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INDIA @ 2047: PROSPECTS AND CHALLENGES OF BECOMING A DEVELOPED NATION

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ABSTRACT: The desire of India to become a developed nation by the centenary year of its independence in 2047, also known as Viksit Bharat 2047 is a radical and holistic national program. This study discusses the opportunities and issues that come with the India development into a developed nation as it relates to the major economic, social, technological, environmental, and governance aspects. The paper will examine the growth prospects of India which are brought about by demographic dividend, digital transformation, entrepreneurship based on innovation, expansion of infrastructure, and policy measures like inclusion based financial system and modernization of industry. The paper also on a critical basis examines the structural and institutional issues that might hinder such a transition, such as income inequality, job creation, skills mismatches, quality education and health, environmental sustainability, urban-rural inequalities, and effective governance. The research employs descriptive and analytical research approach and relies on secondary sources of data in the form of government reports, global development indices and policy reports to determine the current situation of India against that of the developed economies. The results indicate that though India has good macroeconomic fundamentals and strategic advantages, high growth, improvement of human capital, technological improvement, green development channels, and reactive governance reforms would still be needed to help India become a developed nation by 2047. The paper ends with a conclusion of the strategic policy measures, and integrated development framework that can help India fill the existing gaps and speed up the process of inclusive and sustainable development.

KEYWORDS: Developed Nation, Economic Growth, Governance, Sustainable Development, Viksit Bharat 2047.

INTRODUCTION:

Development is no longer restricted to the economic growth, but now everything is quality of life, social equity, technological development, environmental sustainability, and governance efficiency. A developed country is therefore one whose income level is not only high but also its human capital, inclusive growth and the quality of its institution. In this regard, the Viksit Bharat 2047 vision of India is a bold promise to take an all- inclusive and holistic developmental goal by the time the country completes its one hundred years of independence. The favorable demographics, growing digital infrastructure, innovation environments, and policy-based structural changes have helped India to follow the recent path of growth. These trends have intensified hopes towards the long-term transformation of India. Nevertheless, there are still great issues, such as income inequality, the quality of employment, shortage of skills, education and healthcare disparities, environmental stress, and governmental limitation. These structural and institutional obstacles need to be addressed to make economic progress sustainable and inclusive. It is against this context that the current work will analyze both opportunities and obstacles that India faces in its pursuit to ensure that by 2047, the country will be a developed nation under a multidimensional analysis funneling economic, social, technological, environmental and governance dimensions.

LITERATURE REVIEW:

The shift of developing economies towards developed one has been a hall mark of development economics, and scholars have stressed that the shift is multidimensional and includes not only the economic growth but also human development, institutional capability, technological advancement and environmental sustainability. In this respect, the vision of Viksit Bharat 2047 which expresses the desire of India to become a developed country by 2047 has produced overall academic and policy-driven discussion. The classical theories of growth provided the base to the knowledge of development as a process where capital accumulation, industrialization, and increase in productivity contribute to the development (Rostow, 1960). Later models of structural transformation emphasized more the mechanism of labor redistribution between low-productivity agriculture and high-productivity manufacturing and

services as an essential channel of long-term economic growth. Empirical evidence on post-1991 economic reforms in the Indian context has shown that liberalization and globalization were a major boost to growth, macroeconomic stability, and increased integration of India with the global economy (Ahluwalia, 2002). Nevertheless, researchers warn that an increase in aggregate growth is not a sufficient measure of development when it is not accompanied with inclusiveness and structural improvement. The human capital has become a determining factor of the long-term development. The capability-based approach developed by Sen (1999) redefined development as the growth of freedoms and human capabilities instead of growth of income on its own. Empirical data regarding India indicates that even though there is an increase in literacy and life expectancy, there are still significant differences in the quality of education, health care access, and nutritional performance across the regions and socio-economic status.

The United Nations Development Programme has indicated that India remains in a medium human development category, which means that the country requires a long-term investment in the human capital to facilitate the development vision of 2047. Another significant line of the literature is the demographic dynamics. According to Bloom et al. (2003), a favorable age structure may result in a demographic dividend if it is accompanied by productive opportunities in the labor market and skill growth. Research on the Indian labor market, however, finds issues of jobless growth, prevalence of informal employment, skills mismatches, and low women labor force participation as some of the issues that might limit successful implementation of demographic benefits (ILO, 2023). These results highlight the need to match the development of skills and education in the labor market with the long-term development agendas. Recent writings focus on the transformative nature of technology, innovation and digital infrastructure in speeding up development. Digitalization is generally considered to be an engine of productivity, financial inclusivity and efficiency in governance. According to policy-oriented analyses of NITI Aayog, the strategic enablers of the development trajectory of India to 2047 are digital public infrastructure, innovation-based entrepreneurship, and start-up ecosystems.

However, researchers also caution that the impact of uneven access to digital and regional inequalities can contribute to inequalities unless it is fought by inclusive digital policies. The new environmental sustainability has become part and parcel of the modern development debate. Sustainable development literature suggests that economic growth patterns that do not consider environmental limitations would not work out in the long run (Stern, 2004). Research on the Indian climate commitments also highlights how there is a necessity to change to green energy, sustainable urbanization, and climate-resilient infrastructure to maintain a balance between economic growth and environmental conservation. According to reports by the World Bank, India needs to adopt green growth pathways to become a developed nation and at the same time fulfill its environmental obligations. The quality of the institutions and the effectiveness of governance has always been pointed out to be the key facilitators of development. The institutional economics literature has pointed out that the rule of law, quality of the regulations and efficiency of administrative systems play a major role in determining the outcome of the development (North, 1990). The field of governance in India recognizes developments in the form of e-governance and administrative reforms as well as identifies the endemic problems connected with policy implementation, inter-governmental coordination, and accountability mechanisms. Generally, the literature review shows that India has huge growth potential, demographic and technological strengths that can ensure that it can transform into a developed state by 2047. Nevertheless, the problem of structural limitations connected with human capital, job creation, inequality, ecological sustainability, and governance is also prominent. The available research tends to discuss these dimensions separately. Thus, an analytical framework should be holistic to be able to evaluate the prospects and challenges of India in developing into a developed nation by 2047. In this work, the researcher aims at making contributions to the body of literature by integrating various aspects of development in a single framework in line with Viksit Bharat vision 2047.

RESEARCH GAP:

The available literature on the development path of India offers vast information about each of the dimensions separately, including the economic growth, the formation of human capital, the digital transformation, environmental sustainability, and the reform of governance. There are many research that examine the post-liberalization development, the so-called demographic dividend, labor market, and policy actions that are sector specific. The strategic priorities that are in line with the vision of Viksit Bharat 2047 are also described in policy documents and reports prepared by state and international organizations, including the NITI Aayog, the World Bank, and the United Nations Development Programme. Nevertheless, there are still several critical research gaps.

To begin with, a significant part of the current literature is sector-specific or fragmented and advances such dimensions of growth, employment, education, technology, or sustainability without addressing them in an analytical framework in the 2047 perspective. Second, although the macroeconomic performance and policy undertakings in India have been thoroughly reported, empirical comparisons with the developed economy standards, especially regarding the development of human beings, quality of governance, and environmental achievements, are comparatively scarce. Third, the interlinkages and trade-offs of rapid economic growth, social inclusion and environmental sustainability are inappropriately highlighted, and they are essential to long-term development. Furthermore, most of the research focuses on the short- to medium-term effects, and long-term developmental trajectories and structural changes that must take place to the year 2047 are under-investigated. The implication of cross-cutting enablers of development role institutional effectiveness and governance responsiveness is widely recognized and rarely strictly analyzed on an integrated basis. Hence there exists a void of an interdisciplinary and prospective analysis, which can bring economic, social, technological, environmental, and governance aspects together with an aim of evaluating the possibility and obstacles of India emerging as a developed nation by the year 2047.

OBJECTIVES OF THE RESEARCH: The following specific objectives will be used to fill the above research gaps in the present study: To analyze the current stage of development of India as compared to some established economic, social, and institutional indicators related to the developed countries. To examine the key growth opportunities that propelled the development trend of India to 2047 such as demographic dividend, digital transformation, innovation, infrastructure development, and policy programs. To find and critically evaluate the structural and institutional issues of inequality, jobs creation, human capital, environmental sustainability, and effective governance that could act as obstacles in future transformation of India into a developed nation. To identify the links and trade-offs between economic development, social inclusion and environmental sustainability within the long-term development. To formulate a composite analytical system that can incorporate various facets of development in accordance with long-term vision Viksit Bharat 2047. To recommend strategic policy actions that can help fill current developmental gaps and enable India to achieve inclusive, resilient and sustainable development by 2047.

