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Potential of Social Innovation in Addressing the Jobs and Skills Mismatch in Haryana

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Abstract

Skills mismatch—the persistent misalignment between workers' competencies and labor market demands—has intensified in contemporary economies due to rapid technological change, automation, digitalization, and structural shifts, resulting in unemployment, underemployment, productivity losses, and widening inequality. Traditional education and training systems often fail to adapt swiftly to evolving needs, necessitating innovative, inclusive approaches beyond conventional programs.

This paper examines the role of social innovation—novel, collaborative solutions prioritizing social value, inclusion, and empowerment in mitigating jobs and skills mismatches, with a specific focus on Haryana. Employing a mixed-methods review, the study combines bibliometric analysis (124 Scopus-indexed documents, 1997–2025) using Biblioshiny to map trends, influential works, and thematic evolution, with a systematic literature review (SLR) following the SPAR-4-SLR protocol (28 high-impact studies screened from initial 100+ sources). The SLR synthesizes conceptual, empirical, economic, and policy evidence demonstrating social innovation's potential through reskilling initiatives, grassroots training, social enterprises, multi-stakeholder partnerships, and adaptive models that counter automation-induced displacement while promoting equity and sustainability.

Our findings confirm social innovation as a flexible, bottom-up mechanism for bridging mismatches, particularly for vulnerable groups, informal sectors, and transition economies. Building on this evidence, the paper proposes the Collaborative Skill Ecosystems Framework (CSEF) for Haryana, centered on a Haryana Skill Innovation Hub (HSIH) that integrates government, industry, academia, NGOs, communities, and social entrepreneurs in iterative processes of needs assessment, piloting (e.g., rural Kurukshetra and urban Gurugram), scaling, evaluation, and feedback.

The framework offers practical strategies for enhancing employability, fostering inclusive growth, and stimulating entrepreneurial activity in Haryana's diverse rural-urban landscape. Challenges in scaling and measurement persist, underscoring the need for empirical validation and policy integration.

1. Introduction

Jobs and skills mismatch has emerged as a persistent and pressing challenge in contemporary labour markets, where workers' qualifications, competencies, and experiences often do not align with employers' requirements. Rapid technological change, shifting sectoral demands, and the evolving nature of work have intensified this gap, leading to unemployment, underemployment, and productivity losses. Traditional education and training systems have struggled to respond effectively to these fast-changing labour market needs, leaving many individuals inadequately prepared for emerging employment opportunities. Addressing this misalignment requires innovative approaches that go beyond conventional skill development programs.

Social innovation provides a promising alternative by introducing collaborative, inclusive, and flexible solutions to workforce development. By fostering partnerships among government, industry, educational institutions, and communities, social innovation enables adaptive skill formation and inclusive employment models. Such approaches can facilitate better alignment between labor market demands and workforce capabilities, ultimately enhancing employability and supporting sustainable economic growth.

This paper is an attempt to examine the role of social innovation in mitigating jobs–skills mismatches, with a particular focus on Haryana. The objectives of the paper are twofold: first, to map and analyze the academic landscape on social innovation and jobs–skills mismatches through bibliometric and systematic review methods; and second, to propose a context-specific framework for Haryana that leverages social innovation to improve skill alignment, employability, and inclusive workforce participation.

The paper is structured as follows. The second section details the methodology, explaining the approaches used to collect, analyze, and synthesize relevant literature. The third section presents the bibliometric analysis, highlighting research trends, influential works, and thematic developments. The fourth section provides a systematic literature review, offering in-depth insights into how social innovation initiatives impact workforce development. The fifth section proposes a context-specific framework for Haryana, outlining practical strategies to leverage social innovation for skills alignment and employability. Finally, the sixth section concludes the paper.

2. Methodology

This paper adopts a mixed review-based methodology**,** combining bibliometric analysis and a systematic literature review (SLR) to ensure both breadth and depth of analysis.

First, a bibliometric analysis was conducted using Biblioshiny**,** based on Scopus-indexed publications retrieved through a structured keyword query related to social innovation, skills mismatch, workforce development, and employment strategies. A total of 124 documents published between 1997 and 2025 were analyzed to identify publication trends, influential sources, citation patterns, and thematic evolution.

Second, a Systematic Literature Review was carried out following the SPAR-4-SLR protocol, which is well-suited for economics and management research. Relevant studies were assembled from Scopus and complementary academic sources, screened for quality, relevance, and citation impact, and organized into conceptual, empirical, economic, and policy-oriented themes. This dual approach strengthens the analytical rigor and ensures that findings are both comprehensive and methodologically sound.

