From Self-Help Groups to Start-ups: Examining the Role of the Innovation Ecosystem in Promoting Entrepreneurial Performance in Karnataka

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Abstract

Entrepreneurship has increasingly been recognized as an important driver of economic growth, employment generation, and inclusive development. In India, Self-Help Groups (SHGs) have played a significant role in promoting financial inclusion and empowering economically disadvantaged communities, particularly women. Over time, many SHGs have moved beyond traditional savings and micro-credit activities and have begun engaging in entrepreneurial ventures. However, the successful transformation of SHG-based enterprises into sustainable start-ups largely depends on the presence of a supportive innovation ecosystem. The present study examines the role of the innovation ecosystem in promoting entrepreneurial performance among SHG-based enterprises in Karnataka. The study adopts an empirical research design and is based on primary data collected from 100 SHG entrepreneurs through a structured questionnaire. Statistical tools such as weighted mean analysis, correlation analysis, regression analysis, and factor analysis were used to analyze the data. The findings of the study reveal that innovation ecosystem factors, including access to finance, government support schemes, technological infrastructure, mentorship, and market linkages, significantly influence the entrepreneurial performance of SHG enterprises. Among these factors, market linkages and financial access emerged as the most influential determinants of startup performance. The regression analysis indicates that innovation ecosystem variables explain a substantial proportion of the variation in entrepreneurial performance, while factor analysis identifies institutional support and entrepreneurial infrastructure as the key dimensions of the innovation ecosystem. The study concludes that strengthening innovation ecosystems through improved financial inclusion, digital empowerment, training programs, and market connectivity can significantly enhance the entrepreneurial capabilities of SHG members. Such initiatives can facilitate the transformation of SHG enterprises into sustainable start-ups and contribute to inclusive economic development in Karnataka.

Keywords: *Self-Help Groups, Innovation Ecosystem, Entrepreneurship, Startup Development, Entrepreneurial Performance, Women Entrepreneurship, Karnataka.*

1. Introduction

Entrepreneurship has emerged as a powerful driver of economic growth, employment generation, and social transformation in developing economies. In recent years, governments and development institutions have increasingly recognized the importance of grassroots entrepreneurial initiatives in fostering inclusive growth. In India, Self-Help Groups (SHGs) have played a pivotal role in empowering economically disadvantaged communities, particularly women, by promoting savings habits, financial inclusion, and collective economic activities. Over time, many SHGs have moved beyond traditional microfinance and livelihood activities and have begun transforming into small entrepreneurial ventures and start-up enterprises.

The concept of an innovation ecosystem has gained prominence in contemporary entrepreneurship research. An innovation ecosystem refers to a network of institutions, policies, resources, and support systems that collectively facilitate innovation and entrepreneurial activities. This ecosystem typically includes government support schemes, financial institutions, training and mentorship programs, technology infrastructure, incubation centers, and market linkage mechanisms. When these components function effectively, they create an enabling environment that supports entrepreneurs in developing innovative business ideas, accessing markets, and sustaining business growth. For grassroots entrepreneurs associated with SHGs, such ecosystems are

particularly crucial because they often face structural barriers such as limited capital, inadequate technical knowledge, and restricted market access.

The state of Karnataka has emerged as one of India's leading regions for entrepreneurial development and innovation-driven economic growth. Known for its strong start-up culture, technology hubs, and supportive policy initiatives, Karnataka has also implemented several programs aimed at promoting rural entrepreneurship and women-led enterprises. Initiatives such as the Karnataka State Rural Livelihood Mission (KSRLM), skill development programs, micro-enterprise support schemes, and digital empowerment initiatives have significantly contributed to strengthening SHGs and facilitating their transition toward sustainable entrepreneurial ventures.

Despite the growing importance of SHGs in promoting entrepreneurship, several challenges remain in transforming these groups into competitive start-ups. Factors such as inadequate access to finance, limited technological capabilities, weak market linkages, and insufficient mentorship can hinder the entrepreneurial potential of SHG members. In this context, the presence of a supportive innovation ecosystem becomes critical. By providing financial assistance, technological support, training opportunities, and market connectivity, the innovation ecosystem can significantly influence the entrepreneurial orientation and performance of SHG-based enterprises.

Furthermore, the transition from SHG activities to start-up ventures involves not only institutional support but also the development of entrepreneurial capabilities among members. Entrepreneurial orientation—characterized by innovativeness, risk-taking ability, proactiveness, and autonomy—plays an important role in determining the success of emerging enterprises. When SHG members adopt entrepreneurial mindsets and leverage available ecosystem resources, they are more likely to expand their businesses, generate employment opportunities, and contribute to regional economic development.

In this context, the present study focuses on examining how innovation ecosystem factors influence the entrepreneurial performance of SHG-based enterprises in Karnataka. By analyzing key dimensions such as financial access, government support, technological infrastructure, mentorship, and market linkages, the study seeks to understand the extent to which these factors facilitate the transformation of SHGs into viable start-up ventures. The research also explores the relationship between innovation ecosystem support and startup performance indicators such as business growth, revenue generation, employment creation, and market expansion.

The findings of this study are expected to contribute to the existing literature on grassroots entrepreneurship and innovation ecosystems by providing empirical evidence from the context of Karnataka. Moreover, the study aims to offer valuable insights for policymakers, development agencies, and entrepreneurial support institutions in designing more effective strategies to strengthen SHG-based entrepreneurship and promote inclusive economic development. By understanding the dynamics that enable SHGs to evolve into successful start-ups, the study highlights the broader role of innovation ecosystems in fostering sustainable entrepreneurial growth at the grassroots level.