RESEARCH METHODOLOGY:

(i) Research Design: The current research is descriptive and analytical research design, which aims to discuss the chances and obstacles of India becoming a developed nation by 2047. This design would be suitable in examining macro level developmental patterns, policy frameworks and structural indicators in the economic, social, technological, environmental and governance sectors. The research is complex synthesis research type, which seeks to generalize the current knowledge with the aim of offering an in-depth and progressive evaluation that is compliant with the vision of Viksit Bharat 2047.

(ii) Nature and Sources of Data: The study will solely rely on secondary data, which makes it reliable and comparable over time and nations. Authoritative and internationally recognized sources have been used to collect the data and they include: Government of India reports and policy documentation (e.g. Economic Survey, NITI Aayog vision papers) Publications and databases of the World Bank. Human Development Reports United Nations Development Programme. International labour and employment statistics of the international labour organization (ILO). Scopus-indexed journal articles, edited volumes, and working papers are peer-reviewed. The national and international development indicators that deal with income, educational, health, governance and sustainability.

(iii) Variables and Indicators: To assess the development path of India, the paper uses a multidimensional array of indicators widely adopted in the development literature, which are:

Economic indicators: the growth rate of the GDP, the income per capita (nominal, PPP), the rate of investment, the sector breakdown of output.

Human development indicators: Human Development Index (HDI), Education level, Health condition.

Employment measures: Labor participation, rate of unemployment, informal employment percentage, skill development measures.

Digital & Technological indicators: Internet penetration, innovation capacity, indicators of start-up ecosystem.
Environmental Sustainability indicators: The share of renewable energy, energy mix, and carbon emissions; the sustainability indices.

Governance indicators: Digital governance delivery, Service delivery effectiveness, transparency/control of corruption, ease of doing business, institutional quality and governance effectiveness index (globally).

(iv) Analytical Framework: The research uses a comparative and trend-based analogy study methodology. The performance of India concerning the specific indicators will be compared to the standards related to the developed economies and the global ones. It is also applied to analyze the changes in time and recognize the structural changes that can be considered in the long-term development by using trend analysis. Policy outcomes are also evaluated by qualitative content analysis of policy documents to determine the connection between policy intentions and outcomes. A comprehensive analytical framework is created to measure the interdependence of economic growth and human capital in relation to technology, sustainability and governance. This model can be used to identify synergies and trade-offs in which India can move towards being a developed nation by 2047.

(v) Techniques and Tools of Analysis: The analytical tools and methods used in the study are the following: Descriptive statistics of development indicators. Benchmarking against developed nations. Trend analysis to determine long-term developmental trend. Qualitative policy study to assess the institutional and governance frameworks. Incorporation of empirical results of the available literature. Since the research is macro-level and conceptual, no sophisticated econometric modeling is used, but rather the integrative and policy-relevant analysis is prioritized.

(vi) Scope of the Study: The research area is a national one and is aimed at the long-term development trends of India up to the year 2047. The research does not conduct state-level and micro-level analysis and this could be possible future research. It is focused on the determination of the general trends in structure and strategic directions instead of the short-term outcomes of the policies.

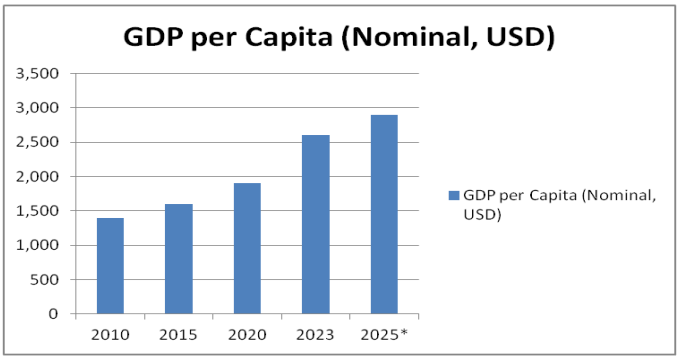
(vii) Limitations of the Study: There are some limitations to the study. Using secondary data can limit the examination to the indicators and published reports that exist. Also, cross-country comparisons can be distorted by variation in the definitions of data and measures. Despite these shortcomings, the methodology offers a sound and in-depth foundation to evaluate the opportunities and challenges of transforming India into a developed country by 2047.

COMPREHENSIVE INDICATOR-BASED ANALYSIS (UP TO 2025), CHALLENGES, AND RECOMMENDATIONS:

1. Economic Growth Indicators

(a) GDP per Capita (Nominal, USD)

Year	GDP per Capita (Nominal, USD)
2010	1,400
2015	1,600
2020	1,900
2023	2,600
2025*	2,900



Analysis and Inference

- Sustained economic growth is shown in the GDP per capita growth of India that rose by over 100 percent between 2010 and 2025. Nonetheless, its income disparity with developed economies to which per capita income is USD 40,000 and more is very high.
- The speed of converging income is thus low and as such, the prevailing growth patterns cannot enable the nation to attain developed country status by 2047.

Key Challenges

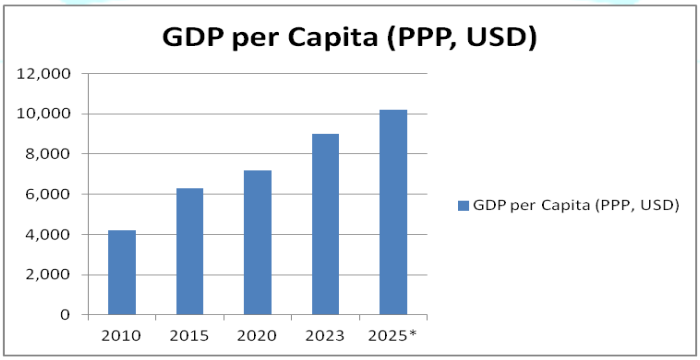
- Risk of middle-income trap
- Sector productivity differences.
- Loose correlation between growth and high-quality jobs.

Recommendations

- Support a long-term growth of 8 - 9 percent.
- Enhance competitiveness on manufacturing and exports.
- Increase productivity using technology and competencies.

(b) GDP per Capita (PPP, USD)

Year	GDP per Capita (PPP, USD)
2010	4,200
2015	6,300
2020	7,200
2023	9,000
2025*	10,200



Analysis and Inference

- India experienced an increase by over 2 times in GDP (PPP) per capita between 2010 and 2025 and increased its purchasing power in real terms, domestic consumption and availability of goods and services through USD 4,200 to USD 10,200 which is significant in business terms.
- This trend, when corrected by the negative cost of living factors, indicates significant improvements in standards of living, and highlights GDP (PPP) per capita as a superior (compared to nominal income) indicator of national domestic welfare. However, even with this progress, the GDP (PPP) per capita of India is significantly lower than the standard of the developed economies of USD 40,000-50,000, which emphasizes the fact that the aggregate economic growth has not yet converted into developed living standards on average.

Key Challenges

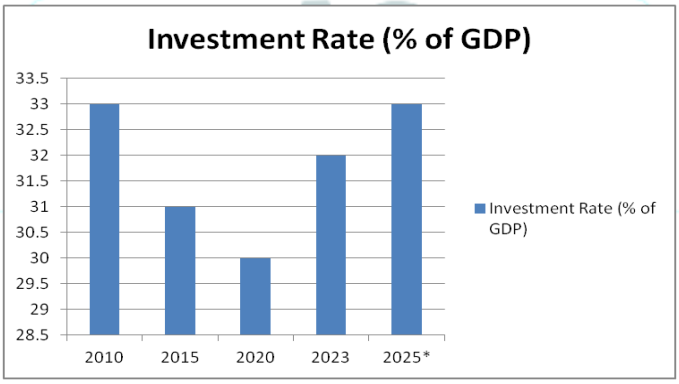
- Poor GDP (PPP) per capita compared with developed nations.
- High number of people and it is diluting per capita income gains.
- Disproportionality of purchasing power in regions/social classes.
- Poor productivity in the informal and agricultural sectors.

Recommendations

- Growth based on productivity: Industrial, skill, and technological adoption.
- Employment-intensive growth: Income growth, high quality employment.
- Equity-based development: Attack the weak areas and segments. Better education, healthcare, skills of the workforce:
- Urbanization, infrastructure: Efficient cities, better quality of life.

(c) Rate of Investment (Gross Capital Formation as % of GDP) India: Rate of Investment

Year	Investment Rate (% of GDP)
2010	33
2015	31
2020	30
2023	32
2025*	33



Analysis and Inference

- The rate of investment in India fell after 2010 and it started to recover slowly after 2020.
- A growth rate of 32 33 percent of the gross domestic product is acceptable, whereas the developed and rapidly expanding economies maintain a rate of 35 40 percent.
- Current levels are only sufficient but not enough to maintain high growth of India that is needed in 2047.

