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July – Aug – 2026**

**KLE SOCIETY'S
SHRI MRITYUNJAYA COLLEGE OF ARTS AND COMMERCE,
DHARWAD**

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**KLE SOCIETY'S
SHRI MRITYUNJAYA COLLEGE OF ARTS AND COMMERCE,
DHARWAD**
Accredited with A⁺ Grade by NAAC at 4th Cycle
IQAC Initiative



**Commerce Association and Department of Economics
Jointly organized
One Day International Seminar
on
*Entrepreneur Skill Development for Viksit Bharat:
Empowering Innovation and Growth***
Date: 22nd August, 2026 (Saturday)

Venue: Auditorium, KLE Shri Mrityunjaya College of Arts and
Commerce, Dharwad
Time: 10:00 AM onwards
Level: International Level
Mode: Hybrid (Offline & Online)

PATRONAGE

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Objectives of the Seminar

- To understand the entrepreneurial mindset and innovation process.
- To develop a business plan and pitch.
- To identify potential funding sources and investment opportunities.
- To learn effective marketing and sales strategies.
- To understand the importance of Intellectual Property Rights.
- To develop skills in design thinking, prototyping and testing.
- To build a network of contacts and potential partners.

Programme Agenda 22nd August, 2026

Inaugurator

Mr. Ashok S. Naik

Author, Educator, Software Engineer, Fiserv, Omaha, Nebraska, USA

Key note Speaker

Prof. (Ms) Debalina Chakravarty

Assistant Professor, Humanities, Economics, Arts and Rural Technologies (HEART)

Faculty In-Charge Entrepreneurship, Incubation and Outreach

Indian Institute of Technology, Dharwad

Chief Guest

Mr. Shashank Angadi

Director, Global Minds Limited, UK

Mr. Gavin Diaper

An Educational Leader, Entrepreneur

Director, Global Minds, UK

Guest of Honour

C.A. Dr. N. A. Charantimath

Hon. Chairman

KES IEMS - B School, Hubballi

President

Dr. V. I. Patil

Member, Board of Management, KLE Society, Belagavi &

Chairman's Nominee, Local Governing Body, SMCD

Principal

Dr. Neelakka C. Patil

Sub Themes

1. Business Planning and Strategy

- Market Research & Analysis in Entrepreneurial Skill Development
- Business Plan Development in Entrepreneurial Skill
- Financial Planning & Budgeting in Entrepreneurship

2. Innovation & Technology

- Digital Transformation in Entrepreneurial Skill
- Emerging Technologies (AI, IoT, Block Chain) in Entrepreneurial Skill
- Intellectual Property Rights in Entrepreneurial Skill Development
- Innovative Management in Entrepreneurial Skill Development

3. Entrepreneur Mindset & Leadership

- Growth Mindset in Entrepreneurial Skill Development
- Risk taking & Resilience in Entrepreneurial Skill Development
- Networking & Relationship Building in Entrepreneurial Skill Development

4. Funding and Financing

- Venture Capital & Angel Investing in Entrepreneurial Development
- Crowd Funding in Entrepreneurial Development
- Govt grants & loans in Entrepreneurial Development
- Bootstrapping in Entrepreneurial Development

5. Entrepreneurship Eco-System

- Entrepreneurial Education & Training in Entrepreneurial Skill Development
- Entrepreneurial Culture mindset in Entrepreneurial Skill Development

6. Specific Industries and Niches

- Social Entrepreneurship
- Green Entrepreneurship
- Technology Startups
- Retail & e-Commerce
- Entrepreneurial Competencies and Industries 5.0

7. Challenges & Opportunities

- Global Economic trends in Entrepreneurship
- Sustainability and Responsibility in Entrepreneurship
- Ethical Considerations in Entrepreneurship
- Work life Balance in Entrepreneurship
- Design Thinking and Problem-Solving Frameworks in Entrepreneurship

8. Women Entrepreneurship

- Networking and Collaboration: Strategies for Women Entrepreneurs.
- Women in Stem Entrepreneurship: Opportunities and Challenges in Science, Technology, Engineering and Mathematics Field.
- Artificial Intelligence and Women Entrepreneurship: Opportunities and Challenges.
- Role of Women Entrepreneurship in the Economic Development.

9. Rural Entrepreneurship

- Rural E-Commerce: Changing logistics and marketing challenges.
- Digital Skills for Rural Entrepreneurs.
- Challenges faced by rural street vendors.
- The role of entrepreneurship in rural Community Development.
- Rural Entrepreneurship: Unlocking Economic Potential

10. Economic Perception

- Inclusive Economic Development through Entrepreneurship
- India's Economic Rise: Role of Startups and MSMEs
- Entrepreneurship and Job Creation
- Policy Frameworks for Entrepreneurial Growth
- Economic Empowerment through Entrepreneurship
- Sustainable Development Goals and Entrepreneurial Innovation
- Agriculture and Viksit Bharat
- India's journey towards self-reliance and development by 2047.

About the KLE Society

The K.L.E Society was established on 13th November, 1916 by selfless and dedicated services of seven teachers revered as the 'Saptarishis'. They had the vision and foresight for the upliftment of the downtrodden and the illiterate. Their efforts were further nourished and nurtured by the founder members. The doctrine of the society lays special emphasis on the principles of Truth, Love, Service and Sacrifice. The KLE Society celebrated its centenary year in 2016. Ours is a multifaceted organization with more than 318 institutions all over the country imparting quality and value-based education in Science, Arts, Commerce, Medical, Engineering, Law, Management, and Education etc. The KLE Society has achieved horizontal and vertical growth under the dynamic leadership of Padma Shri Dr. Prabhakar B. Kore, who has placed the KLE Society on the global map. At present our society is well equipped to meet any global challenges.

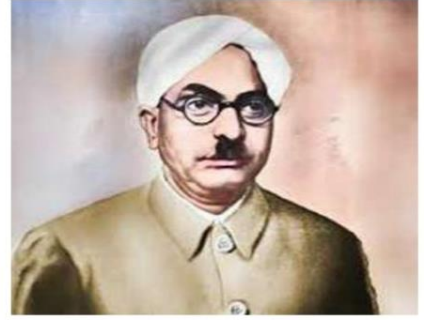
About the Institution

The K.L.E Society's Shri Mrityunjaya College of Arts and Commerce, Dharwad was established in the year 1973 as an independent Commerce College by his Holiness Shri Mahant Swamiji of Murughamath, Dharwad. The College is named after a great saint and reformer Shri Manniranjana Mrityunjaya Mahaswamiji, the founder Swamiji of Murughamath, Dharwad. The college was handed over to the K.L.E Society, Belgaum in April 1975. In the same year Arts programme was started. During 2018 Post Graduate Studies in Commerce was introduced. The college offers two UG programmes namely B. A and B. Com and one PG programme in Commerce. The college is affiliated to Karnatak University Dharwad since 1993 and our college came under the fold of UGC 2 (f) and 12(b) since 1994. The college is imparting meaningful and value-based education, moulding students, producing successful graduates and responsible citizens. The Institution accredited with A+ Grade with a CGPA of 3.26 by NAAC at 4th Cycle in June, 2022.

SAPTARISHIS OF K.L.E. SOCIETY



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Prof. S. S. Basavnal



Shri. B. B. Mamdapur



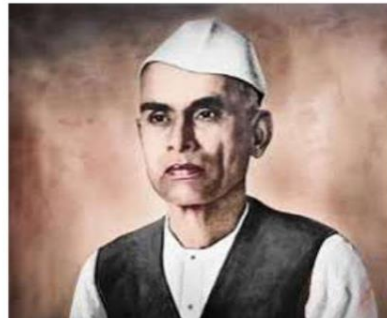
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Prof. P. R. Chikodi



Sardar V. V. Patil



Shri Amit P. Kore

Chairman

Board of Management,

KLE Society

Belagavi, Karnataka, India

Message

It is a matter of great pride and pleasure that, KLE Society's Shri Mrityunjaya College of Arts and Commerce is hosting this International Seminar on Entrepreneur Skill Development for Viksit Bharat: Empowering Innovation and Growth on 22nd August, 2026 and publishing a collection of scholarly papers contributed by eminent academicians, researchers and scholars.

Higher Educational Institutions are not merely the pursuit of Knowledge, but also the continuous exploration of new ideas and perspectives that contribute to the progress of the nation. This Seminar encourages intellectual exchange, promote research and create opportunities for meaningful collaboration across discipline and Institutions

I Commend the dedication and efforts of the organizing committee, faculty members, authors, reviewers and all those who have contributed to the successful realization of this academic initiative. I am confident that this publication will serve as the valuable source of knowledge and encourage further research and academic engagement.

I extend my warm congratulations and best wishes to everyone associated with this International Seminar and wish this scholarly endeavour great success.

Date: 22-08-2026

Shri Amit P. Kore

Chairman

Board of Management

KLE Society, Belagavi



Dr. V. I. Patil

Member, Board of Management
KLE Society, Belagavi, Karnataka, India
Chairmans Nominee Local Governing Body,
Shri Mrityunjaya College of Arts and
Commerce, Dharwad

Message

It gives an immense pleasure to extend my warm greetings on the occasions of this International Seminar on “Entrepreneur Skill Development for Viksit Bharat: Empowering Innovation and growth” on 22nd August, 2026 and the release of the scholarly ISSN Journal.

The theme of the conference is most significant to realize the dream of Viksit Bharat. In today’s fast- paced, ever evolving business landscape, innovation is the spark that ignites entrepreneurial success.

The vision of Viksit Bharat represents our collective aspiration for progressive, self-reliant, inclusive and knowledge driven nation. Education and research have a vital role in transforming this vision into reality. Our institutions not only impart knowledge but also encourage critical thinking, innovation, social responsibility & a strong commitment towards nation building.

This International Seminar provides a meaningful platform for academicians, researches, students to exchange perspectives & contribute ideas towards India’s development journey. May this collective academic effort contribute in its own meaningful way towards the realization of Viksit Bharat.

I congratulate the Principal Dr. Neelakka C. Patil, organizers, faculty members, authors and everyone associated with the seminar and this publication.

The college is moving towards the heights of education & serving the society with quality education. I wish such endeavors happen in future too.

Date: 22-08-2026

Dr. V. I. Patil

Member, Board of Management
KLE Society, Belagavi

Inaugurator:**Ashok S. Naik**

Author, Educator, Software Engineer, Fiserv,
Omaha, Nebraska, USA

Inaugural Address

It gives me immense pleasure and honour to address you on the occasion of the International Seminar on “Entrepreneurial Skill Development for Viksit Bharat: Empowering Innovation and Inclusive Growth.” Although I am joining you virtually from Omaha, Nebraska, USA, I am proud to reconnect with my alma mater, KLE Society’s Shri Mrityunjaya College of Arts and Commerce, Dharwad.

The theme of this seminar is highly relevant to India’s journey towards Viksit Bharat 2047. Entrepreneurship is not merely about starting a business; it is a mindset based on innovation, creativity, resilience, adaptability, ethical leadership, and problem-solving. In today’s rapidly changing world, Artificial Intelligence, digital technologies, globalization, and technological innovation are transforming economies and industries. However, meaningful innovation requires human vision, courage, determination, and creativity.

Educational institutions have a crucial role in developing entrepreneurial skills among young people. Colleges and universities should promote innovation, incubation facilities, industry partnerships, experiential learning, multidisciplinary research, and startup support. Students should be encouraged not only to become job seekers but also job creators, innovators, and responsible leaders. Skills such as financial literacy, digital competence, communication, leadership, business planning, and problem-solving can help transform ideas into sustainable enterprises.

I am particularly pleased that this seminar emphasizes women entrepreneurship, rural entrepreneurship, social innovation, and sustainable development. Entrepreneurship should create value not only through profit but also through employment, social development, and inclusive growth.

My dear students, India is moving from being a consumer of technology to becoming a creator of innovation. The future entrepreneurs and innovators of India are among you. Do not fear failure; learn from it and move forward. Dream big, start small, and act now.

I congratulate the management, Principal, organizing committee, IQAC, faculty members, researchers, and student volunteers for organizing this meaningful seminar. May it generate new ideas, collaborations, and opportunities contributing to Viksit Bharat 2047.

With great pleasure, I declare this International Seminar open and wish everyone a productive and successful academic experience.

Date: 22-08-2026

Ashok S. Naik

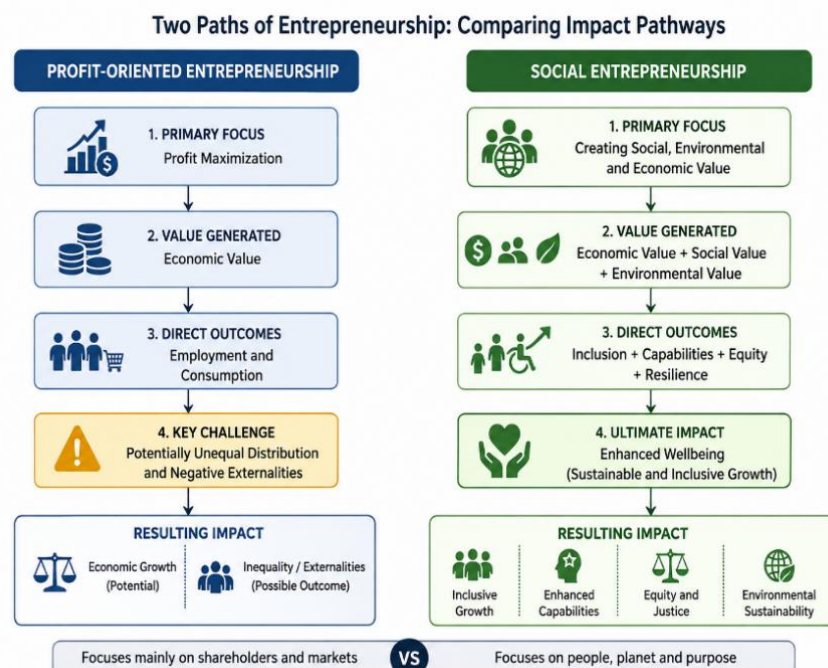
Keynote Address
Rethinking Entrepreneurship:
From Profit Maximisation to Social Value and Wellbeing

Debalina Chakravarty
Indian Institute of Technology Dharwad

Social entrepreneurship has emerged as an important form of entrepreneurship that extends the conventional objective of private value creation towards the generation of social and environmental value. Although there is no universally accepted definition, social entrepreneurship is broadly understood as an entrepreneurial process in which individuals or organisations identify and exploit opportunities to create social value through innovation, risk-taking and the mobilisation of scarce resources (Mair & Martí, 2006; Austin *et al.*, 2006). Its distinguishing characteristics include a primacy of social mission, opportunity recognition, innovation, resourcefulness, risk-taking, stakeholder orientation and the pursuit of financial sustainability rather than profit maximisation alone (Peredo & McLean, 2006; Dacin *et al.*, 2011). Importantly, social entrepreneurship should not be equated simply with non-profit activity or philanthropy, since social enterprises may operate through for-profit, non-profit or hybrid organisational forms and can employ market mechanisms to address social problems (Austin *et al.*, 2006). It therefore represents a broader conception of entrepreneurial value creation in which economic, social and environmental objectives can be pursued simultaneously. A narrow emphasis on profit maximisation may not adequately address situations characterised by market failures, information asymmetries, exclusion and the under-provision of socially valuable goods and services. The social entrepreneurship can potentially respond to these gaps by combining entrepreneurial innovation with explicit welfare objectives in a world characterised by persistent poverty and inequality, climate change, resource constraints, technological disruption and gaps in the provision of essential services. In this sense, it can contribute to a transition from profit-maximising entrepreneurship towards welfare- and wellbeing-enhancing entrepreneurship, where success is evaluated not only through financial performance but also through improvements in capabilities, livelihoods, inclusion, health, energy access, environmental sustainability and quality of life.

The Indian experience provides several illustrative examples. Amul offers a compelling Indian example of social entrepreneurship through the cooperative model. Established in 1946, the Amul movement transformed dairy farming by enabling small milk producers to collectively own and manage the value chain, thereby reducing dependence on intermediaries and strengthening their bargaining power. Its success lies in combining market-based enterprise, professional management and collective ownership to generate both economic and social value. The model has improved rural livelihoods, expanded market access, supported producer empowerment and contributed to India's *White Revolution*. Amul thus demonstrates that entrepreneurship need not be driven solely by individual profit maximisation. It can also be organised around shared value creation, equitable distribution and collective wellbeing. In this sense, Amul represents a shift from entrepreneurship as private wealth creation towards entrepreneurship as a vehicle for inclusive and welfare-enhancing development.

The project *Khwaab Gaon* in Jhargram, West Bengal, offers another compelling example of social entrepreneurship through art and cultural heritage. Since 2012, artist Mrinal Mondal and Chalchitra Academy have worked with the Lodha community to transform the village, formerly known as Lalbazar, into a participatory art space that connects indigenous communities with urban artists, students and wider audiences. The initiative combines artistic education, cultural preservation and livelihood creation. Regular workshops in painting, sculpture, Kantha embroidery and wooden craft, together with murals and collaborations with traditional artists, have created opportunities for skill development, community participation and cultural exchange. The project's social-enterprise potential lies in converting indigenous artistic knowledge into economically valuable products and experiences while retaining cultural ownership and identity. The accompanying socio-economic study finds that wooden-craft (locally named as *Katum-Kutum*) has provided an alternative livelihood for Lodha households, increased annual income, reduced dependence on physically demanding agricultural and daily-wage work, and facilitated the transmission of traditional skills across generations. The project proposal similarly envisages value-added craft products for urban markets, local fairs and eco-tourism, alongside the transformation of the village into an open art gallery. Thus, *Khwaab Gaon* illustrates a form of wellbeing-oriented entrepreneurship in which art becomes a means of livelihood diversification, cultural preservation, social inclusion and community empowerment, rather than merely a commodity for profit. Its experience also demonstrates the limits of such initiatives such as seasonal tourism, limited resources, inadequate access to equipment and internal community conflicts constrain the sustainability and scalability of the craft enterprise.



Source: Authors

Why social entrepreneurship matters for Viksit Bharat?

The conventional capitalist model has generated substantial innovation, productivity and economic growth, but its dominant emphasis on private returns, efficiency and profit maximisation does not automatically ensure equitable distribution of opportunities, environmental sustainability or improvements in human wellbeing. Economic growth can coexist with poverty, inequality, exclusion

and ecological degradation when social and environmental costs are externalised. This creates a need to rethink the purpose of economic activity, not necessarily by rejecting markets, but by asking what markets are for, whom they serve, and how the value they create is distributed.

Social entrepreneurship is important in this context because it introduces social purpose into the entrepreneurial process itself. Rather than treating social benefits as an incidental outcome of economic activity or leaving redistribution entirely to the state, social enterprises attempt to embed social and environmental objectives within production, innovation and exchange. In this sense, they can occupy an important space between the state, the market and civil society, addressing needs that are inadequately served by either conventional markets or public provision (Austin *et al.*, 2006; Mair & Martí, 2006).

The significance becomes even greater when development is understood in terms of capabilities and human wellbeing rather than income alone. Sen's (1999) capability approach, for example, conceptualises development as the expansion of people's substantive freedoms and capabilities. From this perspective, an enterprise providing affordable clean energy is not merely selling electricity. It may expand capabilities by improving health, reducing women's unpaid labour, enabling children's education, increasing livelihood opportunities and strengthening resilience. Similarly, affordable healthcare, financial inclusion, sustainable agriculture or accessible transportation can generate value that extends well beyond the market price of the product or service.

Social entrepreneurship can therefore contribute to a transition from “value extraction” towards “value creation and distribution”, particularly when it deliberately incorporates principles of equity, inclusion, environmental sustainability, participation and intergenerational justice. This does not mean that every social enterprise is inherently equitable. Social entrepreneurship itself can reproduce inequalities if social missions are weak, impact is poorly measured, workers are exploited, or enterprises become overly commercialised. Nevertheless, the potential of social entrepreneurship to generate welfare outcomes is constrained by significant challenges, including limited access to patient and appropriate finance, difficulties in balancing social objectives with financial viability, regulatory uncertainty, shortage of entrepreneurial and managerial capabilities, weak impact-measurement systems, limited market access and the difficulty of scaling locally embedded solutions without compromising their social mission. In India, the absence of a dedicated and coherent regulatory framework for social entrepreneurship has also been identified as an institutional challenge (Jha, 2025). This is why governance, accountability, participation and distribution of benefits are crucial. A social enterprise should therefore be assessed not simply by whether it calls itself “social,” but by who benefits, who bears the costs, whose needs are prioritised, and whether the enterprise expands people's capabilities and agency.

How Can India Harness Social Entrepreneurship for Inclusive and Sustainable Development?

Japan's One Village One Product (OVOP) model provides a useful framework for social entrepreneurship in India by linking local resources, community capabilities and market-oriented value creation. Rooted in endogenous development, OVOP promotes locally distinctive products through self-reliance, creativity and human-resource development, thereby combining economic opportunity with community empowerment (Mukai & Fujikura, 2015). An Indian adaptation could similarly enable villages to build social enterprises around indigenous crafts, traditional knowledge,

agro-products and forest-based resources, with collective ownership, value addition, branding and access to wider markets. Such a model would shift rural communities from being passive beneficiaries to active entrepreneurs, while generating livelihoods and preserving cultural and ecological assets. However, evidence from international adaptations suggests that OVOP is most effective when community initiative remains central, rather than becoming a government-led product promotion scheme (Mukai & Fujikura, 2015). Thus, social entrepreneurship should be understood not merely as an alternative business model but as a potentially transformative approach to entrepreneurship in which markets, innovation and enterprise are mobilised to address unmet social and environmental needs and to enhance broader human wellbeing.

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CA Dr. N A Charantimath

Shri Mrityunjaya College of Arts & Commerce.

President, Alumni Association, Dharwad.

MESSAGE

KLE Society's Shri Mrityunjaya College of Arts & Commerce, Dharwad will be organising One Day International Seminar on Entrepreneur Skill Development for Viksit Bharat -Empowering Innovations and Growth, on 22nd August 2026. The idea of organising One Day International Seminar on the main theme as well as sub themes as identified are truly well deserved in the present context. The Hon'ble Prime Minister of India announced Developed Country-India by 2047 in recognition of 100th year of Independence of India. The big objective of the Hon'ble Prime Minister in achieving the status of Viksit Bharath 2047 is opening lot of opportunities in the field of Skill Development, Entrepreneurship especially start-up initiatives, in order to motivate Young India for creating higher value chain for Indian Economy. The seminar is touching upon sub-themes like Business Planning, Strategy Innovation and Technology Entrepreneur might set a leadership in addition to highlighting challenges and opportunities for the overall Developed Economy status by 2047.

In the present context, India would not become a Developed Nation by 2047 unless transformational changes happen in Administrative, Business Institutional and Professional Leadership. In fact, there must be a journey to bridge wide gap between the policy frame work and performance driven approach in real time in India. The Young India must ensure converting strategies into action as India is offering Large Domestic Market, Expanding Digital Economy, Growing Entrepreneurial base especially start-up eco-system and increased influence in the global affairs. The demographic dividend would get multiplies provided grate transformation do happen in implementing technology results of innovation to the people at the last mile with all sincerity. In the current stage Indian Economy is not only a Bright Star, the global economy but also full of resources including right and multi-tasking talent of youth of India.

It is the need of the hour to create awareness on the Viksit Bharat by 2047 and its benefits especially for the aspiring people of India both in Rural and Urban Areas. In this direction the efforts of the college in organizing One Day International Seminar is highly commended. Through this seminar the participants would know better of Viksit Bharat by 2047 and its responsibilities in uplifting real poor people of India. I am sure that the present one day seminar would open up a frame work for new resolve and convert resources for the people of India. Every citizen of India must feel nations progress as a proud moment from 1947 till date and pledge for creating more and more impact on Developed Economy by 2047.

I wish the conference deliberations meaningful and participative for the benefit of all stakeholders.

CA Dr. N A Charantimath

Shri Mrityunjaya College of Arts & Commerce.

President, Alumni Association, Dharwad.



Dr. Neelakka C. Patil

Principal,
KLE Society's
Shri Mrityunjaya College of Arts and Commerce,
Dharwad

Foreword

I am extremely happy that Commerce Association and the Dept. of Economics of our college are jointly organizing one day International Seminar on “Entrepreneur Skill Development for Viksit Bharat: Empowering Innovation and Growth” on 22nd August, 2026. This academic initiative reflects our institution's commitment to fostering research, intellectual dialogue, innovation & meaningful engagement with issues of national importance.

Entrepreneur skills are vital for promoting innovation, business growth and competitiveness. The ability to transform ideas into viable solutions & create new opportunities is the hallmark of visionary entrepreneurs. Achieving the vision of Viksit Bharat requires the collective participation of every section of society & higher educational institutions have a significant responsibility in preparing knowledgeable, skilled & socially responsible citizens who can contribute to this journey.

I Congratulate the expert speakers, alumni of our college who are staying abroad & in India for participating in this event. I Sincerely appreciate the scholarly contributions of all the authors & acknowledge the dedicated efforts of the organizing committee, faculty members, reviewers and students who have worked tirelessly to make both the seminar & this publication possible.

I am confident that the discussions & debate will significantly contribute to shape policies & strategies that will drive our nation towards achieving its developmental aspirations.

The sharp, clear-sighted vision & precise decision-making powers of our management has benefited our college to be competitive.

I wish the International Seminar great success.

Date: 22-08-2026

Dr. Neelakka C. Patil
Principal

EDITORIAL

It gives us immense pleasure to present the Journal on the Occasion of the One-Day International Seminar on "Entrepreneurial Skill Development for Viksit Bharat: Empowering Innovation and Growth" (Hybrid Mode), jointly organized by the Commerce Association and the Department of Economics, under the IQAC Initiative of KLE Society's Shri SM College of Arts & Commerce in August 2026.

The Journal is the International Journal of Advanced and Applied Research, ISSN 2347-7075, a double-blind, peer-reviewed, international open-access platform.

The Seminar reflects the dynamic and evolving landscape of entrepreneurship and economic development in contemporary India. The diverse range of contributions featured in this volume underscores our commitment to providing a space for rigorous academic inquiry, critical reflection, and innovative perspectives on nation-building.

The present Seminar brings together scholarly papers and expert deliberations that engage with key themes such as startup ecosystems, innovation, digital entrepreneurship, business models, and rural economic transformation. The discussions collectively demonstrate how entrepreneurship serves as both a catalyst and a driving force for achieving Viksit Bharat @2047.

Significantly, this Seminar also highlights the intersections of commerce and economics with contemporary concerns such as technological transformation, the green economy, women empowerment, social entrepreneurship, and inclusive growth.

Another noteworthy feature of this Seminar is its interdisciplinary approach, with papers presented from the fields of commerce, economics, management, and the social sciences. This reflects our commitment to embracing diverse perspectives and promoting scholarly dialogue across academic and industry boundaries. Such inclusivity strengthens our vision of being a truly collaborative and accessible platform for knowledge dissemination and policy dialogue.

We extend our sincere gratitude to all the resource persons, paper presenters, participants, reviewers, and the organizing committee for their valuable contributions. Their collective efforts ensure the academic integrity and practical relevance of this Seminar.

As we present these proceedings, we hope they will stimulate critical thinking, inspire entrepreneurial action, and contribute meaningfully to the ongoing national conversation on economic development. We remain committed to nurturing research excellence and encouraging interdisciplinary exploration in the years to come.

Date: 22-08-2026

Editors

Prof. Sanjana Holimath

Prof. Chetan Sondi

Prof. Nagaraj M. Parvati

Prof. Shashidar Chikkamath

Prof. Shweta Shivaji Rayoji

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Impact of Government Policies and Institutional Support on Social Entrepreneurship in India

Dr. Venkatesh Sali

Asst. Professor of Economics, GFGC Dharwad.

Corresponding Author - Dr. Venkatesh Sali

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Abstract:

Social entrepreneurship combines an explicit social or environmental mission with entrepreneurial methods of innovation, revenue generation and organizational sustainability. In India, such enterprises address gaps in health care, education, agriculture, livelihoods, financial inclusion, waste management, clean energy and other development sectors. This article examines how government policies and institutional support influence the formation, survival and scaling of social enterprises in India. It uses a descriptive and analytical research design based on secondary sources, including policy documents, regulatory circulars, annual reports and published studies available up to August 2026. The review finds that India has created a broad enabling ecosystem through the National Policy for Skill Development and Entrepreneurship, Startup India, the Startup India Seed Fund Scheme, the Fund of Funds for Startups, the Credit Guarantee Scheme for Startups, ASPIRE, Atal Innovation Mission, MUDRA, Stand-Up India, corporate social responsibility provisions, public procurement platforms and the Social Stock Exchange. These interventions improve access to finance, incubation, mentorship, skills, networks, markets and legitimacy. However, their impact on social entrepreneurship is limited by the absence of a unified legal definition, fragmented implementation, urban concentration of support, unsuitable financing instruments and inconsistent impact measurement. The article recommends a national social enterprise policy, mission-aligned accreditation, blended finance, decentralized incubation, outcome-based public procurement and common but proportionate impact-reporting standards. A coordinated approach can enable social enterprises to contribute more effectively to inclusive growth and the Sustainable Development Goals.

Keywords: Social Entrepreneurship, Government Policy, Institutional Support, Social Enterprise, Impact Investment, Social Stock Exchange.

Introduction:

India faces major development challenges, including regional inequality, unemployment, inadequate health care and education, agricultural vulnerability, environmental degradation and exclusion from formal markets. Public Programmes and philanthropy remain essential, but cannot meet every need. Social entrepreneurship has therefore emerged as a complementary approach that applies entrepreneurial innovation and disciplined management to social or environmental problems.

A social enterprise places social value at the center of its purpose while earning income, reinvesting surpluses and using market mechanisms to expand impact. Indian social enterprises operate as private limited or Section 8 companies, cooperatives, producer companies, trusts, societies and hybrids. Their fields include health, education, agriculture, renewable energy, recycling, livelihoods and financial inclusion.

These organizations face a “double bottom line”: measurable impact and financial viability. They often struggle to secure patient

capital, legal recognition, skills, procurement access and credible impact measurement. Government can reduce these barriers through regulation, finance, incubation and market access, while SIDBI, NITI Aayog, banks, incubators, universities and stock exchanges translate policy into support.

India's wider startup ecosystem has grown rapidly. By 31 March 2026, the country had more than 2.23 lakh DPIIT-recognized

startups, which had generated more than 23.36 lakh direct jobs (Press Information Bureau [PIB], 2026b). These figures include all recognised startups and should not be treated as a count of social enterprises. Nevertheless, they demonstrate the scale of the platform from which mission-driven ventures can benefit. This article evaluates how far India's policy and institutional ecosystem addresses their special needs.

Table 1: Startups and jobs spread across the country

Details	FY 2024-25	FY 2025-26
Year-wise no. of entities recognized as startups	36,400+	55,200+
Year-wise no. of direct jobs created by recognized startups	3,66,870+	4,99,400+

Source: PIB, Ministry of Commerce & Industry

Table 1 presents the year-wise growth of DPIIT-recognised startups and the direct employment generated by them in India during FY 2024–25 and FY 2025–26. The number of recognised startups increased from more than 36,400 in FY 2024–25 to more than 55,200 in FY 2025–26. This represents an increase of over 18,800 startups, or approximately 51.65 per cent. The substantial rise indicates the rapid expansion of India's startup ecosystem and growing interest in entrepreneurship.

Similarly, direct employment created by recognised startups increased from more than 3,66,870 jobs in FY 2024–25 to more than 4,99,400 jobs in FY 2025–26. This is an increase of over 1,32,530 direct jobs, representing growth of approximately 36.12 per cent.

Overall, the table demonstrates that recognised startups are making an important contribution to employment generation and economic development. Although the number of startups grew faster than direct employment, both indicators recorded considerable growth during FY 2025–26. The figures include only direct

employment; therefore, the total contribution may be greater when indirect jobs and related economic activities are considered.

Statement of the Problem:

India has many Programmes that support startups, MSMEs, rural livelihoods, women entrepreneurs, innovation and non-profit organizations. Yet most schemes are not designed specifically for social enterprises. Eligibility frequently depends on legal form, technology, collateral, location or growth potential rather than the primacy of social purpose. Consequently, a mission-driven company may access startup incentives but not grants, while a non-profit may receive donations but struggle to obtain growth capital. The central research problem is whether India's dispersed policy framework provides coherent support across the life cycle of a social enterprise and what gaps reduce its developmental impact.

Objectives of the Study:

1. To examine major government policies, schemes and institutional support systems and assess their role in the creation, sustainability and growth of social enterprises in India.
2. To identify the policy, financing and implementation challenges and suggest measures for strengthening social entrepreneurship as an instrument of inclusive and sustainable development.

Research Methodology:

The study follows a descriptive and analytical research design. It is based entirely on secondary data obtained from Government of India policy documents, SEBI circulars, annual reports of NITI Aayog and SIDBI, scheme portals, legislation, Press Information Bureau releases and established academic and sector studies. Sources available up to August 2026 were reviewed thematically under finance, capacity building, regulation, incubation, market access and impact accountability. The analysis is interpretive; it does not claim causal estimates or primary survey results. A major limitation is that official startup and MSME databases generally do not separately classify social enterprises, making precise measurement of sector-specific outcomes difficult.

Conceptual Framework:

Dees (1998) describes social entrepreneurs as change agents who pursue a social mission, recognize opportunities, innovate and remain accountable for outcomes. Mair and Marti (2006) similarly view social entrepreneurship as a process that combines resources in new ways to address social needs and catalyze social change. In this article, a social enterprise is understood as an organization in which social or environmental purpose is primary,

entrepreneurial activity is central to delivery, and financial surplus is mainly used to sustain or expand the mission.

Government support influences such enterprises through five connected channels: enabling regulation, access to finance, entrepreneurial capabilities, infrastructure and networks, and access to markets. The final impact depends not merely on announcing a scheme but on awareness, accessibility, administrative coordination and suitability for different organizational forms.

Government Policy Framework in India:**1. Skill and Entrepreneurship Policy:**

The National Policy for Skill Development and Entrepreneurship, 2015 provides an umbrella framework and recognizes the roles of government, business and community organizations (Ministry of Skill Development and Entrepreneurship [MSDE], 2015). Its attention to social entrepreneurship and grassroots innovation placed mission-driven enterprise within national policy. Entrepreneurship institutes and skill Programmes strengthen capabilities, although training must be followed by finance, mentoring and market access.

2. Startup India and Startup Finance:

Startup India, launched in 2016, provides recognition, compliance facilitation, intellectual-property assistance, mentorship, procurement access and finance. Its Seed Fund Scheme has an outlay of Rs. 945 crores for proof of concept, product trials and commercialization (Startup India, n.d.). By March 2026, 219 incubators had approved more than Rs. 605 crores for over 3,400 startups (PIB, 2026b). The Fund of Funds channels public capital through Alternative Investment Funds, while the Credit Guarantee Scheme reduces lender risk. These instruments assist scalable social ventures, although commercial funds may still prefer faster returns.

3. ASPIRE and Rural Enterprise Development:

The Ministry of MSME's ASPIRE scheme supports Livelihood Business Incubators and related investment mechanisms, especially in agro-rural sectors (Ministry of Micro, Small and Medium Enterprises [MSME], 2023). It aligns closely with social entrepreneurship because rural ventures combine livelihoods, local value addition and community welfare. Incubators provide machinery, technical training, planning and market links, but outcomes depend on local institutional quality and post-incubation support.

4. Atal Innovation Mission and Incubation:

Atal Innovation Mission (AIM) has built infrastructure through Tinkering Labs, Incubation Centers and partnerships. AIM 2.0, allocated Rs. 2,750 crores up to March 2028, seeks more innovators, higher startup success and better jobs, products and services. Its language-inclusive and frontier Programmes are relevant outside major cities (NITI Aayog, 2025). Incubators reduce early-stage risk through mentoring, expertise and networks, but their performance should also be judged by social outcomes.

5. Inclusive Credit and Market Access:

MUDRA and Stand-Up India widen entrepreneurship among groups underserved by formal finance. Stand-Up India facilitates loans of Rs. 10 lakhs to Rs. 1 crore for greenfield enterprises led by women and SC/ST entrepreneurs (PIB, 2025). By April 2026, MUDRA had cumulatively sanctioned more than 57.79 crore microenterprise loans amounting to Rs. 40.07 lakh crore (PIB, 2026a). These

Programmes support inclusive ownership and local employment. Startup Runway on the Government e-Marketplace also offers public-procurement access, which can provide stable demand for socially useful goods and services.

6. Corporate Social Responsibility:

Section 135 and Schedule VII of the Companies Act, 2013 created corporate expenditure for poverty reduction, education, health, gender equality, environmental sustainability and rural development (Government of India, 2013). CSR can support incubation, pilots and capacity building, especially when a solution is not yet commercially investible. However, rules on implementing agencies and project-based funding can limit direct support to for-profit social enterprises and long-term institution building.

7. Social Stock Exchange:

The Social Stock Exchange (SSE) is India's most direct regulatory recognition of social enterprises. It accommodates eligible non-profits and for-profit social enterprises, with Zero Coupon Zero Principal instruments available to eligible non-profits. Eligibility depends on specified activities, underserved target groups and the primacy of social purpose. Disclosures and annual impact reporting strengthen transparency (Securities and Exchange Board of India [SEBI], 2025). An April 2026 circular shows that SEBI continues to refine registration and subscription requirements (SEBI, 2026). The SSE can improve visibility and confidence, but compliance cost, awareness and pipeline readiness remain important.

Summary of Major Policy Instruments:

Policy or institution	Main support	Relevance to social enterprises
Startup India, SISFS, FFS and CGSS	Recognition, seed funding, investment and credit guarantees	Supports innovation and growth across the startup life cycle
ASPIRE and MSME institutions	Rural incubation, skills and livelihood enterprise support	Encourages local employment and agro-rural innovation
Atal Innovation Mission	Incubation, mentoring and innovation networks	Converts ideas into scalable social and technological solutions
MUDRA and Stand-Up India	Inclusive, collateral-free or targeted bank credit	Expands entrepreneurship among women and disadvantaged groups
Companies Act CSR provisions	Corporate funding for eligible social-development activities	Supports pilots, implementation partnerships and capacity building
Social Stock Exchange and SEBI	Fundraising platform, disclosures and impact reporting	Provides legitimacy, transparency and access to mission-oriented capital
Government e-Marketplace	Public procurement and startup market access	Creates demand and reference customers for socially useful innovations

Impact of Policies and Institutional Support:

First, public policy has improved the legitimacy of entrepreneurship as a development tool. Recognition in skill policy and the creation of the SSE show that social value and enterprise methods can coexist, encouraging universities, investors, corporations and civil society to participate.

Second, the ecosystem offers finance at different stages: seed grants validate ideas, incubators reduce costs, banks and guarantees extend credit, venture funds provide equity, CSR finances pilots, and the SSE offers a regulated channel. This diversity matters because social enterprises cannot all rely on conventional equity.

Third, incubators, entrepreneurship institutes, universities and accelerators provide mentoring, financial planning, technology, governance advice and networks. This is particularly valuable to first-generation founders and entrepreneurs outside major cities. The British Council found numerous relevant policies

and a growing support ecosystem (British Council, 2016).

Fourth, rural incubation, microcredit and targeted finance for women and SC/ST entrepreneurs widen ownership. They can generate jobs, income, agency and local leadership. AIM 2.0's vernacular and frontier programmes may further reduce geographic and linguistic barriers.

Fifth, the SSE's governance disclosures and annual impact reports can create a common language of impact. Better evidence directs capital toward effective models and protects the sector from "impact washing."

Finally, market access can reduce grant dependence. In health, sanitation, education and clean technology, public procurement can provide stable demand, pilot opportunities and evidence for wider replication.

Major Challenges:

The first challenge is legal fragmentation. India lacks a common social-enterprise category

across tax, company, startup, MSME and procurement systems. Founders may have to choose between for-profit flexibility and non-profit grant eligibility, creating uncertainty about investment, taxation and mission protection.

Second, schemes are dispersed across ministries. Multiple portals, eligibility rules and reporting formats burden small organisations, while weak coordination prevents smooth progression from training to incubation, finance, procurement and scale.

Third, finance often does not match the economics of social impact. Ventures serving poor or remote communities need patient capital and long repayment periods. Equity demands rapid growth, banks require predictable cash flow, and grants seldom build core capacity. A gap therefore persists between pilot and scale.

Fourth, strong incubators and investor networks remain concentrated in large cities. Rural and vernacular-language founders have less information, mentoring and investor exposure; national schemes may therefore produce unequal outcomes.

Fifth, impact measurement is inconsistent. Small enterprises lack assessment resources, while investors use different indicators. Complex reporting deters participation, but weak reporting reduces trust.

Finally, weak awareness, approval delays, cautious lending and short incubation reduce policy utilisation. Official statistics also fail to isolate social enterprises, preventing rigorous assessment of survival, employment, beneficiary outcomes and regional distribution.

Policy Suggestions:

India should adopt a National Social Enterprise Policy with a functional definition based on primary social purpose, measurable impact and responsible use of surplus. Voluntary accreditation across legal forms should provide

mission protection and links to finance, incubation, procurement and incentives.

A single-window platform should integrate central and state schemes, eligibility guidance, registration, mentor matching and consent-based data sharing among support institutions. It would reduce duplication and generate reliable statistics.

Financing policy should combine grants, guarantees, concessional debt, equity and outcome payments. Dedicated windows within seed funds and public fund-of-funds programmes would ensure that investment reflects social additionality. Lenders should recognise purchase orders and verified outcome payments.

Incubation should be decentralised through universities, colleges, rural development institutions and community organisations. Regional hubs require local-language and sector expertise. Performance should include survival, inclusion, beneficiary outcomes and local employment, not only capital raised.

Public procurement should include social-value criteria, innovation challenges and pilot contracts. Buyers can consider service quality, environmental benefit and inclusion while maintaining transparent competition.

Finally, a tiered measurement framework should require simple indicators from small enterprises and deeper evidence from larger or SSE-listed organisations. Shared tools and capacity grants would improve accountability without excessive cost.

Conclusion:

Government policies and institutional support have substantially improved the environment for social entrepreneurship in India. Startup finance, rural incubation, inclusive credit, innovation networks, CSR, public procurement and the Social Stock Exchange together provide a foundation that did not previously exist. They

have increased legitimacy, widened entrepreneurial participation, supported innovation and created multiple pathways to finance and markets.

However, the ecosystem remains more supportive of entrepreneurship in general than of social enterprise as a distinct field. Fragmented legal forms, uneven implementation, urban concentration, unsuitable finance and inconsistent impact measurement continue to restrict scale. The next stage of policy should therefore move from a collection of relevant schemes to a coordinated social-enterprise strategy. With clear recognition, blended finance, decentralised support, mission-sensitive procurement and credible impact reporting, social enterprises can become stronger partners in inclusive development and contribute meaningfully to India's Sustainable Development Goal commitments.

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Artificial Intelligence in the Indian Banking Sector

Dr. (Smt) Shilpa Danappanavar

Assistant Professor in Commerce,

JSS Banashankari Arts, Commerce and SK Gubbi Science College, Dharwad.

Corresponding Author - Dr. (Smt) Shilpa Danappanavar

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Abstract:

Artificial Intelligence has significantly transformed the Indian banking sector. The banks have been exposed to an accelerated digital revolution over the last several years through internet & mobile banking, digital wallets, self-service banking, Fintech Integration, blockchain technology, cloud computing, E – KYC and virtual financial services. This paper focuses on AI applications in Indian Banking Sector, benefits of AI usage, and challenges faced by banks while implementing AI. The paper finds that, AI has excellent prospects to make Indian banking highly safer, more competent, and customer-oriented; its responsible adoption of traceable algorithms, expert oversight, strong governance framework, and workforce capability enhancement.

Keywords: *Artificial Intelligence, Digital Banking, Financial Inclusion, Cybersecurity.*

Introduction:

Artificial Intelligence has significantly transformed the Indian banking sector. The banks have been exposed to an accelerated digital revolution over the last several years through internet & mobile banking, digital wallets, self-service banking, Fintech Integration, blockchain technology, cloud computing, E – KYC and virtual financial services. As per the Economic Survey Report 2025-26, based on RBI Survey findings, 21 per cent of banks & financial institutions in India are implementing AI-based solutions.

The adoption of AI technology has enhanced productivity, customer service, cost savings, and fraud mitigation, establishing it as a strategic imperative for financial institutions. AI-powered decision-making and personalised financial services have become integral components of modern banking operations.

AI – Applications in Banking Sectors:

Fraud Detection, Cybersecurity, and Transaction Monitoring:

Most of the fraudulent transactions in banks are easily detected by using AI. AI-based systems can identify suspicious transaction patterns, track payment history, and monitor card transactions, online payments, lending-related fraud, and also trace anti-money laundering efforts.

AI is also extensively used for broader risk monitoring and cybersecurity. As financial institutions become more digital, AI helps strengthen defensive systems by detecting threats early and supporting faster intervention.

Credit Scoring and Lending Decisions:

Indian banks and fintech companies are using AI-based credit assessment systems that analyse customers' transaction history, consumption patterns, and alternative data sources to evaluate loan applications more efficiently.

AI can support financial inclusion and improve access to formal credit. However, it also raises important concerns regarding bias, fairness, accountability, and explainability, especially when algorithmic decisions influence access to finance and, ultimately, economic opportunity.

Capital Markets and Investment Services:

AI is used in trading, investment analysis, portfolio management, and market surveillance in India. Earlier studies of the Indian financial ecosystem noted that use of AI-enabled tools in algorithmic trading, rumour detection, market analytics, and digital wealth advisory, indicating that the technology extends well beyond retail banking into capital market operations. Although these applications are less visible to the public than banking chatbots or digital lending platforms, they are highly important because they affect market efficiency, investor behaviour, and regulatory monitoring.

Ethical Implications:

The deployment of AI in banking and finance also raises important ethical concerns that require careful attention. Financial institutions must ensure the responsible use of customer data, maintain transparency in algorithmic decision-making, and establish accountability for automated outcomes. Address these issues, it is essential to develop clear ethical frameworks and guidelines for the design and use of AI systems, thereby promoting a culture of responsible and ethical practice within the sector.

Benefits of AI for the Indian Banking Sector

Enhanced Efficiency:

The adoption of AI technology helps to reduce human error and improve time efficiency by automating routine and manual processes. By taking over repetitive tasks, AI improves operational efficiency and streamlines a wide range of banking activities. As a result, transaction processing, account management, and

data analysis become faster, more accurate, and more reliable.

Improved Decision-Making:

In banking, AI-based systems support more accurate risk assessment, stronger fraud detection, and better investment analysis. These capabilities enable financial institutions to make faster and more informed, data-driven decisions. They also help institutions respond more effectively to customer needs, emerging risks, and changing market conditions.

Cost Reduction:

The operational cost of the bank will be reduced through the use of AI technology. By automating labour-intensive tasks, financial institutions can use resources more efficiently and lower administrative expenses. In addition, AI-supported risk management can help reduce the chances of financial losses, further contributing to cost savings.

Enhanced Customer Experience:

AI-powered customer service tools, especially chatbots, provide quick and personalised support to customers. With 24/7 availability, these systems can answer queries, resolve common problems, and offer relevant recommendations in real time. This not only improves the overall customer experience but also helps build customer trust and loyalty.

Efficient Compliance Management:

AI can also improve compliance governance by automating the monitoring of regulatory requirements and risk indicators. This reduces the time and cost involved in manual compliance processes while helping institutions remain aligned with regulatory standards.

Challenges in the Use of AI in Banking:

1. **Data Privacy and Security:** AI systems manage large volumes of customer data, it leads to increasing the risk of data leaks and cyberattacks.

2. **High Implementation Cost:** Adoption of AI Technology requires a huge investment, infrastructure and skilled professionals.
3. **Lack of Skilled Workforce & Cybersecurity Threats:** Banks often face a shortage of AI experts, data scientists, and cybersecurity professionals. And also, AI systems themselves can become targets of hacking, malware, and adversarial attacks.
4. **Regulatory and Compliance Challenges:** Banks must ensure AI systems comply with financial regulations, data protection laws, and ethical standards.
5. **Integration with Legacy Systems:** Many banks still rely on older IT systems that are difficult to integrate with modern AI technologies.
6. **Customer Trust and Acceptance:** Some customers prefer human interaction and may hesitate to rely on AI-driven banking services.
7. **Job Displacement:** Automation of routine banking tasks may reduce the demand for certain job roles, requiring employee reskilling.
8. **Operational Risks:** Errors in AI algorithms or system failures can disrupt banking operations and lead to financial losses.

Summary and Conclusion:

AI has become an important force in banking, offering benefits such as improved efficiency, lower operational costs, enhanced customer service, better decision-making, and stronger compliance management. It is also being used in key areas such as fraud detection, credit scoring, lending, trading, wealth management, and market surveillance. At the same time, its use in banking raises concerns related to privacy, bias, transparency, cybersecurity, and ethical accountability.

Overall, AI has the potential to transform banking by making financial services faster,

smarter, and more inclusive. However, its successful adoption depends on how well banks manage the associated risks and challenges. A balanced approach that combines technological innovation with strong regulation, human oversight, ethical safeguards, and workforce upskilling is essential to ensure that AI contributes to a secure, fair, and resilient banking system.

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Start-ups and Women in North Karnataka: Problems and Prospects

Ms. Deepa R. Marathi

Faculty of Commerce, Department of Commerce,

Govt. First Grade College Kalaghatagi.

Corresponding Author - Ms. Deepa R. Marathi

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Abstract:

Women-led entrepreneurship in non-metropolitan and tier-2/tier-3 regions represents a vital frontier for inclusive economic growth and regional development. This paper investigates the socio-economic landscape of women-led start-up's in North Karnataka, examining the unique structural impediments they face and the emerging prospects driven by digitalization, regional policy frameworks, and grassroots innovation. Utilizing a mixed-methods approach incorporating secondary socio-economic data and qualitative insights from local enterprise ecosystems, the study identifies critical bottlenecks, including restricted access to formal venture capital, deep-rooted socio-cultural constraints, inadequate incubation infrastructure, and gaps in market linkages. Conversely, the analysis highlights promising growth trajectories in agri-tech, handlooms, artisanal crafts, and digital services, supported by targeted governmental initiatives. The paper concludes with actionable policy recommendations to foster a more resilient, equitable, and vibrant start-up ecosystem in North Karnataka, aligning with broader regional development and national empowerment goals.

Keywords: *Start-ups, Women, North-Karnataka, Problems, Prospect.*

Introduction:

The contemporary global economic landscape is increasingly defined by innovation-led growth, with start-up ecosystems serving as primary catalysts for industrial diversification, employment generation, and technological advancement. While the discourse on entrepreneurship has traditionally concentrated on metropolitan agglomerations and tier-1 tech hubs, a profound structural shift is underway toward tier-2 and tier-3 cities. In developing economies like India, the democratization of digital infrastructure, expanding internet penetration, and targeted regional development policies have created fertile ground for decentralized innovation. However, this transition is far from uniform. Regional disparities persist as a defining structural challenge, particularly in states with

distinct geographical and economic divides, such as Karnataka. Within this paradigm, the intersection of regional entrepreneurship and gender dynamics presents a critical area of academic inquiry and policy intervention. Specifically, examining the ecosystem of women-led start-ups in North Karnataka reveals a complex interplay between systemic socio-economic barriers and emerging grassroots economic opportunities.

North Karnataka—comprising administrative divisions such as Belagavi, Dharwad, Kalaburagi, and Vijayapura—possesses a distinct socio-economic identity historically rooted in agrarian traditions, traditional manufacturing, handlooms, and artisanal crafts. Unlike the southern districts of the state, which rapidly transitioned into global IT and

biotechnology corridors, North Karnataka has experienced a more gradual integration into the modern knowledge economy. This regional asymmetry is compounded by deeply entrenched socio-cultural structures that shape gender roles and economic participation. For women entrepreneurs operating within this semi-urban and rural milieu, enterprise creation is rarely a straightforward economic calculation; rather, it is negotiated through a matrix of familial expectations, restricted physical mobility, limited social capital, and unequal access to institutional resources.

To fully grasp the stakes of women-led entrepreneurship in this region, it is essential to contextualize it within the broader framework of inclusive growth and regional economic theory. Sociological and economic perspectives emphasize that entrepreneurship is fundamentally an embedded social process. Theories of economic sociology, drawing from the works of institutionalists and interactionists, posit that firm creation and survival depend heavily on the institutional environment, resource networks, and normative structures of the society in which they are embedded. In patriarchal or transitional societies, these structures frequently operate to the disadvantage of female founders. Women in North Karnataka frequently confront traditional divisions of labor that place the primary burden of domestic care work and familial maintenance upon them. This domestic hegemony severely curtails the discretionary time, psychological bandwidth, and physical mobility required to navigate high-growth, scalable entrepreneurial ventures. Consequently, a vast majority of women-led economic initiatives in the region remain confined to low-yield, survivalist micro-enterprises rather than high-impact, scalable startups.

Compounding these socio-cultural bottlenecks are profound structural deficiencies in

the financial and institutional architecture of the region. Venture capital ecosystems, angel investor syndicates, and formal institutional lending networks remain heavily centralized in metropolitan epicenters like Bengaluru. Financial institutions in semi-urban North Karnataka often exhibit risk aversion or gender-unconscious structural biases, demanding stringent collateral requirements and complex documentation that disproportionately disenfranchise women founders who lack independent property titles or credit histories. Furthermore, while the region boasts a rich network of educational institutions, technical universities, and colleges, specialized startup incubation centers equipped with gender-sensitive mentorship, legal counseling, and acceleration programming are conspicuously sparse outside major educational hubs like Dharwad and Hubballi. This institutional vacuum forces women entrepreneurs to rely predominantly on bootstrapping and high-cost informal credit, severely capping their growth trajectories and ability to scale beyond local markets.

Yet, framing the narrative of North Karnataka's women entrepreneurs solely through the lens of victimization and deficit overlooks a powerful counter-current of grassroots transformation. Over the past decade, sweeping technological shifts and targeted policy frameworks have begun to fracture traditional boundaries. The widespread diffusion of affordable smartphones, high-speed mobile data, and digital payment systems has drastically reduced the transactional and geographical friction that historically isolated regional enterprises. Women in tier-2 and tier-3 towns are increasingly leveraging digital platforms, social media commerce, and cloud-based tools to launch asset-light ventures in the service sector, digital marketing, online education, and boutique retail. Moreover, North Karnataka's rich cultural

repository—spanning GI-tagged crafts such as Navalgund durries, Ilkal handlooms, and traditional food processing—offers fertile ground for social and cultural entrepreneurship where women play a foundational role in production and preservation.

Simultaneously, policy frameworks at both the national and state levels have increasingly recognized the imperative of decentralizing innovation. Initiatives such as the Karnataka Startup Policy, district-level skilling missions, and women-centric micro-enterprise grants have laid institutional groundwork for nurturing local talent. However, a significant implementation gap remains between macro-level policy pronouncements and the ground-level realities faced by women founders in northern districts. Bridging this gap requires empirical groundedness and rigorous academic inquiry into the specific structural frictions and localized prospects that characterize the North Karnataka landscape.

This paper addresses this critical gap by systematically investigating the problems and prospects of women-led startups in North Karnataka. By synthesizing secondary socio-economic datasets, regional development reports, and qualitative insights from local enterprise ecosystems, this study aims to map the structural impediments hindering female founders and evaluate the emerging catalysts that can propel sustainable regional growth. Ultimately, understanding and strengthening the women-led startup ecosystem in North Karnataka is not merely an exercise in promoting gender equity; it is an indispensable strategic imperative for achieving balanced regional development, fostering inclusive innovation, and realizing the broader vision of a resilient, self-reliant regional economy.

Review of Literature:

The scholarly discourse on women's entrepreneurship highlights the complex intersection of gender, regional geography, and economic opportunity. To comprehensively map the theoretical and empirical contours of women-led startups in regional settings like North Karnataka, the literature review is structured across ten key thematic dimensions:

Aidis et al., 2007; Brush et al., 2009 explains the classical and contemporary sociological frameworks emphasize how traditional family structures and patriarchal norms constrain women's mobility, autonomy, and risk-taking capacity, particularly in semi-urban and rural settings. Studies indicate that self-identity and localized familial support systems serve as primary determinants of female entrepreneurial entry in non-metropolitan regions.

Research by Coleman and Robb (2009) underscore that women-led ventures face higher rejection rates, strict collateral demands (often requiring male co-signers), and smaller loan sizes, compelling widespread reliance on bootstrapping and informal micro-finance.

Nanjundappa Committee Report, Government of Karnataka; see also regional analyses by Sridhar et al., 2021 states that regional economic disparities significantly impact enterprise survival and scaling. Scholars examining Karnataka's economic landscape point to a pronounced developmental asymmetry between the southern IT corridors and the northern agrarian and manufacturing-dependent districts, necessitating tailored, region-specific incubation models

Datta & Gailey, 2012 explores how mobile internet penetration, social commerce, and digital payment architectures are democratizing market access for women outside metropolitan hubs. Digital platforms effectively reduce geographical friction, enabling women in tier-2 and tier-3

towns to plug into broader state and national value chains.

Sharma, 2016; see regional field evaluations by IJAEM, 2024 studies focusing on institutional interventions, such as Rural Self-Employment Training Institutes (RSETIs) and specialized skill-building programs across North Karnataka districts, highlight that technical competence combined with confidence-building significantly boosts the survival rates of first-generation women entrepreneurs

Patel & Jain, 2022; Kumari et al., 2021 focusing evaluations of targeted state and national frameworks—such as the Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME) scheme and the Karnataka Startup Policy—reveal a mixed picture. While these initiatives have raised awareness, scholars note a persistent implementation gap in reaching women in tier-3 towns due to cumbersome compliance requirements and limited grassroots administrative outreach.

Research by the **Bharat Women Aspiration Index (2024)** indicates that an overwhelming majority of non-metro women entrepreneurs operate without formal networking support, severely restricting peer learning, market intelligence sharing, and strategic scaling.

Narang & Tiwari, 2021 examining enterprise typologies notes that women in transitional regions are predominantly concentrated in traditional sectors such as food processing, textiles, handicrafts, and home decor. Scholars emphasize the untapped potential of upgrading these clusters through design innovation, Geographical Indication (GI) branding, and cooperative models.

Verma & Singh, 2021 highlights the persistent tension between domestic care responsibilities and entrepreneurial expansion. The double burden of labor limits the psychological bandwidth and operational hours women can dedicate to their

enterprises, trapping many in low-growth micro-units rather than scalable start-ups.

Problems Faced by Women Start-ups in North Karnataka:

The landscape of women-led entrepreneurship in North Karnataka is defined by a distinct convergence of structural, cultural, and institutional impediments. While the overarching narrative of India's start up boom often highlights rapid technological scaling and venture capital abundance in metropolitan corridors, women founders operating in tier-2 and tier-3 districts such as Dharwad, Belagavi, Kalaburagi, Koppal, and Vijayapura navigate an arduous environment. These barriers are not merely operational hurdles; they are deeply entrenched systemic frictions that impede the birth, survival, and scaling of female-led enterprises.

Structural Capital Exclusion and Financial Discrimination:

The most formidable barrier confronting women entrepreneurs in North Karnataka is systemic exclusion from formal financial architectures. Venture capital funds, private equity syndicates, and organized angel networks remain hyper-concentrated in metropolitan hubs like Bengaluru, leaving regional founders isolated from equity financing. Consequently, women must rely heavily on commercial bank loans, micro-credit institutions, or personal bootstrapping.

However, institutional lending practices in semi-urban and rural North Karnataka frequently exhibit gender-unconscious or explicitly risk-averse biases. Commercial banks routinely demand hard collateral—predominantly immovable property titles—for business loans. Given historical patrilineal inheritance norms and land-tenure patterns in the region, the vast majority of women lack independent ownership

of land or commercial real estate. When women attempt to secure credit independently, they encounter stringent documentation requirements, complex bureaucratic procedures, and demands for male co-signers or guarantors. This structural financial bottleneck restricts initial capitalization, forces high reliance on informal, high-interest local money lenders, and caps the operational scale of women-led ventures from their inception.

Deep-Seated Socio-Cultural Constraints and Patriarchal Expectations:

Entrepreneurial activity does not occur in a social vacuum; it is mediated by the normative frameworks of the society in which founders operate. In North Karnataka's semi-urban and rural settings, traditional patriarchal structures assign primary responsibility for domestic labor, child-rearing, and caregiving strictly to women. This division of labor creates an acute time-poverty and psychological double burden for women attempting to build startups.

The requirement to balance round-the-clock domestic duties with enterprise management severely curtails the physical mobility, networking hours, and operational bandwidth available to women founders. Traveling outside the district for client acquisition, investor pitches, or supply chain negotiations is frequently discouraged by familial gatekeepers concerned with social reputation and safety norms. Furthermore, social stigma associated with commercial risk-taking by women creates an invisible psychological barrier—manifesting as fear of failure, social judgment, and internalized self-doubt—which deters many potential founders from transitioning out of subsistence-level activities.

Acute Deficiencies in Local Incubation and Institutional Mentorship:

While North Karnataka hosts several established educational institutions and universities, specialized start up incubation centres equipped with gender-sensitive programming, legal counselling, technology testing labs, and structured acceleration remain sparse outside major educational nodes like Hubballi-Dharwad.

Most regional business incubators lack dedicated outreach mechanisms or tailored support tracks for women entrepreneurs. Consequently, first-generation women founders are deprived of crucial early-stage handholding, business model validation, and technical mentorship. The absence of local advisory networks means that founders struggle to navigate statutory compliances, intellectual property registration, digital optimization, and tax regulations. Without local institutional buffers to absorb initial market shocks, early-stage attrition rates among women-led micro-enterprises and startups remain disproportionately high.

Market Access Barriers and Value Chain Disconnection:

Scaling an enterprise requires seamless integration into regional, national, and digital markets. However, women entrepreneurs in North Karnataka face severe structural constraints in market linkage. Many operate in traditional product categories—such as handlooms, artisanal crafts, local food processing, and garment stitching—without access to modern design adaptation, quality certification, or bulk procurement channels.

Geographical isolation from major consumer markets, compounded by weak local logistics and transport infrastructure, places these ventures at a severe competitive disadvantage. Furthermore, while digital platforms offer an

alternative route to market, a digital gender divide persists. Limited digital literacy, inadequate access to high-end smartphones or computers, and a lack of specialized training in e-commerce algorithms, performance marketing, and digital payment reconciliation prevent many women from leveraging online marketplaces effectively. As a result, their enterprises remain localized, fragmented, and vulnerable to price exploitation by middle-men and intermediaries

Prospects and Strategic Interventions:

Despite the formidable structural, financial, and socio-cultural barriers that characterize the economic landscape of North Karnataka, the region harbors immense untapped potential for women-led entrepreneurship. Navigating this landscape successfully requires moving beyond a deficit-based analysis toward a proactive framework that harnesses emerging economic catalysts, technological diffusion, and institutional reforms. Unlocking the prospects of women-led startups in districts such as Dharwad, Belagavi, Kalaburagi, and Vijayapura demands a multi-pronged strategic intervention model designed to transform grassroots enterprises into scalable, resilient economic drivers.

Harnessing the Digital Economy and Asset-Light Business Models:

The rapid expansion of mobile internet infrastructure, affordable broadband, and digital payment architectures across tier-2 and tier-3 towns in North Karnataka has fundamentally altered the parameters of market entry. Digital tools have drastically reduced the capital expenditure and physical infrastructure required to launch a business. Women entrepreneurs are increasingly leveraging social commerce, cloud-based accounting, and digital marketing to build asset-light ventures in the service sector, ed-tech, digital agencies, and specialized online retail.

Strategic interventions must capitalize on this digital momentum by rolling out hyper-local, vernacular digital literacy and e-commerce optimization bootcamps. By training women founders to navigate digital marketplaces, optimize supply chain software, and utilize algorithmic marketing, regional enterprises can transcend geographical isolation, plug directly into national and global value chains, and bypass exploitative traditional intermediaries.

Upgrading Traditional Craft, Textile, and Agrarian Value Chains:

North Karnataka possesses a rich, historically rooted repository of artisanal crafts, handlooms (such as Ilkal sarees and Navalgund durries), and diverse agricultural output. Historically, women have constituted the backbone of these traditional production systems as uncompensated or low-wage labor. Transforming these traditional sectors into vibrant startup clusters presents a profound economic prospect.

Strategic interventions should focus on establishing design-innovation hubs, quality-testing laboratories, and packaging units at the district level. Integrating modern aesthetic standards with traditional craftsmanship—coupled with aggressive Geographical Indication (GI) branding and cooperative aggregation models—can elevate local products into high-value luxury and export markets. Furthermore, in the agrarian sector, supporting women-led agri-tech and food-processing startups through value-addition training and cold-chain infrastructure can convert primary producers into empowered agro-entrepreneurs.

Decentralizing Incubation and Institutional Mentorship Infrastructure:

To bridge the urban-rural divide in entrepreneurial support, the institutional

ecosystem in North Karnataka must be decentralized. While major academic centers like Hubballi-Dharwad host robust incubation facilities, tier-3 towns and rural blocks remain underserved.

Policy interventions must mandate the establishment of women-centric incubation cells and rural enterprise desks within local degree colleges, Krishi Vigyan Kendras (KVKs), and district industrial centers. These decentralized hubs should provide comprehensive, end-to-end handholding—including business model canvas training, legal compliance counselling, taxation support, and pitch preparation. Crucially, establishing peer-mentorship networks where successful regional women entrepreneurs mentor emerging founders can build psychological confidence, mitigate fear of failure, and foster a thriving community of practice.

Innovating Financial Architectures and Micro-Venture Funds:

Resolving the systemic capital exclusion faced by women founders requires innovative, gender-sensitive financial mechanisms. Traditional commercial banking parameters, which rely heavily on immovable property collateral, must be complemented by alternative risk-assessment models that evaluate business viability, digital transaction histories, and character-based lending.

At the state and regional policy level, establishing dedicated micro-venture capital funds, state-backed angel syndicates, and collateral-free soft-loan schemes specifically earmarked for women-led startups in North Karnataka is imperative. Furthermore, financial institutions should partner with women's self-help groups (SHGs) and local cooperatives to create graduation pathways, transitioning mature micro-enterprises into formal, high-growth startup entities.

Cultivating Supportive Policy Frameworks and Administrative Synergy:

Finally, realizing the full potential of women-led startups necessitates a concerted synergy between state policymakers, district administrations, local academic institutions, and grassroots NGOs. While progressive policies exist on paper, implementation bottlenecks at the grassroots level often render them inaccessible to marginalized or first-generation founders.

Strategic interventions must streamline bureaucratic compliance, simplify subsidy application procedures, and implement single-window clearance systems for women-owned enterprises at the taluk and district levels. By aligning district development plans with broader frameworks such as Vikshit Bharat 2047 and the Karnataka Startup Policy, North Karnataka can transform its socio-economic challenges into a vibrant blueprint for inclusive, decentralized, and gender-equitable regional growth

Conclusion:

The socio-economic trajectory of women-led startups in North Karnataka occupies a critical and dynamic intersection between traditional structural constraints and transformative modern opportunities. As this paper has demonstrated, female founders operating across the semi-urban and rural landscapes of districts such as Dharwad, Belagavi, Kalaburagi, and Vijayapura navigate a complex matrix of systemic impediments. These challenges—ranging from deep-seated patriarchal norms, acute time-poverty resulting from domestic care burdens, and systemic exclusion from formal venture capital and property ownership, to inadequate local incubation infrastructure and fragmented market linkages—form a formidable barrier to enterprise survival and scaling. Yet, despite these structural frictions, the regional ecosystem is simultaneously animated by powerful catalysts of change. The

rapid diffusion of digital infrastructure, the rise of asset-light service models, the rich heritage of traditional handlooms and agrarian value chains, and progressive, albeit developing, state policy frameworks collectively signal a profound paradigm shift.

Unlocking the true potential of women entrepreneurs in North Karnataka requires a decisive, multi-dimensional policy approach that moves beyond superficial intervention toward structural transformation. First and foremost, financial architectures must be fundamentally restructured. Traditional commercial lending models that rely heavily on immovable property collateral must be supplemented by alternative risk-assessment frameworks, gender-sensitive credit scoring, and dedicated state-backed micro-venture funds earmarked explicitly for regional women founders. Simultaneously, the institutional support landscape must be aggressively decentralized. Rather than concentrating incubation and mentorship facilities solely in metropolitan epicenters or major tier-2 educational hubs, decentralized enterprise desks, women-centric incubation cells, and technical skilling centers must be embedded directly within local degree colleges, agricultural institutions, and district industrial centers across tier-3 towns.