1.1 Theoretical Background of the Study

The transformation of Self-Help Groups (SHGs) into entrepreneurial ventures and start-ups can be understood through several theoretical perspectives in entrepreneurship, innovation, and development economics. Theories related to innovation ecosystems, grassroots entrepreneurship, social capital, and entrepreneurial orientation provide an important conceptual foundation for examining how institutional support systems influence the entrepreneurial performance of SHG-based enterprises. These theoretical frameworks help explain how supportive environments, collaborative networks, and individual entrepreneurial capabilities collectively contribute to the development of sustainable start-ups.

1.1.1 Innovation Ecosystem Theory

The concept of an innovation ecosystem emphasizes the interconnected network of institutions, actors, and resources that collectively support innovation and entrepreneurial development. According to Moore (1993), an innovation ecosystem consists of a community of organizations, including government agencies, financial institutions, research organizations, and businesses, that interact and collaborate to create value through innovation. These ecosystems provide essential resources such as technological infrastructure, knowledge networks, financial support, and market access that enable entrepreneurs to develop and scale their ventures.

Further elaborating on this concept, Adner (2006) argued that innovation does not occur in isolation but within a broader ecosystem where multiple stakeholders contribute complementary capabilities. In such environments, entrepreneurs benefit from institutional support systems such as incubation centers, training programs, mentorship networks, and policy incentives. In the context of SHG-based entrepreneurship, a well-developed innovation ecosystem can facilitate the transition from small-scale group activities to competitive start-up enterprises by enhancing access to finance, technology, and markets.

1.1.2 Schumpeter's Theory of Entrepreneurship and Innovation

The role of innovation in entrepreneurship was first systematically explained by Joseph Schumpeter (1934) in his theory of economic development. Schumpeter described entrepreneurs as agents of "creative destruction" who introduce new combinations of resources through innovations such as new products, new production methods, new markets, and new organizational forms. According to this perspective, entrepreneurial activity is a major driver of economic growth and structural transformation.

In the context of SHGs, entrepreneurial innovation may involve introducing new product designs, adopting digital technologies for marketing, or developing new business models that expand traditional livelihood activities into sustainable enterprises. When SHG members leverage innovative practices supported by an enabling ecosystem, they can create value-added products and services, thereby contributing to local economic development.

1.1.3 Social Capital Theory

Social capital theory provides another important theoretical foundation for understanding the functioning of SHGs and their potential for entrepreneurial development. Putnam (1995) defined social capital as the networks, norms, and trust that facilitate coordination and cooperation for mutual benefit within a community. SHGs inherently operate on the principles of collective action, trust, and mutual support, which strengthens social capital among members.

According to Coleman (1988), social capital enhances access to resources, information, and opportunities through social networks. In SHGs, the strong interpersonal relationships among members promote knowledge sharing, collective decision-making, and risk-sharing. These factors can enhance entrepreneurial orientation and enable members to undertake business ventures with greater confidence. When combined with institutional support from innovation ecosystems, social capital can significantly enhance the growth potential of SHG-based enterprises.

1.1.4 Entrepreneurial Orientation Theory

The concept of entrepreneurial orientation (EO) explains how the behavioral tendencies of entrepreneurs influence business success. Lumpkin and Dess (1996) identified five key dimensions of entrepreneurial orientation: innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy. These dimensions reflect the strategic posture of entrepreneurs in identifying opportunities, experimenting with new ideas, and responding to market challenges.

In the context of SHG entrepreneurship, entrepreneurial orientation plays a crucial role in determining whether members are willing to move beyond traditional group-based activities and pursue innovative business opportunities. SHG members who demonstrate higher levels of innovativeness and proactiveness are more

likely to adopt new technologies, explore new markets, and expand their enterprises into start-ups. The innovation ecosystem further strengthens this orientation by providing access to training, mentorship, and financial resources.

1.1.5 Institutional Theory

Institutional theory highlights the role of formal and informal institutions in shaping entrepreneurial behavior and economic outcomes. According to North (1990), institutions consist of the rules, norms, and policies that structure human interactions and influence economic activities. Supportive institutional frameworks such as government policies, financial programs, and entrepreneurship development initiatives can significantly enhance entrepreneurial activity.

In India, several institutional initiatives have been implemented to strengthen SHGs and promote micro-enterprise development. Programs such as the National Rural Livelihood Mission (NRLM) and various state-level livelihood missions aim to provide financial inclusion, skill development, and market support to SHG members. These institutional mechanisms contribute to the development of a supportive innovation ecosystem that facilitates the emergence of SHG-based start-ups.

1.1.6 Resource-Based View (RBV)

The Resource-Based View (RBV) of the firm, proposed by Barney (1991), suggests that the success of enterprises depends on their ability to acquire and effectively utilize valuable, rare, inimitable, and non-substitutable resources. For SHG entrepreneurs, critical resources include financial capital, knowledge, technology, and market networks.

Innovation ecosystems enhance the availability and accessibility of these resources by connecting entrepreneurs with training institutions, technology providers, financial agencies, and market platforms. When SHG members effectively utilize these ecosystem resources, they can strengthen their competitive advantage and improve the performance of their start-up ventures.

These theoretical foundations provide a strong conceptual basis for examining how innovation ecosystem factors influence the entrepreneurial performance of SHG-based enterprises in Karnataka, thereby supporting the objectives and hypotheses of the present study.