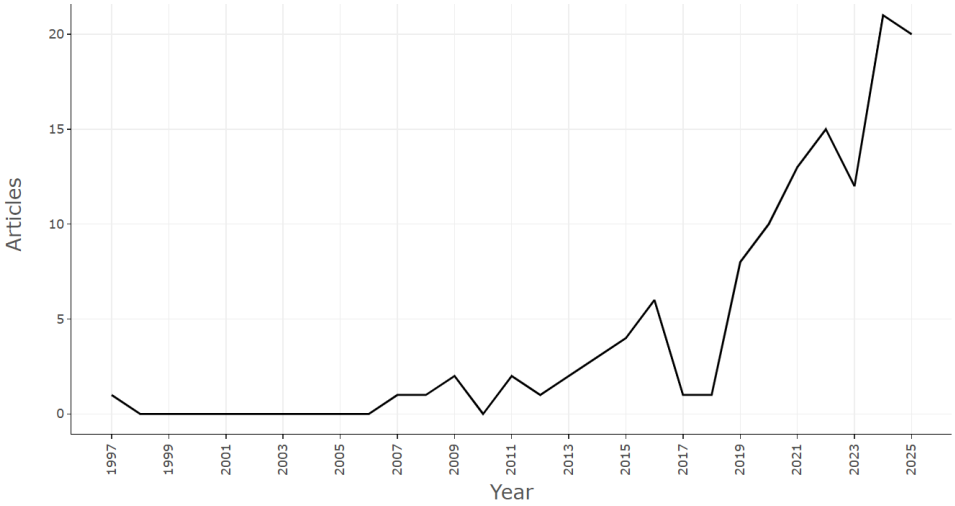
3. Bibliometric Analysis

The bibliometric analysis, conducted using Biblioshiny on a Scopus dataset retrieved with the query TS=("social innovation" OR "social enterprise" OR "social entrepreneurship" OR "impact innovation") AND TS=("jobs mismatch" OR "skills mismatch" OR "skill gap*" OR "employment mismatch" OR "labour market mismatch" OR "workforce development" OR "skill* development" OR "vocational training" OR "employment strategy*"), provides a comprehensive overview of the research landscape through Figure 1, titled "Overview (Main Information)." This figure summarizes key metrics, including a total of 124 documents spanning from 1997 to 2025, reflecting a substantial and growing body of literature on social innovation's role in addressing jobs and skills mismatches. The dataset encompasses diverse publication venues and authors, with a high collaboration index indicating robust cross-institutional research networks, mirroring the multi-stakeholder approaches central to social innovation initiatives. The prevalence of journal articles and frequent keywords like "workforce development" and "skills mismatch" underscores the field's interdisciplinary nature and academic impact, aligning with global policy frameworks such as the Sustainable Development Goals.

3.1 Overview (Main Information)

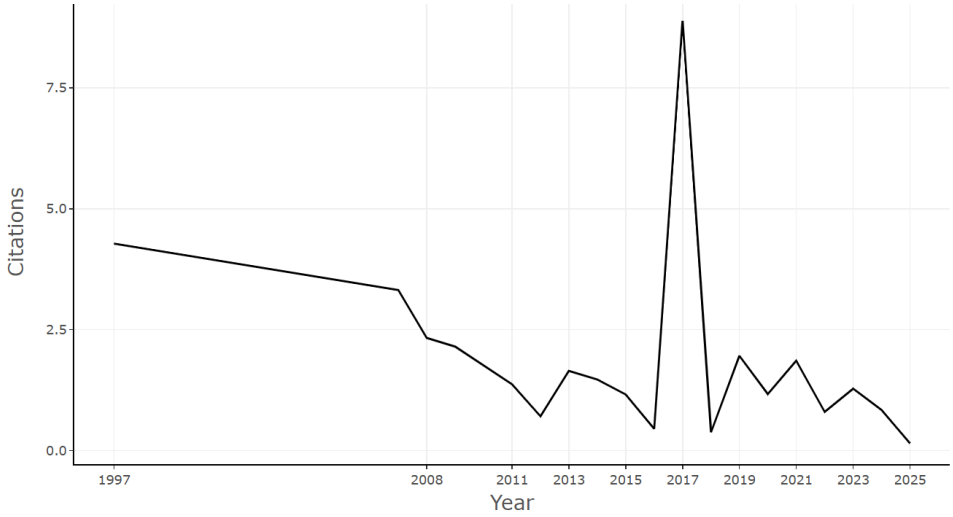
The overview presents a detailed summary of the dataset's key metrics, including the total number of documents, the timespan of publications, the number of sources, authors, and author appearances, as well as the collaboration index, average citations per document, and references per document. Additionally, it lists keyword counts and document type distributions. This table establishes the scale and diversity of the literature, indicating a substantial body of work that reflects the interdisciplinary nature of social innovation and labor market issues. The presence of multiple authors and a notable collaboration index suggests active engagement across institutions, providing a foundation for exploring how social innovation initiatives might foster collaborative skill development strategies.

