

Future New Ecosystem of India: A Vision for Viksit Bharat 2047

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Abstract: The economy is becoming a technology-driven and innovation-oriented one in India. Digital public infrastructure, artificial intelligence, renewable energy, smart cities, green manufacturing, startup ecosystems and human capital development will be the future ecosystem of India. Viksit Bharat 2047 envisions a vision of India, striving for sustainable and inclusive development to achieve the status of a developed nation by 2047. This paper is an analysis of the key pillars, opportunities, challenges and policy interventions needed to create the future ecosystem of India. The study uses a secondary data collection method collected from government reports, research publications and policy documents.

Keywords: Viksit Bharat 2047, Future Ecosystem, Digital India, Artificial Intelligence, Renewable Energy, Sustainable Development.

1. INTRODUCTION

India is projected to be one of the top three economies in the world in 2047. The Government of India has envisioned 'Viksit Bharat 2047' as developed nation on the pathway of economic growth, technology development, social inclusion and environmental sustainability. The key to this transformation is expected to be Digital Public Infrastructure (DPI), renewable energy, smart manufacturing and innovation ecosystems (NITI Aayog, 2026). India is also looking towards productivity improvements, infrastructure development, skill building, and technological leadership to boost the competitiveness of the nation in the international arenas (KPMG, 2026).

2. LITERATURE REVIEW

Recent studies show that the three factors for future India's growth are digital transformation, energy transition and human capital development. NITI Aayog (2026) underscores the need for Digital Public Infrastructure in aiding inclusive growth. The ten priority areas identified by KPMG (2026) are: Manufacturing competitiveness, future-ready workforce, smart cities,

and green technologies. The EY-CII (2025) calls for strong growth in renewable energy and ensuring energy security as critical pillars to realise Viksit Bharat 2047.

3. RESEARCH OBJECTIVES

1. To study the emerging ecosystem of future India.
2. To analyze the role of technology and innovation.
3. To examine opportunities and challenges in achieving Viksit Bharat 2047.
4. To suggest policy recommendations for sustainable development.
5. To examine the social implications of India's future ecosystem and its impact on quality of life, social institutions, and human development.

4. RESEARCH METHODOLOGY

This study is descriptive and analytical in nature. Secondary data have been collected from government publications, NITI Aayog reports, industry reports, research journals, and policy documents.

5. COMPONENTS OF INDIA'S FUTURE ECOSYSTEM

5.1 Digital Public Infrastructure

In India, the development of its future digital economy (NITI Aayog, 2026) will be based on Digital Public Infrastructure like Aadhaar, UPI, DigiLocker and AI capable governance systems..

5.2 Artificial Intelligence and Industry 5.0

AI, machine learning, robotics and Industry 5.0 technologies can be expected to boost productivity, improve public services and create new jobs (KPMG 2026).

5.3 Renewable Energy and Green Transition

Solar energy, wind energy, green hydrogen, battery storage, and sustainable transportation systems will play a crucial role in shaping the future of the Indian ecosystem. The growth of renewable energy is vital to reach the Net Zero by 2070 goal in the context of economic growth (NITI Aayog, 2026; EY-CII, 2025).

5.4 Smart Cities and Infrastructure

The smart city, sustainable housing, digital government, and public utilities will be future urban development targets. Smart cities will be key enablers of economic growth and innovation.

5.5 Startup and Innovation Ecosystem

India's startup ecosystem has grown to become one of the world's largest. The future development of the economy will depend on innovation, entrepreneurship, venture capital investment and research institutions.

5.6 Human Capital Development

Human capital is the most important asset of a developed economies. The Indian demographic dividend is one of the youngest population in the world, which is a great opportunity to change the economy. The major challenge, though, is that large investments in education, health, skill building and research must be made to reap this demographic dividend.

The future ecosystem of India will require:

1. Skill-Based Education

Traditional education systems focused on rote learning are increasingly becoming inadequate. Future education policies must emphasize:

- Critical thinking
- Problem-solving abilities
- Creativity and innovation
- Digital literacy
- Entrepreneurship

The National Education Policy (NEP) 2020 has already laid the foundation for multidisciplinary learning and skill integration.

2. Future Workforce Readiness

Emerging sectors such as:

- Artificial Intelligence
- Data Analytics
- Cybersecurity
- Quantum Computing
- Biotechnology
- Space Technology
- Green Energy

will require a highly skilled workforce. India must establish future skill universities and industry-linked training centers.

