Technology, Innovation, and the Startup Ecosystem for Achieving Viksit Bharat Author: Tulsi Amitkumar Thakore

Student: 5th Year BBA LLB
Anand Law College
Co-Author: Dr. Kajal Chaudhary
Assistant Professor
Anand Law College

Abstract:

As India gets closer to celebrating its 100th anniversary of independence in 2047, the country hopes to turn into Viksit Bharat, an advanced, just, and technologically advanced civilization. This chapter examines how innovation and technology are essential to achieving this audacious goal. It provides a thorough examination of India's contemporary digital infrastructure, the country's ascent in international innovation rankings, and the use of cutting-edge technologies including biotechnology, artificial intelligence, green energy, and space research. The study emphasizes government programs including the National AI and Green Hydrogen Missions, Startup India, and Digital India. Additionally, it highlights the significance of inclusive growth via youth empowerment, women-led innovation, and rural digitization women-led innovation, and youth empowerment. The rapid adoption of digital technologies, artificial intelligence, fintech, and sustainable innovations has enabled startups to drive economic growth, employment generation, and inclusive development. Government initiatives such as Startup India, Digital India, and Make in India have further strengthened the ecosystem by providing policy support, funding access, and infrastructure. This paper examines how technological advancement and innovation-led startups contribute to national development, enhance global competitiveness, and support sustainable and inclusive growth. The study highlights key challenges and future opportunities for leveraging the startup ecosystem to achieve the long-term goals of Viksit Bharat.

Key Words:

Viksit Bharat 2047, Technology and Innovation, Startup Ecosystem, Digital India, Startup India, Economic Growth.

Introduction:

India's Vision 2047 aims to create a "Viksit Bharat" that is socially inclusive, economically thriving, and environmentally sustainable. India, the fifth-largest economy and most populous democracy in the world, is at a turning point in its history where growth must be fuelled by innovation, sustainability, and global integration in addition to scale. In order to promote sustainable growth, this paper will examine a number of topics pertaining to India's growing startup ecosystem, strategic international cooperation, and rapid technical advancement. The secondary data gathered from several publications, journals, periodicals, and other sources forms the basis of this study. In a time of digitization, artificial intelligence, green energy, biotechnology, space exploration, and inclusive digital ecosystems, technology is emerging as a tool and a canvas that India will use to create its advanced future.
This chapter examines how technology and innovation will influence India's development into a developed country by 2047. With an emphasis on sustainable, inclusive, and globally competitive growth, it addresses the current environment, important sectors, governmental actions, potential obstacles, and the role of youth and entrepreneurship.

The comprehensive goal of Viksit Bharat 2047 is to make India a developed, just, and independent country. The vision aims to create a $30 trillion economy with zero poverty, guarantee universal access to high-quality

education, attain 100% skilled employment, establish global leadership in emerging technologies, encourage sustainability and carbon neutrality, and offer all citizens access to high-quality, reasonably priced healthcare. NITI Aayog and state planning agencies are working together to actively pursue this national goal, with a focus on long-term structural change.

Technology and innovation form the core pillars of this vision, enabling inclusive growth, productivity enhancement, and efficient governance. However, achieving the objectives of Viksit Bharat 2047 requires collaborative participation from the government, private sector, startups, and citizens to foster innovation-led development.

India's current technological landscape has been significantly shaped by the **Digital India Mission** launched in 2015. The initiative has transformed public service delivery and digital inclusion through rapid expansion of telecommunications, widespread internet penetration, the **Aadhaar digital identity system**, and the **Unified Payments Interface (UPI)**, which now processes billions of transactions monthly. The development of **Digital Public Infrastructure (DPI)** has created a robust foundation for scalable, inclusive, and technology-driven economic growth, particularly benefiting Tier-2 and Tier-3 regions.

AI is expected to contribute $967 billion to the Indian economy by 2035 Applications span: • Smart agriculture using predictive models • AI-driven diagnostics and personalized medicine • Intelligent traffic and urban management • Education via adaptive learning systems India's National AI Mission focuses on ethical AI, data governance, and talent development. Green and Clean Technology Climate action is central to India's growth model • Target of Net Zero Carbon Emissions by 2070 • Plans to meet 50% energy needs from renewables by 2030 • Innovations in solar, wind, hydrogen fuel, EVs The National Green Hydrogen Mission, with an outlay of ₹19,744 crores, aims to make India a global hub for green hydrogen

Role of Youth, Women, and the Private SectorThe success of the *Viksit Bharat 2047* mission depends significantly on the active participation of youth, whose innovation, skills, and intellectual capabilities can accelerate national development. Integrating young citizens into policymaking and governance processes is essential for fostering inclusive, dynamic, and future-ready growth.