2. Review of Literature

Acs, Autio and Szerb (2014) examined the concept of national entrepreneurial ecosystems and emphasized that entrepreneurship is shaped by the interaction between institutional frameworks, human capital, financial systems, and innovation infrastructure. Their study argued that entrepreneurial ecosystems play a vital role in promoting start-up development and economic growth by providing entrepreneurs with access to knowledge networks, financial resources, and supportive policies. The authors highlighted that a well-developed ecosystem enhances entrepreneurial productivity and helps small enterprises transition into scalable ventures.

Stam (2015) developed a comprehensive framework of entrepreneurial ecosystems and identified key components such as leadership, knowledge institutions, finance, networks, culture, and support services. According to Stam, the performance of entrepreneurial ventures is largely influenced by how effectively these ecosystem elements interact with each other. The study emphasized that supportive ecosystems create an environment where entrepreneurs can access mentorship, funding opportunities, and technological resources that contribute to business sustainability and innovation.

Nair and Tankha (2015) analyzed the role of Self-Help Groups in promoting micro-enterprise development in India. Their study found that SHGs significantly contribute to financial inclusion and income generation among rural communities, particularly women. However, the authors also pointed out that many SHG enterprises remain small-scale due to limited access to markets, technology, and entrepreneurial training. They suggested

that stronger institutional support systems and innovation-oriented policies are essential for transforming SHG enterprises into sustainable start-ups.

Audretsch and Belitski (2017) explored the relationship between entrepreneurial ecosystems and regional economic development. Their findings suggested that regions with strong entrepreneurial ecosystems tend to experience higher levels of innovation, job creation, and business growth. The study emphasized that government policies, innovation infrastructure, and collaborative networks are critical factors that influence the success of start-ups and entrepreneurial ventures.

Biswas (2021) examined the relationship between female entrepreneurship and innovation in Indian firms. The study revealed that firms with women owners show a higher probability of engaging in innovative activities when they have access to financial resources and supportive institutional environments. The findings suggest that encouraging women's participation in entrepreneurship can significantly contribute to innovation and economic development.

Gupta (2022) investigated the challenges faced by women entrepreneurs in India and highlighted the importance of strengthening the entrepreneurial ecosystem to support women-led enterprises. The study found that limited access to finance, lack of training opportunities, and social barriers continue to hinder women's participation in entrepreneurial activities. However, policy initiatives promoting financial inclusion and entrepreneurship development have gradually improved opportunities for women entrepreneurs in recent years.

Makai and Dőry (2023) examined how institutional environments influence entrepreneurial intentions and start-up development. Their study found that supportive ecosystems—characterized by access to training programs, mentorship, and incubation services—significantly increase individuals' entrepreneurial motivation and capacity to launch new ventures. The authors concluded that institutional support structures are essential for fostering entrepreneurial attitudes and reducing barriers to business creation.

Petrescu and Suciu (2024) analyzed perceptions of entrepreneurship among young entrepreneurs and identified several barriers that discourage individuals from starting businesses. The study highlighted challenges such as lack of resources, cultural biases, and limited access to entrepreneurial support systems. The authors emphasized that strengthening entrepreneurial ecosystems through policy reforms and institutional support can significantly encourage entrepreneurial participation, particularly among women.

Mutesi (2025) explored how participation in Self-Help Groups helps women micro-entrepreneurs access essential resources and opportunities in emerging economies. The research demonstrated that SHGs serve as important platforms for resource sharing, collective learning, and financial empowerment. By facilitating access to credit, training, and social networks, SHGs enable women entrepreneurs to develop micro-enterprises and gradually expand them into sustainable business ventures.

Alva and Thantry (2025) studied the role of SHG-based entrepreneurship in empowering rural women in India. The authors observed that entrepreneurial activities undertaken through SHGs contribute significantly to economic empowerment, poverty reduction, and livelihood generation. However, the study also identified barriers such as limited market access and technological capabilities, suggesting that stronger innovation ecosystems are necessary to support the growth of SHG enterprises.

Recent studies on India's entrepreneurial ecosystem (2025) have emphasized the growing role of government schemes and policy interventions in strengthening entrepreneurial development. These initiatives provide financial incentives, training programs, and infrastructure support that help entrepreneurs launch and scale their ventures. The study highlights that institutional support mechanisms are critical in building a robust innovation ecosystem capable of fostering job creation and economic growth.

Recent research on women entrepreneurship ecosystems (2025) indicates that although women-led enterprises are increasing, challenges such as limited access to finance, mentorship, and institutional networks continue to restrict their growth. The research emphasizes that inclusive entrepreneurial ecosystems that integrate financial inclusion, training, and policy support are essential for enabling women entrepreneurs to build sustainable businesses and contribute to regional development.

2.1 Research Gap

Although a considerable body of literature has examined the role of entrepreneurship and innovation ecosystems in promoting economic development, much of the existing research primarily focuses on urban start-up ecosystems, technology-based entrepreneurship, and formal enterprises. Studies by scholars such as Acs et al. (2014) and Stam (2015) emphasize the importance of institutional support, financial resources, and knowledge networks in fostering entrepreneurial growth. However, these studies largely concentrate on formal entrepreneurial environments and technology-driven innovation systems, with limited attention given to grassroots entrepreneurship emerging from community-based organizations such as Self-Help Groups (SHGs). As a result, the dynamics through which innovation ecosystems support micro-level entrepreneurial initiatives remain relatively underexplored.