3.2 Annual Scientific Productions



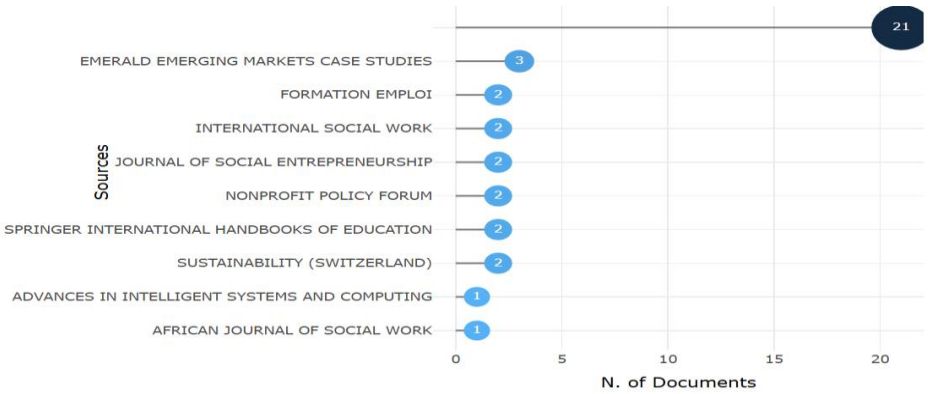
The annual scientific production chart shows publication output over time, revealing low activity in earlier years and a clear increase in recent years, especially after 2020. This trend indicates growing academic interest in social innovation and jobs–skills mismatches, reflecting its rising relevance in addressing current employment challenges.

3.3 Average Citations Per Year



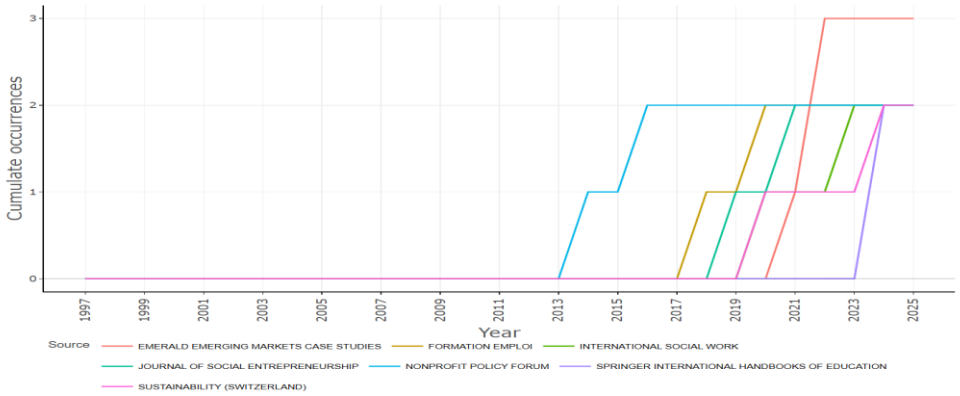
The average citations per year graph shows a general rise in citation impact over time, with some years standing out due to particularly influential publications. This pattern reflects the growing recognition of research connecting social innovation with labor market solutions, while earlier foundational studies continue to shape current debates on addressing skills gaps through innovative approaches.