Women's empowerment is equally critical to achieving a developed India. As emphasized by the Hon'ble Prime Minister, true national progress is rooted in the empowerment of women. Ensuring women's equal access to education, healthcare, economic opportunities, and leadership roles, while eliminating gender-based discrimination, is vital for sustainable and inclusive development. Women must be recognized not only as beneficiaries but as key drivers of economic and social transformation.

The private sector plays a decisive role in realizing Viksit Bharat 2047, as public resources alone are insufficient to meet growing infrastructure and development needs. Private investment, innovation, and entrepreneurship are essential for driving economic growth, technological advancement, and job creation. Therefore, strong public–private collaboration is necessary to achieve the ambitious vision of a developed and self-reliant India.

Objective of the Study:

To examines the role of technology and innovation in achieving the vision of *Viksit Bharat 2047*.

To analyse the contribution of the startup ecosystem to economic growth, employment generation, and inclusive development in India.

To assess the impact of government initiatives and policies in promoting technological advancement and entrepreneurship.

To evaluate how digital public infrastructure supports innovation-led and sustainable development.

To identify the challenges and opportunities faced by startups in contributing to national development goals.

To suggest policy measures and strategic interventions for strengthening the technology and startup ecosystem in line with the Viksit Bharat vision.

Research Methodology:

The current study is descriptive in nature and uses secondary data sources including research publications, periodicals, papers, and policy documents to investigate the concerns

Significance of Study:

The report aims to guide policy decisions by providing evidence-based insights about India's entrepreneurship and start-up ecosystem. It will help lawmakers draft rational laws that promote entrepreneurship and innovation, which will boost economic growth and job creation. The research's discovery of key interventions, success factors, and best practices will be extremely beneficial to Viksit Bharat @2047 and will also help to foster a vibrant entrepreneurial environment. Giving entrepreneurs the resources and knowledge they require will enable them to overcome obstacles, obtain funding, and navigate laws. The study would attract both domestic and foreign investment by showcasing Viksit Bharat @2047 as a hub for innovation and entrepreneurship. It will also promote diversity by ensuring that all societal groups have access to opportunities. By 2047, the research will inspire the next generation to pursue their goals and contribute to the creation of Viksit Bharat.

Innovation-Driven Startups and Their Role in Realizing Viksit Bharat 2047:

Creating networks and partnerships through the digital ecosystem improves the workplace and offers enormous opportunities to reach new clients. A digital ecosystem is a network of companies, individuals, and systems that communicate with one another via technology.

Advances in Science, Technology, and Innovation:

Startups are the next big thing in offering solutions for a number of global areas, including health, education, agriculture, and finance, with the ultimate goal of raising living standards. Startups are contributing significantly to the vision 2047 by often and quickly offering new business prospects. An innovative and entrepreneurial culture contributes to the achievement of Viksit Bharat 2047 by fostering employment possibilities and an entrepreneurial atmosphere.

Addressing the Digital Divide:

provide vital services like health, education, and finance with just a single click. Digitalization makes it easier to reach remote and rural places, and it enables start-ups to

Role in Economic Development and GDP Expansion:

The growth of economy and GDP contributes considerably towards Viksit Bharat 2047 by creating opportunity for new market dimensions and opening pathways for success of start-ups.

Societal Impact and Development Programs:

Many startups focus on fixing the challenges associated to social concerns like sanitation, access to clean and fresh water, women empowerment with innovative solution to varied difficulties, thereby driving towards more inclusive society.

Policy Implications:

Startups actively collaborate with government agencies to develop regulations that encourage innovation and entrepreneurial tactics, thereby influencing the regulatory environment for a prosperous digital nation.

Satellite and Space Technology

ISRO's accomplishments, including Gagan Yaan and Chandrayaan-3, show India's increasing strength. By 2047, space technologies will help: Global collaborations in planetary exploration; agricultural forecasts and disaster prevention; satellite internet for telemedicine and remote education

Innovation in Healthcare and Biotechnology

COVID-19 accelerated India's progress in biotechnology: • Research on mRNA technology; • Indigenous vaccine development (Covaxin, Covishield); • Genomic surveillance systems
Future developments include CRISPR gene editing, synthetic biology, and customized medicine.

Future-Proof Infrastructure

Smart Urban Technology and Cities
The 100 Smart Cities in India serve as test sites for IoT-based trash, traffic, and water management systems as well as integrated command and control centres.
• Microgrids for renewable energy
India envisions human-cantered, AI-managed, climate-resilient cities by 2047.
6G and Upward In order to achieve both domestic growth and worldwide leadership in next-generation telecom standards, India released a 6G Vision Document in 2023 [10]. Terabit-speed internet, ultra-low latency for remote robots, and integration with space internet networks are some of the key characteristics.

An Integrated Innovation Framework for India's Development by 2047

Innovation makes sure that these many missions complement one another rather than functioning in isolation. For instance, Smart Cities provide testbeds for implementing cutting-edge urban solutions, while Digital India infrastructure helps startups grow. Similarly, the policy ecosystem of Atmanirbhar Bharat boosts homegrown production and opens up a market for creative start-up goods.
The four pillars of Viksit Bharat 2047—economic growth, social inclusion, technical empowerment, and environmental sustainability—are thereby woven together by innovation.