Furthermore, several studies have highlighted the role of Self-Help Groups in promoting financial inclusion, poverty alleviation, and women's empowerment, particularly in developing countries. Research conducted by Nair and Tankha (2015) and other scholars indicates that SHGs serve as effective platforms for collective savings, access to credit, and livelihood generation. However, most of these studies primarily examine SHGs from the perspective of microfinance and socio-economic empowerment, rather than analyzing their potential to evolve into entrepreneurial start-ups or scalable business ventures. There is therefore a lack of empirical research investigating how SHG-based enterprises can transition from small-scale livelihood activities into structured entrepreneurial ventures within a supportive innovation ecosystem.

In addition, while recent studies emphasize the growing importance of entrepreneurial ecosystems in fostering innovation and business development, limited research has explored the interaction between innovation ecosystem factors and entrepreneurial performance among SHG-based enterprises, particularly in the regional context of Karnataka. Existing literature rarely integrates key ecosystem components such as financial access, technological infrastructure, mentorship, government support, and market linkages with entrepreneurial orientation and start-up performance indicators. Consequently, there remains a significant research gap in understanding how these ecosystem factors collectively influence the transformation of SHGs into sustainable start-ups. The present study seeks to address this gap by empirically examining the role of the innovation ecosystem in promoting entrepreneurial performance among SHG enterprises in Karnataka.

2.2 Statement of the Problem

The transformation of Self-Help Groups (SHGs) into sustainable entrepreneurial ventures and start-ups has become an important strategy for promoting inclusive economic development and grassroots entrepreneurship in India. Although SHGs have contributed significantly to financial inclusion, women empowerment, and livelihood generation, several structural and institutional challenges still hinder their transition into competitive business enterprises. The following points highlight the key issues that form the basis of the present research problem:

1. Limited Transition from SHGs to Entrepreneurial Start-ups: While SHGs have successfully promoted savings and micro-credit activities among members, only a small proportion of these groups are able to transform their collective economic activities into structured entrepreneurial ventures or start-ups. Many SHGs continue to operate at a subsistence level without expanding into scalable businesses.

2. Inadequate Access to Innovation Ecosystem Support: The growth of entrepreneurial ventures depends significantly on the availability of a supportive innovation ecosystem, including financial institutions, technological infrastructure, mentorship programs, incubation support, and market linkages. However, SHG entrepreneurs often face difficulties in accessing these ecosystem resources.

3. Limited Entrepreneurial Orientation among SHG Members: Entrepreneurial success requires traits such as innovativeness, risk-taking ability, proactiveness, and strategic decision-making. In many cases, SHG members lack exposure to entrepreneurial training and skill development programs that could enhance their entrepreneurial orientation and business capabilities.

4. Weak Market Linkages and Technology Adoption: Many SHG-based enterprises operate within local markets and have limited access to broader market networks. In addition, inadequate adoption of digital technologies and modern production techniques restricts the ability of these enterprises to improve productivity and competitiveness.

5. Gaps in Institutional and Policy Support: Although several government initiatives and livelihood missions aim to promote entrepreneurship among SHG members, the effectiveness of these programs in creating sustainable start-ups remains uncertain. There is a need to evaluate how institutional support mechanisms contribute to the development of entrepreneurial enterprises.

6. Lack of Empirical Studies in the Karnataka Context: Karnataka has emerged as one of India's leading innovation hubs and start-up ecosystems; however, limited empirical research has examined how this ecosystem supports grassroots entrepreneurship among SHG members. Understanding this relationship is essential for designing effective policies that encourage SHG-based entrepreneurship.

In view of these challenges, the present study seeks to examine the role of the innovation ecosystem in promoting entrepreneurial performance and facilitating the transformation of Self-Help Groups into start-ups in Karnataka.

2.3 Objectives of the Study

The present study aims to examine the role of the innovation ecosystem in promoting entrepreneurial performance and facilitating the transformation of Self-Help Groups (SHGs) into start-up enterprises in Karnataka. The specific objectives of the study are as follows:

1. To examine the demographic and socio-economic profile of SHG entrepreneurs in Karnataka.
2. To analyze the level of innovation ecosystem support available to SHG-based enterprises, particularly in terms of financial access, technological infrastructure, government support, mentorship, and market linkages.
3. To assess the entrepreneurial orientation of SHG members, including factors such as innovativeness, risk-taking ability, proactiveness, and autonomy in decision-making.
4. To evaluate the relationship between innovation ecosystem factors and the entrepreneurial performance of SHG-based start-ups.
5. To examine the impact of innovation ecosystem support on the growth and performance of SHG enterprises, particularly with respect to business expansion, revenue generation, employment creation, and market development.
6. To identify the key ecosystem factors that significantly influence the transformation of Self-Help Groups into sustainable start-up ventures in Karnataka.

2.4 Hypotheses of the Study

Based on the objectives of the study and the conceptual framework relating to innovation ecosystems, entrepreneurial orientation, and startup performance, the following hypotheses have been formulated:

Null Hypotheses (H_0)

H_{01}: There is no significant relationship between innovation ecosystem factors and the entrepreneurial performance of SHG-based enterprises in Karnataka.

H_{02}: Access to financial resources does not significantly influence the performance of SHG-based start-ups.

H_{03}: Technological support and digital infrastructure do not significantly affect the growth of SHG enterprises.

H_{04}: Government support and institutional assistance have no significant impact on the entrepreneurial development of SHG members.

H_{05}: Market linkage opportunities do not significantly influence the business expansion of SHG-based enterprises.

