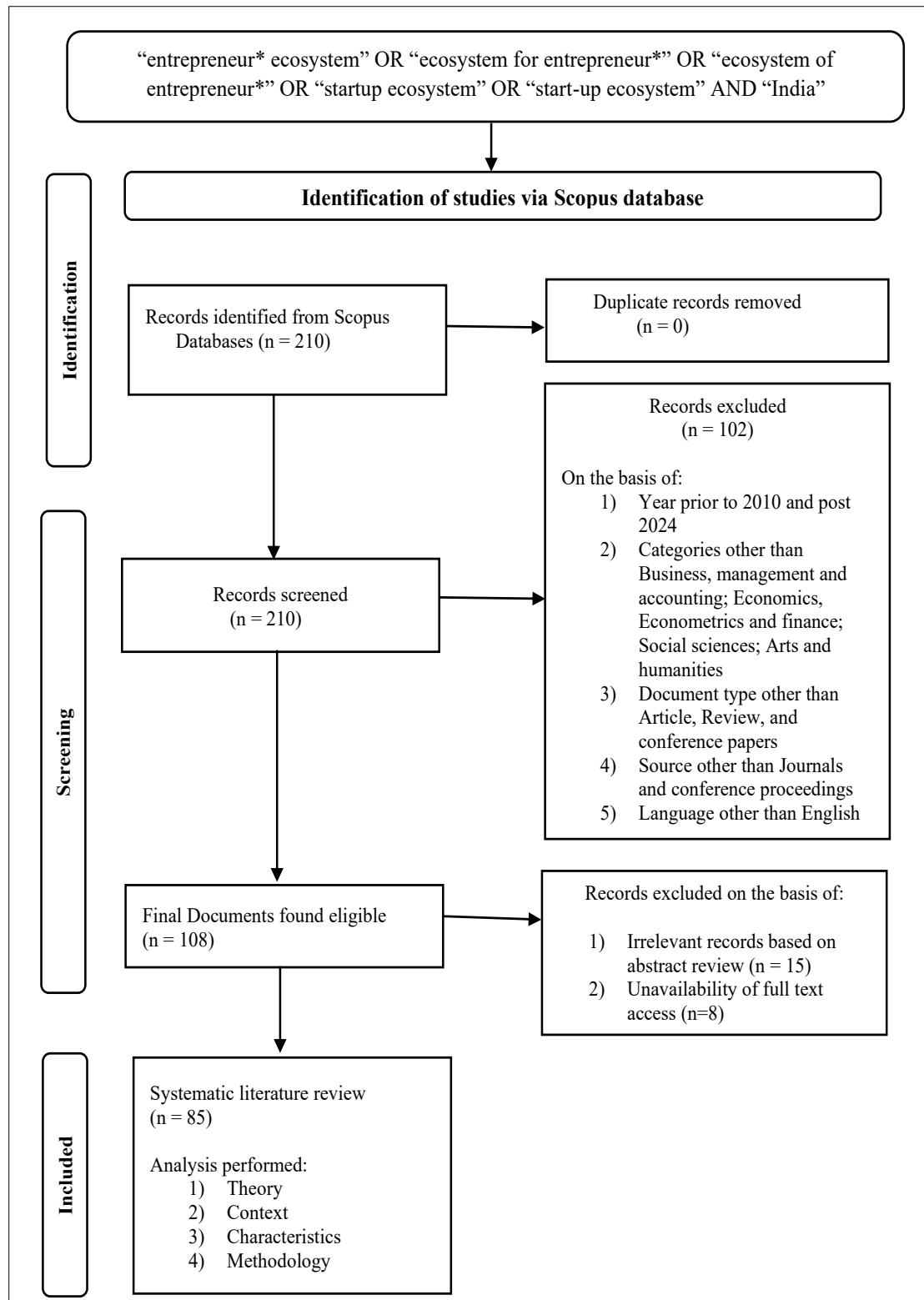
2.2. Refinement of search results

On June 7, 2025, the above-mentioned search query was entered into the Scopus database, which initially retrieved 210 documents. Filters are then applied to the results with an inclusion of articles, review articles, and conference papers as they are commonly fully peer-reviewed (Kumari & Jaiswal, 2023). We further narrowed down this search to research categories including “business, management, and accounting”, “economics, econometrics, and finance”, “social sciences”, and “arts and humanities”. Then we further filtered our document search to those published in English. This filtering reduced the number of documents to 108. Further, in the final screening round, all authors independently reviewed the abstracts, resulting in the exclusion of 15 documents that were found to be irrelevant to the research objectives. Although no formal inter-rater reliability statistic (e.g. Cohen’s kappa) was computed, any disagreements in the screening decisions were resolved through mutual discussion and consensus among the authors. In addition, eight documents were excluded due to the unavailability of complete full-text access despite extensive database searches. To ensure the transparency and replicability of the review process, only accessible and relevant documents were included in the study. This resulted in a final sample of 85 documents. All 85 documents were subsequently downloaded and analyzed using the TCCM framework.

3. Results

3.1. Theories

Theories serve as the foundation for empirical studies (Paul et al., 2024). This review of 85 articles shows that only 28 studies utilized theories in their work. A total of 37 theories were employed in the entrepreneurial ecosystem literature in India, as illustrated in Table 2. The list highlights the theories that are most commonly used in the studies reviewed: resource-based view theory (four times), signaling theory (three times), Institutional theory, Agency theory, Social cognitive theory, hubris theory, Prospect theory, Real options theory, Competence bloc theory (each used twice), and other theories with frequency of one each.