Key Challenges

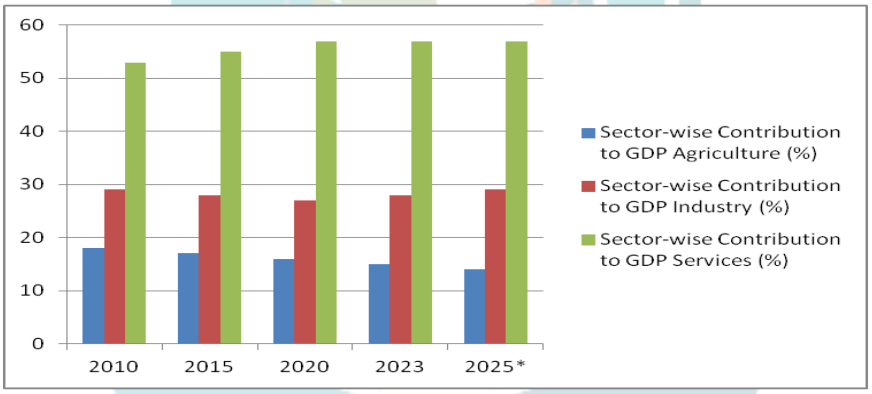
- Reticence among the private investment.
- Fissures in infrastructure financing.
- Uncertainty relating to policy and regulation.

Recommendations

- Increase both domestic and foreign investment.
- Enhance infrastructure, manufacturing investment.
- Ensure policy stability and doing business.

(d) Sectoral Breakdown of Output (Share in GDP, %) India: Sector-wise Contribution to GDP

Year	Agriculture (%)	Industry (%)	Services (%)
2010	18	29	53
2015	17	28	55
2020	16	27	57
2023	15	28	57
2025*	14	29	57



Analysis and Inference

- The proportion of agriculture has been declining and this is the sign of the structural change.
- In India, service-led growth model, the GDP is service dominated.
- The industrial share is not so great and hence manufacturing based transformation is not as much as in the developed economies.

Key Challenges

- Bad industrial and manufacturing share.
- Dead-end jobs based on service industries conquest.
- Labor slow structural transformation not agrarian.

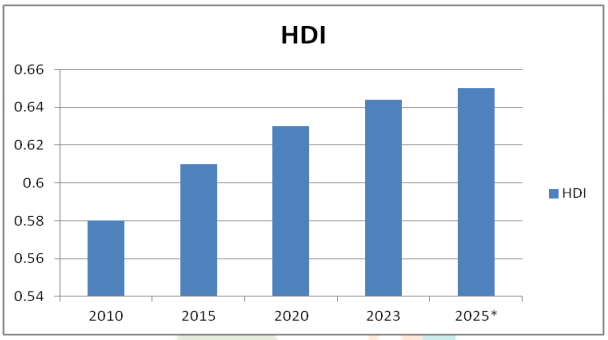
Recommendations

- Empower the manufacturing and industrial value chains.
- favor labor intensive industries.
- Alter agro-industrialization, rural-industrialization.

2. Human Development Indicators

(a) Human Development Index (HDI)

Year	HDI
2010	0.58
2015	0.61
2020	0.63
2023	0.64
2025*	0.65



Analysis and Inference

- India is gradually improving its HDI. However, India remains on the medium scale of human development that is way below the standards of a developed nation (HDI > 0.85).
- The growth of education and health outcomes has not been rapid enough that one can match the pace of economic growth.

Key Challenges

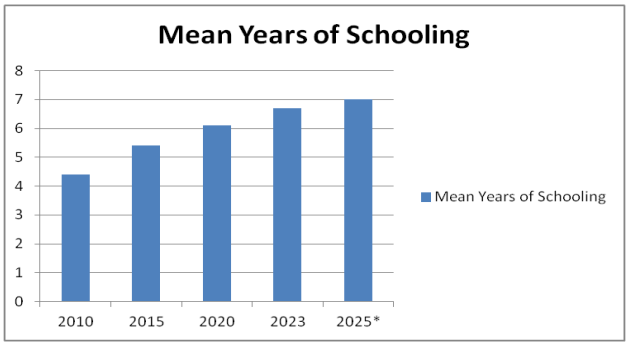
- Quality lack in education.
- Uneven access to healthcare
- Local and socio-economic inequalities.

Recommendations

- Divert to policy concern of quality of education and health.
- Empower primary healthcare systems.
- Invest in childhood development and nutrition.

(b). Education Level Indicators

Year	Mean Years of Schooling
2010	4.4
2015	5.4
2020	6.1
2023	6.7
2025*	7.0



Analysis and Inference

- Continuous progress, although lower than that of the developed countries (12+ years)
- Quality gap remains even with gains in enrolment.

Key Challenges

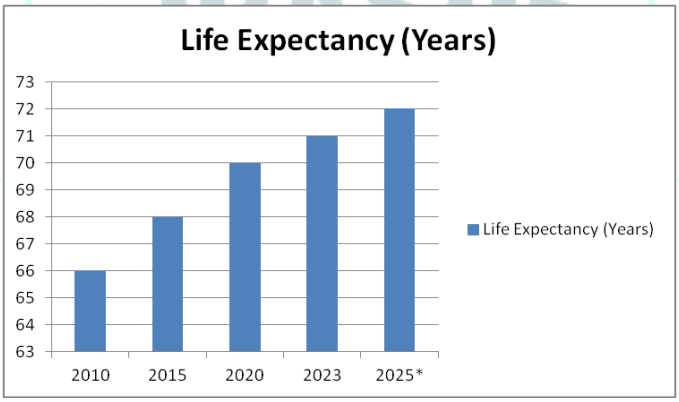
- Learning outcomes weak
- Teacher shortages
- Rural-urban and gender inequality.

Recommendations

- Not enrolment, but looking at quality.
- Digital learning & teacher training.
- Minimize secondary level dropout.

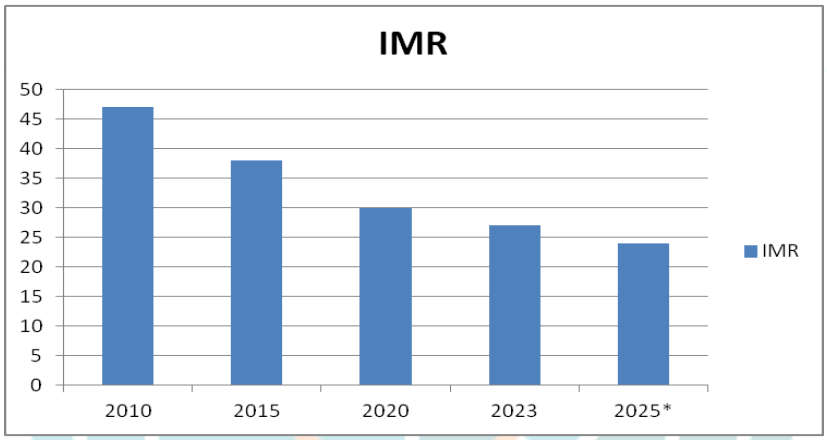
(c) . Health Condition Indicators

Year	Life Expectancy (Years)
2010	66
2015	68
2020	70
2023	71
2025*	72



Infant Mortality Rate (per 1,000 live births)

Year	IMR
2010	47
2015	38
2020	30
2023	27
2025*	24



Analysis and Inference

- Life expectancy rising
- Infant mortality reduces by a significant margin.
- Remains below the OECD health standards.

Key Challenges

- Inequality of access to health services.
- Out of pocket spending is high.
- Malnutrition and country health disparities.

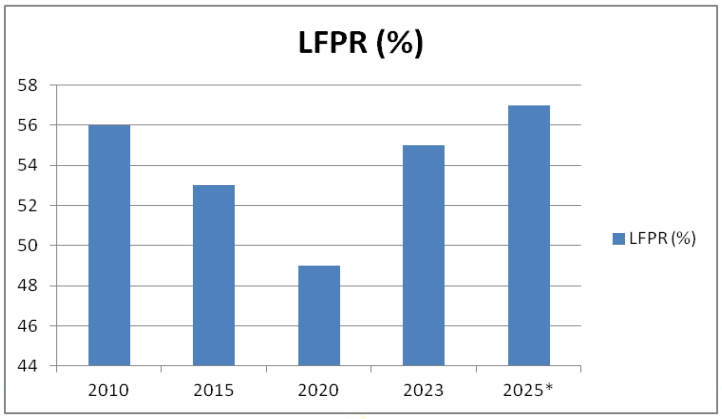
Recommendations

- Enhance primary healthcare.
- Expand insurance coverage
- Focus on nutrition and maternal/child health.

