Strengthening the impact of investments in railway infrastructure

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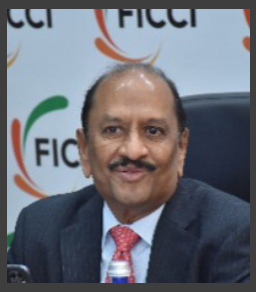
Foreword from FICCI



Mr BVN Rao
Chairman,
FICCI Committee on Transport Infrastructure
and Business Chairman (Transport and Urban Infrastructure), GMR Group

I am happy to share with you the FICCI-PwC Knowledge Report on at Future Rail India 2024, organised by the Federation of Indian Chambers of Commerce and Industry.

Railways are the backbone of global transportation in our fast-paced, tech-driven world. They play a crucial role in moving people and goods, driving economies, and fostering trade and development. The Indian Railways' National Rail Plan Vision 2030 aims to expedite critical projects such as multitrack congested routes, achieving 100% electrification, and upgrading speeds to 160 kmph on various routes.

Highlighting government initiatives and policies is essential when discussing development and modernisation. Production-linked incentives (PLIs) and dedicated freight corridors (DFCs) stand out as pivotal measures propelling the railways sector towards greater efficiency and integration. These initiatives align with reducing logistics costs, streamlining transportation and cutting transit times for goods. Such investments underscore India's commitment to alleviating route congestion, enhancing logistics efficiency and elevating rail service standards.

The FICCI-PwC knowledge report identifies and evaluates various interventions aimed at maximising the impact of these investments. It addresses significant challenges and proposes transformative actions for building a sustainable and robust rail infrastructure in India. The report also provides a comprehensive analysis of critical aspects including private investments, the transformative role of technology and skill development in advancing rail infrastructure.

I hope you will find this report useful. We welcome your suggestions and feedback.

Foreword from FICCI

Mr Vivek Lohia
Co-Chairman,
FICCI Committee on Transport Infrastructure
and Managing Director, Jupiter Wagons

It is my pleasure to present the FICCI-PwC knowledge report on 'Strengthening the impact of investments in railway infrastructure', unveiled at 'Future Rail India 2024' conducted by the Federation of Indian Chambers of Commerce and Industry.

India's railway sector is witnessing unprecedented investment and transformation in its track infrastructure. With substantial funding allocated to modernise and expand rail networks, the Indian Railways is poised to enhance connectivity, efficiency and sustainability across the country. Key initiatives include the ambitious construction of new rail corridors, extensive electrification projects, and the adoption of advanced signaling systems to improve safety and operational efficiency.

The government's proactive policies, including the promotion of public-private partnerships (PPPs) and innovative financing models, play a crucial role in expediting these infrastructure developments. These initiatives are designed not only to reduce transportation costs and transit times but also to stimulate economic growth by facilitating smooth movement of goods and passengers.

This report assesses the impact of investments on India's rail infrastructure, highlighting its opportunities and challenges. It focusses on enhancing resilience, building capacity through skill development and leveraging technologies such as artificial intelligence (AI) and the internet of things (IoT). It serves as a unique platform for stakeholders, policymakers and investors for promoting sustainable growth and ensuring a resilient and adaptable rail network for India's evolving economy.

I hope you will find this report useful. We welcome your suggestions and feedback.

Foreword from PwC

Manish Sharma
Partner and Sector Leader, Infrastructure,
Transport and Logistics, Real Estate, Global Ports COE
PwC India

We are pleased to present the knowledge paper 'Strengthening the impact of investments in railway infrastructure' developed by PwC in association with FICCI. As India continues its journey towards becoming a global economic powerhouse, the role of railways in driving this growth cannot be overstated.

Based on the requirements of significant amount of investments in the railways, an estimate was set in the National Rail Plan (NRP), drafted in 2020. However, nearly four years into its implementation, while some benefits have been realised, other outcomes have not been accomplished.

This paper explores the reasons behind why some of these objectives have not been met and highlights the strategic approaches to maximise the impact of these investments. Our analysis focuses on key areas where targeted interventions can yield significant improvement in outcomes.

We are proud to contribute to this document which discusses the interventions required to maximise the benefits of the investments in the railway sector and hope that this paper becomes a valuable resource for all stakeholders and catalyses discussions that can positively shape the future of railways in India.