**Figure 1.** PRISMA framework

Source: Author's own work

3.2. Contexts

The context of a study refers to the circumstances, including the economic or political environment, in which it is conducted (Paul et al., 2024). In this review, geographical locations such as regions, states, union territories, and cities are considered as the context for categorizing the studies reviewed, as presented in Table 3. The table indicates that most

studies were conducted in the South region, particularly in Bangalore, Karnataka, followed by the North region, with Delhi being the most frequently studied location. The West region also accounts for a significant share of the studies, followed by the East, North-east, and central regions.

Table 2. Theories used in existing studies

Theories	Frequency	Studies
<i>Resource-based view theory</i>	4	(Chaudhuri et al., 2023), (Kumar et al., 2024b), (Vardhan & Mahato, 2022), (Singh & Mungila Hillemane, 2023)
<i>Signaling theory</i>	3	(Kaur et al., 2024), (Das, 2023), (Shetty & Sundaram, 2019)
<i>Institutional theory</i>	2	(Mitra et al., 2023), (Kumar et al., 2024b)
<i>Agency theory</i>	2	(Panda & Dash, 2016), (Veena Iyer, 2020)
<i>Social Cognitive Theory</i>	2	(Chaudhary & Biswas, 2024), (Gulati et al., 2025)
<i>Hubris theory</i>	2	(Kalyanasundaram et al., 2021a), (Kalyanasundaram et al., 2021b)
<i>Prospect theory</i>	2	(Kalyanasundaram et al., 2021a), (Kalyanasundaram et al., 2021b)
<i>Real options theory</i>	2	(Kalyanasundaram et al., 2021a), (Kalyanasundaram et al., 2021b)
<i>Competence bloc theory</i>	2	(Mungila Hillemane, 2020), (Bala Subrahmanya, 2017)
<i>Stakeholder theory</i>	1	(Malhotra et al., 2025)
<i>Social Identity theory</i>	1	(Malhotra et al., 2025)
<i>Absorptive Capacity Theory</i>	1	(Chaudhuri et al., 2023)
<i>Effectuation theory</i>	1	(Amoncar et al., 2023)
<i>Grounded theory</i>	1	(Khurana et al., 2022)
<i>Knowledge Spill over theory of Entrepreneurship</i>	1	(Mitra et al., 2023)
<i>Contingency theory</i>	1	(Sahu & Panda, 2024)
<i>Theory of attribution</i>	1	(Manimala et al., 2019)
<i>Innovation Diffusion theory</i>	1	(Kumar et al., 2024b)
<i>Sustainable Entrepreneurship theory</i>	1	(Kumar et al., 2024b)
<i>Incomplete contract theory</i>	1	(Das, 2023)
<i>Empowerment theory</i>	1	(Dixit et al., 2023)
<i>Intrinsic motivation theory</i>	1	(Dixit et al., 2023)
<i>Amabile's creativity theory</i>	1	(Dixit et al., 2023)
<i>Social learning theory</i>	1	(Dixit et al., 2023)
<i>Social network theory</i>	1	(Vardhan & Mahato, 2022)
<i>Human capital theory</i>	1	(Shetty & Sundaram, 2019)
<i>Schumpeter's theory of Economic Development</i>	1	(Halдар, 2019)
<i>Social justice theory</i>	1	(Panda & Dash, 2016)
<i>Limit pricing theory</i>	1	(Halдар & Tripathi, 2023)
<i>Process theory</i>	1	(Kapil et al., 2023)
<i>Financial intermediation theory</i>	1	(Veena Iyer, 2020)
<i>Cluster theory</i>	1	(Naseef & Jyothi, 2019)
<i>Trait theory</i>	1	(Biswas, 2024)
<i>Theory of Planned Behavior</i>	1	(Kumar & Das, 2019)
<i>Theory of collective relative deprivation</i>	1	(Kumar & Das, 2019)
<i>Self-determination theory</i>	1	(Kumar & Das, 2019)
<i>Acculturation strategy of migrants' theory</i>	1	(Rao et al., 2024)

Source: Author's own work

3.3. Characteristics

Characteristics are the particular traits, qualities, or features examined in a research domain (Paul et al., 2024). In this study, we considered characteristics as the components of the entrepreneurial ecosystem within the Indian context. After reviewing 85 articles, we

identified 11 key components of entrepreneurial ecosystem (EE) across a range of sectors, including agriculture, artisan, renewable energy, technology, education, e-commerce, healthcare, microfinance, fintech, banking, and telecommunication (Dixit et al., 2023; Haldar, 2019; Khurana et al., 2022; Mungila Hillemane, 2020; Chaudhary & Biswas, 2024; Isher, 2024) (see Table 4).

3.3.1. Entrepreneurship

Entrepreneurship involves starting and running a new business to create value through innovation, risk-taking, and identifying market opportunities, and entrepreneurs are the individuals who transform ideas into reality by launching new businesses. They play a crucial role in EE by driving its dynamics through activities such as investment, innovation, and business creation (Kansheba & Wald, 2020). However, the existing literature has primarily explored their role in the technology sector, leaving opportunities for further research across other sectors, such as agriculture, artisanal production, and renewable energy.