3. Employment Measures

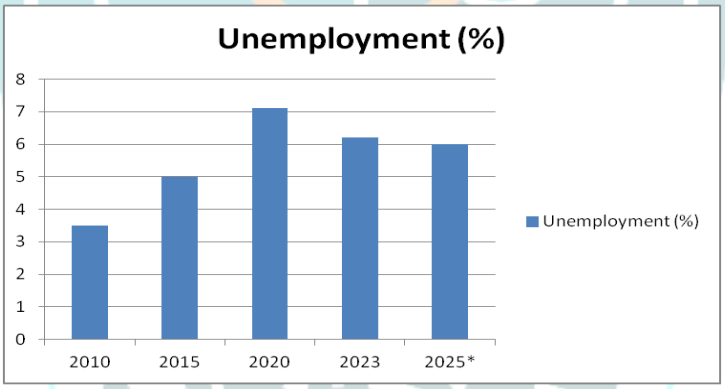
(a) . Labour Force Participation Rate (LFPR)

Year	LFPR (%)
2010	56
2015	53
2020	49
2023	55
2025*	57



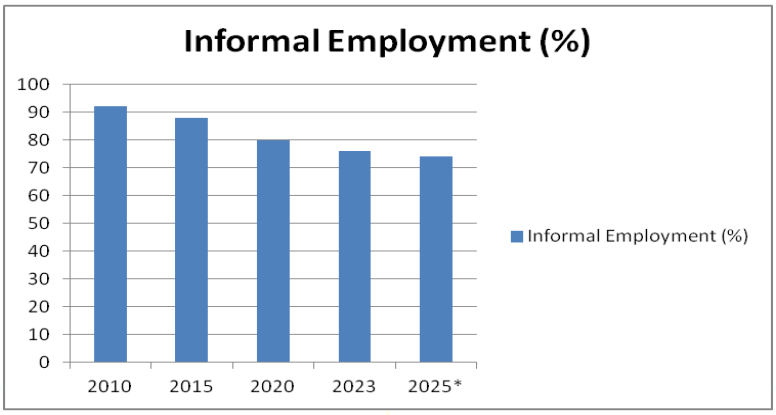
(b). Unemployment Rate (%)

Year	Unemployment (%)
2010	3.5
2015	5.0
2020	7.1
2023	6.2
2025*	6.0



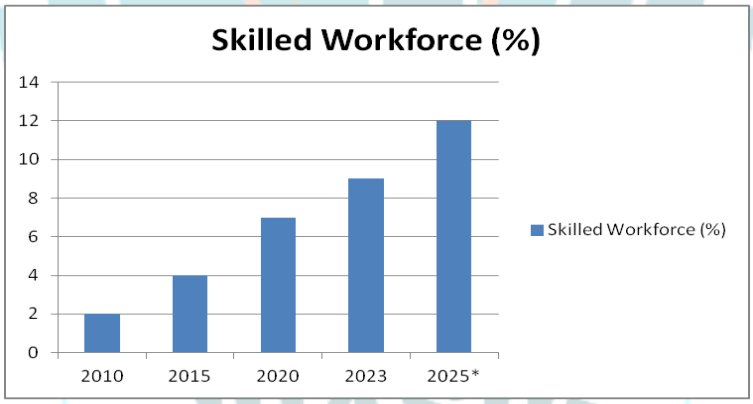
(c). Informal Employment (% of total employment)

Year	Informal Employment (%)
2010	92
2015	88
2020	80
2023	76
2025*	74



(d) . Skill Development – Workers with Formal Skill Training (%)

Year	Skilled Workforce (%)
2010	2
2015	4
2020	7
2023	9
2025*	12



Analysis and Inferences (Employment and Skills)

- Unemployment: LFPR bouncing back after the pandemic.
- Unemployment still high.
- Informal sector is still in-place.
- Skill training enhancing but very low vs developed nations (>50-70%)

Key Challenges

- jobless/low-quality growth
- Women are still low in participation.
- Informal sector dominance
- Skill unfit to industry demand.

Recommendations

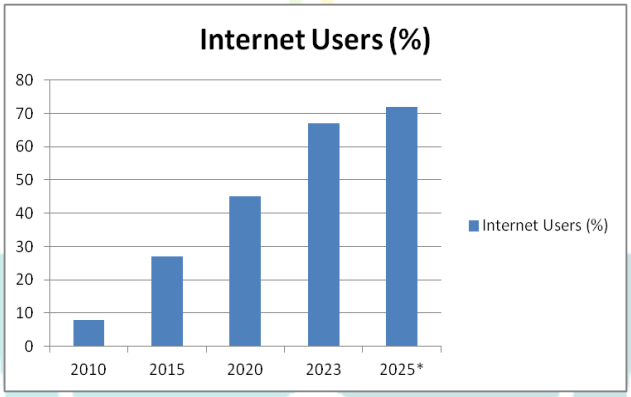
- Increase manufacturing which is labour intensive.
- Match industry 4.0 skills training.
- Formalize informal sector

- Enhance the participation of female labour forces.
- Achieve MSMEs and start-ups to create jobs.

4. Digital and Technological Indicators

(a) Internet Penetration

Year	Internet Users (%)
2010	8
2015	27
2020	45
2023	67
2025*	72



Analysis and Inference

- Rate of digital penetration has been high and therefore technology is one of the most powerful tools in developing India.
- Electronic infrastructural facilities have enhanced financial inclusion, effectiveness, and service provision.

Key Challenges

- Regional and income disparities in terms of digital divide.
- Data governance and cyber security issues.

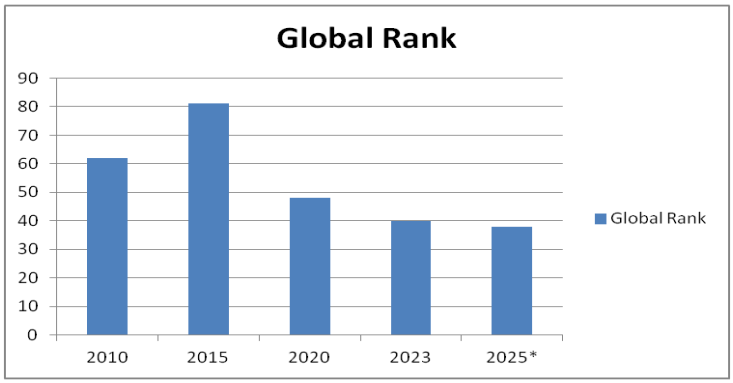
Recommendations

- Create universal access to the digital.
- Eschew AI-driven public services.
- Rise the R&D spending to no less than 2 percent of the GDP.

(b). Innovation Capacity Indicators

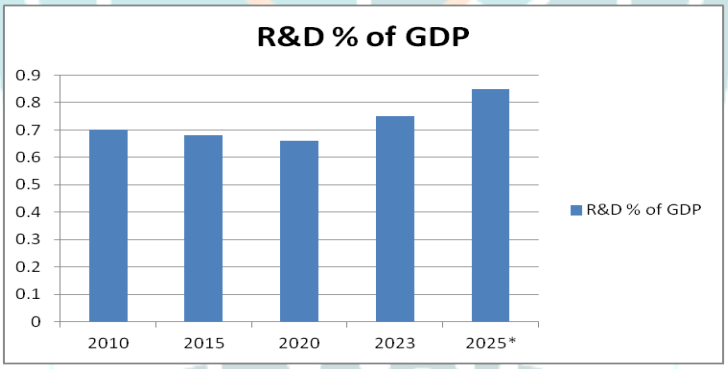
1. Global Innovation Index (India Rank)

Year	Global Rank
2010	62
2015	81
2020	48
2023	40
2025*	38



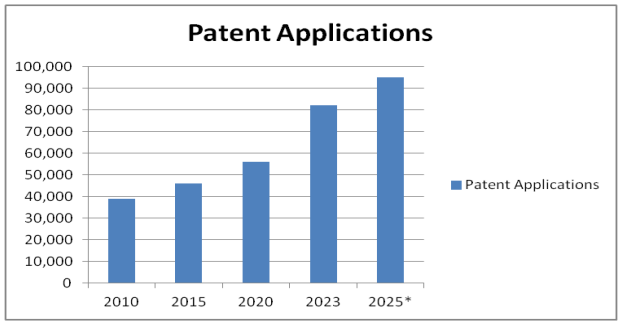
2. R&D Expenditure (% of GDP)

Year	R&D % of GDP
2010	0.70
2015	0.68
2020	0.66
2023	0.75
2025*	0.85



3. Patent Applications Filed (Domestic + International)

Year	Patent Applications
2010	39,000
2015	46,000
2020	56,000
2023	82,000
2025*	95,000



Analysis & Inferences

- Global ranking of India on innovation has gone up drastically since 2015.
- R&D expenditure is low in comparison to the developed economies (2-4 percent of GDP)
- Patent filings are accelerating, fuelled by digital & deep-tech.
- Innovation potential is gaining in size without being comparative to developed nations in terms of strength and quality.