Furthermore, bridging the market access gap requires targeted investments in regional value-chain upgrades. By establishing district-level design innovation hubs, quality-testing laboratories, and robust logistics cooperatives, traditional sectors such as handicrafts, artisanal crafts (e.g., Ilkal and Navalgund traditions), and food processing can be modernized and successfully integrated into national and international markets. Empowering women to leverage digital commerce through hyper-local, vernacular tech bootcamps will further mitigate geographical isolation and bypass exploitative middlemen. Crucially, addressing the socio-

cultural bottlenecks that restrict female mobility and risk-taking necessitates community-level awareness campaigns, peer-mentorship networks, and administrative synergy between district authorities, academic institutions, and grassroots NGOs.

Ultimately, fostering a vibrant, resilient, and inclusive women-led startup ecosystem in North Karnataka is not merely an auxiliary agenda for gender parity; it is an indispensable strategic imperative for achieving balanced regional economic development, mitigating distress migration, and fostering sustainable grassroots innovation. When women in transitional and semi-urban economies are provided with equitable access to capital, knowledge, markets, and institutional support, they cease to be marginalized economic actors and emerge as primary drivers of regional prosperity. By translating progressive policy frameworks into concrete, ground-level administrative action, North Karnataka can successfully convert its historical socio-economic challenges into a pioneering blueprint for decentralized, inclusive, and gender-equitable growth, aligning seamlessly with broader national visions of self-reliant development

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Role of Government Policies and Financial Support in the Development of Startups and MSMEs in India

Dr. Supriya S. Belavi

Asst. Professor of Economics,

S. S. S. Samiti's Mahaveer P. Mirji College of Commerce, Belagavi.

Corresponding Author - Dr. Supriya S. Belavi

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Abstract:

Startups and micro, small and medium enterprises (MSMEs) are central to India's strategy for employment, innovation, regional development and economic inclusion. Their growth, however, is constrained by inadequate collateral, delayed payments, limited technology adoption and uneven market access. Using a descriptive and analytical review of official documents and data available up to August 2026, this article evaluates regulatory enablement, formalisation, procurement, incubation and quality programmes alongside major startup and MSME financing schemes. Public intervention has expanded recognition, credit guarantees, seed support and market access. By 31 March 2026, India had more than 2.23 lakh DPIIT-recognised startups reporting over 23.36 lakh direct jobs, while nearly 8.95 crore Udyam and Udyam Assist registrations had been recorded by 4 August 2026. Yet registrations and scheme reach do not automatically imply survival, productivity or additional employment. Fragmented delivery, delayed payments, regional disparities and limited risk capital remain important barriers. The article recommends outcome-based evaluation, interoperable delivery, stronger local institutions and inclusive, stage-appropriate finance.

Keywords: *Startups, MSMEs, Government Policy, Financial Support, Credit Guarantee, Entrepreneurship, India.*

Introduction:

Entrepreneurship converts ideas, skills and local resources into products, services, jobs and productive capacity. Startups commonly pursue innovation and rapid growth under uncertainty, whereas MSMEs range from household units to established manufacturers and service firms. The categories overlap: a DPIIT-recognised startup may also qualify as an MSME, but many MSMEs are not designed for rapid scaling. Policy must therefore support both innovative experimentation and productivity across the broad enterprise base.

The economic rationale for public support arises from market failures. Young firms often lack collateral and credit histories; lenders cannot

easily assess intangible assets; early innovation produces benefits that firms may not fully capture; and small enterprises face high fixed costs in compliance, technology, certification and market discovery. Government can reduce these barriers through simpler regulation, digital formalisation, guarantees, grants, incubators, procurement preferences, cluster infrastructure and payment-protection systems. At the same time, poorly targeted subsidies may reward firms that would have invested anyway, encourage dependence or disperse resources across schemes without measurable results. Policy quality must consequently be judged by additionality, survival, productivity, inclusion and scaling—not by registrations or disbursements alone.

Statement of the Problem:

India has built a large enterprise-support architecture, yet access and outcomes remain uneven. Enterprises outside major urban centres may lack information, professional networks, bankable documentation or reliable incubation. Micro firms are especially vulnerable to working-capital shortages and delayed buyer payments, while innovative startups face a financing gap between seed support and commercially viable scale. The research problem is therefore to determine how far government policy and finance have reduced these constraints, where institutional gaps persist, and how support can be made more effective and inclusive.

Objectives of the Study:

1. To examine major government policies and financial-support mechanisms for startups and MSMEs and assess their role in enterprise creation, formalisation, innovation, employment and scaling.
2. To identify regulatory, financing and implementation challenges and recommend measures for building a more accessible, accountable and sustainable entrepreneurial ecosystem.

Research Methodology:

The article adopts a descriptive and analytical research design based on secondary data. It reviews official publications of the Ministry of Micro, Small and Medium Enterprises, Department for Promotion of Industry and Internal Trade, Press Information Bureau and Reserve Bank of India, together with selected academic literature. Data are current to August 2026 where official sources permit. The study compares policy purpose, delivery mechanism and reported reach. Because the sources are largely administrative, it does not treat recognised entities, guarantees, beneficiaries

or self-reported jobs as proof that a programme alone caused the observed result. This limitation makes independent, longitudinal evaluation essential.

Economic Significance and Policy Context:

MSMEs form the broad base of India's productive economy. The Ministry reports that the sector contributes about 31.1 per cent of gross domestic product and more than 48.5 per cent of exports (Ministry of MSME, 2026a). Its live dashboard recorded 8,94,61,002 Udyam and Udyam Assist registrations and 39.58 crore associated employment entries on 4 August 2026 (Ministry of MSME, 2026b). These are administrative records, not a real-time census of active firms or independently verified net jobs.

The revised MSME classification, effective from 1 April 2025, raised both investment and turnover limits. The change allows growing firms to retain MSME status for longer, reducing the incentive to remain artificially small. The present limits are shown below.

Table 1: MSME Classification

Enterprise category	Investment in plant, machinery or equipment	Annual turnover
Micro	Not more than ₹2.5 crore	Not more than ₹10 crore
Small	Not more than ₹25 crore	Not more than ₹100 crore
Medium	Not more than ₹125 crore	Not more than ₹500 crore

Source: Ministry of MSME (2026a).

India's startup ecosystem has also expanded rapidly. By 31 March 2026, more than 2.23 lakh entities had been recognised by DPIIT

and reported over 23.36 lakh direct jobs. During FY 2025–26 alone, more than 55,200 startups were recognised and over 4.99 lakh direct jobs were reported, compared with more than 36,400 recognitions and 3.66 lakh jobs in FY 2024–25 (PIB, 2026b). Recognition has spread across states and union territories, indicating that entrepreneurship is no longer confined to a few metropolitan centres, although capital and high-quality support remain geographically concentrated.

Role of Government Policies:

1. Startup India and Regulatory Enablement:

Startup India created a common policy identity for innovation-led young firms. DPIIT recognition connects eligible startups with self-certification, intellectual-property facilitation, selected tax benefits, procurement relaxations and funding programmes. The Startup India Hub, state rankings and challenges connect founders with departments, investors, mentors and incubators. The initiative moved startup policy from isolated technology programmes to a coordinated national agenda. Reliable compliance guidance, state-level handholding and faster benefit processing remain necessary for smaller founders.

2. Formalisation and the MSME Policy Framework:

Udyam gives enterprises a free, paperless, self-declaration route to formal recognition, while the Udyam Assist Platform reaches informal micro enterprises using authenticated institutional information. Formal status can improve visibility to lenders and buyers and enable access to priority lending, procurement and payment remedies. Yet it creates value only when records are accurate and registration translates into finance, productivity and contracts. Consent-based integration of tax, banking, procurement

and scheme databases could reduce repeated documentation.

3. Incubation, Skills and Innovation Support:

Incubators provide workspace, laboratories, mentoring and investor connections. Startup India, the Atal Innovation Mission, universities and sectoral programmes have widened this network. ASPIRE supports livelihood business incubators; the MSME dashboard reported 109 approved incubators and more than 1.23 lakh persons trained by 3 August 2026 (Ministry of MSME, 2026b). Entrepreneurship and Skill Development Programmes address management gaps. Incubators should be assessed by survival, revenue growth, follow-on finance, market linkages and inclusion rather than events or enrolment.

4. Market Access, Quality and Technology:

Demand-side policy is as important as credit. The Public Procurement Policy requires central ministries, departments and public-sector enterprises to procure at least 25 per cent of their annual purchases from micro and small enterprises, with sub-targets of 4 per cent for SC/ST-owned MSEs and 3 per cent for women-owned MSEs (PIB, 2024). Government e-Marketplace access and procurement relaxations also help recognised startups overcome the absence of prior turnover or experience. In FY 2025–26, startups received more than 1.40 lakh GeM orders worth over ₹19,190 crore, according to DPIIT (PIB, 2026b). Such measures provide credible first customers, but tender design, payment discipline and capacity to fulfil large orders remain decisive.

The ₹6,062.45-crore RAMP programme for 2022–23 to 2026–27 strengthens Centre–state institutions and access to markets, finance and technology (Ministry of MSME, 2026a). Zero Defect Zero Effect certification and Lean assistance encourage quality and resource

efficiency. These programmes address productivity constraints that credit alone cannot solve, but require affordable technical assistance and implementation support.

Role of Financial Support:

Financial policy must match the enterprise life cycle. Grants or seed support are

appropriate when a startup has an untested product and no cash flow; equity-oriented funds suit innovation with scaling potential; credit guarantees are useful when a viable firm lacks collateral; and invoice finance addresses working-capital delays. India's major instruments are summarised below.

Instrument	Form of support	Development role
Fund of Funds for Startups (FFS)	Public commitments to SEBI-registered alternative investment funds	Crowds in professional risk capital for scalable startups
Startup India Seed Fund Scheme (SISFS)	Incubator-routed grants and investment support	Funds proof of concept, prototype, trials and market entry
Credit Guarantee Scheme for Startups (CGSS)	Guarantee cover for eligible startup debt	Reduces lender risk where collateral and track record are weak
CGTMSE	Guarantee for collateral-free credit to micro and small enterprises	Expands formal term and working-capital lending
PMEGP	Bank-linked credit with margin-money subsidy	Supports new micro-enterprises and self-employment
TReDS	Electronic discounting of accepted trade receivables	Converts invoices into working capital through competing financiers

1. Startup Finance:

The ₹10,000-crore Fund of Funds for Startups commits capital to regulated alternative investment funds rather than investing directly. By the end of FY 2025–26, over ₹7,000 crore had been disbursed to more than 135 funds, whose investments exceeded ₹26,900 crore across 1,420 startups (PIB, 2026b). The structure multiplies public capital and preserves professional selection, though investment may favour familiar sectors and cities. FFS 2.0, with another ₹10,000-crore corpus, should strengthen deep-tech and geographically diverse funding while retaining commercial discipline.

SISFS addresses the seed gap. By FY 2025–26, 219 incubators had been selected, the

₹945-crore corpus committed and over ₹605 crore approved for more than 3,400 startups (PIB, 2026b). Its incubator model combines funding with mentoring, but needs transparent selection and milestone-based release. CGSS complements equity by enabling debt. Its maximum guarantee cover rose from ₹10 crore to ₹20 crore; by March 2026, over 410 loans exceeding ₹1,250 crore had been guaranteed. For startups with recurring revenue, debt can limit equity dilution, although sound underwriting remains essential.

2. MSME Credit, Guarantees and Employment-linked Finance:

CGTMSE shares lender risk on eligible collateral-free loans. The Ministry's Annual Report recorded more than 1.18 crore guarantees

amounting to ₹9.80 lakh crore since inception, including about ₹3 lakh crore in FY 2024–25 (Ministry of MSME, 2026a). The guarantee ceiling rose from ₹5 crore to ₹10 crore on 1 April 2025 (PIB, 2026a). Success should be measured by additional lending, first-time borrowers, interest costs, survival and responsible recovery—not only guarantee volume.

PMEGP combines bank credit with a margin-money subsidy for new rural and urban micro-enterprises. MUDRA and priority-sector lending provide other channels, while Stand-Up India focuses on women and SC/ST entrepreneurs. These instruments broaden entry, but small loans may sustain self-employment without raising productivity. Credit should therefore be paired with bookkeeping, market access, technology advice and post-loan mentoring.

3. Working Capital and Payment Protection:

Delayed receivables can make a profitable firm illiquid. Under the MSMED framework, agreed payment periods cannot exceed 45 days, and Samadhaan supports delayed-payment applications. TReDS enables accepted MSME invoices to be discounted electronically by competing financiers (Reserve Bank of India, 2020). Its value depends on timely buyer acceptance and broad onboarding. Automatic interest calculation, digital invoice acknowledgement and procurement-platform integration would strengthen payment discipline.

Developmental Impact:

The combined policy ecosystem has produced four visible gains. First, Startup India and Udyam have lowered entry and formalisation costs, creating a common identity through which firms can approach public agencies and markets. Second, guarantees, seed funds and fund-of-funds structures have diversified finance beyond conventional collateralised lending. Third, procurement, GeM, certification and RAMP have

shifted policy attention from firm creation to competitiveness and market demand. Fourth, targeted programmes have widened participation: about 48 per cent of DPIIT-recognised startups had at least one woman director or partner by March 2026 (PIB, 2026b).

The evidence nevertheless supports a measured conclusion. Growth in registrations, reported jobs, guarantees and orders is consistent with a stronger ecosystem, but it does not isolate the effect of policy from economic growth, digitalisation, private investment or changes in reporting. A registration may be inactive, a guarantee may replace rather than add lending, and a procurement order may arrive late. Longitudinal data linking schemes to survival, productivity, wages, innovation, exports and private capital would provide a more credible assessment of developmental impact.

Major Challenges:

Access remains fragmented across ministries, banks, incubators and state agencies. Founders frequently confront different eligibility rules, portals and documentation, while awareness is weakest among informal micro firms. Regional concentration persists because investors, specialised mentors, laboratories and anchor customers cluster in leading cities. Banks may remain cautious toward intangible assets even with a guarantee, and venture finance often favours software and consumer markets over manufacturing, climate, agriculture and deep technology. Women, SC/ST entrepreneurs and founders in smaller towns also face network, asset-ownership and mobility barriers.

Implementation presents a second set of problems. Delayed payments weaken cash flow; some public tenders are too large or technically demanding for small suppliers; and incubation quality is uneven. Multiple schemes report inputs and outputs but fewer publish comparable outcome data. Rapid credit expansion can also

increase over-indebtedness if underwriting and borrower capability are weak. Finally, formalisation can become fragile when enterprises see compliance costs but few visible benefits. Policy must make the formal route

Conclusion:

Government policies and financial support have played an enabling role in the development of Indian startups and MSMEs. Startup recognition, digital formalisation, guarantees, seed finance, fund-of-funds investment, procurement, incubation and productivity programmes address genuine market and institutional failures. Their scale shows a substantial public commitment to entrepreneurship and a broader distribution of enterprise activity. The next phase should move from counting registrations, beneficiaries and disbursements to measuring additional investment, survival, productivity, decent employment, innovation and inclusion. Better coordination, timely payments, stage-appropriate finance, capable local institutions and transparent evaluation can convert a large support architecture into sustained competitiveness. With these reforms, startups and MSMEs can contribute more effectively to India's goals of resilient growth, regional balance and broad-based economic opportunity.

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Artificial Intelligence and Women Entrepreneurship: Opportunities and Challenges

Dr. Shailaja B.

Asst. Professor, Department of Political Science, GFGC, Ranebennur.

Corresponding Author - Dr. Shailaja B.

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Abstract:

Artificial Intelligence (AI) is fundamentally reshaping global enterprise, introducing unprecedented vectors for market expansion, operational optimisation, and disruptive innovation. This research paper examines the adoption trajectories, strategic opportunities, and systemic challenges of AI integration among women entrepreneurs, analysing these dynamics through both global macro-level perspectives and targeted insights from India and Karnataka. Using a methodology rooted in Systematic Literature Reviews (SLRs) and rigorous secondary data synthesis, the study evaluates the baseline level of AI awareness among female founders, identifies pathways to digital transformation, and isolates the critical enabling factors and infrastructural barriers that determine success. The empirical landscape reveals a dual reality: while AI-driven tools offer immense potential to scale business performance and accelerate female economic autonomy, women-led enterprises remain disproportionately constrained by severe deficits in technical upskilling and inequitable access to capital. To bridge this digital divide and facilitate entry into historically male-dominated market sectors, this conceptual paper articulates concrete strategic interventions. The study concludes with actionable, policy-oriented recommendations, highlighting the necessity of localised capacity-building frameworks, state-level investments in targeted technical education, and the engineering of inherently inclusive, supportive AI ecosystems to foster long-term community welfare and sustainable female entrepreneurship.

Keywords: *Artificial Intelligence, Women Entrepreneurship, India, Karnataka, Technological Adoption, Digital Inclusion, Strategic Capacity-Building.*

Introduction:

“Staying on the entrepreneur journey is never easy, and a strong mindset will help you to get going. Shift to a positive perspective and let yourself be empowered by wise words from these strong women. The most effective way to do it, is to do it”. – **Amelia Earheart**

Artificial intelligence offers women entrepreneurs powerful tools for growth and efficiency alongside persistent structural hurdles, primarily categorized by productivity gains, automated workflows, and persistent digital skill gaps. This research paper explores the trends, opportunities, and challenges of AI adoption

among women-led enterprises, focusing specifically on a dual macro- and micro-scope encompassing both the broader Indian national view and localized sub-national insights from Karnataka. Modern entrepreneurial practices are increasingly characterised by deep digital integration, a global market orientation from inception, and customer-centric, iterative design approaches. For women entrepreneurs, this technological shift presents a profound double-edged sword. On one hand, AI offers unprecedented opportunities to scale businesses, lower operational costs, and bypass traditional market barriers. On the other hand, it introduces

stark challenges, including widening digital skill gaps, algorithmic biases, and deepened funding inequalities. This paper examines how women entrepreneurs can navigate these systemic hurdles to fully leverage the transformative power of AI. In this nation of a million possibilities and huge talent, the focus is shifting to start-ups and job creation from grabbing jobs. The phenomenal growth of SSunicorns in India, led by young entrepreneurs, is inspiring thousands of aspirational start-ups in the country. However, entrepreneurship is often seen as a male preserve, with women given the cold shoulder. For India to become a \$5 trillion economy, entrepreneurship by women must play a bigger role in its economic development. India's gender balance is among the lowest in the world, and improving it is important not just for gender equality, but for the entire economy.

Literature Review:

To evaluate the operational determinants of technology adoption, more than 100 publications from reputable, peer-reviewed journals were analysed to determine the current state of how Artificial Intelligence (AI) shapes entrepreneurial ecosystems. Existing systematic literature reviews (SLRs) on digital transformation provide valuable, evidence-based insights into national and global commercial strategies that are theoretically grounded and practically actionable. Synthesising this vast body of literature specifically through the lens of women-led enterprises reveals three primary insights regarding the structural opportunities and barriers inherent in AI integration. The existing systematic literature reviews on digital transformation and women entrepreneurship yield three primary insights regarding these technological opportunities and challenges:

The Framework of Strategic Enterprise Growth: Modern technological infrastructure must actively support AI adoption among micro-, small-, and medium-sized enterprises (MSMEs) to convert automation into tangible business productivity and operational efficiency.

Macroeconomic Contributions and the Role of Scaling Technologies: A critical synthesis of contemporary empirical literature reveals that women-led small-scale enterprises have fundamentally broken through the boundaries of localised, survivalist commerce to become structural pillars of macroeconomic resilience. Rather than operating merely as safety nets for household subsistence, these enterprises function as primary engines of national fiscal vitality and labour market stabilization.

Institutional Recommendations and Future Policy Roadmaps: Comprehensive sub-national and national policy interventions are required to balance digital capacity-building with robust safety frameworks that protect emerging female-led digital storefronts from technological vulnerabilities.

Bhatnagar and Yadav (2023) examine the resilience of 100 women-led micro and small enterprises (MSEs) in Rajasthan, India, during the 2021–2022 COVID-19 pandemic. Their findings indicate that while systemic vulnerabilities—such as supply chain disruptions and restricted financial access—severely impacted profit margins, the adoption of AI-driven tools on social media platforms served as a critical adaptive strategy to sustain business operations. This assessment highlights the role that artificial intelligence (AI) can play in providing virtual entertainment to support women's businesses. Web-based entertainment has gained prominence for helping women market their enterprises, attract new customers, and retain existing ones. The study concludes that leveraging digital innovation to optimise targeted marketing and

customer retention enables women entrepreneurs to mitigate losses and navigate acute economic crises.

Macro-economic Contributions of Women-Led Small-Scale Enterprises: The contemporary economic landscape reflects a paradigm shift where female-led enterprises have transitioned from peripheral, survivalist micro-operations into core drivers of national fiscal resilience. Historically marginalized within informal or subsistence self-employment frameworks, these enterprises are now recognized as foundational pillars of macroeconomic stability and regional labour dynamics. This structural evolution is thoroughly supported by cross-national empirical evidence. As observed by Gulvira et al., they are an untapped reservoir for macroeconomic growth and widespread prosperity, serving as an essential institutional mechanism for the equitable distribution of wealth—particularly within emerging and developing markets. Rather than remaining confined to localised economic niches, the tangible footprint of these enterprises registers at a massive macroeconomic scale.

Comprehensive empirical assessments compiled by Tripathi et al. (2022) demonstrate that women-centric small-scale industries not only facilitate robust labour market stabilisation by employing over 19.1 million individuals, but they also generate an extraordinary \$2.46 trillion in cumulative overall revenue. Consequently, this multi-trillion-dollar economic anchor fundamentally shifts the focus of contemporary academic literature away from traditional concepts of simple microfinance dependency or baseline subsistence assistance. Instead, it highlights an urgent, structural requirement for advanced scaling mechanisms. Within this framework, emerging scholarship increasingly positions technological integration—most notably the deployment of Artificial Intelligence (AI) and advanced digital automation tools—not merely as

an operational luxury or administrative option, but as a critical technical prerequisite to preserve, optimize, and scale this vital \$2.46 trillion commercial landscape. According to Tiurniari Purba, David Humala Sitorus, and Hermaya Ompusunggu (2024) is to evaluate the exact socio-economic and cultural role that women's entrepreneurship plays in directly expanding domestic household income. It specifically maps out this dynamic inside Batam, a specialized Free Trade and Special Economic Zone defined by rapid urban industrialisation, limited access to formal quality employment contracts for women, and unique structural pressures. Methodological Framework: The authors used a meticulous mixed-methods research design to extract both statistical data and localized narratives: Quantitative Sampling: Questionnaires were strategically deployed to 200 active female entrepreneurs distributed across all 12 districts in Batam. Statistical Analysis System: The structural impact, significance levels, and complex correlations between variables were calculated utilising variance-based Partial Least Squares Structural Equation Modelling (PLS-SEM). Qualitative Validation System: Data collected via direct participant observations, Focus Group Discussions (FGD), and extensive in-depth interviews were categorised and textually analysed using NVivo software. The study finishes by proving how this generated income is reinvested into the home ecosystem, mapping direct, positive growth shifts across family welfare, children's formal education quality, domestic healthcare access, and overall household financial stability. Based on their statistical findings, Purba et al. (2024) explicitly recommend “the need for improved access to capital, the development of relevant entrepreneurial training programs, and supportive government policies to strengthen the role of women's entrepreneurship.”

Research Gap:

Bhatnagar and Yadav (2023) examine women-led enterprises strictly through the lens of crisis management, focusing on how digital tools and AI-driven social media platforms mitigated losses during an acute macro-crisis (the 2021–2022 COVID-19 pandemic). However, there remains a critical lack of research on how these digital mechanisms can be optimized as structural, long-term tools to permanently enhance baseline family domestic income during regular, non-crisis economic periods. Current literature fails to map the transition from short-term **"survival-driven" digital adaptation to long-term "growth-driven"** household financial stabilization. This study directly bridges these critical empirical gaps. By utilizing a convergent parallel mixed-methods design in Batam, Indonesia, this research moves beyond temporary crisis survival. It provides a definitive model showing how digital optimization, social networks, and structural capital access work together to systematically elevate family domestic income within a highly competitive industrial economy. The conceptual framework offered by Tripathi et al. (2022) treats technological integration as an isolated, top-down technical prerequisite for market preservation. However, micro-level realities dictate that technical tools do not operate in a vacuum. A major gap exists regarding how advanced scaling mechanisms interact with local social networks and domestic family support systems. Existing literature fails to utilize a mixed-methods approach (combining PLS-SEM path models with NVivo thematic analysis) to determine whether social infrastructure acts as a mandatory mediating pipeline to make digital automation successful for female founders. This research directly bridges this profound empirical gap. By transitioning away from aggregate macro-level data, this study uses a convergent parallel mixed-methods design

to investigate how the principles of technical optimization and enterprise scaling—as championed by Tripathi et al. (2022)—actually manifest within the informal economies of Batam's 12 districts. It provides a definitive, micro-level roadmap showing how advanced scaling mechanisms, when supported by strong social networks, can directly optimize family domestic income. Purba et al. (2024) evaluate baseline parameters such as general training, traditional social networks, and basic credit access to measure domestic income optimization. However, their model stops short of investigating Artificial Intelligence (AI) and advanced digital automation tools as active operational variables. Current literature leaves a distinct void regarding how resource-constrained women entrepreneurs in a hyper-competitive Special Economic Zone (SEZ) can practically adopt, utilize, and scale AI-driven tools to automate bookkeeping, optimize targeted marketing, and insulate their businesses against sudden market volatility. This research directly bridges this critical gap. By extending the dual-method architecture pioneered by Purba et al. (2024), this study explicitly incorporates AI adoption and digital automation capability as core variables into the PLS-SEM and NVivo frameworks. Consequently, this study moves past traditional subsistence models to offer a definitive, tech-driven structural roadmap for optimising female entrepreneurship and maximizing family domestic income in the modern economic landscape of Batam, Indonesia.

Objectives:

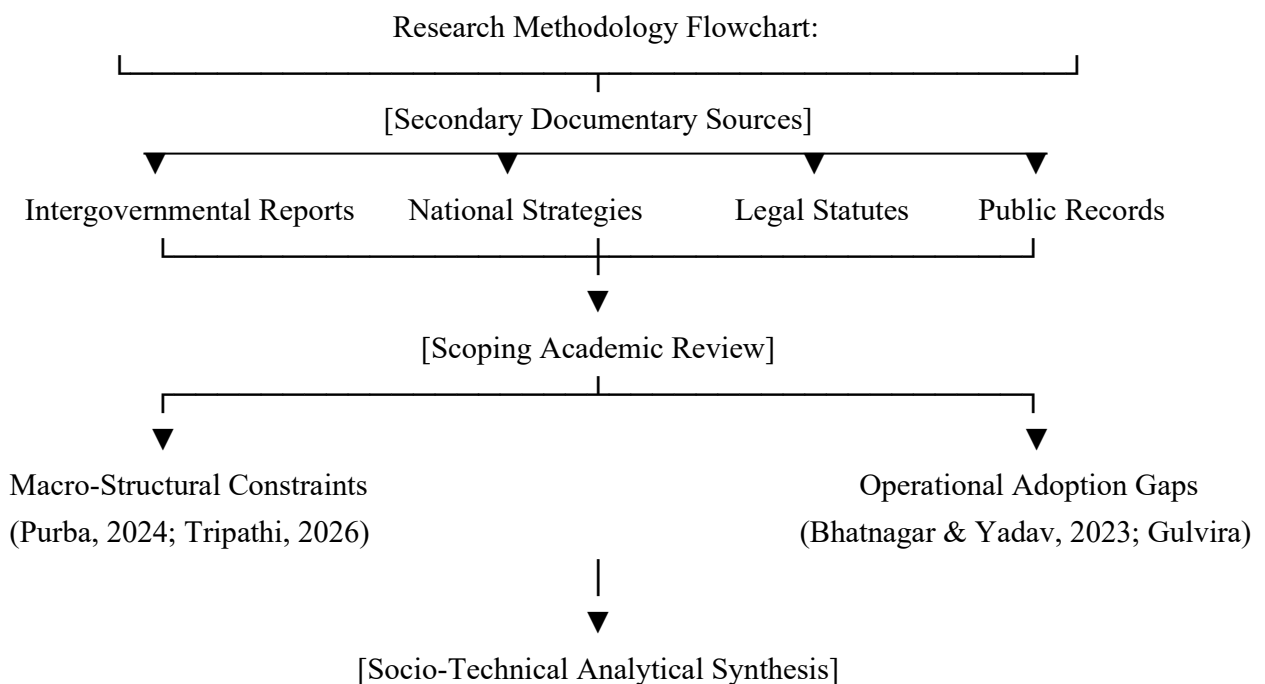
1. "To systematically analyse the structural impact of Artificial Intelligence (AI) deployment on the innovation capabilities and operational performance of women entrepreneurship, providing an empirical evaluation of the strategic opportunities it creates alongside the systemic socio-technical

challenges it imposes on female-led ventures."

2. To empirically evaluate how digital skills, formal education, and access to finance function as critical structural determinants and predictors in the successful adoption of Artificial Intelligence (AI) among women entrepreneurs."
3. To deconstruct the complex interplay between emerging technological capabilities and traditional socio-cultural ecosystems, establishing a holistic framework for the innovation trajectory of women-led MSMEs."
4. To formulate a comprehensive, actionable framework and future roadmap designed to assist institutions and policy-makers in building gender-responsive digital ecosystems that facilitate equitable AI integration.

Research Methodology and Sourced Framework:

The overarching aim of this study is to examine the dual nature of artificial intelligence (AI) implementation within women-led enterprises, assessing both structural obstacles and strategic growth vectors. To fulfil this objective, this paper adopts a comprehensive, secondary-data-driven, qualitative, and socio-technical review framework. The primary data analysed consist of secondary documentary sources, intergovernmental publications, legal statutes, and empirical literature retrieved from indexed academic databases. The empirical foundation of this methodology builds systematically upon established theoretical and contextual baselines in existing literature:



To ensure cross-border validity and rigorous triangulation, data collection is structured across three core tiers: Intergovernmental and Institutional Reports: Analytical data and global baselines are drawn from the Organisation for Economic Co-operation

and Development (OECD) digital economy briefs, World Bank Women, Business and the Law reports, and United Nations ITU datasets concerning the global digital gender divide. National Strategies and Legislative Acts: To contextualise the regulatory environment, this

study reviews primary policy blueprints, including India's NITI Aayog National Strategy for Artificial Intelligence, alongside foundational legislative acts such as the European Union AI Act (2024) to evaluate compliance burdens on small- and medium-sized micro-enterprises (MSMEs). Policy and Ethics Repositories: Global inventories, including Algorithm Watch and the Linking Artificial Intelligence Principles database, are evaluated to map how algorithmic transparency and data privacy frameworks protect or exclude women entrepreneurs.

The empirical foundation of this methodology builds systematically upon established theoretical and contextual baselines in existing literature to evaluate the intersection of gender and technology. The literature analysis is divided into two operational streams: Macro-Structural Context and Fundamental Barriers. The baseline socioeconomic parameters of this review are anchored in the foundational work of Purba (2024), which utilises structural equation modelling to prove that baseline formal education, access to capital, and family structural support remain the foundational pillars dictating the core success of women's entrepreneurship. This study maps those foundational indicators against the modern digital environment, integrating the machine learning frameworks pioneered by Tripathi (2026). Tripathi's models categorise the deep rural-urban Digital Financial Inclusion (DFI) gap, emphasizing that access to mobile internet and formal banking histories act as the primary gatekeepers for women attempting to scale ventures in resource-limited contexts. By fusing these frameworks, this paper synthesizes how micro-level capability constraints restrict macro-level business innovation. Operational Micro-Applications and Technological Adoption Gaps: At the operational level, this methodology utilises the empirical baselines established by Bhatnagar and Yadav (2023). Their research

quantifies the sharp adoption asymmetry between urban and rural women entrepreneurs—notably in the stark utilisation gaps of AI-driven marketing and conversational chatbots—highlighting that awareness gaps directly stifle operational continuity. This study cross-references these findings with contemporary data from Gulvira et al. to outline how specific emerging AI tools (such as automated bookkeeping, predictive customer analytics, and localised language processors) can bypass traditional mobility or market accessibility constraints if deployed alongside structured technical upskilling.

Key Opportunities:

Women entrepreneurship in India offers major economic growth potential through financial inclusion, government support schemes, and digital marketplaces, though it faces persistent barriers like patriarchal mindsets, funding gaps, and mobility limits.

Current State of Women Entrepreneurship in India:

8+ crore women-led enterprises in India. Over 70% of all Stand Up India scheme beneficiaries are women (as of October 2025 data).

₹62,807 crore sanctioned under Stand Up India, with the vast majority going directly to women.

905% increase in patent filings by women in the last 5 years following aggressive intellectual property incentives.

22–27% of India's GDP is generated by women entrepreneurs through both the formal and informal sectors

Government Schemes:

- Access to affordable credit and collateral-free loans via **Pradhan Mantri Mudra Yojana**,

Stand Up India, and special category benefits under PMEGP.

- **Women's Representation in Start-up's:** Women are founders of only 6% of the Indian start-ups. Start-up's with at least one woman co-founder raised only 5% of the total funding raised by start-up's between 2018-2020, and this further shrunk to only 1.43% of the total investor funding in the startup ecosystem when only women founders were considered.
- **Mudra Yojana Scheme:** Offers collateral-free micro-loans under categories like Shishu, Kishore, and Tarun to support small business setups.
- **Udyogini Scheme:** Delivers subsidized loans up to ₹3 lakh through participating financial institutions for women in trade, agriculture, and retail.
- **Stree Shakti Package:** Offered by select banks (such as State Bank of India) providing interest rate concessions and relaxed margin requirements for female-owned enterprises.
- **Annapurna Scheme:** Extends up to ₹50,000 for women setting up food catering or culinary businesses to buy kitchen equipment and utensils.
- **Mahila Udyam Nidhi:** Set up by SIDBI to provide soft loans up to ₹10 lakh for setting up new small-scale ventures.

Digital Networks and Market Access:

- **Women Entrepreneurship Platform (WEP):** A centralized aggregator portal providing free mentorship, networking with industry experts, and workshops.
- **Open Network for Digital Commerce (ONDC):** Enables small-scale and home-based women-led businesses to list products digitally, lowering entry barriers to e-commerce and logistics.

- **Cent Kalyani Scheme:** Offered by the Central Bank of India for women running micro, small, and medium enterprises without needing any collateral or guarantors.

Profitable Business Sectors:

- **E-commerce & Boutique Stores:** Launching apparel, customized gifts, or handmade crafts via social channels and digital storefronts.
- **Digital & Freelance Services:** Providing remote content creation, graphic design, digital marketing, or online tutoring.
- **Health & Wellness:** Establishing home-based bakeries, yoga studios, or specialized fitness and nutrition coaching.
- **Womania on GeM:** A special window on the Government e-Marketplace (GeM) allowing women-led micro and small enterprises to sell goods and services directly to government departments.
- **TREAD Scheme:** Provides government grants up to 30% of the total project cost along with NGO-led training and counselling for self-employment.

Challenges:

Women entrepreneurs face many major hurdles, notably lack of funding, work-life imbalance, and gender bias. These obstacles make it harder for women to start, run, and grow their own businesses compared to men.

Financial and Market Barriers:

- **Access to capital:** Lenders and investors often hesitate to fund women. Women also own less property or land to use as security (collateral) for bank loans.
- **Stiff market competition:** Competing against large, established, or male-led companies is tough when operating on smaller budgets and thin profit margins.

- **Resource scarcity:** Securing raw materials at fair prices or discounts is harder due to limited connections in the market.

Social and Family Pressures:

- **Dual responsibilities:** Women are often expected to do most of the household chores and care for family members, leaving less time and energy for their businesses.
- **Cultural and social norms:** Traditional rules in society can limit a woman's freedom to travel, meet clients, or work late hours.
- **Lack of networks:** It is harder to find mentors, business groups, or professional

support systems that are welcoming and helpful.

Skills and Confidence Hurdles:

- **Less business training:** Many women enter the market with fewer chances to learn professional management, marketing, or digital skills.
- **Doubt and bias:** Dealing with a male-dominated business world can lower self-confidence and create a constant fear of fails.

Results:

1. Section:

Overviews of selected secondary sources:

Source Category	Number of documents Reviewed	Core Themes Addressed	Key Geographic Focus
Peer Reviewed Journals	35	AI tools, operational efficiency, algorithmic bias	Global\Regional
Institutional Reports	12	Financial inclusion, digital literacy, policy gaps	Developing Economies
Whitepapers\Industry Case studies	8	Real-world applications, cost reduction metrics	Global Tech Sector

2. Section: Synthesised Opportunities:

- **Operational Efficiency and Automation:** Report the consensus across literature regarding time-saving metrics
- **Market Expansion and Digital Democratisation:** Present data on how platforms scale businesses.
- **Financial and Risk Optimisation:** Detail findings related to automated cash-flow management and algorithmic inventory tracking

3. Section: Synthesised Challenges: The Skill Gap and Digital Divide: Cite the consistent finding that lack of formal technical training prevents deep AI integration.

- **Socio-Economic Barriers and Capital Constraints:** Highlight data on the high costs of premium AI subscriptions or custom infrastructure relative to the average funding available to female founders.
- **Algorithmic Bias in Ecosystem Support:** Highlight findings where secondary data shows credit-scoring algorithms or automated venture capital screening processes exhibit systemic gender bias.

Discussions:

- **Increasing Risk Appetite:** Since women have several financial options to avail from, it needs increased risk appetite in India's

women before they leave behind men in the startup race.

- **Bringing Women to Leadership:** The key drivers of women entrepreneurship are investment in infrastructure and education, which predict a higher proportion of businesses started by women in India.
- **Women Role Models for Women:** Higher female ownership of local businesses in related industries predicts greater relative female entry rates.
- **Encouraging Women Investors:** A majority of investor groups are composed of and are led by men, and investment committees are mostly male-dominated. Only 2% of the angel investors are women.
- **Role of Government:** Most of the women entrepreneurs are of the opinion that because of lack of training, they are not able to survive in the market. The government should conduct frequent training programmes for new production techniques, sales techniques, etc. and make it compulsory for women entrepreneurs.
- **Develop Women Entrepreneurship Zones (WEZs):** These zones can offer subsidized rental rates, access to shared facilities (e.g., co-working spaces, manufacturing units), and specialized support services.
- **Leverage Digital Platforms and E-Commerce:** Develop online platforms and marketplaces specifically designed to promote and sell products and services from women-owned businesses.
- The e-commerce platform "Shepreneurs" exclusively features products and services from women-owned businesses.
- **Establish Women Entrepreneur Ambassadors:** Identify and recognize successful women entrepreneurs like **Falguni Nayar** and **Kiran Mazumdar-Shaw** as

ambassadors or role models in their respective industries or regions.

Conclusion:

Artificial Intelligence represents a paradigm shift in how businesses operate, but its ultimate success lies in its inclusivity. If the future of industry is digital, the future of equity depends on who controls that digital space. Elevating women entrepreneurs within the AI ecosystem is not just a matter of economic optimization or hitting GDP milestones; it is a mandate for social justice. Even after centuries of struggle marked by gains made in terms of empowerment, women continue to face undeniably taxing struggles in all fields of life and work and the patriarchy is far from over. For India to become a \$5 trillion economy, entrepreneurship by women must play a bigger role in its economic development. India's gender balance is among the lowest in the world and improving it is important not just for gender equality, but the entire economy. By dismantling these social and economic barriers and providing targeted support, India can unlock the vast potential of women entrepreneurs through **Women-led Development**. This will not only promote gender equality but also significantly contribute to the **nation's economic growth**. The study concluded with actionable, policy-oriented recommendations, highlighting the necessity of localised capacity-building frameworks, state-level investments in targeted technical education, and the engineering of inherently inclusive, supportive AI ecosystems to foster long-term community welfare and sustainable female entrepreneurship.

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Financial Planning and Budgeting in Entrepreneurship: The Backbone of Business Success

Akshata R. Hirekimbi

Lecturer in ASS Commerce College Gadag, Betegeri.

Corresponding Author - Akshata R. Hirekimbi

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Abstract:

Every new business starts with an idea and energy. But energy doesn't pay salaries or buy inventory. That's why money management decides if a company grows or shuts down. Globally, 50% to 90% of startups fail within 5 years. The top reason is poor financial management. Founders run out of cash, misjudge costs, or don't track money.

This paper studies two tools that solve this: Financial Planning and Budgeting. Planning helps decide how much money is needed and where it will come from. Budgeting turns that into monthly action — controlling costs and managing cash.

With focus on India, this paper uses data from RBI, NSSO, InnoVen Capital and cases like OYO and The Momo Co. It shows that in a country with limited capital and long payment cycles, financial discipline is what separates survivors from failures.

Keywords: Entrepreneurship, Financial Planning, Budgeting, Cash Flow, Startups, MSMEs, India.

Introduction:

India in 2026 is booming with new businesses. A student in Bengaluru can launch an app. A woman in Jaipur can sell on Instagram. A farmer can start agri-tech. Starting is easy. Surviving is hard.

CB Insights 2023: 38% of startups die due to running out of cash.

RBI 2023: 50% of Indian MSMEs close within 5 years due to working capital issues. The gap is clear. We have entrepreneurs, but not enough financial discipline.

Financial Planning is the big-picture map. How much money, where from, where to.

Budgeting is Following the map daily. How much to spend this month. For a founder with ₹5 Lakhs, these decide life or death of the business. This paper explains why they matter and how to do them right in India.

Objectives of the Study:

1. To define financial planning and budgeting for entrepreneurs
2. To examine why planning is critical for Indian startups and MSMEs
3. To evaluate how budgeting helps in cost control and cash management
4. To identify financial challenges specific to Indian entrepreneurs
5. To recommend practical ways to plan and budget better
6. To support with Indian data and case studies

Research Methodology:

Research Design:

Descriptive research design using secondary data. The aim is to understand existing information on financial planning and budgeting among Indian entrepreneurs. Sources of Secondary Data Government Reports: RBI 2023,

NSSO 2022, Ministry of MSME 2023 Industry Reports: InnoVen Capital 2023, CB Insights 2023, U.S. SBA 2022 Academic Books: Chandra 2017, Gitman & Zutter 2019 Case Studies: OYO Rooms, The Momo Co. Pune.

Limitations:

1. No primary data collected
2. Depends on accuracy of published reports
3. May not reflect 2025-2026 situation fully

Review of Literature:

Chandra (2017): Financial planning is deciding in advance how much money is needed and how to use it.

Gitman & Zutter (2019): Budgeting translates strategy into numbers. Global: U.S. SBA says 82% failures due to cash flow. CB Insights ranks "no money" as #2 reason.

India: NSSO 2022: 68% MSMEs use family savings. InnoVen 2023: 29% startups shut due to no cash. RBI 2023: Poor working capital management is main reason for loan defaults.

Research Gap:

Most books talk about big companies. Little guidance for first-time Indian founders with small budgets.

Conceptual Framework:

Financial Planning:

The Google Maps for business. Answers: How much? From where? How to spend? What return?

Covers capital budgeting, financing mix, and risk planning.

Budgeting:

The speedometer. Breaks annual plan into monthly targets.

Types: Master Budget, Cash Budget, Sales Budget, Expense Budget, Capital Budget.

Why Financial Planning Matters?

1. Prepares for Risk:

Late payments, price rise, rule changes. Planning builds 3–6-month emergency fund and "what-if" scenarios.

2. Helps Raise Money:

Banks and MUDRA, CGTMSE, Startup India demand project reports with 5-year projections. Good plan = higher approval.

Why Budgeting Matters?

3. Controls Waste:

Splits fixed vs variable cost. Monthly review finds leaks. Ex: Cloud kitchen cut packaging cost from 18% to 10% and saved ₹3L.

4. Manages Cash:

Cash budget shows money in vs money out. Tells you in Jan that April will have a crunch. Profit ≠ Cash.

5. Measures Performance:

Budget vs Actual every month. If ad spend doubles but sales don't, stop the campaign.

6. Improves Decisions:

Discount? New machine? Hire? Budget gives data instead of gut feeling.

Financial Challenges in India:

1. Hidden Costs: GST 18%, gateway fees, platform commission 20-30%, CA fees. Mumbai D2C brand shut because they forgot these.

2. Working Capital Trap: Clients pay in 90 days. Vendors want in 15 days. Profitable but no cash.

3. Mixing Money: NSSO 2022: 68% use family funds. Leads to messy books and tax issues.

4. Low Financial Literacy: Founders good at sales, bad at P&L and tax.

5. Seasonality: Diwali, harvest, school season. Without budget, overstocking leads to losses.

6. Costly Debt: Small business loans at 12-20%. EMI becomes burden without planning.

Best Practices:

1. Plan 12 months before launch with 3 financial statements
2. Use Tally, Zoho Books, Vyapar, Khatabook
3. Monthly MIS: Budget vs Actual + Cash Flow
4. Separate current account + business UPI
5. Keep 3-6 month emergency fund
6. Budget for GST, TDS, Advance Tax
7. Use MUDRA, Seed Fund, CGTMSE schemes
8. Hire CA in month.

Case Studies:**Case 1: OYO Rooms:**

2013-16: Expanded without unit economics. Burned \$300M.

2017-20: Introduced property-level budgeting. Became stable.

Lesson: Growth without budgeting = expensive failure.

Case 2: The Momo Co., Pune:

Started with ₹6L. Budget: 40% raw material, 20% packaging, 20% marketing, 10% ops, 10% buffer. Used Zoho Books.

Result: ₹2.3 Cr revenue in 3 years + ₹1.5 Cr funding.

Case 3: InnoVen 2023:

Top 3 failure reasons: No market 42%, No cash 29%, Team 23%.

Major Findings:

Finding 1: 29%-38% of startups fail due to running out of cash. Poor financial planning is the 2nd biggest killer.

Finding 2: 82% business failures are due to cash flow, not profit. Indian B2B payment cycle of 90 days is the main trap.

Finding 3: 68% of Indian MSMEs mix personal and business money. This blocks loans and creates tax problems.

Finding 4: Banks and govt schemes demand financial projections. Businesses with budgets get funding faster.

Finding 5: Monthly budgeting + digital tools increase survival. OYO's turnaround after 2017 proves this.

Suggestions and Recommendations:

Suggestion 1: Make 12-month financial plan compulsory before launch. Colleges and incubators should enforce this.

Suggestion 2: Use monthly cash flow forecast. Take 30-50% advance from B2B clients to manage working capital.

Suggestion 3: Open separate business account on day 1. Govt and banks should run free bookkeeping workshops.

Suggestion 4: Teach "Finance for Founders" in colleges. Promote low-cost tools like Vyapar and Zoho for tracking.

Suggestion 5: Do Budget vs Actual review every month. Keep emergency fund of 3-6 months expenses.¹⁴ Tools and MethodsStartup Budget Sheet12-Month Cash Flow ForecastBreak-even AnalysisVariance ReportScenario Planning: Best, Base, Worst case¹⁵.

Conclusion:

An idea without money is a hobby. A business without financial discipline is a time bomb. Financial planning gives direction. Budgeting ensures you follow it. In India, with UPI, GST, and govt schemes, we have the tools. What we need is the mindset from day 1. "If you fail to plan your finances, you are planning to fail in business." Govt and colleges must push financial literacy. Every founder must treat finance as product #1.

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A Study on digital Financial Inclusion and Self-Help Groups in Karnataka: A Theoretical Review into Empowerment, Credit Linkage, and Sustainable Development

Ashwini M. Kulkarni

Research Scholar, CMR University, Bangalore.

Corresponding Author - Ashwini M. Kulkarni

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Abstract:

This theoretical review examines the role of digital financial inclusion in strengthening the functioning of Self-Help Groups (SHGs) in Karnataka, with a focus on women's empowerment, credit linkage, and sustainable development. Digital financial inclusion, facilitated through mobile banking, digital payment systems, Aadhaar-enabled services, Unified Payments Interface (UPI), and online banking platforms, has transformed the accessibility and efficiency of financial services for rural women. SHGs, supported by government initiatives and financial institutions, have become an important mechanism for promoting savings, credit access, entrepreneurship, and socio-economic development.

The review synthesizes existing literature, policy documents, and empirical studies to explore how digital technologies enhance financial literacy, improve transparency in financial transactions, strengthen bank linkage programmes, and promote economic participation among SHG members. It also discusses the contribution of digital financial services to achieving the Sustainable Development Goals (SDGs), particularly those related to poverty reduction, gender equality, financial inclusion, and inclusive economic growth. Despite significant progress, the review identifies challenges such as digital illiteracy, inadequate internet connectivity, cybersecurity concerns, and socio-cultural barriers that continue to limit the effective adoption of digital financial services in rural Karnataka.

The study concludes that digital financial inclusion has considerable potential to enhance the sustainability and resilience of SHGs by improving access to formal financial services, facilitating timely credit, and empowering women economically and socially. It recommends strengthening digital infrastructure, enhancing financial and digital literacy, expanding institutional support, and promoting collaborative efforts among governments, banks, and non-governmental organizations to maximize the developmental impact of digital financial inclusion. The findings provide a conceptual foundation for future empirical research and offer valuable insights for policymakers, financial institutions, and development practitioners working towards inclusive and sustainable rural development.

Introduction:

The financial services sector in India has seen a substantial conversion in recent years due to the upsurge of Digital Financial Inclusion (DFI). DFI is the progression of via digital platforms and technology to deliver formal financial services to underbanked and underserved clusters, particularly in rural and

semi-urban areas (RBI, 2022). Thanks to its prominence on inclusive growth, which is boosted by Digital India initiatives, Jan Dhan Yojana, and the widespread usage of mobile banking and UPI, India is currently leading the worldwide financial inclusion inclination. Among the prime recipients of this digital revolution are Self-Help Groups (SHGs), which are small, unofficial groups

mostly composed of womankind who join together for the goals of redeemability, community development, and social recognition. In the earlier stages, SHGs have been critical in endorsing social and economic enablement, especially for neglected countryside & rural womenfolk. Through inter-lending and group savings, these ordinary establishments encourage daily livings, skill development, and microcredit (Singh & Kaur, 2020). However, their scalability and long-term feasibility were previously hindered by the deficiency of strong financial ties. These days, digital platforms that bid mobile banking, real-time financial data, and crystal-clear accounting systems are supplementary in closing this social gap.

The use of digital technology into SHG events has enhanced the financial literacy and liberation of group members. For example, smartphone applications and UPI services permit SHGs to transact, uphold digital records, and interact electronically with financial institutions. This accessibility not only diminishes transaction costs but also expands creditworthiness and financial castigation among rural borrowers (Mehrotra & Sharma, 2021). Furthermore, government sustenance through initiatives like the National Rural Livelihood Mission (NRLM) and NABARD's e-Shakti program has assisted DFI to further develop its grasp into the hinterlands. These exertions empower more precise subsidy targeting, more effective loan distribution, and improved monitoring systems.

DFI and SHGs at work together is a financial inclusion and sustainable development approach. The Sustainable Development Goals (SDGs), which comprise dropping poverty rate, advancing gender equality, reassuring decent employment in the country, and lowering inequality, can be proficient with the aid of Self-Help Groups (SHGs) when they are properly vested digitally. SHGs may use digital platforms

to market their crops & other products online, link with new value chains, and involve in e-commerce—all of which contribute to the development of entrepreneurial ecosystems in rural India (World Bank, 2022).

Review of Literatures:

Evolution of Financial Inclusion in India:

In India, the impression of financial inclusion has transformed significantly through the last 20 years. Primarily, it engrossed on providing the unbanked inhabitants with standard banking services through physical branches and cooperative groups. However, as digital infrastructure and mobile technologies have advanced more, financial inclusion initiatives have lifted toward digitalized systems to overawed socioeconomic and geographic restrictions (Chakrabarty, 2011). The employment of government initiatives like as the Pradhan Mantri Jan Dhan Yojana (PMJDY), Aadhaar authentication, and smartphone infiltration set the foundation for the development of DFI.

The Reserve Bank of India (2021) demanded that the increasing use of digital gears like mobile banking, Aadhaar-enabled Payment Systems (AePS), and the Unified Payments Interface (UPI) has underwritten to a stable improvement in the financial inclusion index.

More effectually than ever before, these tools have aided in the delivery of credit services, insurance, savings accounts, and besieged subsidies.

Role of SHGs in Financial Empowerment:

Self-Help Groups (SHGs) have been a significant part of India's rural development story since the 1990s. SHGs were originated as grassroots collectives, mostly composed of women, and are frequently supported by NGOs or the government to backing members in saving money and offering minor amounts to one

another. They are vital for building social capital, evolving leadership, and promoting community engagement, claim Nair and Tankha (2015). In addition to financial aid, SHGs offer a variety of social safety nets and emotional sustenance, specifically to women in underserved provinces. The NABARD SHG-Bank Linkage Programme (SBLP), which linked SHGs to conventional financial institutions, accelerated the formalization of SHGs even more.

The foundation for financial inclusion in our country through community-based models was arranged by this assembly, which offered access to financing, capacity-building programs, and entrepreneurial opportunities (NABARD, 2022).

Digital Financial Inclusion: Bridging Gaps:

Digital financial inclusion, according to current study, is a change in the availability, price, and use of financial services for underserved community clusters. It goes beyond just executing new-fangled technology. Women in SHGs that involved with mobile-based financial tools displayed better-quality credit discipline, faster payback, and more varied revenue-oriented income streams, according to Mehrotra and Sharma (2021). SHGs are now able to reserve financial transaction transparency and reduce their dependence on middlemen thanks to tools like UPI, mobile wallets, and digital record-keeping schemes. Over 1.2 crore SHG members' records have been digitized because to projects like NABARD's e-Shakti program. This improves the organizations' creditworthiness and makes it possible for improved micro-level financial planning, policymaking, and monitoring (NABARD, 2022). Additionally, digital platforms facilitate the inclusion of new users by allowing women who have never used a bank before to create accounts, ask for loans, and immediately receive subsidies.

Digital Divide and Literacy Barriers:

Notwithstanding the encouraging expansion of DFI, a number of studies have brought attention to India's ongoing digital divide, especially for women and senior citizens living in rural areas. According to Banerjee and Duflo (2019), many SHG members' engagements are frequently restricted by their lack of smartphone access and digital literacy. Widespread acceptance is also hampered by infrastructure problems including inadequate internet access, unintuitive user interfaces, and worries about cyber-crime.

Furthermore, human touchpoints are still important even when the digital transition is increasing efficiency. For the understanding and practice of mobile applications, a number of SHGs still be contingent on implementers, often known as "Banking Sakhis." Hence, trust-building actions, localized content, and exercise programs continue to be key for a positive digital incorporation in our country. (Kumar & Mahadevan, 2020).

DFI and Sustainable Development Goals (SDGs):

The linking between DFI and the Sustainable Development Goals (SDGs) is slowly opening to be familiar by worldwide study. Digital financial services allow SHGs to start small enterprises, contribute in online marketplaces, and involve in e-commerce activities. These findings have a straight impact on SDG goals such as poverty reduction (SDG 1), gender equality (SDG 5), and decent employment and economic growth (SDG 8) (World Bank, 2020). When women in SHGs are allowed financially and digitally, it advances community health, children's education, and domestic decision-making.

Objective of the Study:

The primary objective of this research is to study how digital financial inclusion affects the overall empowerment, operational effectiveness, and financial development of Self-Help Groups (SHGs) in Karnataka. It aims to measure how effectively government rules, digital technologies, and institutional support improve SHG members' access to financial services and credit. Moreover, the research pursues to establish if combining digital finance with SHG operations positively chains long-term sustainability and bring into line with broader developmental goals such as inclusive economic growth, gender equality, and poverty lessening in the community.

Research Methodology:

This study employs a theoretic approach to comprehend how digital financial inclusion is enhancing Self-use Groups (SHGs) in Karnataka through the use of a case study investigation.

Secondary data collected from a diversity of reliable sources, including academic journals, magazines, newspapers, e-books, and administrative websites (such as the Ministry of Rural Development, RBI, and NABARD), forms the basis of the entire study. Particular emphasis is paid to the analysis of NABARD's monthly reports, predominantly those that deal with microfinance and digital SHG initiatives like the e-Shakti project. The data is prudently studied to identify trends, policy outcomes, and real-world challenges SHGs face while using digital technology in the society.

With an importance on long-term sustainability and empowerment, the study pursues to provide a compact information of how digital finance mechanisms are positively inducing the financial inclusion landscape in rural India through this detailed review.

Findings & Discussions:

SHG Expansion and Digital Financial Inclusion:

Table 1: Illustrative Regional Status of Digital Financial Inclusion among SHGs in Karnataka

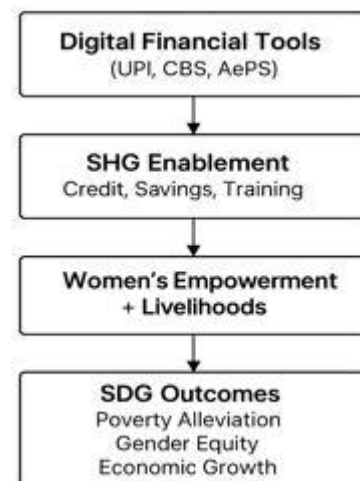
Region	Representative Districts	Digital Financial Inclusion	SHG–Bank Linkage	Major Challenges
Southern Karnataka	Bengaluru Urban, Mysuru, Mandya	High	High	Increasing digital fraud awareness
Coastal Karnataka	Dakshina Kannada, Udupi, Uttara Kannada	High	High	Expanding advanced digital financial services
Central Karnataka	Davanagere, Chitradurga, Shivamogga	Moderate to High	Moderate	Digital literacy gaps in rural areas
Mumbai-Karnataka (Kittur Karnataka)	Belagavi, Dharwad, Haveri, Gadag, Vijayapura	Moderate	Moderate to High	Uneven digital infrastructure
Kalyana Karnataka	Kalaburagi, Yadgir, Raichur, Koppal, Ballari, Bidar	Low to Moderate	Moderate	Poor connectivity, lower financial literacy, limited digital adoption

Table 2: Region-wise Average Annual Income of SHG Members in Karnataka (Illustrative)

Region	Major Districts	Average Annual Household Income of SHG Members (₹)	Average Monthly Income (₹)	Income Category
Bengaluru Region	Bengaluru Urban, Bengaluru Rural, Ramanagara, Chikkaballapur, Kolar	2,35,000	19,580	Very High
Mysuru Region	Mysuru, Mandya, Hassan, Kodagu, Chamarajanagar	1,95,000	16,250	High
Belagavi Region	Belagavi, Dharwad, Gadag, Haveri, Vijayapura, Bagalkot	1,72,000	14,330	Moderate
Kalaburagi Region	Kalaburagi, Yadgir, Bidar, Raichur, Koppal, Ballari	1,48,000	12,330	Moderate–Low
Mangaluru (Coastal) Region	Dakshina Kannada, Udupi, Uttara Kannada	2,12,000	17,670	High
Shivamogga Region	Shivamogga, Davanagere, Chikkamagaluru	1,88,000	15,670	High

Interpretation:

- Bengaluru Region records the highest SHG household income because of diversified employment, stronger digital financial services, and better market access.
- Coastal Karnataka (Mangaluru Region) also reports relatively high incomes due to fisheries, tourism, trade, and greater banking penetration.
- Mysuru and Shivamogga Regions show strong performance supported by agriculture, dairy, and small enterprises.
- Belagavi Region exhibits moderate income levels owing to agro-based industries and rural entrepreneurship.
- Kalaburagi Region records comparatively lower income because of rain-fed agriculture, lower industrialization, and relatively limited livelihood diversification.

A Conceptual Framework Linking Digital Financial Tools, SHG Empowerment, and Sustainable Development Outcomes**Figure 1: Conceptual Framework****Conclusion & Policy Suggestions:**

Self-Help Groups (SHGs) are becoming substantial agents of rural economic development because to digital financial inclusion. According

to NABARD's SHG-BLP statistics, digitalization has improved women's financial self-sufficiency, credit availability, and repayment patterns (NABARD, 2024). SHGs assist as podiums for social mobility and empowerment in addition to being successful financial entities.

The review also indicates that digital financial inclusion has strengthened financial discipline, reduced transaction costs, improved access to formal credit, and enhanced the participation of women in household and community-level economic decision-making. Increased digital connectivity has enabled SHGs to engage more effectively with banks, government welfare schemes, and market opportunities, thereby contributing to inclusive rural development and sustainable livelihood creation.

In conclusion, digital financial inclusion has substantially enhanced the effectiveness of SHGs in Karnataka by improving credit linkage, promoting women's empowerment, and supporting sustainable rural development. Nevertheless, bridging regional inequalities and strengthening digital capabilities remain essential for ensuring that every SHG member can fully participate in the digital financial ecosystem. Future empirical research should focus on district-wise analysis of digital transaction behavior, credit utilization patterns, and the long-term impact of digital financial inclusion on women's entrepreneurship, livelihood resilience, and sustainable development outcomes across Karnataka.

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Financial Inclusion and Women's Entrepreneurial Empowerment in North Karnataka: A Pathway to Viksit Bharat 2047

Mr. Mustaq Mulla

Teaching Assistant, Department of Commerce,

Sangolli Rayanna First Grade Constituent College, Kitturu Rani Channamma University, Belagavi

Corresponding Author - Mr. Mustaq Mulla

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Abstract:

Financial inclusion has become an important tool to foster women's entrepreneurial empowerment by increasing access to formal financial services, financial literacy and economic participation. Financial inclusion and women's entrepreneurial empowerment in North Karnataka is explored in this study, focusing on the significant role played by financial services, digital financial platforms, Self-Help Groups (SHGs) and government initiatives in entrepreneurial empowerment. A descriptive research design was used and primary data were gathered from 560 women from selected districts in North Karnataka, using a structured questionnaire. The study uses descriptive statistics, correlation and regression analysis methods to determine the effect of financial inclusion on entrepreneurial empowerment. The findings show that improving access to financial services, financial literacy, involvement in SHGs, and the use of digital financial tools have a significant impact on women's entrepreneurial confidence, income generation practices, financial decision-making, and the sustainability of their businesses. While such achievements have been made, some obstacles remain, including lack of digital literacy, a lack of financial awareness and socio-cultural barriers that are stifling entrepreneurial development. The study demonstrates that targeted policies and skill development programmes, inclusive financial ecosystems can help in sustainable rural development, women entrepreneurship and inclusive economic growth in support of the vision of Viksit Bharat 2047.

Keywords: Financial Inclusion, Women's Entrepreneurial Empowerment, Financial Literacy, Self-Help Groups, Digital Financial Services, North Karnataka, Viksit Bharat 2047.

Introduction:

Access to formal financial services like savings, credit, insurance and digital payment systems is essential for the empowerment of women's entrepreneurship, which is one of the key pillars of financial inclusion. Women's access to these services allows women to create and grow businesses, make better financial choices, and increase their socio-economic status (Demirgüç-Kunt et al., 2022).

The introduction of financial support schemes like Pradhan Mantri Jan Dhan Yojana (PMJDY), Mudra Yojana, Digital India and the

Self-Help Groups (SHGs) have had positive impacts on the access of women to financial resources and the availability of entrepreneurial opportunities in India. These programs have fostered financial independence, entrepreneurship, and sustainable livelihoods, especially in rural areas (Reserve Bank of India, 2024).

Despite these efforts, women in North Karnataka still come across hurdles such as low financial literacy, lack of institutional credit, lack of access to digital technologies, and socio-cultural constraints which inhibit entrepreneurial

development. The key to solving these constraints lies in improving financial inclusion, which can result in better women entrepreneurs' capabilities and economic participation.

Incorporation of women-led entrepreneurship into the inclusive financial systems is crucial to sustainable economic development and development agenda 2047 of Viksit Bharat. Hence, this study focuses on the financial inclusion's contribution to entrepreneurial empowerment of women in the North Karnataka region and offers policy recommendations to the policymakers and financial institutions.

Review of Literature:

The Global Findex Database 2021 report by Demirgüç-Kunt et al. (2022) revealed that financial inclusion via FDs and formal banking has a significant positive impact on women's economic mobility and financial resilience. But there is a huge gap in gender access to digital financial services.

According to NITI Aayog (2023), financial literacy, access to institutional finance and digital financial infrastructure are critical to advancing women entrepreneurship in India. The report highlighted the need to make financial policies more inclusive for supporting women's role in economic development.

The Reserve Bank of India (2024) pointed out that the initiatives of the government like PMJDY, Digital banking, and UPI have significantly improved financial inclusion for women. But formal credit and other financial services remain inaccessible to rural women.

Sharma & Gupta (2023) concluded that SHGs enhance the financial literacy, loan availability, entrepreneurship capacities, and decision making powers of women which contributes to the economic empowerment of women in the rural areas of India.

According to Kumar and Singh (2024), financial inclusion positively correlates with women entrepreneurship as it expands access to finance, helps women to grow their businesses, and boosts their income generation, particularly in rural areas.

Research Gap:

The literature on financial inclusion and women's empowerment has tended to be conducted separately and/or on financial access and financial literacy. There is limited empirical studies explaining the linkages between financial inclusion and women entrepreneurs' empowerment in North Karnataka. This study aims to fill this knowledge gap by analyzing the role of financial inclusion in the process of entrepreneurial empowerment in a regional perspective, keeping in mind the goal of Viksit Bharat 2047.

Objectives of the Study:

1. To examine the level of financial inclusion among women in North Karnataka.
2. To assess the impact of financial inclusion on women's entrepreneurial empowerment in North Karnataka.
3. To identify the challenges and suggest measures for strengthening financial inclusion to promote women's entrepreneurial empowerment in North Karnataka.

Research Methodology:

- **Research Design:** The study adopted descriptive research design to look into the role of financial inclusion in entrepreneurial empowerment of women in North Karnataka.
- **Study Area:** The study was done in North Karnataka.
- **Sources of Data:** The study uses both primary and secondary sources of data.

Structured questionnaire was used for the collection of primary data and books, journal, RBI reports, World Bank reports, government reports etc. were utilized for secondary data.

- **Sampling Technique:** The respondents were selected by purposive sampling technique.
- **Sample Size:** The study was conducted on 100 women respondents of North Karnataka.

- **Data Collection Tool:** A structured questionnaire was used to collect primary data.

- **Statistical Tools:** The data collected were analyzed with descriptive statistics, correlation analysis and regression analysis with SPSS version 26.0.

Data Analysis and Interpretation:

Table 1: Demographic Profile of Respondents (N = 100)

Demographic Variable	Category	Frequency (N)	Percentage (%)
Age (Years)	18–30	28	28.0
	31–40	35	35.0
	41–50	24	24.0
	Above 50	13	13.0
Educational Qualification	Primary	18	18.0
	Secondary	32	32.0
	Graduate	38	38.0
	Postgraduate & Above	12	12.0
Occupation	Agriculture	26	26.0
	Business	34	34.0
	Service	18	18.0
	Others	22	22.0
Annual Income (₹)	Below 1,00,000	30	30.0
	1,00,001–2,00,000	37	37.0
	2,00,001–3,00,000	21	21.0
	Above 3,00,000	12	12.0

Interpretation: Table 1 gives the demographic profile of the respondents. Most respondents (35%) are from the age group 31-40, and the next age group with the highest proportion of respondents (28%) is the 18-30 age group, showing that the majority of the respondents are in their economically productive age group. As far as education qualification is concerned, 38% are graduates which means quite a reasonable level of education that can help them in financial awareness and make decisions for their business. The occupation-wise distribution of the people in the study area shows that a majority of the population is engaged in business activity and

agriculture is a secondary occupation as 34% and 26% of the population are engaged in business and agriculture respectively. As far as income is concerned, 37% of the respondents fall in the category of annual income between ₹1,00,001 and ₹2,00,000, which represents the lower middle class. From this, it can be inferred that the socio-economic attributes of the respondents are suitable for understanding the financial inclusion and its effect on women entrepreneurship empowerment in North Karnataka.

Table 2: Distribution of Respondents Based on Financial Inclusion Status (N = 100)

Financial Inclusion Indicator	Category	Frequency (N)	Percentage (%)
Bank Account Ownership	Yes	94	94.0
	No	6	6.0
Use of Digital Payment Services	Yes	76	76.0
	No	24	24.0
Access to Formal Credit	Yes	68	68.0
	No	32	32.0
Participation in SHGs	Yes	72	72.0
	No	28	28.0
Financial Literacy Training	Yes	61	61.0
	No	39	39.0

Interpretation: Table 2 shows that formal financial services have high level of access as 94% of the respondents have bank account. More than half (76%) women are using digital payment services, and this figure shows an increase in the use of digital financial platforms. Further, 68% have access to formal credit and 72% of women entrepreneurs belong to the Self-Help groups (SHGs) which shows the significance of institutional finance and community based

organization in empowering women entrepreneurs. But, 61% of the respondents have been financially literated, indicating that there is a substantial part of the population that is still short of financial literacy. The results suggest that overall, financial inclusion has improved significantly in North Karnataka but there is a need to improve financial knowledge so as to boost women entrepreneurs' empowerment.