3.3.2. Policy

Policy refers to the regulations and support mechanisms that foster entrepreneurial activities (Mago & Van Der Merwe, 2023). In existing literature, several areas such as government policies, leadership, formal institutions, and various programs have been examined extensively in sectors like agriculture, artisan, renewable energy, technology, education, e-commerce, microfinance, fintech, and banking, highlighting the role of policies in providing the regulatory framework and incentives that encourage business growth, market entry, innovation, and support EE.

3.3.3. Finance

Finance refers to the availability and flow of financial resources necessary to support entrepreneurial activities. This includes access to capital and government efforts to facilitate access to financial resources (Mago & Van Der Merwe, 2023). Key areas explored in the literature include venture capital, angel investors, crowdfunding, microfinance and various other financing models that help entrepreneurs secure the funding they need to scale their businesses and drive growth. In the Indian context, where institutional voids and financial constraints often limit the growth of many entrepreneurs. These diversified sources of finance can reduce financial barriers, promote financial inclusion, enhance startup sustainability and investment readiness, and improve the capacity of entrepreneurs to innovate and scale their businesses.

3.3.4. Market

Markets are environments where goods and services are exchanged among entrepreneurs, consumers, and other stakeholders. It includes reference customers and distribution channels that are essential to business profitability and sustainability (Mago & Van Der Merwe, 2023). The existing literature focuses on how market demand, supply chain capabilities, market openness, client roles, and competition across sectors such as agriculture, artisan, technology, education, and microfinance guide entrepreneurs in strategic decision-making and growth.

3.3.5. Support

Support includes services and resources that promote entrepreneurial activities, such as physical infrastructure, professional assistance, and various initiatives by non-governmental organizations (Mago & Van Der Merwe, 2023). Key components studied include how business incubators, accelerators, support services, and entrepreneurship support organizations (ESOs) provide critical services that help businesses overcome challenges in their early stages across all sectors, except renewable energy, healthcare, and telecommunications.

Table 3. Context used in existing studies

Regions	States & UTs	Cities	Frequency	Studies
East	West Bengal	Kolkata, Kharagpur	3	(Amoncar et al., 2023), (Chaudhary & Biswas, 2024), (Welsh et al., 2023)
	Jharkhand	NM	1	(Amoncar et al., 2023)
	Odisha	Bhubaneswar, Sambalpur	3	(Gulati et al., 2025), (Welsh et al., 2023), (H et al., 2024)
West	Maharashtra	Mumbai, Pune, Singhnapur, Aurangabad	11	(Malhotra et al., 2025), (Ghosh et al., 2021), (Khurana et al., 2022), (Chaudhary & Biswas, 2024), (Kalyanasundaram et al., 2021a), (Gulati et al., 2025), (Welsh et al., 2023), (Debnath & Bardhan, 2018), (Kumari et al., 2023), (H et al., 2024), (Kalyanasundaram et al., 2021b)
	Gujarat	Ahmedabad, Surat, Gandhinagar, Rajkot, Anand, Vadodara, Jamnagar, Kutch	9	(Paray et al., 2025), (Khurana et al., 2022), (Haldar & Tripathi, 2023), (Mitra et al., 2023), (Gulati et al., 2025), (Pathak & Mukherjee, 2021), (Haldar, 2019), (Welsh et al., 2023), (H et al., 2024)
	Rajasthan	Udaipur	1	(Welsh et al., 2023)
North	Delhi	New Delhi, Delhi NCR	10	(Malhotra et al., 2025), (Khurana et al., 2022), (Chaudhary & Biswas, 2024), (Kalyanasundaram et al., 2021a), (Gulati et al., 2025), (Deny, 2021), (Welsh et al., 2023), (Kapil et al., 2023), (H et al., 2024), (Kalyanasundaram et al., 2021b)
	Haryana	Faridabad, Gurugram	2	(Malhotra et al., 2025), (Gulati et al., 2025)
	Uttar Pradesh	Varanasi, Chandauli, Lucknow, Kanpur	4	(Ghosh et al., 2021), (Chaudhary & Biswas, 2024), (H et al., 2024), (Biswas, 2024)
	Jammu & Kashmir	NM	3	(Paray et al., 2025), (Isher, 2024), (Gulati et al., 2025)
	Kashmir	Leh	1	(Gulati et al., 2025)
	Punjab	Chandigarh	3	(Paray et al., 2025), (Isher, 2024), (H et al., 2024)
	Uttarakhand	NM	1	(Sharma, 2017)

Table 3 continued.

Regions	States & UTs	Cities	Frequency	Studies
South	Karnataka	Bangalore	16	(Mungila Hillemane, 2020), (Ghosh et al., 2021), (Paray et al., 2025), (Khurana et al., 2022), (Kalyanasundaram et al., 2021a), (Lingappa et al., 2024), (Gulati et al., 2025), (Prashantham et al., 2020), (Subrahmanya, 2019), (Loganathan & Bala Subrahmanya, 2022), (Jha & A, 2024), (Welsh et al., 2023), (Singh & Mungila Hillemane, 2023), (H et al., 2024), (Bala Subrahmanya, 2017), (Kalyanasundaram et al., 2021b)
	Tamil Nadu	Coimbatore, Tirupur, Chennai, Madras	8	(Shankar, 2017), (Ghosh et al., 2021), (Khurana et al., 2022), (Chaudhary & Biswas, 2024), (Kalyanasundaram et al., 2021a), (Gulati et al., 2025), (H et al., 2024), (Kalyanasundaram et al., 2021b)
	Telangana	Hyderabad	7	(Kalyanasundaram et al., 2021a), (Mitra et al., 2023), (Gulati et al., 2025), (Subrahmanya, 2019), (Welsh et al., 2023), (H et al., 2024), (Kalyanasundaram et al., 2021b)
	Kerala	Alappy	1	(Naseef & Jyothi, 2019)
		Kochi	1	(Rao et al., 2024)
		NM	1	(M & K.P, 2021)
Central	Madhya Pradesh	Bhopal	1	(Khatik & Shrivastava, 2023)
North- East	Assam	Guwahati	1	(H et al., 2024)