Key Challenges

- Low R&D expenditure • restricted investment of the private sector in research.
- Poor university-industry contacts.
- Brain drain of researchers
- Level of patent commercialization is weak.

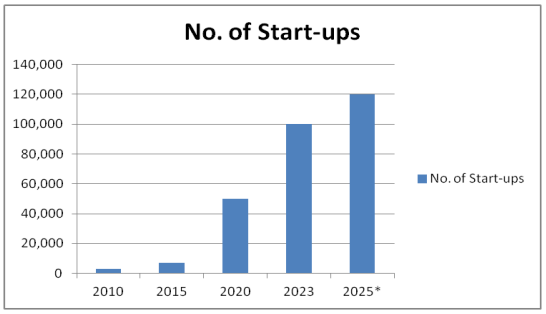
Recommendations

- Raise R&D spending to ≥2% of GDP
- Motivate privatized and FDI-based research.
- Enhance the industry-academia cooperation.
- Invest in deep-tech (AI, biotech, semiconductors) research.
- Ease IPR and patent commercialization.

(c). Start-up Ecosystem Indicators

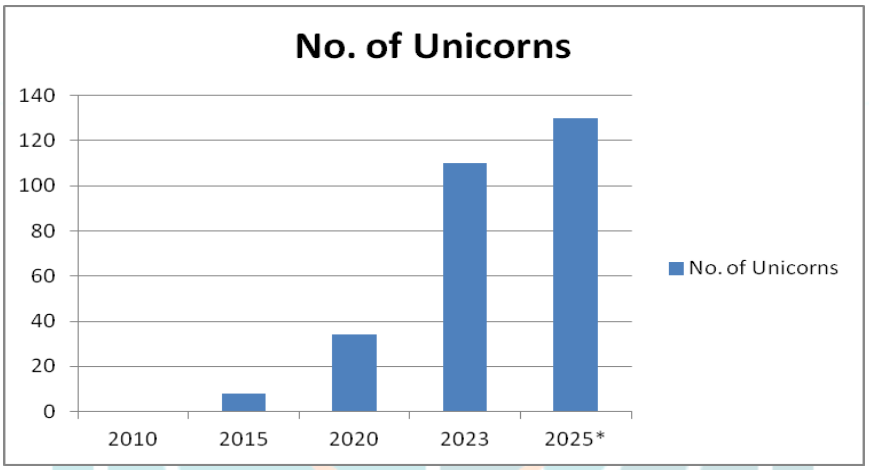
1. Number of Registered Start-ups (DPIIT-recognized)

Year	No. of Start-ups
2010	~3,000
2015	~7,000
2020	~50,000
2023	~100,000
2025*	~120,000



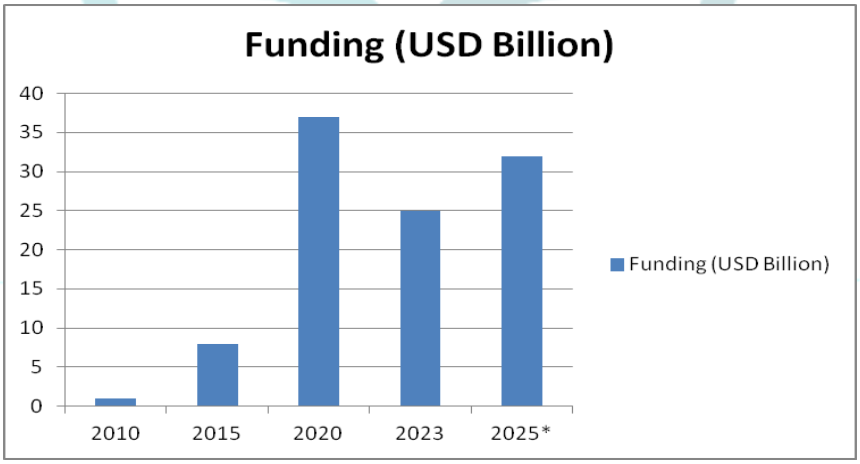
2. Unicorns (Valuation ≥ 1 Billion USD)

Year	No. of Unicorns
2010	0
2015	8
2020	34
2023	110
2025*	130



3. Start-up Funding (USD Billion)

Year	Funding (USD Billion)
2010	1
2015	8
2020	37
2023	25
2025*	32



*Funding shows dip post-2022 due to global funding winter, then recovery.

Analysis & Inferences

- 3rd largest start-up ecosystem in the world is India.
- High increase in unicorns and venture capital flows.
- Seasonal sluggishness following winter-funding, yet structural dynamics are high.
- Start-ups are the greatest source of innovation, job, and digital transformation in India.

Key Challenges

- Dependence on foreign venture capital.
- Regulatory & compliance burden.
- Low survival chances of start-ups in initial stages.
- Poor domestic deep-tech financing.
- Lack of market access in non-metros.

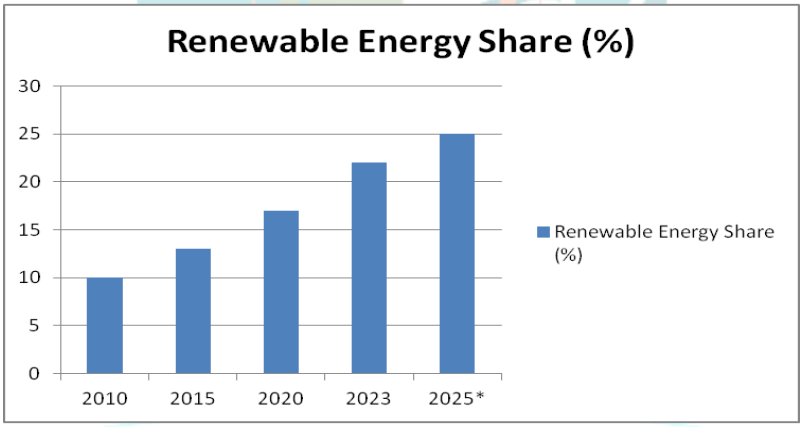
Recommendations

- Streamline compliance and tax regime.
- Grow domestic venture & seed capital.
- Encourage deep-tech, manufacturing & climate-tech start-ups.
- Empower incubators in Tier-2 and Tier-3 cities.
- Through linking start-ups to government procurement and international markets.

5. Environmental Sustainability Indicators

(a). Share of Renewable Energy in Total Power Mix

Year	Renewable Energy Share (%)
2010	10
2015	13
2020	17
2023	22
2025*	25



Analysis & Inferences

- steady rise in renewable share since 2010
- driven by solar, wind, hydropower expansion
- aligned with Paris Agreement & Net Zero 2070 goals
- India is transitioning toward cleaner energy, but pace must further accelerate.

Key Challenges

- Renewable growth rate will not be sufficient to fulfill the long-term Net Zero and growing demand.
- Issue of variability of grid integration (solar/wind intermittency).
- Storage capacity, carrying capacities are lowered (battery, pumped hydro).
- Acquisition of land, bottlenecks and snail clearance of projects.
- Debt is expensive and the payment delays by DISCOM reduces investor confidence.
- Use of coal as base-load power.

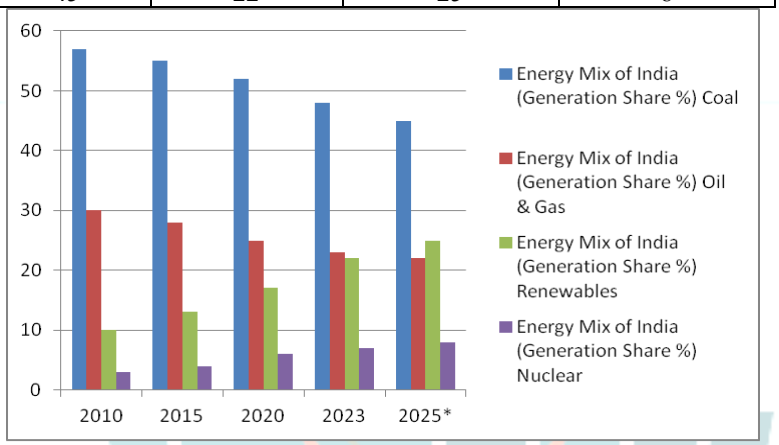
Recommendations

- Quick adoption of renewable by expedited approvals, land banks and better enforcement of the RP.
- Autonomize the grid (smart grids, forecasting, flexible dispatch).
- Scale energy storage (battery + pumped hydro) with viability gap funding and incentives.
- Enhance green transmission line and interstate connectivity.