H_{06}: Entrepreneurial orientation of SHG members does not significantly influence startup performance.

Alternative Hypotheses (H_1)

H_{11}: There is a significant relationship between innovation ecosystem factors and the entrepreneurial performance of SHG-based enterprises in Karnataka.

H_{12}: Access to financial resources significantly influences the performance of SHG-based start-ups.

H_{13}: Technological support and digital infrastructure significantly affect the growth of SHG enterprises.

H_{14}: Government support and institutional assistance significantly influence the entrepreneurial development of SHG members.

H_{15}: Market linkage opportunities significantly influence the business expansion of SHG-based enterprises.

H_{16}: Entrepreneurial orientation significantly influences the performance of SHG-based start-ups.

3. Research Methodology

Research methodology refers to the systematic framework adopted to conduct the research in an organized and scientific manner. It outlines the procedures and techniques used for collecting, analyzing, and interpreting data in order to achieve the objectives of the study. In the present study titled "From Self-Help Groups to Start-ups: Examining the Role of the Innovation Ecosystem in Promoting Entrepreneurial Performance in Karnataka", an empirical research design has been adopted to examine the relationship between innovation ecosystem factors and entrepreneurial performance among SHG-based enterprises.

3.1 Research Design

The study adopts a descriptive and analytical research design. The descriptive approach is used to understand the demographic characteristics and entrepreneurial background of SHG members, while the analytical approach is employed to examine the relationship between innovation ecosystem factors and entrepreneurial performance. The research also uses quantitative methods to test the formulated hypotheses and to analyze the influence of ecosystem factors on startup development among SHG enterprises.

3.2 Nature of the Study

The present study is empirical in nature, as it is based on primary data collected directly from Self-Help Group entrepreneurs. The empirical approach allows the researcher to measure the impact of innovation ecosystem factors on entrepreneurial performance using statistical tools and techniques.

3.3 Area of the Study

The geographical scope of the study is limited to the state of Karnataka, India. Karnataka has been selected as the study area because it has a well-developed entrepreneurial environment and several initiatives aimed at promoting SHG-based entrepreneurship and micro-enterprises through programs such as the Karnataka State Rural Livelihood Mission (KSRLM) and various government entrepreneurship development schemes.

3.4 Sources of Data

The study is based on both primary data and secondary data.

Primary Data: Primary data were collected directly from SHG entrepreneurs through a structured questionnaire designed to measure variables related to innovation ecosystem support, entrepreneurial orientation, and startup performance.

Secondary Data: Secondary data were collected from various sources such as research journals, government reports, books, official publications, and online databases related to entrepreneurship development, innovation ecosystems, and SHG activities in India.

3.5 Sampling Design

Sampling design refers to the process of selecting a representative group of respondents from the population for the purpose of collecting data.

Population: The population of the study consists of Self-Help Group members engaged in entrepreneurial activities in Karnataka.

Sampling Technique: The study adopts a purposive sampling technique, as respondents were selected based on their involvement in SHG-based entrepreneurial or business activities.

Sample Size: A total of 100 SHG entrepreneurs were selected as respondents for the purpose of primary data collection. This sample size was considered adequate for conducting statistical analyses such as correlation, regression, and factor analysis.

3.6 Data Collection Instrument

A structured questionnaire was used as the primary tool for data collection. The questionnaire consisted of several sections designed to capture relevant information related to the study variables.

The questionnaire included the following sections:

Section A: Demographic information of respondents (age, education, business type, years of SHG membership).
Section B: Innovation ecosystem factors such as access to finance, government support, mentorship, technology support, and market linkages.
Section C: Entrepreneurial orientation dimensions such as innovativeness, risk-taking ability, proactiveness, and autonomy.
Section D: Startup performance indicators including business growth, revenue generation, employment creation, and market expansion.
Most of the responses were measured using a five-point Likert scale, ranging from 1 = Very Low to 5 = Very High.

3.7 Variables of the Study

The study includes both independent variables and dependent variables.

Independent Variables:

- ✓ Access to finance
- ✓ Technology support
- ✓ Government support
- ✓ Mentorship and training
- ✓ Market linkage opportunities
- ✓ Digital infrastructure

These variables represent the innovation ecosystem factors.

Dependent Variable:

Entrepreneurial performance of SHG enterprises (measured through business growth, revenue increase, employment generation, and market expansion).

3.8 Data Analysis Tools

The collected data were analyzed using appropriate statistical techniques to test the research hypotheses and examine the relationships among variables. The following statistical tools were used in the analysis:

- ❒ **Descriptive Statistics:** Used to summarize the demographic characteristics of respondents and basic features of the data.
- ❒ **Weighted Mean Analysis:** Used to rank the importance of innovation ecosystem factors influencing SHG entrepreneurship.
- ❒ **Correlation Analysis:** Used to measure the strength and direction of the relationship between innovation ecosystem variables and startup performance.
- ❒ **Multiple Regression Analysis:** Used to determine the extent to which innovation ecosystem factors influence entrepreneurial performance.
- ❒ **Factor Analysis:** Used to identify the underlying dimensions of innovation ecosystem variables affecting SHG entrepreneurship.
- ❒ **Hypothesis Testing:** Used to test the significance of relationships between variables based on statistical results.

3.9 Reliability of the Instrument

The reliability of the questionnaire was tested using Cronbach's Alpha, which measures the internal consistency of the scale items used in the questionnaire. A Cronbach's Alpha value greater than 0.70 indicates acceptable reliability of the measurement instrument.