Note: NM -Not Mentioned, UTs-Union Territories, NCR- National Capital Region

Source: Author's own work

Table 4. Components of the entrepreneurial ecosystem have been studied across various sectors in existing studies

Sectors →	Agriculture	Artisan	Renewable energy	Technology	Education	E-commerce
Components ↓						
Entrepreneurship				Tech startup entrepreneurs, tech startups, prospective startups, and self-help groups		
Policy	Government support	Leadership, formal institutions, policies, programs, and schemes	Public sector support and government policies	Policies, government support, and formal institutions	Government policies and programs	Policies
Finance	Venture capital financial support	Financial support		Source of finance and assistance, venture funding, crowdfunding	Finance, venture capital, and support	Role of angel investors, venture capitalists
Market	Market dynamics	Demand, market support		Supply chain capability and competitiveness, business clusters	Market openness and support	
Support	Business incubators	Physical infrastructure, support services, entrepreneurship support organizations (ESOs), and business incubators		Incubator/ accelerator, support system, infrastructure, trade and logistics centers, knowledge hub, Mentorship	Incubators, infrastructure, support requirements, ESOs	Role of incubators
Culture		Culture support		Supportive culture	Cultural support, role models	
Human Capital		Talent		Knowledge management, human resources, Academia, educational institutions, skills collaborations	Education & training, Teaching, HEIs, human capital	Role of Human Capital
Network	Collaborations	Network			Social support	
Media				Role of Media	Social media	
Industry				Large firms and MNCs		
Research & Development Transfer	Innovation, technological intervention	Digital technology, /new knowledge	Innovation	Knowledge transfer, R&D organization		

Table 4 continued.					
Sectors →	Healthcare	Microfinance	Fintech	Banking	Telecommunication
Components ↓					
Entrepreneurship					
Policy		Policies	Role of government	Appraisal of PMMY	
Finance	Venture capital	Financial capital	Role of angel investors, venture capitalists	Venture capital	Borrowing, venture capital
Market		Beneficiaries, Competitors			
Support		Resource providers	Role of incubators	Business incubators	
Culture					
Human Capital	Skills	Intellectual capital		Skills	
Network		Social conditions, social capital			
Media		Role of Media			
Industry					
Research & Development Transfer					
Source: Author's own work					

3.3.6. Culture

Culture refers to the shared values, attitudes, behaviors, and norms that shape the entrepreneurial behavior and mindsets of a group, community, organization, or society (Mago & Van Der Merwe, 2023). Very few studies have examined the significance of societal values and traditional norms in shaping entrepreneurial behavior and attitudes across sectors such as artisan, technology, and education.

3.3.7. Human capital

Human capital refers to the skills, knowledge, experience, education, talent, and abilities individuals possess that are critical to entrepreneurial success (Mago & Van Der Merwe, 2023). The existing literature explores the roles of talent acquisition, knowledge management, educational institutions, entrepreneurial skills, and training in providing the resources necessary for business success, fostering innovation and growth across the technology, education, and microfinance sectors.

3.3.8. Network

Network refers to the social connections and collaborative relationships that facilitate entrepreneurship. These networks provide support, confidence, and strategic insights to new ventures (Thai et al., 2023). Studies in this area have mainly focused on agriculture, artisans, technology, education, and microfinance, providing insights into how social connections and collaborations help entrepreneurs access resources, gain strategic insights, and identify market opportunities, thereby enhancing their business success.

3.3.9. Media

Media refers to the channels or platforms through which information, ideas, and entertainment are shared with large audiences. It plays a key role in publicizing start-ups, their support mechanisms, and their successes and failures (Bala Subrahmanya, 2017). However, this component has been studied in limited sectors, including technology, education, and microfinance, focusing on the supplementary role of media (both print and electronic) in the effective dissemination of ecosystem information to help the prospective entrepreneurs.

3.3.10. Industry

The industry often refers to the large firms and multinational companies, which provide the essential foundation, supporting the development and growth of the entrepreneurial ecosystem (Mungila Hillemane, 2020). This area has been explored to a limited extent, primarily in the technology sectors, reflecting the role of large companies in providing the infrastructure, resources, and market access that support the development of EE in related sectors.

3.3.11. Research and Development (R & D) Transfer

R&D transfer refers to the exchange of knowledge among educational institutions, scientific organizations, and businesses (Thai et al., 2023). This component has been widely explored across sectors such as agriculture, artisan, renewable energy, technology, education, and healthcare, focusing on how innovation, technological interventions, and knowledge transfer help adopt new technologies and drive business development and sector growth.