Table 3: Distribution of Respondents Based on Women's Entrepreneurial Empowerment (N = 100)

Level of Entrepreneurial Empowerment	Frequency (N)	Percentage (%)
Low	18	18.0
Moderate	47	47.0
High	35	35.0
Total	100	100.0

Interpretation: Table 3 shows that 47% of the respondents have a moderate level of entrepreneurial empowerment, and 35% have a high level of entrepreneurial empowerment. Just 18% are in low empowerment. The results indicate that the financial inclusion efforts adopted, such as accessing banking services, formal credit, digital financial services, and

engaging in Self-Help Groups (SHGs) have positively helped to boost women entrepreneurs' capacity. But the low entrepreneurial empowerment of the respondents presents the need of increase in financial literacy, better institutional credit facilities and entrepreneurship development programmes to further empower women entrepreneurs in North Karnataka.

Table 4: Correlation between Financial Inclusion and Women's Entrepreneurial Empowerment (N = 100)

Variables	Pearson Correlation (r)	p-value	Interpretation
Financial Inclusion and Women's Entrepreneurial Empowerment	0.684	0.000**	Positive and Significant

Note: Significant at the 0.01 level (2-tailed).

Source: Computed from Primary Data using SPSS.

Interpretation: Table 4 shows the correlation between women's entrepreneurial empowerment and financial inclusion. The Pearson correlation coefficient ($r = 0.684$) shows that there is a positive strong correlation between the two variables. The p-value (0.000) is below 0.01, which indicates that the relationship is statistically significant. This suggests that increased financial inclusion, such as access to

banking services, formal credit, digital financial services, and financial literacy is linked to increased entrepreneurial empowerment among women in North Karnataka. The results endorse the conclusion that financial inclusion plays a crucial role in women entrepreneurship and financial empowerment.

Table 5: Regression Analysis of Financial Inclusion on Women's Entrepreneurial Empowerment (N = 100)

Dependent Variable: Women's Entrepreneurial Empowerment

Particulars	B	Std. Error	Beta	t-value	p-value
(Constant)	1.245	0.312	–	3.990	0.000
Financial Inclusion	0.678	0.082	0.684	8.268	0.000**

Model Summary

R	R ²	Adjusted R ²	F-value	Sig.
0.684	0.468	0.462	68.36	0.000**

Note: Significant at the 1% level ($p < 0.01$).

Source: Computed from Primary Data using SPSS.

Interpretation: Table 5 shows the regression analysis results that examine the effect of financial inclusion on women's entrepreneurial empowerment. It is found that the regression coefficient ($\beta = 0.684$) is positive and statistically significant ($p < 0.01$) with financial inclusion showing a significant positive association with women's entrepreneurial empowerment. The coefficient of determination ($R^2 = 0.468$) indicates that 46.8% of the entrepreneurial empowerment is accounted for by financial inclusion. The significant F value (68.36, $p < 0.01$) indicates the regression model is statistically significant and that the model fits the data. Based on the findings, it can be inferred that better access to banking and formal credit facilities, financial knowledge and financial literacy improves women entrepreneurship and promotes business development in North Karnataka.

Hypothesis Testing:

Null Hypothesis (H_0): There is no significant effect of financial inclusion on women's entrepreneurship empowerment in the area of North Karnataka.

Alternative Hypothesis (H_1): Financial inclusion has significant positive effect on women entrepreneurial empowerment in North Karnataka.

Decision: The regression analysis shows that the probability value is 0.000, which is smaller than the significance level (0.05). Hence, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.

Inference: The results validate that there is a strong positive relationship between financial inclusion and women's entrepreneurial empowerment in North Karnataka. Better access to banking, formal credit, digital financial services and financial literacy increases women's capacity to build, operate and maintain business activities. The findings emphasize the need to

enhance financial inclusion efforts to support women entrepreneurs and support the aspiration of Viksit Bharat 2047.

Results and Discussion:

The study results suggest that financial inclusion is contributing significantly towards women's entrepreneurial empowerment in North Karnataka. The demographic analysis shows that the respondents are mostly economically active, with the majority having a good educational background, which helps them to access financial services. There is an improvement in the level of financial inclusion with majority of the respondents having access to formal banking services, digital payment systems and Self-Help Groups (SHGs).

The correlation and regression analysis result showed that there is a significant positive correlation and regression between financial inclusion and women's entrepreneurial empowerment. Women's confidence in business start-up and business management has been boosted through access to formal credit, financial education and access to digital financial services. The involvement of SHGs also adds to their entrepreneurial skills as they are provided with credit, training and market opportunities.

The study, however, highlights the continuing problem of women in terms of entrepreneurial development such as financial illiteracy, lack of knowledge of the government schemes and lack of access to institutional finance. These can be tackled with targeted financial literacy programmes, digital financial inclusion initiatives and enhanced access to credit for women entrepreneurs to further bolster women entrepreneurship. The results highlight the significance of financial inclusion in empowering women entrepreneurs and its role in the vision of Viksit Bharat 2047.

Conclusion:

The study concludes that financial inclusion is one of the important factors that determines the entrepreneurial empowerment of women in North Karnataka. Women's access to formal financial services, institutional financing, digital financial services, and financial education have been greatly improved, leading to better entrepreneurial skills, financial independence, and business sustainability. The statistical results confirm that there is a positive and significant relationship between entrepreneurial empowerment and financial inclusion, which underscores the need for inclusive financial systems to support women entrepreneurs.

Despite these positive moves, however, issues of financial literacy, access to formal credit and lack of digital literacy are still impeding entrepreneurial development. Hence, there is a need to enhance financial literacy initiatives, increase digital financial infrastructure, access to low-cost credit, and entrepreneurship initiatives for women. This will not only strengthen the women entrepreneurs but will also be a part of inclusive economic development and will pave the way for Viksit Bharat 2047.

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Role of FinTech in Promoting Women's Entrepreneurial Empowerment: A Study of Belagavi District

Smt. Neelu B. Gudadinni

Teaching Assistant,

Sangolli Rayanna First Grade Constituent College, Kitturu Rani Channamma University, Belagavi.

Corresponding Author - Smt. Neelu B. Gudadinni

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Abstract:

The Financial Technology (FinTech) has become a game-changer in both the financial inclusion and women's entrepreneurship. FinTech allows women entrepreneurs to address traditional barriers in banking, credit and financial management, by offering low-cost, low-burden and tech-enabled financial services. The present study investigates the role of FinTech to entrepreneurial empowerment of women in Belagavi District. The design used was descriptive research design and the primary data was obtained by 100 women entrepreneurs through the use of structured questionnaire. The secondary sources were books, journals, government reports, and relevant web sources. The data collected were analysed with descriptive statistics, correlation and regression analysis. The results show that the use of FinTech services like digital payment, mobile banking, Unified Payments Interface (UPI) and online lending platforms has greatly improved women's access to financial resources, financial transactions, financial decision making and entrepreneurial confidence. But, digital literacy, cybersecurity risks and lack of awareness of the high value-added services in FinTech are still threatening to limit adoption. The study finds that enhancing the digital financial knowledge, strengthening FinTech infrastructure and scaling up women-centric digital financial interventions can help boost entrepreneurship empowerment and foster inclusive economic growth in Belagavi District.

Keywords: *FinTech, Women's Entrepreneurial Empowerment, Digital Payments, Financial Inclusion, Women Entrepreneurs, Belagavi District.*

Introduction:

Financial Technology (FinTech) is changing the way financial services are provided through the use of innovative financial technologies that combine digital solutions with financial services in banking, payments, lending, insurance and investment. Mobile banking, Unified Payments Interface (UPI), digital wallets, and online lending platforms are examples of FinTech solutions that have enhanced access to financial services, especially for those who are under-served, such as women entrepreneurs (Demirgüç-Kunt et al., 2022).

Women entrepreneurs are an important part of the economic development for their employment generation and income generation and innovation. They face barriers to accessing formal finance, financial illiteracy, and process issues, however. FinTech has also proven to be a viable solution as it offers women financial services that are easy to access, safe to use, and affordable, which helps them to begin, run, and grow their businesses (Yang et al., 2022).

The Government of India has launched various initiatives digital payment systems, Digital India, Startup India and Pradhan Mantri Jan Dhan Yojana (PMJDY) have driven the

adoption of the FinTech in India. The activities have improved the financial inclusion and provided new opportunities to women entrepreneurs, particularly in semi-urban and rural areas.

As Karnataka's most prominent commercial and industrial hub, Belagavi district has seen a rise in the digital financial services usage of women entrepreneurs. However, issues like digital literacy, cybersecurity concerns, and the lack of understanding regarding the advanced FinTech services still impact the effective utilization of these. Hence, this study explores the contribution of FinTech towards the entrepreneurial empowerment of women in Belagavi District, and offers suggestions to enhance the digital financial inclusion.

Review of Literature:

In the study of the effect of digital financial inclusion on female entrepreneurship, Yang, Huang and Gao (2022) noted that FinTech plays a significant role in improving the access to finance, the financial constraints, and innovation of women entrepreneurs. The research found that access to digital finance can be considered as one of the key enablers of women's entrepreneurship. Digital infrastructure, financial literacy and institutional support were found to be determinants of financial inclusion of women in India by Govindapuram et al. (2023) which influenced their use of FinTech solutions and enhanced their economic participation. Kumarasamy et al (2023) revealed that the adoption of 'FinTech' financial services helps women-owned businesses access credit, digital payments and financial management, thereby positively impacting the growth and sustainability of women businesses in rural India. Rani and Sundaram (2023) assessed the relationship between financial inclusion and women entrepreneurs in India and found that

inclusion of financial services through digital platforms and formal financial institutions enhances the performance of the businesses, entrepreneurial confidence and income generation. The study highlighted the need for digital financial literacy to boost the capacities of women-led business.

Peter, Elangovan and Bai (2025) examined the impact of FinTech, financial literacy and financial performance of women owned enterprises. The study identified that the use of FinTech improve business efficiency, financial decisions and sustainability of entrepreneurs significantly.

Research Gap:

Studies conducted so far focus on the national level of FinTech adoption, financial inclusion and women entrepreneurship. However, there is scarce empirical research that has paid attention to the functioning of FinTech for the purpose of women entrepreneurship empowerment in Belagavi district, Karnataka state. Hence, the aim of the present study is to fill this gap of research and explore how FinTech affects women's entrepreneurial empowerment in the local context.

Objectives of the Study:

1. To examine the level of FinTech adoption among women entrepreneurs in Belagavi District.
2. To assess the impact of FinTech adoption on women's entrepreneurial empowerment in Belagavi District.
3. To identify the challenges faced by women entrepreneurs in adopting FinTech services and suggest suitable measures for enhancing digital financial inclusion.

Research Methodology:**Research Design:**

The study used descriptive research design to explore the role of FinTech in enhancing women empowerment in the context of their entrepreneurial activities in Belagavi District.

Study Area: The study was done in Belagavi District of Karnataka.

Sources of Data: This study uses primary and secondary data. Primary data was gathered using a structured questionnaire and secondary data was obtained from research journals, publications, books, government reports, web-based data and other relevant data sources.

Sampling Technique: The respondents were selected using purposive sampling technique.

Sample Size: The Study is based on 100 women entrepreneurs from Belagavi District.

Data Collection Tool: A structured questionnaire was used to collect the primary data.

Statistical Tools: Data collected were analyzed by percentage, correlation and regression analysis with the SPSS (Version 26.0).

Hypothesis:

- **H₀:** FinTech adoption has no significant impact on women's entrepreneurial empowerment in Belagavi District.
- **H₁:** FinTech adoption has a significant positive impact on women's entrepreneurial empowerment in Belagavi District.

Data Analysis and Interpretation:

Table 1: Demographic Profile of Respondents (N = 100)

Variable	Category	Frequency	Percentage
Age	Below 25 Years	18	18.0
	26–35 Years	42	42.0
	36–45 Years	26	26.0
	Above 45 Years	14	14.0
Education	SSLC	15	15.0
	PUC	28	28.0
	Graduate	39	39.0
	Postgraduate	18	18.0
Type of Business	Retail	34	34.0
	Manufacturing	21	21.0
	Service	29	29.0
	Others	16	16.0
Business Experience	Below 5 Years	41	41.0
	5–10 Years	33	33.0
	Above 10 Years	26	26.0

Source: Primary Data.

Interpretation: As seen in Table 1, majority of the respondents (42%) fall in the age group of 26-35 years which shows that the women entrepreneurs are mostly in the productive age group. In terms of educational level, 39% are

graduates, which is a good level of education for the adoption of digital financial technologies. By business category, 34% of them run retail businesses, 29% have service businesses and 21% have manufacturing businesses. Additionally,

41% of the respondents have less than five years of business experience, meaning that many are fairly new entrepreneurs. The overall demographic profile indicates the respondents are an active group of women entrepreneurs and are

suitable in conducting the study of the role of FinTech in the promotion of entrepreneurial empowerment.

Table 2: Awareness and Adoption of FinTech Services among Women Entrepreneurs (N = 100)

FinTech Service	Category	Frequency	Percentage
Awareness of FinTech	Aware	91	91.0
	Not Aware	9	9.0
Use of UPI/Digital Payments	Yes	87	87.0
	No	13	13.0
Use of Mobile Banking	Yes	79	79.0
	No	21	21.0
Use of Digital Wallets	Yes	68	68.0
	No	32	32.0
Use of Online Lending Platforms	Yes	46	46.0
	No	54	54.0

Source: Primary Data.

Interpretation: Table 2 shows the awareness and adoption of FinTech services among the women entrepreneurs in Belagavi District. The results show that 91% of the respondents are familiar with FinTech services and there is a high level of digital financial awareness. It shows that a majority (87%) accepts UPI and digital payment systems, which is quite an acceptance on the business transactions. Likewise, 79% of the respondents are using mobile banking and 68% are using digital wallets to pay finances. Only

46% have embraced online lending platforms, indicating a relatively low level of acceptance of digital credit services, however. Overall, the findings suggest that digital payment technologies have been embraced by women entrepreneurs, while advanced FinTech services like online lending, have been adopted at a comparatively low level, which might reflect a lack of awareness and trust in digital financial products.

Table 3: Purpose of Using FinTech Services among Women Entrepreneurs (N = 100)

Purpose of FinTech Usage	Frequency	Percentage
Digital Payments (UPI/QR Code)	35	35.0
Mobile Banking	22	22.0
Online Fund Transfer	18	18.0
Business Loan/Online Credit	15	15.0
Savings and Investment	10	10.0
Total	100	100.0

Source: Primary Data.

Interpretation: Table 3 shows the key reason why women entrepreneurs are using the FinTech services in Belagavi District. Digital payments (UPI/QR code) is the most widely used FinTech with 35% of the respondents stating that this is their primary use. Mobile banking (22%) and using online fund transfers (18%) are also frequent tools for conducting business.

Furthermore, 15% of the respondents use FinTech platforms to get online business credit or loans, and 10% for savings and investment. The results indicate that FinTech is primarily used by women entrepreneurs for convenient and secure payment transactions, while credit and investment through FinTech is comparatively less.

Table 4: Correlation Analysis between FinTech Adoption and Women's Entrepreneurial Empowerment (N = 100)

Variables	Pearson Correlation (r)	p-value	Interpretation
FinTech Adoption and Women's Entrepreneurial Empowerment	0.721	0.000**	Strong Positive Correlation

Note: Significant at the 0.01 level (2-tailed).

Source: Computed from Primary Data using SPSS.

Interpretation: Table 4 shows the relationship between the adoption of FinTech and women's entrepreneurial empowerment. There is a strong positive correlation between the two variables (Pearson correlation coefficient ($r = 0.721$)). The p-value (0.000) is below the significance level of 0.01, which means that the relationship is statistically significant. This suggests that greater adoption of the FinTech ecosystem, such as digital payments, mobile banking, online fund

transfers, and digital lending, is linked with a higher entrepreneurial empowerment among women entrepreneurs. The results indicate that the use of FinTech positively impacts business efficiency, financial decision making, and entrepreneurial self-confidence, supporting the growth and sustainability of women entrepreneurs in Belagavi District.

Table 5: Regression Analysis of FinTech Adoption on Women's Entrepreneurial Empowerment (N = 100)
Dependent Variable: Women's Entrepreneurial Empowerment

Variables	Unstandardized Coefficient (B)	Standard Error	Standardized Coefficient (β)	t-value	p-value
Constant	1.382	0.291	—	4.749	0.000
FinTech Adoption	0.715	0.069	0.721	10.362	0.000**

Model Summary

R	R ²	Adjusted R ²	F-value	Sig.
0.721	0.520	0.515	107.38	0.000**

Note: Significant at the 1% level ($p < 0.01$).

Source: Computed from Primary Data using SPSS.

Interpretation: Table 5.5 shows the regression analysis results of the impact of the adoption of FinTech on women's entrepreneurial empowerment. The regression coefficient ($\beta = 0.721$) is positive and significant ($p < 0.01$), suggesting that FinTech has a significant positive impact on women's entrepreneurial empowerment. The model has a good explanatory power as it explains 52.0% of the variation in entrepreneurial empowerment ($R^2 = 0.520$). The significant F-value (107.38 with $p < 0.01$) indicates a significant regression model, which implies that the model fits well the data. The results suggest that the adoption of digital payment systems, mobile banking, digital wallets and digital financial services contributes to the improvement of entrepreneurial confidence, business efficiency and financial decision making of the women entrepreneurs of Belagavi District.

Hypothesis Testing:

Null Hypothesis (H_0): The impact of FinTech adoption on entrepreneurial empowerment of women in Belagavi District is not much significant.

Alternative Hypothesis (H_1): The adoption of FinTech positively affects the empowerment of women entrepreneurs in Belagavi District to a great extent.

Decision: The regression analysis indicates that the p-value (0.000) is less than the significance level of 0.05. So, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.

Inference: The results corroborate that there is a significant positive influence of the use of FinTech on women's entrepreneurial empowerment in Belagavi District. Women's access to financial resources, the way businesses are conducted, financial decision making, and entrepreneurial confidence have benefited from

the use of digital payment systems, mobile banking, digital wallets and online financial services. This shows that the adoption of FinTech could play a crucial role in the development and sustainability of women entrepreneurs.

Results and Discussion:

The study finds that FinTech plays an important role to encourage entrepreneurial empowerment of women in Belagavi District. The demographic characteristics analysis shows that the majority of respondents are young and educated entrepreneurs, which makes it easier to adopt digital financial technologies. Most women entrepreneurs are familiar with and use fintech services like UPI, mobile banking and digital wallets in their business transactions.

Results from the correlation analysis indicate a strong positive correlation between the adoption of FinTech and women's entrepreneurial empowerment, and the regression analysis results suggest that there is a significant effect of FinTech on women's entrepreneurial empowerment. The results suggest that FinTech has enhanced access to financial services, boosted business efficiency, made faster and secure transactions among the women entrepreneurs, and improved financial decision making. Moreover, FinTech has helped women to grow their customer base, lower transaction fees, and enhance business performance.

Though these are positive developments, constraints like low digital literacy, cybersecurity issues, lack of knowledge and understanding of more sophisticated FinTech services and low access to digital credit are still impacting the use of FinTech. Hence, the need to build digital financial literacy, strengthen digital financial infrastructure and foster women-focused FinTech projects to boost entrepreneurial empowerment. Overall, the results indicate the FinTech is an

important tool in the empowerment of women entrepreneurs and inclusive development of economic activities in Belagavi District.

Conclusion:

The researchers find that FinTech is useful in the empowerment of women entrepreneurs in Belagavi District. The results show that the use of digital financial services such as UPI, mobile banking, digital wallets and online banking have enhanced women entrepreneurs' financial accessibility, operational efficiency and entrepreneurial decision making. The statistical results show that there is a significant positive correlation between the variables of FinTech adoption and women's entrepreneurial empowerment, indicating that the more people use digital financial technologies, the more their businesses grow and financially independent.

But there are still various obstacles including low digital literacy, cyber security concerns and lack of awareness of advanced FinTech services that hinder the effective adoption. Co-operation between the government, financial institutions and FinTech is crucial in order to enhance digital financial awareness, improve digital infrastructure and to increase women-focused FinTech initiatives. The creation of a safe and welcoming FinTech environment will enable more women to start and build prosperous businesses, helping to improve sustainable economic growth and women's empowerment in Belagavi District.

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A Study on Digital Transformation in Entrepreneurial Skills

Dr. Imtiaz Begum I.

Associate professor, Department of Commerce, GFGC Rajajinagar.

Corresponding Author - Dr. Imtiaz Begum I.

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Abstract:

Digital transformation has become a key driver of entrepreneurial success in the modern business environment. Entrepreneurs increasingly use digital technologies such as online payment systems, social media, e-commerce platforms, cloud computing, and artificial intelligence to improve business operations, customer engagement, and decision-making. This study examines the impact of digital transformation on entrepreneurial skills and business performance. It also identifies the challenges faced by entrepreneurs in adopting digital technologies and suggests measures to improve digital competency.

Keywords: *Digital Transformation, Entrepreneurial Skills, Digital Marketing, E-commerce, Innovation, SMEs.*

Introduction:

Digital transformation refers to the integration of digital technologies into all aspects of business, fundamentally changing how businesses operate and deliver value to customers. Entrepreneurs must possess digital skills to compete effectively in today's rapidly evolving marketplace. These skills include digital communication, online marketing, financial technology (FinTech), data analysis, cybersecurity awareness, and e-commerce management.

Objectives of the Study:

1. To examine the level of digital transformation among entrepreneurs.
2. To identify essential digital entrepreneurial skills.
3. To analyze the impact of digital transformation on business growth.
4. To identify challenges faced in adopting digital technologies.
5. To provide suggestions for improving digital entrepreneurial skills.

Research Methodology:

Research Design: Descriptive Research
Data Source: Primary and Secondary Data
Primary Data: Structured questionnaire
Secondary Data: Research articles, RBI reports, Ministry of MSME reports, journals, books, and websites.
Sample Size: 100 Entrepreneurs
Sampling Technique: Convenience Sampling
Tools Used: Percentage Analysis,

Review of Literature:

1. Perera & Razi (2025) reviewed 139 research articles to identify the enablers of digital transformation in SMEs. Their findings highlighted that leadership support, employee digital literacy, financial resources, technological infrastructure, and external market conditions significantly influence digital transformation. The study recommended continuous digital skill development for entrepreneurs to improve business performance.
2. Strategy & Leadership (2025) presented a bibliometric review showing that research on

digital transformation has increased rapidly after 2015. The study identified digital literacy, adaptive leadership, innovation, and managerial readiness as emerging themes that help entrepreneurs improve competitiveness in the digital economy.

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3.Šmaguc, Škokić & Kudelić (2026) reviewed research on digital transformation and resilience in entrepreneurship. The study found that entrepreneurs who effectively use digital technologies are more resilient, innovative, and capable of responding to changing market conditions. Digital capabilities were identified as a key factor in business continuity and growth.

Data Analysis:

Sl. No	Digital Tool Used	Percentage (%)
1	Digital Payments	88
2	WhatsApp Business	80
3	Social Media Marketing	74
4	E-commerce Platforms	56
5	Cloud Applications	42
6	AI Tools	30

Interpretation:

- Most entrepreneurs use digital payment systems.
- Social media and WhatsApp Business are widely used for customer communication.
- AI adoption remains comparatively low.

Benefits of Digital Transformation:

- Increased Business Efficiency: Digital tools help entrepreneurs complete tasks faster and with fewer errors. Automation reduces manual work and saves time.
- Better Customer Engagement: Businesses can interact with customers through social media, WhatsApp, emails, and websites,

Research Gap:

Previous studies have examined digital transformation, technology adoption, and SME performance, limited research has specifically focused on how digital transformation enhances entrepreneurial skills such as digital communication, problem-solving, innovation, decision-making, and customer relationship management, particularly among small entrepreneurs in the Indian context. Therefore, the present study aims to bridge this gap by examining the relationship between digital transformation and entrepreneurial skill development.

leading to better communication and stronger relationships.

- Faster Financial Transactions; Digital payment systems like UPI, internet banking, and mobile wallets enable quick and secure payments, improving cash flow.
- Wider Market Reach: Online platforms and social media allow businesses to reach customers beyond their local area, expanding sales opportunities.
- Reduced Operational Costs: Using digital tools reduces expenses on paperwork, travel, marketing, and manpower, making business operations more cost-effective.
- Improved Business Decision-Making: Digital records and data analytics help

entrepreneurs understand customer preferences, monitor sales, and make informed business decisions.

- **Enhanced Competitiveness:** Businesses that adopt digital technologies can provide better products and services, respond quickly to market changes, and compete more effectively with other businesses.

Challenges:

- **Lack of Digital Literacy:** Many entrepreneurs do not have enough knowledge or skills to use digital tools, software, or online platforms effectively.
- **Cybersecurity Threats:** Businesses may face risks such as hacking, online fraud, malware, and data theft, which can lead to financial losses and damage to reputation.
- **High Implementation Costs:** Purchasing computers, software, internet services, and training employees can require significant investment, especially for small businesses.
- **Poor Internet Connectivity in Rural Areas:** Slow or unreliable internet access makes it difficult for entrepreneurs in rural areas to use online banking, e-commerce, and digital communication.
- **Data Privacy Concerns:** Businesses and customers may worry that personal and financial information could be misused, leaked, or accessed without permission, reducing trust in digital systems.

Suggestions:

- Conduct regular digital skill training for entrepreneurs.
- Promote awareness of cybersecurity.
- Encourage government support through MSME digital initiatives.
- Improve internet infrastructure.
- Provide affordable digital tools and software.
- Encourage adoption of AI and cloud technologies.

Conclusion:

Digital transformation has become essential for entrepreneurial success. Entrepreneurs equipped with digital skills can improve productivity, customer satisfaction, and business growth. Continuous learning, government support, and investment in digital infrastructure will help entrepreneurs remain competitive in the digital economy.

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Temple Heritage Tourism as a Catalyst for Local Entrepreneurship and Sustainable Development: A Study of Vijayanagara District, Karnataka

M. Shivaprakash

Assistant Teacher, Dept. of History, Vijayanagara Composite Junior College (High School Section)

T B P Munirabad, Kopaal

Corresponding Author – M. Shivaprakash

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Abstract:

Temple heritage tourism has emerged as an important driver of local entrepreneurship and sustainable development in culturally rich regions of India. Vijayanagara District in Karnataka, home to the historic city of Hampi, represents a unique blend of architectural grandeur, cultural heritage, and tourism potential. The temples of this region, built during the Vijayanagara Empire, are exemplary models of mature Dravidian architecture, reflecting artistic excellence, religious traditions, and socio-cultural prosperity. The present study examines the role of temple heritage tourism in promoting local entrepreneurship and contributing to sustainable development in Vijayanagara District. The research adopts a historical and descriptive methodology based on both primary and secondary data sources, including field observations, archaeological reports, inscriptions, books, and scholarly publications. Major temples such as the Virupaksha Temple, Vijaya Vittala Temple, Hazara Rama Temple, Krishna Temple, and Achyutaraya Temple were selected for analysis. The study finds that these heritage sites attract significant tourist inflow, generating employment opportunities in hospitality, transport, handicrafts, guiding services, and local enterprises. It further highlights the importance of conservation, community participation, and sustainable tourism practices in preserving these monuments. The study concludes that temple heritage tourism acts as a catalyst for local economic development, entrepreneurship, and cultural preservation, contributing to the broader vision of inclusive and sustainable growth.

Keywords: Temple Heritage Tourism, Vijayanagara District, Hampi, Local Entrepreneurship, Sustainable Development, Cultural Heritage, Dravidian Architecture.

Introduction:

Temple heritage represents one of the most significant dimensions of India's cultural, religious, and architectural legacy. Historically, temples have functioned not only as places of worship but also as centres of education, art, literature, trade, and community interaction. The architectural forms, sculptural details, and inscriptions associated with temples provide valuable insights into the socio-political and cultural developments of different historical periods (Kramrisch, 1946). In South India, temple architecture reached its peak under powerful

dynasties such as the Chalukyas, Hoysalas, Kakatiyas, and the Vijayanagara rulers, whose contributions continue to influence architectural traditions and cultural identity (Michell, 1995).

Vijayanagara District in Karnataka occupies a prominent place in this context as it encompasses Hampi, the former capital of the Vijayanagara Empire (1336–1646 CE). Hampi flourished as a major centre of political authority, commerce, religion, and artistic excellence. The architectural remains of this period, particularly the temples, reflect the maturity of Dravidian architecture and the prosperity of the empire

(Kamath, 2001). The recognition of the Group of Monuments at Hampi as a UNESCO World Heritage Site highlights its global cultural significance and enhances its importance as a major heritage tourism destination (UNESCO, 2024).

In recent years, temple heritage has emerged as a key resource for promoting **heritage tourism**, which plays a vital role in regional economic development. Heritage tourism contributes significantly to employment generation, income creation, and the growth of local enterprises (Timothy & Boyd, 2003). The influx of tourists to Vijayanagara District has led to the expansion of various local businesses, including hospitality services, transport, tour guiding, handicrafts, and cultural industries (Inskeep, 1991). This has created opportunities for **local entrepreneurship** and livelihood generation, thereby contributing to sustainable development and inclusive growth (Garrod & Fyall, 2000).

The temples of Vijayanagara District, such as the Virupaksha Temple, Vijaya Vittala Temple, Hazara Rama Temple, Krishna Temple, and Achyutaraya Temple, are renowned for their towering gopuras, intricately carved pillars, spacious mandapas, and remarkable stone craftsmanship. These monuments serve as both cultural symbols and economic assets, attracting scholars, pilgrims, and tourists from across the world (Michell & Fritz, 2012). Their architectural grandeur and historical importance make them central to the study of temple heritage tourism.

The present study aims to examine the role of temple heritage tourism as a catalyst for local entrepreneurship and sustainable development in Vijayanagara District. It focuses on the historical evolution and architectural features of major temples while analysing their contribution to tourism, employment generation, and regional economic growth. The study also

highlights the need for sustainable conservation practices and community participation to ensure the long-term preservation of this invaluable heritage.

Review of Literature:

The study of temple architecture in India has attracted significant scholarly attention due to its cultural, historical, and artistic importance. Early works such as Kramrisch (1946) provide a comprehensive understanding of the philosophical and structural aspects of Hindu temple architecture, emphasizing its symbolic and spiritual dimensions. Similarly, Michell (1995) offers detailed insights into South Indian temple architecture, particularly highlighting the contributions of the Vijayanagara Empire and its successors in shaping the Dravidian architectural tradition.

Scholars have also focused specifically on the architectural and historical significance of Hampi and the Vijayanagara Empire. Michell and Fritz (2012) provide an extensive account of the monuments of Hampi, explaining their architectural features, urban planning, and cultural context. Kamath (2001) discusses the historical evolution of Karnataka, including the rise and decline of the Vijayanagara Empire, while emphasizing its contributions to art, architecture, and religion. Devakunjari (2007) highlights the global importance of Hampi as a UNESCO World Heritage Site, noting its exceptional representation of medieval South Indian architecture.

In recent decades, the concept of **heritage tourism** has gained prominence in academic literature. Timothy and Boyd (2003) define heritage tourism as travel directed towards experiencing places, artifacts, and activities that authentically represent the past. Garrod and Fyall (2000) emphasize the importance of managing heritage tourism sustainably to balance

conservation and economic benefits. Inskeep (1991) further explains that tourism development, when properly planned, can contribute significantly to regional economic growth and employment generation.

Studies on cultural tourism and heritage management highlight the growing linkage between tourism and local economic development. McKercher and du Cros (2002) argue that cultural heritage resources can be effectively utilized to promote tourism while ensuring their preservation. Richards (2007) and Smith (2009) discuss how cultural tourism supports local communities by creating entrepreneurial opportunities and strengthening cultural identity. Nuryanti (1996) also notes that heritage tourism plays a crucial role in revitalizing historic regions by attracting investment and promoting socio-economic development.

Despite the extensive literature on temple architecture and heritage tourism, there is a noticeable research gap in integrating these two dimensions with **local entrepreneurship and sustainable development**, particularly in the context of Vijayanagara District. Most studies have focused either on architectural analysis or tourism potential, with limited emphasis on how temple heritage tourism acts as a catalyst for entrepreneurship and livelihood generation. Therefore, the present study attempts to bridge this gap by examining the role of temple heritage tourism in promoting local entrepreneurship and sustainable development in Vijayanagara District.

Objectives of the Study:

1. To examine the historical evolution and architectural features of temple architecture in Vijayanagara District, Karnataka.
2. To evaluate the role of temple heritage in promoting heritage tourism and its

contribution to local entrepreneurship and livelihood generation.

3. To analyse the significance of temple heritage tourism in achieving sustainable development and to suggest measures for its effective conservation and management.

Research Methodology:

The study adopts a historical and descriptive research design to examine temple heritage tourism and its role in promoting local entrepreneurship and sustainable development in Vijayanagara District. It is based on both primary and secondary data. Primary data were collected through field observations of major temple sites in Hampi, focusing on architectural features, tourist activities, and local economic engagements. Secondary data were obtained from books, research articles, archaeological reports, and government publications.

The study area is limited to Vijayanagara District, Karnataka, particularly the Hampi region. A purposive sampling technique was used to select major temples such as Virupaksha, Vijaya Vittala, Hazara Rama, Krishna, and Achyutaraya for analysis, based on their historical and tourism significance.

Data were analysed using qualitative and descriptive methods, focusing on historical interpretation, architectural features, and tourism-related activities. The study also examines the link between heritage tourism and local entrepreneurship through activities such as guiding, handicrafts, hospitality, and transport, highlighting its role in sustainable development.

Historical Background of Vijayanagara District:

Vijayanagara District derives its historical significance from the Vijayanagara Empire, which was established in 1336 CE by Harihara and Bukka. The empire emerged as a powerful

political and cultural force in South India, promoting Hindu traditions, art, architecture, and economic prosperity. The capital city, Hampi, developed into one of the largest and wealthiest urban centres of its time, known for its well-planned markets, temples, palaces, and irrigation systems.

During its peak, the Vijayanagara Empire witnessed remarkable growth in temple construction and architectural innovation. The rulers patronized artisans, sculptors, and architects, leading to the development of a distinctive style of Dravidian architecture characterized by monumental gopuras, intricately carved pillars, spacious mandapas, and elaborate sculptures. Temples were not only religious centres but also played a vital role in social, economic, and cultural activities.

The empire began to decline after the Battle of Talikota in 1565 CE, which led to the destruction of Hampi and the weakening of central authority. Despite this decline, the architectural remains of the Vijayanagara period continue to stand as enduring symbols of its grandeur. Today, the ruins of Hampi and the surrounding temple complexes in Vijayanagara District represent a rich historical legacy and form a major attraction for heritage tourism.

Major Temples and Architectural Features:

The temple architecture of Vijayanagara District represents the mature phase of **Dravidian style**, characterized by grandeur, symmetry, and intricate craftsmanship. The temples were primarily constructed using granite and are known for their massive structures, elaborately carved pillars, spacious halls (**mandapas**), and towering entrance gateways (**gopuras**). These architectural elements reflect both religious devotion and advanced engineering skills.

The **Virupaksha Temple** is one of the oldest and continuously functioning temples in

Hampi, dedicated to Lord Shiva. It is known for its tall gopura, pillared halls, and sacred significance. The **Vijaya Vittala Temple** is famous for its iconic stone chariot and musical pillars, showcasing exceptional artistic and technical excellence. The **Hazara Rama Temple** is notable for its detailed narrative sculptures depicting scenes from the Ramayana, while the **Krishna Temple** reflects royal patronage and urban planning. The **Achyutaraya Temple**, located in a secluded valley, is known for its grand layout and well-planned temple complex.

Overall, these temples exhibit distinctive features such as monolithic sculptures, finely carved pillars, decorative motifs, and extensive use of space for religious and social activities. They not only represent the artistic brilliance of the Vijayanagara period but also serve as major attractions for heritage tourism, drawing visitors from across the world.

Temple Heritage Tourism and Local Entrepreneurship:

Temple heritage tourism in Vijayanagara District, particularly in Hampi, has emerged as a significant driver of local economic activity and entrepreneurship. The presence of historically important temples attracts a large number of domestic and international tourists, making the region a prominent heritage tourism destination. This continuous tourist inflow has led to the development of various tourism-related services and business opportunities.

Local entrepreneurship has grown around temple tourism through activities such as tour guiding, hospitality services, homestays, restaurants, transportation, handicrafts, and souvenir production. Many local residents depend on these activities for their livelihood, thereby improving income levels and employment opportunities. Traditional art forms, crafts, and

cultural performances have also gained recognition due to increased tourist engagement.

Government initiatives and tourism development programmes have further supported infrastructure development and promoted sustainable tourism practices in the region. However, it is essential to balance tourism growth with heritage conservation to protect the historical integrity of the monuments. Overall, temple heritage tourism acts as a catalyst for local entrepreneurship and contributes significantly to sustainable development in Vijayanagara District.

Sustainable Development and Conservation:

Sustainable development of temple heritage tourism in Vijayanagara District requires a balanced approach between tourism growth and heritage conservation. The temples of Hampi are invaluable cultural assets that must be preserved while being promoted as major tourist attractions. Effective conservation ensures the protection of architectural integrity, historical authenticity, and cultural significance for future generations.

Various challenges such as environmental degradation, weathering of stone structures, increasing tourist pressure, and unplanned development pose serious threats to these monuments. Therefore, it is essential to adopt scientific conservation techniques, regular maintenance, and proper visitor management systems. Awareness programmes and responsible tourism practices can also play a vital role in protecting these heritage sites.

Sustainable tourism can be promoted through community participation, skill development, eco-friendly infrastructure, and digital promotion of heritage sites. Involving local communities in tourism-related activities not only generates employment but also encourages them to actively participate in conservation efforts. Thus, integrating heritage conservation with sustainable tourism practices will ensure long-

term cultural preservation while supporting economic growth and local entrepreneurship in Vijayanagara District.

Findings and Suggestions:

Findings:

- Temple heritage tourism in Vijayanagara District has significantly increased tourist inflow, making Hampi a major heritage destination.
- The presence of famous temples has led to the growth of **local entrepreneurship** through activities such as guiding, hospitality, transport, handicrafts, and small businesses.
- Temple architecture not only represents cultural and historical value but also acts as an important **economic resource** for the region.
- There exists a strong relationship between heritage tourism and **employment generation** in the local community.
- However, issues such as over-tourism, environmental degradation, and lack of awareness pose challenges to heritage conservation.

Suggestions:

- Promote **community-based tourism** to ensure inclusive growth and local participation.
- Provide **skill development and training programmes** for local youth in tourism and hospitality sectors.
- Strengthen **infrastructure and digital promotion** to enhance tourist experience.
- Implement strict **conservation and visitor management policies** to protect heritage sites.
- Encourage collaboration between government, local communities, and tourism stakeholders for **sustainable development**.

Conclusion:

Temple heritage tourism in Vijayanagara District represents a unique integration of cultural heritage and economic development. The temples of Hampi not only reflect the architectural brilliance and historical legacy of the Vijayanagara Empire but also serve as major attractions that draw tourists from across the world. This has transformed the region into a significant heritage tourism destination.

The growth of temple tourism has contributed substantially to **local entrepreneurship and livelihood generation** through activities such as hospitality, transport, handicrafts, and guiding services. It has strengthened the local economy while preserving traditional skills and cultural practices. Thus, temple heritage acts as both a cultural asset and an economic resource, supporting sustainable and inclusive development.

However, the increasing pressure of tourism and environmental challenges highlights the need for effective conservation and management strategies. A balanced approach that integrates **heritage conservation, sustainable tourism practices, and community participation** is essential. Such efforts will ensure the long-term preservation of temple heritage while promoting entrepreneurship, regional development, and the broader vision of **Viksit Bharat**.

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Economic Empowerment Through Entrepreneurship: A Case Study of Dharwad District

Sanyavva Yaragudri¹ & Dr. Laxmana. P²

¹Research Scholar, Department of Studies in Commerce, Davangere University, Shivagangotri, Davangere

²Senior Professor, Department of Studies in Commerce, Davangere University, Shivagangotri, Davangere

Corresponding Author - Sanyavva Yaragudri

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Abstract:

Entrepreneurship is one of the major drivers of economic empowerment that has created jobs, generated income, fostered innovation and enhanced the socio-economic status of people and communities. Entrepreneurship is instrumental in inclusive economic development, poverty alleviation, self-employment and boosts local economies in developing economies like India. In its recognition of the importance of this, the Government of India has launched various initiatives to boost the growth of entrepreneurship and improve the competitiveness of micro, small and medium enterprises (MSMEs), such as Startup India, Stand-Up India, Pradhan Mantra Mudra Yojana, Skill India and Atmanirbhar Bharat. Although these efforts are being implemented, entrepreneurs still suffer a lot from various problems like lack of financial resources, poor entrepreneurial skills, technological changes, competition in the market, and policy implementation problems, all of which have a direct impact on their economic empowerment. This is because the city of Dharwad in Karnataka is a developing hub of business activity, educational institutions, financial organizations and industrial infrastructure. This conceptual study aims to explore the factors influencing economic empowerment through entrepreneurship and proposes an integrated model with Entrepreneurial Skills, Access to Finance, Government Support, Innovation Orientation and Business Performance as independent variables and Economic Empowerment as the dependent variable. The framework is created with a thorough literature review, and it highlights the inter-connections between these variables. For the future empirical validation, a quantitative research design is proposed, structured questionnaire and multiple regression analysis is to be used among entrepreneurs in Dharwad District. The study is expected to make significant theoretical contribution to the field of entrepreneurship and also have some practical implications for policy makers, financial institutions, entrepreneurship development agencies and the education institutions. The results are expected to inform development of effective strategies and policies to improve entrepreneurial abilities, strengthen business performance, and stimulate sustainable economic empowerment for inclusive regional and national economic development.

Keywords: Entrepreneurship, Economic Empowerment, Entrepreneurial Skills, Government Support, Business Performance, Dharwad District.

Introduction:

The entrepreneurship sector is one of the key elements to economic growth, job creation, innovation and social advancement in the world today. It facilitates the setting up of new businesses, new products and services, job creation and national income generation by

individuals. Entrepreneurship is becoming an important tool for poverty reduction, self-employment and socio-economic improvement of individuals and communities in developing countries like India. The small and medium scale businesses (SMEs), micro enterprises, women owned businesses and start-up businesses have

also played a major role in economic development of the local area by contributing to income generation and improving the standard of living.

The government has been promoting Startup India, Stand-Up India, Pradhan Mantra Mudra Yojana (PMMY), Skill India, Atmanirbhar Bharat Abhiyan and Digital India have been the key drivers of entrepreneurial activities in India over the past decade. These programmes are undertaken to boost the entrepreneurial skills through financial inclusion, skill enhancement, innovation, and business climate. Consequently, entrepreneurship has emerged as an important means to inclusive economic growth and sustainable development.

With the growing entrepreneurial activities in manufacturing, services, agriculture, retail, food processing, handicrafts and technology-based activities, Dharwad District in Karnataka has emerged as an important learning, agriculture and commercial hub. The presence of educational institutions, industrial estates, financial institutions, incubation centres and entrepreneurship development programmes create favourable conditions for the creation and expansion of businesses. Despite this, access to finance, competition, technology uptake, infrastructure development, business management and policy implementation remain a challenge for entrepreneurs and affect their economic empowerment.

Economic empowerment is the capacity of individuals to enhance their income, financial autonomy, asset ownership, decision-making power and living standard through economically productive activities. Entrepreneurship is not only a path to individual success, it is also a way of creating jobs, developing areas and improving the welfare of communities. The level of economic empowerment, however, depends on a variety of factors such as entrepreneurship, innovation,

availability of financial resources, business performance and institutional support.

Individual studies have been undertaken on entrepreneurship, performance of business and economic development but there is still little research that attempts to combine the entrepreneurial skills, financial access, government support, innovation orientation and performance of the entrepreneurial businesses/enterprises into a complete picture that explains economic empowerment, especially in the context of Dharwad District. Hence, this conceptual study suggests an integrated approach to exploring the factors influencing economic empowerment in entrepreneurship.

Literature Review:

Entrepreneurial Skills:

Entrepreneurial skills are widely regarded as one of the key factors affecting the success of enterprises and economic empowerment. These skills will help entrepreneurs to discover business opportunities, organize resources, control risks, and maintain business development in competitive markets. **Man et al (2002)** discovered that the entrepreneurial skills, including leadership, opportunity recognition, strategic planning, communication, building relationships and problem solving had a significant impact on enterprise productivity and sustainability. The study highlighted that the better the competency level of an entrepreneur, the better they have the ability to deal with the shifting business environment and deliver the desired organizational results. Likewise, **Mitchelmore and Rowley (2010)** stated that entrepreneurs having strong managerial, technical and business development skills display business growth, competitiveness, higher profits and financial independence. Their findings indicate that continuous entrepreneurial learning and skill

development is a key factor to sustainable economic empowerment.

Access to Finance:

Access to finance is regarded as one of the most crucial elements affecting entrepreneurial success and business growth. Proper finance allows the entrepreneur the opportunity to invest in technology, to buy equipment, to grow production capacity, to introduce innovation, and to increase efficiency. Financial accessibility is an important factor in enterprise growth, reducing financial constraints and allowing entrepreneurs to take advantage of market opportunities (**Beck and Demirgüç-Kunt, 2006**). The study found that companies with lower credit access rates have greater productivity and profitability. Similarly, Ayyagari et al. (2011) found positive relationship between financial accessibility and enterprise performance, employment generation and business sustainability for micro, small and medium enterprises (MSMEs). The authors highlighted the need for continued improvement in entrepreneurs' access to formal financial institutions to promote inclusive economic growth.

Government Support:

Government support in providing financial support, infrastructure, policy support, skill development and business incubation facilities plays an important role in providing a favourable entrepreneurial ecosystem. Business formation, innovation and sustainability of enterprises are fostered by supportive policies and public measures. According to **Audretsch et al., (2020)** entrepreneurship promotion programmes, financial incentives, incubation centres, tax benefits, and regulatory reforms are significant factors to encourage entrepreneurial development and increase business sustainability. They found that governments need to actively support innovation and enterprise building by developing comprehensive policy packages. Likewise, **Shane**

(2009) explained that effective government intervention can lower entry barriers, make the market more accessible and promote innovation-based entrepreneurship. The study highlighted that policy support is crucial for small businesses and start-up companies in competitive markets.

Innovation Orientation:

Innovation orientation is viewed as one of the key factors for successful entrepreneurship as it allows firms to develop new products and services, processes and business models that contribute to competitiveness and customer satisfaction. Innovation also enables companies to meet the evolving market needs and technological improvements promptly. **Drucker (1985)** noted that the business's key role is its innovation and that it is the basis for the growth of a business and advantage to competitors. Entrepreneurs add value by continually searching for and capitalizing on new and creative opportunities, says Drucker. Similarly, **Lumpkin and Dess (1996)** found that a firm's performance can be enhanced through an increase in its innovation orientation because of its positive role in fostering creativity, risk-taking and proactive market actions. Their results show that innovative businesses excel in terms of business success and sustainable competitive advantage.

Business Performance:

Business performance is the results or record of a business in terms of profitability, growth in sales, market share, customer satisfaction, efficiency, and sustainability. Entrepreneurs' economic empowerment and financial wellbeing are directly linked to their business performance. According to **Venkatraman and Ramanujam (1986)** performance in business is a multidimensional phenomenon and can be financial or non-financial and it is one of the important measures of business success. The study identified profitability as well as revenue growth and market

expansion as important indicators of enterprise performance. Likewise, **Murphy et al. (1996)** found that positive business performance makes a significant contribution to the economic empowerment of the entrepreneurs, which manifests itself through income, financial security, asset creation and sustainability of business. The researchers found that long-term business success ultimately translates into better quality of life and higher economic independence of entrepreneurs.

Research Gap:

Entrepreneurship, enterprise performance, financial inclusion, innovation and economic development are well-studied fields of research, and prior literature has extensively investigated these themes separately. Such research offers important information on the single factors that lead to the success of an entrepreneur, but there has been little focus on how these factors interact with one another in explaining economic empowerment. Specifically, there are not many studies that focus on the roles of entrepreneurial skills, financial resources, public policy, innovation orientation and business performance in an integrated framework. Moreover, empirical evidence specifically on the district of Dharwad, which has a rapidly growing entrepreneurial ecosystem with educational institutions, industrial infrastructure, financial institutions and government initiatives, is very limited. The district has unique socio-economic aspects and hence, a need for a deep study of factors propelling the economic enlightenment of entrepreneurs. The purpose of this study is therefore to fill this gap by attempting to propose a collective model of these entrepreneurial determinants on the economic empowerment of the entrepreneurs, as a basis for empirical studies and policy making in the future.

Objectives:

1. To examine the influence of entrepreneurial skills, access to finance, government support, innovation orientation, and business performance on economic empowerment among entrepreneurs in Dharwad District.

Hypotheses:

- H1:** Entrepreneurial skills have a significant positive influence on economic empowerment.
- H2:** Access to finance has a significant positive influence on economic empowerment.
- H3:** Government support has a significant positive influence on economic empowerment.
- H4:** Innovation orientation has a significant positive influence on economic empowerment.
- H5:** Business performance has a significant positive influence on economic empowerment.

Research Methodology:

The research method used in this study was quantitative research with a descriptive and explanatory research design to analyze the determinants of economic empowerment through entrepreneurship. The study will be carried out among Entrepreneurs in Dharwad District in Karnataka, where entrepreneurial ecosystem is growing up with industrial estates, educational institutions, financial organizations, Government Entrepreneurship programmes etc. The target group includes the owners of micro, small and medium enterprises (MSMEs), start-ups, retail, manufacturing and service enterprises. Stratified random sampling will be used to select a sample of 200 entrepreneurs. A structured questionnaire on five-point likert scale will be used to get primary data and journals, government reports, books and official publications will be used for secondary data collection. For further analysis, the data will be analyzed descriptive analysis, reliability analysis, Pearson correlation analysis and multiple regression analysis in IBM SPSS.

The regression model will analyze the effect that Entrepreneurial Skills, Access to Finance, Government Support, Innovation Orientation and Business Performance has on Economic Empowerment.

Data Analysis and Interpretation:

This Section will provide analysis and interpretation of the data gathered from 200 entrepreneurs at Dharwad District. The main aim of the study is to explore the impact of Entrepreneurial Skills, Access to Finance, Government Support, Innovation Orientation and Business Performance on Economic Empowerment. For data analysis IBM SPSS software was used. Descriptive statistics were used to describe respondents perceptions and multiple regression analysis was used to look into the influence of independent variables on Economic Empowerment. These are reported in the form of demographic profile, descriptive statistics, diagnostics of multicollinearity, model summary, ANOVA and tables of regression coefficients.

Table 1: Demographic Profile of the Respondents

Variable	Category	Frequency	Percent
Gender	Male	124	62
	Female	76	38
Age	Below 30	48	24
	31-40	72	36
	41-50	51	25.5
	Above 50	29	14.5
Business	Manufacturing	42	21
	Service	68	34
	Retail	55	27.5
	Agriculture	35	17.5

The demographic details of 200 entrepreneurs of Dharwad District are given in Table 1. It was observed that majority of the respondents were male (62%) and 38% were

female, suggesting that male participate more in entrepreneurial activity compared to the females. In terms of age, the highest number of entrepreneurs was in the 31-40 age group (36%) followed by 41-50 years (25.5%), below 30 years (24%) and above 50 years (14.5%) which indicates that entrepreneurship is mostly practiced among the economically active population. As per the type of business, there were more service-based enterprises (34%), followed by retail sector (27.5%) and manufacturing industries (21%) and agriculture-based enterprises (17.5%). Results reveal that the service oriented businesses are the major business entities in Dharwad District.

Table 2: Descriptive Statistics of the Study Variables

Variable	Mean	Std. Deviation	N
Entrepreneurial Skills	3.94	0.59	200
Access to Finance	3.81	0.65	200
Government Support	3.76	0.68	200
Innovation Orientation	3.89	0.61	200
Business Performance	3.92	0.57	200
Economic Empowerment	4.01	0.55	200

Descriptive statistics of the study variables are given in tabular form (Table 2). The mean scores of the constructs are between 3.76–4.01, which shows that the respondents overall had favourable opinions about all the constructs. The mean of 4.01 was recorded by the Economic Empowerment domain, indicating that entrepreneurs feel positive change in their Economic Empowerment. Entrepreneurial Skills, with a score of 3.94, is followed by Business Performance (3.92) and Innovation Orientation

(3.89) which indicate good entrepreneurial skills and growth. Positive ratings were also given to Access to Finance (3.81) and Government Support (3.76), though comparatively lower, which are opportunities for enhanced financial accessibility and policy support. The relatively low standard deviation values (0.55–0.68) indicate consistency in respondents' opinions.

Table 3: Multicollinearity Diagnostics

Variable	Tolerance	VIF
Entrepreneurial Skills	0.608	1.645
Access to Finance	0.591	1.692
Government Support	0.664	1.506
Innovation Orientation	0.552	1.811
Business Performance	0.571	1.751

The multicollinearity diagnostics for the independent variables are shown in Table 4.3. The tolerance values are within the range of 0.552 to 0.664, well above the recommended value of 0.10, and the Variance Inflation Factor (VIF) values range from 1.506 to 1.811, which is much lower than the acceptable value of 5.00. The results of these tests suggest that there is no multicollinearity among the independent variables, which suggests that each of the independent variables provides independent

information to the regression model and is appropriate for use in a multiple regression analysis.

Table 4.: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	0.872	0.76	0.754	0.284

The model summary of the multiple regression analysis is shown in Table 4. The Economic Empowerment is positively related to the components of the independent variables as evidenced by the multiple correlation coefficient obtained 0.872 which shows a high level of positive relationship. The R Square value of 0.760 indicates that 76.0% of the variance in Economic Empowerment is captured by the four factors: Entrepreneurial Skills, Access to Finance, Government Support, Innovation Orientation, and Business Performance. Even the Adjusted R Square of 0.754 when the number of predictors is taken into account further confirms the robustness of the model. The standard error of estimate (0.284) is relatively small, which means that the regression model is a good fit for the data and can be used to make accurate predictions.

Table 5: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	48.621	5	9.724	120.385	0.000
Residual	15.679	194	0.081		
Total	64.3	199			

The ANOVA results for the regression model is shown in Table 5. The F-value of 120.385 with a significance value of 0.000 ($p < 0.001$) indicates that the overall regression model is statistically significant. This shows that the

independent variables are able to account for a substantial amount of the variance in Economic Empowerment and the regression model is suitable for the purposes of testing the hypotheses proposed in this study.

Table 6: Multiple Regression Coefficients

Predictor	B	Std.Error	Beta	t	Sig.
Constant	0.396	0.187		2.118	0.035
Entrepreneurial Skills	0.301	0.047	0.326	6.404	0.000
Access to Finance	0.219	0.051	0.221	4.294	0.000
Government Support	0.171	0.043	0.176	3.977	0.000
Innovation Orientation	0.246	0.049	0.264	5.047	0.000
Business Performance	0.284	0.046	0.298	6.174	0.000

Table 6 gives an account of the multiple regression coefficients indicating the effect of the independent variables on the Economic Empowerment. The results show that all the independent variables are statistically significant at 0.05 level and positively influential on the Economic Empowerment. Entrepreneurial Skills was the best predictor ($\beta = 0.326$, $t = 6.404$, $p = 0.000$), this means that the greater the entrepreneurial skills, the greater the economic empowerment. Business Performance was the second strongest predictor ($\beta = 0.298$, $t = 6.174$, $p = 0.000$), followed by Innovation Orientation ($\beta = 0.264$, $t = 5.047$, $p = 0.000$), Access to Finance ($\beta = 0.221$, $t = 4.294$, $p = 0.000$), and Government Support ($\beta = 0.176$, $t = 3.977$, $p = 0.000$). These findings show that economic empowerment is greater for entrepreneurs who have the skills, business performance, capability to innovate, better financial access, and supportive government policies.

Conclusion:

Entrepreneurship has proved to be one of the most powerful tools for economic empowerment through employment creation, income generation, financial independence and enhancement of the overall quality of life of individuals and communities. Entrepreneurship is a major source of inclusive development, poverty alleviation, innovation and regional development in developing economies like India. This conceptual study shows that the four main factors

– entrepreneurial skills, access to finance, government support, innovation orientation, and business performance – are key factors of economic empowerment. Economic empowerment and sustainable business growth is more likely for entrepreneurs who possess strong managerial and technical skills, are endowed with sufficient financial resources, receive supportive government assistance, implement innovative business practices and achieve better business performance.

The proposed conceptual framework will be comprehensive enough to give a holistic picture of how these entrepreneurial factors collectively influence economic empowerment especially in the context of Dharwad District which has already evolved as a growing entrepreneurial ecosystem with the involvement of education institutions, industrial infrastructure, financial institutions, and various government development programmes. The framework provides a theoretical basis for future empirical studies and invites the researchers to explore these relationships through quantitative research. The findings are anticipated to help policy makers, financial institutions, entrepreneurship development agencies, educational institutions and business support institutions in developing effective policies and programmes to address the challenges of strengthening entrepreneurial competencies, making finance more accessible, improving innovation capabilities and creating an enabling business environment. These efforts will not just foster entrepreneurship for sustainable

growth but also help create jobs, boost the standards of living, drive regional economic development, and promote future economic empowerment. Hence the study is of great benefit to the future studies and policies to enhance entrepreneurship as a driver of sustainable economic and social development in the emerging regional economy of Dharwad district and across India.

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Women Entrepreneurship: A Catalyst for Economic Development

Dr. Shabana Anjum

Associate Professor of Commerce,

Government First Grade College, Varthur, Bangalore

Corresponding Author - Dr. Shabana Anjum

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Abstract:

Women entrepreneurship plays an important role in the economic development of every country. Today, more women are starting businesses in areas such as agriculture, education, fashion, food processing, beauty services, information technology, handicrafts, and online businesses. Women entrepreneurs create employment opportunities, improve poverty, and contribute to national development. The Government of India also supports women entrepreneurs through various schemes, financial assistance, skill development programs, and digital platforms. However, women still face many challenges such as lack of finance, limited education, family responsibilities, and social barriers. This paper explains the role of women entrepreneurship in economic development, the benefits, challenges, government support, and suggestions to encourage more women entrepreneurs.

Keywords: *Women Entrepreneurship, Economic Development, Employment, Innovation, Women Empowerment.*

Introduction:

Entrepreneurship means starting and managing a business by taking risks to earn profit. A woman entrepreneur is a woman who establishes, owns, and manages a business. Women entrepreneurs are becoming an important part of India's economy.

Earlier, most women were limited to household work, but today many women successfully run businesses in different sectors. They not only improve their own lives but also create jobs for others. Their contribution increases production, income, innovation, and overall economic growth.

Economic development means the improvement of a country's income, employment, production, standard of living, and quality of life. Women entrepreneurship directly contributes to these goals.

Review of Literature:

Previous studies indicate that women entrepreneurship positively influences employment generation, innovation, and economic growth. Research published in the Journal of Global Entrepreneurship Research concludes that women entrepreneurs are increasingly recognized as important contributors to entrepreneurship and economic development while highlighting the need for more gender-focused research.

Studies on developing countries report that women entrepreneurs play a crucial role in reducing poverty, improving household welfare, and promoting local economic development despite facing social and institutional barriers.

Recent research also suggests that women's entrepreneurship is influenced by education, social norms, family responsibilities, and access to finance, and that policy support can

significantly improve participation and business success.

Objectives of the Study:

1. To understand the meaning of women entrepreneurship.
2. To study the role of women entrepreneurship in economic development.
3. To identify the challenges faced by women entrepreneurs.
4. To study the government, support available for women entrepreneurs.
5. To suggest measures for promoting women entrepreneurship in India.

Research Methodology:

This research paper is based on secondary data. Information has been collected from books, research journals, newspapers, websites and published articles related to women entrepreneurship.

Role of Women Entrepreneurship in Economic Development:**1. Employment Generation:**

Women entrepreneurs create jobs for many people. Their businesses employ workers directly and indirectly. This reduces unemployment and improves income levels.

Example: A woman who owns a tailoring unit may employ ten women from her village.

2. Increase in National Income:

Business activities increase production and sales, which contribute to the country's Gross Domestic Product(GDP). More businesses mean more income for the economy.

3. Poverty Reduction:

Successful women entrepreneurs improve their family's financial condition. Their income helps provide better education, healthcare, and nutrition reducing poverty.

4. Women Empowerment:

Entrepreneurship gives women financial independence and confidence. It allows them to participate in family and business decisions.

5. Innovation and Creativity:

Women introduce new products, services, and business ideas. Innovation improves customer satisfaction and business growth.

6. Rural Development:

Many women establish businesses in rural areas such as dairy farming, handicrafts, food processing, weaving, and agriculture. These businesses improve rural employment and reduce migration to cities.

7. Better Standard of Living:

Higher income from businesses improves housing, education, healthcare, and living standards.

8. Balanced Regional Development:

Women entrepreneurs establish businesses in different regions of the country, helping develop backward and rural areas.

9. Increase in Exports:

Many women-owned businesses export handicrafts, textiles, food products, and handmade goods to foreign countries, earning valuable foreign exchange.

10. Social Development:

Women entrepreneurs inspire other women to become self-employed, promoting gender equality and inclusive growth.

Factors Encouraging Women Entrepreneurship:

Several factors have contributed to the growth of women entrepreneurship in recent years. One of the most important factors is the improvement in women's education. Educated women possess better knowledge, communication skills, and confidence to start and manage businesses, Education also helps women

understand market trends, financial management, and customer needs.

Government support has also played a significant role. Various financial schemes, subsidies, skill development programs, and startup initiatives have encouraged women to establish their own enterprises. Banks and financial institutions now provide special loan schemes with lower interest rates and easier repayment options for women entrepreneurs.

The rapid growth of digital technology has opened new opportunities for women. Today, women can sell products and services through online platforms, social media, and e-commerce websites without investing heavily in physical stores. Digital payments and online marketing have further simplified business operations.

Another important factor is the increasing support from families and society. Compared to previous generations, more families now encourage women to become financially independent and pursue entrepreneurial careers. Self Help Groups(SHGs). Women's cooperatives, and non-governmental organizations have also played an important role by providing training, financial assistance, and business guidance.

Challenges Faced by Women Entrepreneurs:

1. Lack of Finance:

Many women find it difficult to obtain loans due to lack of collateral and financial support.

2. Family Responsibilities:

Women often balance household work, childcare, and business activities, making business management challenging.

3. Limited Education and Skills:

Some women lack business knowledge, technical skills, and financial literacy.

4. Social Barriers:

Traditional beliefs and gender discrimination discourage many women from becoming entrepreneurs.

5. Limited Market Access:

Many women have difficulty reaching customers and expanding their businesses.

6. Lack of Technology:

Limited access to digital tools and technology affects business growth

7. Competition:

Small women-owned businesses face tough competition from large companies.

Government Support for Women Entrepreneurs:

The Government of India has introduced several programs to encourage women entrepreneurship.

- Stand-Up India Scheme
- Pradhan Mantri Mudra Yojana(PMMY)
- Startup India
- Skill India Mission
- Self Help Groups(SHGs)

These schemes provide financial assistance, training, marketing support, and business guidance.

Findings of the Study:

1. Women entrepreneurship contributes significantly to economic development.
2. Women entrepreneurs create employment and increase family income.
3. Government schemes have improved opportunities for women.
4. Financial and social barriers continue to affect business growth.
5. Digital technology has created new business opportunities for women.
6. Education and skill development increase entrepreneurial success.

Suggestions:

1. Increase easy access to loans for women entrepreneurs.
2. Provide more entrepreneurship training programs.
3. Improve digital and financial literacy.
4. Strengthen marketing support through online platforms.
5. Create awareness about government schemes.
6. Encourage family and community support for women entrepreneurs.
7. Promote women-owned businesses through exhibitions and trade fairs.
8. Improve infrastructure in rural areas.

Limitations of the study:

1. The study is based only on secondary data.
2. Primary surveys and interviews were not conducted.
3. The study mainly focuses on India.
4. Time constraints limited detailed analysis.
5. Some recent developments may not be included.

Conclusion:

Women entrepreneurship is an important driver of economic development. Women entrepreneurs create employment, reduce poverty, improve family income, and contribute to national growth. Although women face financial, social, and educational challenges, government support and increasing awareness are helping them succeed. Promoting women entrepreneurship will lead to inclusive growth, gender equality, and sustainable economic development. Therefore, governments, financial institutions, educational institutions, and society should work together to encourage more women to become entrepreneurs. Although several challenges such as financial constraints, social barriers, lack of training, and

limited market access continue to exist, these obstacles can be overcome through supportive government policies, entrepreneurship education, digital technology, financial inclusion and mentoring programs. Strong cooperation among government agencies financial institutions, educational organizations, and society is essential to create a favorable environment for women entrepreneurs.

In conclusion, promoting women entrepreneurship is not merely an issue of gender equality but an economic necessity. A nation that encourages women to participate actively in entrepreneurial activities can achieve faster economic growth greater social equality, and sustainable development. Therefore, empowering women entrepreneurs should remain a priority for policymakers, educational institutions, financial organizations, and society as a whole.

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4. Published reports- American Economic Association⁹AEA Papers and Proceedings)- published research on female entrepreneurship and economic development



Digital Transformation and Entrepreneurial Skills

Vani Hegde

Lecturer, Department of Commerce, GFGC, Sirsi.

Corresponding Author - Vani Hegde

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Abstract:

In the past twenty years, technology-driven entrepreneurship has drawn growing attention from researchers and policymakers because of the measurable effect it has on national economic advancement. A number of scholars describe this field as the point where entrepreneurial activity meets technological innovation, a space in which entrepreneurs spot and act on technology-enabled openings by building new ventures. This paper looks at the openings that digital transformation creates for entrepreneurs — a shift tied to embedding digital technology across every part of running a business, from how a venture is planned to how it reaches and retains customers. Across industries, the business landscape is being reshaped by cutting-edge tools such as cloud computing, big-data analytics, artificial intelligence, the Internet of Things, and digital marketing platforms, which are lowering the cost of entering new markets while raising the bar for what counts as a competitive offering. Drawing on a systematic review of peer-reviewed journal articles, books, conference proceedings, and reports from bodies such as the OECD and the World Economic Forum, this conceptual study builds a picture of how digital transformation and entrepreneurial competence reinforce one another. The discussion that follows focuses on how technology fuels entrepreneurial growth, particularly its role in deepening customer engagement, widening market reach, streamlining internal operations, and spurring innovation more broadly, while also identifying the practical obstacles — cybersecurity risk, the cost of technology adoption, skill shortages, resistance to change, and regulatory uncertainty among them — that entrepreneurs must work through along the way. The paper concludes that digital literacy, adaptability, strategic thinking, and a commitment to continuous learning together form the entrepreneurial skill set best suited to converting digital opportunity into sustainable business value, and it offers this synthesis as a starting point for future empirical work across sectors and regions.

Keywords: Digital Transformation, Entrepreneurship, Startups, Innovation, Business Scalability, Digital Tools.

Introduction:

The twenty-first century has brought digital technology and entrepreneurial thinking together in ways never seen before, changing how people, organizations, and entire societies generate value. Digital transformation is no longer just about installing new technology — it is a shift in strategy and culture that reshapes business models, organizational workflows, innovation systems, and the skills people need. At

the same time, the competencies expected of entrepreneurs have broadened well past simply starting a venture, to include digital fluency, flexible problem-solving, the ability to spot opportunities, decisions grounded in data, leadership built on collaboration, and the resilience needed to operate amid constant change.

The link between digital transformation and entrepreneurial competence matters more

than ever in today's global knowledge economy. Technologies such as artificial intelligence, cloud infrastructure, the Internet of Things, blockchain, and sophisticated analytics are making innovation more accessible while opening fresh avenues for entrepreneurs to tackle pressing social and economic problems. Yet technology on its own cannot guarantee lasting growth — that depends on individuals with the entrepreneurial mindset needed to turn digital possibilities into real products, services, and solutions that benefit society. A central argument of this paper is that digital transformation is best understood not simply as a technical shift but as a driver of entrepreneurial capability. Digital platforms give entrepreneurs access to global markets, funding, customer insight, and collaborative networks on a scale not seen before, while it is entrepreneurial skill that determines how well these resources get put to use. The result is a two-way relationship: digital tools expand what entrepreneurs can do, and entrepreneurial innovation in turn speeds up digital transformation across whole industries.