3. Research and Development

Advanced economies spend 2–4% of GDP on R&D. India's expenditure remains below 1% of GDP. Increasing research investment is essential for:

- Technological leadership
- Patent generation
- Scientific innovation
- Industrial competitiveness

5.7 Green Manufacturing and Circular Economy

India's future ecosystem will increasingly depend upon sustainable industrialization.

Green manufacturing seeks to reduce:

- Carbon emissions
- Energy consumption

- Industrial waste
- Resource depletion

The adoption of circular economy principles can help maximize resource efficiency by promoting:

- Recycling
- Reuse
- Remanufacturing
- Waste-to-energy systems

Sectors likely to witness major transformation include:

- Automobile manufacturing
- Electronics
- Textiles
- Chemicals
- Construction materials

The transition toward green manufacturing will improve global competitiveness while helping India meet climate commitments.

5.8 Agriculture 4.0 and Food Security

Agriculture remains vital to India's economy and employment structure. The future ecosystem will involve a transition from traditional farming toward Agriculture 4.0.

Key technologies include:

Precision Agriculture

- Drones
- IoT sensors

- Satellite monitoring
- AI-based crop advisory systems

Climate-Smart Farming

- Drought-resistant crops
- Efficient irrigation systems
- Water conservation technologies

Digital Agriculture Platforms

Digital marketplaces can improve:

- Price transparency
- Market access
- Farmer incomes

Agri-Tech Startups

Emerging startups are transforming:

- Supply chains
- Farm financing
- Crop insurance
- Agricultural logistics

Agricultural modernization is essential for ensuring food security while improving farmer welfare.

5.9 Space Economy and Strategic Technologies

India's future growth trajectory will increasingly include participation in the global space economy.

The success of:

- Chandrayaan missions
- Aditya-L1
- Gaganyaan program

demonstrates India's growing technological capabilities.

Future opportunities include:

- Satellite manufacturing
- Space tourism
- Earth observation services
- Navigation systems
- Defense technologies

The Indian space sector could contribute significantly to GDP by 2047 through public-private partnerships and startup participation.

5.10 Social Transformation in India's Future Ecosystem

It's not just an economic or technological shift, it's social life, social interaction, cultural reference, lifestyle, and even the institutions of the community that will need to be reshaped in the future ecosystem of India. Technological development, digitalisation, urbanisation, and globalisation will revolutionise social structures in unprecedented ways as India moves towards Viksit Bharat 2047.

This will develop into a more connected, more knowable, more flexible, more mobile, and more participatory social ecosystem in the future. It will also create mental health, social cohesion, cultural diversity and digital inequality challenges.

5.10.1 Transformation of Family Structure

Indian society has always been structured around the joint family and support groups within the community. But fast rate of urbanisation and economic modernisation is heading towards:

- Smaller nuclear families

- Delayed marriages
- Increased workforce participation of women
- Higher geographical mobility
- Growth of single-person households

Family relationships could be increasingly virtual by 2047, with more social bonds through virtual communication.

Positive Effects

- Greater individual freedom
- Enhanced gender equality
- Improved career opportunities

Challenges

- Elderly care concerns
- Reduced intergenerational interaction
- Social isolation

5.10.2 Changing Nature of Work and Lifestyle

The use of Artificial Intelligence, automation and digital platforms will substantially transform the nature of work.

Future employment patterns may include:

- Remote work
- Hybrid workplaces
- Gig economy employment
- AI-assisted professions
- Digital entrepreneurship

The distinction between urban and rural employment opportunities may gradually decline due to digital connectivity.

Social Implications

- Improved work-life flexibility
- Increased labor mobility
- Greater participation of women and differently-abled individuals

Technological disruption can, however, generate insecurity for low-skilled workers as well.

5.10.3 Education and Knowledge Society

The future ecosystem will fast-track the shift of Indian society towards knowledge-based society.

Educational transformation will involve:

- Personalized AI-based learning
- Virtual classrooms
- Lifelong learning systems
- Skill-focused education

Access to high-quality education will become less dependent on geographical location.

Social Impact

- Enhanced social mobility
- Reduction in educational inequalities
- Greater access to global knowledge networks

Education can be the strongest determinant of social status, instead of caste or past inheritance.