3.4. Methodology

Methodology involves a systematic approach of collecting and analyzing data employed by researchers (Paul et al., 2024). We examined the different research types and methods, data-collection techniques, analytical methods, sampling techniques, and software

used in the existing studies to characterize the 85 articles under review, as illustrated in Figure 2. Approximately 74% of the studies adopted an empirical approach, 24% a conceptual approach, and 2% a review-based approach. The research method is further classified into quantitative, qualitative, and mixed-method. The analysis shows that many studies heavily relied on quantitative methods, with 56% of the articles using this approach. Around 33% of the studies used qualitative methodologies, whereas only 11% adopted a mixed-methods approach.

Prior studies mainly used quantitative techniques such as linear regression, mediation, and moderation analysis, chi-square tests, structural equation modeling (SEM), and various descriptive statistics. In contrast, qualitative analyses included content analysis, ethnography, case studies, focus group discussions, and thematic analysis. Mixed-method studies combined quantitative (regression analysis, factor analysis, and descriptive statistics) and qualitative (case study, content analysis, trend analysis, and phenomenological analysis) approaches to gain a deeper, more holistic understanding.

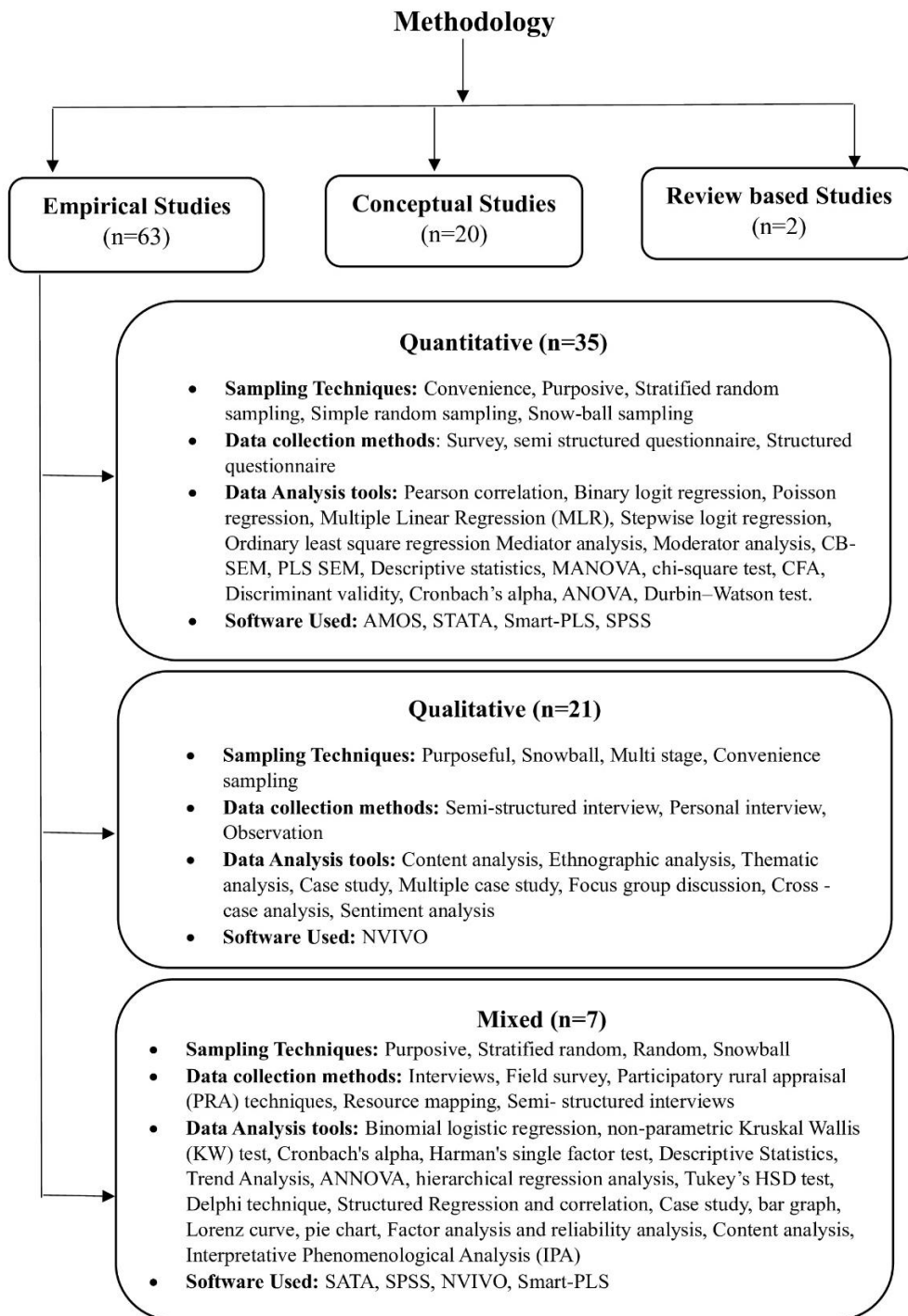
Existing studies have employed various data collection methods. Quantitative studies mainly relied on surveys and structured questionnaires, while qualitative studies commonly used interviews and observations. Mixed-method studies typically use a combination of surveys, interviews, and participatory rural appraisal. Researchers applied various sampling techniques, including convenience, purposive, stratified, snowball, and random sampling, in quantitative studies. While qualitative studies relied on purposive, snowball, multistage, and convenience sampling techniques. Further, the mixed-method research frequently uses purposive, stratified, random, and snowball sampling techniques.