3.10 Ethical Considerations

The study was conducted following ethical research practices. Respondents were informed about the purpose of the research, and their participation was voluntary. Confidentiality of the respondents' information was maintained throughout the research process, and the collected data were used solely for academic purposes.

3.11 Limitations of the Methodology

Although the study attempts to provide meaningful insights into the role of innovation ecosystems in promoting SHG-based entrepreneurship, certain limitations may exist. The study is limited to selected SHG entrepreneurs within Karnataka and may not fully represent all regions or sectors. In addition, the findings are based on self-reported data from respondents, which may involve certain subjective biases.

4. Data Analysis and Interpretation

This chapter presents the statistical analysis of the data collected from Self-Help Group (SHG) entrepreneurs in Karnataka. The analysis aims to examine the role of the innovation ecosystem in promoting entrepreneurial performance and the transformation of SHG enterprises into start-ups. The collected data were analyzed using statistical tools such as weighted mean analysis, correlation analysis, regression analysis, and factor analysis.

Table 4.1: Demographic Profile of SHG Entrepreneurs

Sl. No	Variable	Category	Frequency	Percentage (%)
1	Age	Below 30 years	18	18.0
		30–40 years	46	46.0
		41–50 years	26	26.0
		Above 50 years	10	10.0
2	Education	SSLC	22	22.0
		PUC	34	34.0
		Degree	32	32.0
		Postgraduate	12	12.0
3	Years in SHG	Less than 3 years	20	20.0
		3–5 years	38	38.0
		6–10 years	30	30.0
		Above 10 years	12	12.0
4	Business Type	Food Processing	28	28.0
		Handicrafts	22	22.0
		Textile	20	20.0
		Retail	18	18.0
		Agro-based	12	12.0

Source: Primary data collected from SHG entrepreneurs in Karnataka.

Analysis and Interpretation

The demographic profile indicates that 46% of the respondents belong to the 30–40 age group, suggesting that most SHG entrepreneurs are in their economically active and productive stage. In terms of education, 34% of respondents have completed PUC, while 32% hold a degree, indicating a moderate level of educational attainment among SHG members. Regarding SHG experience, 38% have been associated with SHGs for 3–5 years, suggesting that many respondents have sufficient experience in group-based financial and entrepreneurial activities. With respect to enterprise type, food processing enterprises account for the largest share (28%), followed by handicrafts and textiles. This indicates that SHG entrepreneurs are primarily engaged in small-scale manufacturing and livelihood-based activities.

Table 4.2: Weighted Mean Ranking of Innovation Ecosystem Support Factors

Sl. No	Innovation Ecosystem Factors	Weighted Mean	Rank
1	Government support schemes	4.12	I
2	Access to financial assistance	3.98	II
3	Market linkage opportunities	3.76	III
4	Technology and digital infrastructure	3.63	IV
5	Mentorship and training	3.55	V
6	Infrastructure and logistics	3.41	VI

Source: Computed from primary survey data.

Analysis and Interpretation

The weighted mean analysis reveals that government support schemes received the highest score (4.12), indicating that policy initiatives and institutional support programs play a crucial role in facilitating SHG entrepreneurship. Access to financial assistance (3.98) is ranked second, highlighting the importance of credit facilities and financial inclusion in supporting entrepreneurial ventures. Market linkage opportunities (3.76) and technology infrastructure (3.63) are also important factors influencing business growth among SHG enterprises. Mentorship and infrastructure received comparatively lower scores, suggesting that these areas require further improvement to strengthen the innovation ecosystem. The findings suggest that institutional and financial ecosystem factors significantly contribute to the development of SHG-based enterprises, supporting the proposition that innovation ecosystems play an important role in entrepreneurial performance.

Table 4.3: Correlation Matrix between Innovation Ecosystem Factors and Startup Performance

Variables	Access to Finance	Technology Support	Market Linkages	Government Support	Startup Performance
Access to Finance	1.000	0.482	0.514	0.465	0.621
Technology Support	0.482	1.000	0.438	0.402	0.577
Market Linkages	0.514	0.438	1.000	0.497	0.642
Government Support	0.465	0.402	0.497	1.000	0.598
Startup Performance	0.621	0.577	0.642	0.598	1.000

Source: Computed from primary data using correlation analysis.

Analysis and Interpretation

The correlation analysis shows a positive relationship between innovation ecosystem variables and startup performance among SHG enterprises. Access to finance (0.621) and market linkages (0.642) exhibit relatively strong correlations with startup performance, indicating that financial availability and market access are key determinants of business growth. Technology support (0.577) and government support (0.598) also show moderate positive relationships with entrepreneurial performance. These findings indicate that improvements in ecosystem support can enhance business performance among SHG entrepreneurs. Since the correlation coefficients indicate statistically meaningful relationships between innovation ecosystem factors and entrepreneurial performance, the null hypothesis (H_{01}) stating that there is no significant relationship between innovation ecosystem factors and entrepreneurial performance is rejected, and the alternative hypothesis (H_{11}) is accepted.

Table 4.4: Multiple Regression Analysis: Impact of Innovation Ecosystem on Startup Performance

Dependent Variable: Startup Performance

Independent Variables	Beta Coefficient	t-value	Significance (p-value)
Access to Finance	0.312	3.84	0.001
Technology Support	0.248	2.96	0.004
Market Linkages	0.336	4.12	0.000
Government Support	0.287	3.41	0.002

Model Summary

R	R^2	Adjusted R^2	F-value	Significance
0.71	0.504	0.482	22.41	0.000

Source: Computed using regression analysis from primary survey data.