3.4 Most Relevant Sources



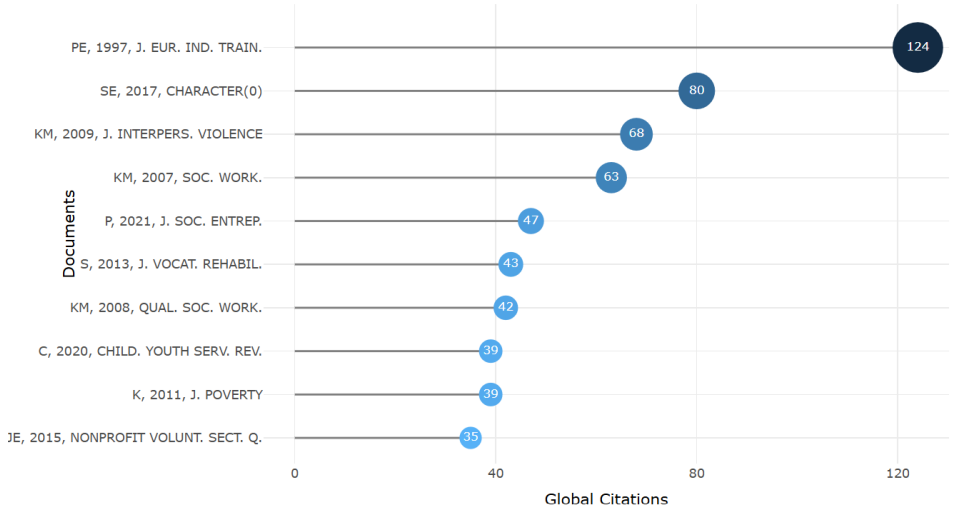
The most relevant sources chart ranks journals and conference proceedings by publication volume, highlighting the main outlets contributing to research on social innovation and employment mismatches. The distribution reflects strong multidisciplinary engagement across social sciences, economics, and entrepreneurship, pointing to key platforms for advancing knowledge on workforce development strategies.

3. 5 Sources Production over time



The sources' production over time graph shows how leading journals and proceedings have contributed across the years, with some maintaining steady output and others increasing sharply in recent periods. This pattern points to a growing emphasis on applied economic and social research venues, reflecting the rising practical relevance of social innovation in addressing labor market challenges, including skills mismatches in developing economies.

3.6 Most Global Cited Documents



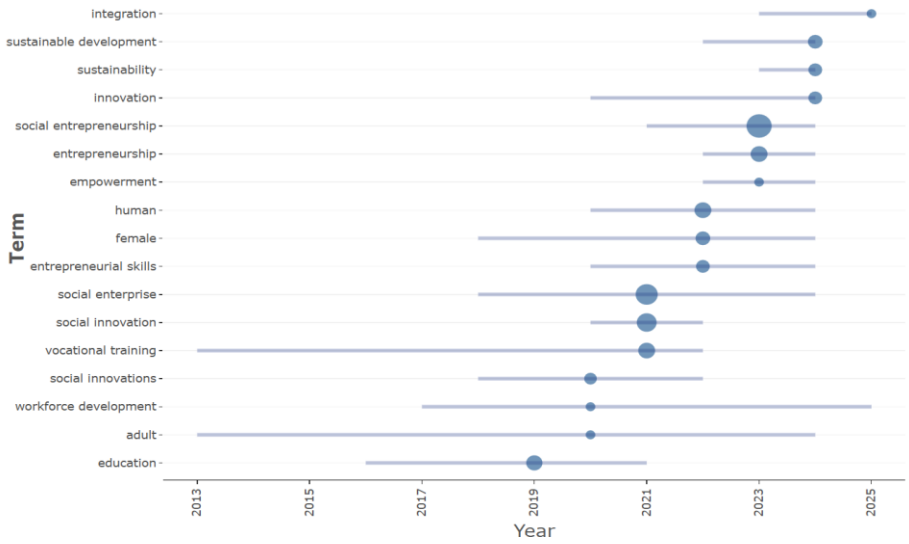
The most globally cited documents table lists top-cited works, showing authors, years, sources, and citation counts. It highlights influential studies, often on social entrepreneurship and employment, that serve as key references for understanding how social innovation can address jobs and skills mismatches

3. 7 Word Cloud

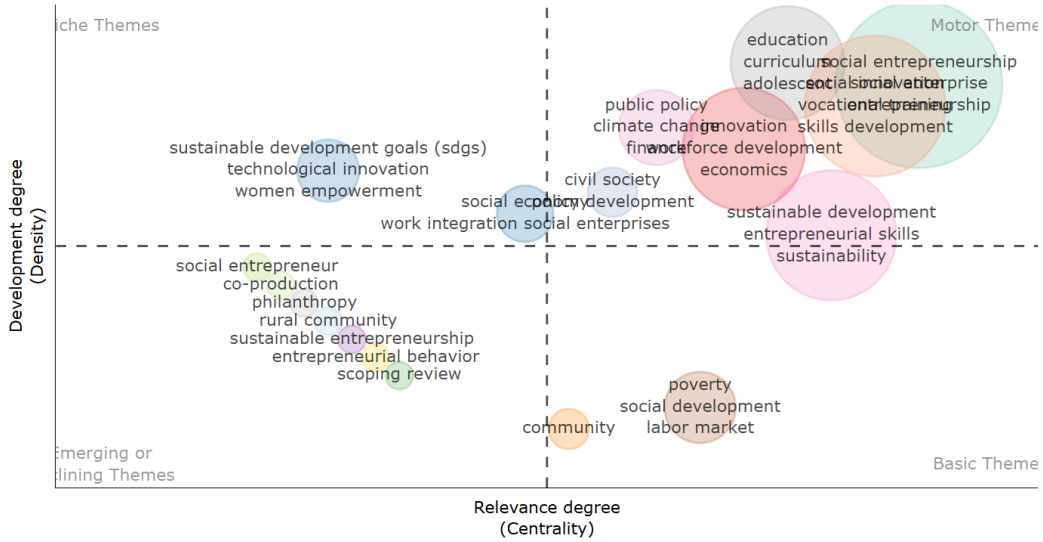
The word cloud shows the most frequent keywords, with prominence indicating occurrence. Key terms like "social innovation," "skills mismatch," "social entrepreneurship," and "workforce development" highlight the main themes, emphasizing the connection between innovative social models and labor market solutions.