- Reform DISCOM to timely make payments and remain financially viable.
- Promote rooftop renewable (decentralized), microgrids, and industrial green hydrogen.

(b) . Energy Mix of India (Generation Share %)

Year	Coal	Oil & Gas	Renewable	Nuclear
2010	57	30	10	3
2015	55	28	13	4
2020	52	25	17	6
2023	48	23	22	7
2025*	45	22	25	8



Analysis & Inferences

- coal share gradually declining
- renewables replacing fossil share
- nuclear remains small but rising
- India is shifting from coal-dominated to diversified low-carbon energy mix, but coal dependency is still high.

Key Challenges

- A high level of coal reliance (base-load + energy security) which slows down the decarbonization process.
- Renewable intermittence poses stability and balancing problems of the grid.
- Poor scaling and storage of battery/ pumps hydro.
- Delays in making available renewable capacity.
- Nuclear growth limit (capital intensity is high, gestation period is long, and people are against it).
- Influence of financing and DISCOM stress on the timely investment and payments.

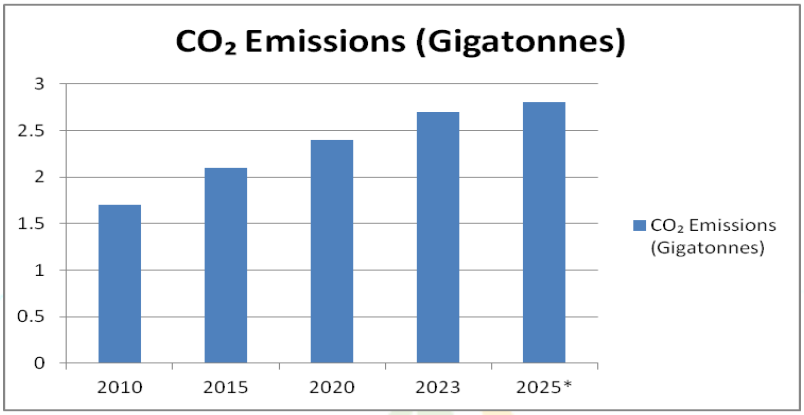
Recommendations

- Implement a staged process of coal elimination: phase out the inefficient coal plants, increase the efficiency of coal, and switch to the use of industrial fuels that are less polluting.
- Rapidly clear lands, land banks and increased Renewable Purchase Obligations (RPOs).
- Storage Scale energy storage + flexible generation (batteries, pumped hydro, gas peakers) to provide grid reliability.
- Green transmission corridors and green forecasting/smart grid implementation.
- Enhance nuclear through long term funding, SMR pilot programs (where available) and expedited approvals.
- Intensify DISCOM reforms so as to guarantee discipline in payment and investor confidence.

(c) . Carbon Emissions (Total CO_2 Emissions)

Year	CO_2 Emissions (Gigatonnes)
2010	1.7
2015	2.1
2020	2.4

2023	2.7
2025*	2.8



Analysis & Inferences

- emissions are still increasing in absolute terms
- reflects growing demand & industrialization
- per-capita emissions remain below developed-country averages
- Economic growth improving — but with rising environmental pressure.

Key Challenges

- Rate of increase in absolute CO 2 emission remains high as a result of increased industrialization and increase in the demand of energy.
- Power and industry based on coal and carbon-intensive (steel, cement, transport) are still dominant.
- Pace of adoption of clean technologies is slow due to high initial costs and financial constraints.
- Growth of the city and transport consumes more fuel and pollutes.
- Low advancement on carbon markets, monitoring and enforcement at scale.

Recommendations

- Increase the growth of renewable and storage and modernize the grid to decrease the reliance on coal.
- Encourage decarbonization of the industries using green hydrogen, energy efficiency, and cleaner production criterion.
- Enhance EV adoption and transit with charging and urban mobility planning.
- Establish/scaler carbon pricing and carbon trading system with high MRV (monitoring-reporting-verification).
- Increase the energy efficiency schemes (strengthening of the PAT scheme alongside building codes) and low-carbon innovation incentives.
- Afforestation and sinks of carbon, and climate resilient development planning.

(d) . Sustainability Performance Index (Environmental Sustainability Index – Score/100)

Year	Sustainability Index Score
2010	42
2015	45
2020	49
2023	52
2025*	55

Analysis & Inferences

- gradual improvement in policy, awareness, renewable capacity
- still below developed-nation benchmarks (≥70)
- India's sustainability progress is positive but insufficient for developed-nation standards.
- renewable share ↑ increasing
- fossil fuel dependence ↓ decreasing but still high
- carbon emissions ↑ increasing in total terms
- sustainability score ↑ improving gradually

Key Challenges

- high dependence on coal
- rapid urbanization-induced pollution
- rising absolute carbon emissions
- financing gaps for green transition
- technology & storage constraints for renewables

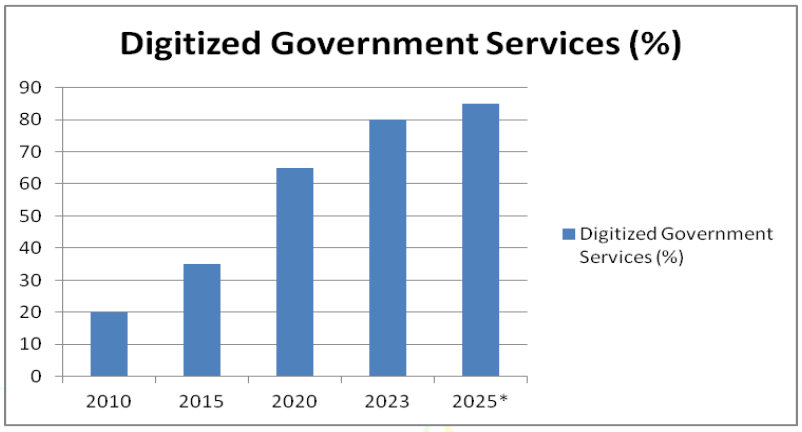
Recommendations

- raise renewable energy share to ≥60% by 2047
- phase down coal through clean coal + alternative base load
- expand solar parks, offshore wind, green hydrogen
- incentivize EVs & public transport
- strengthen carbon markets & emission trading
- invest in battery storage & grid modernization
- enforce urban air quality & waste management reforms

6. Governance and Institutional Indicators

(a) Digital Governance Delivery (%)

Year	Digitized Government Services (%)
2010	20
2015	35
2020	65
2023	80
2025*	85



Analysis and Inference

Between 2010 and 2025, India has witnessed a rapid expansion of digital governance. The proportion of government services delivered through digital platforms increased from 20 percent in 2010 to approximately 85 percent in 2025**.** This transformation has significantly improved transparency, efficiency in service delivery, and citizen access to public services. The upward trend indicates strengthening institutional capacity and aligns with best practices observed in developed economies.

Key Challenges

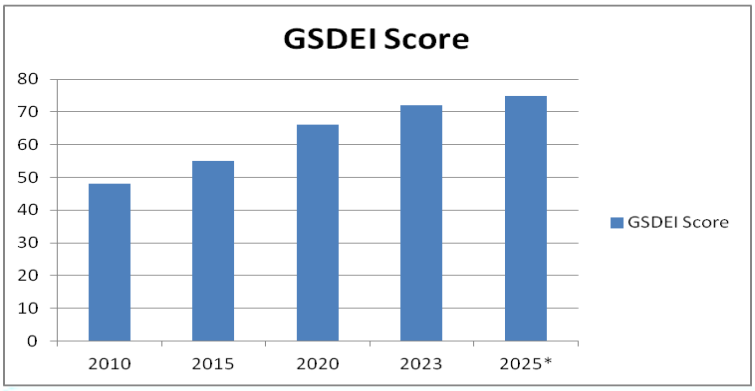
- Citizens with rural/poor conditions are excluded due to digital divide (connectivity, access to the device, and literacy).
- The more digitized the world is, the more cybersecurity and data privacy threats arise.
- Fragmentation of the user experience is due to interoperability problems that occur between departments.
- Problems with the quality of service (server unresponsiveness, failure to log in, slow redressing of grievances).
- Elimination of exceptions on the elderly and disabled as well as low-tech users because of complete digitalization.

Recommendations

- Increase digital infrastructure (last-mile broadband, CSCs, mobile digital service centres) and provide offline backups.
- Enforce cybersecurity structure (safe engineering, audits, incident reaction, data protection compliance).
- Enhance platform integration + interoperability (single sign on, central citizen database, API-based governance).
- Enhance citizen experience by evaluating quality of services, providing services within time limits and providing efficient grievance mechanisms.
- Capacity building through government employee training, digital literacy and sustained monitoring through analytics.