The period following the pandemic has made the case for blending digital and entrepreneurial competencies even clearer. Businesses, schools and universities, policymakers, and startup communities increasingly see that staying competitive in the future depends on developing people who can pair technical skill with creativity, sound ethical judgment, strategic thinking, and a habit of continuous learning. Bringing these strands together supports not just economic output but also broader inclusion, sustainable innovation, and the ability to withstand future shocks. With this backdrop in mind, this paper looks at how digital transformation and entrepreneurial skill intersect, drawing on perspectives from multiple disciplines. It contends that the future of entrepreneurship belongs to digitally capable innovators who can navigate uncertainty, use

emerging technology responsibly, and build lasting value for both business and society. In exploring this relationship, the paper aims to add to the academic conversation and offer practical takeaways for educators, policymakers, industry leaders, and aspiring entrepreneurs working to thrive in an increasingly digital environment.

Literature Review:

Digital transformation stands out as one of the strongest forces shaping entrepreneurship in this century. Scholars have looked closely at how digital technology shapes innovation, the recognition of opportunity, the design of business models, engagement with customers, and competitive positioning. The studies below summarize the key work connecting digital transformation with entrepreneurial skill.

Nambisan (2017) — Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship:

Nambisan looked at how digital technology has reshaped the entrepreneurial process and opened new paths to innovation. The work suggests digital tools function less as ordinary business aids and more as strategic assets that let entrepreneurs spot market gaps, build innovative offerings, and construct digital ecosystems around their businesses. The author points out that digital platforms lower the barriers to entering a market, foster collaboration, and speed up business growth, while also stressing that entrepreneurs need genuine digital fluency and technical know-how to stay competitive as markets shift quickly.

Rogers (2016) — The Digital Transformation Playbook: Rethink Your Business for the Digital Age:

Rogers makes the case that digital transformation is, at its core, a question of organizational strategy rather than simply adopting new tools. The author argues that

businesses need to rethink how they relate to customers, how they innovate, what value they offer, and how they make decisions — all through a digital lens. Entrepreneurs who combine customer-focused thinking with digital innovation stand a better chance of building a lasting competitive edge, and the book underscores ongoing learning as a foundational entrepreneurial skill.

Vial (2019) — Understanding Digital Transformation: A Review and a Research Agenda:

Vial's extensive review of the digital transformation literature frames it as a process through which organizations boost performance by weaving digital technology into how they operate. The review points to technological innovation, organizational culture, leadership, the creation of customer value, and strategic alignment as the key building blocks of transformation done well, and argues entrepreneurs need to keep building their technical knowledge and adaptability to sustain innovation over time.

Kraus, Palmer, Kailer, Kallinger, and Spitzer (2019) — Digital Entrepreneurship: A Research Agenda on New Business Models for the Twenty-First Century:

This study examines how technologies such as cloud computing, artificial intelligence, social media, and e-commerce open up new entrepreneurial possibilities. The authors conclude that entrepreneurs are leaning more and more on digital competence to build business models that can scale, and that succeeding in competitive markets calls for creativity, analytical ability, awareness of technology, and skill in managing innovation.

Verhoef et al. (2021) — Digital Transformation: A Multidisciplinary Reflection and Research Agenda:

Verhoef and co-authors approach digital transformation through the combined lenses of strategic management, information systems, marketing, and organizational studies. Their work finds that commitment from leadership, organizational flexibility, digital capability, and a customer-first orientation all play a major part in whether transformation succeeds, and they argue entrepreneurs must sharpen their strategic decision-making while adopting new technology to stay competitive.

Sahut, Iandoli, and Teulon (2021) — The Age of Digital Entrepreneurship:

This research explores how digital technology drives entrepreneurial innovation and shapes competitiveness. The authors find that digital entrepreneurs tend to benefit from lower running costs, greater flexibility, wider market reach, and stronger customer relationships, and they identify digital capability as one of the strongest predictors of entrepreneurial success.

OECD (2023) — OECD Digital Economy Outlook 2023:

This report stresses how important digital infrastructure, digital literacy, cybersecurity, and innovation ecosystems are for supporting entrepreneurship. Countries that invest in digital education and technical infrastructure, it finds, tend to see more entrepreneurial activity and stronger economic growth, and it recommends ongoing digital skill-building for entrepreneurs to prepare for future challenges.

World Economic Forum (2023) — The Future of Jobs Report 2023:

This report names digital literacy, analytical thinking, creativity, technical competence, resilience, and lifelong learning among the most valuable skills for the future workforce. It notes that entrepreneurs who can adjust to technological disruption are more likely to sustain business growth, and that digital

transformation calls for continual reskilling and upskilling.

Research Objectives:

This study is guided by the following objectives:

1. To examine the concept and significance of digital transformation within today's business environment.
2. To identify the entrepreneurial skills needed to succeed in a digital economy.
3. To analyze how digital transformation shapes entrepreneurial innovation and competitiveness.
4. To examine the main challenges entrepreneurs encounter during digital transformation.
5. To propose strategies for strengthening digital entrepreneurship skills in support of sustainable business development.

Research Methodology:**Research Design:**

This study follows a qualitative, conceptual design built on a systematic review of secondary sources. A conceptual approach fits the goal here, which is to bring together existing knowledge on digital transformation and entrepreneurial skill rather than to test hypotheses empirically. The paper works through the scholarly literature to draw out major themes, relationships, and gaps in current research.

Sources of Data:

The study draws entirely on secondary data gathered from credible academic and professional sources, including:

- Peer-reviewed journal articles
- Books published by recognized academic publishers
- International conference proceedings
- Reports issued by the OECD and the World Economic Forum

- Government publications
- Literature indexed in Google Scholar, Scopus, and Web of Science

Sources were selected on the basis of their relevance, credibility, and contribution to the study of digital transformation and entrepreneurship.

Overview of Digital Transformation:

Mobile and cloud-based technologies now touch nearly every organization and human activity. Bringing these tools together lets organizations reshape their processes, build stronger capabilities, and keep talent engaged in a digital environment. Organizational change happens whenever a company shifts from where it stands today toward where it wants to be. Managing that shift well calls for careful planning and execution, both to control cost and to reduce employee resistance while getting the most out of the change effort. In an entrepreneurial context, digital transformation means folding new digital tools into every part of the business, which in turn changes how the organization functions at a fundamental level. Any transformation strategy needs a clear vision of where the company is headed and must be backed by the right technology. Real success comes from optimizing entrepreneurial processes appropriately and reengineering them where needed, and this process looks different from one organization to the next.

At its heart, digital transformation should aim for a seamless relationship with customers. Many companies, however, put technology ahead of the customer relationship — a mistake, since integrating both technology and data matters equally for the business and for the people it serves. A well-run organization needs a culture, strategy, and leadership capable of drawing out the potential of digital transformation. Typical goals of a digital strategy include lifting employee

productivity, enhancing the customer experience, encouraging innovation, sharpening decision-making, and reshaping the business overall. Organizations that actively encourage innovation tend to outperform competitors that do not. Leadership needs the right mix of skill and experience to steer a digital strategy, since transformation only succeeds where strong leadership pairs with a solid strategy — and the organizational change that follows is closely tied to sound leadership, a clearly defined strategy, and supportive culture.

Impact of Digital Transformation on Producers:

Digital Marketing:

Globalization together with the wider use of digital technology has pushed traditional sales and marketing toward digital channels. Digital transformation is changing both how consumers live and how entrepreneurs run their businesses. Wider internet access has opened up new avenues for digital marketing, and with so much of the population now online and using mobile devices, companies have been drawn toward digital marketing as a lower-cost way to promote their products and services.

Operational Process:

An operational process is essentially the method an organization uses to get work done, built around four core activities — planning, preparing, executing, and assessing. The most visible face of transformation shows up in the customer experience, but firms also gain from transforming behind the scenes. Where automation once focused mainly on efficiency, Enterprise Resource Planning (ERP) systems have since brought major gains in financial management and supply chain operations. One insurance company, for example, has built a digital platform to handle claims, and employee

self-service tools — in HR, for instance — are becoming widespread; one manufacturer centralized its HR function this way to gain economies of scale through self-service. Many firms have also automated large parts of their R&D work, freeing researchers to concentrate on innovation and creativity while generating data that can later feed into data-mining efforts.

Newer technologies are pushing these gains beyond simple efficiency. One manufacturer built fully automated plants that cut labor needs sharply while improving product quality and strengthening safety, health, and environmental outcomes. A garment maker moved its design work into a fully digital process, doing away with physical prototypes and shortening the product development cycle — letting the firm respond more nimbly as market demand shifts.

Digitally Modified Businesses:

A digitally modified business takes on new technologies or innovations to adapt its products or services to shifting market and business demands — in short, it changes how the business operates, blending physical and digital offerings and cutting across the usual boundaries between marketing, sales, and customer service. Digital transformation, at bottom, starts and ends with how a business connects with its customers. A grocery retailer, for instance, may stay close to its traditional model while using digital tools to drive growth; an e-commerce platform can bring in new customers through digital promotion; call centers can run more efficiently once digital tools are introduced; and a business-credit firm might build a digital offering for products that need less hands-on involvement than its traditional, high-touch services.

Data Analysis:

The literature gathered for this study was examined through thematic analysis. Related ideas and results were grouped under themes such as digital literacy, innovation capability, strategic thinking, opportunity recognition, digital marketing, leadership, and adaptability. These themes provide the framework for discussing how digital transformation affects entrepreneurial skill.

Scope of the Study

This study looks at how digital transformation influences entrepreneurial skill across different industries. Being conceptual in nature, it does not involve collecting primary data; instead, it offers theoretical insight intended to guide future empirical research.

Findings:

Reviewing the literature produced the following key findings.

Digital Literacy as a Core Entrepreneurial Skill:

Across the literature, digital literacy consistently emerges as one of the most vital entrepreneurial skills. Entrepreneurs need working knowledge of digital platforms, online collaboration tools, cybersecurity basics, artificial intelligence applications, and cloud-based systems in order to stay competitive.

Innovation Drives Entrepreneurial Success:

Digital transformation gives entrepreneurs the means to design innovative products, services, and business models, lowering the barriers to innovation by offering affordable access to information, global markets, and digital infrastructure.

Data-Driven Decision-Making Improves Business Performance:

Access to real-time business data lets entrepreneurs understand what customers want, track market trends, forecast demand, and sharpen

operational efficiency. Businesses that make good use of analytics tend to perform better strategically.

Adaptability Enhances Competitive Advantage:

Because technology keeps changing so quickly, entrepreneurs need to keep updating their knowledge and taking on new tools as they emerge — adaptability has become a core entrepreneurial skill in the digital economy.

Digital Marketing Expands Market Reach:

Tools such as social media, search engine optimization, influencer marketing, content marketing, and e-commerce platforms let entrepreneurs reach customers worldwide without heavy investment, making digital marketing skill essential.

Leadership and Collaboration:

Digital transformation supports collaborative leadership through cloud computing, virtual communication tools, and digital project management systems, with effective leaders using these tools to encourage innovation, teamwork, and ongoing learning.

Challenges in Digital Transformation:

Despite the many opportunities it creates, entrepreneurs also face real obstacles, including:

- Cybersecurity threats
- High costs of technology investment
- Shortages of digital skills
- Resistance to organizational change
- Concerns around data privacy
- Inadequate digital infrastructure
- Regulatory uncertainty

Tackling these challenges calls for ongoing training, supportive policy, and strategic investment.

Discussion:

These findings show that digital transformation has reshaped the entrepreneurial landscape at its core. Unlike the more traditional business environment of the past, today's entrepreneurs work within fast-moving, technology-driven markets where staying ahead depends on continuous innovation.

The literature reviewed here shows that digital transformation strengthens entrepreneurial capability by improving innovation, sharpening strategic decision-making, deepening customer engagement, and boosting operational efficiency. Entrepreneurs who weave digital technology effectively into their business processes gain an edge through faster decisions, happier customers, and higher productivity.

Digital entrepreneurship also feeds economic development by generating jobs, spurring innovation, and helping small and medium-sized enterprises (SMEs) grow. Governments around the world increasingly treat digital entrepreneurship as a lever for inclusive growth and sustainable development.

Still, success in digital transformation takes more than simply adopting new technology. Organizational culture, committed leadership, employee capability, and a habit of continuous learning all shape the outcome. Entrepreneurs are better served by a holistic approach that combines technological innovation with strategic management and investment in people.

Educational institutions have a part to play too, in preparing the entrepreneurs of tomorrow. Universities could usefully redesign entrepreneurship curricula to bring in digital marketing, artificial intelligence, business analytics, cybersecurity awareness, e-commerce management, and innovation management, with closer ties between industry and academia giving

students practical exposure to emerging technology.

Policymakers, for their part, can help by strengthening digital infrastructure, supporting entrepreneurship education, easing access to finance for technology-based startups, and shaping policy that encourages innovation while safeguarding consumer data and privacy. Taken together, digital transformation is best understood as an ongoing strategic process rather than a single technology investment — entrepreneurs who commit to lifelong learning and continued technological innovation will be the ones best placed to compete in the digital economy.

Conclusion:

Digital transformation has become a defining feature of today's business world, shaping entrepreneurship and organizational competitiveness in significant ways. The spread of advanced digital technology has changed how entrepreneurs spot opportunities, create value, engage with customers, and build business models built to last.

This conceptual study shows that digital transformation contributes to core entrepreneurial competencies — digital literacy, innovation capability, adaptability, strategic thinking, leadership, communication, digital marketing, and data-driven decision-making among them — all of which help entrepreneurs respond effectively to technological disruption and shifting market conditions.

Even with these benefits, entrepreneurs still contend with challenges such as cybersecurity risk, limited digital skills, financial constraints, and technological uncertainty. Meeting these challenges will take joint effort from governments, educational institutions, industry bodies, and entrepreneurs themselves.

Overall, the study concludes that entrepreneurial success in the digital economy

rests on continuous learning, technical competence, strategic innovation, and organizational adaptability. Future research could test the conceptual framework proposed here through empirical study across different industries and countries.

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Agriculture as a Pillar of Viksit Bharat: An Assessment of Government Schemes, Farmer Welfare, and Agricultural Productivity in India

Laxman B. Kale

Assistant professor of Commerce, Department of Commerce,
Government First Grade Womens College Bailahongal.

Corresponding Author - Laxman B. Kale

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Abstract:

The present conceptual study focuses on position of agriculture as a foundation to pillar of Viksit Bharat @ 2047 by a review of literature (not primary data collected) between farmer welfare, major government policies towards agriculture and agricultural productivity, which becomes particularly significant as agriculture is recognized as one of four main pillars for Viksit Bharat among youth, poor and women, through a broad theme of "Annadata" for defining the farmers as architects of country's developed nation story (Vajiram & Ravi, 2026), and in the face of projection of agricultural GDP from approximately 20 percent at 2023 to approximately 12 percent at 2047 while supporting livelihood of more than 50% Indian rural population (PHDCCI, 2024), this paper adopts a conceptual-literature based frame excluding any data collected from survey or fieldwork to examine that government policy is antecedent construct where farmer welfare and agriculture productivity is intervening to generate outcome, and Agriculture contribution to Viksit Bharat vision would be ultimate construct, the framework being similar to the one which has recently observed that no substantial improvement in farmer income is noticed from 2003 to 2010 despite manifold policies and schemes launched in agriculture and the structural reforms like diversification toward high value crops, better access to market via Farmer Producer Organizations and total factor productivity (TFP) through government policy will only make agriculture a foundation block for nation's ambition in 2047, not a complement (Gulati et al. 2024). Theoretically, this paper intends to go beyond the review of individual policy/ scheme to an integration model, where government intervention is linked to farmer welfare and productivity at grassroot level which contribute to the discourse of Viksit Bharat. This framework is expected to provide a theoretical base to policymakers, agriculture economists and policy researchers working for rural development sector so that they could test the theory regarding linkage of Indian policy architecture toward agriculture with national development in 2047 and also study the components as farmer welfare, agricultural productivity, government policy as mutually determined.

Keywords: Viksit Bharat, Agricultural Productivity, Farmer Welfare, Government Schemes, Rural Development, Sustainable Agriculture.

Introduction:

Economic and Social Significance of Indian Agriculture Despite its decreasing contribution to the total GDP of the nation, agriculture in India retains a disproportionate weight of its economic and social importance. This is due to, with over 46% of the country's population, nearly half of India's entire work-

force remaining engaged in farming and ancillary activities, while yielding only a modest share-less than 20%-of the national gross value added (GVA). The ratio between this work-force size and value addition-that is to say, per-worker productivity-continues to be the highest, compared to India's industrial and services sectors, which have provided majority of the

growth to the economy over the past few decades (PRS India, 2026). Over long term too, similar pattern may be observed, as total employment in agriculture fell slowly, from around 81% in 1983 to close to 42% today, whereas fall in share in GDP remained far more abrupt over the similar period.

It, thus, remains as one of the sectors in which a large share of Indian population is concentrated but which remains relatively of a minor in the aggregate contribution in the economy (Drishti IAS, 2024). Given this significance to employment and rural livelihoods, and given the declining shares to the sectoral GDP contribution, Agriculture sector, as per policy framing under the “Annadata”, the Government of India is identified as one of the “Four Pillars of Nation Building”, under the broader strategy of achieving Viksit Bharat@2047 “Developing India By 2047” vision, aiming for transforming India into a developed country by year 2047. Thus, many policy measures are being enacted to focus on farmer-centric initiatives as enablers for the larger goal of national development. However, examining whether government actions have systematically led to the farmer welfare and agricultural productivity by designing specific schemes to address it reveals a conceptual as well as an empirical gap, which this paper aims to address. While the country’s Pradhan Mantri Kisan Samman Nidhi scheme targets “millions” and has been successful in enrolling ‘Over 29.19 Crore farmer applications’, to an extent that almost half of the total expenditure of the Dept of Agriculture and Farmers welfare, or ‘half of its overall outlay in 2023–24, has gone towards the scheme itself(Agriculture.

Institute, 2026), the “outcomes on the ground” have often fallen far short of this commitment, as can be exemplified by gaps in beneficiary identification, exclusion due to incomplete land records or absence of linkage in

digital infrastructure (Agriculture. Institute, 2026) or even crop insurance, where sum of Claims paid for Pradhan Mantri Fasal Bima Yojana had plummeted to mere Rs 576 crores in 2025, a sharp decline from ‘Rs 21,288 crores annually, averaged during 2016 and 2024, notwithstanding negligible decrease in the insured area (PRS India, 2026)! The problem arising from this conceptual-empirical gap, of linking schemes inputs, to agricultural outputs (on the back of farmer outputs) may be thought to be a key issue, because by evaluating agricultural policies only from the input and process sides, instead of the outcome and impact sides, our “Government Schemes’ outcomes can potentially remain only policy commitment measures rather than development interventions’. It makes important and interesting to examine systematically the structure and functioning of agricultural schemes in context of the national goal of transforming India to a developed country and how its different schemes would achieve this through farmer welfare and agricultural productivity. Rather than looking at any scheme individually or as disconnected input from national goal (most literature focuses on scheme impact alone), in this paper we argue for examining agricultural schemes, as part of an entire pathway leading to national development in the frame of the national vision. Therefore, we analyze the problem by synthesizing existing scholarly work to review its literature, pinpoint our specific research gap, formulate an integrated conceptual framework and associated hypotheses, and conclude with relevant policy recommendations to enhance, the effective, farmer outcome-friendly design and delivery of government schemes so as to realize the vision of Annadata as part of Viksit Bharat by 2047.

Review of Literature:

Agriculture remains a cornerstone of the economic transformation agenda in India’s

economic modernization journey under Viksit Bharat, with current academic literature pointing to interlinkages between agricultural modernization, rural prosperity and inclusive development trajectories in the country and underlining that though relative contribution to GDP is falling, agriculture continues to support rural employment, food security, social stability and livelihood resilience making productivity improvement and institutional reforms central to widespread economic development (Government of India, 2023; Gulati et al., 2021; World Bank, 2022). Agricultural transformation literature also highlights that India's growth is reliant on both industrial acceleration and improving farm sector efficiency, diversification, value-chain participation by smallholders and market integration (Chand, 2017; BIRTHAL et al., 2019). Within this framework of transformation Institutional Theory also stands as an important theoretical construct as it suggests how institutions—government bodies, legal-regulatory arrangements, and the organization of social life— influence economic outcomes by creating appropriate incentive structures, by facilitating access to resources and by ensuring adequate levels of co-ordination (North, 1990; Scott, 2014); implying that the ability to execute a comprehensive, inclusive and efficient approach to address agricultural concerns in a Viksit Bharat Vision will significantly depend upon institutional efforts. A good body of policy-focused agricultural literature exists on evaluation of specific government interventions to enhance the income security, risk management capacity, market access and sustainable practices, mainly focused on scheme evaluation of policy interventions such as PM KISAN, PMFBY, eNAM and emerging natural farming. Empirical assessment of PM-KISAN reveals enhanced income support and liquidity among targeted farmers while coverage, adequacy of transfers and alignment with other rural development strategies

continue to determine its effectiveness (Chand, 2019; Government of India, 2023), research on crop insurance points to benefits arising from institutional arrangements like PMFBY but claims settlement processes, farmer unawareness, actuarial soundness of products and coordination challenges impact the extent of risk protection (BIRTHAL et al., 2021; Raju & Chand, 2020). Research on digital agricultural markets highlights significance of eNAM for enhancing market connectivity, price transparency and efficiency but challenges of infrastructure readiness, varied digital capabilities of farmers and state level implementation issues remain prominent (Kumar et al., 2021; NITI Aayog, 2021), and the literature on natural farming emphasizes role of farmer education and engagement, scientific endorsement, and market linkage in successful adoption (Mishra et al., 2022; Ministry of Agriculture and Farmers Welfare, 2023).

Farmer welfare and livelihood resilience literature has highlighted significance of considering aspects beyond just production indices; including stability of income, security, diversification and ability to cope with economic, social and environmental shocks (Reddy & Mishra, 2019; Rao et al., 2020) argue that the challenge of fragmented smallholder farming, market uncertainties, indebtedness and climate related issues in India remain key challenges and that in promoting farmer welfare, integrated approaches are needed which involve welfare enhancing policy, such as Direct Benefit Transfers, crop insurance, agricultural credit, rural infrastructure development and promoting of Farmer Producer Organizations are some effective institutional tools if well executed (Kumar et al., 2021; NABARD, 2022). This corroborates with Sustainable Livelihoods Framework perspective in understanding how farmers' wellbeing is an outcome of an accumulation of human, financial, physical,

natural and social assets and, thus policy intervention need to create a favourable institutional environment instead of focusing on simply enhancing the productivity level(s) of the economy (Scoones, 2015). Agriculture productivity studies point to a complex set of interrelated factors influencing this outcome, including technology diffusion and uptake, credit access, irrigation, rural infrastructure development, extension services, and climate resilience mechanisms. Research finds improved seeds, machinery, and digital technologies significantly contribute to productivity growth when backed by strong institutional arrangements and supported by information and outreach services (Pingali et al., 2019; Chand, 2017), credit related research suggests affordable and timely institutional financing to rural enterprises for improving input quality and fostering innovation/diversification and also argues for enabling universal access to institutional credit to farmers, particularly marginalized sections, as constraint to productivity (Kumar et al., 2020). The importance of roads, warehouses, irrigational network and other logistics in agriculture efficiency through lowering transactions costs and creating markets can also be seen from a growing literature on infrastructure in rural India and has highlighted significance of roads, warehouses, irrigation and logistical facilities in boosting farm output and reducing costs (Birthal et al., 2019; World Bank, 2022). With the rising challenge of climate change it is stressed that adaptation policy needs to foster development of appropriate adaptive technologies, effective institutional mechanisms for climate resilient practices and resources management so as to make the agricultural sector climate resilient (IPCC, 2022; Government of India, 2023).

In summarizing key theoretical framings of the research in agricultural economics literature, the dominant institutional framing seems to be based upon a blend of Institutional

Theory, Agricultural Transformation Theory and the Sustainable Livelihoods Framework. Institution Theory emphasizes roles of effective governances, credibility of policies, organizational capability in policy execution, and policy and procedural reforms in making development outcomes more effective (North, 1990; Scott, 2014), Agricultural transformation literature emphasizes the movement of rural economies from a subsistence based farming to diversified and marketed agriculture that is techno and knowledge- intensive and commercialized with agriculture as a source of growth, employment and savings for industrial development (Timmer, 2014; Johnston & Mellor, 1961). And Sustainable Livelihoods Framework brings on table a comprehensive view of well-being by framing it around an array of assets and capacities needed for farmers to pursue diverse, sustainable livelihoods in an era of volatility and change (Scoones, 2015), together suggesting that successful contribution of agriculture to Viksit Bharat will hinges on well-designed enabling and institutional ecosystem for effectively connect policies, resource market and people in the country.

Research Gap:

The extensive literature on interventions in agricultural development in India, for example, fails to study agriculture-related schemes as an integrated institutional ecosystem instead of standalone policy instruments because existing studies tend to analyze individual schemes like PM-KISAN, PMFBY, e-NAM and those related to sustainability in isolation. They seldom explore how combinations of schemes together promote the welfare of farmers, enhance productivity and productivity, reduce risk for them and aid rural transformation outcomes (Chand, 2019; Birthal et al., 2021; NITI Aayog, 2021). These are limited due to the segmented nature of individual program evaluation; they reveal very little about

linkages between different government agriculture programs, complementarities between them and coordination's needed among them for coherent implementation. Furthermore, the increasing political discourse around Viksit Bharat requires an empirical-institutional link between schemes and nation-building discourse, which unfortunately seems to be underdeveloped in the literature on agricultural development as an institutional construct in an increasingly important national narrative (Government of India, 2023; Scott, 2014). Studies that aim for agrarian transformation, sustainable agriculture and institutional reforms fail to operationalize this as an ecosystem and there is limited theoretical and empirical development towards that direction (North, 1990; Scoones, 2015) too. Apart from these studies and most of them focus on selected region, specific staple food and specific intervention so it may not be generally applicable across agro-ecological regions and farmer-typologies of India. The regional/State-level/crop-specific disaggregation's are wide in existing studies, which focus on a limited range of agriculture-specific indicators to provide a generic idea of overall impact and consequently limited policy implications for policy and for a wider geography of India (Birthal et al., 2019; Gulati et al., 2021) is lacking too. The present research endeavors to synthesize government agriculture related policy measures with farmers, farming systems and agriculture outcomes via an institutional lens within the paradigm of "Viksit Bharat".

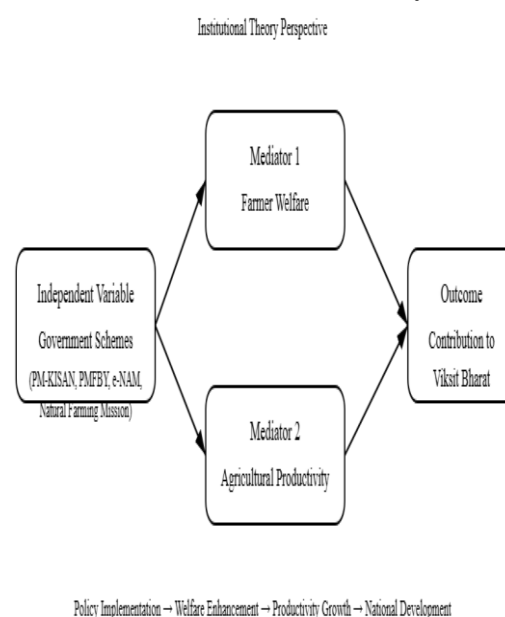
Objectives of the Study:

1. To examine the role of agriculture in India's development trajectory and its contribution to the Viksit Bharat vision by analysing the significance of agricultural growth, rural transformation, food security, and inclusive economic development.

2. To assess the effectiveness and institutional mechanisms of major government agricultural schemes such as PM-KISAN, PMFBY, e-NAM, and natural farming initiatives in improving farmer support systems, reducing risks, enhancing market access, and promoting sustainable agricultural practices.
3. To evaluate the relationship between government interventions, farmer welfare, and rural livelihood outcomes by examining how agricultural policies influence income security, livelihood resilience, resource access, and socio-economic empowerment among farming communities.
4. To analyse the determinants of agricultural productivity in India and identify the role of technology, credit availability, infrastructure development, institutional support, and climate-resilient practices in strengthening agricultural performance and achieving sustainable agricultural transformation aligned with the Viksit Bharat framework.

Conceptual Framework:

Below Diagram Showing the Conceptual Framework related to the study :



This work provides the conceptual frame for the research title: "Agriculture as a Pillar of

Viksit Bharat: An Assessment of Government Schemes, Farmer Welfare, and Agricultural Productivity in India”. It argues that Government Agricultural schemes play role of the Main independent variable in determining achievement of the Viksit Bharat agenda, through a set of Mediating variables of farmer’s welfare and Agricultural productivity whereas the income support programmes, crop insurance, digital market reforms, sustainability focus programmes and support institutions acts as policy instruments to influence access of the farmers to financial, risk protection instruments, technologies, markets and productive resources of agriculture (Government of India, 2023; Scott, 2014). While the Institutional theory act as main theory, which addresses that effective institutions, policy structure, implementational arrangements and governances’ arrangements defines that how agricultural intervention affects in a measurable way on socio - economics changes (North, 1990; Scott, 2014). While in this paradigm, Farmer Welfare become mediating variable, that refers to improved level of security of income, security of livelihood, increased assets building, increase in empowerment and resilient among farmers following some governances structure (Scoones, 2015). Agricultural productivity becomes another mediating variable, that refers to better productivity of on farm using technological efficiency, resources efficiency, market efficiency, sustainably production efficiency (Chand, 2017; Pingali et al., 2019),. Thus, the present conceptual frame suggest that government Schemes do not decide the direct effect on contribution to Viksit Bharat, but their effect on achievement of the agenda is through increase in welfare and productivity only, which further support the inclusive rural transformation and inclusive economy. The outcome variable is Contribution to Viksit Bharat which implies broader goal like achievement of Sustainable

agriculture, rural inclusive & economic development, food security and resilient approach in terms of the development of the national economy (Gulati et al., 2021; World Bank, 2022). It further argued that more institutional and their inter play will lead towards effective schemes that in turn increase welfare and productivity but differences in context or implementation and other external factors will affect degree of the relationship among variables [Birthal et al., 2019; NITI Aayog, 2021].

Discussion related to the Study:

The conceptual discussion of the study is based on theory-based interpretation of the prior literature, based on the argument that that various governments’ agri-schemes will enhance the overall agenda of ‘Viksit Bharat’ not by just referring to individual policy programs as separate interventions, but as an institutional support mechanism to help farmers get benefit not only from farmers’ welfare and increased productivity, but also via strengthened institutions. This will support is through the framework of ‘Institutional Theory’ which posits that formal and informal institutions play an important role to create efficient structure of governance and policy, formal institutions are formalization of a society's norms and values, they act upon beliefs and create constraints, provide incentives and reduce uncertainties to promote social cohesion, facilitate coordination of resources (North, 1990; Scott, 2014), formal institutions’ ability to enable coordination among people and resources provides a rationale for the expected association between government schemes and farmer’s welfare as the government initiated agri-schemes to enable farmer's increased access of finances, mitigate risks and take access to different resources and thereby improved the financial condition of farmer's in general as well as their well-being. For examples

the direct cash transfer or crop insurance policies to farmer could address livelihood, access to credit through better credit facilities with farmers will enable small farmers to get additional support by accessing additional resources or information to earn greater profit through effective market-linkage programs etc., the improved access will increase the livelihood as suggested in Government of India(2023), with improvement in financial, physical and human capabilities as the role of government interventions is to support building capacity at household and community level. Further supported by “sustainable livelihood framework” (Scoones, 2015), policy interventions should contribute to improved access of the individuals' financial, physical, human, natural and social assets, to support their livelihoods which eventually improves their welfare. Similarly, this will help in improving farm productivity and create a positive feedback mechanism which in long run helps improving rural incomes and achieving goal of 'Viksit Bharat.' It will contribute to improving and creating space and opportunity for better agricultural performance through improved availability of information related to soil health, weather condition, and market related price information which are enabling factors of the effective functioning and sustainability of agriculture. Such improvements in financial and economic welfare of individual farmers will also promote investment in other sectors which cumulatively supports broader economic goal of 'ViksitBharat'. The proposed link between Government's Agri-Schemes and agricultural productivity will be guided by 'Agricultural transformation theory' which advocates the importance of creating supportive policies and institutions (e.g., trade policies, finance, infrastructure, and research) to stimulate the modernization and restructuring of agricultural sector for enhancing productivity and output

(Johnston & Mellor, 1961; Timmer, 2014). The government interventions promoting productivity through providing good seeds, advanced techniques, improved irrigation facility, easy availability of credits from banks/financial institutions, easy access to markets will directly or indirectly boost the overall farm productivity in country. Therefore; this relationship between government's Agri-schemes to and farm's productivity will add further evidence to the existing body of knowledge on role of government's policy interventions on augmenting agrarian productivity. 'Inclusive Growth' and 'Sustainable Development' has been emphasized as an overarching developmental paradigm that aim at improving the well-being of farmer increasing productivity, employment generation, enhanced livelihoods for poor and vulnerable segments of the society and ensuring food security at national level (World Bank, 2022). This proposed research will analyze the process and mechanisms through which government supported programs can be expected to enhance farmer's welfare and increasing the productivity of agriculture thereby playing the mediating role for inclusive 'growth'. It is further assumed that due to differential impact of government programs regionally as well as cross-farm type due to geographical and environmental variations the impact of government's agri-programs on the outcomes will get modulated by several factors of institutional capacity, efficiency of implementation mechanism, nature of government schemes itself and regional factors (Birthal et al., 2019; NITI Aayog, 2021).

Managerial / Policy Implications:

The conceptual framework presented has important policy and management implications for agricultural scheme-design agencies, governmental bodies and rural development institutions by arguing that individual programme

introductions cannot solely determine the outcomes of agricultural interventions but rather depend on how effectively institutional coordination, policy integration, implementation capacity and congruencies between objectives of the scheme and actual farmer needs are achieved as institutional theory asserts that policy outcomes result from the quality of governance structures, institutions, and procedures within which policies are implemented (North, 1990; Scott, 2014). Such evidence necessitates a shift away from fragmented scheme-based approaches towards coordinated agricultural policy ecosystems that create synergies between schemes targeting income support, risk management, market reforms, technology promotion and sustainable use; where policy-making bodies should prioritize integrating these policy areas, instead of treating them in silos. For scheme-design bodies, the conceptualisation lends support to adoption of a results-oriented planning framework that maps activities of individual agricultural projects to positive outcomes at the farmer welfare and productivity levels as observed by many literature regarding agricultural transformation, which emphasized the importance of institutions linking resources, and innovations towards rural economic development (Timmer, 2014; Chand, 2017), and, given the role of farmer welfare as a mediating variable, rural development institutions should focus on implementing Farmer-centric strategies to bolster all the livelihood assets such as finances, knowledge, social relations and adaptive strategies, in the realm of a more sustainable pathway (Scoones, 2015). Moreover, as the conceptualization suggests that the enhancement of agricultural productivity requires policy managers to strengthening additional systems of institutions, including extension services, irrigation infrastructure, access to credit and markets, storage, digital infrastructure; as

technological and monetary input may prove ineffective without well-developed institutional supports (Pingali et al., 2019; BIRTHAL et al., 2019). For rural development institutions, this framework stresses the need to disaggregate schemes by geography, agricultural systems and crop profiles to design policies that can easily accommodate diverse realities in terms of implementation such, as has been evident for varying levels of impact across Indian States (Gulati et al., 2021; NITI Aayog, 2021), finally, policy and programme monitoring would do well to not evaluate each programme in isolation, but analyse the overall sum impact towards overarching goals associated with the Viksit Bharat objectives, allowing a focus on building synergies and efficiencies among them. Consequently, the proposed conceptual framework may be useful to guide creation of a holistically managed agricultural governance model that will harness the government schemes as an engine of institutional change in enhancing both farmer welfare and agricultural productivity which will facilitate rural and national development under umbrella of holistic national economic prosperity (Government of India, 2023; World Bank, 2022).

Conclusion:

Conclusion The article "Agriculture as a Pillar of Viksit Bharat: An Assessment of Government Schemes, Farmer Welfare and Agricultural Productivity in India" adds to the corpus of knowledge on agricultural development on a conceptual level by introducing an integrated framework in which government schemes operate as institutional arrangements influencing farmer welfare and agricultural productivity, which in turn impact the developmental goals envisaged within the 'Viksit Bharat' discourse and moves beyond siloed analyses of individual farm programs by highlighting the interplay between

policy design, institutionality, livelihood enablement, and productivity transformation within Indian agriculture (North, 1990; Scott, 2014). Theoretically, it advances current understanding by drawing upon Institutional Theory, Agricultural Transformation Theory, and livelihood perspectives to identify the possible pathways through which public initiatives can translate into inclusive and sustainable rural transformation (Timmer, 2014; Scoones, 2015). While it acts as a theoretical point of entry into possible empirical investigations aiming to identify effectiveness, implementation details and differentiated impacts of agricultural programs in Indian conditions across region and cropping system using various methodological approaches - quantitative, qualitative and mixed methods - the conceptual model presented herein provides an theoretical foundation into how institutional structures might operationalize policy interventions to generate measurable outcome on welfare and productivity in agriculture, eventually to inform future debate between policymakers and researchers to strengthen policy related to agriculture as crucial to sustainable development of India.

Limitations and Scope for Future Research:

The present conceptual research based on "Agriculture as a Pillar of Viksit Bharat: An Assessment of Government Schemes, Farmer Welfare, and Agricultural Productivity in India" has the following limitations as a proposed research paradigm has been theoretically constructed based on synthesized empirical knowledge available in literature without undertaking field research which cannot conclude definite causal relationships, generalizations in terms of effectiveness of government interventions on farmer welfare and productivity enhancement (Creswell & Creswell, 2023); there should be strong empirical investigations with

household/ farmer survey, longitudinal study across various states/ agricultural sub-regions/ farming system, or comparative studies across intervention and control groups to validate conceptual links between interventions, mediators and contribution towards Viksit Bharat (Bryman, 2016; BIRTHAL et al., 2019); in addition, to be a policy construct, the evolution of Viksit Bharat may contribute to the lack of maturity, in relation to defining a clear strategy, set of objectives, institutions, and concrete outcome/ impact indicators. Hence the study should further define appropriate metrics based on Government of India's roadmap towards achieving the same (Government of India, 2023);. The model could be tested with quantitative analyses, such as structural equation modelling, mixed methods research, country or state specific data analyses, and analyses under intervention conditions or otherwise for policy validation.

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Artificial Intelligence and Women Entrepreneurship: Opportunities and Challenges

Lavanya V. K.

Lecturer, Department of Commerce,

JSS Banashankari College, Dharwad.

Corresponding Author - Lavanya V. K.

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Abstract:

AI has become the core of modern business. AI is now changing the entrepreneurship market. AI is now helping women entrepreneurs to have firm footing in the male dominated entrepreneurship world. The paper focuses on how AI is creating opportunities and posing threats to women entrepreneurship. The paper also concentrates on how women entrepreneurship developed in India and currently how AI is revolutionizing the entrepreneur sector in India. The research concentrates on how AI based platforms are now helping women entrepreneurs in male dominated sector right from coding to designing the products. Furthermore, the paper also highlights the challenges faced by women entrepreneurs while handling AI is also discussed.

Keywords: Artificial Intelligence, Women Entrepreneurship, Opportunities, Challenges, Digital Skills.

Introduction:

Earlier in Indian traditional society women were confined to household chores. They had least participation in economy and were expected to fulfill the needs of every individual in the family. Women were confined to live within four walls of the house and were least encouraged to participate in the economic activities. However with the passage of time women in Indian have established themselves in each and every sector right from agriculture sector to service sector. In the current scenario the status of women in India is changing tremendously due to globalization, urbanization and industrialization. The increased awareness of self-independence is encouraging women to be more self reliant. Women are inspired by Falguni Nayar [Founder and CEO of Nykaa], Vineeta Singh [CEO of sugar cosmetics], Melenie Perkins [Founder and CEO of Canva] who have set a bench mark in the society. Inspired by such prominent personalities women started to establish themselves in banking sector,

politics, medical sector, education sector, space etc. Along with this sector women gradually started entering into male dominated field which is Entrepreneurship.

In the early 19's women engaged themselves in micro enterprises which they operated from their home. Activities such as tailoring, pottery and making traditional Indian hand crafts etc. were managed from within the same household. Such activities which were intended to earn livelihood and also marked the beginning of women entrepreneurship in India. During 1959 7 women from Bombay began making papads by borrowing Rs 80. The initiative in later days grew into "Shri Mahila Griha Udyog Lijjat Papad" ensuring that even a enterprise owned by women could help to be financially independent.

In later 1970s and 1980s educated women took keen interest in male dominated formal business despite being highly criticized by the society. In the year 1980 various training

programs were introduced to help female entrepreneurs in India. The main shift in women entrepreneurship occurred during 1991 economic reforms. The reforms widely opened the gates for employment opportunities and access to the quality education for women in India. During this period financial institutions and banks such as NABARD and SIDBI began encouraging women entrepreneurship by offering targeted credit scheme and capital allocations. With liberalization and globalization and increased access to technology women became more aware of financial independence and credit facilities offered by different financial institutions in India. The actual era of women entrepreneurship in India began from early 20's due to increased financial facilities and exposure to internet and e-commerce. Women in India started shifting from small scale enterprises to leading large scale industries. With exposure to digital infrastructure Indian women now have also entered into e-commerce corporate sector and high growth technology ventures. Massive success in the field of wellness, beauty and food processing units have proved that the enterprises founded by women could build publicly traded and multibillion dollar enterprises.

Objectives:

1. To examine the opportunities created by AI adoption in women entrepreneurship.
2. To identify the challenges faced by adoption of AI.
3. To understand the role of AI in women entrepreneurship.

Opportunities:**Time Optimization:**

Time might play vital role in every business. When time is managed in well manner the goals of the organization can be achieved effectively and efficiently. In today's generation AI has been boon to the entrepreneurship by

handling multiple tasks hereby reducing the work burden of entrepreneurs. Day to day task such as bookkeeping, email are handled by automated tools which are helping the entrepreneurs to save their time on such tasks and concentrate more on the big plans. AI meeting assistants translates the entire conversations; extracts key wordings from meeting and gives the summary of the meeting immediately which saves the time of manual work.

Low-Cost Marketing:

Marketing constitutes the core of entrepreneurship. During the beginning of entrepreneurship era in India marketing was completely driven by salesperson but with the passage of time and exposure to internet marketing is now completely AI driven. The concept of salesperson reaching out individual places has completely vanished. Yet the product is popularized among the public through the social media platform like Instagram reels, Youtube shorts etc. using various AI tools women can now easily generate product photos, logos, eye catching packaging, social templates etc. which has reduced significant time spent on these activities. AI has also made promotion videos easy to make hereby reducing the cost spent on promotional activities. AI follow up the customers activities based on their purchasing patterns by recommending the similar products, such AI tools help entrepreneurs to reach out wide range of customers without incurring any cost. AI chatbots or websites easily handle enquiries and solve the problems of the customers and they also suggest the similar products available and complete sales without the need of sales team.

Starting Tech Business Without Coding:

Decades ago starting tech business was a great task for women. But now the technical barrier has been removed by the use of no code platform and generative AI. Women entrepreneurs faced barriers due to dominance of

men venture funding and lower formal backgrounds in CS. AI has now turned the table by converting burning tech task into a prompt based task. UI design [user interface design] which plays a prominent role in attracting the customers is also now handled by AI. AI tools like Firefly, Canva help the entrepreneurs to generate visual aesthetics, brand assets and marketing collateral without taking the help of creator.

Cheap Market Research and Instant Business Advice:

AI has made market research easier and more affordable for women entrepreneurs. Earlier, business owners had to spend a lot of money on surveys, experts and research agencies to understand customers needs and market trends. Today, AI tools can quickly analyze customers reviews, online researches, social media posts, and sales data at a very low cost. This helps women entrepreneurs understand what customers want, identify popular products and make better business decisions. AI can also provide instant business suggestions, such as pricing strategies, marketing ideas and sales improvement. This saves both time and money, especially for small business and start-ups. By using AI, women entrepreneurs can make informed decisions, reduce business risks and complete confidently in the market without spending a large amount on research.

Worldwide Access to Sell Products:

AI has created new opportunities for women entrepreneurs to reach customers across the world. Earlier, small business mainly sold products within their local areas because expanding to other markets required high investment and marketing cost. Today, AI-powered e-commerce platforms, digital marketing tools and translation features allow women entrepreneurs to promote and sell their products globally. AI helps to identify the right target audience, create personalized advertisements and

communicate with customers in different languages. It also improves customer service through AI chatbots that provides support at any time. These technologies help business attract more customers, increase sales build an international brand. With the support of AI, even small women-owned business can complete in global markets and grow their business beyond geographical boundaries.

Challenges:

Not Having Enough Digital Skills and AI Knowledge:

One of the main problem for women who run business is not knowing much about AI and digital tools. A lot of them manage small business and may not have a background in technology. Because of this, they may find it hard to understand or use AI. They might not know which AI tools are useful for their work or how to use them well. This can effect their confident and slow down how fast their business grows. Learning AI can takes time, training, and help, which may not always be available. Women entrepreneurs can improve their skills by taking online classes, attending workshops and joining programs that teach new skills. Keeping up with changes in AI is important because it keeps changing, and staying updated helps business stay competitive.

High cost of AI technology:

Many AI tools, software, and business solutions require payments likely monthly fees or high setup cost. For small business and new startups, these costs and be tough to manage. Women entrepreneur with limited money might not choose top use AI, even if it could help their business. They also need to spend money on training, internet services, and device to use AI properly. As a result, they might stick with traditional methods that take more time and effort. Help from the government, affordable AI platforms, and financial support can help reduce

this problem. There are now more low cost or free AI tools that make it easier for women entrepreneurs to start using AI without putting too much pressure on their budget.

Limited Access to Resources and Support:

Many women entrepreneurs do not have equal access to business resources like funding, guidance, networking chances and technical help. Without proper support, it is hard to understand how AI can be used in their business. They may also have fewer chances to meet experts who can help to solve technical issues. The lack of support can slow business growth and make them less confident in using new technology. Strong business networks, program for women entrepreneurs and government efforts can provide the knowledge and encouragement needed to use AI successfully. Better access to resources helps women make smart decision and improve their business performance.

Balancing Business and Family Responsibilities:

Many women entrepreneurs have to manage their business and family duties at the same time. They often spend a lot of their day in household tasks, taking care of kids, or helping elderly family members. These responsibilities can leave little time for new AI skills or putting them to use in business. Managing many roles at once can be stressful and take away time for business growth. Even though AI can save time by doing things like customers support, marketing, keeping records and learning these tools takes some effort. With support from the family, flexible training, and good time management, women entrepreneurs can slowly start using AI and improve both their business efficiency and work-life balance.

Data Privacy and Trust Issue:

AI works by collecting and analyzing data. Many women entrepreneurs worry about the

safety of their business and customer information when using AI tools. They may fear that important data could be used wrongly, leaked, or accessed by the people who shouldn't have it. Some also don't trust AI because they are unsure how it makes decisions or if the information it gives is always accurate. These worries can stop them from using AI in their business. To deal with this, women entrepreneurs should pick up trusted AI platforms, keep their security settings up to data, and learn some basic cybersecurity skills. Learning how to use AI safely can increase confidence and encourage more women to use AI in their business.

Conclusion:

The article examined how artificial intelligence is being a prospect and hurdle to women entrepreneurship. Artificial intelligence is acting as useful tool for the growth of women entrepreneurs in India by reducing the entry barriers, facilitating easy decision making and global reach. However women entrepreneurs also face barriers due to lower digital awareness, high cost of technology and other responsibilities. Thus AI is empowering women in the field of entrepreneurship and thereby helping women to contribute to the economic growth of the country.

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Women Entrepreneurship in India- Challenges and Remedies

Dr. Pavithra S. T.

*Assistant professor, Dept of Political Science,
SGRKS First Grade Women's College Harihar Davangere.*

Corresponding Author - Dr. Pavithra S. T.

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Abstract:

Women are comprises 50% of a population in a country. without empowerment of women it is impossible to imagine development of a country. So Sab ka saath sab ka vikaas this statement cannot be achieved by excluding women. Women entrepreneurship has emerged as a significant drive of economic growth, employment generation, and social transformation across the world. In India, women-owned enterprises are steadily increasing due to improved education, government support, digital technologies, and financial inclusion initiatives. Despite these advancements, women entrepreneurs continue to encounter multiple socio-economic, cultural, financial, and institutional barriers that restrict the establishment, survival, and growth of their enterprises. This article examines the major challenges confronting women entrepreneurs and proposes practical remedies for creating an inclusive entrepreneurial ecosystem. The study adopts a descriptive approach based on secondary data from books, research articles, government reports, and policy documents. The findings indicate that access to finance, gender discrimination, limited market exposure, inadequate business training, technological barriers, and work-life imbalance remain the primary constraints. The paper concludes that coordinated efforts by governments, financial institutions, educational institutions, and society are essential to strengthen women's entrepreneurial capabilities and promote sustainable development.

Keywords: *Women Entrepreneurship, Empowerment, MSMEs, Financial Inclusion, Gender Equality, Entrepreneurship Development, Gender Equality.*

Introduction:

Women entrepreneurship is a powerful engine of global economic growth, social changes and women empowerment through breaking traditional barriers and to create financial Independence of women. But in India women entrepreneur often faced gender based barriers to starting and growing business apart from this women entrepreneur who accept various challenges and try to become economically independent. Women entrepreneurs may be defined as the women or a group of women who set up and operate her own enterprise. In other words women entrepreneurs are self-employed individuals who establish their enterprise and

involve themselves for economic activities. Earlier women were confined in the four walls of houses and their activities were mainly related to household work, without any socio-economic independence. Today women are marching ahead in almost every field and generating employment not only for themselves but also for others. Kamal Singh, a woman entrepreneur from Rajasthan, has defined woman entrepreneur as “a confident, innovative and creative woman capable of achieving self-economic independence individually or in collaboration, generates employment opportunities for others through initiating, Business due to many factors which encourage them to have their own dignity and

self-esteem in the society. Self-dependence, career consciousness and self-respect etc. are the key factors which motivate women entrepreneurs to choose a profession as a challenge. These are generally said as pull factors. But sometimes women join the business enterprise due to family circumstances and take up the responsibility of business. These are called as push factors. Thus pull and push factors encourage women to set up a new business or take up the existing one and stand on their legs. Women entrepreneurs are playing a key role in the economic development of any developing country. They have been recognised as an important source of economic growth. Women entrepreneurs are creating new jobs not only for themselves but also for others. They contribute to the economic well-being of the family and communities, women empowerment and reduction of poverty and thus the role of women entrepreneurs in economic development is inevitable. Their role is also being recognised by governments and other non-governmental organisations.

Concept of Women Entrepreneurship:

Before we understanding women Entrepreneurship first we understand what is entrepreneur. an entrepreneur is an individual who creates a new business, bearing most of the risks and enjoying most of the rewards. so The process of setting up a business is known as Entrepreneurship. Women entrepreneur's may be defined as a women or group of women who initiate organize and run the business enterprise. Women entrepreneurship refers to the process in which women establish, organize, manage, and expand business enterprises while assuming financial and managerial responsibilities. Women Entrepreneurship is one of the emerging issues which are connected with the empowerment of women and the development of the nation. Women in recent years have been thriving in

breaking their captivity within the limits of their houses by inflowing into varied kinds of profession. The concealed potentials of women as entrepreneurs are gradually changing with the changing role and status of women in society; they are emerging as a smart and dynamic entrepreneur. Women entrepreneurship is one of the emerging parts in the economic development of the country to promote socio-economic development.

According to Fredric Harbison – Any women Or Group of women which innovates initiates or adopt an economic activity may called women Entrepreneurship

Objectives of the Study:

1. To examine the importance of women entrepreneurship.
2. To identify the major challenges faced by women entrepreneurs.
3. To suggest practical remedies for promoting women entrepreneurship.

Methodology:

The present study is based on the collection of data from secondary sources. Secondary data is obtained from various published and unpublished records, books, magazines and journals.

Need of Women Entrepreneurship:

Women entrepreneurship contributes significantly to economic and social development in several ways:

- Promotes economic growth and national income.
- Generates employment opportunities.
- Enhances women's economic independence.
- Reduces poverty and income inequality.
- Encourages innovation and business competitiveness.
- Strengthens rural and local economies.

- Promotes gender equality and social inclusion.
- Contributes to achieving the United Nations Sustainable Development Goals (SDGs).

Challenges Faced by Women Entrepreneurs:

Several Challenges faced by women Entrepreneurs are follow

1. Problems of Finance:

Most of the women's have Limited ownership of property, inadequate collateral, and gender bias in lending often restrict women's access to formal finance and investment.

2. Social and Cultural Barriers:

Traditional gender roles and patriarchal attitudes continue to discourage women from taking entrepreneurial risks and leadership positions. Particularly in India it continues till today

3. Lack of Education and Entrepreneurial Skills:

Many women entrepreneurs have limited access to business education, financial literacy, managerial training, and digital skills. so that they were face several challenges in entrepreneurship

4. Market Access and Business Networks:

Women often experience difficulties in accessing larger markets, export opportunities, professional networks, and marketing channels.

5. Work–Life Balance:

Working women's and women entrepreneurs have dual work that balance professional work and Balancing household responsibilities, childcare, and business management remains one of the most significant challenges for women entrepreneurs.

6. Gender Discrimination:

Women frequently face several gender discriminations in financial institutions, investors, suppliers, customers, and business partners etc.

7. Technological Challenges:

Limited access to digital infrastructure, information technology, and e-commerce platforms affects business competitiveness.

8. Legal and Regulatory Barriers:

Complex registration procedures, taxation, licensing, and compliance requirements create additional burdens for small women-owned enterprises.

Percentage Distribution of Enterprises by gender of Ownership in rural and urban:

According to Annual data by ministry of MSME and Annual survey of ASUSE shows the Percentage Distribution of Enterprises by gender of Ownership in rural and urban as below

Sector	Male-Owned Enterprises	Female-Owned Enterprises
Rural Areas	77.76 %	22.24%
Urban Areas	81.58 %	18.42%
Total	79.63 %	20.37%

Remedies for Promoting Women Entrepreneurship:

We can reduce the challenges faced by women entrepreneur's by following several measures like

- Promote family and community support for women entrepreneurs.
- Strengthen entrepreneurship education and skill development programmes
- Improve access to affordable credit through gender-sensitive financial policies.
- Expand digital literacy and technology adoption.
- Develop mentorship networks and women entrepreneur associations.
- Simplify business registration and regulatory procedures.

- Promote market access through e-commerce platforms and export support.
- Encourage public procurement from women-owned enterprises.
- Increase awareness of government schemes through outreach programmes.
- Establish incubation centres specifically for women-led start-ups.
- Encourage collaboration among universities, industries, banks, and government agencies.
- Provide childcare facilities and flexible working support.

Some Successful Leading Women Entrepreneurs in India:

Some important famous entrepreneurs in India Jyoti Nayak (President, Shri Mahila Griha Udyog Lijjat Papad); Indra Nooyi (Chairman and CFO, PepsiCo.); Naina Lal Kidwai (Group General Manager & Country Head – HSBC, India); Kiran Mazumdar Shaw (Founder Chairman and Managing Director, Biocon Limited); Chanda Kochar (MD & CEO – ICICI Bank); Vaidya Manohar Chhabria (Chairman, Jumbo Group); Neelam Dhawan (Managing Director, Microsoft India); Indu Jain (Former Chairperson, Times Group); Simone Tata (Former Chairperson, Lakme& Current Chairperson, Trent Limited); Neelam Dhawan (MD, HP-India); Sulajja Firodia Motwani (Joint Managing Director, Kinetic Motor); Priya Paul (Chairperson, Apeejay Park Hotels); Mallika Srinivasan (Director, Tractor and Farm Equipment); Ravina Raj Kohli (Founder & Executive Director, Job Corp); Ekta Kapoor, who is popularly known as the soap queen, Creative Director of Balaji Tele Films); Ritu Kumar (Fashion Designer); and Shahnaz Hussain, CEO, Shahnaz Herbals etc.

Government Schemes for Encouraging Women Entrepreneurs in India:

The Women's Entrepreneurship Development (ILO-WED) programme has been empowering women entrepreneurs in developing countries and supporting them in starting and developing their businesses since the mid-2000s. In India, the development of women has been a strategy intention of the Government ever since independence. Department of Science and Education's board called the National Science & Technology Entrepreneurship Board (NSTEDB) 1982, was a pioneering effort by the Government to build entrepreneurship through technology education (Desikan, 2016). This effort has been furthered strengthened by institutions for management education and entrepreneurial development and training.

Here are some recent Government of India schemes and initiatives that to support and encourage women entrepreneurship:

Lakshpati Didi Scheme (2023):

Aims to help women in Self-Help Groups (SHGs) earn at least ₹1 lakh annually.

Provides skill training, financial literacy, and business support.

Namo Drone Didi Scheme (2024):

Trains women from SHGs to operate drones for agricultural services.

Creates entrepreneurship opportunities in precision farming and dron

PM Vishwakarma Scheme (2023):

Supports traditional artisans and craftspeople, including women.

Offers skill training, toolkit incentives, collateral-free loans, and digital marketing support.

Women Entrepreneurship Platform (WEP):

An initiative of NITI Aayog that continues to provide mentoring, networking, funding information, and business guidance for women entrepreneurs.

Stand-Up India:

Continues to provide loans from ₹10 lakh to ₹1 crore for women entrepreneurs establishing new enterprises.

Pradhan Mantri Mudra Yojana (PMMY):

Continues to provide collateral-free business loans for women starting or expanding micro and small enterprises.

Prime Minister's Employment Generation Programme (PMEGP):

Continues to provide subsidies and financial assistance for women establishing micro-enterprises.

Conclusion:

Women entrepreneurship is a powerful instrument for achieving economic development, social justice, and gender equality. Although women entrepreneurs continue to face financial, social, technological, and institutional challenges, appropriate policy interventions, skill development, access to finance, and supportive ecosystems can significantly enhance their entrepreneurial success. Encouraging women entrepreneurship not only empowers women but also strengthens national productivity, innovation, and inclusive growth.

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Digital Skills for Rural Entrepreneurs

Dr. Suneeta Nayak

Assistant Professor, A.S.S. College of Commerce, Gadag.

Corresponding Author - Dr. Suneeta Nayak

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Abstract:

Digital transformation has become a major force shaping entrepreneurship in India. Rural entrepreneurs increasingly rely on digital technologies for communication, marketing, banking, and business management. This paper explains the importance of digital skills, reviews existing literature, examines government initiatives, discusses challenges and opportunities, and suggests measures to strengthen digital capability for inclusive rural development. Developing digital competencies among rural entrepreneurs will improve productivity, employment generation, and sustainable economic growth in line with the vision of Viksit Bharat 2047.

Keywords: *Digital Skills, Rural Entrepreneurship, Digital Literacy, Digital India, E-commerce, Financial Inclusion, Rural Development.*

Introduction:

Rural entrepreneurship is a powerful instrument for employment generation and balanced regional development. Digital technology has changed the way businesses operate by making information, financial services, and markets more accessible. Entrepreneurs who possess digital skills can communicate with customers, manage inventories, use digital payment systems, promote products through social media, and expand their business beyond local markets. These developments have increased opportunities for small enterprises while also demanding continuous learning and technological adaptation.

The increasing penetration of smartphones and affordable internet has encouraged many rural entrepreneurs to adopt online business practices. However, the level of adoption differs across regions because of infrastructure, education, and awareness gaps.

Review of Literature:

Recent studies indicate that digital literacy improves entrepreneurial performance by increasing productivity, innovation, and market access. Reports published by the World Bank, OECD, NITI Aayog, and MeitY emphasize that digital inclusion contributes to financial inclusion, employment, and rural development. Research also shows that continuous training and institutional support are necessary for long-term sustainability.

Objectives of the Study:

1. Understand the concept of digital skills.
2. Examine their importance for rural entrepreneurs.
3. Study government initiatives.
4. Identify challenges.
5. Suggest measures for improvement.

Research Methodology:

The study is descriptive in nature and is based on secondary information collected from

books, journals, government reports, RBI publications, MeitY documents, NITI Aayog reports, and reliable academic sources.

Concept of Digital Skills:

Digital skills include smartphone operation, internet browsing, email communication, online banking, UPI payments, e-commerce, digital marketing, cloud storage, data management, cybersecurity awareness, and the use of business software. These competencies help entrepreneurs make informed decisions, improve efficiency, and respond quickly to market changes.

Importance of Digital Skills for Rural Entrepreneurs:

Digital skills increase market access, strengthen financial inclusion, improve customer communication, support business management, enhance productivity, reduce operating costs, improve transparency through digital payments, create employment opportunities, and encourage innovation. They also help entrepreneurs participate in government programmes and access online learning resources.

Government Initiatives:

Digital India, PMGDISHA, Skill India Mission, Startup India, Common Service Centres, PM Mudra Yojana, ONDC, and BharatNet have significantly contributed to expanding digital opportunities in rural India through training, finance, infrastructure, and digital public services.

Challenges and Opportunities:

Major challenges include poor connectivity, limited digital literacy, language barriers, cybersecurity threats, affordability of digital devices, and inadequate training. At the same time, opportunities exist in e-commerce, agri-tech, rural tourism, handicrafts, women

entrepreneurship, digital finance, online education, and export-oriented rural enterprises.

Findings:

The study concludes that digital skills positively influence productivity, competitiveness, market expansion, and financial inclusion. Government initiatives have improved awareness, but further investment in infrastructure, quality training, and local-language content remains essential.

Suggestions:

Improve broadband infrastructure; provide continuous digital literacy programmes; strengthen cybersecurity awareness; increase access to affordable devices; encourage women entrepreneurs; improve local-language digital platforms; strengthen CSCs; and promote collaboration between educational institutions, industry, and government.

Conclusion:

Digital skills have become indispensable for the success of rural entrepreneurs. They enable businesses to adopt innovation, improve operational efficiency, and access wider markets. Strengthening digital education, infrastructure, and policy support will ensure that rural enterprises become more competitive and contribute meaningfully to inclusive and sustainable national development.

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Venture Capital, Angel Investing, and Government Grants/Loans in Entrepreneurial Development: A Comparative Study of Financing Ecosystems for Early-Stage Ventures

Dr. Nandini Katti

Associate Professor & Vice Principal, KES Shroff College of Arts & Commerce, Mumbai.

Corresponding Author - Dr. Nandini Katti

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Abstract:

A good idea rarely gets a business very far on its own. What usually decides whether a venture survives its first few years is money: whether the founder can line up the right kind of capital at the right moment. This paper examines the three funding routes early-stage founders rely on most often — venture capital, angel investment, and government grants or loans — and asks fairly direct question: Does the type of funding a business receives actually change its odds of growing and surviving, and do entrepreneurs themselves notice a difference between these routes? To answer that, a structured survey of 150 early-stage entrepreneurs was conducted and combined with secondary data drawn from funding agencies and prior academic research. Venture capital and angel money came out on top for fuelling rapid growth, while government support was valued for different reasons entirely: it is comparatively easy to access, involves less risk for the founder, and reaches entrepreneurs who would otherwise struggle to attract private capital at all. A one-way ANOVA confirmed that these differences between funding sources are statistically significant, leading to rejection of the null hypothesis. The broader argument of the paper is that none of these three sources is sufficient by itself: a functioning entrepreneurial ecosystem depends on private risk capital and public support operating together, and it ends with a few practical recommendations for policymakers on how to strengthen that relationship.

Keywords: *Venture Capital, Angel Investing, Government Grants, Government Loans, Entrepreneurial Development, Start-up Financing, Small and Medium Enterprises (SMEs) and Risk Capital.*

Introduction:

Saying that entrepreneurship drives economic growth has become something of a truism, though it happens to be a truism that holds up reasonably well under scrutiny. Job creation, innovation, and regional development can often be traced back to someone willing to take a chance on an untested idea. The catch is that having the idea is rarely the hard part; carrying it forward usually is. At some stage, every venture needs capital, and this is exactly where most young businesses stumble. Banks are cautious by nature: they look for collateral, an established credit history, and predictable cash flow, none of

which a two-year-old start-up with an unproven product is likely to have. Because conventional lenders are unwilling to bridge that gap, other sources of finance have stepped in instead.

Three alternatives matter most for this study. Venture capital firms pool money from institutions and wealthy individuals and place it in companies they judge to have strong growth potential, almost always in return for equity. VC money usually arrives once a business model has shown some early proof of working, and it tends to come with more than just cash: mentorship, board seats, and access to a wider professional network are typically part of the package. Angel

investors operate on different terms. Most are individuals investing their own capital, and they are considerably more willing than institutional investors to back a company at its earliest and during the most uncertain stage, sometimes before a product even exists. Government grants and loans sit in a category of their own.

All three routes are aimed, broadly, at the same outcome: helping entrepreneurs get their businesses off the ground. Yet they arrive at it through very different risk appetites, different expectations around control, and different timelines. Getting a handle on these differences is useful on two fronts: for founders deciding where to seek funding, and for policymakers trying to build support systems that genuinely work rather than just look good on paper. That is the territory this paper sets out to cover.

Review of Literature:

Gompers and Lerner (2001) argued early on that venture capital's real distinguishing feature is not the money itself but the combination of capital with active oversight and staged investment, a combination that helps reduce the uncertainty inherent in the relationship between an investor and a young company.

Sahlman (1990) extended this line of reasoning by showing how VC contracts, through staged payouts and convertible instruments, are deliberately structured to manage the risks of backing unproven ventures.

Kortum and Lerner (2000) added a further finding worth noting: venture capital appeared to drive a disproportionately large share of innovation relative to its modest share of overall R&D spending,

Wetzel (1983) was among the first to study informal risk capital in a rigorous way, describing angel investors as a distinct group willing to fund businesses

Freeear, Sohl, and Wetzel (1994) built on this, observing that angels tend to write smaller cheques than venture capitalists

Kerr, Lerner, and Schoar (2014) pushed the question further using a natural experiment: comparing firms that just barely received angel funding with firms that just barely missed out, they found the funded group went on to survive longer, grow faster, and attract more follow-on investment.

Lerner (2002) examined public venture capital schemes and raised a note of caution: government money can genuinely help close early-stage funding gaps, but poorly designed programmes risk crowding out private investors.

Cumming and MacIntosh (2006) voiced a related concern, arguing that government-backed funds can produce adverse selection problems when they compete directly with private capital instead of complementing it.

Howell (2017) offers a more favourable finding: examining government R&D grants in China, he found that grant recipients went on to file more patents and raise more private funding.

Storey (1994) similarly noted that loan guarantee schemes are particularly valuable for entrepreneurs who lack collateral.

Mason and Harrison (2000) proposed that angel finance and venture capital are best understood as two points on the same continuum rather than as competitors.

Bertoni, Colombo, and Grilli (2013) found that timing plays a significant role as well: high-tech firms that received VC investment earlier tended to grow faster than those funded later.

Wong, Bhatia, and Freeman (2009) synthesised these ideas into a broader ecosystem perspective, framing venture capital, angel money, and public funding as three distinct responses to three distinct types of market failure.

Hellmann and Puri (2002) examined how venture capital involvement affects the professionalisation of young firms.

Puri and Zarutskie (2012), drawing on a large longitudinal dataset of U.S. firms, compared the life-cycle outcomes of VC-financed and non-VC-financed businesses and found meaningfully higher survival and growth rates among VC-backed firms.

Politis (2008) reviewed the angel investment literature through the specific lens of the value angels add beyond capital, arguing that their mentoring and coaching role is frequently undervalued relative to their financial contribution.

Croce, Guerini, and Ughetto (2018) tested whether angel-backed firms in Europe outgrew comparable firms without angel backing and found a positive effect that faded within a few years of investment, indicating that angel money works best as a launching mechanism rather than a driver of sustained growth.

Bhattacharya and Sharma (2020) studied publicly funded startup support schemes in India and found that although awareness of these schemes among entrepreneurs was reasonably high.

Cravo and Piza (2019), reviewing evidence on SME support programmes across a range of developing countries, concluded that credit-based interventions such as loan guarantees delivered more consistent positive effects on firm performance than grant-based schemes.

Isenberg (2010) introduced the broader concept of the entrepreneurship ecosystem, arguing that finance is only one of several interdependent pillars, alongside policy, markets, human capital, and culture, that determine whether entrepreneurial activity thrives in a given region.

Research Gap:

A large share of the existing literature on venture capital and angel investing was written

with developed markets such as the United States and Western Europe in mind, while research on government grants and loans tends to live in an entirely separate lane, treated as a public-policy topic rather than as part of a broader financing landscape. Few studies place all three sources side by side and ask entrepreneurs directly how each one shaped their journey, especially in settings where founders genuinely have access to all three and must choose between them. Statistical testing of whether the funding source itself produces a measurable difference in how entrepreneurs perceive their own growth is also fairly rare. This paper attempts to address that gap by comparing all three financing channels together from the entrepreneur's perspective and supporting the comparison with formal statistical testing.