3.8 Trend Topics

The trend topics graph shows how key topics have evolved over time. It highlights the growing focus on "workforce development" alongside the ongoing relevance of "social enterprise," indicating that social innovation is increasingly seen as a response to changing employment needs and skills gaps.



3.9. Thematic Map



The thematic map displays keyword clusters on axes of centrality (importance) and density (development), dividing themes into four quadrants:

- **Motor Themes (upper-right):** High centrality and density; well-developed and central. For example, "social entrepreneurship and employment mismatches" is mature and widely studied, highlighting its key role in addressing labor market disparities.
- **Niche Themes (upper-left):** High density but low centrality; specialized and cohesive but less integrated. "Impact innovation in vocational training" exemplifies focused research with potential for broader application.
- **Basic Themes (lower-right):** High centrality but low density; foundational but underdeveloped. "Labor market mismatch" represents a core concern needing further exploration.
- **Emerging/Declining Themes (lower-left):** Low centrality and density; new or fading topics. "Skill gaps in social enterprises" illustrates an early-stage area with research potential.

Bubble size reflects keyword frequency, and color-coded clusters (via the Louvain algorithm) group related themes, such as "social enterprise" or "vocational training." Labels identify each cluster's main theme.

Overall, the map outlines the field's intellectual structure: established areas like social entrepreneurship inform policy and practice, niche themes suggest untapped opportunities for targeted skill development, basic themes highlight ongoing challenges, and emerging topics point to future research directions. This framework guides both immediate application and strategic exploration in workforce planning and social innovation initiatives.

The bibliometric results show a steady rise in publications, particularly after 2020, indicating growing academic and policy interest in social innovation as a response to labor market challenges. Increasing citation trends suggest that foundational studies continue to influence recent research.

Key publication outlets span economics, social sciences, and entrepreneurship, reflecting the interdisciplinary nature of the field. Keyword analysis highlights dominant themes such as *social innovation*, *skills mismatch*, *workforce development*, and *vocational training*. The thematic map reveals that social entrepreneurship and employment mismatch function as central and well-developed research areas, while topics such as *impact innovation in vocational training* remain niche but promising.

Overall, the literature positions social innovation as a practical mechanism for reducing skills mismatch through adaptive learning models, community-based training, and inclusive employment practices.

4. Systematic Literature Review

The Systematic Literature Review (SLR) for this paper follows the SPAR-4-SLR protocol, a framework designed for reviews in economics and management (Paul et al., 2021). SPAR-4-SLR consists of four phases: Assembling (gathering and screening literature from databases like Scopus, Google Scholar, and web searches for high-relevance studies on social innovation and skills mismatch, using criteria like citation frequency >50, economic focus, methodological diversity, and geographic spread; initial 100+ hits screened to 28 studies); Arranging (organizing by themes—conceptual, empirical, economic, policy—and timelines from 2007 to 2025); Assessing (evaluating quality via peer-review status, impact, and applicability to labour markets; biases noted, e.g., overemphasis on developed economies); and Reporting (synthesizing findings with justifications for policy relevance). Unlike PRISMA (health-focused with rigid checklists), SPAR-4-SLR is adaptable for nuanced economic data, emphasizing decision rationale for contexts like skill mismatches.

Skills mismatch—the misalignment between workers' competencies and labor market needs—has intensified due to technological change, automation, digitalization, and structural economic shifts. It manifests as skill shortages, overqualification, underutilization, and gaps, contributing to reduced productivity, higher unemployment, wage penalties, and inequality (Brunello & Wruuck, 2021; Cedefop, 2015, 2018; Brun-Schammé & Rey, 2021; European Economic and Social Committee, 2018; Gordon, 2019).