5.10.4 Women's Empowerment and Gender Transformation

Technological and economic advancement can substantially improve gender equality.

Future developments may include:

- Increased female labor force participation
- Greater representation in STEM fields
- Digital entrepreneurship opportunities
- Financial inclusion through fintech platforms

Women are expected to play a central role in India's future economic growth.

Expected Outcomes

- Higher household incomes
- Better educational outcomes
- Improved health indicators
- More balanced decision-making within families

5.10.5 Digital Citizenship and Governance

Digital governance platforms are changing the relationship between citizens and the state.

Examples include:

- Online service delivery
- Digital grievance redressal
- E-governance systems
- AI-enabled public services

Citizens will increasingly interact with government through digital platforms rather than traditional bureaucratic processes.

Benefits

- Transparency
- Accountability
- Reduced corruption
- Faster service delivery

5.10.6 Health, Well-Being, and Social Care

The future ecosystem will witness significant transformation in healthcare delivery.

Emerging technologies include:

- Telemedicine
- AI diagnostics
- Wearable health devices
- Precision medicine

Healthcare services will become more preventive rather than reactive.

Social Benefits

- Increased life expectancy
- Improved rural healthcare access
- Better disease surveillance

However, rising urban lifestyles may simultaneously increase stress-related and mental health disorders.

5.10.7 Cultural Evolution and Preservation

Globalization and digitalization are influencing cultural practices and social identities.

India's future ecosystem will witness:

- Digital preservation of heritage

- Expansion of creative industries
- Global dissemination of Indian culture

Technologies such as virtual reality and artificial intelligence may help preserve:

- Languages
- Folk traditions
- Historical monuments
- Indigenous knowledge systems

Key Challenge

Balancing modernization with preservation of cultural diversity.

5.10.8 Social Inclusion and Reduction of Inequality

One of the primary goals of Viksit Bharat is inclusive development.

Digital technologies can improve inclusion through:

- Financial inclusion
- Direct Benefit Transfers
- Online education
- Digital healthcare

Historically marginalized communities may gain greater access to opportunities.

Risks

Without adequate policy intervention, technological advancement may also widen inequalities between:

- Urban and rural populations
- Skilled and unskilled workers
- Digitally connected and disconnected groups

6. OPPORTUNITIES IN ACHIEVING VIKSIT BHARAT 2047

India has some structural strengths which can speed up its transformation into a developed country.

6.1 Demographic Dividend

India has one of the world's youngest populations. This provides:

- Large labor force
- Expanding consumer market
- Innovation potential

If adequately skilled, this population can become a major growth engine.

6.2 Rapid Digitalization

India has built-up one of the most successful digital ecosystem in the globe.

Examples include:

- UPI
- Aadhaar
- DigiLocker
- CoWIN
- ONDC

Digitalization improves:

- Financial inclusion
- Governance efficiency
- Service delivery
- Economic productivity

6.3 Manufacturing Expansion

Government initiatives such as:

- Make in India
- Production Linked Incentive (PLI)
- Atmanirbhar Bharat

are encouraging domestic manufacturing and global investment.

Indian industry can become a significant manufacturing hub with its industries moving away from the conventional manufacturing centers.

6.4 Renewable Energy Leadership

India is one of the largest markets for Renewable Energy in the world.

Opportunities include:

- Solar energy manufacturing
- Green hydrogen exports
- Electric mobility
- Battery production

These sectors can create millions of jobs while supporting environmental sustainability.

6.5 Global Geopolitical Position

With India's strategic location and rising diplomatic footprint comes opportunities for:

- Trade expansion
- Technology partnerships
- Foreign investment
- Global leadership roles

India can emerge as a critical player in shaping future global economic governance.

7. CHALLENGES IN BUILDING THE FUTURE ECOSYSTEM

This is despite the number of opportunities present in India, which have several structural issues.

7.1 Employment Generation

Economic growth has to be accompanied by significant employment growth.

Challenges include:

- Automation
- Informal employment
- Skill mismatches

Creating quality employment opportunities remains a major policy priority.

7.2 Educational Inequality

Significant disparities exist between:

- Urban and rural education
- Public and private institutions
- Digital access levels

Bridging these gaps is essential for inclusive development.