Some studies clearly reported the software used for data analysis, whereas many others did not explicitly mention the specific software in their analysis section. In particular, STATA, AMOS, SPSS, and Smart-PLS were used to conduct quantitative analysis. In addition, NVivo, a qualitative data analysis software, was frequently used to identify patterns and relationships in qualitative research. In mixed-method studies, researchers used a combination of software, including Smart-PLS, SPSS, STATA, and NVivo, for analysis.

4. Proposed entrepreneurial ecosystem framework

The present study proposes a comprehensive EE framework within the Indian context, based on the synthesis of 85 studies. This framework provides a conceptual foundation for understanding how various EE components collectively influence entrepreneurial development across sectors such as agriculture, artisan, renewable energy, technology, education, microfinance, e-commerce, healthcare, fintech, banking, and telecommunication within the Indian context (see Figure 3).

The framework conceptualizes the constituents or subcomponents of EE as antecedents, the underlying factors or conditions that influence the development, functioning, and success of an entrepreneurial ecosystem. These factors shape the environment in which entrepreneurship can thrive, including both external and internal elements that pre-exist or lead to the formation of an ecosystem. It includes startups, entrepreneurs, capital & funding, government policies, social networks, market dynamics, infrastructure, large companies, and innovation, etc. From a systems perspective, these components are interconnected and mutually reinforcing, with the effectiveness of one component influencing the performance of others within the ecosystem.

**Figure 2.** Methodology used in existing studies

Source: Author's own work

The framework further conceptualizes the EE consequences identified in the existing literature as outcomes. These outcomes emerge through the interaction among ecosystem antecedents and contribute at different levels. At the entrepreneurial level, EE promotes entrepreneurial attitude, enhancement of managerial capabilities, and entrepreneurial competencies. At the economic level, it contributes to Income creation, productivity, and employment generation. Similarly, technological outcomes include Innovation and technological adoption in startups, while societal outcomes include social innovation and public awareness. The framework also highlights environmental outcomes such as regional development, enhancement of entrepreneurial culture, and innovation for environmental

sustainability. The industrial outcomes include venture growth and success, establishment of new startups, and competitive advantage, while legal outcomes include regulatory support for sustainable business practices. Collectively, these outcomes reflect the broader role of entrepreneurial ecosystems in fostering entrepreneurship, innovation, and economic development within emerging economies.

The framework suggests that stronger coordination and interaction among ecosystem components may enhance the overall effectiveness and sustainability of entrepreneurial ecosystems. Based on this conceptualization, the following propositions are derived:

Proposition 1: Higher interaction among EE components positively influences entrepreneurial and innovation outcomes.

Proposition 2: Institutional support mechanisms such as policy, finance, and infrastructure strengthen the effectiveness of entrepreneurial ecosystems.

Proposition 3: Entrepreneurial ecosystem outcomes extend beyond economic performance to include societal, technological, and environmental development.

5. Discussion

The findings of the current review provide a comprehensive understanding of EE research in India. The results indicate that the “resource-based view (RBV)” and “signaling theory” are the most widely used theories in EE studies from India. This contradicts the findings of Thai et al. (2023), who revealed network theory as the most dominant theory in the international EE literature. This dissimilarity between global research and the Indian context might be due to the variability of socio-economic and socio-cultural contexts in which entrepreneurial activities are undertaken. The dominance of RBV in the Indian context may be due to constraints imposed by institutional environments, financial limitations, and uneven entrepreneurial structures. In emerging economies like India, entrepreneurs tend to focus on acquiring and utilizing resources to survive and grow. Network-centric methodologies, in contrast, are more dominant in mature ecosystems where institutional structures, collaborative cultures, and innovation networks already exist. Consequently, this gap underscores the contextual development of models for enterprise ecosystems and suggests that mainstream Western perspectives are not directly applicable to emerging economies without adaptation.

In terms of context, the existing review shows that EE research in India is highly concentrated in a few regions, with Bangalore and Delhi being the most frequently researched. These geographical concentrations may be attributed to the higher density of start-ups and innovation-driven enterprises in those regions. Another region could be the presence of a more developed network of incubators, venture capital networks, educational institutions, technological infrastructure, and government-supported entrepreneurial programs. These areas serve as relatively established entrepreneurship subsystems in which a number of ecosystem elements engage more effectively with one another to foster entrepreneurial behavior. This aligns with the findings of Rault and Mathew (2019), who also found that the clustered nature of these areas, where entrepreneurial activities and innovation ecosystems are already well established, ensures sustainability in startup processes. In addition, the research's geographical focus is predominantly on the southern and northern parts of India, underscoring the need for research in other regions and for a more balanced representation of regions in EE research across the country. From a systems-theory perspective, such regional concentration reflects an uneven distribution of ecosystem resources and institutional support, in which certain regional subsystems are more

interconnected and developed than others, thereby limiting balanced entrepreneurial growth across the country.