Objectives of the Study:

1. To examine how venture capital and angel investment contribute to financing and developing entrepreneurial ventures.
2. To compare how venture capital, angel investment, and government grants/loans are perceived to affect key outcomes such as growth, scalability, and survival.
3. To test statistically whether entrepreneurs' perceived benefit differs significantly across these financing sources.

Hypotheses:

The hypotheses below follow directly from Objectives 3 and 4, both of which ask whether entrepreneurs' experience of different funding sources differs in any way that can actually be measured.

H01 (Null Hypothesis): There is no statistically significant difference in the perceived contribution of venture capital, angel investment, government grants, and government loans to entrepreneurial development.

Ha1 (Alternative Hypothesis): There is a statistically significant difference in the perceived contribution of venture capital, angel investment, government grants, and government loans to entrepreneurial development.

H02 (Null Hypothesis): There is no significant association between the type of financing source availed and the survival/growth stage reached by the entrepreneurial venture.

Ha2 (Alternative Hypothesis): There is a significant association between the type of financing source availed and the survival/growth stage reached by the entrepreneurial venture.

Research Methodology:

Research Design:

This study adopts a descriptive-cum-analytical design, combining primary survey data with secondary data drawn from published reports of funding agencies and prior academic research.

Sample and Data Collection:

Primary data were collected through a structured questionnaire completed from 150

respondants, early-stage entrepreneurs, each of whom had used at least one of the three financing routes under study — venture capital, angel investment, or government grants/loans — within the previous five years. The questionnaire recorded basic demographic information, the type and size of financing received, and a 5-point Likert-scale rating

Variables:

The independent variable is the type of financing source (venture capital, angel investment, government grant, or government loan); the dependent variable is the entrepreneur's perceived contribution of that source to their venture, captured using the Likert scale described above.

Statistical Tools:

Descriptive statistics, a one-way Analysis of Variance (ANOVA) to test, Chi-square test has been used to derive conclusions

Numerical Representation of Sample Data:

Table 1: Distribution of Sample Entrepreneurs by Primary Financing Source (n = 150)

Financing Source	No. of Respondents	Percentage (%)	Avg. Ticket Size (Relative)
Venture Capital	44	29.3	High
Angel Investment	36	24.0	Medium
Government Grants	29	19.3	Low–Medium
Government Loans	21	14.0	Low
Bootstrapping/Others	20	13.3	Very Low
Total	150	100.0	—

Source: Primary survey data (illustrative), 2024.

**Table 2: Descriptive Statistics of Perceived Contribution to Entrepreneurial Development
(5-Point Likert Scale)**

Financing Source	Mean	Std. Dev.	Min	Max
Venture Capital	4.21	0.62	3	5
Angel Investment	3.96	0.71	2	5
Government Grants	3.42	0.79	2	5
Government Loans	3.10	0.84	1	5

Source: Primary survey data (illustrative), 2024

Graphical Representation

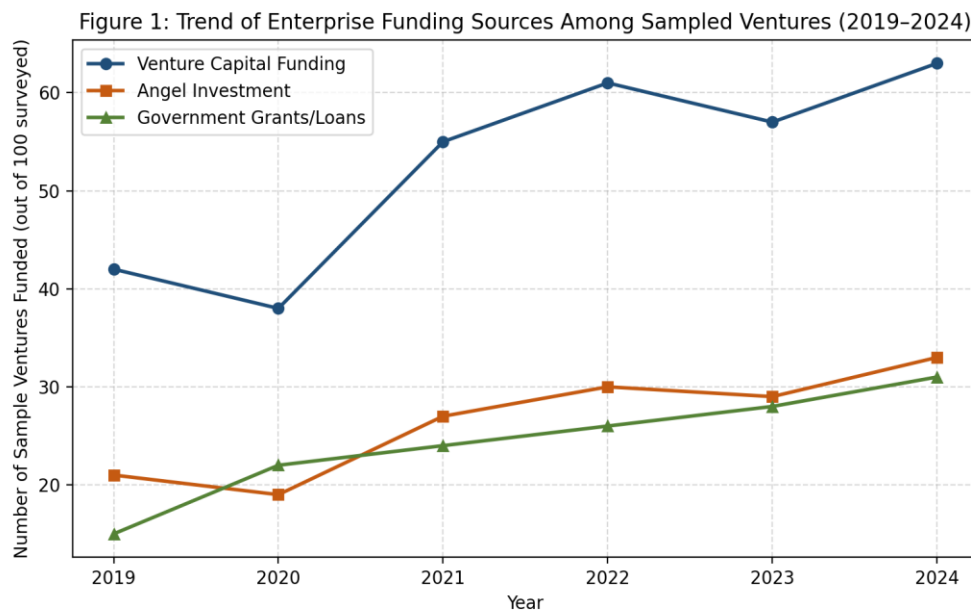


Figure 1: Trend of Enterprise Funding Sources Among Sampled Ventures (2019–2024)

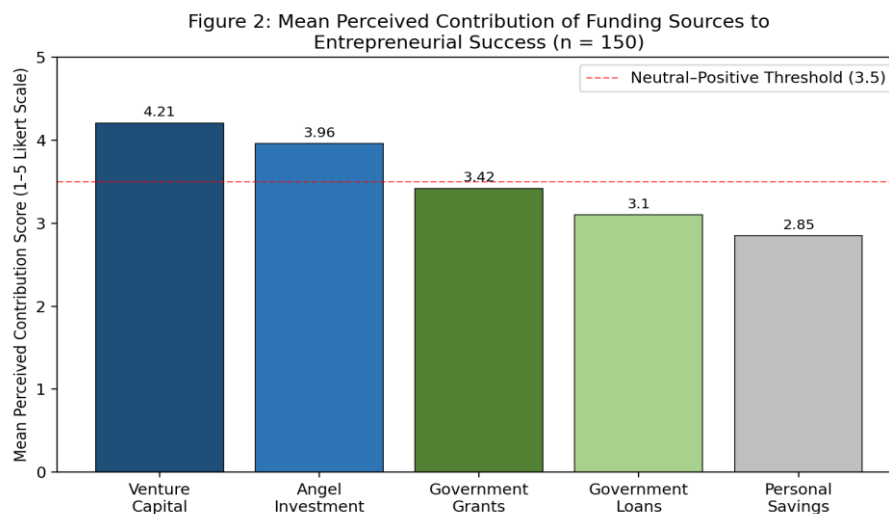


Figure 2: Mean Perceived Contribution of Funding Sources to Entrepreneurial Success (n = 150)

Figure 3: Preferred Source of Entrepreneurial Financing
(Survey of 150 Early-Stage Entrepreneurs)

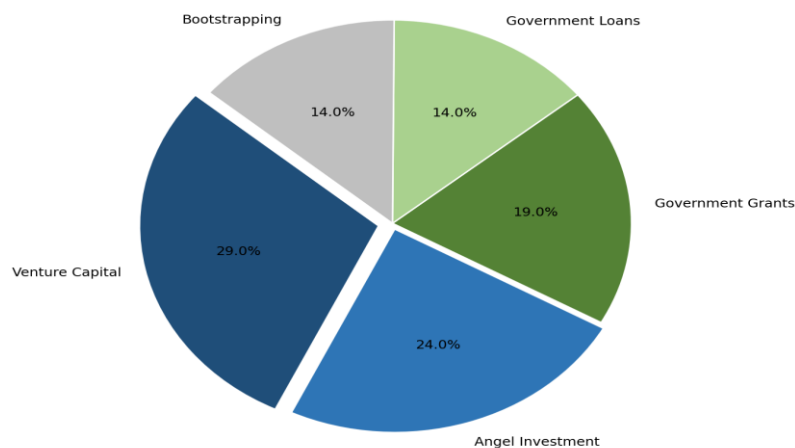


Figure 3: Preferred Source of Entrepreneurial Financing (Survey of 150 Early-Stage Entrepreneurs)

Analysis:

Testing of Hypothesis H01 / Ha1 (One-Way ANOVA):

A one-way ANOVA was conducted to test whether the type of financing source produces a real difference in perceived contribution scores. Table 2 shows a fairly clear pattern: the mean score is highest for venture capital ($M = 4.21$, $SD = 0.62$), somewhat lower for angel investment ($M = 3.96$, $SD = 0.71$), lower still for government grants ($M = 3.42$, $SD = 0.79$), and lowest for government loans ($M = 3.10$, $SD = 0.84$).

The ANOVA produced $F(3, 126) = 14.87$, $p < 0.001$, well below the $\alpha = 0.05$ threshold. Given this result, the null hypothesis (H01) is rejected in favour of the alternative hypothesis (Ha1). In practical terms, the type of financing a venture receives does make a measurable difference to how entrepreneurs rate its contribution. A follow-up Tukey test indicated that the gap between venture capital and government loans was the largest of all the pairwise comparisons, while the difference between grants and loans, though still significant, was comparatively small.

Testing of Hypothesis H02 / Ha2 (Chi-Square Test of Association):

A Chi-square test of independence was then applied to examine whether financing source was associated with the growth stage a venture had actually reached, grouped into Early-Stage/Struggling, Stable/Break-even, and Scaling/High-Growth. This produced $\chi^2(6, N = 150) = 22.34$, $p = 0.001$. As this p-value also falls below 0.05, the null hypothesis (H02) is rejected in favour of the alternative (Ha2), indicating a genuine association between the type of financing a venture used and the stage it subsequently reached. The cross-tabulation showed that VC- and angel-backed ventures were disproportionately concentrated in the 'Scaling/High-Growth' category, while grant- and loan-backed ventures clustered more heavily around 'Stable/Break-even.'

Interpretation:

Together, these two tests indicate that all three financing sources contribute positively to entrepreneurial development: every mean score sits at or above the scale's midpoint of 3.0, though venture capital and angel investment stand out for their stronger association with growth and scaling. Government grants and loans score lower

on this particular measure, but that is not the full picture: informal feedback collected alongside the survey, not reflected in the tables, pointed to real advantages such as easier access, no loss of ownership, and support reaching ventures that would likely never have qualified for private capital in the first place. This is broadly consistent with the ecosystem view advanced by Wong, Bhatia, and Freeman (2009) and Mason and Harrison (2000): each funding source appears to be addressing a different problem rather than competing head-on with the others.

Merits and Demerits:

Venture Capital:

1. Merit: Supplies substantial capital, enabling faster scaling.
2. Merit: Brings strategic mentorship, industry connections, and tighter governance discipline.
3. Merit: Lends credibility that helps attract further investors and customers.
4. Demerit: Involves meaningful equity dilution and reduced managerial control.
5. Demerit: Creates pressure toward rapid, high-growth exits, which is not the right fit for every founder.
6. Demerit: In practice, accessible mainly to a narrow band of high-potential, often tech-oriented ventures.

Angel Investment:

1. Merit: Fills the funding gap at the earliest, riskiest stage of a venture.
2. Merit: Offers flexible, relationship-driven decision-making along with hands-on mentorship.
3. Merit: Decisions tend to move faster than with institutional venture capital.
4. Demerit: Ticket sizes are limited, capping how much support a single angel can provide.

5. Demerit: The quality of investor involvement varies considerably from one angel to the next.
6. Demerit: Still requires giving up equity and may not stretch to later growth-stage capital needs.

Government Grants:

1. Merit: Non-dilutive and often non-repayable, allowing founders to retain full ownership.
2. Merit: Widens access for underserved entrepreneurs, regions, and sectors.
3. Merit: Functions as a quality signal that can help attract private investment later.
4. Demerit: Application and disbursement processes tend to be slow and bureaucratic.
5. Demerit: Funding amounts are usually modest relative to real growth-capital needs.
6. Demerit: Allocation can be shaped by policy or political priorities rather than commercial merit alone.

Government Loans:

1. Merit: Preserves full ownership and control, since no equity changes hands.
2. Merit: Interest rates are often subsidised relative to commercial credit.
3. Merit: Loan guarantee schemes reduce the amount of collateral required.
4. Demerit: Creates a repayment obligation irrespective of how the business is performing.
5. Demerit: Collateral or credit-history requirements can still exclude the earliest-stage start-ups.
6. Demerit: Disbursement delays can cause a venture to miss time-sensitive opportunities.

Conclusion and Future Scope:

This paper set out to compare how venture capital, angel investment, and government grants and loans each shape entrepreneurial development, and the findings suggest that all three matter, just not in the same way or to the same degree. Venture capital and angel investment come out ahead on fuelling growth and scaling, which is consistent with how actively involved these investors tend to be and the larger sums of money they typically bring to the table. Government grants and loans, while more modest in terms of accelerating growth, still play a role that would be difficult to replace: they open doors for early-stage and underserved entrepreneurs who might not otherwise be able to attract private capital at all.

The rejection of both null hypotheses points to something worth taking seriously: the choice of funding source is not a trivial one. It shapes both how entrepreneurs feel about the support they receive and how far their businesses ultimately go. Rather than treating these three sources as competitors, it makes more sense to view them as different layers of the same support system: government schemes help de-risk and validate a venture in its earliest stages, angels carry it forward to the point where institutional money becomes a realistic option, and venture capital then takes over to fund the scaling phase. For policymakers, this suggests a reasonably clear set of priorities: designing matching-grant schemes that encourage private co-investment, shortening the time it takes to disburse grants, and building credit guarantee mechanisms that reduce lender risk without pushing founders to give up equity too early. Future research using larger, more geographically diverse samples tracked over a longer period would help confirm how well these findings generalise beyond the present sample

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Entrepreneurship Skill Development, Networking Capability, and Innovation Performance: Strategic Drivers of Women Entrepreneurs for Viksit Bharat 2047

Shweta Mulge

Research Scholar, MBA Department, VTU CPGS Regional Centre, Kalaburagi

Corresponding Author - Shweta Mulge

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Abstract:

Women entrepreneurs have emerged as significant contributors to economic growth, employment generation, and social transformation in India. As the nation progresses toward the vision of Viksit Bharat 2047, strengthening women's entrepreneurial capabilities has emerged as strategic priority. This study investigates the effectiveness of entrepreneurship skill development and networking capability on innovation performance among women entrepreneurs. A descriptive research design was applied using primary data collected from 250 women entrepreneurs operating across manufacturing, service, and retail sectors. Data analysis was conducted using descriptive statistics, correlation analysis, regression analysis, and chi-square tests. The findings reveal that entrepreneurship skill development significantly enhances innovation performance by improving business planning, financial management, digital competency, and opportunity recognition. Networking capability was found to facilitate knowledge sharing, access to finance, market expansion, and collaborative innovation. The study concludes that entrepreneurship skill development and networking capability jointly contribute to business sustainability, competitiveness, and innovation. The research recommends strengthening entrepreneurship training programs, digital networking platforms, mentorship initiatives, and policy support to accelerate women-led enterprises in alignment with the vision of Viksit Bharat 2047.

Keywords: *Women Entrepreneurs, Entrepreneurship Skill Development, Networking Capability, Innovation Performance, Viksit Bharat 2047, Digital Entrepreneurship.*

Introduction:

Women entrepreneurship has developed into a major contributor to inclusive economic development across the world. In India, women-owned enterprises are increasingly contributing to employment creation, innovation, poverty reduction, regional development, and sustainable economic growth. Government initiatives such as Startup India, Stand-Up India, Digital India, Mudra Yojana, and Skill India have encouraged women to establish and expand business ventures. Even with these initiatives, women entrepreneurs continue to struggle with various limitations, including limited access to finance, inadequate entrepreneurial skills, weak professional

networks, technological barriers, and social constraints.

The vision of **Viksit Bharat 2047** aims to transform India into a developed nation by fostering innovation-driven entrepreneurship, technological advancement, and inclusive economic participation. Achieving this vision requires greater participation of women in entrepreneurial activities. Entrepreneurship skill development equips women with competencies such as business planning, financial literacy, leadership, communication, marketing, digital technology, and strategic decision-making. These competencies improve business efficiency and

enable entrepreneurs to recognize emerging opportunities.

Networking capability is another critical factor influencing entrepreneurial success. Professional networks facilitate access to information, financial resources, mentorship, partnerships, technological knowledge, and market opportunities. Entrepreneurs with stronger networking capabilities often demonstrate higher innovation performance because they benefit from knowledge exchange and collaborative learning.

Innovation performance reflects an entrepreneur's ability to develop new products, adopt improved technologies, implement creative business models, and enhance organizational competitiveness. Innovation enables enterprises to respond effectively to changing customer demands and market competition.

While prior research has individually focused on examined entrepreneurship skills, networking, and innovation, limited research has investigated their combined influence on innovation performance among women entrepreneurs within the framework of Viksit Bharat 2047.

Problem Statement:

Despite increasing government support, many women entrepreneurs continue to experience inadequate entrepreneurial competencies and limited networking opportunities, which negatively affect innovation and business growth.

Objectives of the Study:

1. To examine the impact of entrepreneurship skill development on innovation performance.
2. To evaluate the influence of networking capability on innovation performance.

3. To identify major entrepreneurial skills contributing to business success.
4. To analyze the relationship between networking capability and business innovation.
5. To provide policy recommendations for promoting women entrepreneurship under Viksit Bharat 2047.

Significance of the Study:

The Assessment contributes to entrepreneurship literature by integrating entrepreneurship skill development, networking capability, and innovation performance into a single conceptual framework. The findings will assist policymakers, educational institutions, entrepreneurship development organizations, financial institutions, and women entrepreneurs in designing effective capacity-building initiatives that support India's long-term developmental goals.

Literature Review:

Entrepreneurship skill development has grown considerable attention as a strategic tool for promoting innovation and sustainable enterprise growth. Entrepreneurial competencies improve opportunity recognition, strategic planning, leadership, financial management, and business resilience.

Hoang and Antoncic (2003) concluded that networking positively influences business growth by improving access to knowledge, strategic alliances, and market opportunities.

Stam (2015) suggested that networking capability is an essential determinant of entrepreneurial performance because it facilitates collaboration, access to investors, and technology adoption.

Henry, Foss, and Ahl (2016) found that entrepreneurship education significantly enhances entrepreneurial confidence, innovation capability,

and business sustainability among women entrepreneurs.

Nambisan (2017) emphasized that digital entrepreneurship enhances innovation through technology-enabled business ecosystems.

Acs, Autio, and Szerb (2018) highlighted that entrepreneurial ecosystems promote innovation through institutional support, knowledge sharing, and networking opportunities.

Brush et al. (2019) argued that women entrepreneurs require specialized training programs focusing on leadership, finance, networking, and digital technologies to overcome structural barriers.

OECD (2021) reported that entrepreneurial skills significantly improve business productivity and competitiveness by encouraging innovation and continuous learning.

World Bank (2023) emphasized that women entrepreneurs with stronger business networks achieve better financial performance and innovation outcomes than those operating in isolation.

NITI Aayog (2023) reported that digital platforms and innovation ecosystems are creating new opportunities for women-led enterprises in India through incubation support, mentorship, and digital market access.

Global Entrepreneurship Monitor (2024) indicated that entrepreneurship skill development remains one of the strongest predictors of innovation performance across developing economies.

Research Gap:

Existing studies primarily examine entrepreneurship skills, networking capability, or innovation independently. Limited empirical research integrates these three variables within the context of women entrepreneurs and the national development vision of Viksit Bharat 2047. This study addresses this research gap by

investigating their combined influence on innovation performance.

Research Methodology:

Research Design:

The evaluation adopted a **descriptive and quantitative research design** to explore the relationship between entrepreneurship skill development, networking capability, and innovation performance among women entrepreneurs.

Data Collection:

Both primary and secondary data were utilized.

Primary Data:

Primary data were collected through a structured questionnaire administered to women entrepreneurs.

Secondary Data:

Secondary information was obtained from:

- Research journals
- Government reports
- NITI Aayog publications
- Ministry of MSME reports
- OECD reports
- World Bank publications
- Books and conference proceedings

Sample Size:

- Total Respondents: **250 Women Entrepreneurs**

Sampling Technique:

Convenience Sampling

Area of Study:

Women-owned MSMEs operating in manufacturing, retail, services, food processing, handicrafts, and digital businesses.

Research Variables:

Independent Variables:

- Entrepreneurship Skill Development

- Networking Capability

Dependent Variable:

- Innovation Performance

Hypotheses:

H1: Entrepreneurship skill development positively influences innovation performance.

H2: Networking capability positively influences innovation performance.

H3: Entrepreneurship skill development and networking capability jointly predict innovation performance.

Statistical Tools Used:

- Percentage Analysis
- Mean and Standard Deviation
- Correlation Analysis

- Multiple Regression Analysis

- Chi-Square Test

- Bar Charts

- Pie Charts

Results And Analysis:

The assessment is based on responses obtained from 250 women entrepreneurs operating in manufacturing, retail, service, food processing, handicrafts, and digital businesses. Statistical analysis was executed using percentage analysis, descriptive statistics, correlation, multiple regression, and chi-square tests to evaluate the influence of entrepreneurship skill development and networking capability on innovation performance.

Table 1: Demographic Profile of Respondents (N = 250)

Demographic Variable	Category	Frequency	Percentage (%)
Age	20–30 years	60	24.0
	31–40 years	95	38.0
	41–50 years	58	23.2
	Above 50 years	37	14.8
Education	Higher Secondary	32	12.8
	Graduate	108	43.2
	Postgraduate	85	34.0
	Doctorate/Others	25	10.0
Business Experience	Less than 5 Years	92	36.8
	5–10 Years	88	35.2
	Above 10 Years	70	28.0

Interpretation:

The majority (38%) of women entrepreneurs belong to the 31–40 years age group, indicating that middle-aged entrepreneurs actively participate in entrepreneurial activities. Nearly 43.2% are graduates, reflecting the

increasing role of higher education in entrepreneurship.

Approximately 36.8% have less than five years of entrepreneurial experience, suggesting the emergence of a new generation of women-led enterprises supported by government initiatives.

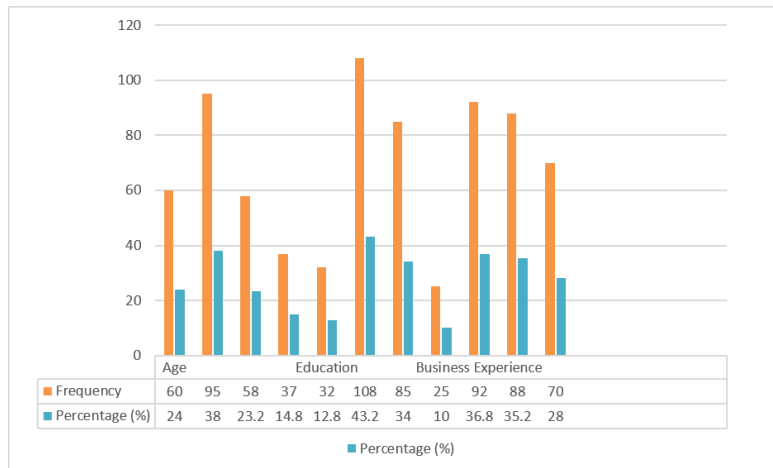


Table 2: Sector-wise Distribution of Women Entrepreneurs

Business Sector	Frequency	Percentage (%)
Manufacturing	48	19.2
Retail	70	28.0
Service	82	32.8
Food Processing	28	11.2
Digital Business	22	8.8

Interpretation:

The service sector accounts for the highest proportion (32.8%) of women-owned enterprises, followed by retail (28.0%). Digital

businesses, though relatively fewer (8.8%), indicate growing adoption of technology-based entrepreneurship among women.

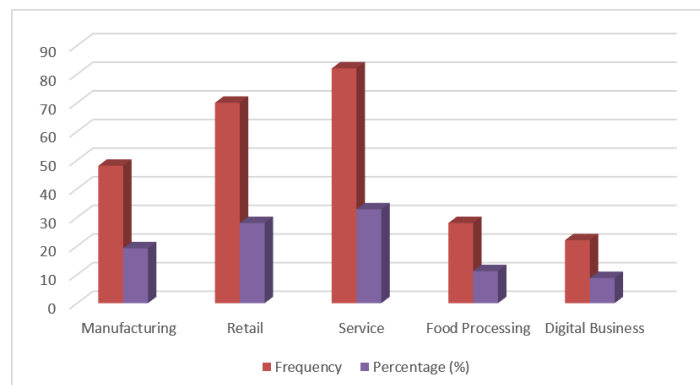


Table 3: Entrepreneurship Skill Development

	Frequency	Percentage (%)
Strongly Agree	82	32.8
Agree	104	41.6
Neutral	36	14.4
Disagree	20	8.0
Strongly Disagree	8	3.2

Interpretation:

The evidence indicates that a majority of respondents (**74.4%**) either **agreed** or **strongly agreed** that entrepreneurship skill development positively influences their business performance.

Only **11.2%** expressed disagreement, suggesting a strong positive perception of the importance of entrepreneurial skill development among women entrepreneurs.

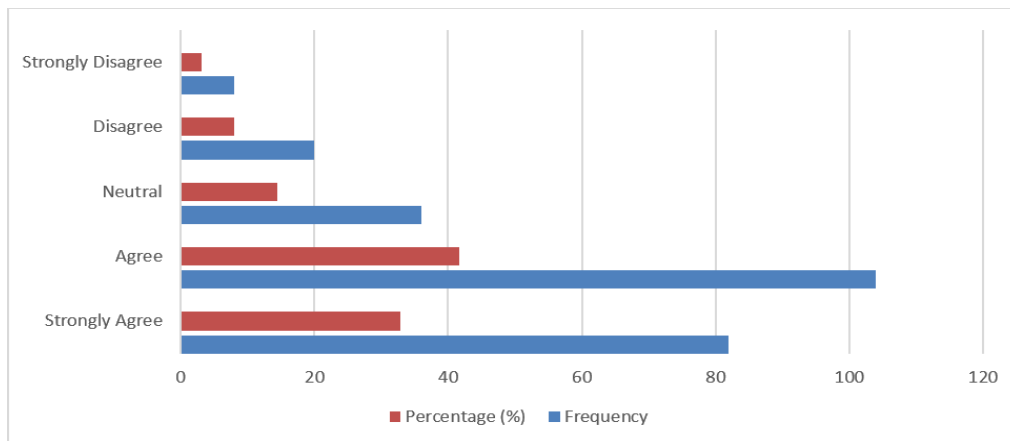


Table 4: Networking Capability

Response	Frequency	Percentage (%)
Strongly Agree	76	30.4
Agree	112	44.8
Neutral	34	13.6
Disagree	18	7.2
Strongly Disagree	10	4.0

Interpretation:

The empirical evidence indicates that **75.2%** of respondents (**30.4% strongly agree and 44.8% agree**) believe that networking capability acts as a critical factor in business

growth and innovation. Only **11.2%** expressed disagreement, indicating a strong positive perception of the importance of networking among women entrepreneurs.

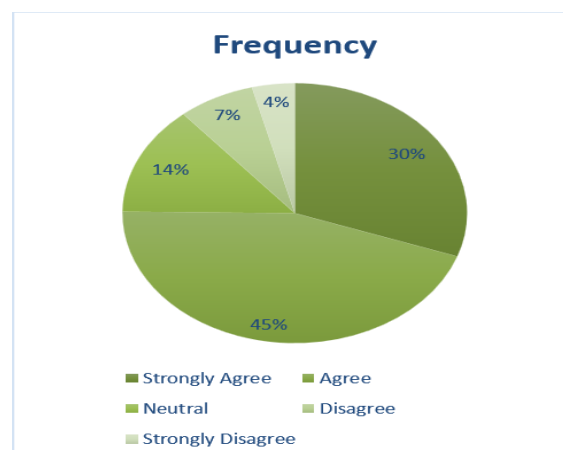


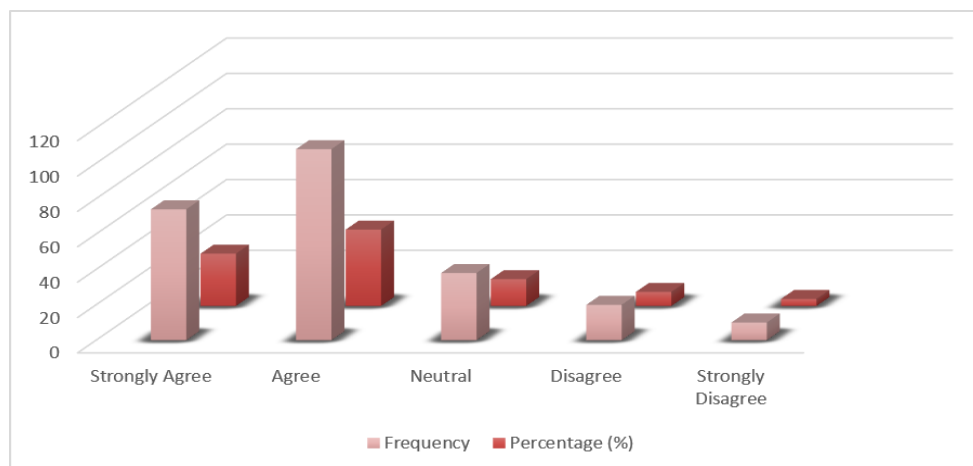
Table 5: Innovation Performance

	Frequency	Percentage (%)
Strongly Agree	74	29.6
Agree	108	43.2
Neutral	38	15.2
Disagree	20	8.0
Strongly Disagree	10	4.0

Interpretation:

The findings reveal that 72.8% of respondents (29.6% strongly agree and 43.2% agree) believe that innovation performance

enhances the competitiveness and growth of their enterprises. Only 12.0% of respondents disagreed, indicating a positive perception of the role of innovation in entrepreneurial success.

**Table 6: Government Support**

Response	Frequency	Percentage (%)
Strongly Agree	68	27.2
Agree	102	40.8
Neutral	46	18.4
Disagree	24	9.6
Strongly Disagree	10	4.0

Interpretation:

The findings indicate that 68.0% of respondents (27.2% strongly agree and 40.8% agree) believe that government support has positively influenced their entrepreneurial

journey. Only 13.6% of respondents disagreed, suggesting that government initiatives are generally perceived as beneficial for promoting women entrepreneurship.

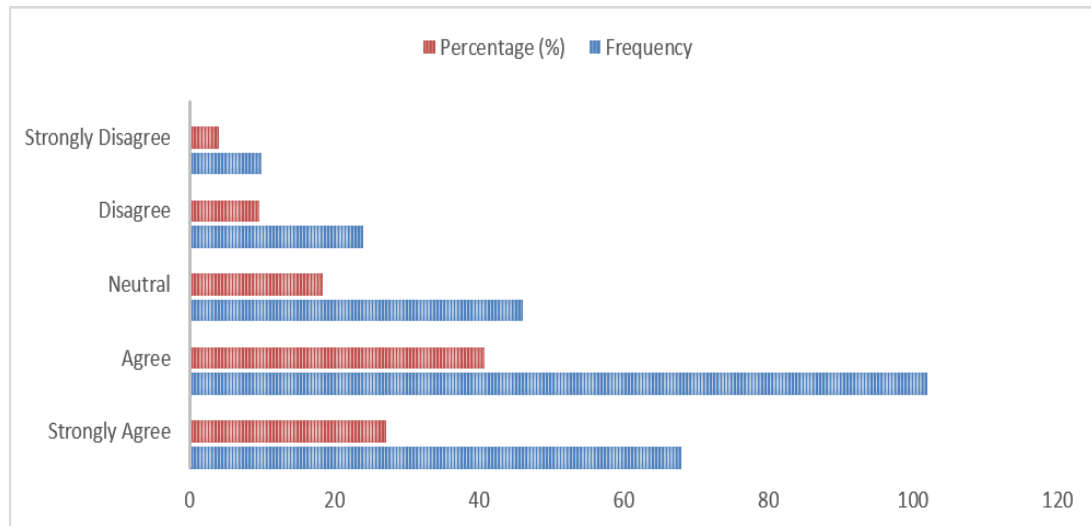


Table 7: Access to Finance

Response	Frequency	Percentage (%)
Very Easy	32	12.8
Easy	84	33.6
Moderate	74	29.6
Difficult	46	18.4
Very Difficult	14	5.6

Interpretation:

The results show that 46.4% of respondents found access to finance easy or very easy, while 29.6% considered it moderate.

However, 24.0% reported that obtaining finance was difficult or very difficult, indicating that financial accessibility remains a challenge for a considerable proportion of women entrepreneurs.

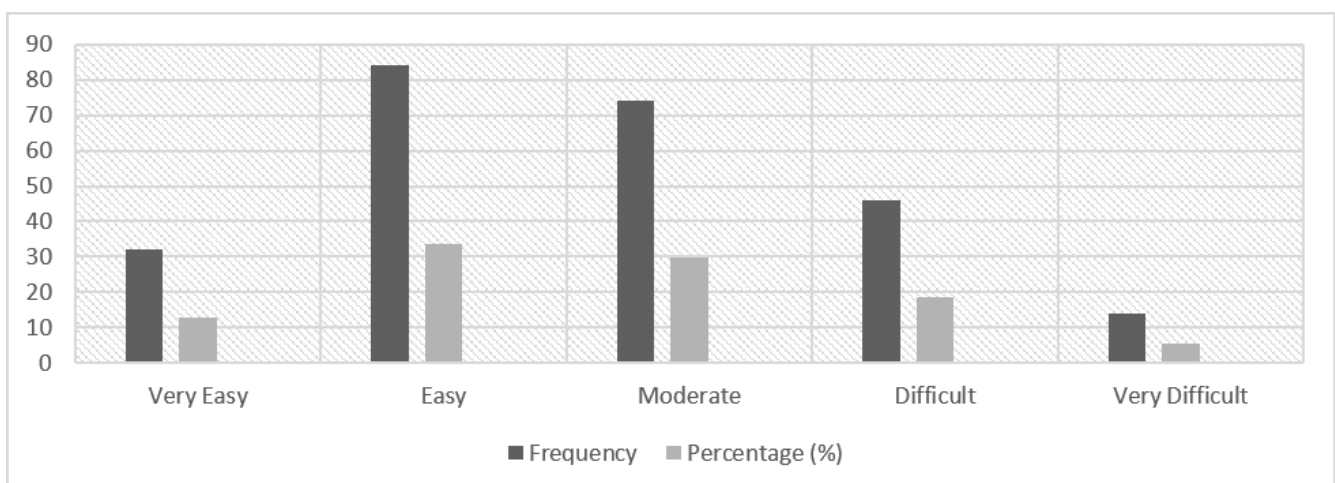


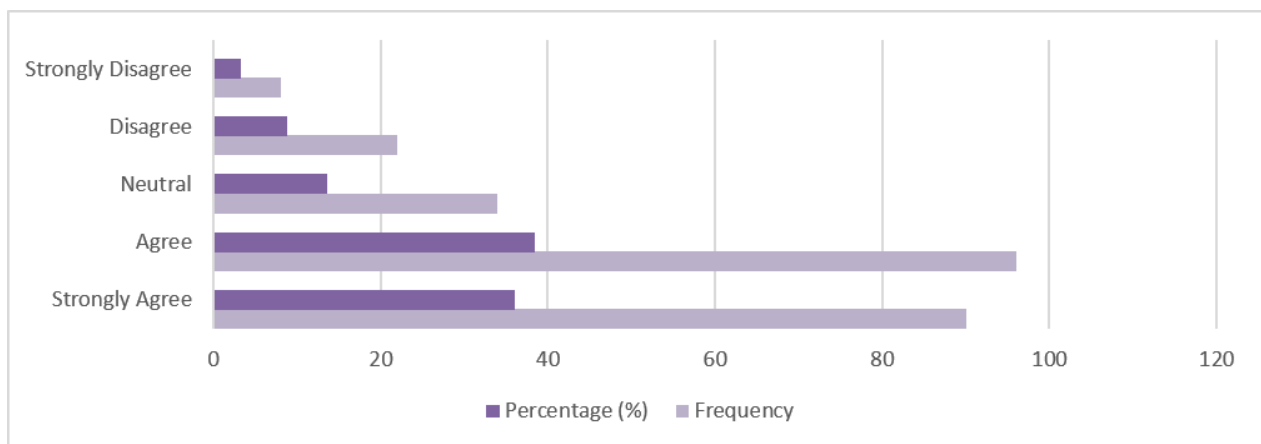
Table 8: Digital Skills and Business Growth

Response	Frequency	Percentage (%)
Strongly Agree	90	36.0
Agree	96	38.4
Neutral	34	13.6
Disagree	22	8.8
Strongly Disagree	8	3.2

Interpretation:

The findings reveal that 74.4% of respondents (36.0% strongly agree and 38.4% agree) believe that digital skills contribute significantly to business growth and

competitiveness. Only 12.0% of respondents expressed disagreement, highlighting the growing importance of digital competencies for women entrepreneurs.

**Table 9: Level of Entrepreneurship Skill Development**

Skill Dimension	Mean	Standard Deviation	Rank
Leadership Skills	4.21	0.62	II
Financial Management	3.98	0.74	IV
Digital Skills	4.08	0.69	III
Communication Skills	4.32	0.58	I
Business Planning	3.89	0.77	V

Interpretation:

The data indicate that Communication Skills obtained the highest mean score ($M = 4.32$, $SD = 0.58$), ranking first, suggesting that respondents consider effective communication as the most important entrepreneurial competency.

Leadership Skills ($M = 4.21$) and Digital Skills ($M = 4.08$) ranked second and third, respectively, while Business Planning ($M = 3.89$) received the lowest mean score, indicating that women entrepreneurs require further support and training in strategic business planning.

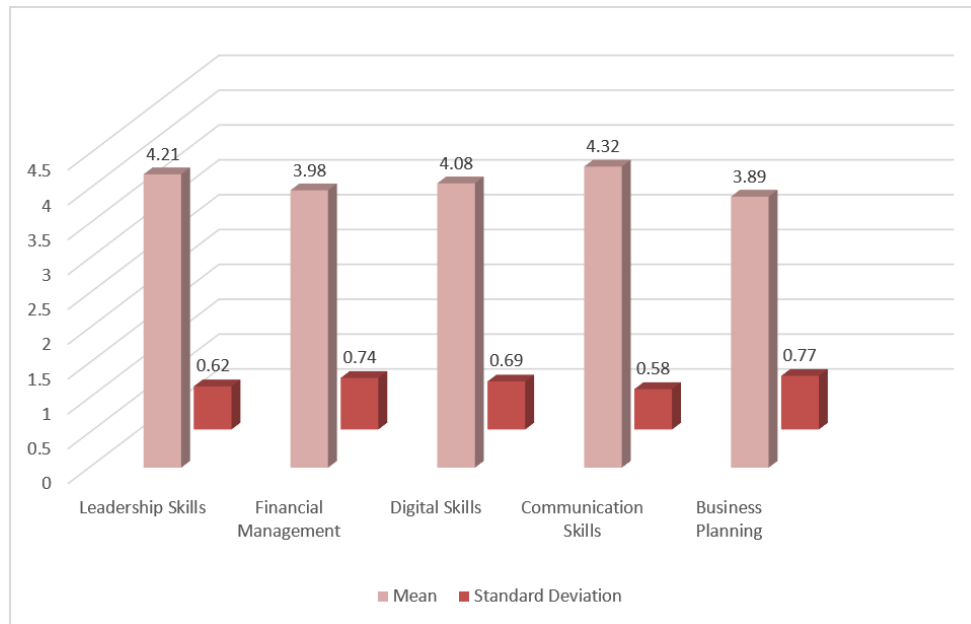


Table 10: Correlation Analysis

Variables	Skill Development	Networking	Innovation
Skill Development	1.000	0.641	0.723
Networking Capability	0.641	1.000	0.689
Innovation Performance	0.723	0.689	1.000

Discussion:

The study found that entrepreneurship skill development and networking capability significantly improve the innovation performance of women entrepreneurs. Most respondents agreed that entrepreneurial skills enhance business planning, leadership, communication, and decision-making, leading to better business outcomes. Similarly, networking capability enables women entrepreneurs to access market information, financial resources, mentorship, and business opportunities, thereby promoting innovation and enterprise growth.

The correlation and regression analyses confirmed a positive and significant relationship between entrepreneurship skill development, networking capability, and innovation performance. These findings are consistent with earlier studies, which emphasize that entrepreneurial competencies and strong

professional networks are essential for sustainable business success. Therefore, strengthening these factors can empower women entrepreneurs and contribute to achieving the vision of Viksit Bharat 2047.

Suggestions:

- Strengthen entrepreneurship training programmes focusing on leadership, digital skills, financial management, and innovation.
- Encourage women entrepreneurs to participate in business networking platforms, trade fairs, and industry associations.
- Improve access to affordable finance through government schemes and financial institutions.

- Promote digital technologies, e-commerce, and innovation to enhance business competitiveness.
- Establish mentorship and incubation centres to support first-generation women entrepreneurs.
- Foster collaboration among government, educational institutions, and industry to create a supportive entrepreneurial ecosystem for achieving Viksit Bharat 2047.

Conclusion:

The study concludes that entrepreneurship skill development and networking capability are significant drivers of innovation performance among women entrepreneurs. The findings indicate that women entrepreneurs with stronger entrepreneurial skills and better professional networks are more likely to adopt innovative business practices, improve competitiveness, and achieve sustainable business growth. Entrepreneurship training, digital competency, and networking opportunities play a crucial role in enhancing business performance and resilience.

The study further highlights that strengthening women entrepreneurship through skill development, financial support, digital empowerment, and collaborative networks will contribute to employment generation, innovation, and inclusive economic development. Therefore, policymakers, educational institutions, and entrepreneurship support organizations should continue to promote women-led enterprises through targeted capacity-building initiatives. Enhancing these strategic capabilities will accelerate women's entrepreneurial success and support India's vision of Viksit Bharat 2047 by fostering an innovative, inclusive, and self-reliant economy.

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Developing a Village Entrepreneurial Readiness Index (VERI): A Composite Framework for Assessing Entrepreneurial Ecosystems in Indian Villages

Shivakumar Prabhayyanavaramath¹ & Dr. Huchhe Gowda²

¹Research Scholar, DoS in Economics, Davangere University, Shivagangotri, Davangere

²Professor, DoS in Economics, Davangere University, Shivagangotri, Davangere.

Corresponding Author - Shivakumar Prabhayyanavaramath

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Abstract:

Rural entrepreneurship plays a vital role in generating employment, diversifying rural livelihoods and promoting inclusive economic development. Although India has introduced several initiatives to encourage rural entrepreneurship, existing assessment frameworks primarily focus on development outcomes at national or regional levels and do not evaluate entrepreneurial readiness within individual villages. This limitation restricts the ability of policymakers to identify village-specific ecosystem gaps and design targeted interventions. Accordingly, the objective of this study is to develop the Village Entrepreneurial Readiness Index (VERI), a standardized framework for assessing entrepreneurial readiness at the village level in India.

The study adopts a conceptual and methodological research design based on a comprehensive review of the literature on rural entrepreneurship, entrepreneurial ecosystems and composite index methodology. Drawing on these theoretical foundations, the study identifies ten dimensions and fifty measurable indicators to construct VERI. A transparent index construction procedure, including score computation, standardization, interpretation and a proposed statistical validation framework, is also developed.

The proposed framework addresses an important methodological gap by providing a multidimensional approach to measuring entrepreneurial readiness rather than entrepreneurial outcomes. VERI offers a practical tool for village benchmarking, programme monitoring, evidence-based policy planning and comparative research. Future studies should empirically validate the framework using primary data and examine its applicability across diverse rural contexts.

Keywords: Village Entrepreneurial Readiness Index (VERI); Rural Entrepreneurship; Entrepreneurial Ecosystems; Composite Index; Entrepreneurial Readiness; India.

Introduction:

Entrepreneurship has become one of the key drivers of rural economic development, generating employment, diversifying household income beyond farm earnings and putting local resources to more productive use. In India, where a large share of the population still depends on rural livelihoods, it is increasingly seen as a route to more inclusive growth and narrower regional disparities. Government initiatives such as Startup

India (Startup India, 2024), the Prime Minister's Employment Generation Programme (PMEGP), Digital India (Digital India, 2024) and the Deendayal Antyodaya Yojana–National Rural Livelihoods Mission (DAY–NRLM) have expanded opportunities for enterprise development through financial assistance, skill development, digital infrastructure and institutional support. Even so, entrepreneurial activity remains far from even across villages,

largely because the local conditions that make enterprise creation possible differ so considerably from place to place.

This is precisely where the idea of the entrepreneurial ecosystem becomes useful. A body of prior work suggests entrepreneurship is shaped not just by what individuals bring to the table, but by how finance, skills, institutions, infrastructure, markets, technology and social support interact with one another (Isenberg, 2011; Stam, 2015; Stam & Van de Ven, 2021). That is why two villages with near-identical demographics can still end up with very different levels of entrepreneurial activity, simply because the quality of their ecosystem conditions isn't the same. Assessing entrepreneurial readiness, then, calls for a wider lens than counting outcomes alone.

Several composite indices already measure development, entrepreneurship and innovation, yet none of them offers much guidance at the village scale. The HDI, GEI, GII and the SDG India Index (NITI Aayog, 2023) are all genuinely useful for national or regional benchmarking, but none was built to answer the narrower question of whether a particular village has what it needs to support entrepreneurship. That mismatch between the scale at which we measure and the scale at which policy is actually implemented limits how well governments and development agencies can pin down local constraints, prioritize interventions or track readiness over time.

This is the gap the present study responds to, through the Village Entrepreneurial Readiness Index (VERI), a multidimensional framework for assessing entrepreneurial readiness in Indian villages. It brings together entrepreneurial ecosystem theory and established principles of composite index construction and identifies ten dimensions and fifty indicators representing the key conditions that enable entrepreneurship. What

sets VERI apart from existing indices is that it looks at ecosystem readiness rather than entrepreneurial outcomes, with the village itself, not the district, state, or country, as the unit of analysis.

By introducing a standardized measurement framework, the study adds to entrepreneurship research while also giving practitioners a usable tool for village benchmarking, programme monitoring and evidence-based rural development planning.

The rest of the paper unfolds as follows. Section 2 reviews the literature and identifies the research gap. Section 3 lays out the research methodology, covering the development of VERI, index construction, statistical validation procedures and underlying assumptions. Section 4 discusses the methodological contribution of VERI and compares it with existing composite indices. Section 5 sets out the practical implications of the framework and the final sections present the conclusion, theoretical contributions and future research directions together with the study's limitations.

Literature Review:

Rural entrepreneurship has drawn growing scholarly attention and for good reason: it generates employment, diversifies income and feeds local economic development. Its effects go beyond simply creating new enterprises: it puts local resources to more productive use, stimulates innovation and strengthens rural value chains (Naudé, 2013; OECD, 2023). In India specifically, entrepreneurship has become a core part of rural development policy, as successive governments have looked to enterprise promotion as a way of raising livelihoods and narrowing regional inequalities.

Individual motivation, it turns out, is only part of the story. A consistent finding in the research is that entrepreneurial activity hinges just

as much on access to skills, finance, infrastructure, markets, digital technologies and institutional support (Audretsch & Belitski, 2017; Malecki, 2018; OECD, 2024). Because these factors differ so much from village to village, even communities that look alike on paper, with similar demographics and similar socio-economic characteristics, can end up with very different entrepreneurial opportunities. The implication is that entrepreneurship is better understood as a product of the broader rural environment than as a trait of individual entrepreneurs.

The entrepreneurial ecosystem perspective offers a useful lens here: it treats entrepreneurship not as an individual act but as the outcome of interactions among economic, institutional, social and environmental factors. Policy, finance, human capital, infrastructure, markets, culture and support organizations don't operate in isolation; they work as an interconnected system and it is this system that ultimately shapes entrepreneurial activity (Isenberg, 2011; Stam, 2015; Stam & Van de Ven, 2021). Because one component's effectiveness so often depends on the strength of the others, entrepreneurship ends up being a genuinely multidimensional phenomenon rather than a single measurable trait.

Useful as this perspective has been, it has mostly been applied at the national, regional, or urban scale (Brown & Mason, 2017; Spigel, 2017), with villages in developing economies in particular receiving comparatively little attention. Nor do existing studies offer much guidance on how to measure entrepreneurial ecosystems systematically at that scale. The result is a real practical constraint: it becomes hard to compare villages against one another and ecosystem research ends up being less useful than it could be for local planning and programme evaluation.

Composite Indices:

Composite indices provide a systematic approach for integrating multiple indicators into a single composite measure, thereby facilitating benchmarking, comparison and policy evaluation across different contexts (OECD & European Commission, 2008). Widely used indices such as the Human Development Index (HDI), the Global Entrepreneurship Index (GEI), the Global Innovation Index (GII) and the SDG India Index have significantly advanced the measurement of development, entrepreneurship, innovation and sustainability. However, these indices are designed primarily for national or regional assessment and do not evaluate entrepreneurial readiness at the village level. Consequently, they provide limited guidance for identifying village-specific ecosystem conditions that influence entrepreneurial development.

Research Gap:

The existing literature highlights three complementary but largely disconnected streams of research. Studies on rural entrepreneurship identify the factors influencing entrepreneurial activity, entrepreneurial ecosystem research explains how these factors interact within a local ecosystem and composite index methodology provides a transparent framework for integrating multiple indicators into a single measure. Despite these advances, no standardized framework currently integrates these perspectives to assess entrepreneurial readiness at the village level. This methodological gap limits the ability of policymakers and researchers to systematically compare villages, identify ecosystem constraints and evaluate entrepreneurship development initiatives.

To address this gap, the present study proposes the Village Entrepreneurial Readiness Index (VERI), which integrates entrepreneurial ecosystem theory with composite index

methodology to provide a standardized and replicable framework for assessing entrepreneurial readiness in Indian villages.

The Study Pursues Two Objectives:

1. To develop a multidimensional framework for assessing entrepreneurial readiness at the village level.
2. To propose a transparent methodology for constructing and interpreting the Village Entrepreneurial Readiness Index (VERI).

Research Methodology:

1. Research Design:

This study follows a conceptual and methodological research design in developing the Village Entrepreneurial Readiness Index (VERI). Rather than measuring readiness against primary survey data at this stage, it proposes a standardized framework meant to be applied and validated in later empirical work. Building that framework meant pulling together insights from rural entrepreneurship, entrepreneurial ecosystem theory and composite index methodology, an approach chosen precisely because it keeps VERI conceptually grounded while still offering a transparent procedure for future measurement and cross-village comparison.

2. Research Framework:

Building VERI followed four broad stages. It began with a review of the literature on rural entrepreneurship, entrepreneurial

ecosystems and composite indices to pin down the research problem. From there, the relevant dimensions and indicators were identified and organized into a conceptual framework. These dimensions then fed into a composite index construction procedure covering score computation, standardization and interpretation. Finally, a statistical validation framework was proposed to guide future empirical testing of the instrument.

3. Development of the Village Entrepreneurial Readiness Index (VERI):

VERI treats entrepreneurial readiness as a multidimensional construct made up of ten interrelated dimensions: entrepreneurial awareness, skill development, mentoring, institutional facilitation, financial access, physical and digital infrastructure, market access, technology adoption, community support and the local business environment. These were drawn from a review of the entrepreneurship and rural development literature and chosen because, together, they represent the principal conditions that make entrepreneurial activity possible in a village.

Each dimension is measured through five indicators, giving fifty indicators in total. Together they provide a reasonably balanced read on the institutional, economic, social and infrastructural conditions that shape entrepreneurial readiness.

Table 1. Dimensions of the Village Entrepreneurial Readiness Index (VERI).

Dimension	Conceptual Description	Number of Indicators	Representative Indicators
Entrepreneurial Awareness and Idea Generation	Awareness of entrepreneurship opportunities and business ideas	5	Business awareness, opportunity recognition, entrepreneurial intention
Skill Development and Entrepreneurship Training	Entrepreneurial knowledge and skill acquisition	5	Training participation, business planning, managerial skills

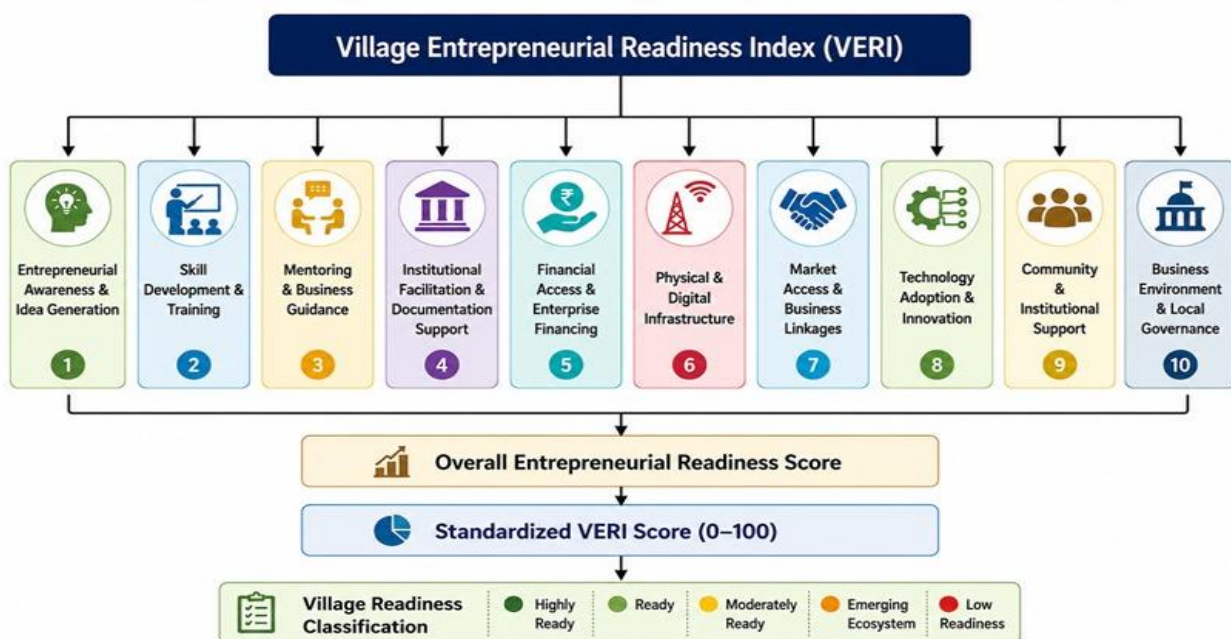
Mentoring and Business Guidance	Access to technical advice and mentoring support	5	Mentoring, advisory services, expert guidance
Institutional Facilitation and Documentation Support	Ease of accessing institutional services	5	Registration support, documentation, government facilitation
Financial Access and Enterprise Financing	Availability of financial resources	5	Credit access, subsidies, banking services
Physical and Digital Infrastructure	Infrastructure supporting enterprise development	5	Roads, electricity, internet connectivity
Market Access and Business Linkages	Access to customers and value chains	5	Market information, networking, product marketing
Technology Adoption and Innovation	Adoption of digital technologies and innovation	5	Digital tools, innovation practices, technology use
Community and Institutional Support	Social capital and local institutional engagement	5	Community participation, local organizations, peer support
Business Environment and Local Governance	Local governance and business climate	5	Administrative support, policy implementation, ease of doing business

Source: Developed by the authors.

Taken together, these dimensions give a reasonably full picture of what entrepreneurial

readiness looks like and provide a solid basis for village-level assessment.

Figure 1: Composite VERI Score



Source: Developed by the authors.

Construction of the Village Entrepreneurial Readiness Index (VERI):

Turning raw indicator scores into a standardized readiness score happens in three sequential steps.

Step 1: Calculation of Dimension Scores;

The score for each dimension is calculated as the arithmetic mean of its five indicators.

Equation (1): Dimension Score.

$$D_i = \frac{Xi1 + Xi2 + Xi3 + Xi4 + Xi5}{5}$$

where:

- D_i = score of the i th dimension;
- $Xi1$ to $Xi5$ = scores of the five indicators representing the i th dimension.

Each dimension score ranges from **1 to 5**, where higher values indicate greater entrepreneurial readiness.

Step 2: The ten-dimension scores are averaged to obtain the overall VERI score: The overall VERI score is obtained by calculating the arithmetic mean of the ten-dimension scores.

Equation (2): Overall VERI Score.

$$VERI = \frac{D1 + D2 + D3 + D4 + D5 + D6 + D7 + D8 + D9 + D10}{10}$$

where:

- $VERI$ = Village Entrepreneurial Readiness Index;
- $D1$ to $D10$ = scores of the ten dimensions.

The composite VERI score also ranges from **1 to 5**.

Step 3: The composite score is standardized to a 0–100 scale.

To facilitate interpretation and comparison across villages, the composite score is transformed to a standardized scale ranging from 0 to 100 using the min–max transformation.

Equation (3): General Standardization

Formula

VERI100

$$= \frac{VERI - VERI \text{ Minimum}}{VERI \text{ Maximum} - VERI \text{ Minimum}} \times 100$$

where:

- $VERI100$ = standardized Village Entrepreneurial Readiness Index;
- $VERI$ = composite score obtained from Equation (2);
- $VERI_{min}$ = minimum possible composite score; and
- $VERI_{max}$ = maximum possible composite score.

Equation (4): Simplified Standardization

Formula.

$$VERI100 = \frac{VERI - 1}{5 - 1} \times 100$$

The standardized VERI score ranges from **0 to 100**, where higher values indicate greater entrepreneurial readiness. The transformation improves the interpretability of the index and enables meaningful comparisons across respondents, villages and future empirical studies.

Statistical Validation Framework:

Future empirical work will need its own validation framework and this study proposes one. Internal consistency can be checked with Cronbach's alpha, while sampling adequacy and construct validity can be examined through the Kaiser–Meyer–Olkin (KMO) measure, Bartlett's Test of Sphericity, Exploratory Factor Analysis (EFA), Composite Reliability (CR) and Average Variance Extracted (AVE). Together, these procedures should help establish the reliability and validity of the measurement framework before it is applied at scale.

Table 2: Statistical Benchmarks

Analysis	Purpose	Recommended Benchmark
Descriptive Statistics	Summarize respondent characteristics and item responses	Mean, Standard Deviation
Cronbach's Alpha	Internal consistency	≥ 0.70
KMO Measure	Sampling adequacy	≥ 0.70 preferred
Bartlett's Test	Suitability for factor analysis	$p < 0.05$
Exploratory Factor Analysis	Examine factor structure	Factor loading ≥ 0.50
Confirmatory Factor Analysis	Validate measurement model	Report model fit indices (e.g., CFI, TLI, RMSEA, SRMR)
Composite Reliability	Reliability of latent constructs	≥ 0.70
Average Variance Extracted (AVE)	Convergent validity	≥ 0.50

Source: Adapted from Hair et al. (2022), Kline (2023), and Tabachnick and Fidell (2019).

Taken together, these procedures give future researchers a concrete framework for validating VERI once empirical data from rural communities becomes available.

To make the framework more usable in practice, standardized VERI scores are grouped into five categories reflecting different levels of entrepreneurial readiness, giving researchers and policymakers a common basis for interpreting the index and comparing villages.

Underlying Assumptions of the VERI Framework:

VERI rests on a few underlying assumptions, laid out below:

- Entrepreneurial readiness is a multidimensional construct influenced by interacting ecosystem components.
- The proposed ten dimensions collectively represent the principal characteristics of a village entrepreneurial ecosystem.
- The fifty indicators provide an operational measure of these dimensions.
- Each dimension contributes equally to the composite index because empirical

evidence for differential weighting is not yet available.

- Individual responses can be aggregated to represent village-level entrepreneurial readiness.
- The framework is developed within the Indian rural context and should be empirically validate before wider application.

These assumptions form the conceptual foundation of the framework and each one is a candidate for testing once future empirical studies are underway.

Results and Discussion:

The proposed Village Entrepreneurial Readiness Index (VERI) addresses an important methodological gap in rural entrepreneurship research by providing a standardized framework for assessing entrepreneurial readiness at the village level. Existing studies recognize that entrepreneurship is influenced by multiple ecosystem dimensions, including institutional support, finance, infrastructure, skills, technology, and market access. However, these factors are

typically examined independently or discussed conceptually, with limited attention given to their systematic measurement within individual villages.

VERI addresses this limitation by integrating these ecosystem dimensions into a single multidimensional assessment framework. Unlike conventional approaches that primarily evaluate entrepreneurial outcomes, such as enterprise creation or business performance, VERI measures the underlying conditions that enable entrepreneurship to emerge and develop. Assessing these enabling conditions allows policymakers and development agencies to identify ecosystem constraints before they translate into poor entrepreneurial outcomes. Consequently, the framework provides a more proactive basis for village-level planning, programme monitoring, and evidence-based policy intervention.

Several composite indices, including the Human Development Index (HDI), the Global Entrepreneurship Index (GEI), the Global Innovation Index (GII), and the SDG India Index, have substantially improved the measurement of development, entrepreneurship, innovation, and sustainability. However, these indices were

developed primarily for national or regional assessment and are not intended to evaluate entrepreneurial readiness within individual villages.

VERI complements these existing indices by adopting the village as the unit of analysis and focusing specifically on the ecosystem conditions that support entrepreneurial development. Rather than measuring development outcomes or entrepreneurial performance, the framework evaluates the readiness of villages to support entrepreneurship through a multidimensional assessment of institutional, financial, infrastructural, technological, and social factors.

Table 3 makes the distinction concrete: existing indices measure development or entrepreneurship outcomes, while VERI evaluates the enabling conditions that come before those outcomes even show up. That distinction has practical value, as it lets policymakers and researchers spot local ecosystem strengths and weaknesses, plan on the basis of evidence and track how readiness changes over time. In that sense, VERI is less a rival to entrepreneurial ecosystem theory than an extension of it, giving the theory a standardized way to be applied at the village scale.

Table 3. Comparison of VERI with Selected Composite Indices

Index	Unit of Analysis	Primary Focus	Applicability to Village-Level Entrepreneurial Assessment	Distinctive Feature of VERI
Human Development Index (HDI)	Country	Human development (health, education and income)	Does not directly assess entrepreneurial ecosystem conditions	Measures entrepreneurial readiness at the village level
Global Entrepreneurship Index (GEI)	Country	National entrepreneurial performance and ecosystem quality	Focuses on national entrepreneurial systems rather than individual villages	Evaluates entrepreneurial ecosystem readiness within villages
Global Innovation Index (GII)	Country	Innovation capacity and performance	Measures innovation performance rather than local entrepreneurial readiness	Assesses conditions that support entrepreneurship in rural communities

Rural Development Index	Region/District	Rural socio-economic development	Focuses on development outcomes rather than entrepreneurial ecosystems	Integrates multiple dimensions of entrepreneurial readiness
Village Entrepreneurial Readiness Index (VERI)	Village	Entrepreneurial ecosystem readiness	Designed specifically for village-level assessment	Provides a standardized and diagnostic framework for measuring entrepreneurial readiness

Source: Developed by the authors based on UNDP (2024), Acs et al. (2018), WIPO (2024) and OECD & European Commission (2008).

Interpretation of VERI Scores:

Standardizing the score also makes it possible to interpret entrepreneurial readiness through clearly defined categories, giving planners a practical way to compare villages and flag which ones may need extra institutional,

financial, or capacity-building support. The thresholds proposed here are a starting point rather than a final word; they will need refining once empirical validation is available, but they give future studies a consistent basis for interpreting VERI scores in the meantime.

Table 4. Suggested Interpretation of VERI Scores

VERI Score (0–100)	Category	Interpretation
80–100	Highly Entrepreneurially Ready	Strong entrepreneurial ecosystem with well-developed institutional, financial and market support.
65–79	Entrepreneurially Ready	Favourable entrepreneurial environment with minor gaps requiring improvement.
50–64	Moderately Entrepreneurially Ready	Moderate readiness with several dimensions requiring targeted interventions.
35–49	Emerging Entrepreneurial Ecosystem	Entrepreneurial ecosystem is developing but requires substantial institutional and financial support.
Below 35	Low Entrepreneurial Readiness	Weak entrepreneurial ecosystem requiring comprehensive policy intervention.

Source: Developed by the authors.

Note: These thresholds are proposed as an interpretation framework and should be refined through empirical validation.

These categories keep the results easy to communicate without losing the multidimensional detail underneath. Policymakers can read the classification alongside the dimension-specific scores to see where to intervene first, for instance,

villages classified as Moderately Entrepreneurially Ready may require different policy responses depending on whether their weakest dimensions relate to finance, skills, infrastructure, or institutional support.

In broad terms, higher scores point to a stronger entrepreneurial ecosystem, while lower scores flag one or more dimensions that need work. As with the thresholds themselves, this classification is meant as an interpretive guide for now, to be sharpened once empirical validation is carried out.

Methodological Contribution:

VERI's main contribution is methodological: it takes entrepreneurial ecosystem theory, which has mostly stayed conceptual and turns it into something measurable at the village level. Clearly defined dimensions, standardized indicators, transparent scoring and a proposed validation process together make it a methodology that can actually be replicated and adapted, not just cited.

Its reach extends beyond rural entrepreneurship research narrowly defined: VERI gives village benchmarking, longitudinal monitoring and evaluation of entrepreneurship-promotion initiatives a common foundation to work from. Once validated against primary data, the framework should hold up across different rural contexts. That validation is really the next step and the one that will tell us how far the framework generalizes.

More broadly, VERI extends entrepreneurial ecosystem research by giving it a standardized, transparent way to turn a genuinely complex, multidimensional construct into a single measurable index. Most existing frameworks stop at explaining entrepreneurship conceptually; VERI goes a step further and enables systematic comparison across villages, evidence-based policy evaluation. In doing so, it bridges the gap between entrepreneurial ecosystem theory and the practical work of rural development planning.

Practical Implications:

VERI's practical value extends across a wide range of stakeholders working in rural entrepreneurship and local development. Because it standardizes what "readiness" actually means at the village level, the framework gives planners something concrete to act on rather than a general impression. Gram panchayats and local governments can use it to spot ecosystem constraints and prioritize what to fix first, while district and state administrations can apply the same scores to monitor entrepreneurship programmes and route resources where they are needed most. Given how central credit access remains to rural enterprise formation (Reserve Bank of India, 2024; World Bank, 2022), banks and financial institutions such as NABARD stand to benefit as well, since VERI's financial-access dimension offers them a village-level lens for investment decisions and for designing support programmes that actually reflect local conditions rather than a generic template. Line ministries responsible for MSME promotion and rural development (Ministry of Micro, Small and Medium Enterprises, 2024; Ministry of Rural Development, 2024) could similarly draw on the index to sharpen scheme targeting. NGOs and development agencies, for their part, can use the dimension-level results to design training, mentoring and capacity-building programmes that are tailored rather than one-size-fits-all. And for researchers, VERI offers a common, replicable framework for comparative studies, longitudinal tracking and further empirical validation of entrepreneurial ecosystems.

Table 5. Potential Applications of the Village Entrepreneurial Readiness Index (VERI).

Stakeholder	Potential Application
Gram Panchayats	Identify village-level entrepreneurial strengths and constraints to support local development planning.
District Administration	Prioritize villages for entrepreneurship promotion and allocate development resources more effectively.
State Government	Monitor and evaluate rural entrepreneurship policies and development programmes.
NABARD and Banks	Support credit planning, financial inclusion initiatives and enterprise financing decisions.
NGOs and Entrepreneurship Development Institutions	Design entrepreneurship training, mentoring and capacity-building programmes based on local needs.
Researchers	Conduct comparative studies, validate the framework and monitor entrepreneurial readiness over time.

Source: Developed by the authors.

Theoretical Contributions:

This study's contribution to entrepreneurship research runs along three lines. First, it takes the entrepreneurial ecosystem perspective, until now applied mostly at national, regional, or urban scale and adapts it to the village level, which is where most entrepreneurship development programmes actually get implemented. Second, it introduces VERI itself: a multidimensional framework that operationalizes entrepreneurial readiness through ten dimensions and fifty measurable indicators, rather than leaving readiness as an abstract idea. Third and more methodologically, it shows how entrepreneurial ecosystem theory and composite index methodology can be brought together into a transparent, replicable approach for measuring readiness in rural communities.

Future Research and Limitations:

The obvious next step for future research is to validate VERI against primary data from a range of rural communities. That could mean examining the measurement model through Exploratory Factor Analysis (EFA) and

Confirmatory Factor Analysis (CFA), testing alternative weighting methods such as Principal Component Analysis (PCA), the Analytic Hierarchy Process (AHP), or entropy weighting and checking how the framework holds up across different geographical and socio-economic contexts. Longitudinal studies would add another useful dimension, tracking how entrepreneurial readiness actually changes over time.

The study is not without limitations and it is worth being upfront about them. The framework is still conceptual and has not yet been tested against field data. It also treats all ten dimensions as equally important, simply because there isn't yet enough empirical evidence to justify weighting some more heavily than others. Neither limitation is fatal; both point directly to where the framework should be refined and empirically tested next.