7.3 Infrastructure Gaps

While infrastructure investment is on the rise, there are obstacles in:

- Logistics efficiency
- Urban transportation
- Water management
- Rural connectivity

Infrastructure deficits can limit economic competitiveness.

7.4 Climate Change Risks

India remains vulnerable to:

- Heatwaves
- Floods
- Droughts
- Extreme weather events

Climate adaptation strategies must complement mitigation efforts.

7.5 Cybersecurity Threats

The growth of digitalization is accompanied by growing risks of cyber.

Future challenges include:

- Data privacy
- Cyber warfare
- Digital fraud
- Critical infrastructure protection

It is critical to enhance cybersecurity capabilities.

8. POLICY RECOMMENDATIONS

A comprehensive policy framework is needed to help realize Viksit Bharat 2047.

Recommendation 1: Increase R&D Investment

India should target:

- 2% of GDP expenditure on R&D by 2035
- Stronger university-industry collaboration
- Innovation clusters

Recommendation 2: Build Future Skills

Focus areas:

- AI literacy
- Data science
- Robotics
- Cybersecurity
- Green technologies

A national lifelong learning framework should be established.

Recommendation 3: Accelerate Green Transition

Government should encourage:

- Renewable energy adoption
- Green hydrogen projects
- Carbon capture technologies
- Sustainable transport systems

Recommendation 4: Strengthen Startup Ecosystem

Policies should support:

- Access to capital
- Research commercialization
- Deep-tech startups
- Innovation incubation centers

Recommendation 5: Enhance Social Inclusion

Development must remain inclusive through:

- Universal digital access
- Quality healthcare
- Affordable education
- Rural development programs

9. VISION OF INDIA IN 2047

In case the proposed ecosystem grows successfully in the Indian context then India by 2047 could show:

Economic Characteristics

- GDP exceeding USD 25–30 trillion
- High-income economy status
- Strong manufacturing base
- Global innovation leadership

Social Characteristics

- Near-universal literacy
- Advanced healthcare systems
- Reduced poverty levels
- High quality of life

Technological Characteristics

- AI-integrated governance
- Smart infrastructure networks
- Digital-first economy
- Global technology exports

Environmental Characteristics

- Large renewable energy share
- Sustainable cities
- Low-carbon industrial systems
- Climate-resilient infrastructure

10. SOCIAL CHALLENGES IN THE FUTURE ECOSYSTEM

You can also add this under the "Challenges" section.

Major Social Challenges

1. Digital Divide

Unequal access to technology may create new forms of exclusion.

2. Mental Health Crisis

Hyper-connectivity, social media dependence, and workplace pressures may increase mental health concerns.

3. Cultural Homogenization

Global digital platforms may weaken local cultural identities.

4. Aging Population

By 2047, India will begin experiencing population aging, requiring stronger social security systems.

5. Data Privacy Concerns

Growing digitalization raises concerns regarding surveillance, privacy, and personal freedoms

New Conclusion Paragraph

You can conclude with:

Growth of GDP, industry production and technological developments are not sufficient measures of the success of Viksit Bharat 2047. Development's ultimate goal is to improve human well-being and social prosperity. Thus, the future is to build a technologically advanced and an economically strong India with a society that is also inclusive, culturally vibrant, equitable and resilient. The changes in social life will be as significant as the economic changes in deciding whether India will be able to become a developed nation by 2047.

The paper takes a "social ecosystem" approach that makes it much more interdisciplinary (in addition to being economic), and brings it closer to the modern development economics, sociology, public policy, and human development frameworks, than to a purely economic focus on development. It would significantly enhance the paper for academic publication and policy discussion.

11. CONCLUSION

The journey towards Viksit Bharat 2047 is a journey of transformation that is much more than economic growth. The pillars of the future ecosystem in India will be Digital public infrastructure, AI, renewable energy, advanced manufacturing, Startups, Human capital development, and Sustainable governance systems.

Achieving this vision can be done through partnership between the government, industry, academia, civil society and citizens. Challenges like employment, educational inequality, inadequate infrastructure and climate risks are still big, but India's demographic dividend, entrepreneurial ethos, technological advancements and policy directions offer a solid ground to aspire to becoming a developed nation.

Inclusive growth, sustainability, innovation and resilience are key to the future ecosystem of India. When these pillars are effectively implemented, India will become one of the best economic and technological powers of the world by 2047 and will be a prosperous nation for all sections of society.

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