Social innovation, defined as novel, collaborative solutions prioritizing social value, inclusion, and empowerment over profit, offers bottom-up mechanisms to bridge these mismatches. It promotes reskilling, inclusive employment, and policy reforms via multi-stakeholder partnerships (SI-Drive, 2017; Avelino et al., 2017; World Economic Forum, 2014, 2016).

Conceptual literature frames social innovation as a response to disruptive processes such as automation and digitalization, which displace routine tasks while demanding new adaptive and non-routine skills. It emphasizes equity, sustainability, and innovative approaches to counter emerging shortages and occupational competence challenges (Cukier, 2019; Pol & Ville, 2009; Ghobakhloo, 2020; Ellström, 1997; Kuloğlu, 2024; Cherif & Gourida, 2024; World Economic Forum, 2016).

Empirical studies highlight practical impacts across vulnerable groups, sectors, and contexts. Social enterprises and grassroots models provide targeted training, non-formal learning, and support for disadvantaged populations (e.g., homeless youth, informal sectors, rural communities, and specialized services like refractive error care). These initiatives reduce mismatches through inclusive, community-driven skill-building (Ferguson, 2007; Ferguson & Islam, 2008; Richter, 2022; Sharma et al., 2025; Muma et al., 2025a; Muma et al., 2025b; Jiayan Huang et al., 2023).

Economic perspectives underscore the costs of displacement and mismatch, while demonstrating how social innovation mitigates these by aligning human capital, boosting productivity, and fostering equitable growth amid technological unemployment and labor market imbalances (Brunello & Wruuck, 2021; McGuinness et al., 2023; Gordon, 2019; Cedefop, 2015; Brun-Schammé & Rey, 2021; European Economic and Social Committee, 2018).

Policy-oriented research advocates multi-stakeholder frameworks, apprenticeships, digital tools, hybrid models, and systemic integration to build resilience against automation and scale solutions effectively (Cedefop, 2018; Halid et al., 2023; Hartley & Knell, 2022; World Economic Forum, 2014; Faustino et al., 2025; Paul et al., 2021; Brun-Schammé & Rey, 2021).

Overall, the 28 reviewed studies position social innovation as a versatile, equity-focused tool for resolving skills mismatches, emphasizing adaptability, inclusion, and collaboration. Challenges persist in scaling models, measuring long-term impact, and integrating into formal systems, warranting further contextual research (e.g., in regions like Haryana).

Table 4.1: Summary of Key Studies and Implications

Theme	Key Studies (Year, Approach & Focus)	Main Findings	Implications for Skills Mismatch
Conceptual	Pol & Ville (2009, Conceptual/Theoretical); Cukier (2019, Global Review); Ghobakhloo (2020, Digitization/Sustainability); Ellström (1997, Occupational	Frames social innovation as adaptive response to automation/digital disruption; highlights shifts in occupational	Promotes non-routine/adaptive skills to offset routine job displacement and technological

	Competence); Kuloğlu (2024, Technological Transformation); Cherif & Gourida (2024, Bibliometric/Global); World Economic Forum (2016, Future of Jobs/Global)	competence and emerging skill demands.	unemployment.
Empirical	Ferguson (2007, Intervention/USA Youth); Ferguson & Islam (2008, Grounded Theory/USA); Richter (2022, Rural Mapping/Global); Sharma et al. (2025, Informal Economy Analysis); Muma et al. (2025a, Framework/Kenya); Muma et al. (2025b, Situation Analysis/Kenya); Jiayan Huang et al. (2023, High-Tech Enterprises/Micro-level)	Social enterprises/grassroots deliver targeted training and inclusion for vulnerable/ informal groups; aligns skills in specialized/rural/high-tech contexts.	Reduces mismatches for marginalized populations via bottom-up, community-based skill-building and enterprise models.
Economic	Brunello & Wruuck (2021, Literature Review/Global); Cedefop (2015, Survey Insights/EU); Cedefop (2018, Evidence Analysis/EU); McGuinness et al. (2023, Technological Change/Global); Gordon (2019, Spatial Mismatch/USA); Brun-Schammé & Rey (2021, New Approach/OECD); European Economic and Social Committee (2018, Competitiveness/EU)	Quantifies costs of mismatch/displacement; shows mitigation via human capital alignment and productivity gains.	Lowers economic losses (unemployment, inequality) while enabling equitable growth amid imbalances.
Policy	SI-Drive (2017, Employment Report/EU); Avelino et al. (2017, Transformative Innovation/Global); World Economic Forum (2014, Partnerships/Global); Cedefop (2018, Policy Analysis/EU); Halid et al. (2023, Youth Unemployment/Social Entrepreneurship); Hartley & Knell (2022, Public Innovation Review); Faustino et al. (2025, Educational Leadership SLR); Paul et al. (2021, SPAR-4-SLR Methodology); Brun-Schammé & Rey (2021, Skills Approach/OECD)	Advocates partnerships, apprenticeships, hybrid/digital tools, and systemic integration for scaling resilience.	Enables broader adoption of interventions to enhance long-term labor market adaptability and mismatch resolution.