(b). Government Service Delivery Effectiveness Index (0–100)

Year	GSDEI Score
2010	48
2015	55
2020	66
2023	72
2025*	75



Analysis & Inferences

- strong improvement after Aadhaar, DBT, UPI, e-governance
- leakages reduced, targeting improved
- rural–urban gap remains
- India's service delivery capacity has improved significantly, but last-mile reach still varies by region.

Key Challenges

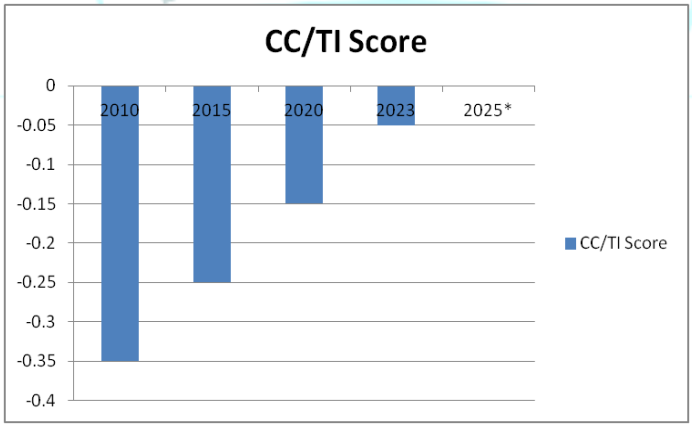
- gaps in last-mile delivery, particularly in tribal areas, remote/rural areas.
- Inclusiveness is hampered by digital divide (connectivity, device access, digital literacy).
- inconsistency in quality/districts so that there are unequal results.
- Problems with data/privacy and authentication (Aadhaar failures, exclusion errors).
- Local body capacity issues (staff, training, monitoring).

Recommendations

- Enhance last-mile infrastructure (broadband, CSCs, mobile service units) and offline services.
- Enhance digital literacy and citizen support, particularly of vulnerable populations.
- Standardize service provision through shared national standards, dashboards and social audits.
- Inclusion protection (other ID practices, redressing grievances, tracking exclusion).
- Develop local governance, by training and staffing and financially by performance.
- Apply data analytics to make specific intervention and track the quality of services.

(c). Control of Corruption / Transparency Index (–2.5 to +2.5)

Year	CC/TI Score
2010	–0.35
2015	–0.25
2020	–0.15
2023	–0.05
2025*	0.00



Analysis & Inferences

- steady movement toward neutral → positive
- e-procurement, direct transfers, GST data trail improved transparency
- perceptions still weaker than OECD nations
- Transparency is improving gradually, but benchmark gaps persist.

Key Challenges

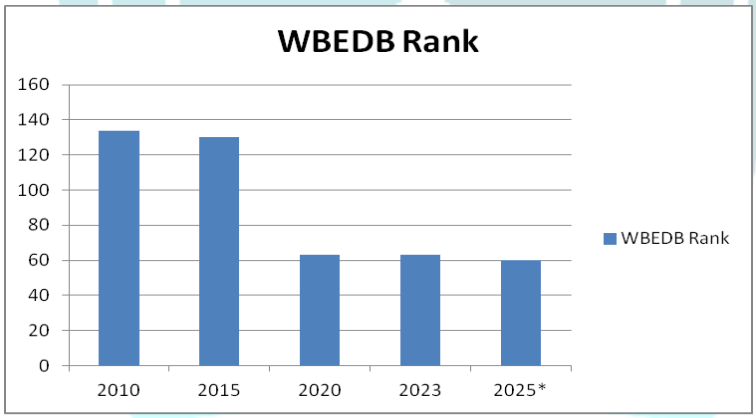
- Corruption perception remains high, and the scores are lower when compared to those of OECD standards.
- Disproportionate implementation of states/departments; leakages on local level exist.
- Weak accountability and sluggish implementation of cases dealing with corruption.
- Loss of transparency in political financing, public procurement and discretion spending.
- Not all public institutions have data transparency and audit quality.

Recommendations

- Enhance end-to-end e-governance (single digital workflow, e-office, e-sign, real-time tracking).
- Empower e-procurement + open contracting of government dashboards and audit trails.
- Enhance institutional responsibility (independent control, expedited vigilance/legal prosecution).
- Improve whistleblowers and redress systems of citizen grievances.
- Apply data analytics/AI-based procurement, GST and DBT anomaly detection to identify fraud.
- Enhance political funding and reporting of government spending to decrease a lack of trust.ugh consultation and pre-emptive notice over significant changes.

(d). World Bank Ease of Doing Business Rank

Year	WBEDB Rank
2010	134
2015	130
2020	63
2023	63
2025*	60



Analysis & Inferences

- sharp improvement after 2015
- improved insolvency code, digital clearances, GST
- MSMEs still face compliance burden
- India's regulatory environment has improved markedly, but cost of doing business remains high.

Key Challenges

- A high compliance cost particularly to MSMEs because of various filings and elaborate processes.
- Existence of regulatory overlap of central and state laws brings about delays and uncertainty.
- Enforcement of contracts and resolving of disputes is sluggish, and this raises the business risk.
- Problems with land acquisition and property registration (poor titles, high stamp duty), which raise the cost of entry.
- Logistics and infrastructure costs are high, which are lowering competitiveness.
- Poor access to credit in MSMEs in a timely manner and slowness in payment by large consumers has an impact on sustainability.

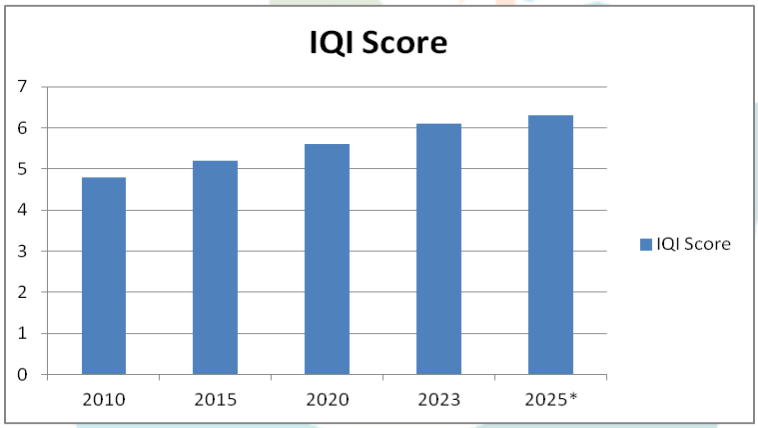
- Risks in investment increase because of unpredictability of the policies as a result of frequent changes.

Recommendations

- Make compliance as simple as a single-window reporting and pre-filled returns, simplified compliance based on MSMEs.
- Create joint national + state clearance portal, approvals and risk based inspections.
- Empower commercial courts and arbitration should be conducted faster through fast-track Arbitration. Introduce land record computerization and title guarantee system; rationalize stamp duty.
- Minimise logistics cost through the use of multimodal logistics parks and enhanced last-mile connectivity.
- Enhance MSME ecosystem through providing credit guarantee schemes and practice high discipline in payment (TReDS).
- Stable and transparent policy framework by consulting and giving notice to major reforms.

(e) . Institutional Quality Index (0–10)

Year	IQI Score
2010	4.8
2015	5.2
2020	5.6
2023	6.1
2025*	6.3



Analysis & Inferences

- stronger regulators, financial inclusion, digital records
- enforcement and judicial delays remain
- Institutional quality is strengthening, but capacity and timeliness gaps persist.
- service delivery has improved due to digital governance
- transparency improving but still below Organization for Economic Co-operation and Development (OECD)
- doing-business rank improved sharply since 2015
- institutional strength rising, but slow and uneven
- Governance reforms are progressing, yet implementation capacity determines outcomes for India @ 2047.