I take this opportunity to thank FICCI and all other stakeholders who have supported us in the development of this paper and wish them success in their future endeavours.

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Need for investments

For India to achieve their goal of becoming a USD 30 trillion economy by 2047,[1] it is important to fortify the country's railway networks in order to support the economic growth. To develop an efficient and sustainable transportation network, significant challenges remain to be addressed to meet the growing demand for passenger and freight services.

According to a report, between 1951 and 2015, the railway network in India increased by only about 23% in terms of route kilometre and by 289% if doubling and multi-tracking are considered. In a stark contrast, the freight loading and passenger kilometres surged by 1344% and 1642% respectively in this period.[2] This mismatch between network expansion and traffic growth led to severe overutilisation with an increase in pressure on key routes. To address this, Indian Railways decided to invest in capacity creation and several missions to increase speed, throughput which finally led to formulation of the National Rail Plan in 2020.

As India aims to achieve the desired economic growth, the need to reduce the cost of logistics cannot be understated. Indian Railways as a mode of transport can play an important role in lowering the logistics cost as it is significantly cost and time efficient over medium to long distances. Indian Railways is also an important contributor to India's commitment towards the country's net zero emissions by 2070.

1. Viksit Bharat@2047
2. Indian Railways Year book 2021-22 and White paper 2015

Growth in freight coupled with decrease in modal share of rail

India's freight demand is about 4,500–5,000 million tonne (MT) annually, translating to about 3 trillion net tonne kilometres (NTKM) of transportation output, valued at approximately INR 9.5 lakh crore.[3] The historical growth in freight demand coupled with the drastic decline in modal share of rail from 85% in 1951 to about 27–28%[4] has adversely impacted the logistics cost and competitiveness of user industries. Some of the key factors contributing to this decline in modal share of rail are:

- **Long transit times:** Freight trains have a slow average speed of 23.6 kilometre per hour (kmph).[5]
- **Unreliable transit times:** Freight trains are significantly delayed, with average detention times at key junction stations (those connected to three or more lines), ranging from 2 to 7.5 hours.[6]
- **Limited availability of rolling stock:** This decline is further accentuated by inefficient terminal operations leading to freight trains spending 14–17 hours[7] on an average at freight terminals.
- **Limited commodity:** Specific rolling stock and terminal infrastructure.
- **Limited terminal availability:** Sidings (with minimal handling, storage, and distribution infrastructure) comprise only 34% of the total terminals, they handle 68% of freight traffic; conversely, goods sheds (with basic handling and storage infrastructure) representing 63% of terminals, manage just 21% of freight traffic; less than 1% of the terminals have adequate infrastructure for late-stage value addition and efficient first/last mile.[8]

The long and unreliable transit times are rooted in a capacity constrained network. As per the National Rail Plan (NRP), 25% of the overall network operates at a 100–150% capacity utilisation and 1% at a 150% plus capacity utilisation. These constitute the most relevant sectors for freight movement. In 2026, even after implementing all planned works, it is estimated that 12% of the network will operate at a capacity utilisation above 150%.[9]

Safety of rail operations also needs to be considered while targeting faster and reliable journeys. There has been an increase in rail accidents from 22 in 2020–21 to 48 in 2022–23[10] despite dedicated financial commitments such as the Rashtriya Rail Sanraksha Kosh (RRSK). Furthermore, investments and innovation in rolling stock and terminal infrastructure will be key to leverage the investments and innovation in track capacity and safe railway operations.