The reviewed studies consistently identify skills mismatch as a consequence of automation, digitalization, and structural economic change. Conceptual research emphasizes social innovation as a response that promotes adaptability, collaboration, and inclusion. Empirical evidence demonstrates that social enterprises and grassroots initiatives are particularly effective in supporting disadvantaged groups through work-based training and non-formal learning.

Economic and policy-oriented studies highlight the importance of multi-stakeholder coordination, apprenticeships, and skills anticipation mechanisms. While social innovation shows strong potential to improve employability and labor market

alignment, challenges remain in scaling initiatives, measuring impact, and integrating them into formal policy frameworks.

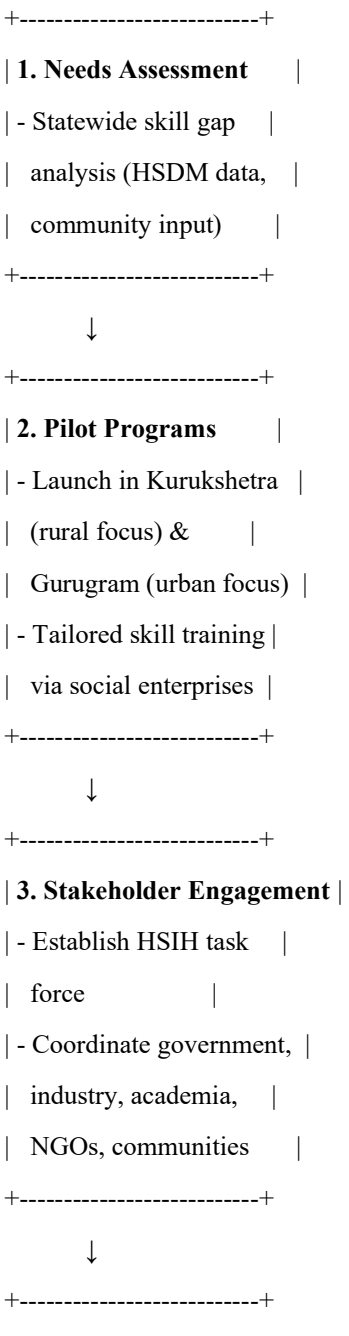
5. Proposed Framework: Collaborative Skill Ecosystems Framework (CSEF) for Haryana

To address the jobs and skills mismatch in Haryana through social innovation and entrepreneurship, we suggest the following framework: The Collaborative Skill Ecosystems Framework (CSEF). This model establishes the Haryana Skill Innovation Hub (HSIH) as the central coordinating body. It promotes multi-stakeholder collaboration among government (e.g., Haryana Skill Development Mission – HSDM), industry, academia, NGOs, communities, and social entrepreneurs to identify skill gaps, pilot innovative training, scale effective solutions, and ensure continuous adaptation.

The CSEF is illustrated through two diagrams: a flowchart (process flow) and a network diagram (stakeholder interactions).

5.1 Flowchart: Process Flow of the CSEF Model

The flowchart depicts a cyclical, iterative process with feedback loops for adaptability.



| - Expand successful pilots|

| - Adapt to local economic |

| & cultural contexts |

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| **5. Evaluation** |

| - Track employment rates |

| - Measure enterprise |

| creation & skill uptake |

+----------+

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| **6. Feedback Loop** |

| - Refine programs using |

| data |

| - Reassess needs |

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↑ (cycle back)