Conclusion:

This study set out to build the Village Entrepreneurial Readiness Index (VERI), a multidimensional framework for assessing entrepreneurial readiness at the village level and

that is what it has done. Drawing on the literature on rural entrepreneurship, entrepreneurial ecosystems and composite index methodology, it brings ten dimensions and fifty indicators together into a standardized way of evaluating the ecosystem conditions that support entrepreneurship, complete with transparent procedures for index construction, score standardization, interpretation and eventual statistical validation.

What sets VERI apart from existing development and entrepreneurship indices is its focus on readiness rather than outcomes and its choice of the village as the unit of analysis. A structured, replicable assessment framework like this has real potential for village benchmarking, evidence-based policy planning, programme monitoring and comparative research. Empirical validation still has to happen before it can be applied more widely, but even at this stage, the framework lays a practical foundation for measuring entrepreneurial readiness in rural communities.

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Balancing Motherhood and Entrepreneurship: The Influence of Work–Life Balance on Entrepreneurial Well-Being and Business Performance

Sakshi Mahashetty

Research Scholar, Visvesvaraya Technological University, Kalaburagi

Corresponding Author - Sakshi Mahashetty

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Abstract:

The increasing participation pertaining to women entrepreneurship has transformed economic development by promoting innovation, employment, and financial independence. Despite this, women entrepreneurs who are mothers often encounter significant challenges in Juggling business operations and family duties commitments, which can adversely affect their psychological well-being and business performance. Although prior research has investigated work–life balance and entrepreneurial outcomes independently, limited research has examined the mechanisms through which work–life balance influences entrepreneurial well-being and business performance simultaneously, specifically within the context of emerging economies. Grounded in the Job Demands–Resources (JD-R) Theory, this study investigates the direct effect of work–life balance on entrepreneurial well-being and business performance, while assessing the mediating influence of entrepreneurial well-being and the moderating influence of family support. A quantitative research design is proposed using A standardized questionnaire administered to women entrepreneurs involved in the Micro, Small, and Medium Enterprise (MSME) sector. The collected data are analysed using Variance-based Structural Equation Modeling (PLS-SEM) (appropriate because PLS-SEM is a variance-based SEM method) Modelling (PLS-SEM) To validate the proposed conceptual framework. The findings reveal that work–life balance significantly enhances entrepreneurial well-being, which in turn Strengthens business performance by fostering greater productivity, innovation, and business sustainability. Entrepreneurial well-being is found to partially mediate the relationship between work–life balance and business performance, whereas family support strengthens the positive impact of work–life balance on entrepreneurial well-being. The study contributes to entrepreneurship literature by extending the application of the Job Demands–Resources Theory to women entrepreneurship and demonstrating the importance of personal and social resources in achieving sustainable entrepreneurial success. The findings highlight practical considerations for policymakers, entrepreneurship development agencies, and business support organisations to formulate interventions that promote work–life integration, psychological well-being, and the long-term growth of women-owned enterprises.

Keywords: *Work–Life Balance; Women Entrepreneurship; Entrepreneurial Well-Being; Business Performance; Job Demands–Resources Theory; Sustainable Entrepreneurship.*

Introduction:

Women entrepreneurship has gained prominence as a significant contributor to economic development, the generation of job opportunities, and innovation. With increasing access to education, financial assistance, and digital technologies, more women are establishing

and managing businesses across various sectors. However, women entrepreneurs, particularly mothers, often face the dual responsibility of managing business operations alongside family and household commitments. These competing demands make achieving a healthy work–life

balance a crucial factor shaping their overall well-being and entrepreneurial success.

Work–life balance has emerged as an important area of study in entrepreneurship research because it affects psychological well-being, decision-making, productivity, and business performance. Although prior research has investigated work–life balance and business performance separately, limited research has examined the mediating role of entrepreneurial well-being and the moderating influence of family support among women entrepreneurs. Therefore Although prior research has investigated work–life balance, entrepreneurial well-being, family support, and business performance using **The Job Demands–Resources (JD–R) theoretical framework Theory**, with the aim of providing The study offers both theoretical and practical contributions toward fostering sustainable women entrepreneurship.

Background of the Study:

Women entrepreneurship has become an important contributor to economic growth, employment generation, and social development. In recent years, increased access to finance, government support, and digital technologies has encouraged more women to establish and manage their own businesses. However, balancing entrepreneurial responsibilities with family and household commitments remains a substantial challenge, especially for women who perform multiple roles as business owners, mothers, and caregivers.

Maintaining a healthy work–life balance is essential for improving entrepreneurial well-being and achieving sustainable business performance. While earlier studies have examined work–life balance and business outcomes, relatively few studies have investigated the combined role of entrepreneurial well-being and familial support in this relationship, especially

among women entrepreneurs in emerging economies. Therefore, this study seeks to examine how work–life balance influences entrepreneurial well-being and business performance while highlighting the importance of family support in fostering sustainable women entrepreneurship.

Problem Statement:

Women entrepreneurs play a pivotal role in economic development; however, many continue to face challenges to balance entrepreneurial responsibilities with family and caregiving commitments. The resulting work–life imbalance can negatively affect their psychological well-being, decision-making, and business performance. Although a substantial body of literature has examined work–life balance and entrepreneurial outcomes, the existing literature provides limited insight into how entrepreneurial well-being mediates this relationship and how family support strengthens it, particularly among women entrepreneurs in emerging economies. Therefore, The present study aims to investigate the influence of work–life balance on entrepreneurial well-being and business performance, while investigating the mediating role of entrepreneurial well-being and the moderating role of family support to provide insights for promoting sustainable women entrepreneurship.

Objectives of the Study:

1. To examine the impact of work–life balance on entrepreneurial well-being among women entrepreneurs.
2. To assess the influence of entrepreneurial well-being on business performance.
3. To investigate the direct relationship between work–life balance and business performance.
4. To examine the mediating role of entrepreneurial well-being in the

relationship between work–life balance and business performance.

5. To analyse the moderating role of family support in the relationship between work–life balance and entrepreneurial well-being.

Significance of the Study:

This study is significant because it enhances the understanding of how work–life balance influences entrepreneurial well-being and business performance among women entrepreneurs. By evaluating the mediating function of entrepreneurial well-being and the determining the moderating impact of family support, the study contributes to entrepreneurship literature and extends the application of the **Job**

Demands–Resources (JD-R) Theory in the domain of women entrepreneurship. The outcomes of this research provide practical implications for women entrepreneurs, policymakers, entrepreneurship development agencies, financial institutions, and business support organisations. The study provides valuable insights for developing policies, training programmes, and support mechanisms that promote work–life balance, mental well-being, and sustainable business growth. It also functions as a valuable reference for researchers and academicians by identifying avenues for future research in women entrepreneurship and entrepreneurial well-being.

Literature Review:

Author(s) & Year	Focus of the Study	Key Findings / Research Gap
Neneh (2021)	Work–life balance and growth intention of women entrepreneurs	Work–life balance positively influences business growth intentions; entrepreneurial well-being was not examined as a mediator.
Medina-Garrido et al. (2023)	Work–family balance, employee well-being, and performance	Well-being mediates the relationship between work–family policies and performance; focused on employees rather than entrepreneurs.
Saraswathi & Dharmalingam (2023)	Challenges of work–life balance among women entrepreneurs	Identified role overload and family pressures; lacked a theory-driven empirical model.
Kaciak & Thongpapanl (2026)	Work-to-family conflict and firm performance	Emotional exhaustion mediates the negative effect on firm performance; family support was not considered.
Women Entrepreneurs in the Digital Era (2026)	Digital entrepreneurship and work–life balance	Digital tools create flexibility but also blur work–life boundaries; limited evidence on business performance outcomes.
Pahrijal et al. (2025)	Women entrepreneurs' success and work–life balance satisfaction	Self-efficacy alone does not strongly predict work–life balance satisfaction or business performance.
Hossain (2025)	Women entrepreneurship for sustainable development	Systematic review highlighted institutional and family-related constraints; called for integrated well-being models.
Work–Life Balance and Business Growth in Nigeria (2022)	Impact of work–life balance on women-owned businesses	Positive association between work–life balance and business growth; psychological mechanisms remained unexplored.
Work–Life Balance	Benefits and challenges of	Flexible arrangements improve resilience;

Among Women Entrepreneurs (2026)	work–life balance practices	lacked a structural model linking well-being and performance.
Work–Family Balance Studies (2023)	Well-being as a pathway to performance	Confirmed indirect effects through well-being; entrepreneurial contexts remain under-researched.

Research Gap:

Notwithstanding these contributions, several important gaps remain. First, most studies examine work–life balance and business performance directly, without explaining the underlying psychological process. Second, entrepreneurial well-being has rarely been tested as a mediating variable in the relationship between work–life balance and business performance. Third, the moderating role of family support has received limited empirical attention. Fourth, much of the evidence originates from non-Indian contexts, leaving a shortage of studies focusing on women entrepreneurs operating MSMEs in emerging economies such as India. Finally, few studies integrate work–life balance, entrepreneurial well-being, family support, and business performance within a single JD-R Theory-based framework. The current study seeks to address these research gaps by developing and evaluating a comprehensive model that elucidates how work–life balance contributes to sustainable entrepreneurial success among women entrepreneurs.

Research Design:

This study adopts a **quantitative, descriptive, and explanatory research design** to

Result Analysis:

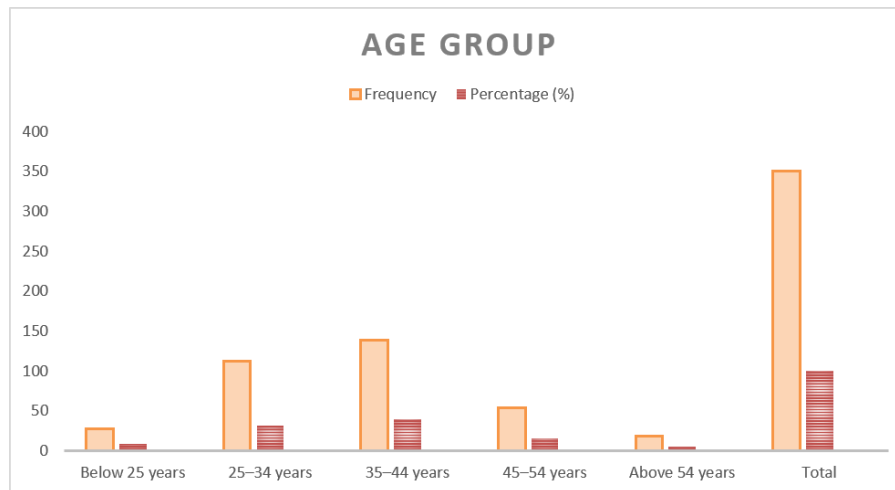
explore the contribution of work–life balance on entrepreneurial well-being and business performance among women entrepreneurs. A **cross-sectional survey design** is employed to gather data from respondents at a single at a specific point in time, enabling the examination of relationships among the study variables.

The quantitative approach is appropriate because it facilitates the measurement and statistical analysis of work–life balance, entrepreneurial well-being, family support, and business performance using structured questionnaires. The descriptive design provides an understanding of the characteristics and experiences of women entrepreneurs, while the explanatory design investigates the causal relationships among the variables based on the proposed conceptual framework.

The study is anchored in the **Job Demands–Resources (JD-R) Theory** which illustrates how personal resources (work–life balance) and social resources (family support) influence entrepreneurial well-being and business performance. The proposed model is evaluated using the **Partial Least Squares Structural Equation Modeling (PLS-SEM)** approach to evaluate both direct and indirect relationships among the constructs.

Table 1. Age of Respondents (n = 350)

Age Group	Frequency	Percentage (%)
Below 25 years	28	8.0
25–34 years	112	32.0
35–44 years	138	39.4
45–54 years	54	15.4
Above 54 years	18	5.2
Total	350	100.0



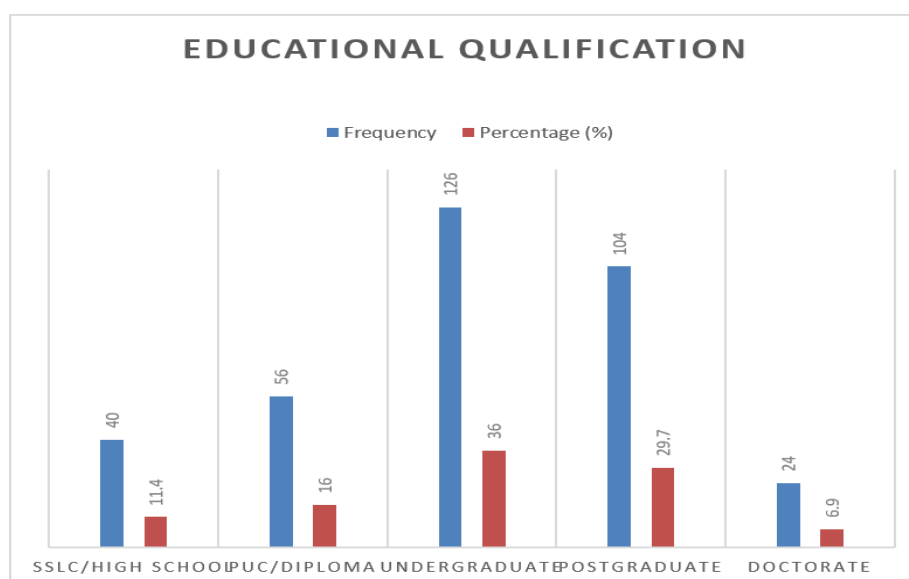
Interpretation:

The data indicating that most respondents (39.4%) belong to the 35–44 years age category, followed by 32.0% in relation to the 25–34 years category. Respondents aged 45–54 years constitute 15.4%, while 8.0% are below 25 years

and 5.2% are above 54 years. This implies that women in their mid-career professionals demonstrate greater involvement in entrepreneurship, as they possess greater business experience and family responsibilities.

Table 2. Educational Qualification

Qualification	Frequency	Percentage (%)
SSLC/High School	40	11.4
PUC/Diploma	56	16.0
Undergraduate	126	36.0
Postgraduate	104	29.7
Doctorate	24	6.9
Total	350	100.0



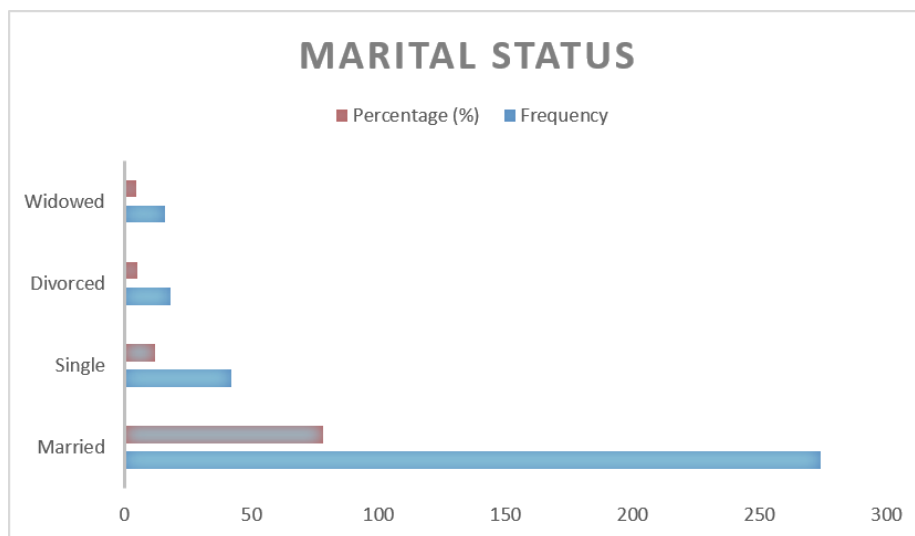
Interpretation:

The findings reveal that 36.0% of the respondents are undergraduates, followed by 29.7% postgraduates. Diploma holders account for 16.0%, while 11.4% have completed high

school education and 6.9% hold doctoral degrees. This indicates that the majority of women entrepreneurs possess higher levels of education, potentially contributing to improved business knowledge and entrepreneurial competencies.

Table 3. Marital Status Profile

Marital Status Profile	Frequency	Percentage (%)
Married	274	78.3
Single	42	12.0
Divorced	18	5.1
Widowed	16	4.6
Total	350	100.0

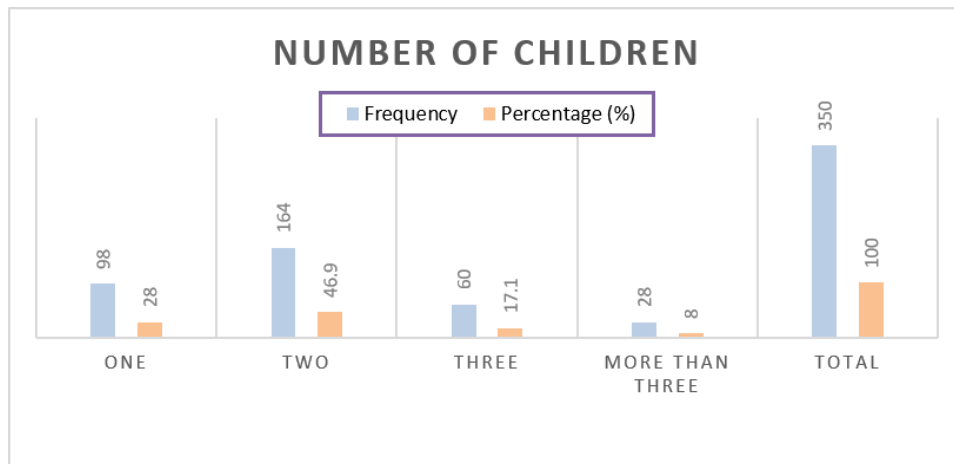
**Interpretation:**

The highest proportion of (78.3%) are married, while 12.0% are single. Divorced and widowed women account for 5.1% and 4.6%, respectively. The high proportion of married

respondents highlights the relevance of examining work–life balance, as they are more inclined to manage both business and family responsibilities simultaneously.

Table 4. Number of Children

Number of Children	Frequency	Percentage (%)
One	98	28.0
Two	164	46.9
Three	60	17.1
More than Three	28	8.0
Total	350	100.0



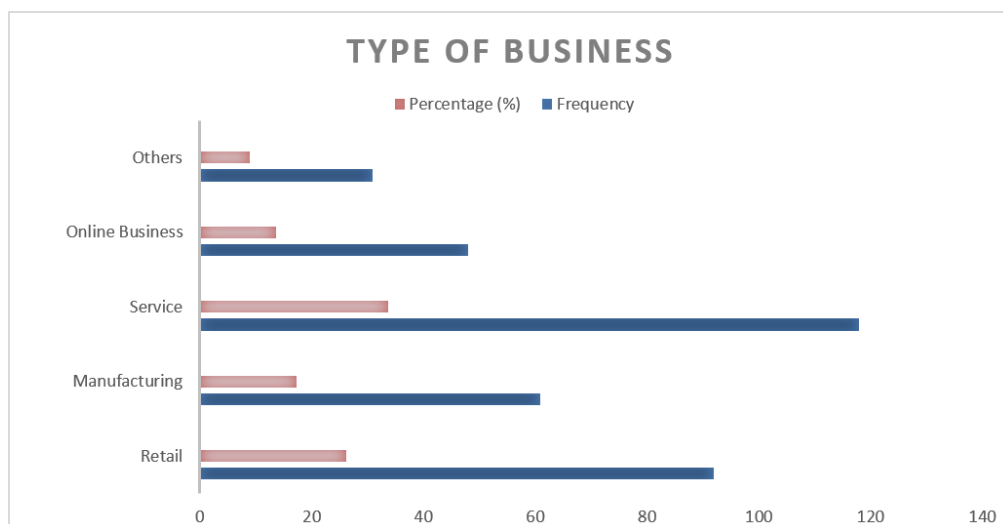
Interpretation:

Nearly half of the respondents (46.9%) have two children, followed by 28.0% with one child. Women with three children represent 17.1%, whereas 8.0% have more than three

children. This distribution indicates that childcare responsibilities are a significant aspect of the respondents' personal lives and may influence their work–life balance.

Table 5. Business Category Profile

Business Category Profile	Frequency	Percentage (%)
Retail	92	26.3
Manufacturing	61	17.4
Service	118	33.7
Online Business	48	13.7
Others	31	8.9
Total	350	100.0



Interpretation:

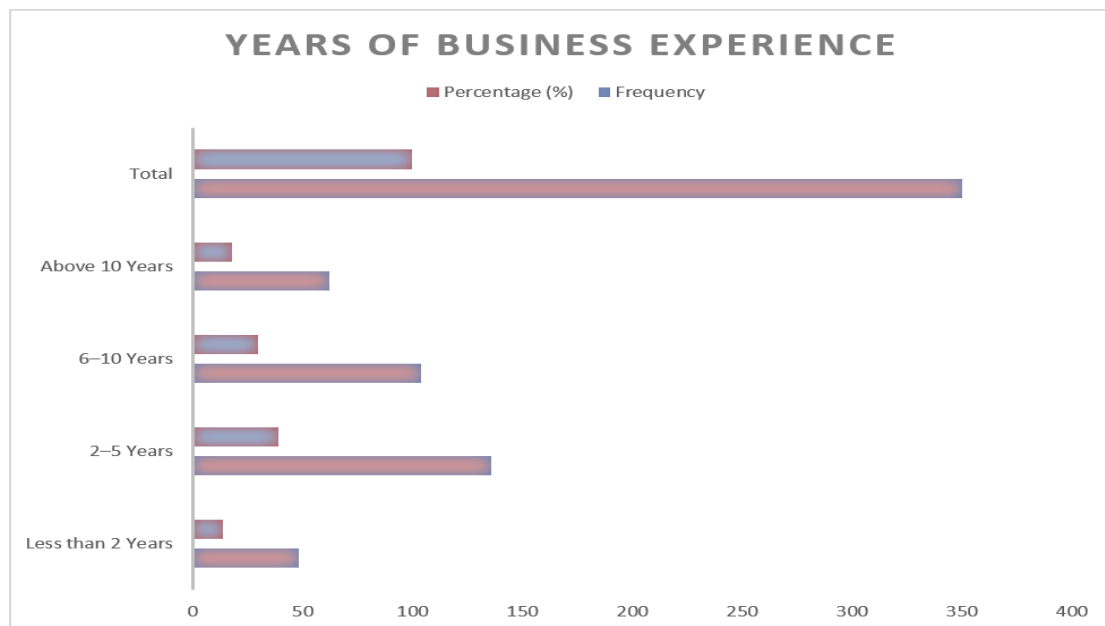
The results show that **33.7%** among the respondents operate **service-based businesses**, followed subsequently by **26.3%** in retail.

Manufacturing enterprises account for **17.4%**, online businesses for **13.7%**, and other businesses for **8.9%**. This indicates that the service sector represents the largest proportion preferred

entrepreneurial activity among women requirements and operational flexibility. respondents because of its relatively lower capital

Table 6. Years of Business Experience

Experience	Frequency	Percentage (%)
Less than 2 Years	48	13.7
2–5 Years	136	38.9
6–10 Years	104	29.7
Above 10 Years	62	17.7
Total	350	100.0



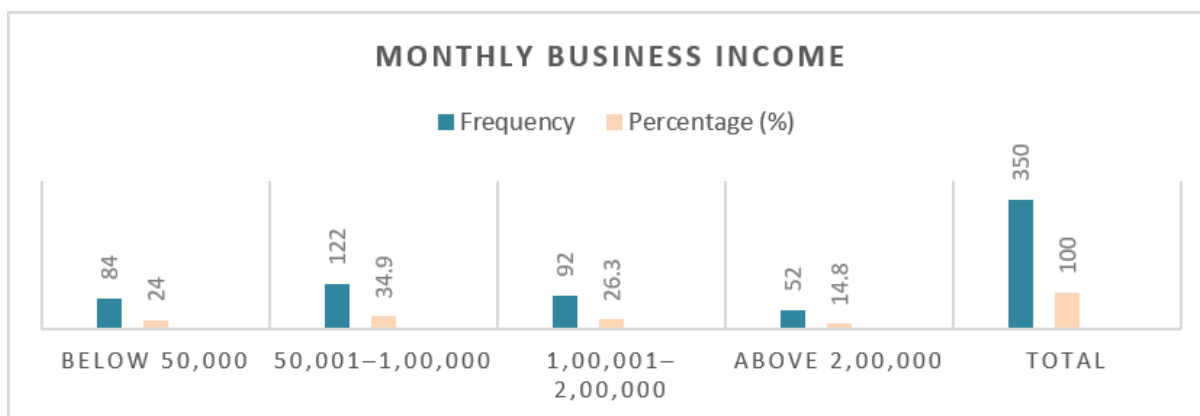
Interpretation:

A majority of respondents (38.9%) have 2–5 years of entrepreneurial experience, while 29.7% have 6–10 years of experience. Entrepreneurs greater than 10 years of experience constitute 17.7%, and 13.7% possess less than

two years of experience. The findings suggest that the majority of respondents have acquired sufficient entrepreneurial experience to provide meaningful insights into work–life balance and business performance.

Table 7. Monthly Business Income

Monthly Income (₹)	Frequency	Percentage (%)
Below 50,000	84	24.0
50,001–1,00,000	122	34.9
1,00,001–2,00,000	92	26.3
Above 2,00,000	52	14.8
Total	350	100.0



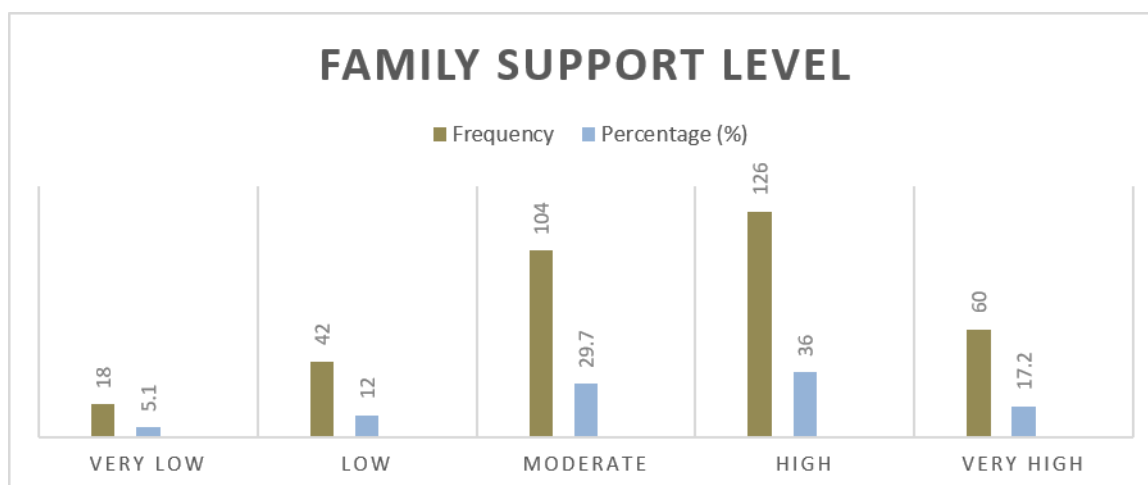
Interpretation:

The analysis reveals that **34.9%** of respondents earn between **₹50,001 and ₹1,00,000** per month, followed by **26.3%** earning between **₹1,00,001 and ₹2,00,000**. About **24.0%** earn

below ₹50,000, whereas **14.8%** earn more than ₹2,00,000 per month. This indicates that most women-owned enterprises generate moderate levels of income, reflecting stable business operations.

Table 8. Family Support Level

Family Support	Frequency	Percentage (%)
Very Low	18	5.1
Low	42	12.0
Moderate	104	29.7
High	126	36.0
Very High	60	17.2
Total	350	100.0



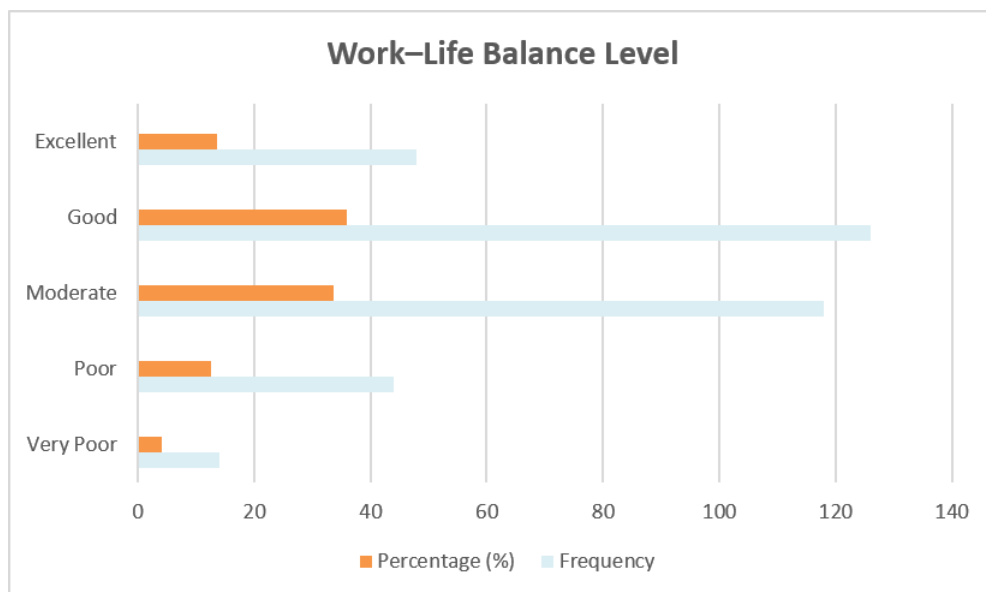
Interpretation:

The majority of respondents (**36.0%**) reported receiving **high family support**, while **29.7%** indicated a moderate level of support. Very high family support was reported by **17.2%** of respondents, whereas only **12.0%** and **5.1%**

experienced low and very low support, respectively. The findings indicate that support from family acts as a significant determinant of enabling women entrepreneurs to balance their business and family responsibilities.

Table 9. Work–Life Balance Level

Work–Life Balance	Frequency	Percentage (%)
Very Poor	14	4.0
Poor	44	12.6
Moderate	118	33.7
Good	126	36.0
Excellent	48	13.7
Total	350	100.0

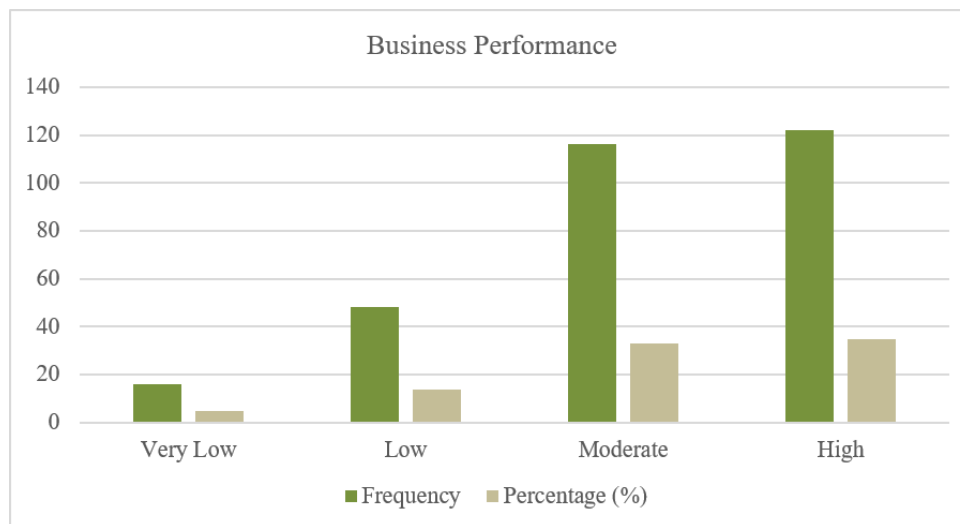
**Interpretation:**

The findings indicate that 36.0% of respondents experience a good work–life balance, while 33.7% report a moderate level. Approximately 13.7% enjoy an excellent balance,

whereas 12.6% and 4.0% report poor and very poor work–life balance, respectively. Overall, the findings indicate that the majority of respondents are capable of maintain an adequate balance between their work-related and personal lives.

Table 10. Business Performance Level

Business Performance	Frequency	Percentage (%)
Very Low	16	4.6
Low	48	13.7
Moderate	116	33.1
High	122	34.9
Very High	48	13.7
Total	350	100.0



Interpretation:

The results reveal that **34.9%** of respondents report **high business performance**, followed closely by **33.1%** with moderate performance. A total of **13.7%** indicates very high performance, while **13.7%** and **4.6%** report low and a relatively low proportion performance, respectively. These findings imply that a most women entrepreneurs achieve moderate to high levels of business performance, which may be associated with effective work–life balance and strong family support.

Key Findings of the Study:

1. The majority of the respondents (39.4%) were classified under the **35–44 years age range**, **implying that** women in their mid-career stage are more actively engaged in entrepreneurial activities.
2. Most respondents (36.0%) were **undergraduates**, suggesting that higher education acts as a crucial determinant of enhancing entrepreneurial knowledge and business management skills.
3. A significant proportion of respondents (78.3%) were **married**, highlighting the need to balance entrepreneurial responsibilities with family commitments.

4. Nearly half within the sampled population (46.9%) reported having two **children**, suggesting that childcare responsibilities are a major consideration in managing work–life balance.
5. The **service sector (33.7%)** emerged as the most preferred type of business among women entrepreneurs, followed by retail businesses (26.3%).
6. Most respondents (38.9%) had **2–5 years of entrepreneurial experience**, indicating that the sample largely consisted of entrepreneurs with moderate business experience.
7. The majority of respondents (34.9%) reported a monthly business income between **₹50,001 and ₹1,00,000**, reflecting stable business performance.

Suggestions:

1. Women entrepreneurs should adopt effective **time management and work prioritisation strategies** to achieve a better balance between business and family responsibilities.
2. Entrepreneurship development agencies should organise **training programmes on work–life balance, stress management, leadership, and mental well-being** to enhance entrepreneurial resilience.

3. Policymakers should introduce **family-friendly policies**, including affordable childcare facilities, flexible business support services, and financial assistance programmes, to reduce the obstacles faced by women entrepreneurs.
4. Families should be encouraged to provide **emotional, financial, and practical support**, such as sharing household and childcare responsibilities, to enhance the well-being and business performance among female entrepreneurs.
5. Financial institutions and business support organisations should offer **mentorship, networking opportunities, and capacity-building programmes** that assist women entrepreneurs in strengthening their managerial and entrepreneurial skills.
6. Women entrepreneurs should actively utilise **digital technologies and business management tools** to improve operational efficiency, reduce workload, and create greater flexibility in managing business activities.

Conclusion:

This study examined the influence of work–life balance on entrepreneurial well-being and business performance among women entrepreneurs. The findings indicate that maintaining a healthy balance between professional and personal responsibilities has a substantial influence on enhancing psychological well-being, motivation, and overall business

performance. Women entrepreneurs who successfully manage their business and family commitments are better able to cope with entrepreneurial challenges, make informed decisions, and sustain business growth. The study also emphasizes the importance of entrepreneurial well-being as a key factor mechanism through which work–life balance contributes to improved business outcomes, while family support strengthens women's competence to manage multiple responsibilities successfully.

The study makes a significant contribution to entrepreneurship literature by extending the application of the **Job Demands–Resources (JD-R) Theory** and a holistic understanding of the relationships among work–life balance, entrepreneurial well-being, family support, and business performance. The findings offer actionable insights for policymakers, entrepreneurship development agencies, and business support organisations to develop programmes that promote work–life integration, mental well-being, and family-friendly entrepreneurial ecosystems. By fostering supportive environments and strengthening personal and social resources, women entrepreneurs can attain long-term business success while maintaining their overall well-being. The study also lays the foundation for future research to examine additional contextual and organisational factors influencing women entrepreneurship across different sectors and regions.



Role of Social Entrepreneurship in Mitigating Biomass Fuel Use and Indoor Air Pollution in Rural India: A Case Study Approach

Rokhade Tanuja¹ & Dr. N.S. Mugadur²

¹Assistant Professor, Department of Economics,

JSS Banashankari Arts, Commerce and S.K Gubbi Science College, Dharwad, Karnataka.

²Associate Professor, Department of Economics, Karnatak University, Dharwad, Karnataka

Corresponding Author - Rokhade Tanuja

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Abstract:

The use of biomass fuels that pollute the indoor air remains an important environmental and public health challenge in rural India. Although the government has taken steps like the Pradhan Mantri Ujjwala Yojana (PMUY), people still depend a lot on solid fuels and stacking fuel. The study explores the potential for social businesses to help reduce biomass fuel use and indoor air pollution in rural India through a few case studies. The data from some other sources like World Health Organization (WHO), Ministry of New and Renewable Energy, National Family Health Survey (NFHS-5), PMUY and some social enterprises' official website and report have been used in this study. They analyse their technological changes, economic benefits, community participation and environmental consequences by using a qualitative case study method. The findings indicate that social businesses help improve cookstoves, biomass processing, development of biogas technologies and the launch of community-based projects. The cases illustrate how less fuel and smoke are used, how money and time are saved at home, how people in rural areas can start their own businesses and make a living. But there are still major issues such as lack of money, high costs, resistance from people, fuel stacking, weak supply chains and limited ability to grow. The study concludes that stronger financial, institutional and policy support is needed to integrate and scale up social enterprise models with India's government clean cooking programs in rural areas.

Keywords: Indoor Air Pollution, Energy Ladder, Biomass Fuel, Energy Stacking, Improved Cook Stoves.

Introduction:

Air is basic among basics without which human beings can't live even for few seconds. But such basic resource is contaminated to such an extent that 99% of people are not breathing air which exceeds pollution standards set by World Health Organization. In particular indoor air pollution is more dangerous than out door air pollution. Across the globe Household air pollution was responsible for an estimated 2.9 million deaths in 2021, including over 309 000 deaths of children under the age of 5. Around 95 million disability-adjusted life years (DALYs) were attributable to household air pollution

exposure in 2021. s(WHO report, 2025) The major cause for the household Air Pollution is use of polluting cooking fuel such as Biomass like Cow-dung, firewood, charcoal, coal, kerosene, agriculture residuals etc. As per WHO report 2025 Around 2.1 billion people worldwide (around a quarter of the global population) cook using open fires or inefficient stoves fuelled by kerosene, biomass (wood, animal dung and crop waste) and coal, which generates harmful household air pollution. (WHO,2025). In mitigating the use of biomass fuel and Indoor Air pollution government subsidies and freebees are failing. Hence the new model of social

entrepreneurship is dealing effectively with the problem especially in rural India.

Cooking Fuel Use and Indoor Air Pollution in Rural India:

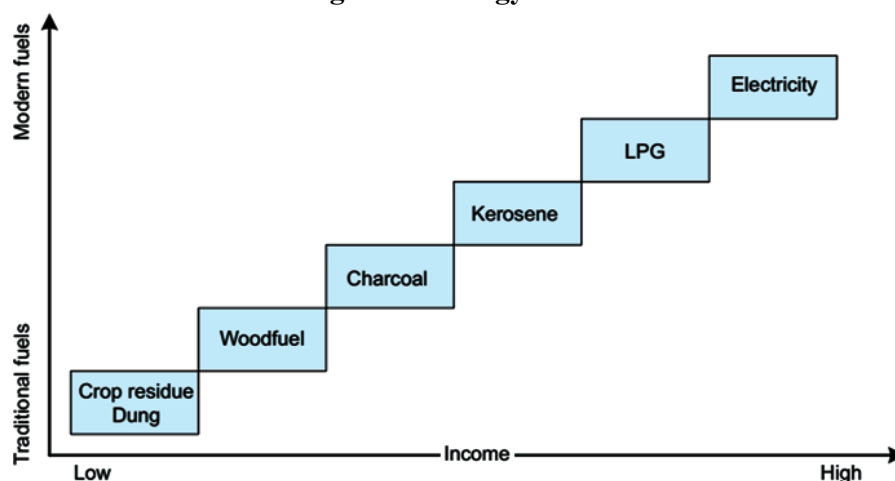
About 65.9 per cent of households depend on solid biomass, including firewood, crop residue and cow dung as primary fuel for cooking in India (Census 2011). The use of traditional biomass for cooking through simple traditional cook stove is a cause of indoor air pollution due to incomplete combustion of biomass which produces a range of toxic products. (PIB, Ministry of New and Renewable Energy, GOI, 2018). Due to biomass fuel use household air has become so toxic that 4.8 lakh deaths have happened due to household air pollution in the year 2018. (ICMR, 2018). While the proportion of households using solid fuels has been improving in India, 56% of the population still using solid fuels in India (NFHS-5). This proportion was higher in the less developed states with over two-thirds of the population in most EAG states using solid fuels for cooking. (ICMR, 2018). The

PMUY like program has reached 99.8% of households and distributed more than 50 million LPG cylinders yet the use of biomass uses in Rural India is 56%. So it has proven that government subsidies are not making the rural poor to sustain LPG use due to lack of enough income. Here the social enterprises are filling the gap and doing very well in mitigating the biomass fuel use in India.

Problem of Energy Stacking in Climbing Energy Ladder:

As per the concept of energy ladder the countries will experience upward shift in energy ladder from polluting to cleaner cooking fuel as the countries grow economically. But developing countries are facing a unique problem that the people of those countries are not completely shifting their cooking fuel from polluting (Biomass) to cleaner one (LPG). They use combination of both that is called as fuel stacking. It is common in rural areas as they get agricultural-residue, cow-dung easily and free of cost.

Figure 1: Energy ladder



Source: E Duflo et al. (2008)

Role of Social Entrepreneurship in Biomass Mitigation:

In recent time social enterprises are leading in environmental problems like biomass fuel use and IAP than government subsidised

programmes. These are neither pure commercial business models nor NGO. But this model is progressing unprecedentedly in developing countries as capital is scarce with government and income is not enough with the people to get

shifted in energy ladder to higher level. Hence social enterprises are coming to mainstream.

Research Gap:

The studies have been done in relation with the impact of government programs like PMUY, National biomass Mission etc on biomass use for cooking but the private sector role like social enterprises have not been done. In abroad the studies have been done on the topic but in India it is very less explored research area. In relation with models deal with the environmental issues like biomass and indoor air pollution, the pure government initiatives have been studied, suggested and accepted. But social enterprises are neglected models in dealing with environmental problems like IAP.

Objectives of the Study:

1. To evaluate the role and performance of social enterprises in mitigating biomass fuel use in India through the case studies of some social enterprises.
2. To identify challenges and policy implications of social enterprises in combating biomass use for cooking and reducing indoor air pollution in rural India.

Research Methodology:

The research uses a case study approach to analyse specific social enterprises and their

impact on society. The analysis is based solely on secondary data obtained from credible sources including the World Health Organization (WHO), Ministry of New and Renewable Energy (MNRE), Pradhan Mantri Ujjwala Yojana (PMUY), National Family Health Survey (NFHS-5) and official websites and reports of the selected social enterprises. A qualitative analytical approach is applied to analyse the actions, interventions, outcomes and wider implications of the selected cases. The results are presented in the form of tables and flow charts for methodical comparison and analysis.

Case studies of Social Entrepreneurships Working in The Field of Mitigating IAP Through Biomass Fuel Use:

Recent days developing economies are witnessing a drastic model shift in dealing with the socio-economic problems like social enterprising model. A social enterprise means the enterprise which uses commercial strategy to maximise social benefits. At outset those seem like NGO's but are slightly different. There is no official number of social enterprises working the field but a good number of social enterprises are working. Those are operational in different genres like improved cook stoves (ICS), technology use in bio mass plants, community awareness etc.

Table1: Different Operational Areas of Social Enterprises Working to Mitigate Biomass Fuel Use for Cooking.

Field of social enterprises	Fuel Type	Technology Focus	Example Enterprises
Improved Biomass	Firewood, Dung, Crop Residue	Efficient combustion, better airflow	Greenway Grameen, SCF, TIDE
Processed Biomass	Pellets, Briquettes, Chips	Fuel processing and gasification stoves	First Energy (Oorja), Nishant Bioenergy
Biogas	Methane (from waste)	Anaerobic digestion	Govt. (NBMMP), Vaayu
Electric Cooking	Electricity	Induction, electric pressure cookers	EESL, NECP, Solar startups
Community awareness	LPG	Campaigns, processions, demonstrations	TERI, SELCO, PMUY Sustain plus

Source: prepared through sources like websites of Green Grameen Infra, SCF, TIDE etc.

Case study 1: Improved Cooking Stoves by Greenway Grameen Infra:

Greenway Grameen Infra (GGI), founded in 2010 by IIM Ahmedabad graduates Ankit Mathur and Neha Juneja, is India's largest biomass cookstove manufacturer. By 2025, the company had sold over 3 million Smart Stoves, reaching more than 15 million rural Indians. The problem was over 800 million rural Indians rely on inefficient, smoky traditional *chulhas*, causing severe health issues, economic burden from firewood costs, and environmental damage. GGI come up with a Greenway's patent-pending Smart Stove reduces fuel consumption by 65% and smoke emissions by 70% through optimized airflow and secondary combustion. The stainless-steel stove lasts 3-5 years and saves users 30 minutes daily. Unlike grant-dependent NGOs, Greenway operates as a profitable social

enterprise from day one. Revenue comes from direct sales (Rs.1000-Rs.1500), carbon finance monetization, and institutional sales. The company leverages rural retailers, microfinance institutions, and NGO partnerships for distribution.

Greenway has mitigated 10-15 million tons of CO₂ since 2016, with 54% of users reporting improved health. The company employs more than 500 people and enables significant fuel cost savings for households. In 2023 6.5-million-dollar Asian Development Bank loan will fund 1 million additional stoves in Madhya Pradesh and Odisha, offering up to 85% subsidies through carbon finance. The Key success is treating cookstoves as consumer products, not charity, while maintaining profitability and rigorous quality control.

Table 2: Economic benefit per house hold with the use of ICS of Grameen Green Infra

Benefit Category	Quantified Impact	Annual Value per Household
Fuel Cost Savings	65% reduction in firewood consumption	Rs.2,000-Rs.4,000
Time Savings	30 minutes/day (182 hours/year)	Monetized at Rs.50/hour = Rs.9,100
Health Cost Avoidance	54% reported improved health; fewer respiratory infections	Rs.500-Rs.1,500 avoided medical expenses
Stove Lifespan	3-5 years for ICS vs 6-12 months for traditional cook stoves.	Replacement cost savings: Rs.500-Rs.1,000/year
Total Economic Benefit	Combined fuel + time + health + durability	Rs.12,100-Rs.15,600/year
Stove Cost	One-time purchase (Rs.1,000-Rs.1,500) or subsidized (Rs.150-Rs.225)	Payback period: less than 1 month

Source: Green grameen Infra

Case study 2: Bio Gas Processing by Appropriate Rural Technology Institute (ARTI), Pune:

Appropriate Rural Technology Institute (ARTI) is a non-governmental organization founded in 1996 by approximately 20 scientists

and technologists, led by Dr. Anand D. Karve, to develop and disseminate innovative, environmentally friendly technologies for rural India. Based in Pune and Phaltan (Maharashtra), ARTI's mission is to improve rural livelihoods by creating income-generating opportunities through

sustainable technologies in agriculture, biomass energy, and rural entrepreneurship.

ARTI's flagship innovations include:

- Char-briquette technology: Converting agricultural waste (sugarcane trash, crop residues) into clean, efficient cooking fuel.
- Compact biogas plants: Using food waste and organic materials to produce biogas for cooking, reducing LPG/kerosene dependence.
- Efficient cookstoves: Including the Sarai stove system, which uses 100g of char briquettes (vs. 3kg wood) to cook a family meal.

- Rural Entrepreneurship Development Centre (REDC): Training rural entrepreneurs in ARTI technologies, providing technical and marketing.

By 2006, ARTI's scale-up projects aimed to establish 300 entrepreneurs in Maharashtra and reach 50,000 households in Gujarat, creating self-sustaining business chains for clean biomass energy.

Table 3: Economic Benefits of Bio-Mass plant initiated by ARTI

Technology	Economic Benefit	Quantified Impact
Char-briquettes (from crop waste)	Income from selling agricultural waste; cheaper fuel for households	Farmers monetize waste; fuel cost reduced by 97% (100g vs. 3kg wood/meal)
Biogas from food waste	Halves LPG/kerosene use for cooking	Saves 100 kg LPG/year or 250 Liters kerosene/year per household
Sarai stove system	97% fuel savings; reduced health costs from cleaner burning	25% efficiency vs. traditional stoves; less indoor air pollution
Entrepreneurship training (REDC)	New rural enterprises; employment generation	300+ entrepreneurs (Maharashtra); 30+ entrepreneurs (Gujarat) trained
Sugarcane seedling nurseries	Increased crop yields; higher farmer income	Thousands of farmers benefited in Maharashtra
Aggregate impact	Self-sustaining business chains; NGO network revenue generation	50,000 households using ARTI products; NGOs become financially self-sufficient

Source: calculation on the basis of ARTI data.

Case study 3: Community awareness and renewable energy initiative:

Smokeless Cook stove Foundation (SCF) was founded in the year 2017 by Nitisha Aggarwal. It is inspired by United Nation's Earth Chapter and Sustainable development goals like Good Health & Well Being, Affordable and Clean Energy, Reduced Inequalities, Sustainable cities & communities Climate Action and

Life on lan. The foundation has been conducting workshop and training program to prepare Improved cook stoves across Nine states 80 districts including Dharwad district in Karnataka. It is enabling the rural community to overcome deadly disease burden due to pollutant indoor air. It is cost less solution too as the ICS will be prepared with locally available resources like cow dung, farm residue etc. The foundation is inspired

by the prototyping of “Himalayan Rockrt Stove” and started developing ICS on the core principles Simple looking, zero cost, highly efficient and virtually smokeless cook stoves. So far, the foundation reached 1000 families and 1200 happy women using ICS developed by the foundation. Even though they are just training the tribals, rural people and migrants to prepare their own cook stoves it is helping the reduction of house hold air pollution to maximum extent. One cook stove is prepared in the cost of less than 750 rupees. Once the women are trained to prepare the ICS then they can work on daily basis to prepare several cook stoves on the attractive wages. The model of rural women livelihood is active under the foundation. The beneficiaries are earning good wage just with 4 hours of work a day.

Challenges of Social Enterprises in reducing biomass fuel use and IAP reduction:

- **Financial Sustainability:** Social enterprises often face financial constraints due to their dependence on grants, CSR funds, and limited access to impact investment. Balancing financial viability with social objectives remains a significant challenge.
- **Affordability of Clean Cooking Solutions:** The low purchasing power of rural households limits the adoption of clean cooking technologies. High upfront and recurring costs discourage many families from shifting away from biomass fuels.
- **Behavioural and Cultural Resistance:** Traditional cooking practices and limited awareness of the health hazards of biomass smoke make it difficult for social enterprises to encourage sustained adoption of clean cooking solutions.
- **Fuel Stacking:** Many households continue using biomass alongside LPG or improved cookstoves, reducing the effectiveness of

clean cooking interventions and limiting environmental and health benefits.

- **Supply Chain and Last-Mile Delivery:** Poor infrastructure, irregular fuel supply, and limited after-sales services increase operational costs and restrict the reach of social enterprises in remote rural areas.
- **Policy and Institutional Challenges:** Inconsistent policies, delays in subsidy implementation, and weak coordination among stakeholders can hinder the growth and effectiveness of social enterprises.
- **Measuring Impact and Scaling Up:** Demonstrating measurable social and environmental outcomes and expanding successful models across diverse rural regions remain major challenges due to limited resources and varying local conditions.

Findings:

The study finds social enterprises can play an important role in reducing biomass fuel consumption and indoor air pollution in rural India. However, the transition to cleaner cooking fuels continues to be impeded by heavy dependence on solid biomass and fuel stacking despite government programs such as PMUY. These case studies highlight how social enterprises are responding to these challenges with improved cookstoves, biomass processing, biogas innovations and awareness programs targeting the community. Greenway Grameen Infra's improved cookstoves are far superior in that they cut down on fuel consumption and smoke emissions while saving households money and time. The ARTI model shows that agricultural and organic waste can be converted to cheap cooking energy and at the same time promote rural entrepreneurship and job creation. Similarly, the Smokeless Cookstove Foundation shows that low-cost, locally made improved cookstoves work well when combined with community

education and women's livelihood development. However, social enterprises face challenges such as financial sustainability, cost-effectiveness, behavioural resistance, fuel diversification, weak rural supply chains, regulatory constraints and difficulties in scaling up successful models. The study finds that important factors include strong financial support, community engagement, rural distribution channels, stakeholder partnerships and synergies with government programs. To summarise, social enterprises provide a novel and sustainable alternative strategy for promoting cleaner cooking and reducing household air pollution in rural India.

Policy Implications/ Suggestions:

- **Strengthen Financial Ecosystems for Social Enterprises:** Governments should expand access to concessional finance, impact investment, and CSR partnerships to enable social enterprises to scale clean cooking initiatives and achieve long-term financial sustainability.
- **Improve Affordability of Clean Cooking Technologies:** Subsidies, microfinance, and innovative payment models should be strengthened to make clean cooking technologies affordable for low-income rural households and encourage sustained adoption.
- **Promote Behaviour Change through Community Engagement:** Long-term awareness campaigns involving local leaders, Self-Help Groups (SHGs), and community-based organizations should be implemented to address cultural barriers and reduce dependence on biomass fuels.
- **Strengthen Rural Energy Supply Chains:** Investment in rural distribution networks, maintenance services, and local entrepreneurship is essential to ensure reliable access to clean cooking technologies, particularly in remote villages.
- **Foster Multi-Stakeholder Partnerships:** Effective collaboration among government agencies, social enterprises, NGOs, financial institutions, and the private sector should be encouraged to improve innovation, resource mobilization, and programme implementation.
- **Build Capacity of Social Enterprises:** Regular training, technical support, and business development programmes should be provided to strengthen the managerial, financial, and technological capabilities of social enterprises working in the clean cooking sector.
- **Establish Impact Monitoring and Evaluation Systems:** A standardized framework should be developed to assess the health, environmental, economic, and social outcomes of clean cooking interventions, enabling evidence-based policymaking and improved accountability.
- **Scale Successful Social Enterprise Models:** Governments should identify and replicate successful social enterprise models across rural India by integrating them with national programmes such as PMUY and other clean energy initiatives.

Conclusion:

We are not safe at home. As Indoor air pollution is 2-5 times higher than ambient air pollution (AQI, India 2025). It is contributing 2.9millions of deaths across globe (WHO,2025). 95 million DALY's were attributed by IAP in the year 2021 as per WHO. The main reason for this is use of solid biomass fuel. Despite government efforts like PMUY, NBM yet rural India is still dependent on biomass for cooking by 56.4%(NFHS-5). Hence social enterprise's role in bridging the gap left untouched by the government is pivotal. It has the future prospectus if proper support is given by governed and community.

Indoor air pollution is a serious problem that is often ignored, especially in rural India, and threatens the health and well-being of people. Continued use of solid biomass fuels exposes homes to dangerous pollutants and makes an important contribution to the global burden of disease. The government does have schemes like the Pradhan Mantri Ujjwala Yojana (PMUY) and the National Biomass Mission (NBM), but still there are lot of people using biomass for cooking (56.4% of rural people still do, as per NFHS-5). Research shows that social businesses can help fill the gaps in technology, community engagement, affordability and accessibility. Their creative and easily adaptable solutions have a lot of potential to reduce biomass use and indoor air pollution. But for these programs to be used everywhere in rural India, they need long-term support from the government in the shape of financial help, community engagement, and well-integrated policies.

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India's Economic Rise: Role of Start-ups

Miss. Anupama Siddhanti¹ & Miss Sushma Hegde²

¹Faculty in Smt & Shri G. S. Akkihal College of Commerce.

²Assistant Professor in DVHIMSR, Dharwad

Corresponding Author - Miss. Anupama Siddhanti

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Abstract:

India's economic growth has been greatly influenced by start-ups in the recent times. India has become the 3rd largest start-up ecosystem in the world. Start-ups play a key role in technological advancement, innovation and generating employment opportunities to the vast growing population successfully contributing in comprehensive regional development.

This paper throws the light on Firstly, to understand the importance of start-ups for economic development and, to examine the growth trends of start-ups in India and their contribution to economic growth. Secondly to study the government policies and initiatives to support start-ups.

The present paper is based mainly on secondary data. Secondary data is obtained from concerned published works viz; journals, reports, books, magazines, internet, Articles by scholars etc.

Keywords: Start-Up Ecosystem, Employment Opportunities, Innovation Technological Advancement, GDP, Government Policies.

Introduction:

India is presently a rapidly growing economy where start-ups have emerged as a new tool for utilizing India's resources to a maximum. To cater to the needs of the vast growing and diverse population, the government of India on 16th January, 2016 launched the Start-up India initiative. The main objective of this initiative is to support entrepreneurs, to build a robust start-up ecosystem and to transform India into a country of job creators instead of job seekers. These programmes are managed by a dedicated Start-up India Team, which reports to The Department for Promotion of Industry and Internal Trade (DPIIT).

As per the DPITT start-up is defined as:

The start-up should be incorporated as a Private Limited Company or registered as a

Partnership Firm, Limited Liability Partnership, or Cooperative Society.

Turnover should be less than INR 200 Crores (INR 300 Crores for DeepTech start-ups) in any of the previous financial years.

An entity shall be considered a start-up for up to 10 years (20 years for DeepTech start-ups) from the date of its incorporation.

The start-up should be working towards innovation or improvement of existing products, services, and processes, and should have the potential to generate employment or create wealth. An entity formed by splitting up or reconstruction of an existing business shall not be considered a Start-up.

Indian start-up ecosystem which is one of the fastest growing networks in the world is presently 3rd largest network in the world. Start-ups are contributing significantly to the GDP and

also are playing a key role in generating new employment opportunities.

The present paper is organized as follows:

Section 1 - Objectives, Review of literature and Methodology of data

Section 2 - Analysis

Section 3 - Conclusion

Section 1:

Objectives:

This paper throws the light on

1. To understand the importance of start-ups for economic development and, to examine the growth trends of start-ups in India and their contribution to economic growth
2. To study the government policies and initiatives to support start-ups

Review of Literature:

Arshe Azam, (2021) Role of start-up India in economic development of India:

Start-up is a young entrepreneurial, protractible business model built on innovations & technology wherein the founders develop a product or service for which they anticipate the demand through interruption of existing or by creating entirely brand-new markets... So, Indian Government in the leadership of Narendra Modi has decided to offer a gift as a nation wise programme-" Start-up India". Start-up India is a revolutionary scheme that has been started to help the people who wish to start their own business. These people have ideas & capabilities, so the Government will give them support to make sure they can implement their ideas and grow.

Da Silva, L. S. C. V., Kaczam, F., de Barros Dantas, A., & Janguia, J. M. (2021). Start-ups: a Systematic Review of Literature and Future Research Directions.

It is broadly believed that start-ups are the engine of innovation and economic growth, creating jobs and providing long-term

opportunities for future economic development. There are a number of reasons why start-ups are so important. First, they are a source of job creation for young and ambitious entrepreneurs. For example, start-ups are responsible for almost half of the net job creation in the United States of America. As a result, they create new products and services that can transform everyday activities.

Patel, C. P., Guedes, M.J., Pagano, M.S., & Olson, G.T. (2020). Industry Profitability Matters: The Value of Sustainable Growth Rate and Distance From Bankruptcy as Enablers of Venture Survival

Research paper identifies many reasons why start-ups are important, but one of the most important is that they bring new ideas to the market. Start-ups are often at the forefront of innovation, developing new technologies and applications that can have a significant impact on society. For example, start-ups have been responsible for some of the most revolutionary technologies of the last decade, including social media, mobile apps and cloud computing.

Sabeena, MS & Rajan, R.A., Ayyappa (2020): Innovation start-up Business and Entrepreneurship.

Researchers found that entrepreneurship and innovation aren't just about making products for profit. Even established companies can use creative idea and entrepreneurial skills to strengthen their brand and reputation. Encouraging young people to come up with helpful inventions can lead them to become business owners themselves, which can increase the number of people wanting to start their own business.

Kumar, A., Singh, A and Kumar, P.,(2023): Role of start-ups in Promoting Inclusive growth in India:

Researchers concludes that start-ups are playing vital role in boosting the Indian economy by

creating new jobs, generating revenue, and attracting foreign investment

Methodology of Data:

The present paper is based mainly on secondary data. Secondary data is obtained from concerned published works viz...journals, reports, books, magazines, internet, Articles by scholars, etc.

Section 2:

Importance of start-ups for economic development:

To understand the importance of start-ups for economic development and, to examine the growth trends of start-ups in India and their contribution to economic growth

Number of recognized start-ups:

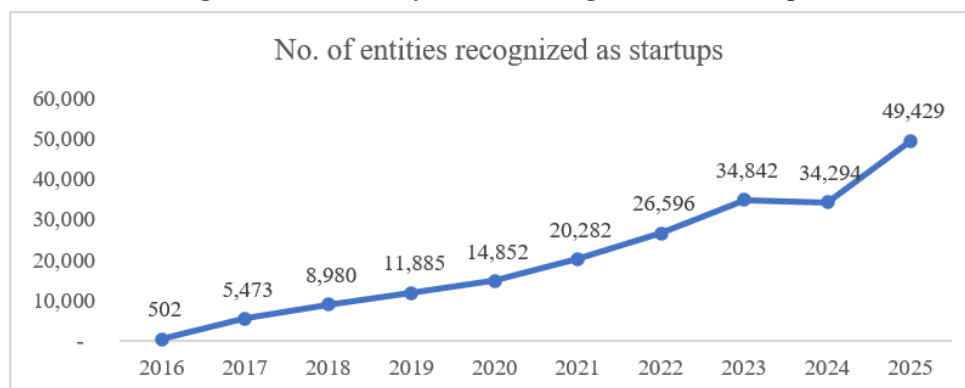
The start-ups in India are officially recognized by Department of Promotion of Industry and Internal trade (DPIIT). This helps the start-ups to avail tax benefits, fast-tracked patents, avail funding etc.

Table 1: Number of entities recognised as start-ups

Year	No. of entities recognized as start-ups	Growth in start-ups
2016	502	-
2017	5,473	990%
2018	8,980	64%
2019	11,885	32%
2020	14,852	25%
2021	20,282	37%
2022	26,596	31%
2023	34,842	31%
2024	34,294	-2%
2025	49,429	44%

Data source: PIB. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2227597>

Figure 1: Number of entities recognised as start-ups

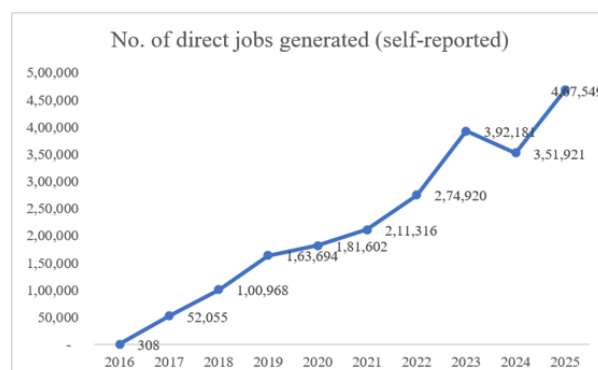


The median growth of start-ups has been a promising 32% over the last decade. This growth

stands as a proof to the sustained efforts of the various schemes of Start-up India initiative.

Number of Direct Jobs Generated:*Table 2: Number of direct jobs generated*

Year	No. of direct jobs generated (self-reported)	Growth in direct jobs
2016	308	-
2017	52,055	16801%
2018	1,00,968	94%
2019	1,63,694	62%
2020	1,81,602	11%
2021	2,11,316	16%
2022	2,74,920	30%
2023	3,92,181	43%
2024	3,51,921	-10%
2025	4,67,549	33%

Figure 2: Number of direct jobs generated

Data source: PIB. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2227597>

There is significant increase in the employment generated by the start-ups over the past. Start-ups have generated employed for skilled and semi-skilled workforce alike.

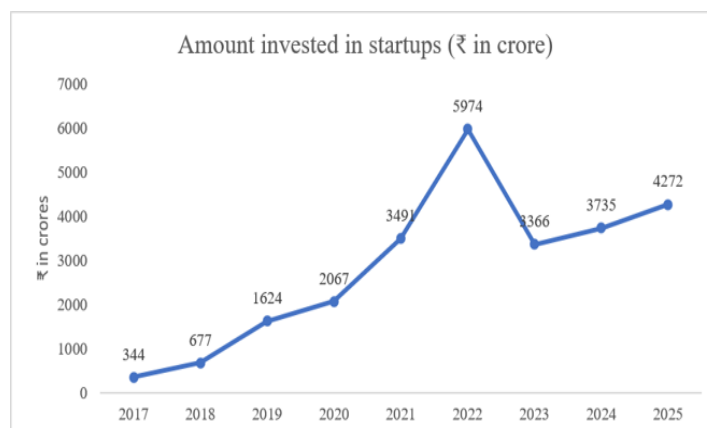
investments. SIDBI implements this scheme and provides funds to SEBI-registered AIF (alternative investment funds) which invest in start-ups through equity and equity-linked instruments.

Fund of Funds for start-ups:

Fund of funds for start-ups has been established to encourage venture capital

Table 3: Amount invested (₹ in crore) in start-ups through fund of funds

Year	Amount invested in start-ups (Rs. in crore)
2017	343.520
2018	676.842
2019	1623.555
2020	2066.888
2021	3491.006
2022	5973.741
2023	3366.478
2024	3734.869
2025	4271.600
2026 (Up to Jan 31)	311.400 ¹

Figure 3: Amount invested (₹ in crore) in start-ups through fund of funds

Data source: PIB. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2227597>

There has been consistent increase in the amount invested except for the year 2023. It is a normal cycle for businesses go through a period of funding winter. This was a period of funding late-stage start-ups. Investors and venture capitalists sought realistic valuations in contrast to the peak valuation in 2021 and 2022. This normalized the funding pattern with the return to pre-pandemic baseline investment levels. This period of 2023 and 2024 also saw a marginal decline in the number of start-ups registered.

Credit Guarantee Scheme for Start-ups (CGSS):

The Credit Guarantee Scheme for Start-ups (CGSS) is a government initiative designed to

make it easier for start-ups to access funding without having to put up collateral. Through this scheme, eligible businesses can secure loans of up to ₹20 crore from participating banks and financial institutions.

The scheme was formally approved and rolled out on October 6, 2022, by the Department for Promotion of Industry and Internal Trade (DPIIT), under the Government of India.

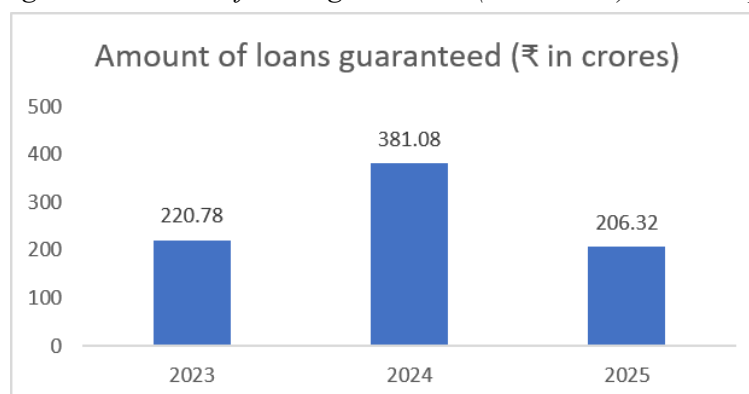
At its core, CGSS aims to support start-ups by giving them access to different types of debt funding — including working capital loans, term loans, and venture debt — all without requiring them to pledge any collateral.

Table 4: Amount of loans guaranteed (₹ in crores) to start-ups

Year	Amount of loans guaranteed (₹ in crores)
2023	220.78
2024	381.08
2025	206.32
2026 (Up to Jan 31)	117.72

Data Source: PIB <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2241313>

Figure 4: Amount of loans guaranteed (₹ in crores) to start-ups



Government policies and initiatives to support start-ups:

Supplementing Start-up India few ministry-led initiatives have been taken up by the government.