Analysis and Interpretation

The regression analysis indicates that the model is statistically significant with an F-value of 22.41 ($p < 0.05$). The coefficient of determination ($R^2 = 0.504$) suggests that approximately 50.4% of the variation in startup performance is explained by innovation ecosystem factors included in the model. Among the independent variables, market linkages ($\beta = 0.336$) show the highest influence on startup performance, followed by access to finance ($\beta = 0.312$) and government support ($\beta = 0.287$). Technology support also demonstrates a positive impact on entrepreneurial performance. The significance values for all variables are below 0.05, indicating that innovation ecosystem factors significantly influence startup performance. Therefore, the null hypotheses (H_{02}, H_{03}, H_{04}, and H_{05}) are rejected, and the alternative hypotheses (H_{12}, H_{13}, H_{14}, and H_{15}) are accepted.

Table 4.5: KMO and Bartlett's Test of Sampling Adequacy

Test	Value
Kaiser-Meyer-Olkin (KMO)	0.782
Bartlett's Test Chi-square	356.421
Degrees of Freedom	15
Significance	0.000

Source: Computed from primary survey data using factor analysis.

Analysis and Interpretation

The KMO value of 0.782 indicates that the sample size is adequate for conducting factor analysis. Bartlett's Test of Sphericity is statistically significant ($p < 0.05$), suggesting that the variables are sufficiently correlated for factor extraction. Therefore, factor analysis is considered appropriate for identifying the underlying dimensions of the innovation ecosystem influencing SHG entrepreneurship.

Table 4.6: Rotated Component Matrix of Innovation Ecosystem Factors

Variables	Factor 1: Institutional Support	Factor 2: Entrepreneurial Infrastructure
Access to finance	0.812	0.324
Government support schemes	0.846	0.287
Mentorship and training	0.774	0.402
Technology support	0.312	0.796
Digital infrastructure	0.345	0.821
Market linkages	0.498	0.742

Extraction Method: Principal Component Analysis

Rotation Method: Varimax

Source: Computed from primary data.

Analysis and Interpretation

The factor analysis identifies two major components influencing SHG entrepreneurship. The first factor, Institutional Support, includes access to finance, government support schemes, and mentorship programs. The second factor, Entrepreneurial Infrastructure, includes technology support, digital infrastructure, and market linkages. These factors represent the core components of the innovation ecosystem that facilitate the transformation of SHG enterprises into start-ups. The results indicate that both institutional and infrastructure support mechanisms play an important role in improving entrepreneurial performance.

5. Major Findings of the Study

Based on the statistical analysis conducted using descriptive statistics, weighted mean analysis, correlation analysis, regression analysis, and factor analysis, the following key findings were derived from the study on the role of the innovation ecosystem in promoting entrepreneurial performance among SHG-based enterprises in Karnataka.

1. Majority of SHG Entrepreneurs Belong to the Productive Age Group: The demographic analysis shows that 46% of respondents fall within the 30–40 years age group, followed by 26% in the 41–50 years category, indicating that most SHG entrepreneurs are in their economically productive stage. This suggests that SHGs provide an important platform for entrepreneurial engagement among individuals in their prime working years.

2. Educational Background Indicates Moderate Entrepreneurial Capability: The study reveals that 34% of respondents have completed PUC and 32% possess undergraduate degrees, while 22% have SSLC-level education. This moderate educational profile indicates that SHG members have basic literacy and managerial capacity necessary for small business operations, although additional training and skill development programs may further enhance their entrepreneurial competence.

3. SHG Enterprises are Predominantly Concentrated in Small-Scale Sectors: The data indicate that 28% of respondents are engaged in food processing enterprises, followed by 22% in handicrafts and 20% in textile-related businesses. These sectors are typically characterized by low capital requirements and community-based production activities, making them suitable for SHG entrepreneurship.

4. Government Support Emerged as the Most Influential Innovation Ecosystem Factor: The weighted mean analysis shows that government support schemes received the highest weighted mean score of 4.12, followed by access to financial assistance with a score of 3.98 and market linkage opportunities with a score of 3.76. This indicates that institutional policies and financial inclusion initiatives play a crucial role in promoting SHG entrepreneurship and business expansion.

5. Innovation Ecosystem Factors Show Positive Correlation with Startup Performance: The correlation analysis demonstrates a moderately strong positive relationship between ecosystem variables and startup performance, with market linkages showing the highest correlation coefficient ($r = 0.642$), followed by access to finance ($r = 0.621$), government support ($r = 0.598$), and technology support ($r = 0.577$). These results confirm that improvements in ecosystem support significantly enhance entrepreneurial performance among SHG enterprises.

6. Innovation Ecosystem Factors Significantly Influence Startup Performance: The multiple regression analysis indicates that the model is statistically significant with an F-value of 22.41 ($p < 0.05$) and an R^2 value of 0.504, suggesting that 50.4% of the variation in startup performance is explained by innovation ecosystem factors. Among the predictors, market linkages ($\beta = 0.336$) and access to finance ($\beta = 0.312$) exert the strongest influence on entrepreneurial performance.

7. Factor Analysis Identified Two Major Dimensions of the Innovation Ecosystem: The factor analysis results show a KMO value of 0.782, confirming sampling adequacy, and Bartlett's Test of Sphericity was significant ($\chi^2 = 356.421$, $p < 0.05$). The rotated component matrix extracted two key factors: Institutional Support (including finance, government schemes, and mentorship) and Entrepreneurial Infrastructure (including technology support, digital infrastructure, and market linkages).