Key Challenges

- slow judicial processes and pendency
- inter-state variation in governance performance
- bureaucratic delays and regulatory burden
- weak local government capacity
- policy implementation gaps

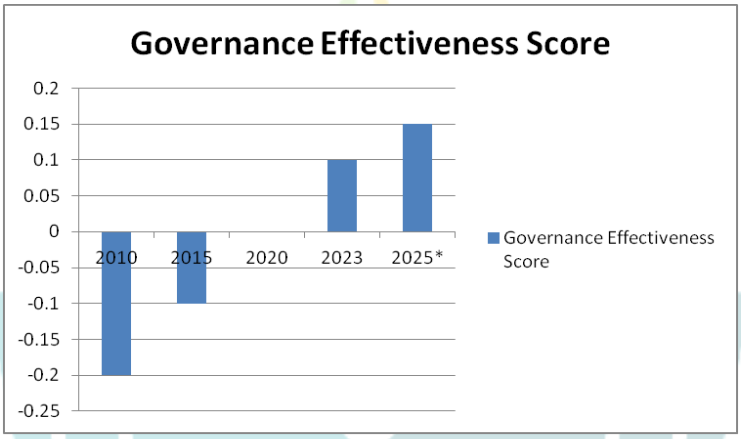
Recommendations

- move from process-based to outcome-based governance
- strengthen judicial & contract enforcement reforms

- simplify compliance and reduce regulatory friction
- expand e-governance and real-time public dashboards
- build local government & municipal capacity
- increase citizen feedback and social audit systems

(f) Governance Effectiveness Index (World Governance Indicators Score *(Scale: –2.5 to +2.5)*

Year	Governance Effectiveness Score
2010	–0.20
2015	–0.10
2020	0.00
2023	+0.10
2025*	+0.15



Analysis and Inference

The gradual improvement in governance effectiveness scores indicates strengthening institutional performance and administrative efficiency. Although India's score remains below the levels typically observed in developed economies (generally above +1.0), the positive trajectory reflects progress in governance reforms and institutional responsiveness. The combined governance indicators demonstrate that India has made notable progress in digital governance, regulatory efficiency, and institutional effectiveness**.** However, the persistence of a significant gap with developed-country benchmarks highlights the need for deeper governance reforms, particularly in policy implementation and accountability mechanisms.

Key Challenges

- Inconsistent policy implementation across regions
- Coordination gaps between central and state governments
- Limited outcome-based monitoring and evaluation systems
- Uneven administrative capacity

Recommendations

- Transition from process-based to outcome-based governance
- Strengthen data-driven policy evaluation mechanisms
- Enhance cooperative federalism for better center–state coordination
- Invest in institutional capacity building and civil service reforms

DISCUSSION:

It was the aim of the present study to investigate the prospects and challenges that India can become a developed nation by 2047 by using a multidimensional analytical framework that would cover two aspects and include

economic growth, human development, employment, technological progress, environmental sustainability, as well as the effectiveness in governance. The results of the analysis based on indicators until 2025 are valuable information that can be conditionally supplemented and, in certain instances, confirmed by the current academic and policy-related sources.

Income Convergence and Economic Growth: The inflation of GDP per capita (nominal and PPP) has grown significantly in 2010-2025. The convergence level with developed nations however still shows that there is a large gap implying that per capita income is catching at a slow pace. The threat of middle-income trap exists since there exists a gap in productivity in various sectors. There has been no sufficient growth in the quality employment meaning growth without appropriate structural change.

Industrial Revolution of Production: The decrease in the agricultural share is evidence of structural change. Domination of the sector by the services indicates the services-led growth model, unlike manufacturing-led Asian Tigers. The lack of growth in industrial share is an indicator of low advancement in terms of manufacturing competitiveness and value addition. The gradual out-migration of labour in agriculture is an indication of incomplete structural change.

Investment Dynamics: Investment rates have been recuperating since 2020 but still at a low economy development level. Infrastructure bottlenecks and lack of interest in the economy amongst the private investments limit growth potential. In the absence of increased capital formation, it will be hard to maintain growth at 8 -9 percent, which will be necessary to qualify it as a developed nation.
Human Development and Welfare: The trend of HDI is a positive but still in the middle human development range. There has been disconnect age between economic growth and human development in gains in education and health. The endemic socio-regional inequality shows imbalanced growing capability.

Education Outcomes: Years of schooling have risen substantially, although still at a considerably low level compared to OECD. There is poor quality of learning outcomes regardless of the growth in enrolment. Digital divides, rural disadvantages, and teacher shortages exist.
Health Improvements: The life expectancy and infant mortality improved to a significant extent. Nevertheless, lack of even distribution, excessive out-of-pocket spending, and undernourishment are also important limitations. The health of India performs below the OECD norms that impact the productivity and human capital.

Labour Market Outcomes: LFPR is also back on its feet after the pandemic but unemployment is still high. The informal sector continues to dominate which restricts gains in social security and productivity. The weak female labor participation limits the realization of demographic dividend.

Skill Development: The experienced labor force has increased yet very low in comparison with the developed economies. The lack of skills in line with the demands of the industry is one of the causes of underemployment. The quality of human capital has always been a binding factor to innovation driven growth.

Digital Transformation: The rapid spread of the internet justifies the use of digital public infrastructure as a growth potential. It improved the efficiency of service delivery, inclusion and governance. However, the digital gap and the weak security are still issues.

Innovation Capacity: The Global Innovation Index rank of India has significantly increased after 2015. Spending on patent applications rose, but the amount of R&D is by far below innovation leaders in the world. Innovation is growing larger but not yet deeper and more intensive.

Start-up Ecosystem: India is now a major start-up centre around the world with upsurging unicorns. Volatility in funding indicates reliance on the external funds. Funding and ecosystem constraints continue to be a problem in deep-tech and manufacturing start-ups.

Environmental Transition: The proportion of renewable energy continued to rise steadily, which is an indicator of clean energy transition. There are absolute emissions that are ever increasing because of the scale effect of development. The level of coal reliance is still high posing trade-offs on climate policies.

Sustainability Performance: The environmental sustainability scores were improved, although further below the levels of the developed economies. Sustainability performance is challenged by urban pollution and climate vulnerability.

Effectiveness of Governance and Provision of public services: Digital governance greatly boosted effectiveness in service delivery. The state of transparency indicators also rose, yet perceptions are below those of the OECD. The ability to implement differs depending on the state which influences the developmental results.
Institutional Quality: The quality of the institution was enhanced, which implied the improvement of regulations and administration. Courts taking long to achieve delivery of justice and enforcement loopholes still weigh heavily on business confidence and trust by the citizens.

Ease of Doing Business: Significant rise in rankings shows effective regulation changes. Nevertheless, the cost of compliance and transaction costs is still high among MSMEs. The general developmental trajectory encompasses all aspects of a child, including physical, cognitive, and emotional growth (Harris, 2007). Whole holistic development (Harris, 2007) trajectory is a comprehensive development of a child involving physical, cognitive, and emotional development. India is showing rapid pace and lack of maturity. Inequalities are demonstrated in the development of pillars: the rate of economic growth is higher than human development, the quality of employment, and the capacity to govern. The vision of the developed countries in the year 2047 is not easy without parallel reforms in the different areas.
Summary Statement of Discussion: Overall, the data until 2025 indicate that India is heading in the right direction in terms of the economic growth, innovations, digitalization, and the use of renewable energy. Nonetheless, the poor quality of human capital, the predominance of informal jobs, environmental stressors, and the lack of inclusive governance factor reflect that the shift to the developed nation by the year 2047 will need even faster, more coordinated, and inclusive changes in the spheres.

CONCLUSION:

This paper is a holistic evaluation of the opportunities and threats of India becoming a developed country by 2047 through a multidimensional evaluation and an indicator-based evaluation until the year 2025. According to the findings, India has achieved significant gains in terms of economic growth, digitalization, and the use of renewable energy, which is facilitated by the positive demography and policy changes. These strengths create a powerful base of the long-term development. Nevertheless, chronic lapses in the quality of human capital, creation of employment, environmental sustainability and effectiveness of governance are also established in the analysis. The gradual rate of convergence of income, structural labour market issues and environmental forces indicate that gradual improvements will not help to bring the situation up to the standards of developed nations within the given time frame. The realization of the vision of India @ 2047 will in turn necessitate a sustained rate of high growth, massive investments in human capital, inclusive development plans, employment-intensive and inclusive development plans, faster green transitions and governance reforms that are outcome oriented. The paper comes up with the conclusion that India can and cannot be converted to a developed nation. The key will be success giving the capacity to carry out integrated and coordinated changes that will bring sustainability in the economy, social equity, and the environment.

FUTURE RESEARCH DIRECTIONS:

Although the current study provides an in-depth macro-level evaluation, several research directions can be identified in the future:

Spatial differences in the development outcomes and policy effectiveness are to be captured within state and regional analysis. Econometric modelling and scenario analysis to model growth and development of India under different policy frameworks to 2047. Sector-specific analysis of manufacturing, agriculture, healthcare and education to determine micro level limitations and opportunities. Comparative international investigations on the development trajectories of the countries that achieved successful transition into the developed status that could be used in India. The role of federalism, decentralization and provision of services by central governments as institutional research on long-term development. The research gaps would be useful in filling the knowledge gap on

the Indian development path and offer more specific policy recommendations to help realize the vision of Viksit Bharat 2047.

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