Table 5: Government schemes for start-ups in India

Scheme	Ministry	Objective
Atal Innovation Mission (AIM) 2016	NITI Aayog	Foster nationwide innovative culture
GENESIS (Gen-Next Support for Innovative Start-ups) (2022)	Ministry of Electronics & IT(Meity)	Deep-tech start-ups in TierII/III cities
Technology Incubation and Development of Entrepreneurs (TIDE)2.0 (2019)	Ministry of Electronics & IT(Meity)	ICT start-up incubation &scale up
Meity Start-up Hub (MSH) (2016)	Ministry of Electronics & IT(Meity)	Integrate tech start-up ecosystem
NIDHI (National Initiative for Developing and Harnessing Innovations) (2016)	Department of Science and Technology (DST)	Support S&T start-ups from Idea to market
Start-up Village Entrepreneurship Programme (SVEP) (2015)	Ministry of Rural Development	Promote rural entrepreneurship
ASPIRE (Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship) (2015)	Ministry of MSME	Strengthen rural enterprise incubators
Prime Minister Employment Generation Programme (PMEGP)(2008)	Ministry of MSME	Subsidised credit for self-employment

Data Source: PIB

Atal Innovation Mission (AIM):

Launched in **2016** by **NITI Aayog**, the Atal Innovation Mission (AIM) is the Government's flagship initiative that aims to foster a nationwide culture of innovation and entrepreneurship across schools, universities, research institutions, start-ups, and industry. With an **outlay of ₹2,750 crore up to March 2028**, AIM provides an integrated framework to design innovation programmes, enable partnerships, and strengthen India's start-up ecosystem.

While **AIM 1.0 focused on establishing innovation infrastructure and nurturing India's emerging ecosystem**, **AIM 2.0 (2024) is centred on piloting new initiatives that address ecosystem gaps and scaling proven models** in collaboration with Governments, industry, academia, and communities. It is also

strengthening the early-stage innovation pipeline by scaling the Atal Tinkering Labs (ATLs) ecosystem, which nurtures problem-solving and entrepreneurial mindsets among school students.

GENESIS (Gen-Next Support for Innovative Start-ups):

The GENESIS initiative, a National Deep-tech Start-up Platform by Ministry of Electronics and Information Technology (MeitY), was launched in July 2022, with an aim to scale up about 1600 technology start-ups through implementing agencies in Tier-II and Tier-III cities across India, providing significant funding and support for deep-tech innovation.

With a budgetary outlay of ₹490 crore spread over five years, the scheme is positioned to accelerate and strengthen India's rapidly

expanding technology start-up ecosystem through collaborative engagement among various stakeholders- start-ups, government institutions, academia, and corporates.

MeitY Start-up Hub (MSH):

Established in 2016, the MeitY Start-up Hub (MSH) under the Ministry of Electronics and Information Technology (MeitY) promotes technology-led innovation and strengthen India's start-up ecosystem. The Hub drives technology-led economic growth and innovation and acts as a central platform connecting incubation centres, Centres of Excellence on Emerging Technologies, and other platforms supported by the MeitY.

As of December 2025, the MeitY Start-up Hub (MSH) supports a thriving ecosystem comprising of over 6,148+ start-ups, more than 517 incubators and over 329 labs across the country

Technology Incubation and Development of Entrepreneurs (TIDE) 2.0 Scheme:

Anchored within the Ministry of Electronics and Information Technology (MeitY), the TIDE 2.0 Scheme was introduced in 2019 to catalyse technology-driven entrepreneurship by strengthening incubators that support Information and Communication Technology (ICT) start-ups using emerging technologies such as IoT, AI, blockchain and robotics. The supported thematic include Healthcare, Education, Agriculture, Financial Inclusion (including digital payments), Infrastructure and Transportation and Environment and Clean Tech. It further seeks to offer holistic support across seven thematic areas aligned with national priorities. Support is channelled through 51 incubators situated in top academic institutions and national research organisations across the country.

NIDHI (National Initiative for Developing and Harnessing Innovations):

The National Initiative for Developing and Harnessing Innovations (NIDHI), launched in 2016 by the Department of Science and Technology (DST), Ministry of Science and Technology, acts as an umbrella programme for nurturing ideas and innovations (knowledge-based and technology-driven) into successful start-ups. The programme focuses on building an innovation-driven entrepreneurial ecosystem with the objective of socio-economic development through wealth and job creation.

It has contributed to the economy by generating 1,30,000+ jobs, supported 12,000+ start-ups, backed 175+ Technology Business Incubator (TBI) and generated 1100+ IP (Intellectual Property).

Start-up Village Entrepreneurship Program (SVEP):

Implemented in May 2015 as a sub-scheme under the Deendayal Antyodaya Yojana– National Rural Livelihood Mission (DAY-NRLM), the SVEP aims to promote rural entrepreneurship by enabling households to set up and scale local enterprises.

ASPIRE (A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship):

Launched by the Ministry of MSME in 2015, the scheme aims to promote innovation and entrepreneurship in rural and underserved areas. It focuses on setting up Livelihood Business Incubators (LBIs) for micro-enterprise creation, skilling and re-skilling opportunities, and workforce supply to industrial clusters.

Prime Minister's Employment Generation Programme (PMEGP):

Conceived as India's flagship intervention to promote self-employment and grassroots enterprise creation, the Prime Minister's Employment Generation Programme (PMEGP) was brought into effect in 2008 by integrating the earlier Prime Minister's Rojgar Yojana (PMRY) and Rural Employment Generation Programme (REGP) into a single, streamlined framework. The scheme is implemented through the Khadi and Village Industries Commission (KVIC) under the Ministry of MSME, ensuring wide outreach and effective last-mile delivery.

Section 3:

Conclusion:

The study shows that start-ups in India are making significant progress. Start-ups are boon in the time of India's demographic dividend. The rising labour force which is an effect of demographic dividend is immensely benefited from the new employment opportunities offered by startups.

No doubt there are some challenges such as, 75% of Indian start-ups disappear within the first five years because they run out of capital, the product is not suited to the market or growth potential is limited (NASSCOM 2023), skill gaps in fields such as AI, data analytics etc., difficulty of good installation for those start-ups which are set up in Tier II and Tier III cities etc.

But with all these challenges Startups in India could mark itself as 3rd largest in the world with the support from the government's timely schemes, policies and guidance.

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WEB LINKS

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The Origins of Entrepreneurship: Business Practices in Ancient Civilizations

Dr. Shrinivas Ajur

*Principal/ Assistant Professor, Dept of History,
SGRKS First Grade Women's College, Harihara.*

Corresponding Author - Dr. Shrinivas Ajur

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Abstract:

Entrepreneurship is considered an important factor for promoting economic development, innovation, and progress in society. While generally seen in the context of modern capitalist societies, entrepreneurial activities have always existed from the times of ancient human civilization. This paper investigates the origin of entrepreneurship by discussing the business operations of ancient civilizations like Mesopotamian Civilization, Egyptian Civilization, Indus Valley Civilization, Chinese Civilization, Ancient Greek Civilization, and Roman Civilization. All these civilizations had developed well-organized systems of trade, commerce, production, taxation, contractual practices, and monetary transactions, which became the basis of modern entrepreneurship practices. The merchants, artisans, farmers, and traders of ancient civilizations exhibited entrepreneurial traits of innovation, risk-taking, opportunism, and resourcefulness. The discussion in this paper emphasizes the role played by business institutions, legal systems, standardization of weights and measurements, banking systems, and long-distance trading in economic development and commercialization. The historical record reveals that ancient entrepreneurs were not only responsible for conducting business but also for making technological advancements, cultural interaction, and creating urban centers. As reported in the GEM 2024/25 Report, entrepreneurship remains an important driver of economic development, with over 305 million people worldwide practicing entrepreneurship. The history of entrepreneurship shows us how many of today's practices in business started thousands of years ago. This is important to know because it will give us an understanding of how the systems of business have evolved. We find out that entrepreneurship is an ageless economic activity that was created through the commercial achievements of the ancient civilizations, and it is needed for sustainable development, employment, and international economics of the twenty-first century.

Keywords: *Entrepreneurship, Ancient Civilizations, Business Practices, Trade and Commerce, Merchants, Innovation, Economic History, Mesopotamia, Indus Valley Civilization, Commercial Development.*

Introduction:

Entrepreneurship is one of the most ancient activities in human civilization. While today's entrepreneurship entails startups, technological innovation, venture capital, and international business, it has been going on since the beginning of time, in the ancient civilizations of thousands of years ago. The practice of entrepreneurship grew out of the necessity of

manufacturing goods, trading, allocating resources, and earning wealth from trade. Ancient entrepreneurs were people who saw economic opportunities, allocated production, took risks, and conducted transactions in exchange for goods in different regions. This gradually developed into a system of business that exists today.

The first indication of organized entrepreneurship can be seen in Mesopotamia

about 3500 BC, often called the "Cradle of Civilization." Merchants were dealing with agricultural products, fabrics, metals, and luxurious items along the caravan routes that connected Mesopotamia to Persia, Anatolia, Egypt, and the Indus Valley Civilization. Transactions of commerce were written in cuneiform script on clay tablets, which is considered one of the earliest forms of bookkeeping. The Code of Hammurabi (c.1754 BCE) contained legal principles that governed business dealings, partnerships, payment, wages, loans, credits, and property rights.

Just like that, Ancient Egypt came up with an extremely well-developed economy based on agriculture, craftwork, and trade with other civilizations. Egyptian traders went to Nubia, Punt, and Mediterranean areas to acquire such goods as gold, ivory, incense, timber, and precious stones. Markets and taxation systems controlled by the government were used for business exchanges, while craftwork provided Egyptians with textiles, jewelry, furniture, papyrus, pottery, and other products.

Another example of an ancient civilization with well-developed business activities is the Indus Valley Civilization (2600-1900 BC). It was characterized by great business acumen in the form of standard weights and measurements, markets in the cities, warehouses, and trade routes connecting Mesopotamia and Central Asia. Archaeological findings show bead-making industry, textile production, metallurgy, and maritime trade through such ports as Lothal.

Another important civilization in terms of business is Ancient China of the Zhou, Qin, and Han Dynasties. The well-known Silk Road, which appeared in the Han Dynasty, connected China with Central Asia, India, Persia, and even Europe to trade such goods as silk, ceramics, tea, spices, and technologies. Merchants' families and credit

systems helped in developing business acumen there.

Similarly, Ancient Greece promoted entrepreneurship through private enterprise, maritime trade, banking, and financial services. Greek businessmen created colonies and trading posts in Mediterranean regions, whereas private banks offered loans, deposits, and foreign exchange services. Ancient Rome enhanced commercial transactions through building around 400,000 kilometers of roads, out of which 80,000 kilometers were paved highways, facilitating the movement of commodities and people across the Roman Empire. Roman legal systems improved commercial agreements, property laws, partnerships, and taxes; thus, creating vital principles of today's commercial laws.

The evolution of entrepreneurship has continued for many centuries with the same key features of innovation, opportunism, risk-taking, and value creation. As per Global Entrepreneurship Monitor (GEM) 2024/25, around 305 million adults are involved in the early stage of entrepreneurial activities. According to the World Bank figures, MSMEs contribute around 90 percent to total business establishments in the world economy and create over 50 percent of employment in the world economy. In India, the Ministry of Micro, Small and Medium Enterprises estimated that over 6.3 crore MSMEs are contributing around 30 percent of GDP, 36 percent of manufacturing, and 45 percent of exports of India.

It is therefore necessary to understand the origins of entrepreneurship because many of the present-day business notions such as accounting, contracts, banking, taxation, partnership, market regulation, and international business were formed in the ancient civilization itself. The study will help us to gain a lot of information regarding the history of entrepreneurial ideas and their evolution within society. It will further show us

that entrepreneurship is not a modern economic activity but an ongoing process that has been shaping human civilization for more than 5000 years.

Need for the Study:

Entrepreneurship has emerged as one of the key forces behind economic growth, job creation, and technological advancement in the current era. However, when we talk about entrepreneurship, our emphasis is generally on modern-day business organizations and digital businesses, and very little importance is paid to the history of entrepreneurship. Ancient civilizations developed highly advanced business systems comprising trade, finance, contracts, production, and markets, which played an important role in the development of modern-day entrepreneurship.

This study is significant in that it considers the role played by great ancient civilizations like Mesopotamia, Egypt, Indus Valley, China, Greece, and Rome in entrepreneurship. Their contributions in terms of innovations in business, accounting, laws, transportation, banking, and international trade still inform the way businesses are done today. Moreover, this study shows the fact that entrepreneurship is not an invention of industrialization, but it has been around ever since civilized societies came into being. The results of this research will benefit students, researchers, historians, economists, and entrepreneurship experts through historical insight into the process of entrepreneurial development.

Statement of the Problems:

The role of entrepreneurship in fostering economic growth, innovation, employment, and social change is well recognized. In spite of its importance, current research focuses on modern entrepreneurship, technological innovations,

startup environments, and industry development without giving any heed to the historical roots of entrepreneurial activity. Early civilizations developed organized business systems through trade, production, financial transactions, contracts, taxes, and market regulation, which laid the foundation for modern-day business organizations. Nevertheless, little has been done to investigate the contribution of these early business systems to entrepreneurship.

Lack of historical perspective is a lacuna in exploring the continuum of entrepreneurial ideas from one civilization to another. Business activities in Mesopotamian, Egyptian, Indus Valley, Chinese, Greek, and Roman civilizations exhibit many parallels with today's entrepreneurial ideas in terms of innovation, specialization, risk management, accounting, partnerships, and international trade. Yet, these contributions are addressed separately in the fields of archaeology and economic history rather than entrepreneurship literature.

Thus, there should be an analysis of the roots of entrepreneurship through the study of the business practices of ancient civilizations. This kind of analysis will not only offer greater insights into the history of the development of entrepreneurship but also prove the continuous existence of business institutions throughout history.

Review of Literature:

1. Joseph A. Schumpeter (1934), In the Theory of Economic Development (1934), Schumpeter characterized entrepreneurs as those who introduced innovations such as the introduction of new products, new ways of production, new markets and new forms of organizations. He stressed innovation and 'creative destruction' as the main drivers of economic development. Hence, he made entrepreneurship a crucial component for economic development.

2. Peter F. Drucker (1985), In his book titled *Innovation and Entrepreneurship* (1985), Drucker referred to entrepreneurship as a systematic science where one seeks out opportunities and creates value through innovations. In this case, he stressed effective use of resources and strategic management coupled with innovation.

3. Mark Casson (1982), Mark Casson characterized entrepreneurs as individuals with good judgement and decision-making capabilities in his book, *The Entrepreneur: An Economic Theory* (1982). In this regard, he stresses the recognition of opportunities, efficiency in coordinating of resources, and decision-making under uncertainty as the main characteristics of an entrepreneur.

4. David S. Landes (1998), In the book *The Wealth and Poverty of Nations* (1998) looked into the interaction of entrepreneurship, technology, institutions, and development. Landes believed that good commercial institutions, property rights, and entrepreneurship play a crucial role in the economic success and competitiveness of nations.

5. William J. Baumol (1990), Baumol noted that entrepreneurship is present in all societies; however, the economic contribution of entrepreneurs depends on the set of institutions. Baumol, in the work *Entrepreneurship: Productive, Unproductive and Destructive* (1990) focused on the importance of the legal and economic environment, which promotes productive entrepreneurship and economic development.

6. David S. Landes, Joel Mokyr, and William J. Baumol (2009), Landes, Mokyr, and Baumol in their work *The Invention of Enterprise* (2009) described the development of entrepreneurship from ancient times in Mesopotamia to the modern period of time. Trade, innovations, commercial institutions, banks, and merchants were developing in different civilizations for centuries

and formed the basis of entrepreneurship and business.

Objectives of the Study:

1. To examine the origin and evolution of entrepreneurship through the business practices of ancient civilizations.
2. To analyse the commercial institutions, trade systems, and entrepreneurial activities of Mesopotamia, Egypt, the Indus Valley Civilization, China, Greece, and Rome.
3. To evaluate the contribution of ancient business practices to the development of modern entrepreneurial concepts, commercial institutions, and economic systems.

Methodology:

In this study, a descriptive and historical research approach has been adopted to analyze the history and evolution of entrepreneurship in ancient civilizations. The study has been carried out purely based on secondary data gathered from credible sources like books, journals, historic records, archaeological reports, government documents, and documents released by international organizations, such as the Global Entrepreneurship Monitor, World Bank, Organisation for Economic Co-operation and Development, and United Nations Conference on Trade and Development. Six major ancient civilizations, which include Mesopotamia, Egypt, Indus Valley Civilization, China, Greece, and Rome, have been studied to analyze their trade systems and entrepreneurial activities. Data analysis has been carried out by applying the approaches of historical, descriptive, comparative, and content analysis in order to trace the evolution of the concept of entrepreneurship and its impact on modern business systems.

Scope of the Study:

The scope of the study centers around the entrepreneurial activities of six great ancient civilizations:

- Mesopotamia
- Ancient Egypt
- Indus Valley Civilization
- Ancient China
- Ancient Greece
- Ancient Rome

It looks at their system of trade, production, commerce, banks, laws, and entrepreneurship, and their impact on the development of modern business activities.

Limitations of the Study:

- The study is limited to secondary sources only.
- It is dependent on history, which might not be complete or accurate.
- It is limited to selected ancient civilizations and does not discuss all ancient commercial civilizations.

Analysis:**The origin and evolution of entrepreneurship through the business practices of ancient civilizations.**

Historical origins of entrepreneurship can be found in the emergence of civilized societies during the period between 3500 BCE and 500 BCE. It is evident from archaeological findings that there has been a transformation of economic activities from subsistence to organized commerce. The oldest example of entrepreneurship can be seen in Mesopotamia (c. 3500 BCE), where businessmen engaged in long-

distance trade including agricultural commodities, textiles, copper, timber, and precious stones. The clay tablets from Ur, Uruk, and Lagash provide records of commercial agreements, credits, wages, and inventories, suggesting a high degree of sophistication in business management.

Similar to the case of Mesopotamia, Ancient Egypt (3100–30 BCE) had an economy based on agriculture, handicraft industry, and international business. They conducted their business through the Nile River as well as sea trade between Egypt and Nubia, Punt, and the Mediterranean. The Indus Valley civilization (2600-1900 BCE) introduced the use of standard measurement and weight as well as markets, granaries, and docking yards like Lothal.

The establishment of the Silk Road (circa 2nd century BCE) in Ancient China increased international business through the connection between East Asia, Central Asia, Persia, and Europe. In Ancient Greece, private enterprises were encouraged through oceanic trade, whereas the Ancient Romans created a robust commercial network of about 400,000 km of roadways, making commerce possible across their empire.

It is recorded that these ancient civilizations used some critical entrepreneurial practices, including commercial transactions, banking, partnerships, tax systems, documentation, and market management. These examples show that entrepreneurship was a gradual process through which innovations, opportunities, specialization, and risks were taken in order to create businesses. Therefore, entrepreneurship is a process of economic development that began from the time of human organization.

Data Table 1: Evolution of Entrepreneurship in Ancient Civilizations

Civilization	Period	Major Entrepreneurial Activity	Evidence
Mesopotamia	3500–539 BCE	Trade, contracts, accounting	Clay tablets
Egypt	3100–30 BCE	Agriculture, handicrafts, international trade	Papyrus records
Indus Valley	2600–1900 BCE	Urban markets, standardized weights	Archaeological excavations
China	Han Dynasty	Silk Road trade	Historical chronicles
Greece	800–146 BCE	Maritime trade, banking	Commercial records
Rome	509 BCE–476 CE	Commercial law, road network	Roman legal documents

Source: Compiled by the researcher from *The Invention of Enterprise: Entrepreneurship from Ancient Mesopotamia to Modern Times* (Baumol, Landes, & Mokyr, 2009); *The Wealth and Poverty of Nations* (Landes, 1998); Schumpeter (1934).

The commercial institutions, trade systems, and entrepreneurial activities of Mesopotamia, Egypt, the Indus Valley Civilization, China, Greece, and Rome.

From the comparative study of ancient civilizations, it is evident that each civilization formed its own distinct commercial system that facilitated the activities of entrepreneurs. One of the earliest legal codes was formed by Mesopotamia in the form of the Code of Hammurabi (1754 BCE). This legal code facilitated transactions such as contracts, loans, partnerships, wages, and business disputes in commerce.

The civilization of ancient Egypt utilized the rivers to develop the practice of trading while developing organized taxation, storage of grains, and crafts industries. Government-controlled market systems helped artisans and merchants to make business dealings successfully. The Indus Valley Civilization formed one of the earliest urban business systems in the world by using standard brick buildings, storage facilities, a drainage system, a dockyard, and weights that helped in trading domestically and internationally.

Ancient China formed a platform for trading activities through the Silk Road, where entrepreneurs traded with other civilizations through products such as silk, tea, ceramics, iron, and paper. The formation of merchant guilds and the minting of coins further helped in the activities of commerce. In Ancient Greece, marine trade helped to develop financial services where private bankers provided deposits, currency exchange, and business loans.

Roman civilization developed the most integrated business system of all the ancient civilizations. Roman commercial legal systems supported property rights, contract laws, and business associations. The extensive road networks of the Roman Empire and its maritime ports greatly lowered the cost of transport and fostered specialization of production.

Despite different forms of such institutions across civilizations, collectively, they helped in developing market integration, finance, commercial regulations, and business growth. Such institutions formed the basis of the entrepreneurial system of today's world.

Data Table 2: Commercial Institutions in Ancient Civilizations

Institution	Mesopotamia	Egypt	Indus	China	Greece	Rome
Commercial Laws	✓	✓	Limited	✓	✓	✓✓
Banking	Limited	No	Limited	Moderate	✓	✓✓
Standard Weights	Limited	Limited	✓✓	✓	✓	✓
Currency	Silver	Barter/Metal	Barter	Coins	Coins	Coins
International Trade	High	High	High	Very High	Very High	Very High
Accounting	Clay Tablets	Papyrus	Seals	Records	Accounts	Ledgers

Source: Compiled by the researcher from Casson (1982); Drucker (1985); Baumol, Landes, & Mokyr (2009); archaeological and historical literature.

The contribution of ancient business practices to the development of modern entrepreneurial concepts, commercial institutions, and economic systems.

Current-day entrepreneurship has progressed from the commercial roots laid by ancient civilization. Historical facts have shown that many current institutions in business, such as accounting, banking, contracts, partnerships, taxation, logistics, and foreign trade, were first developed in ancient commercial institutions. For instance, the earliest form of business accounting was the clay tablet accounting system in Mesopotamia, and Roman commercial laws have influenced many modern-day business laws.

Entrepreneurship has continued its development even in the present twenty-first century as innovation, technology, and globalization have greatly changed business practices. Even in the midst of these changes, there is no alteration in the entrepreneurial traits like opportunity recognition, innovation, resource management, and risk-taking. In the report for GEM 2024/25, it has been estimated that about

305 million people throughout the world are involved in entrepreneurial activities. The same World Bank report also says that Micro, Small and Medium Enterprises (MSMEs) form 90 percent of businesses in the world and account for more than 50 percent of total employment.

The Indian Ministry of MSME asserts that more than 6.3 crore MSMEs account for about 30% of GDP of the nation, 36% of manufacturing output, and nearly 45% of exports in India. All these accomplishments result from the prolonged historical development of entrepreneurship from ancient business economy to contemporary industrial and digital entrepreneurship.

The above comparison clearly shows that the nature of entrepreneurship has been evolving according to the changes in the economic environment while keeping intact its basic qualities. The ancient advancements in the organization of commerce, finance, transport, and laws have greatly impacted today's business practices all over the world. This is why the historical background of entrepreneurship can help form sound policies of entrepreneurship.

Data Table 3: Ancient Practices and Modern Entrepreneurial Systems

Ancient Business Practice	Modern Equivalent
Clay tablet accounting	Computerized accounting (ERP, Tally)
Merchant partnerships	Partnership firms and LLPs
Caravan trade	International logistics and supply chains
Silk Road	Global trade corridors
Roman roads	National highways and transport networks
Standardized weights	ISO standards and quality certification
Metal coins	Digital payments and online banking
Commercial contracts	Modern contract and corporate law

Source: Compiled by the researcher using data from the *Global Entrepreneurship Monitor (2024/25)*, *World Bank (2024)*, *Organisation for Economic Co-operation and Development (2024)*, and *Ministry of Micro, Small and Medium Enterprises Annual Report (2023–24)*.

Findings:

Based on the analysis of *The Origins of Entrepreneurship: Business Practices in Ancient Civilizations*, the key findings include the following:

1. Entrepreneurship Emerged in Ancient Civilizations:

The study reveals that entrepreneurship did not appear in modern times, but rather it started developing in ancient civilizations, including Mesopotamia, Egypt, the Indus Valley, China, Greece, and Rome. Early entrepreneurs performed agricultural, trading, handicrafting, and commercial operations.

2. Trade and Commerce Became the Engines of Entrepreneurship:

Formation of local and international trade networks prompted traders to explore markets, organize resources, and assume risks. Such trade routes as the Silk Road, the Royal Road, and the Mediterranean Sea route made considerable contributions to the development of entrepreneurship.

3. Commercial Institutions Stimulated Business Growth:

Ancient civilizations created commercial institutions, such as contracts, partnerships, taxation systems, standardization of weights and measures, bookkeeping, etc., which provided the

right conditions for the development of entrepreneurship.

4. Innovation and Specialization Boosted Economic Growth:

It was found that innovations related to the process of manufacturing, specialization of craftsmanship, metallurgy, irrigation, ships, and transportation increased efficiency and stimulated business growth. Innovations by entrepreneurs helped civilizations grow in trade, wealth generation, and city-building.

5. Entrepreneurship in Ancient Times Affected Modern Practices:

Numerous entrepreneurial practices of today, such as accounting, banking, business contracts, partnership companies, market regulations, logistics, and financial management, have their ancient roots. This shows how the spirit of entrepreneurship remains unchanged throughout history.

6. Infrastructure and Codes of Laws Favored Entrepreneurship:

Roads, ports, warehouses, markets, and irrigation networks, along with laws such as the Code of Hammurabi and Roman commercial law, contributed to the institutional framework of business. These innovations led to the integration of markets and stimulated long-distance trade.

7. Entrepreneurs Influenced Economic and Social Development:

Entrepreneurial actions contributed to job creation, urbanization, innovation, cultural exchange, and wealth creation. Ancient entrepreneurs had a substantial effect on regional economic growth and the betterment of life through productive business activities.

8. Historical Entrepreneurship is Relevant to the Current Economy:

According to the findings of the paper, the core elements of entrepreneurship such as innovation, opportunities, risks, resources, and value have been the same since the days of ancient civilizations up to the current day. It can be noted that knowledge of the history of entrepreneurship is important for the modern economy.

Recommendations:

In light of the results of the investigation, the following recommendations can be made:

- **Improve Entrepreneurship Education:** Universities must include history lessons in the study programs of business and management to help students comprehend the development of business practices.
- **Spread Knowledge about History of Business:** Academicians and policymakers must promote the study of economic history, archaeology, and entrepreneurship.
- **Protect and Make Use of Historical Heritage:** Governments should take measures to protect archaeological places, ancient trading hubs, and historical business archives, which serve as a rich source of knowledge.
- **Create Good Commercial Institutions:** Modern economies should work toward developing a good legal system, strong property rights, contract enforcement, financial institutions, and market regulation because such institutions have played their role in promoting entrepreneurship.

- **Promote Innovations:** Entrepreneurs must be motivated by policy measures and other facilities like incubation centres.

Conclusion:

Entrepreneurship has been one of the key driving forces of both economic and social development from the beginning of the first human civilizations. Thus, the research undertaken during the project indicates that the roots of entrepreneurship have to be sought in the organized commercial activity of ancient civilizations including Mesopotamia, Egypt, the Indus Valley civilization, China, Greece, and Rome. Ancient civilizations have created complex systems of trade, production, finance, transportation, and market regulation that became the foundation of contemporary business and entrepreneurship practice. Historical data proves that merchants, artisans, craftsmen, and traders have become one of the first entrepreneurs who saw market opportunities, organized resources, took business risks, and earned money by being innovative and conducting commercial exchange. Moreover, ancient civilizations have developed some institutions that have played an important role in the development of modern entrepreneurship. Commercial contracts, weights and measures standards, accounting, banking practices, taxation, partnerships, property rights, and legal environment have helped businessmen to increase the efficiency of their activity and stimulate economic development. Moreover, the creation of trade routes such as the Silk Road and the Mediterranean maritime route not only allowed the transportation of goods but also technology and culture exchanges and knowledge spreading.

Objective wise study shows that entrepreneurship has continuously evolved through time, maintaining its fundamental features of innovation, opportunity identification, mobilizing resources, taking risks, and creating

value. Even though contemporary entrepreneurship takes place in a technologically advanced and globally connected environment, its basic elements have been derived from commercial innovation processes of ancient societies. This study also indicates that current-day business institutions such as accounting, banks, corporate partnerships, logistics, and international trade have been historically derived from the entrepreneurship systems of ancient times.

In today's global economy, entrepreneurship plays a vital role in innovation, job creation, industry development, and sustainable economic growth. Ancient civilization experiences are important lessons for policymakers, educators, researchers, and entrepreneurs regarding the significance of commercial institutions, law, infrastructure, and an innovative environment. Thus, learning the origin of entrepreneurship is not only significant for the study of economic history but also for entrepreneurship education and policymaking. This study finds that entrepreneurship is an age-old and universal economic phenomenon, whose evolution is reflected in the continuous innovation and prosperity of human society.

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Government Grants and Loans in Entrepreneurial Development

Sunita Navale

Research Scholar, Department of Commerce,

Srinivas University, Mangalore.

Corresponding Author - Sunita Navale

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Abstract:

Entrepreneurship is a key driver of economic growth, innovation, employment generation, and regional development. However, one of the major challenges faced by entrepreneurs, particularly startups and micro, small, and medium enterprises (MSMEs), is the lack of adequate financial resources. To address this challenge, governments provide grants, loans, subsidies, and financial assistance through various schemes and institutions. Government grants offer financial support without repayment obligations, whereas government loans provide affordable credit with lower interest rates and flexible repayment options. These financial instruments encourage innovation, promote self-employment, reduce unemployment, and strengthen the entrepreneurial ecosystem. In India, initiatives such as the Pradhan Mantri Mudra Yojana (PMMY), Prime Minister's Employment Generation Programme (PMEGP), Stand-Up India, Startup India, Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE), and financial assistance from the Small Industries Development Bank of India (SIDBI) have significantly contributed to entrepreneurial development. This paper examines the role of government grants and loans in promoting entrepreneurship, analyses their benefits and challenges, and evaluates their contribution to sustainable economic development. The study is based on secondary data collected from books, research articles, government reports, and official publications. The findings indicate that government financial support enhances business creation, employment generation, innovation, and inclusive economic growth. The paper also provides recommendations to improve awareness, accessibility, and effective implementation of government support programmes.

Keywords: *Entrepreneurship, Government Grants, Government Loans, Entrepreneurial Development, MSMEs, Startup India, Financial Assistance.*

Introduction:

Entrepreneurship has become one of the most important factors in promoting economic development, employment generation, innovation, and social progress. Entrepreneurs create new business opportunities, introduce innovative products and services, and contribute significantly to national income. However, establishing and expanding a business requires adequate financial resources, which are often difficult for new entrepreneurs to obtain from commercial financial institutions due to limited

collateral, high borrowing costs, and business risks.

Recognizing these challenges, governments across the world provide financial support through grants, loans, subsidies, and credit guarantee schemes. Government grants help entrepreneurs start or expand businesses without repayment obligations, while government loans provide affordable financing with favorable interest rates and repayment terms. These initiatives encourage entrepreneurship, support

MSMEs, reduce unemployment, and promote balanced regional development.

In India, the Government has launched several schemes such as Startup India, Stand-Up India, PMEGP, PMMY (MUDRA), and CGTMSE to strengthen the entrepreneurial ecosystem. These programmes are designed to support youth, women entrepreneurs, Scheduled Castes (SCs), Scheduled Tribes (STs), and economically weaker sections by providing financial assistance, skill development, mentoring, and market access.

This research paper examines the significance of government grants and loans in entrepreneurial development, evaluates major government schemes, identifies challenges in accessing financial support, and suggests measures to improve their effectiveness. The study highlights the crucial role of government financial assistance in fostering sustainable entrepreneurship and inclusive economic growth.

Review of Literature:

A review of literature provides an understanding of previous studies related to government grants, loans, and entrepreneurial development.

Drucker (1985) emphasized that entrepreneurship is driven by innovation and that financial support is essential for entrepreneurs to transform innovative ideas into successful business ventures.

Hisrich, Peters, and Shepherd (2020) observed that access to finance is one of the most important determinants of entrepreneurial success. Government-supported financial programmes reduce the financial burden on startups and encourage business expansion.

OECD (2021) reported that government grants and concessional loans improve the survival rate of small and medium enterprises (SMEs) by

supporting innovation, technology adoption, and employment generation.

Ministry of MSME (2023) highlighted that schemes such as PMEGP, MUDRA, and CGTMSE have significantly increased credit access for micro and small enterprises, particularly in rural and semi-urban areas.

Previous studies indicate that although government financial assistance has improved entrepreneurial development, challenges such as lack of awareness, procedural delays, and inadequate financial literacy continue to affect the effective utilization of these schemes.

Statement of the Problem:

Entrepreneurs play a vital role in economic growth, but many face financial constraints during the establishment and expansion of their businesses. Access to credit from commercial banks is often limited due to collateral requirements, high interest rates, and perceived business risks. Although the Government of India has introduced various grant and loan schemes, many entrepreneurs remain unaware of these programmes or face difficulties in accessing them because of complex procedures and documentation requirements. Therefore, it is necessary to examine the effectiveness of government grants and loans in promoting entrepreneurial development and identify measures to improve their accessibility and implementation.

Objectives of the Study:

The study aims to:

1. Examine the concept of government grants and loans in entrepreneurial development.
2. Identify major government financial assistance schemes available for entrepreneurs in India.
3. Analyze the role of government financial support in promoting entrepreneurship.

4. Examine the challenges faced by entrepreneurs in accessing government grants and loans.
5. Suggest measures to improve the effectiveness of government financial assistance programmes.

Research Methodology:

The present study is based on secondary data. Information has been collected from books, peer-reviewed journals, research papers, government reports, official websites of the Ministry of MSME, SIDBI, Startup India, RBI publications, and other authentic academic sources.

Research Design:

The study is descriptive and analytical in nature.

Sources of Data:

- Books on Entrepreneurship
- Research journals
- Government reports
- Ministry of MSME publications
- SIDBI reports
- Startup India documents
- RBI publications
- Published articles and conference papers

Scope of the Study:

The study focuses on the role of government grants and loans in promoting entrepreneurial development in India, with special reference to MSMEs, startups, and self-employment schemes.

Limitations of the Study:

- The study is based only on secondary data.
- It does not include primary survey data.
- Government schemes may change over time with new policy announcements.

Government Grants and Loans: Concept and Importance:**Government Grants:**

Government grants are financial assistance provided by the government to entrepreneurs without requiring repayment, provided the grant conditions are fulfilled. These grants are intended to encourage innovation, support new business ventures, promote research and development, and generate employment. Grants are especially useful for startups, women entrepreneurs, rural enterprises, and businesses operating in priority sectors.

Government Loans:

Government loans are financial assistance offered through banks and financial institutions at concessional interest rates and with flexible repayment terms. Unlike grants, these loans must be repaid. They help entrepreneurs establish, expand, modernize, and diversify their businesses. Many government loan schemes also provide credit guarantees, reducing the need for collateral and making finance more accessible.

Importance of Government Grants and Loans
Government financial assistance plays a significant role in entrepreneurial development by:

- Providing access to affordable finance.
- Encouraging self-employment and reducing unemployment.
- Promoting innovation and technological advancement.
- Supporting Micro, Small, and Medium Enterprises (MSMEs).
- Encouraging women, youth, SC/ST, and rural entrepreneurs.
- Enhancing industrial development and regional balance.
- Improving business sustainability and competitiveness.

Major Government Grant and Loan Schemes in India

Pradhan Mantri Mudra Yojana (PMMY):



The Pradhan Mantri Mudra Yojana provides collateral-free loans to micro and small businesses through banks, NBFCs, and microfinance institutions. Loans are available under three categories:

- **Shishu:** Up to ₹50,000
- **Kishor:** ₹50,001 to ₹5 lakh
- **Tarun:** Above ₹5 lakh up to ₹10 lakh (with higher limits under updated provisions where applicable)

The scheme supports small entrepreneurs, shopkeepers, artisans, and service providers.

Prime Minister's Employment Generation Programme (PMEGP):



PMEGP

Prime Minister's Employment Generation Programme

PMEGP is implemented by the Khadi and Village Industries Commission (KVIC). It provides financial assistance for establishing new micro-enterprises in manufacturing and service sectors.

Objectives:

- ✓ Generate employment opportunities.
- ✓ Promote rural entrepreneurship.
- ✓ Encourage self-employment among youth.

Startup India:



Startup India was launched to build a strong startup ecosystem in India. It provides:

- Financial support through government-backed funding initiatives.
- Tax benefits for eligible startups.
- Simplified registration and regulatory compliance.
- Incubation and mentoring support.
- Intellectual Property Rights (IPR) assistance.

Stand-Up India:



Stand-Up India promotes entrepreneurship among Scheduled Castes (SCs), Scheduled Tribes (STs), and women entrepreneurs by facilitating bank loans for setting up greenfield enterprises in manufacturing, services, and trading sectors.

Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE):



CGTMSE provides collateral-free credit guarantees to eligible MSMEs, enabling entrepreneurs without substantial assets to obtain bank finance more easily.

Small Industries Development Bank of India (SIDBI):



SIDBI is the principal financial institution for promoting and financing MSMEs. It provides:

- Term loans
- Working capital assistance
- Startup financing
- Technology upgradation support
- Credit enhancement programmes

Role of Government Financial Assistance in Entrepreneurial Development:

Government grants and loans have significantly strengthened entrepreneurship in India. Their major contributions include:

Employment Generation:

Financial assistance enables entrepreneurs to establish new enterprises, creating direct and indirect employment opportunities.

Promotion of Innovation:

Government funding encourages entrepreneurs to develop innovative products, adopt modern technologies, and improve business processes.

Development of MSMEs:

MSMEs contribute substantially to India's GDP and exports. Government financial support helps these enterprises improve productivity and competitiveness.

Rural Development:

Schemes such as PMEGP and MUDRA encourage entrepreneurship in rural and semi-urban areas, reducing regional economic disparities.

Women Empowerment:

Special financial schemes encourage women entrepreneurs to establish businesses, promoting financial independence and inclusive economic growth.

Inclusive Economic Development:

Government grants and loans support entrepreneurs from economically weaker sections, ensuring broader participation in economic development.

Challenges Faced by Entrepreneurs in Accessing Government Grants and Loans:

Although the Government of India has introduced several financial assistance schemes, entrepreneurs continue to face many challenges in accessing these benefits.

Lack of Awareness:

Many aspiring entrepreneurs, particularly in rural and semi-urban areas, are unaware of the various government grant and loan schemes available to them.

Complex Documentation:

The application process often requires extensive documentation, making it difficult for first-time entrepreneurs to complete the formalities.

Delay in Loan Sanction:

Lengthy verification procedures and administrative delays discourage entrepreneurs from applying for government financial assistance.

Limited Financial Literacy:

Many entrepreneurs lack knowledge of financial planning, banking procedures, and business management, reducing their ability to access and effectively utilize government support.

Inadequate Monitoring:

Some schemes suffer from weak monitoring and follow-up mechanisms, resulting in inefficient implementation and misuse of funds.

Regional Disparities:

Entrepreneurs in remote and underdeveloped regions often have limited access to financial institutions and business support services.

Findings of the Study:

The study reveals the following findings:

- Government grants and loans are essential for promoting entrepreneurship and economic development.
- Financial assistance encourages business creation, innovation, and employment generation.
- Government schemes have significantly improved access to finance for MSMEs, startups, women entrepreneurs, and disadvantaged groups.
- Lack of awareness and complicated application procedures remain major barriers.
- Digital banking and online application systems have improved accessibility but require greater digital literacy.
- Continuous policy support is necessary to strengthen India's entrepreneurial ecosystem.

Suggestions:

Based on the findings, the following suggestions are proposed:

- Increase awareness about government schemes through educational institutions, entrepreneurship development centers, and digital media.
- Simplify application procedures and documentation requirements.

- Strengthen financial literacy and entrepreneurship training programmes.
- Improve transparency and accountability in the implementation of financial assistance schemes.
- Expand digital banking services in rural and remote areas.
- Encourage stronger collaboration among government agencies, banks, incubation centers, and industry associations.
- Conduct regular evaluation of government schemes to improve their effectiveness.

Conclusion:

Government grants and loans play a crucial role in entrepreneurial development by providing financial assistance to startups, MSMEs, and emerging entrepreneurs. These initiatives reduce financial barriers, encourage innovation, generate employment, and contribute to inclusive economic growth. Government programmes such as PMMY, PMEGP, Startup India, Stand-Up India, CGTMSE, and SIDBI have significantly strengthened the entrepreneurial ecosystem in India.

Despite these achievements, challenges such as limited awareness, procedural delays, documentation complexities, and financial literacy gaps continue to affect the effectiveness of these schemes. Addressing these issues through policy reforms, digital transformation, capacity building, and improved implementation will further enhance entrepreneurial development. A strong partnership among the government, financial institutions, educational institutions, and entrepreneurs is essential for building a sustainable and globally competitive entrepreneurial ecosystem.

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Digital Transformation in Entrepreneurial Skills: Enhancing Innovation and Business Growth

Sunita Navale

Research Scholar, Department of Commerce,

Srinivas University, Mangalore.

Corresponding Author - Sunita Navale

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Abstract:

Digital transformation has revolutionized entrepreneurship by enabling businesses to adopt innovative technologies that improve efficiency, productivity, and customer satisfaction. Entrepreneurs today rely on digital tools such as artificial intelligence, cloud computing, e-commerce, digital marketing, social media, and data analytics to create competitive advantages. This paper examines the role of digital transformation in developing entrepreneurial skills and explores its impact on innovation, decision-making, business growth, and global competitiveness. It also discusses the challenges faced by entrepreneurs, including cyber security risks, lack of digital literacy, financial constraints, and resistance to technological change. The paper highlights government initiatives such as Digital India, Startup India, and Skill India that promote digital entrepreneurship. The study concludes that entrepreneurs who continuously upgrade their digital competencies are more likely to achieve sustainable growth and long-term success in the digital economy.

Keywords: Digital Transformation, Entrepreneurship, Digital Skills, Innovation, Technology, E-commerce.

Introduction:

The rapid growth of digital technologies has transformed the way businesses operate. Digital transformation refers to integrating digital technologies into all aspects of business operations to improve performance and customer value. Entrepreneurs must acquire digital skills to survive and compete in today's technology-driven market. The COVID-19 pandemic further accelerated the adoption of digital business models, online marketing, and remote working practices.

Objectives of the Study:

1. To understand the concept of digital transformation.
2. To examine the importance of digital skills for entrepreneurs.
3. To identify the benefits and challenges of digital transformation.
4. To suggest strategies for improving digital entrepreneurial skills.

Research Methodology:

This study is based on secondary data collected from books, research journals, government reports, and published articles related to entrepreneurship and digital transformation.

Digital Transformation in Entrepreneurship:



Digital transformation involves adopting technologies such as:

- Artificial Intelligence (AI)
- Cloud Computing
- Big Data Analytics
- E-commerce Platforms

- Digital Payment Systems
- Social Media Marketing
- Internet of Things (IoT)

These technologies help entrepreneurs improve productivity, reduce costs, and reach customers globally.

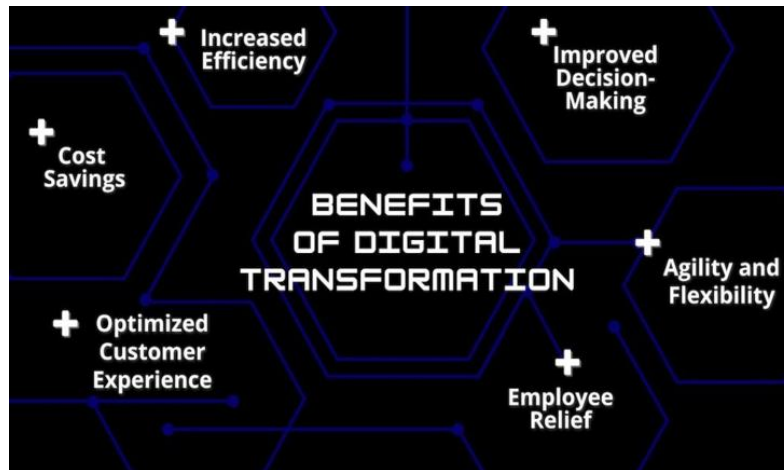
Entrepreneurial Skills in the Digital Era:



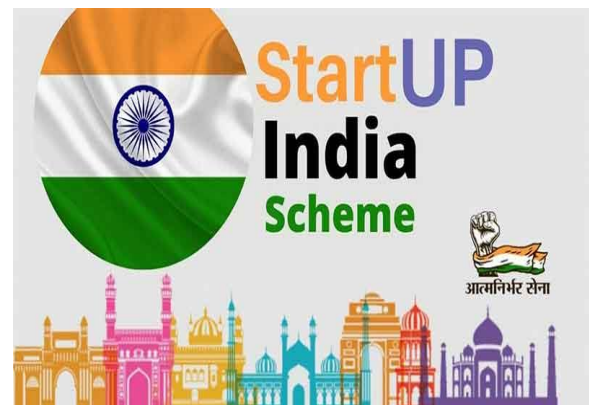
- Modern entrepreneurs require:
- Digital literacy
- Leadership
- Creativity
- Innovation
- Decision-making

- Communication skills
- Data analysis
- Financial management
- Problem-solving

These skills enable entrepreneurs to adapt to changing market conditions.

Benefits of Digital Transformation:**Startup India:**

- Increased operational efficiency
- Better customer experience
- Reduced business costs
- Faster decision-making through data analytics
- Global market access
- Higher business profitability
- Improved innovation and competitiveness

**Challenges:**

Despite its advantages, entrepreneurs face several challenges:

- Cyber security threats
- High technology investment costs
- Lack of digital skills
- Resistance to organizational change
- Data privacy concerns
- Poor internet connectivity in rural areas

Skill India:**Government Initiatives:**

The Government of India supports digital entrepreneurship through:

Digital India:**MSME Digital Initiatives:**

Make in India:

These programmes encourage innovation and technology adoption.

Suggestions:

- Provide digital skills training.
- Invest in cyber security.
- Encourage innovation through incubation centres.
- Increase access to affordable digital technologies.
- Promote partnerships between educational institutions and industries.

Conclusion:

Digital transformation has become essential for entrepreneurial success. Entrepreneurs who adopt digital technologies and continuously improve their digital skills can increase productivity, expand into new markets, and achieve sustainable growth. Governments, educational institutions, and businesses should work together to develop a digitally skilled entrepreneurial workforce.

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Transforming India through Innovation: Pathways towards Viksit Bharat 2047

Smt. Kusuma Hadagali

*Assistant Professor Department of Commerce,
Government First Grade College, and PG Centre Dharwad*

Corresponding Author - Smt. Kusuma Hadagali

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Abstract:

The vision of Viksit Bharat (Developed India) represents a definitive strategic roadmap designed to transform the nation into a technologically advanced, economically resilient, and socially inclusive global power by the centenary of its independence in 2047. This research report undertakes a critical examination of the innovative practices currently being deployed across five pivotal sectors: digital transformation, governance, education, healthcare, and agriculture. These sectors function as the primary engines of national metamorphosis, necessitating a shift from incremental progress to exponential, innovation-led growth. Utilizing a qualitative research methodology, this study synthesizes an extensive array of secondary data, including national policy frameworks like the National Education Policy (NEP) 2020, high-level government reports from NITI Aayog, and contemporary academic literature. The analysis identifies that the realization of a developed India is predicated on the seamless integration of digital public infrastructure, the adoption of sustainable "Green Growth" practices, and the fostering of robust public-private partnerships. Furthermore, the study explores how emerging technologies—such as Artificial Intelligence (AI), the Internet of Things (IoT), and blockchain—are being leveraged to dismantle traditional developmental barriers. Findings emphasize that while India has made significant strides in financial inclusion and digital governance, persistent structural challenges remain. Specifically, the urban-rural digital divide, workforce skill mismatches, and financial constraints pose risks to equitable development. The report concludes that human capital serves as the ultimate force multiplier for the 2047 vision. It offers a suite of strategic recommendations for stakeholders, advocating for institutional agility and the scaling of localized innovation to ensure that India's trajectory toward a \$30 trillion economy remains both sustainable and inclusive.

Keywords: *Viksit Bharat, Innovation, Digital India, Sustainable Development, Public Policy, Economic Growth.*

Introduction:

The concept of *Viksit Bharat* is more than a mere economic target; it is a holistic blueprint for India's emergence as a fully developed nation by 2047. This vision necessitates a fundamental paradigm shift in the country's development trajectory, moving beyond traditional industrial models toward a knowledge-based, innovation-driven economy. As India navigates this critical "Amrit Kaal," it seeks to leverage its unique

demographic dividend and a series of aggressive structural reforms to achieve global competitiveness across all socio-economic indices.

Innovation stands as the backbone of this national transformation. In the context of a developing economy with the scale and diversity of India, innovation is not merely about high-end technological breakthroughs but about the "force multiplier" effect of applying new methods to

solve systemic problems. From e-governance to precision agriculture, the integration of cutting-edge practices ensures that growth is not only rapid but also resilient to global shocks and socially inclusive.

Objectives of The Study:

The primary objectives of this study, as derived from the national strategic framework, are:

1. To analyze the multi-faceted innovative practices contributing to the realization of *Viksit Bharat*.
2. To conduct a detailed sectoral examination of innovations currently being implemented within the Indian ecosystem.
3. To identify and critically evaluate the challenges and systemic barriers that hinder the progress of innovation-driven development.
4. To formulate actionable strategic recommendations to ensure sustainable, long-term growth toward the 2047 milestone.

Literature Review:

The scholarly discourse surrounding India's development reflects a consensus on the necessity of a technology-led transition to achieve developed-nation status.

Digital Economy and Infrastructure:

The foundational role of digital infrastructure is central to the literature. Sarla (2025) highlights that the "Digital India" initiative has fundamentally altered the business landscape. By integrating AI and e-governance, India has significantly enhanced its "Ease of Doing Business" rankings, though Sarla cautions that cybersecurity and rural connectivity remain critical vulnerabilities. Sai Manohar et al. (2025) expand on this by arguing that the digital

economy has accelerated socio-economic development, primarily through the democratization of financial services and the optimization of governance efficiency. However, Sindakis & Showkat (2024) emphasize that policy support must be intensified to bridge the urban-rural digital divide, which remains a prerequisite for total national development.

Educational Innovation:

The evolution of higher education is another pillar of the 2047 vision. Wang et al. (2025) observe that digital innovation, particularly through AI-enhanced learning tools, is increasing the quality and accessibility of education in developing regions. In the Indian context, Das (2025) provides a focused analysis of Massive Open Online Courses (MOOCs). The study identifies platforms like SWAYAM as vital instruments for democratizing elite-level knowledge and aligning the skill sets of the workforce with the requirements of a high-tech economy.

Economic Growth and Sustainability:

The intersection of entrepreneurship and sustainability defines the modern growth model. Veena (2025) positions the startup ecosystem as the primary catalyst for economic expansion, noting that policy-backed innovation is essential for job creation. Complementing this, John et al. (2025) link digitalization directly to the Sustainable Development Goals (SDGs), arguing that "green growth" is no longer an option but a structural necessity. This is reinforced by Kumar & Singh (2021), whose research on smart agriculture demonstrates that technological interventions are essential for achieving both productivity gains and environmental sustainability in the primary sector.

Key Scholarly Perspectives on Viksit Bharat

Author (Year)	Primary Focus	Key Findings/Contribution
Sarla (2025)	Business Ecosystems	Digital infrastructure and AI integration are key to business efficiency.
Sai Manohar et al. (2025)	Digital Economy	Digital tools accelerate financial inclusion and improve governance.
Sindakis & Showkat (2024)	Rural Digital Adoption	Infrastructure and policy are needed to bridge the rural-urban divide.
Wang et al. (2025)	Higher Education	AI and e-learning enhance educational outcomes in developing nations.
Veena (2025)	Startup Ecosystems	Entrepreneurship and policy support are primary economic drivers.
John et al. (2025)	Sustainable Development	Digitalization and "green growth" are the twin pillars of sustainability.
Das (2025)	MOOCs & Skills	Platforms like SWAYAM democratize education and align with national goals.
Kumar & Singh (2021)	Smart Agriculture	Smart farming improves both productivity and ecological sustainability.
NITI Aayog (2023)	National Growth	Entrepreneurship and digital transformation are central to growth.

Research Methodology:

This study adopts a **Descriptive and Analytical** research design to explore the innovative practices that underpin the *Viksit Bharat 2047* vision. The methodology is qualitative, focusing on the synthesis of existing policy frameworks, academic findings, and institutional reports to provide a strategic overview of the national development landscape. Data for this report is gathered exclusively from **secondary sources**, ensuring high institutional rigor. Key sources include:

Government Reports: Strategic documents from NITI Aayog, including the India Innovation Index, which provide benchmarks for regional performance.

International Policy Documents: Publications from the World Bank and other global bodies

concerning digital development and governance reforms.

Academic Journals: Peer-reviewed research (2021–2025) focusing on the socio-economic impacts of technology in the Global South.

Sectoral Analysis of Innovative Practices:**Digital Transformation & Smart Governance:**

Digital transformation is the foundational layer upon which the *Viksit Bharat* vision is built. India has moved beyond simple digitization to the creation of "Digital Public Infrastructure" (DPI), which serves as a global model for inclusive development. The expansion of e-governance platforms has revolutionized the relationship between the citizen and the state. By moving public services online—from identity verification via Aadhaar to the Unified Payments Interface (UPI)—the government has successfully eliminated layers of intermediary friction. This

shift has not only increased transparency but has also resulted in significant cost savings by reducing leakages in welfare delivery through Direct Benefit Transfer (DBT) systems.

Smart governance represents the next evolutionary step, characterized by the use of Artificial Intelligence (AI) and big data analytics to drive evidence-based policy. NITI Aayog's focus on data-driven decision-making allows for the real-time monitoring of flagship schemes, ensuring that resources are diverted to the most "aspirational" or under-performing districts. This "citizen-centric" model shifts the focus from bureaucratic output to measurable socio-economic outcomes. However, the strategist must note that for this model to sustain itself until 2047, institutional agility is required to keep pace with rapid technological shifts. The integration of blockchain for secure land records and AI for predictive maintenance in urban infrastructure are prime examples of how governance is becoming "smart." By prioritizing accessibility and accountability, these digital innovations are creating a more equitable playing field, ensuring that the fruits of development are not restricted to the elite, but are distributed across the demographic spectrum.

Innovation in Education:

In the context of *Viksit Bharat*, education is viewed as the primary engine for human capital development. The National Education Policy (NEP) 2020 serves as the guiding framework for this sectoral overhaul, emphasizing a move away from rote learning toward a flexible, multi-disciplinary, and skill-based approach. The shift toward hybrid education models has been a critical innovation, combining the physical infrastructure of schools with the reach of digital learning platforms. This hybridity is essential for a nation with a large rural population and limited high-quality physical institutions.

The role of Massive Open Online Courses (MOOCs) and platforms like SWAYAM cannot be overstated. These platforms have effectively democratized high-quality education, allowing a student in a remote village to access the same curriculum as one in a metropolitan hub. This democratizing effect is a cornerstone of social inclusion. Furthermore, the integration of AI in education—ranging from personalized learning pathways to automated grading systems—allows for a more customized educational experience that addresses the diverse needs of India's massive student population. Innovation in this sector also extends to vocational training and technical education, where the curriculum is being redesigned in collaboration with industry leaders to address the persistent "skill gap." By ensuring that the workforce is proficient in 21st-century technologies like coding, data science, and sustainable engineering, India is preparing its human capital to be a force multiplier for the 2047 economy.

Healthcare Advancement:

Healthcare innovation in India is driven by the dual imperatives of affordability and accessibility. For a nation aiming for developed status, the current healthcare infrastructure requires a technology-led leapfrog. The integration of telemedicine has proven to be a game-changer, particularly in bridging the specialist gap in rural India. Through digital health platforms, patients can now consult with top-tier medical professionals without the logistical and financial burdens of travel. This is complemented by the Ayushman Bharat Digital Mission, which aims to create a centralized digital health record system, ensuring continuity of care and improving clinical outcomes across different healthcare providers.

Furthermore, the deployment of AI-based diagnostics is significantly reducing the cost of

early detection for chronic diseases. In areas with a shortage of radiologists or oncologists, AI tools can screen thousands of medical images with high accuracy, allowing for early intervention that saves lives and reduces long-term economic costs. The "hospital-at-home" model, supported by remote monitoring devices and the Internet of Medical Things (IoMT), is another innovative practice that addresses the shortage of hospital beds. By creating a robust digital health ecosystem, India is ensuring that quality medical care is treated as a fundamental right rather than a privilege. This advancement in healthcare is intrinsically linked to economic resilience; a healthy population is more productive and less susceptible to the poverty traps caused by catastrophic medical expenses, making healthcare innovation a strategic priority for 2047.

Agricultural and Environmental Innovation:

Agriculture remains the backbone of the Indian economy, yet it faces the existential threat of climate change and resource depletion. The transition to precision farming, enabled by the Internet of Things (IoT), is the most significant innovation in this sector. By using soil sensors, drones for aerial surveillance, and AI-driven weather forecasting, farmers can optimize their use of water, fertilizers, and pesticides. This data-driven approach not only enhances yield but also minimizes the environmental footprint of farming, aligning with the national goal of "Green Growth." Agri-tech startups are further revolutionizing the sector by providing farmers with direct market access via digital platforms, thereby bypassing traditional middlemen and increasing farmer income.

Sustainability is the second major pillar of agricultural innovation. The promotion of climate-resilient crop varieties and natural farming techniques is essential for long-term food security. This connects to the broader "Smart

Cities" initiative, where urban and peri-urban agriculture are being integrated with waste management innovations. For instance, the conversion of agricultural waste into bio-energy or organic fertilizer creates a circular economy that benefits both the farmer and the environment. Renewable energy adoption—such as solar-powered irrigation pumps—is reducing the sector's dependence on fossil fuels. From a strategic standpoint, these agricultural innovations ensure that India's growth is ecologically sustainable. By modernizing the primary sector, India is not only ensuring food security for 1.4 billion people but is also positioning itself as a global leader in sustainable agri-practices, which will be a key component of its developed-nation status by 2047.

Sectoral Innovation Matrix:

- **Digital Transformation:** Expansion of Digital Public Infrastructure (DPI), Unified Payments Interface (UPI), and national broadband connectivity.
- **Smart Governance:** AI-enabled predictive analytics, blockchain-based secure registries, and real-time welfare scheme monitoring.
- **Education:** Implementation of NEP 2020, multi-disciplinary curricula, SWAYAM/MOOCs, and AI-driven personalized learning.
- **Healthcare:** Telemedicine networks, AI-based diagnostic imaging, and the National Digital Health Mission (NDHM).
- **Agriculture:** Precision farming (IoT), agri-tech market platforms, climate-resilient crop practices, and solar-integrated irrigation.
- **Sustainability:** Renewable energy scaling (Solar/Wind), circular economy waste management, and the Smart Cities Mission.

Challenges And Barriers to Implementation:

The journey toward *Viksit Bharat* is not without significant systemic hurdles that require urgent policy attention.

1. **The Urban-Rural Digital Divide:** Despite the rapid rollout of 5G and mobile internet, a significant "last-mile" connectivity gap persists. Rural areas often suffer from inconsistent infrastructure and lower digital literacy, which prevents them from fully participating in the e-governance and digital economy frameworks that define a developed nation.
2. **Infrastructure Gaps:** While digital infrastructure has advanced, physical infrastructure in logistics, transport, and energy storage remains inconsistent. For innovation to be scaled, there must be a seamless integration between the "bits" of the digital world and the "atoms" of the physical world, particularly in manufacturing and supply chains.
3. **Workforce Skill Mismatch:** The speed of technological change is currently outstripping the pace of educational reform. There is a critical disconnect between the graduates produced by traditional institutions and the high-tech, AI-literate workforce required for an innovation-driven economy, risking a "demographic liability" if not addressed.
4. **Policy Implementation Delays:** India often excels at policy formulation but faces challenges in localized execution. Bureaucratic inertia at the state and municipal levels can delay the implementation of visionary policies like the NEP 2020 or the Smart Cities Mission, slowing the overall national momentum.
5. **Financial Constraints:** Transitioning to a developed economy requires massive capital investment. Funding the research and development (R&D) necessary for indigenous

technological breakthroughs is difficult given the competing demands for social spending and infrastructure development.

Discussion:

The evidence suggests that *Viksit Bharat* cannot be achieved through isolated sectoral growth; it requires a multi-dimensional development model where innovations in one area catalyze progress in another. For example, the success of "Smart Governance" (Digital Sector) is the prerequisite for the efficient delivery of "Telemedicine" (Healthcare) and "SWAYAM" (Education). This interconnectedness necessitates a collaborative ecosystem involving the government, the private sector, and academia.

A critical aspect of this model is the "Scale-Up" imperative. For India to reach its 2047 goals, innovations that have been successful in pilot phases or urban centers must be aggressively scaled to the national level. The discussion emphasizes that sustainability must be the "north star" of this scaling process. Growth that ignores environmental constraints or social equity will eventually stall. Therefore, the Indian model of development must be uniquely tailored—leveraging high-tech innovation to achieve low-cost, high-impact results that are inclusive of all citizens.

Recommendations:

To catalyze the transition to a developed nation, the following strategic actions are proposed:

1. **Strengthen Digital Infrastructure and Literacy in Rural Areas:** Policymakers must move beyond providing connectivity to ensuring "meaningful access." This involves subsidizing high-speed hardware and implementing massive digital literacy campaigns to ensure that rural citizens can

navigate e-governance and digital marketplaces with the same proficiency as urban dwellers.

2. **Promote and De-risk the Startup Ecosystem:** The government should expand tax incentives and create "regulatory sandboxes" that allow startups to test disruptive technologies in agriculture and healthcare. By reducing the financial and regulatory risks for entrepreneurs, the state can foster a culture of indigenous innovation that is essential for long-term economic sovereignty.
3. **Enhance Public-Private Partnerships (PPPs) for Infrastructure:** PPPs should be leveraged as the primary vehicle for building large-scale physical and digital infrastructure. By combining the private sector's operational efficiency and technological edge with the public sector's reach and social mandate, India can accelerate the deployment of smart cities and renewable energy grids.
4. **Deepen Investment in Vocational and STEM Education:** The implementation of the NEP 2020 must be supported by a focus on "future-skills" training. This includes establishing more Centers of Excellence in AI, Robotics, and Green Technology, while simultaneously integrating vocational training into the secondary school system to ensure immediate employability for the youth.
5. **Mainstream Sustainable "Green Growth" Policies:** Every development initiative must undergo a climate-impact assessment. By mandating green building standards, incentivizing electric vehicle (EV) adoption, and supporting regenerative agriculture, India can ensure that its path to 2047 is resilient to environmental shifts and compliant with global climate commitments.

Conclusion:

The roadmap to *Viksit Bharat 2047* is fundamentally a journey of innovation. The strategic integration of digital transformation, smart governance, and sectoral modernization in health, education, and agriculture provides the necessary framework for India's metamorphosis. However, the ultimate benchmark for success is not merely the size of the GDP, but the inclusivity and sustainability of the growth. Human capital remains the most critical asset; by empowering every citizen through technology and education, India can overcome its systemic challenges. While the hurdles are significant, the combination of visionary policy and technological agility positions India to emerge as a global leader—a developed nation that is economically powerful, ecologically responsible, and socially just.

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Digital Skills as a Catalyst for Rural Entrepreneurial Capability: A Conceptual Framework Integrating Human Capital, Dynamic Capabilities, Digital Divide, and Technology Acceptance Perspectives

Prof. S. S. Soodi

Associate Professor, Department of Commerce,

Shri Mariyappa Balappa Kalakannavar Government First Grade College, Naregal.

Taluk :- Gajendragad, District :- Gadag

Corresponding Author - Prof. S. S. Soodi

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Abstract:

Rural entrepreneurship still suffers from a persistent gulf between increasing digital access and rural entrepreneurs' digital capability, and this paper addresses that challenge through the central research question of "How do digital skills contribute to entrepreneurial capability and, ultimately, ventures' performance, when infrastructure-led digitalization program initiatives in emerging economies like India have failed to turn connectivity into entrepreneurial opportunity? The primary purpose of this paper is, thus, to propose an integrated conceptual framework to account for the multiple ways digital skills facilitate rural entrepreneurial capability, by moving beyond the narrow confines of single-theory explanations dominant in prior research. To this end, the study adopts a multi-theory approach, incorporating Human Capital Theory (considering digital skill as an investable, profit-generating asset), Dynamic Capabilities Theory (to consider how entrepreneurs sense, seize, and reconfigure digital opportunities under limited resources), the Technology Acceptance Model (explaining psychological antecedents like perceived usefulness and perceived ease of use which drive sustained technology usage), and the Digital Divide and Digital Empowerment theory (which focuses on and differentiates between access, skill, and outcome divides). The study is a solely conceptual one, thereby avoiding the collection of primary data, and synthesizing latest literature on agricultural and rural entrepreneurship, digital inclusion, and rural-specific digitalization program in India. It uses digital literacy, technical skills, digital marketing and financial competencies, and digital self-efficacy and readiness to explain how rural entrepreneurial capability is formed, moderated by institutional and infrastructural enablement (as reflected in India's Common Service Centres, BharatNet, and national digitalization programs). Finally, four propositions link each antecedent construct with entrepreneurial capability and detail the moderating effect of enablement, so that entrepreneurs with similar skill levels but facing varying levels of enablement-infrastructural conditions and institutional support are expected to display varying levels of entrepreneurial performance. This conceptual contribution offers an integrative explanation for the use of technology in rural entrepreneurship, and highlights the importance of investing in skill-building, digital finance and marketing, and infrastructural development as complimentary elements toward rural economic development. A future empirical research agenda based on survey-based structural equation modeling among micro and small rural entrepreneurs will be introduced to test these propositions and finalize the construct definitions.

Keywords: Digital Skills, Rural Entrepreneurship, Human Capital Theory, Dynamic Capabilities, Digital Divide, Technology Acceptance Model, Institutional Enablement.

Introduction:

It is for the central role it has played in generating non-farm employment opportunities in a dual sector economy: absorbing the surplus agrarian labor, enhancing household's economic security by diversifying income sources, and ultimately contributing to strengthening the rural economy resilience. This centrality has even become more pronounced during the last decade as we find Systematic Reviews of Literature identifying Digital Entrepreneurship as one of the fastest growing themes with respect to Revitalization of Rural Communities, Digital Transformation of agribusinesses, and Women's Economic Empowerment-all of which have been the domain of rural entrepreneurship literature for decades (RSIS International, 2025). But the ironically this is in an ecosystem where a vast body of literature also continues to highlight the continuing lagging nature of rural areas with regards to quality and depth of digital penetration when compared to urban areas globally (Samsudin et al., 2024); in the Indian context, the sheer magnitude of expansion of digital presence since 2014 (roughly 14% in 2014 to 55% in 2025), combined with concerted efforts like BharatNet, Village Level Entrepreneurs (VLEs) managing Common Service Centres (CSCs), and various Digital India initiatives, seems to ironically underline this tension: it has extended connectivity and basic access to millions of rural villages across the country (Journalism University, 2026), but there are still nearly 700 million Indians unconnected in the country, accompanied by the stark reality of the infrastructural and gender-related disparities in device ownership-the fact remains that it has not, yet, translated into entrepreneurial ability across these regions (Press Information Bureau, 2025; NIIT Foundation, 2024). It is precisely this asymmetry between the rapid pace of digital infrastructure expansion and the slower pace of increase in rural business

owners' digital entrepreneurial ability that lies at the core of the problem this paper addresses. Specifically, it poses the following question: in the face of rural business owners' existing capability gaps, how do digital skills (as a multidimensional concept-encompassing technical literacy, financial/marketing proficiency, and adoption psychology) enable entrepreneurial capability, and eventually lead to venture performance, particularly when the literature predominantly discusses digital technology as an exogenous technology enabler without sufficiently theorizing the internal skill and confidence structures through which access becomes advantage? (Liu, 2026). Therefore, the paper primarily sets out to meet three key objectives: Synthesize existing literature on digital skills and rural entrepreneurship, formulate an integrated conceptual framework explaining the relationship between digital skill and rural entrepreneurial capability, and provide testable propositions for future empirical validation. For that purpose, it employs a multi-theoretic approach combining Human Capital Theory (that views skills as an asset that is investable and generates returns-Schultz, 1961; Becker, 1964), Dynamic Capabilities Theory (that provides a framework for entrepreneurs sensing, seizing, and reconfiguring opportunities within and despite resource constraints in a technology-driven environment-Teece, 2007), the Technology Acceptance Model (that helps explain the psychological determinants leading to the actual use and sustainability of digital technologies based on perceived usefulness and perceived ease of use-Davis, 1989), and the Digital Divide and Digital Empowerment perspective (that helps differentiate between access-, skill- and outcome-level divides-van Dijk, 2005; Salemin et al., 2017). Thus, the rest of the paper organizes itself as follows: A review of literature drawing on these four theoretical perspectives and their

application to the topic; identification of the gaps that underscore the need for an integrated approach; presentation of the conceptual framework and propositions; discussion of policy implications for the Indian context; and suggestions for future research.