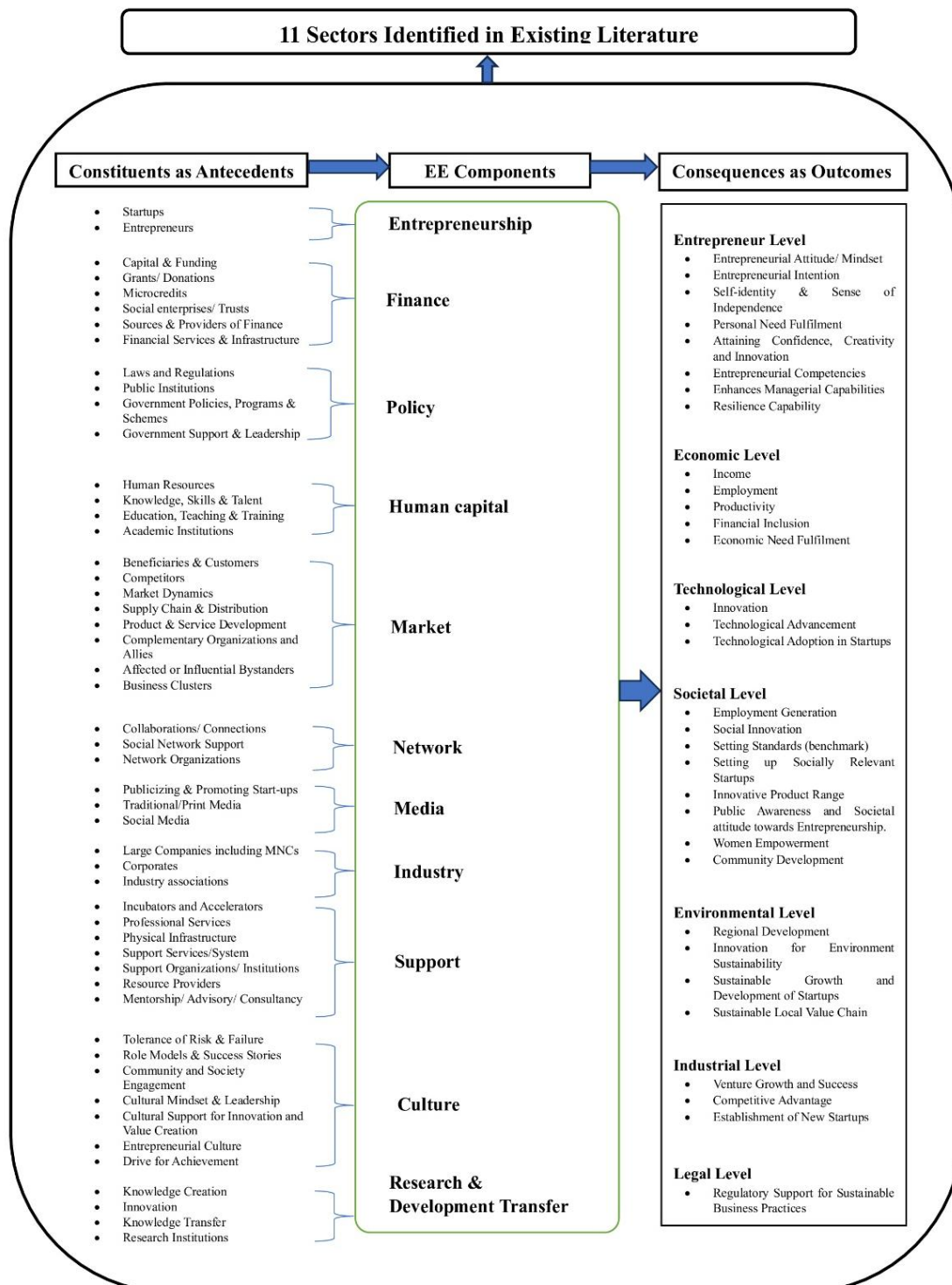


Figure 3. Comprehensive Entrepreneurial Ecosystem Framework within the Indian Context

Source: Author's own work

In terms of characteristics, we have identified 11 key components of EE within the Indian context. An analysis of 85 studies reveals that most research on EE in India has focused on sectors such as technology and education. However, there are notable gaps in the exploration of other crucial sectors, including agriculture, artisanal production, renewable energy, e-commerce, healthcare, fintech, microfinance, banking, and telecommunications.

This is consistent with the findings of Thai et al. (2023), who noted a similar trend in global EE research, where the focus predominantly lies on the education and high-technology sectors, while other essential sectors within this domain are ignored. Further, the analysis also highlights several components, such as entrepreneurship, culture, media, network, and industry, that remain relatively underexamined within the Indian context. Thus, expanding research into these components could offer a more comprehensive understanding of India's entrepreneurial ecosystem. This finding further reinforces the systems understanding of EE, where the effectiveness of the ecosystem depends not on isolated components but on the interaction and coordination among multiple interconnected elements operating across sectors and institutional settings. In addition, concepts such as crowdfunding, which is an almost underexplored area in EE research in India, offer avenues for future investigation with scope to improve access to resources and foster innovation.

Further, this review reveals the predominance of quantitative methodologies in the existing EE research within the Indian context. This finding contradicts the results of Thai et al. (2023), who found that around half of the global EE literature used qualitative approaches. This disparity in methodological focus might be due to the increasing availability of structured datasets and more emphasis on empirical validation in Indian entrepreneurship research. Further, this variation could also be attributed to a preference for measurable, policy-oriented research outcomes in emerging economies. However, despite providing more generalizable results, quantitative methodologies may miss intricate and heterogeneous elements of the entrepreneurial ecosystem that can be better understood through qualitative research. It indicates a need for future research to incorporate greater diversity in methodology, including qualitative and mixed-method studies. Qualitative and mixed-method approaches may also be better suited to understanding EE from a systems-oriented perspective, as they can more effectively capture the complex interactions, feedback loops, and contextual dynamics among ecosystem actors and components.