8. Innovation Ecosystem Plays a Critical Role in Transforming SHGs into Start-ups: The combined results of correlation, regression, and factor analyses indicate that institutional support and entrepreneurial infrastructure significantly contribute to the growth and sustainability of SHG-based enterprises, enabling them to expand beyond subsistence-level activities and evolve into entrepreneurial start-up ventures.

6. Suggestions / Policy Implications

Based on the findings of the study, several practical suggestions and policy implications can be proposed to strengthen the innovation ecosystem and enhance the entrepreneurial performance of Self-Help Group (SHG) enterprises in Karnataka. These recommendations aim to facilitate the transformation of SHGs into sustainable start-up ventures and promote inclusive economic development.

1. Strengthening Financial Support Mechanisms for SHG Entrepreneurs: Access to finance was identified as a major determinant of entrepreneurial performance, with a strong correlation with startup performance ($r = 0.621$). Therefore, financial institutions and government agencies should expand micro-credit facilities, provide low-interest loans, and introduce specialized financial products tailored for SHG-based enterprises. Strengthening financial inclusion initiatives will enable SHG members to invest in business expansion, technology adoption, and market development.

2. Enhancing Market Linkages for SHG Enterprises: The study revealed that market linkages have the highest impact on startup performance (β = 0.336). Policymakers should therefore focus on creating stronger market connections for SHG products through e-commerce platforms, digital marketplaces, trade fairs, and cooperative marketing networks. Establishing dedicated marketing channels for SHG enterprises can significantly improve their revenue generation and business sustainability.

3. Promoting Technology Adoption and Digital Empowerment: Technological support and digital infrastructure were found to have a positive influence on entrepreneurial performance (r = 0.577). Government agencies and development organizations should provide training programs on digital literacy, online marketing, and modern production technologies. Encouraging the adoption of digital platforms will help SHG entrepreneurs reach wider markets and improve operational efficiency.

4. Strengthening Government Support and Institutional Programs: The weighted mean analysis indicated that government support schemes received the highest score (4.12) among innovation ecosystem factors. Policymakers should therefore strengthen the implementation of entrepreneurship development programs under initiatives such as rural livelihood missions and startup promotion schemes. Ensuring effective coordination between government departments, financial institutions, and entrepreneurship support organizations can enhance the impact of these initiatives.

5. Establishing Entrepreneurship Training and Mentorship Programs: Although mentorship and training were recognized as important ecosystem components, their weighted mean score (3.55) indicates scope for improvement. Training programs focusing on business management, innovation, product development, and financial planning should be organized regularly for SHG members. Mentorship from experienced entrepreneurs and business experts can help SHG entrepreneurs improve their decision-making and strategic planning capabilities.

6. Developing Local Innovation and Incubation Support Systems: Innovation ecosystems should be strengthened by establishing incubation centers and entrepreneurship support hubs at the district or regional level. These centers can provide SHG entrepreneurs with technical guidance, business incubation support, access to market information, and networking opportunities with investors and industry partners.

7. Encouraging Collaboration between SHGs and Entrepreneurial Institutions: Collaboration between SHGs, academic institutions, industry organizations, and entrepreneurship development centers can facilitate knowledge transfer and innovation. Universities and business schools can play an important role in providing research-based insights, training programs, and business development services to SHG entrepreneurs.

8. Promoting Women Entrepreneurship and Inclusive Economic Development: Since a large proportion of SHG members are women, policies should focus on promoting women-led enterprises through targeted training programs, financial incentives, and market access initiatives. Strengthening women entrepreneurship can contribute significantly to employment generation, poverty reduction, and sustainable economic development in rural and semi-urban regions.

7. Conclusion

The present study examined the role of the innovation ecosystem in promoting entrepreneurial performance and facilitating the transformation of Self-Help Groups (SHGs) into start-ups in Karnataka. The findings of the study highlight that SHGs have evolved beyond their traditional role as microfinance and savings groups and are increasingly emerging as platforms for grassroots entrepreneurship. The demographic analysis indicated that most SHG entrepreneurs belong to the economically productive age group and possess moderate educational qualifications, enabling them to engage in entrepreneurial activities. The study also found that SHG enterprises are predominantly concentrated in small-scale sectors such as food processing, handicrafts, textiles, and retail businesses, which are suitable for community-based entrepreneurial initiatives.

The statistical analysis revealed that innovation ecosystem factors play a significant role in enhancing entrepreneurial performance among SHG enterprises. The weighted mean analysis showed that government support schemes and financial access are among the most influential ecosystem components. Correlation analysis further demonstrated a positive relationship between innovation ecosystem variables and startup performance, particularly with respect to market linkages and access to finance. The regression results indicated that innovation ecosystem factors explain a substantial portion of the variation in entrepreneurial performance,

confirming that institutional support, technological infrastructure, and market connectivity are essential for the growth and sustainability of SHG-based enterprises.

Overall, the study emphasizes that a well-developed innovation ecosystem is crucial for enabling SHG entrepreneurs to move beyond subsistence-level activities and establish sustainable start-up ventures. Strengthening financial inclusion, improving market access, promoting digital and technological adoption, and providing entrepreneurship training can significantly enhance the entrepreneurial capabilities of SHG members. By fostering a supportive environment for grassroots entrepreneurship, policymakers and development institutions can harness the potential of SHGs to promote inclusive economic development, generate employment opportunities, and contribute to regional economic growth in Karnataka.

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