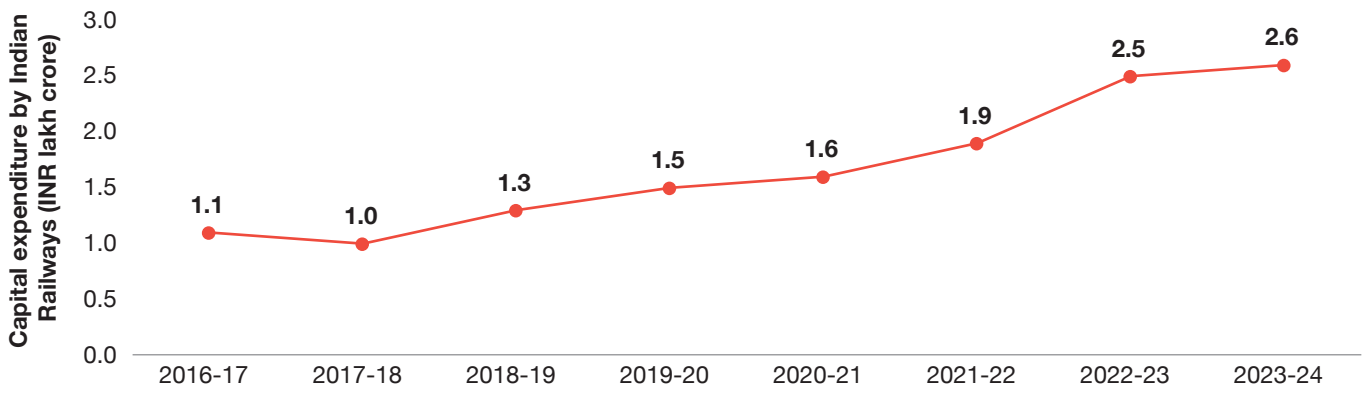
By enhancing the efficiency and capacity of rail transport, India can reduce its logistics costs, decrease carbon emissions and stimulate growth across numerous industries. With strategic investments and supportive policies, The Indian Railways can play a crucial role in driving India's economic growth while significantly contributing to the nation's environmental objectives and aligning them with the government's 'Viksit Bharat @2047' vision.

3. Mission 3000 mt
4. DFFCIL, Ministry of Railways
5. Ibid
6. CAG Report, Detentions of trains due to existing deficiencies/constraints at stations
7. CAG Report, Management of Goods Trains in Indian Railways
8. PwC Analysis and CAG Report, Chapter 2: Traffic - Commercial and Operations
9. National Rail Plan 2020
10. PIB: Consequential Train accidents

Planned investments in railway infrastructure

The Indian Railways is embarking on a transformative journey aimed at enhancing the overall experience and capacity of railways through comprehensive infrastructure development. Recognising the need to upgrade its infrastructure, the Indian Railways has committed to a series of investments in increasing line capacity, electrification, upgradation of rolling stock, customer centricity and safety among many others projects. These investments have come in the form of initiatives to achieve short term objectives as well as well-defined, long-term plans which act as a guiding framework, such as the National Rail Plan (NRP). The government has shown a strong commitment by consistently increasing its budgetary allocation to the railways over the past decade.

Figure 1: Capital expenditure over the years



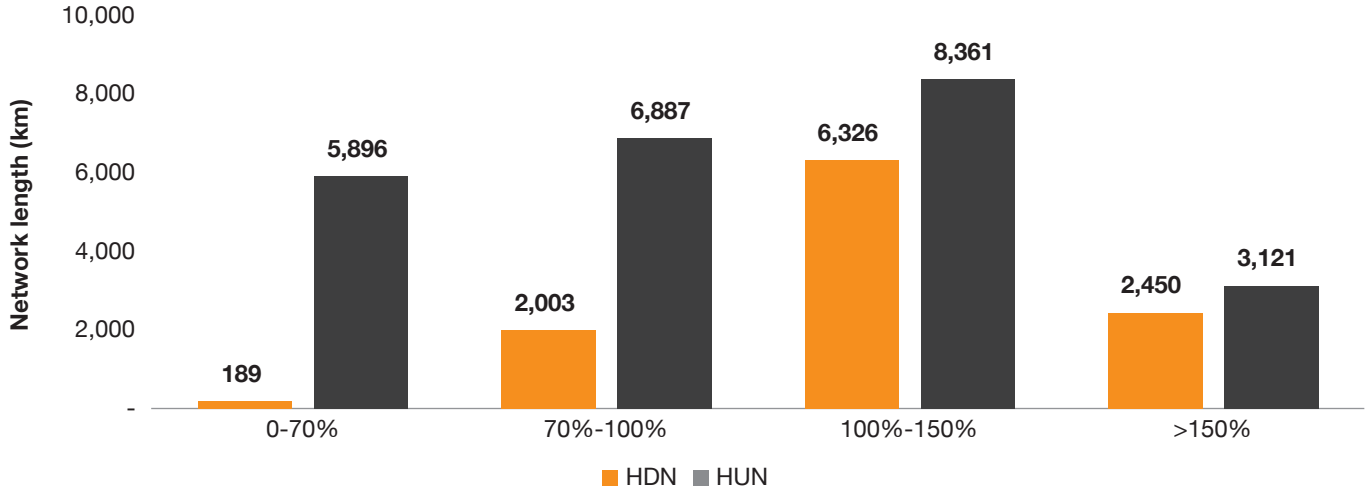
Source: CAG Report, 2021 and PRS: Demands for grants 2023-24

There has been a remarkable ~130% increase in annual railway capital expenditure from 2016-17 to 2023-24.