Moreover, the findings reveal the fragmented, regionally uneven nature of EE development in India, underscoring the need for a more holistic, integrative approach. This aligns with the work of Rault and Mathew (2019), who also observed the fragmented and uneven development of entrepreneurial infrastructure across regions in India. From a systems theory perspective, entrepreneurial ecosystems function as interconnected systems in which the effectiveness of each component depends upon its interaction and coordination with other ecosystem elements. Underdevelopment in a single component may therefore affect the ecosystem's overall functioning and sustainability. Further, Audretsch and Belitski (2017) argue that entrepreneurial ecosystems may be either industry-specific or span multiple industries. In this light, the present study proposes a comprehensive entrepreneurial ecosystem framework for the Indian context that integrates all eleven identified EE components across diverse sectors. Each component plays a crucial role in fostering entrepreneurship across sectors. Such an integrated framework recognizes the interdependent relationships among institutional support, finance, networks, education, culture, infrastructure, and industry actors in fostering entrepreneurship. By strengthening coordination among these interconnected components, the framework may help reduce regional imbalances and contribute toward a more inclusive, balanced, and sustainable entrepreneurial ecosystem in India.

6. Conclusion, limitations, and future research directions

Given the significant role of entrepreneurial ecosystems in driving innovation, job creation, and economic development, a deeper understanding of the interconnected functioning of their components is particularly important in developing economies like India,

where the entrepreneurial ecosystems are undergoing rapid transformation. Hence, this study aims to provide a comprehensive overview of EE research in the Indian context through an SLR guided by the TCCM framework. The findings reveal regional diversity within India's entrepreneurial ecosystem, as reflected in the fragmented and uneven development of entrepreneurial infrastructure, underscoring the need for a comprehensive and inclusive framework. By integrating all 11 EE components across sectors, this study proposes a comprehensive EE framework that addresses regional disparities and supports a more inclusive, sustainable entrepreneurial ecosystem in India. Furthermore, the findings of this study offer a roadmap for scholars, policymakers, and practitioners seeking to strengthen India's entrepreneurial ecosystem in comprehensive, equitable, and inclusive ways. For academicians, the study highlights several underexplored areas within entrepreneurial ecosystem research in India and presents possible directions for future research and further scholarly inquiry (see Table 5). These suggested research avenues aim to support the creation of a more holistic and inclusive understanding of the entrepreneurial ecosystem within the Indian context. Further, for policymakers and practitioners, the study offers practical insights to guide the planning and execution of entrepreneurial ecosystem programs and policies in India (See Table 6).

Table 5. Future research questions

Dimensions	Identified gaps	Future research questions
Theory	Network theory and Systems theory remain underutilized.	What role do knowledge-sharing networks play in innovation diffusion among Indian startups? How do different EE components interact to affect entrepreneurial growth in India?
Context	Overconcentration in Tier-1 cities	How does the entrepreneurial ecosystem function in Tier-2 and Tier-3 cities or rural regions in India? What are the unique barriers and enablers in these areas?
Characteristics	Cultural, media, networks, and industry are underexplored	How do cultural and social networks shape entrepreneurial behavior in India? What role does the media play in shaping perceptions and support for entrepreneurship?
	Crowdfunding and digital platforms are underexplored	How can crowdfunding and digital tools enhance access to resources and innovation for Indian entrepreneurs, especially in non-tech sectors?
	Limited research on sectors like agriculture, artisan, microfinance and fintech	What ecosystem components support entrepreneurship in traditional and underserved sectors?
	Limited focus on caste, gender, and socio-economic diversity	How do social identity factors (caste, gender, class) impact access to EE resources?
Method	Limited qualitative and mixed-method studies	How can qualitative or mixed-method studies offer deeper insights into the contextual dynamics of the Indian entrepreneurial ecosystem?
Interdisciplinary Integration	Less integration across disciplines	How can interdisciplinary frameworks (e.g., combining sustainability and entrepreneurship) enrich EE research in India?
Policy Impact	Limited research on policy effectiveness across regions	How effective are current EE policies in supporting startups in different Indian States?
		What policy gaps exist in underrepresented sectors or regions?

Source: Author's own work

Table 6. Practical implications for policymakers and entrepreneurs

Implications for policymakers	Implications for entrepreneurs
Promote entrepreneurial awareness and reduce social barriers through educational campaigns and community engagement.	Explore emerging opportunities in underserved regions with less competition and untapped support potential.
Expand access to credit, seed funding, and micro-finance through inclusive financial instruments and public-private partnerships.	Leverage niche market opportunities and localized demand by venturing into less-served sectors.
Invest in physical (roads, electricity) and digital infrastructure (internet, e-commerce platforms), particularly in rural clusters.	Adopt alternative funding strategies, such as crowdfunding, and use digital tools for marketing and outreach.
Frame inclusive entrepreneurship policies ensuring equitable access to finance, mentorship, and markets.	Collaborate with local institutions to strengthen place-based entrepreneurial activities.
Launch targeted skill development, mentoring, and training programs for entrepreneurs, focusing on women, youth, and marginalized communities.	Build stronger peer networks, leverage local media, and align ventures with regional cultural values.

Source: Author's own work

Moreover, this study has certain limitations. First, it relies on the Scopus database for data retrieval, whereas using other databases, such as Web of Science (WOS) or Dimensions, could yield different results. Second, the study considered only English-language publications, potentially omitting relevant research in other languages. Finally, this study was limited to selected subject categories, suggesting that future research could gain valuable insights by expanding the scope to cover a wider range of disciplines across multiple academic fields.

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