Policy Suggestions for Viksit Bharat in2047

Decentralizing innovation and lowering regional inequities can be achieved by strengthening regional innovation hubs through the expansion of incubation and accelerator programs in Tier-II and Tier-III cities. To close rural and gender-based digital disparities, last-mile connection, reasonably priced devices, and vernacular digital tools must be used to deepen digital inclusion. Sustainable urbanization can be encouraged by scaling green and sustainable infrastructure, which is backed by green finance methods, climate-resilient urban planning, and the integration of renewable energy. MSMEs must be integrated into global value chains through export facilitation, better financial availability, and technology adoption in order to increase industrial competitiveness. Long-term urban sustainability will be ensured by institutionalizing thorough waste and sanitation regimes. Lastly, cross-sectoral cooperation can be facilitated and scalable, domestic inventions accelerated by promoting an integrated innovation ecosystem through policy convergence across Smart Cities, Digital India, and Atmanirbhar Bharat projects**.**

Advantages of Viksit Bharat:

Accelerates Economic Growth: Startups with a focus on technology increase GDP growth, productivity, and global competitiveness.

Employment Creation: Startups generate a lot of jobs, particularly for young people and highly qualified workers.

Encourages Innovation: Innovation reduces reliance on imports by producing domestic solutions.

Digital Inclusion: By increasing access to services in underserved and rural areas, technology contributes to closing the digital divide.

Strengthens Global Position: India's standing in the global innovation scene is improved by a robust startup environment.

Promotes Inclusive Development: Technology-enabled solutions help with governance, healthcare, education, and financial inclusion.

Encourages Sustainable Growth: Green technologies and sustainable development methods are encouraged by innovation.

Disadvantages of Viksit Bharat:

Digital Divide: Inequitable access to technology exacerbates socioeconomic and rural-urban disparities.

High Failure Rate: Financial, operational, or market risks are the main causes of startup failures.

Cybersecurity Risks: As the world becomes more digitally connected, worries about data privacy and cyberattacks grow.

Skill Mismatch: Workforce skills and industry demands diverge as a result of rapid technological advancement.

Regulatory Difficulties: Innovation and company expansion are impeded by complicated compliance regulations.

Market Concentration: Startups may not be able to compete fairly due to the dominance of big tech companies

Challenges and Opportunity:

In order to realize Viksit Bharat @2047, the Indian entrepreneurial ecosystem must overcome a number of obstacles. Start-up growth is hampered by regulatory complexity, bureaucratic delays, restricted access to financing, and challenges in hiring people. Operational difficulties are further compounded by fierce domestic and international rivalry, quickly shifting consumer preferences, and the diversity of the Indian market. However, there are also a lot of opportunities. Innovation is made possible by technological developments like blockchain, artificial intelligence, and the Internet of Things. India has a sizable, youthful, and technologically aware population that offesrs both a competent labour force and a robust customer base. The start-up ecosystem is strengthened by increased international integration, favourable governmental regulations, easier access to capital, and the expansion of incubation and innovation hubs. Startups can make significant contributions to innovation, economic growth, and inclusive development by skilfully tackling obstacles and seizing these opportunities.

Conclusion:

To realize India's goal of Viksit Bharat 2047, technology, innovation, and the startup ecosystem are essential. The report emphasizes how strong digital public infrastructure, innovation-driven entrepreneurship, and digital transformation have all made a substantial contribution to inclusive development, economic growth, and job creation. India's innovation environment and worldwide competitiveness have been bolstered by government initiatives including Digital India, Startup India, Make in India, and sector-specific missions like renewable energy and artificial intelligence. However, concerted policy changes, capacity building, and public-private cooperation are needed to address issues like the digital divide, skill gaps, regulatory complexity, and cybersecurity threats. India can achieve balanced, resilient, and inclusive growth and realize its long-term

vision of Viksit Bharat 2047 by empowering women and youth, encouraging sustainable innovation, and creating an environment that is conducive to entrepreneurship.

References:

1.Narsimulu, H., and Kumar, M. V. (2025). Viksit Bharat 2047: International Cooperation, Technological Advancement, and Startup Ecosystem.

2.The International Journal of Scientific Innovation and Research (IJRSI).

3. S. Singhal (2025). Viksit Bharat 2047: Technology and Innovation. Multidisciplinary Research International Journal (IJFMR).

4.Technology and Digital India for Viksit Bharat 2047 (n.d.).

5.Strategic Research and Innovation Initiatives for Viksit Bharat @2047 (n.d.). Organizer.org.

6.India's AI Vision: Digital Inclusion and Inclusive Development (n.d.). IAS Dhyeya.