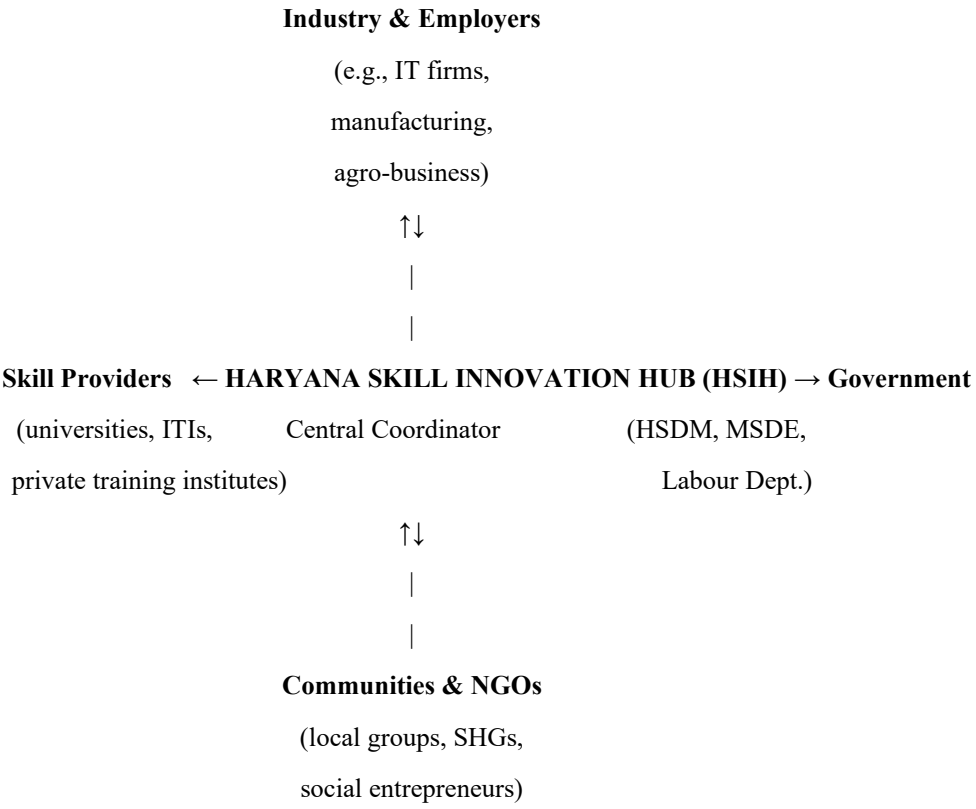
The CSEF operates as an iterative cycle:

- **Needs Assessment**: Begins with comprehensive skill gap analysis using HSDM data, labour market surveys, and community feedback.
- **Pilot Programs**: Tests innovative training in contrasting districts—Kurukshetra (rural, agriculture-linked skills) and Gurugram (urban, IT/services-oriented). Focuses on social entrepreneurship-led models.
- **Stakeholder Engagement**: Forms the HSIH task force to align efforts across government, private sector, educational institutions, and civil society.
- **Scaling Phase**: Rolls out proven pilots statewide, customizing to regional needs (e.g., agro-processing in rural areas, digital skills in urban hubs).
- **Evaluation**: Measures key outcomes: employment rates, new enterprises created, skill certification, and wage improvements.
- **Feedback Loop**: Uses evaluation findings to refine interventions and restart needs assessment, ensuring long-term relevance and impact.

This iterative design emphasizes adaptability, stakeholder ownership, and evidence-based improvement.

5.2 Network Diagram: Stakeholder Interactions in the CSEF

The network diagram shows the HSIH at the centre, with bidirectional arrows connecting key actors:



- **HSIH** acts as the hub, facilitating coordination, resource allocation, monitoring, and knowledge sharing.
- **Bidirectional links** ensure continuous dialogue: industry provides demand signals and apprenticeships; academia designs curricula and delivers training; government offers policy support, funding, and certification; communities/NGOs/social entrepreneurs drive grassroots delivery, inclusion, and local relevance.
- This ecosystem fosters trust, reduces duplication, and accelerates innovation in skill development.

The CSEF leverages social innovation principles—collaboration, inclusion, adaptability—to create a responsive, sustainable skill ecosystem tailored to Haryana's diverse rural-urban and sectoral landscape. It aims to reduce skills mismatch, boost employability, and stimulate entrepreneurial activity across the state.

6. Conclusion

This paper demonstrates that social innovation holds significant potential in addressing jobs and skills mismatch by enabling flexible, inclusive, and collaborative workforce solutions. The bibliometric and systematic review findings confirm that social entrepreneurship, community-driven training, and cross-sector partnerships are central to improving skill alignment and employability.

For Haryana, the proposed Collaborative Skill Ecosystems Framework provides a structured yet adaptable approach to integrating social innovation into skill development policy. While challenges related to scaling and institutional integration persist, strengthening stakeholder collaboration and evidence-based evaluation can enhance long-term impact. Also future research should focus on empirical validation of such frameworks and their outcomes in regional labor markets.

- **Conflict of Interest**

The authors declare that they have no conflict of interest

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