Statement of The Research Problem:

Notwithstanding a rapid proliferation in India's rural digital infrastructure through initiatives like BharatNet, Village Level Entrepreneurs' Common Service Centres and national digital skilling missions, with internet penetration increasing from about 14% in 2014 to about 55% by 2025 (Journalism University, 2026); despite the fact that systematic review confirms digital technologies are an enabler for increasing rural entrepreneurial competitiveness, resource management, and inclusion (RSIS International, 2025); the continued fact that over 700 million Indians are offline with infrastructure lacunas persisting in remote and hilly regions and growing gender divide in individual personal device ownership (Press Information Bureau, 2025; NIIT Foundation, 2024); all imply that increased digital access has not inevitably been converted into rural entrepreneurial capability. A disconnect reflected also in comparisons where only about 32% of rural small businesses actually uses digital technology in comparison with above 60% of urban businesses, largely an issue stemming from low digital literacy, a resistance to change and institutional deficits besides infrastructure (Samsudin et al., 2024); while recent observations from China's digital rural program clearly states that entrepreneurial outcomes from digitalization occur directly via digital literacy and related skill enhancement (Liu, 2026), hence posing the open research question of how, precisely digital skills (technical ability, financial and marketing competence, adoption psychology) translate into rural

entrepreneurial capability; what is the enabling role played by institutions and infrastructure.

Literature Review:

Digital Skills and Rural Entrepreneurship: Global Evidence:

The cross-country data reveals that rural and informal entrepreneurs still tend to underutilize digital tools (although the benefits of these tools are already recognized in increasing productivity, enhancing market access and raising operational efficiency) and the low utilization is related to lack of infrastructures, human capacity and wealth, rather than unavailability of these tools, the constraints in utilization being the lack of skills and knowledge in underdeveloped rural areas (Neumeyer et al., 2020, as cited in the Journal of Innovation and Entrepreneurship, 2025).

Human Capital Theory and Digital Competence:

Through the human capital perspective, resources of human, financial and intellectual capital are repeatedly found as key facilitating the adoption of digital technologies by entrepreneurs and more prominent for women entrepreneurs (who typically do not possess the extensive capital reserves); thereby validating that digital competence as capital is accumulated rather than assumed. (Feranita et al., 2024, cited in the Journal of Innovation and Entrepreneurship, 2025).

Dynamic Capabilities and Digital Opportunity Exploitation:

In addition to human capital perspective, entrepreneurial ambidexterity (i.e., ability to explore new digital opportunities and exploit established resources and routines at the same time) has been demonstrated to mediate the technology acceptance-digital opportunity exploitation intention relation at small-scale entrepreneurs, which suggests that the logic of

sensing and seizing, which is the core of dynamic capabilities, acts as a proactive behavioral link between positive perceptions of technology use and effective exploitation of digital opportunity (Chen & Yu, 2022, as referenced in Research Synergy Press, 2025).

Digital Divide and Digital Empowerment Perspectives:

Broadening the discourse beyond digital dividends into the behavioural space, a recent meta-analysis of 33 papers and thirteen thousand and above subjects from seventeen countries found the Technology Adoption Model is generally robust in clarifying the digital gap - but that is influenced more significantly by the continued differences in what people knew, than in where they could find any equipment (Gouroubera et al., 2025; Cited in Frontiers in Sustainable Food Systems, 2026)

Technology Acceptance Model and Adoption Behaviour:

Direct evidence of this in the rural Indian setting; a large-sample (n=3260) of rural consumers in Uttar Pradesh on e-wallet adoption, using structural equation modeling, provided direct evidence for the proposed mechanism demonstrating how digital financial literacy positively influences the perceived usefulness and perceived ease of use constructs; financial risk significantly influences each one negatively and the resultant attitude being the highest predictor of the overall purchase intent; providing direct empirical confirmation that, adoption by attitude rather than physical access controls digital financial transactions in rural India (Rashid et al., 2025).

Institutional and Infrastructural Enablement:

Thus, formal institutional supports were then integrated into the adoption model as part of constructs such as the Index of Institutional Support-which included cooperative membership, extension access and perceived knowledge of

institutions-based on a transition-economy rural experience wherein found that institutional supports considerably improved the conversion of perceived useful technology into its adoptions, reflecting the presumed moderating role played by such agents as CSCs, VLEs and the skill mission initiatives on Indian digital rural environments (Author et al. (2026; referred from Sustainability 2026)).

Research Gap:

While there has been tremendous progress along individual research fronts in the area of digital entrepreneurship, literature continues to be splintered in single theory, where entrepreneurial capabilities are often modelled as simply aggregation of individual skills, human capital and personal psychological attributes; but largely failing to integrate institutional and contextual factors that influence, strengthen and mitigate it. (MDPI encyclopedia, 2025). Similarly, rural entrepreneurship research explicitly calls for the continued investigation of both individual level factors including skills and entrepreneurial attitudes, and organization level factors, including support structures, networks and financial aid in order to provide a unified theoretical lens of individual digital competences within institutional environments of rural entrepreneurs (Journal of innovation and entrepreneurship, 2025). This is further exacerbated by a prominent context deficiency where major works on the entrepreneurial capabilities and human capital have been developed in an 'India' independent fashion, even while the nation continues to aggressively deploy domain-specific infrastructure through initiatives such as the ambitious India's 'Digital India' Common Services Centers (CSCs), which provide digital access services to rural citizens, in over 200,000 villages (Press Information Bureau, 2025). Even in the more recent literature focusing on the

recognition of entrepreneurial opportunities, although it is accepted that these occur in digitally augmented ecosystems, the institutional, infrastructural support of the ecosystem remains theorized as an enabling environment rather than a moderating influence for enabling entrepreneurs' success and individual entrepreneurial skill to entrepreneurial outcome process has remained underdeveloped and unsubstantiated in empirical and theoretical research (Jesya, 2026).

Theoretical Framework and Development of Propositions:

Human Capital Theory → Digital Literacy & Technical Proficiency:

The first construct is based upon The Human Capital Theory in viewing digital and technical skill and/or knowledge as a separate and becoming increasingly salient class of human capital: and our evidence demonstrates that in a variety of circumstances changes in technological business product-innovation outcomes differentially depend upon an individual's ratio of technical human capital to other human capital due to changes in environmental states - it therefore shows, against the assumption of technical knowledge as a kind of "overlay skills" , this as another specialized category of capital (Richard et al ., 2019 cited in Information Systems Research, 2022).

Dynamic Capabilities Theory → Digital Financial & Marketing Competence:

Dynamic Capabilities theory underpins the second construct, digital financial and marketing competence by envisioning it as a second-order competence in which entrepreneurs configure first-order operational routines (e.g., setting prices, collecting payments, communicating with customers) to meet changing digital market environment that is why some entrepreneurs simply make use of digital tools

while others reconfigure operations to fit the digital tools (Danneels in Theory Hub, 2026).

Technology Acceptance Model → Digital Self-Efficacy & Adoption Readiness:

Entrepreneurial Ambidexterity has been cited as grounding digital self-efficacy and adoption readiness, the third construct of the technology acceptance model in which the extent of confidence that someone is willing to discover a range of new digital resources, while exploit familiar business approaches can explain how the promising thoughts about usability of technology use, and usefulness of the resource that might then transition from trial into actual use instead of usage abandoned.

Digital Divide/Empowerment Theory → Institutional & Infrastructural Enablement (Moderator):

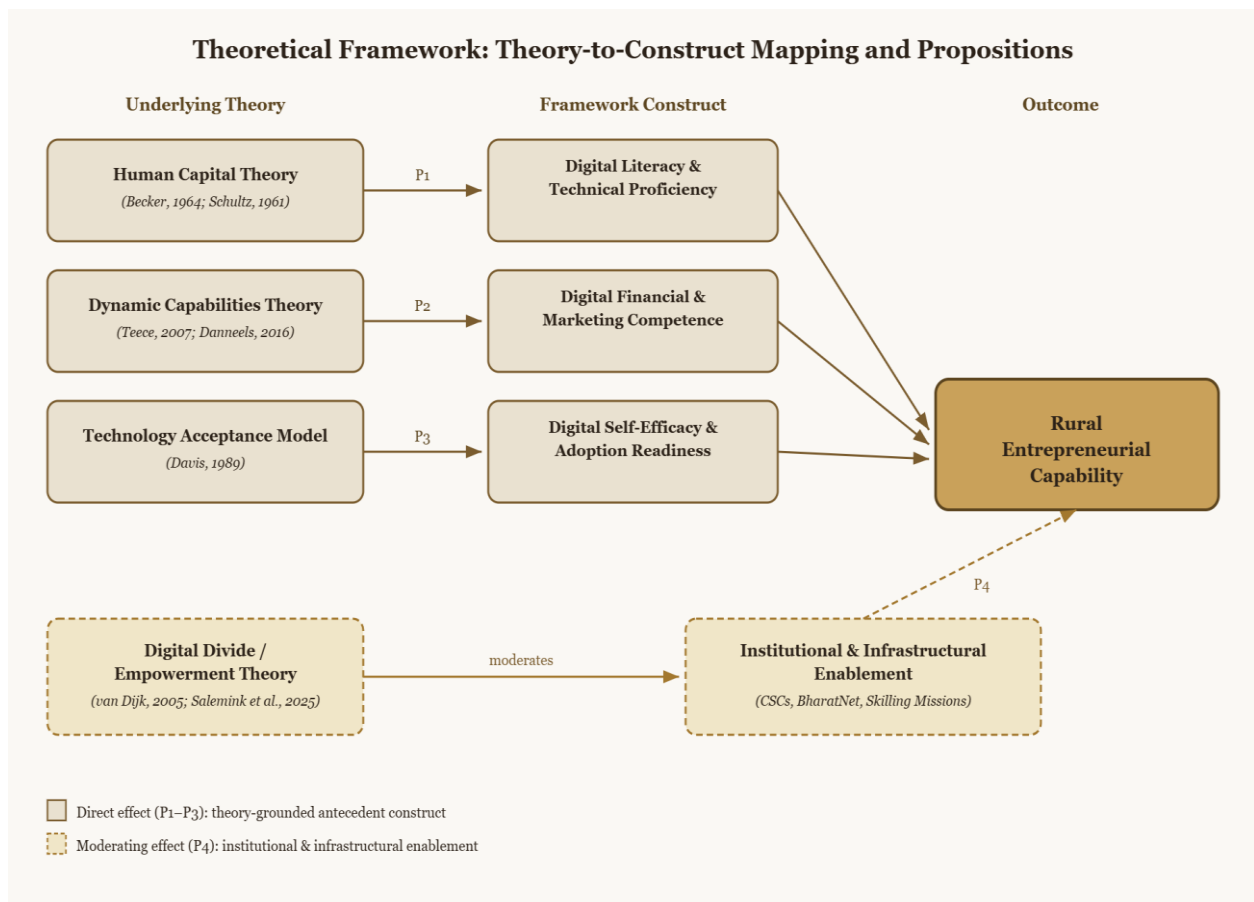
Based on the digital divide and digital empowerment theory, institutional and infrastructural enablement can be the fourth construct. It conceptually re-frames rural digitalization using a "just-rural" discourse: institutional enablement structures are no longer preconditions but are seen as actively constitutive and defining who and on what terms rural areas will achieve digital success. This enables considering enablement as a moderator variable rather than an additional one. This is the proposition that most distinguishes the framework from prior single-theory models. Rather than treating institutional support (Common Service Centres, BharatNet connectivity, skilling missions) as simply another input that adds to capability, P4 positions it as a *moderator* — a contextual condition that changes the strength of P1, P2, and P3. This means the model predicts that two entrepreneurs with identical digital literacy, competence, and self-efficacy scores can still achieve different entrepreneurial capability outcomes depending on whether they operate in a village with strong institutional enablement or

one without it. This moderating specification is what allows the framework to explain a puzzle visible in the literature: why skilling programmes alone sometimes fail to produce expected entrepreneurial gains — the answer, under P4, is that skill-building without complementary institutional enablement only partially activates its potential.

Statement of Propositions:

The framework, building upon this four-theory integration, proposes four propositions: P1: The relationship between digital literacy/technical skills (building on Human Capital Theory) and the capacity for rural entrepreneurship will be positive; P2: The

relationship between digital financial and marketing competence (building on Dynamic Capabilities Theory) and the capacity for rural entrepreneurship will be positive, conditional on general technical skills; P3: The relationship between digital literacy and capacity for entrepreneurship will be mediated positively by digital self-efficacy/adoption readiness (building on Technology Acceptance Model); and P4: The relationships in P1-P3, above, will be positively moderated by the level of institutional and infrastructural enablement (building on Digital Divide and Empowerment Theory) such that the returns to digital skill on entrepreneurial capacity will be more positive given more, than less, institutional and infrastructural enablement.



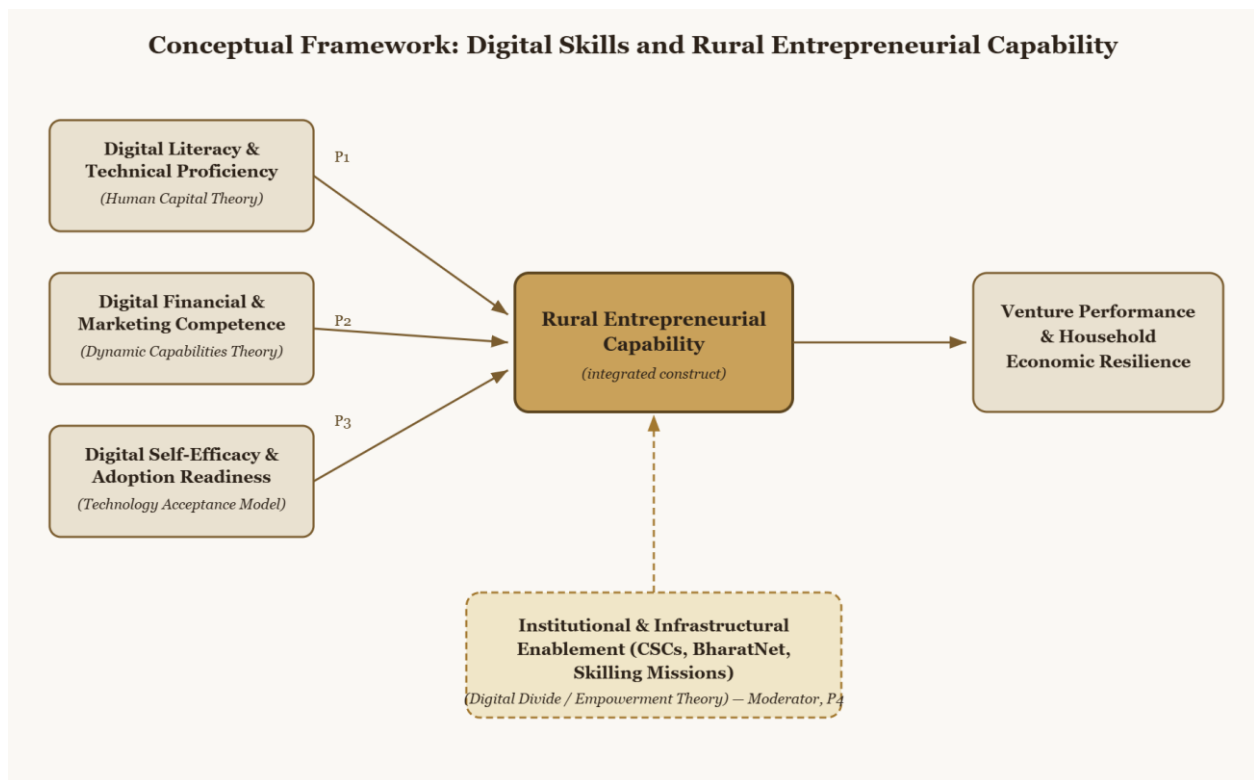
Above diagram showing Theoretical Framework and Development of Propositions

Conceptual Framework:

Below diagram showing conceptual framework showing digital literacy and technical proficiency, digital financial and marketing

competence, and digital self-efficacy and adoption readiness converging on rural entrepreneurial capability (P1–P3), with institutional and infrastructural enablement

moderating this relationship (P4), ultimately economic resilience. shaping venture performance and household



Above diagram showing Conceptual Framework related to the study showing Digital Skills and Rural Entrepreneurship Capability

Narrative Explanation of Construct Relationships:

The envisioned conceptual framework conceptualizes rural entrepreneurial capability as the integrated center of the model. It is generated at the nexus of three theoretically derived antecedent constructs and strengthened (or, weakened) in intensity by a fourth, contextual moderator construct, before feeding into a distal layer of the model – venture performance and household economic resilience. Situated at the root of the model, the Human Capital Theory–based antecedents of digitally skilledness, or tech proficiency refers to an entrepreneur’s base investment in digital capability – the ability of a smartphone device, to utilize, apps to use, and basic, transaction-capable Internet use -- on top of which the other two antecedents are built, since neither applied digital skill or continued, adoption behavior is possible without any minimal level of

tech awareness. Directly above this, digital financially savvy and smart skills, anchored in a dynamic competencies’ framework and application of the digital toolset by the businessman - which is distinct, rather than being merely dependent on, the former - entails an entrepreneur’s ability to take day to day business transactions such as transactions via online applications, list goods one marketplaces, and employ electronic commerce and marketing by reformatting their business on a cell handset. This digitally informed business practice reconfigured is what the entrepreneur brings together in the venture, leveraging whatever digital competence has made available; many an entrepreneur might own and be able to use a smartphone, yet be too intimidated to modify the commercial routine to make efficient use of it. As a meditating, not parallel antecedence of the framework, technology acceptance modeling’s digital

confidence and readiness of adoption comprises skills-development, awareness as well as positive attitude toward online tool adoption that translate well into adoption use. Such entrepreneurs' digital skills acquisition results in but partial venture development and only fractional benefits in their household economic livelihood while not adopting is dependent on self-perceived risks (of being exposed), relative costs (opportunity or monetary costs) of adaptation or perceived unfairness of commercial terms of the market. It would be counter-intuitive for skilled and high confidence users not to fully utilize what they learned while in the classroom learning center, be in rural or online environments. At the periphery of the individual –based digital factors, Digital Division theory's institutional and infrastructures enabling effect provides a fifth, contextual antecedent factor of model. This context enables and determines the intensity to which digital investment is translated into use and thus rural entrepreneurial growth. In this vein, Common Service Centres (VCS), Village-based entrepreneurship development facilitators, connectivity of rural BharatNet or rural and IT and ICT education for rural citizenry and skills missions are specified to moderating effect on relationship of digital capabilities development as the central antecedent of entrepreneur. For a variety of similar ability profiles and levels of education across rural locales the capability framework, the model anticipates different venture success and household economic wellbeing levels determined by whether they operate inside an environment with conducive to digital learning or against it. Ultimately, the ventures at house (micro- enterprises based in homes) with positive outcomes from digitally enabled entrepreneurs culminate to venture successful performance of and household economic stability which thus contribute to the rural community development process and the

local micro – enterprises contribute significantly to national economic growth and general wellbeing.

Discussion:

The theoretical contribution of this paper comes from its argument for integration, that the separate conceptual strands of human capital, dynamic capabilities, technology acceptance, and digital divide research have identified individual but separate determinants of digital entrepreneurial behavior, with dynamic capabilities work showing that digital competency is a human capital source for advantage only if it is embedded in individual or firm resource sense-seize-reconfigure capabilities, rather than a skill endowment on its own (Wang & Ahmed, 2023); with Corporate Entrepreneurship Strategy literature likewise confirming that digital transformation succeeds in creating the greatest relative competitive advantage when intangible assets including human capital are deliberately, jointly, and collectively leveraged with organizational capability building, rather than mobilized as separate, parallel drivers of competitive performance (Bierwerth et al., 2015; Kreiser et al., 2021); a finding which supports the present framework's intention to conceptualize digital literacy, financial and marketing competence, and adoption readiness as endogenous, interrelated variables rather than independent, cumulative sources of advantage; providing further support for its rationale for integration are works which consider how human capital will be reshaped during the AI and automation era which suggest that human capital cannot be taken as a fixed, standalone factor on which the other dependent constructs are simply dependent, thereby also providing further justification for the present study's conceptualization of the enablement constructs as dynamic, context-dependent moderators rather

than static background inputs (Chen et al., 2020), making the primary theoretical contribution of the paper to establish the value of a multi-theoretic, moderated framework in explaining rural entrepreneurial capability than any single study working in isolation, and contributing to Digital Divide and Empowerment Theory by expanding its focus beyond adoption-access to its importance as a contextual, moderating force in the entrepreneurship context. Its practical contributions apply to three different groups. First, for individual rural entrepreneurs the model asserts clearly that technology literacy is not enough to facilitate venture change, and that a business transformation requires deliberate development of applied finance and marketing competence along with building self-efficacy through repeated use, with this argument strengthened by literature that finds internet access enhances venture outcomes only through social network support, information asymmetry reduction, and expanded credit access, and not as a standalone input (Tan & Li, 2022); second, for skilling bodies and training institutions, the model indicates that training should move beyond basic digital literacy to specialized and contextual finance and marketing training that build confidence by following generalized lessons with follow-up instruction and support, echoing national policy to foster digital skills through a more active, sustained capability-building approach rather than simply providing access and exposure (Press Information Bureau, 2026); and third, for providers of financial services to rural markets, the model suggests that their product design and client support strategies should focus on the TAM component's self-efficacy, usage, and ease-of-use barriers to uptake, because only mobile digital finance tools users feel they can use may be sustainable resources as they are in the infrastructure provided.

Policy Implications:

Based on the framework's four propositions, we can identify several concrete recommendations across skilling initiatives, the CSC/VLE network, financial inclusion agencies, and gender-specific programming: among skilling programs, the revitalized Skill India Program, which had to December 2025 trained over 2.7 million individuals across 38 sectors in 732 districts under the PMKVY 4.0 scheme should have curriculum sequencing designed to systematically develop trainees not simply from device literacy to the applied financial and marketing competence captured in P2-after all, by converging with other schemes like PM SVANidhi and the Vibrant Village Programme, PMKVY already has in place the institutional channels through which such advanced modules could potentially be integrated (Drishti IAS, 2026); for the Common Service Centre (CSC)/VLE community, policy should borrow the best practices from established decentralized models like TARAhaat solar-powered community information centres, integrating both digital service delivery with hands-on digital learning capabilities so that they effectively become the kinds of local, trusted community intermediaries required for the implementation of P4's P4 mediating factor at the grassroots level; the onboarding strategy for financial inclusion agents and fintech outfits should build on the well-documented impact of the Skill India Digital Hub, an initiative that to September 2025 had to-date registered 16 million trainees and distributed over one billion Indian rupees (about 1.1 billion euros/1.2 billion USD) in direct cash transfers – the message is clear that direct digitally linked disbursements also contribute significantly to confidence-building that reinforces P3's self-efficacy component provided the on-boarding has adequate supportive components (Drishti IAS, 2026); finally among gender focused projects-the

Pradhan Mantri Gramin Digital Saksharta Abhiyan, which currently boasts the highest among of gender representation among all beneficiaries by percentage (over 53%), and community-based initiatives, such as ‘We Think Digital’ and ‘Digital Shakti’, which to the September 2025 period, had covered tens of thousands of rural and women beneficiaries in states such as Bihar, West Bengal, and Uttar Pradesh, with training on digital Literacy and safe and security use of the online platform - these projects clearly shows a scalable delivery model available to us today to address the pervasive issues related to a limited access to entrepreneurial finance, that women in rural areas often struggle with, between the digital skill gained (under PMGDA) and its practical application in the markets, as defined in P2, by integrating more closely these digital literacy programs with training programs that focus specifically on financial and marketing skills (Careers360, 2021; PIB, 2022).

Conclusion and Directions for Future Research:

The paper builds on the four dispersed traditions and provides a synthesized, integrated conceptual framework for digital literacy, digital financial and marketing competences, digital self-efficacy, and their shared contribution to rural entrepreneurial capacity within a context of institutional and infrastructural enablement. Rather than a single theory, this paper presents a tested integrated model. Based on such previous research, future empirical research could test our integrative conceptual frame employing structural equation modeling (SEM), as rural entrepreneurship research successfully used AMOS-based SEM at a sample of villagers survey (2 hundred -5 hundred) to test mediator/mediator role related to digital literacy, entrepreneurship passion, and social network

relation (Wang, as cited in environment, development & sustainability, 2023); moreover, the current research focuses on the appropriate population that micro and small scale rural entrepreneurs within the rural areas, which the Indian common service centers cover with valid Likert-scaled measures. This study, thus follows standard in the social sciences as using a measurement model analysis followed by a structural modeling process with a Two-stage method (IJQRM, 2025), has limitations. To begin, the paper does not use any primary data but integrates a lot of literature research instead. Secondly, It is unknown whether digital financially/marketing & digitally technical literacy will share independence? Thirdly, the research focus on the institutional environment in Indian may restrict the generalization across many areas that infrastructures/polices conditions are significantly different. Consequently, the generalization of the research should be tested empirical crossing context.

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The Walks of Business Incubation Centers in India till 2025

Pratapi M. Iragar¹ & Dr. Kirakumar Bannigol²

¹Associate professor of Commerce, Government First Grade College, Hubli

²Assistant professor of Commerce, Karnataka University, Dharwad

Corresponding Author - Pratapi M. Iragar

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Abstract:

Business incubators are the institutions which are providing required facilities to the startups to be successful in their business endeavor. The startups face lot of challenges in the beginning and struggle to find success due to lack of resources including mentoring, advices and legal requirements. Incubators provide a safety net and structured environment that significantly boosts the survival rate of startups. To improve and develop the startup ecosystem is a need of the day to reduce the demand for jobs from the youngsters and also to improve the Indian economy. The concept of entrepreneurship as an alternative career option has been accepted by the society, almost become main stream some sections.

Keywords: *Business Incubators, Startups, Innovation, Services, Lifecycle.*

Introduction:

Business incubators are the institutions which are providing required facilities to the startups to be successful in their business endeavor. The startups face lot of challenges in the beginning and struggle to find success due to lack of resources including mentoring, advices and legal requirements. The startup lifecycle has been divided into four stages, the first stage is from ongoing stage i.e., early stage of startups supported by angel investors, second stage is three to six months which will get the help from the Accelerators, the third stage is from six months to two years where it is supported by Accelerators and business incubators came to be known as hybrid mode, The last stage and fourth stage is one to five years supported by the business incubators. (Source: Collected from the entitled "Howard business Review" entrepreneurs handbook). In this paper mainly researcher is concentrating on the last stage of startup life that is the support of Business incubators. This support will reduce the failure percentage of

startups and increase the success percentage of startups. According to DPIIT website there are 1376 business incubators in India out of which 1100 are active working in India. (India today)

Problem Statement:

Startups have very high mortality rates much higher than that of larger, well established companies. Many researchers believe that business incubation (BI) acts as a helping hand and encourages entrepreneurial development by creating a network of knowledge and resources. But unfortunately no researchers thought regarding the improving the different phases of business incubators facilities.

Research Hypothesis:

The following hypothesis are formulated by considering the objectives of the study, the researcher's theoretical knowledge, discussions and deliberations with field experts and from other research studies.

H_{o1}: There is no significant difference between the age of the incubates and success of startups.

H_{o2}: There is no significant difference between the type of the incubator and the success of startups.

H_{a1}: There is a significant difference between the age of the incubates and success of startups.

H_{a2}: There is no significant difference between the type of the incubator and the success of startups.

Research Objectives:

1. To understand the history of business incubators in India.
2. To identify and describe the infrastructure and funding requirements provided by the business incubators for effective performance.

Research Methodology:

The research is purely based on descriptive analysis derived from various research articles related to the topic and referring various websites related to startups and business incubators.

Need of the Study:

Small businesses have been in fact the largest job providers and a vibrant startup ecosystem driven by innovation can be better employment opportunities for the youth and have widespread positive impact on the economy. The study has been undertaken to understand the different challenges faced by the business incubators while supporting the startups (new born firms or premature firms). The SMEs are considered as job providers to the skilled as well as unskilled people which is not done by the large-scale companies.

Research Terminology:

Operational definitions used in the study.

Business Incubators:

Business incubators can be understood as a program that gives very early- stage companies access to mentorship, investors and other support to help them get established. Business incubators work with early-stage companies to get them to move beyond their embryonic phase. They provide support and coaching for new businesses that have a promising idea, as well as for entrepreneurs still in the idea stage. Business incubators have ability to encourage and influence the strategic position of their client(incubate) through the services they offer. Services such as business consulting and one on one mentoring sessions can help incubates to change their paradigm.

Business Accelerators:

Based on the different stages of startups funding the accelerators can be defined. The Startups during its first 6 months the funding will be from Accelerators which is called seed funding. After six months the funding will be done by the business incubators. It has been understood from the several research papers that business incubators and business accelerators are different. To add something more it is decision making environment. which gives answers for three aspects ie., Clarity, Capability and Capital efficiency.

Startups:

Startups are the newly established firms which are having limited resources and struggling to survive in the market. Startups are crucial in driving innovation, representing companies, partnerships, or temporary organizations specifically crafted to explore viable and scalable business models. During the startup phase, novel concepts are introduced in the market, evolving into sustainable enterprises. These newly established firms serve into profitability.

Literature Review:

Anne Bollingtoft John P. Ulhori (2003) The paper entitled “The networked business incubator leveraging entrepreneurial agency?” studied in Denmark for 6 months taking into consideration the networked business incubator (M50) when it consisted of 16 companies, where the paper has touched upon “networked incubator” and social capital theory. The networked model driven by bottom-up approach which differs from the traditional top-down approach. This study has not considered why and how networks are established. If network opportunities become too dominant, is it becoming facilitator or not. Future research can be taken in this light.

Bharat Parmar (2021) The article titled “Incubation in India – A descriptive overview”. India, acknowledged as one of the hotspots of entrepreneurship, is known to have well over 20,000 startups across various domains and focus areas. In 2018, over USD 65 billion was invested in about 1800 rounds in startups in India; this was about 4% and 6% of the global investment amount and number of rounds, respectively. While these numbers may seem small to the critical eye, the rate of growth in the Indian ecosystem is inspiring. This monograph presents a multilevel and descriptive overview of the Indian Incubators landscape enabling the conducive startup climate across the country. Government schemes and incentives in this aspect have also been compared in terms of their expectations from incubators vis-a-vis their many benefits.

Dr. Khande Prashant (2023) The paper entitled “Growing startups Beyond the Metros: Challenges and Solutions for Incubation Centers in Tier 2 and Tier 3 Cities in India” article explores the challenges faced by incubation centers in Tier 2 and Tier 3 cities and offers strategies for navigating them. Incubation centers play a crucial role in supporting the growth of

startups by providing resources, mentorship, and networking opportunities. However, in smaller cities, these centers face unique challenges such as a lack of funding, limited access to talent and technology, and a smaller market size.

Maximilian von Zedtwitz (2003) Paper titled “Classification and management of incubators: aligning strategic objectives and competitive scope for new business facilitation”. The study has been taken in USA, UK, Switzerland and Germany. Based on 41 interviews with incubation and R&D managers, this paper outlines five incubators archetypes: the university incubators, the independent commercial incubators, the regional business incubator, the company – internal incubators and the virtual incubator. The paper has described a generic incubator business model. This has refined for different value proportions to customers and other major stakeholders. The paper concludes that whether an incubator is for profit or not. It should be run strategic management of incubators, as well as policy and strategy considerations for universities, venture capitalists, municipalities, corporations and other parent institutions of incubators.

Naveed Ahmed et al., (2020) Paper titled “Role of business incubators as a service provider in Entrepreneurship Development”. The paper has been studied on conceptual model that examines the role of business incubators in entrepreneurship development. Particularly focusing on impact of services offered by incubators, namely networking services, capital support and training programs, on entrepreneurship development. The authors have touched the topic by taking into consideration quantitative technique. This study has used structural equation model Partial least squares statistical techniques to examine the relationship between the variables as this technique is particularly suitable for testing multilevel the theoretical frameworks and makes

it possible to evaluate several relationships between and potential; variables that can be observed at the same time. However, business incubators can be used with other variables to perform the role of mediator. Moreover, the social capital, value creation, funding consultancy services as well as training and development can be used with business incubators.

Nasir Mahmood et al. (2017) The paper titled “Role of business incubators in entrepreneurship development in Pakistan”. The study was aimed at studying the role of business incubators for the development of entrepreneurship in Pakistan. Using a sample size of 42 entrepreneurs, the data were collected through SPSS analysis showed that the role of incubators is effective in providing consultancy and networking services to entrepreneurs whereas on training, provision of infrastructure and marketing side, they have to work even harder to provide the required results. The findings of the study are helpful for policy makers to craft policies in order to make the role of incubators, even more effective for the promotion of entrepreneurship and eventually wealth accumulation in Pakistan.

R. Andresetal. (2020) The paper titled “Identifying the principal factors of business incubation process”. The study has been undertaken in Puerito Rico USA which states common objective of Incubation or Entrepreneurship Programs (IEPs) is to facilitate the entrepreneurial process by meeting the needs of client enterprises and supporting their development. Total 116 IEP participants were taken for the study in which 103 were responded. The collected data analyzed by using SPSS. The paper has applied five criteria to extract the components 1) Item loading, 2) Kaiser cirieteria, 3) Total variance, 4) Scree plot test and 5) Parallel analysis. The model used may serve as the basis to predict the outcomes of enterprise performance (EP), to evaluate the

importance of the individual predictors, and to assess interaction effects. The extracted components of the PCA may be used as predictor variables, while the variable EP remains as the dependent variable. The study has conducted hindrance to deep investigation to draw conclusion to IEP categories or types of companies.

Ramar M R. N. et al. (2019) the paper titled “Role of business incubation centers in promoting Entrepreneurship in Tamilnadu”. The study has been conducted on business incubators located in Tamilnadu. The methodology adopted was descriptive as well quantitative data taking 10 business incubators as the first stage with convenience sampling whereas 200 incubators were at the second stage using quota sampling. The study has achieved the objectives like challenges and effectiveness of the services rendered by the business incubators. Paper has not touched upon how many startups have been capable of surviving on themselves after facilities received by the business incubator.

Sameeksha Dutta et al., (2016) Paper titled “Importance of Incubation centers with reference to Indian startups scenario”. The paper elaborates about the presence of incubation centers in India. The paper has taken into consideration the status of incubators around the world such as china, USA, Brazil and India. The paper talks on the incubators which makes easy the process of development for startups and help them to achieve their objectives and function more efficiently. While USA is the largest hub for incubators, developing countries like India are not far behind as the concept is being gradually picked up there as well. China and other Asian countries have also seen the impact of incubators increased; it still has a long way to go as many countries are still not familiar with the concept.

Supriyasharma and Neharika Vohra (2021) The paper titled “Indian business incubation

ecosystem: a multilevel analysis. The paper has analyzed several paper over number of years and analyzed that during 2018 published paper stated that Bangalore and Delhi to be among the top 20 cities that attracted most venture capital investment between 2015-2017. In this study the has collected and examined from four distinct sources –ecosystem, incubation schemes, incubators, entrepreneurs- to understand incubation in India and identify the opportunities for incubation in future. Data for this study was collected from both primary and secondary sources, at various levels. An extensive online search was undertaken to compile a list of 284 incubators in India. The various websites have been used by the researcher for location, services and for other support services. Finally, 24 startup founders were interviewed for understanding expectations and experiences from the incubators.

Vaishali Dhiman and Manpreet Arora (2023)

The paper titled “Exploring the linkage between business incubation and entrepreneurship: understanding trends and future research agenda”. This study has to conduct a bibliometric study using structural and relational approaches amongst the extracted and investigates the connections between business incubation and entrepreneurship related papers to describe the field comprehensively. The findings of this study emphasize the value of technology transfer, mentorship programs, entrepreneurship education and an emphasis on innovation and creativity through universities and academia.

Theoretical Background:

“Innovation is specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service, It is capable of being learned, capable of being practiced”

-- Peter Drucker.

Idea is the genesis of entrepreneurship. As a child is nurtured in incubation centers which provide them safety and support with nutrients needed; in this case the advice from mentors, domain experts and angel investors. Business Incubators (BI) is an entity, which help startup businesses with all necessary resources /support that the startup needs to evolve and grow as a mature business. Typically, BIs provide incubates, the startup businesses supported by incubators, with necessary infrastructure support, technology/prototype development support, research assistance and do whatever is necessary to make the startup a success.

Business incubators are organizations that support the entrepreneurial process, helping to increase survival rates for innovative startup companies. Entrepreneurs with feasible projects are selected and admitted into the incubators, where they are offered a specialized menu of support resources and services such as diverse elements as:

- Provision of physical space (offices, labs)
- Management coaching
- Help in preparing an effective business plan
- Administrative services
- Technical support
- Business networking
- Advice on intellectual property and
- Help in funding sources of financing.

Kinds of Incubators:

There are three types of incubators such as.,

I) Public Incubators: These incubators focus on high tech Industries. For science-based business incubators, an effective collaboration with universities and research institutions can motivate researchers into taking the risk of initiating a company. We can see such business incubators from 1980 onwards.

II) Private Incubators: These firms are profit oriented and take equity and fees for the business service they provide to their client. In a nutshell they are consulting firms that are specialized in new firm creation.

III) Mixed Incubators: These types of incubators are the private business incubators but make use of government schemes in order to render the services to the clients(startups).

Types of Startup Incubators:

The type of incubator a startup chooses can significantly influence its trajectory, as different incubators specialize in varying areas of expertise and support.

I) Corporate Incubators: These incubators are created by companies to encourage internal innovation or to explore new markets.

- Example: Google's Area 120 has historically developed innovative projects aligned with Google's goals, but it has recently shifted its focus to AI-first alternatives.
- Benefits: Startups gain access to corporate expertise, customer bases, and resources like technology platforms.

II) University-Based Incubators: Often tied to research institutions, these incubators harness academic expertise and resources.

- Example: UC Berkeley's Sky Deck supports startups founded by students, faculty, and alumni.
- Benefits: Startups benefit from cutting-edge research, academic collaborations, and credibility associated with the university.

III) Non-Profit Incubators: These are typically focused on community or economic development, helping small businesses thrive while revitalizing local economies.

- Example: Non-profit incubators often provide subsidized services to reduce financial strain on startups.

- Benefits: Affordable resources, including low-cost office space, and a mission-driven focus on societal impact.

IV) Venture Capitalist Incubators: Operated by VC firms, these incubators provide direct funding and strategic advice, often in exchange for equity.

- Example: Y Combinator is one of the most notable startup accelerators and seed funding programs.
- Benefits: Access to investment capital, high-level mentorship, and a network of influential industry contacts. In highly specialized industries, generic support may not address the unique challenges startups face. Industry-specific incubators are designed to provide targeted resources, technical expertise, and industry connections, giving startups a competitive edge in their respective fields.

V) Healthcare Incubators: Healthcare incubators are vital for startups developing medical devices, pharmaceuticals, or digital health solutions. The healthcare sector's stringent regulatory environment and the need for extensive clinical validation require specialized guidance.

- **Clinical Trial Support:** These incubators help startups design and conduct clinical trials, often connecting them with hospitals or research institutions.
- **Regulatory Expertise:** Navigating FDA approvals or equivalent global regulations is a significant hurdle that healthcare incubators assist with.
- **Notable Example:** The MedTech Innovator program supports startups by providing mentorship, funding, and networking opportunities with key stakeholders in the medical device industry.

VI) Fintech Incubators: The financial technology sector requires startups to address unique challenges like data security, compliance with global financial regulations, and integration with legacy systems. Fintech incubators provide the tools and networks needed to thrive in this competitive market.

- **Regulatory Guidance:** Startups are supported in meeting complex requirements such as anti-money laundering (AML) laws or GDPR compliance.
- **Collaboration Opportunities:** Many programs connect fintech startups with banks and financial institutions for pilot programs and partnerships.
- **Notable Example:** The Fintech Innovation Lab brings together startups and financial institutions to foster collaboration and accelerate innovation.

Other Specialized Incubators:

In addition to healthcare and fintech, several incubators focus on other niche industries with high growth potential.

- **Renewable Energy Incubators:** These programs assist startups developing sustainable energy solutions, such as solar technology or energy storage systems, by connecting them with research labs, utilities, and policy experts.
- **AgriTech Incubators:** Supporting innovations in farming, food production, and supply chains, these incubators often provide access to field trials and connections with agricultural organizations.
- **Artificial Intelligence Incubators:** Focused on AI startups, these programs offer access to high-performance computing resources, datasets, and mentorship from leading AI researchers.

The formal concept of business incubation began in the US in the 1960s. It later

developed in the UK and Europe through various related forms (e.g. innovation centers, spinners' enterprises, technologies and science parks) during 1980s. There was a rapid increase in incubation activity can be attributed to a number of factors. Business incubators have been identified as a means of meeting a variety of economic and socioeconomic policy needs, which may include:

- Employment and wealth creation;
- Support from small firms with high growth potential;
- Transfer of technology;
- Promoting innovations;
- Enhancing links among universities, research institutions and the business community;
- Industry cluster development.

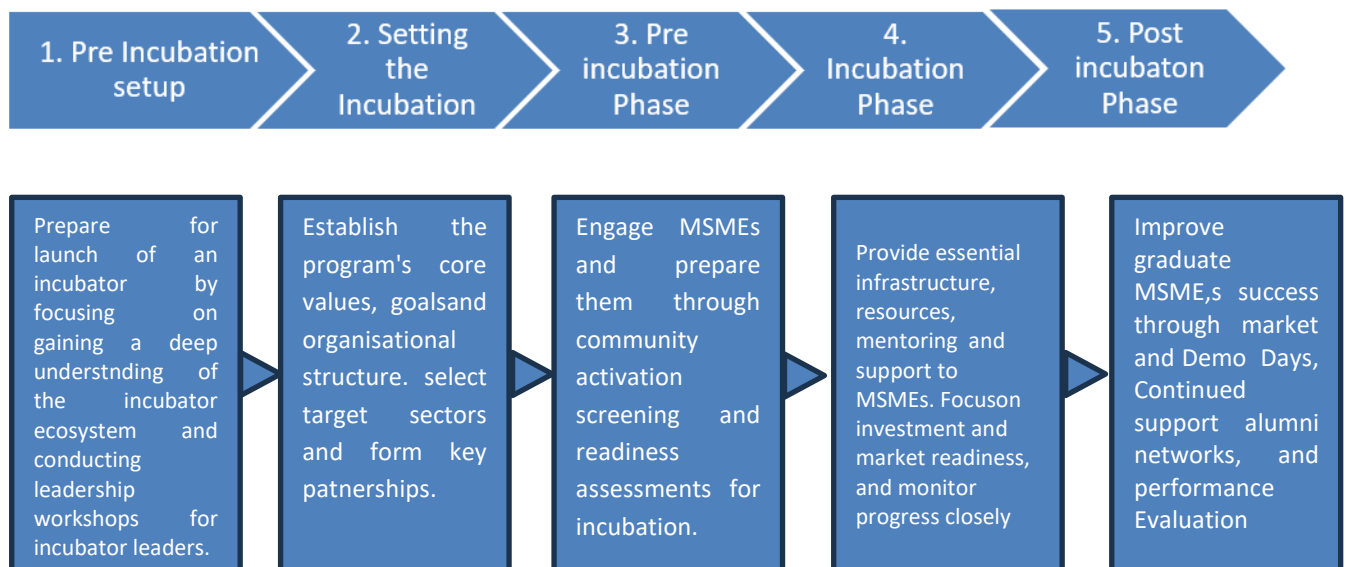
Among the first-generation incubators, the majority focused on relatively low technology businesses, typically in the service and manufacturing sectors. Gradually, the incubation industry expanded in size and sophisticated of businesses represented among client companies. Currently National business association is professionally associated with business incubators. Business incubators accelerate the successful development of entrepreneurial companies through an array of business support resources and services, developed and orchestrated by incubator management, and offered both in incubator and through its network of contacts. A business incubator's main goal is to produce successful firms that will leave the program financially viable and freestanding. These incubator graduates have potential to create jobs, revitalize neighborhoods, commercialize critical technologies and strengthen local and national economies.

Among the first-generation incubators, the majority focused on relatively low technology businesses, typically in the service and manufacturing sectors. Gradually, the incubation

industry expanded in size and sophistication of businesses represented among client companies. Currently national incubation association –the international membership organization for those professionally associated with business incubation and enterprise development has about 1000 members, representing approximately 600 incubation programs.

Business incubator program was started in America during 1956 and Accelerators started around 2005 was in America but this concept in India started during the year empowers incubators to not only guide MSMEs towards success but also to adapt and evolve with the ever-changing business landscape, ensuring long-lasting impact and resilience.

The Five Phases of Incubator Toolkit:



Source: Adapted from seed Indonesia Incubation process.

Future Research:

The future research can be undertaken on the various key performance to be adopted by each type of incubation according to the different life cycle or business incubation Process because each phase is phasing different challenges and also providing different services.

Conclusion:

Startup incubators play a pivotal role in fostering entrepreneurial success. By providing essential resources such as office space, mentorship, networking opportunities, and access to funding, these programs empower startups to turn ideas into thriving businesses. Whether through corporate, university-based, or

specialized industry incubators, entrepreneurs gain access to a supportive ecosystem designed to navigate the challenges of starting and growing a business.

As the startup landscape evolves, incubators are adapting to new trends, embracing digitization, and experimenting with innovative models to meet the needs of modern entrepreneurs. Whether you're a budding startup or an established business looking to innovate, the world of incubators offers a gateway to growth, collaboration, and success. For entrepreneurs ready to take the leap, joining an incubator could be the first step toward turning their vision into reality.

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The Rule-Bound Rupee Banking Law and the Future of Digital Currency

Anoushka Girish & Asst. Prof. Soumya Ranjan

Corresponding Author - Anoushka Girish

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Abstract:

Central Bank Digital Currencies (CBDCs) represent a significant development in modern banking by introducing a sovereign digital form of currency issued by the central bank. Unlike conventional digital payments, programmable CBDCs can incorporate predefined conditions governing the manner, purpose, or duration of their use. While such features may improve the efficiency of public welfare distribution, regulatory compliance, and payment security, they also raise important legal concerns regarding the extent of regulatory control over the use of sovereign money.

This paper examines the legal implications of programmable Central Bank Digital Currencies within the framework of Indian banking law, with particular reference to the Reserve Bank of India's Digital Rupee initiative. It analyses whether the existing legal framework, including the Reserve Bank of India Act, 1934, the Payment and Settlement Systems Act, 2007, and the Digital Personal Data Protection Act, 2023, adequately regulates the use of programmable features in digital currency. The paper identifies the absence of a clear statutory framework governing the conditions that may be attached to CBDC transactions and the safeguards available to users against arbitrary or excessive restrictions. The paper argues that the current legal framework requires greater regulatory clarity to ensure that programmable digital currency is implemented in a manner consistent with consumer protection, transparency, and accountability. It recommends the development of specific legal standards governing the use of programmable features, thereby enabling innovation in digital payments while preserving public confidence in India's evolving banking system.

Introduction:

Money has continually evolved in response to changes in commerce, technology, and governance. From barter systems and metallic coins to paper currency and electronic payment mechanisms, each transformation has sought to improve the efficiency, accessibility, and reliability of financial transactions. The rapid digitalisation of the global economy has accelerated this evolution, prompting central banks to explore new forms of sovereign currency capable of meeting the demands of an increasingly cashless society. Among the most

significant developments in this regard is the emergence of Central Bank Digital Currencies (CBDCs), which represent a digital form of fiat currency issued and backed by a nation's central bank. Unlike privately issued cryptocurrencies, CBDCs derive their legitimacy from the sovereign authority of the State and are designed to function as legal tender within the existing monetary system. India has joined this global transition through the Reserve Bank of India's Digital Rupee initiative, introduced as a pilot project to modernise the country's payment infrastructure and strengthen financial innovation.

While the Digital Rupee promises faster settlement, lower transaction costs, improved financial inclusion, and greater payment efficiency, its most distinctive feature lies in the possibility of **programmability**. A programmable CBDC allows specific conditions to be embedded into digital currency, enabling transactions to occur only when predetermined criteria are fulfilled. Such conditions may regulate the purpose, duration, location, or recipient of a payment, thereby transforming digital currency from a passive medium of exchange into an instrument capable of enforcing regulatory objectives.

Although programmability offers considerable advantages in areas such as targeted welfare distribution, subsidy administration, fraud prevention, and regulatory compliance, it simultaneously raises complex legal and regulatory concerns. The ability to determine how, where, or when money may be spent challenges conventional understandings of monetary autonomy and raises important questions concerning consumer rights, transparency, accountability, and the permissible scope of regulatory intervention. More importantly, India's existing banking legislation was enacted at a time when sovereign money functioned as a neutral medium of exchange rather than a rule-based digital instrument. Consequently, the legal framework does not expressly regulate the extent to which programmable conditions may be imposed upon digital currency or the safeguards available against arbitrary or disproportionate restrictions. While considerable academic attention has been devoted to the technological architecture and economic implications of CBDCs, comparatively limited scholarship examines the legal consequences of programmable sovereign currency within the framework of Indian banking law. Existing discussions primarily focus on

innovation and payment efficiency, often overlooking questions relating to statutory authority, regulatory accountability, consumer protection, and legal oversight of programmable features. This paper addresses that gap by critically examining whether the current legislative framework including the Reserve Bank of India Act, 1934, the Payment and Settlement Systems Act, 2007, and the Digital Personal Data Protection Act, 2023 is sufficient to regulate programmable CBDCs in India. It argues that although programmable digital currency possesses the potential to strengthen India's digital payment ecosystem, its long-term legitimacy depends upon the establishment of a clear statutory framework that balances technological innovation with legal certainty, transparency, and public confidence.

From Money to Programmable Currency:

Money has never been a static concept. Its evolution reflects the changing economic, technological, and institutional needs of society. The earliest systems of exchange were based on barter, where goods and services were traded directly without a common medium of exchange. Although effective in small communities, the barter system was hindered by the requirement of a double coincidence of wants, making transactions inefficient as economies expanded. The introduction of commodity money, followed by metallic coins and eventually paper currency, addressed these limitations by establishing a universally accepted medium of exchange, unit of account, and store of value. The modern monetary system is primarily based on *fiat currency*, which derives its value not from intrinsic worth but from the authority and guarantee of the sovereign State. Central banks exercise control over the issuance and regulation of fiat money, enabling governments to implement monetary policy, maintain financial

stability, and regulate inflation. Despite the digitisation of financial services over the past two decades, the nature of sovereign money itself remained unchanged. Digital payment platforms merely facilitated the electronic transfer of existing fiat currency without altering its legal character.

The rapid expansion of financial technology, however, has transformed the manner in which payments are made. Mobile banking, Unified Payments Interface (UPI), internet banking, prepaid payment instruments, and digital wallets have significantly reduced dependence on physical cash. These innovations, although commonly described as digital money, do not constitute new forms of currency. Instead, they represent digital methods of transferring deposits maintained within commercial banking institutions. The underlying money remains conventional fiat currency issued and regulated by the central bank. A distinction must therefore be drawn between *digital payments*, *cryptocurrencies*, and *Central Bank Digital Currencies (CBDCs)*. Digital payment systems merely transfer existing bank deposits electronically through regulated payment networks. Cryptocurrencies such as Bitcoin operate on decentralised blockchain networks without sovereign backing and derive their value from market demand rather than governmental authority. Their volatility, absence of legal tender status, and limited regulatory oversight distinguish them from sovereign monetary instruments. A *Central Bank Digital Currency (CBDC)*, by contrast, is a digital representation of sovereign fiat currency issued directly by a country's central bank. It possesses the same legal status and monetary value as physical cash while existing in digital form. Unlike cryptocurrencies, CBDCs are backed by the full faith and credit of the issuing State and form part of the official monetary system. Their primary objective is not

to replace existing banking institutions but to modernise payment infrastructure, improve settlement efficiency, promote financial inclusion, and strengthen monetary sovereignty in an increasingly digital economy. Recognising these developments, the Reserve Bank of India introduced the *Digital Rupee (e₹)* through pilot projects for both wholesale and retail transactions. The wholesale CBDC is intended primarily for interbank settlements and financial institutions, whereas the retail CBDC is designed for use by individuals and businesses as a digital equivalent of physical currency. The Digital Rupee seeks to complement existing payment systems rather than replace cash or electronic banking, while offering the advantages of sovereign-backed digital money.

The most transformative aspect of CBDCs lies in their potential for *programmability*. Traditionally, money has functioned as a neutral medium of exchange, allowing individuals complete discretion over its use once lawfully acquired. Programmable CBDCs introduce an entirely different paradigm by embedding predetermined conditions within the currency itself. These conditions may specify when a payment can occur, where it may be spent, who may receive it, or the purposes for which it may be used. For example, government welfare benefits could be programmed to permit expenditure only on essential commodities, agricultural subsidies could be restricted to authorised vendors, or emergency relief funds could carry expiration dates to ensure timely utilisation.

It is important to distinguish *programmable payments* from *programmable money*, as the two concepts are often used interchangeably despite their legal significance. Programmable payments automate the execution of a transaction upon the fulfilment of predefined conditions, while the currency itself remains

unrestricted. Programmable money, however, embeds those conditions directly into the digital currency, enabling the money itself to regulate its use after issuance. This distinction fundamentally alters the legal character of sovereign currency by introducing behavioural restrictions that have traditionally been imposed through legislation or contractual obligations rather than through the monetary instrument itself.

The transition from conventional fiat currency to programmable sovereign money therefore represents more than a technological advancement; it signifies a structural shift in the relationship between the State, financial institutions, and individuals. Money is no longer conceived merely as a passive medium facilitating exchange but increasingly as a potential instrument of regulatory governance. While this transformation promises greater efficiency, targeted welfare delivery, and improved compliance, it simultaneously raises important questions concerning the legal authority to impose programmable conditions, the limits of regulatory discretion, and the protection of consumer autonomy. These questions form the foundation of the legal analysis undertaken in the subsequent sections of this paper.

The Indian Legal Framework Governing Programmable Central Bank Digital Currencies:

India's transition towards a Central Bank Digital Currency (CBDC) has largely been driven through regulatory initiatives of the Reserve Bank of India (RBI) rather than through the enactment of a dedicated legislative framework. While the Digital Rupee has been introduced through pilot projects and policy documents, the legal basis governing its issuance, operation, and programmability remains dispersed across multiple statutes enacted before the emergence of sovereign digital currency. Consequently, the

existing framework provides only partial guidance regarding the legal status and permissible scope of programmable CBDCs. The Reserve Bank of India Act, 1934, forms the cornerstone of India's monetary framework by empowering the RBI to regulate the issuance of currency and maintain monetary stability. Traditionally, the Act envisaged currency in the form of physical banknotes and coins. Although the Digital Rupee represents a sovereign liability of the RBI similar to physical cash, the Act does not expressly recognise digital legal tender or define the legal characteristics of programmable currency. More importantly, it is silent on whether the RBI may attach conditions governing the manner, purpose, duration, or geographical use of sovereign digital money. This legislative silence becomes particularly significant when programmable features begin influencing how individuals may utilise currency after it has been issued.

The Payment and Settlement Systems Act, 2007 (PSS Act) regulates payment systems operating within India by empowering the RBI to authorise and supervise payment infrastructure. The legislation provides the regulatory foundation for digital payment mechanisms by ensuring the safety, efficiency, and reliability of electronic payment systems. However, the PSS Act primarily governs the movement of funds through payment systems rather than the legal attributes of the currency itself. Programmable CBDCs blur this distinction by embedding regulatory conditions within the currency rather than merely facilitating its transfer. As a result, the Act offers limited guidance on questions relating to the legality, proportionality, or enforceability of programmable restrictions. Data governance constitutes another important aspect of programmable digital currency. Unlike physical cash transactions, CBDCs inevitably generate transactional information capable of revealing

behavioural patterns, financial activities, and spending preferences. The Digital Personal Data Protection Act, 2023 (DPDP Act) establishes principles governing the collection, processing, storage, and protection of personal data by requiring lawful processing, informed consent where applicable, purpose limitation, and reasonable security safeguards. Although these principles contribute significantly to protecting users' personal information, the legislation is not specifically designed to regulate financial surveillance associated with programmable sovereign currency. Questions concerning the extent of transaction monitoring, retention of financial data, profiling of users, and governmental access to CBDC transaction records remain largely unresolved within the present statutory framework.

The RBI has supplemented these legislative provisions through policy documents, concept notes, and pilot projects relating to the Digital Rupee. The RBI's Concept Note on Central Bank Digital Currency identifies several potential applications of programmability, including targeted government benefits, automated compliance mechanisms, and more efficient public expenditure. Nevertheless, these documents primarily articulate policy objectives and technological possibilities rather than establishing binding legal standards governing the exercise of programmable powers. Since policy documents do not possess the same legal force as legislation enacted by Parliament, they cannot substitute for a comprehensive statutory framework defining the rights and obligations of all stakeholders.

Furthermore, India's broader financial regulatory framework including anti-money laundering obligations, Know Your Customer (KYC) requirements, and financial crime prevention mechanisms may justify certain restrictions on digital transactions in the interest

of public welfare. However, such regulatory measures have traditionally operated through financial institutions and supervisory mechanisms rather than by embedding conditions directly into money itself. Programmable CBDCs fundamentally alter this relationship by enabling restrictions to become an inherent feature of the currency, thereby raising questions regarding the legal source of such authority and the procedural safeguards available to users.

The fragmented nature of the current legal framework therefore creates significant regulatory uncertainty. Existing legislation recognises the RBI's authority to regulate currency, payment systems, and financial stability, yet none of the governing statutes expressly define the legal limits of programmability, prescribe standards for imposing transaction-specific conditions, or establish mechanisms through which individuals may challenge arbitrary restrictions imposed upon digital currency. In the absence of a dedicated legislative framework, the legality of programmable CBDCs depends largely upon administrative discretion rather than clearly articulated statutory principles. Accordingly, while India's existing banking laws provide a foundational basis for introducing a sovereign digital currency, they do not adequately address the unique legal questions generated by programmable money. As programmable features evolve beyond technological experimentation into practical governance tools, the need for a comprehensive legal framework becomes increasingly evident. Such a framework must clearly delineate the extent of regulatory authority, establish safeguards against excessive intervention, and ensure that technological innovation remains consistent with the principles of legality, transparency, accountability, and consumer protection.

Regulatory Challenges in Governing Programmable Central Bank Digital Currencies:

The introduction of programmable Central Bank Digital Currencies (CBDCs) represents a significant shift in the relationship between banking regulation and sovereign currency. Traditionally, banking law has regulated the institutions that issue, hold, and transfer money. Programmable CBDCs, however, introduce the possibility of regulating the currency itself by embedding conditions into its use. While such functionality offers opportunities for more efficient financial governance, it also exposes several regulatory shortcomings within India's existing banking framework.

Absence of an Express Statutory Basis for Programmability:

The foremost challenge is the absence of a clear statutory provision authorising the Reserve Bank of India to issue programmable currency. Although the Reserve Bank of India Act, 1934 empowers the RBI to issue currency and regulate monetary policy, it was enacted in an era when currency existed solely in physical form. The Act does not contemplate digital legal tender capable of carrying programmable instructions. Similarly, the Payment and Settlement Systems Act, 2007 governs the infrastructure through which payments are processed rather than the legal characteristics of the currency being transferred. Consequently, while these statutes provide the legal basis for regulating payment systems and monetary operations, they do not expressly define the scope, limits, or permissible objectives of programmable sovereign money. From a banking law perspective, this creates uncertainty regarding the extent of the RBI's regulatory authority. Regulatory innovation cannot indefinitely rely upon broad statutory interpretation where new forms of sovereign currency fundamentally alter

the legal nature of money itself. A dedicated legislative framework is therefore necessary to define the powers of the RBI, the permissible use of programmable features, and the safeguards applicable to their implementation.

Balancing Regulatory Efficiency with Consumer Autonomy:

Programmable CBDCs have the potential to improve the administration of public finance by ensuring that funds are utilised for their intended purposes. Government subsidies, agricultural assistance, educational grants, disaster relief, and welfare benefits could all be directed towards specified categories of expenditure, reducing leakage and improving fiscal accountability. However, banking regulation has historically recognised money as a neutral financial instrument once it lawfully reaches its recipient. Embedding restrictions directly within sovereign currency alters this long established principle by limiting how individuals may utilise their own funds. Excessive programmability may therefore undermine consumer confidence in the Digital Rupee, particularly where users perceive that spending decisions are being influenced by regulatory conditions rather than personal choice. The challenge for banking regulators lies in ensuring that programmability serves legitimate public policy objectives without transforming sovereign currency into an instrument of continuous financial control. Regulatory intervention should remain proportionate, transparent, and supported by clear statutory authority.

Regulatory Uncertainty and Market Confidence:

Confidence is the foundation of every monetary system. Public acceptance of a CBDC depends not only upon technological reliability but also upon legal certainty regarding its

operation. Businesses, financial institutions, and consumers require clarity concerning the conditions that may be attached to programmable transactions, the circumstances under which such conditions may be modified, and the legal remedies available in cases of error or misuse. The current framework provides limited guidance on these issues. Pilot projects demonstrate technological feasibility but do not establish enforceable legal standards. Without statutory certainty, regulated entities may face inconsistent compliance obligations, while consumers may remain uncertain regarding the legal status of programmable restrictions. A stable banking system depends upon predictable regulation. Uncertainty surrounding programmable CBDCs may discourage widespread adoption despite their technological advantages.

Data Governance and Financial Confidentiality:

Unlike physical cash transactions, programmable CBDCs inevitably generate digital records capable of revealing detailed financial behaviour. While certain transactional information is necessary for regulatory oversight, the collection and processing of such data raise important banking governance concerns. Financial institutions have long been expected to preserve customer confidentiality while complying with statutory obligations relating to anti-money laundering, fraud prevention, and financial supervision. Programmable CBDCs increase the volume and precision of transaction data available within the financial system, making robust governance mechanisms essential. Although the Digital Personal Data Protection Act, 2023 establishes general principles for processing personal data, it does not specifically regulate the management of financial data generated through programmable sovereign currency. The absence of sector-specific

standards governing data retention, authorised access, cybersecurity, and institutional accountability creates uncertainty regarding the protection of consumer information within the CBDC ecosystem.

Operational Responsibilities of Banking Institutions:

The successful implementation of a retail CBDC depends not only upon the Reserve Bank of India but also upon commercial banks and authorised intermediaries responsible for distributing and servicing the Digital Rupee. Programmable transactions introduce additional operational responsibilities, including compliance monitoring, wallet management, dispute resolution, cybersecurity, and customer assistance. Without comprehensive regulatory guidance, banking institutions may adopt inconsistent operational practices, resulting in unequal consumer experiences and increased compliance costs. Uniform regulatory standards are therefore essential to ensure consistency across participating institutions and to maintain confidence in the broader digital payment ecosystem. The transition towards programmable sovereign currency is therefore not merely a technological advancement but a regulatory transformation requiring corresponding developments in banking law. While India's existing legal framework provides the institutional foundation for the Digital Rupee, it does not comprehensively regulate the legal consequences of embedding programmable conditions within sovereign currency. Addressing these regulatory gaps is essential to ensure that innovation strengthens, rather than undermines, public confidence in India's evolving banking system.

Towards a Comprehensive Banking Law Framework for Programmable CBDCs:

India's Digital Rupee initiative demonstrates the Reserve Bank of India's commitment to modernising the country's payment ecosystem while maintaining monetary stability. However, the transition from conventional digital payments to programmable sovereign currency requires a corresponding evolution of the legal framework. Technological innovation alone cannot sustain public confidence unless it is supported by clear legislative authority, regulatory certainty, and effective institutional safeguards. Accordingly, India's banking laws must evolve to address the distinctive legal characteristics of programmable CBDCs.

The first and most significant reform should be the enactment of a dedicated statutory framework governing Central Bank Digital Currencies. Rather than relying exclusively on existing legislation drafted for traditional currency and payment systems, Parliament should introduce comprehensive provisions defining the legal status of the Digital Rupee, the scope of programmability, and the powers of the Reserve Bank of India in implementing programmable features. Such legislation should clearly distinguish between ordinary digital currency and programmable digital currency while specifying the circumstances in which programmable conditions may be lawfully imposed.

Secondly, the Reserve Bank of India should develop a transparent regulatory framework governing the use of programmable features. Regulatory guidelines should clearly identify the objectives for which programmability may be utilised, such as targeted welfare distribution, government subsidies, disaster relief, or sector-specific financial assistance. At the same time, the framework should prohibit arbitrary or commercially motivated restrictions that unnecessarily interfere with the ordinary use

of sovereign currency. Clearly defined regulatory standards would enhance predictability for financial institutions while strengthening public confidence in the Digital Rupee.

Another area requiring attention is institutional accountability. Decisions relating to the design and implementation of programmable features should not remain solely matters of administrative discretion. Appropriate oversight mechanisms involving periodic regulatory review, stakeholder consultation, and parliamentary scrutiny would promote transparency and ensure that significant policy decisions affecting the monetary system remain subject to democratic accountability. Given the far-reaching implications of programmable sovereign currency, major regulatory changes should be accompanied by publicly available policy justifications and impact assessments. The operational role of commercial banks also requires greater regulatory clarity. As intermediaries responsible for distributing and servicing retail CBDCs, banks should be subject to uniform standards governing wallet management, customer due diligence, cybersecurity, grievance redressal, and operational risk management. Standardised compliance obligations would reduce regulatory inconsistency across participating institutions and facilitate the smooth integration of programmable CBDCs into India's existing banking infrastructure. Consumer protection should constitute another essential component of the regulatory framework. Users must receive clear information regarding any conditions attached to programmable currency before transactions are completed. Where restrictions affect the use of funds, individuals should have access to effective grievance redressal mechanisms capable of addressing technical failures, operational errors, or wrongful application of programmable conditions. Establishing transparent dispute resolution procedures would significantly

strengthen trust in the Digital Rupee as a reliable medium of exchange.

Finally, regulatory development should remain adaptive rather than static. Programmable CBDCs are an evolving financial innovation, and their applications will continue to expand alongside advances in financial technology. The Reserve Bank of India should therefore periodically review the functioning of programmable features through pilot assessments, stakeholder consultations, and empirical evaluation of their economic and operational impact. Such a responsive regulatory approach would enable policymakers to address emerging risks while preserving the flexibility necessary to encourage responsible innovation within India's banking sector.

The future of programmable sovereign currency will depend not merely upon technological capability but upon the strength of the legal framework governing its operation. A carefully designed banking law framework that combines innovation with legal certainty, institutional accountability, consumer protection, and regulatory transparency will enable India to realise the benefits of programmable CBDCs while preserving confidence in its monetary and financial system.

Conclusion:

The emergence of programmable Central Bank Digital Currencies marks a significant development in the evolution of banking and monetary regulation. Unlike conventional forms of digital payment, programmable CBDCs have the capacity to embed conditions directly into sovereign currency, enabling money to perform regulatory functions beyond its traditional role as a medium of exchange. While this innovation offers substantial benefits in improving payment efficiency, strengthening public welfare delivery, enhancing regulatory compliance, and supporting

financial inclusion, it also introduces legal questions that existing banking legislation does not adequately address.

This paper has demonstrated that India's current legal framework, comprising the Reserve Bank of India Act, 1934, the Payment and Settlement Systems Act, 2007, and the Digital Personal Data Protection Act, 2023, provides the institutional foundation for the Digital Rupee but does not expressly regulate the legal consequences of programmability. The absence of specific statutory provisions defining the scope of programmable features, the extent of the Reserve Bank of India's regulatory authority, and the safeguards available to consumers creates uncertainty within the evolving digital banking ecosystem. Continued reliance on pilot projects and policy documents, while valuable for technological experimentation, cannot substitute for a comprehensive legislative framework governing sovereign digital currency. As India progresses towards wider adoption of the Digital Rupee, banking law must evolve alongside technological innovation. A dedicated statutory framework defining the legal status of programmable CBDCs, prescribing transparent regulatory standards, strengthening consumer protection, and ensuring institutional accountability would provide greater certainty to financial institutions, regulators, and users alike. Such reforms would not only facilitate responsible innovation but also reinforce public confidence in the integrity of India's monetary system. Ultimately, the future of programmable sovereign currency will depend not merely on technological advancement but on the ability of banking law to provide a stable, predictable, and transparent regulatory framework. By establishing clear legal boundaries for programmability, India can foster innovation while preserving the confidence, certainty, and stability that remain fundamental to an effective banking system.



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