Network expansion

The Indian railways' network is the fourth largest network in the world after the United States, Russia and China. Despite the size of network, some routes are operating beyond 100% capacity which may cause operational challenges.

Figure 2: Existing capacity utilisation of HDN and HUN



Source: National Rail Plan (NRP)-India

A study undertaken while formulating the NRP established that 57% of the rail network is expected to exceed 150% capacity utilisation by 2051. High density network (HDN) routes are expected to be particularly stressed with 92% of the network projected to operate above 150% capacity. To address this network congestion and accommodate the growing demand, the government planned ambitious capacity expansion projects under the NRP, envisaging an augmentation (doubling and signaling) of the network by 75,194 route kilometre till 2051 at an estimated cost of around INR 6 lakh crore.[11]

The National Infrastructure Pipeline (NIP) which was introduced to help achieve the objective of becoming an INR 5 trillion economy by 2025 had identified about 724 railway projects to be implemented in the period 2020–25. These constituted 259 projects of new line and gauge conversion worth INR 4.4 lakh crore and 266 projects of capacity augmentation worth INR 2.5 lakh crore.[12]

The development of dedicated freight corridors is another major network expansion plan aimed towards improving transit time and lowering the cost of logistics in the country. Two corridors have already been commissioned – the Eastern Dedicated Freight Corridor, which is a 1,337 km route stretching from Ludhiana to Sonnagar, (commissioned and fully operational), and the Western Dedicated Freight Corridor, spanning 1,506 km from Jawaharlal Nehru Port Terminal to Dadri, which is 93% complete. Additionally, three more dedicated freight corridors are being planned – the east coast route, the north-south trail and an east-west route. These two routes will together add 4,300 km to the network at an estimated cost of around INR 2 lakh crore.[13]

11. National Rail Plan
12. National Infrastructure Pipeline Report Vol- II
13. DFCC: Project Status

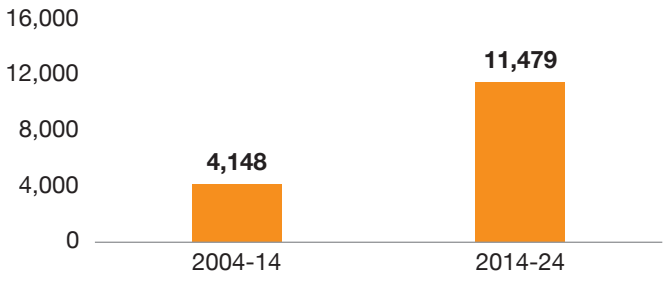
The Mumbai-Ahmedabad high-speed rail project, sanctioned at a cost of INR 1.08 lakh crore[14] is an endeavour to move beyond incremental improvements and join the select club of countries operating high-speed rail systems. This ambitious project aims to cover a 508 km journey in under three hours, with trains reaching speeds up to 320 kmph. Additionally, 12 other high-speed rail corridors have been proposed under the NRP, with a total length of 7,479 km and an estimated cost of around INR 15 lakh crore (including the cost of rolling stock and development of stations). These corridors are planned to be implemented in phases until 2051.[15]

Three major economic railway corridors have been identified under the PM Gati Shakti initiative. The energy, mineral, and cement corridor, the port connectivity corridor and the Amrit Chaturbhuj corridor together will contribute to the construction of around 40,000 km of new tracks, significantly increasing railway capacity and enabling modal shift from road to rail.[16]

Upgradation of rolling stock

Indian Railways has introduced its first indigenous semi-high-speed train, Vande Bharat Express. These trains feature rapid acceleration, reduced travel times, a maximum speed of 160 kmph, GPS-based passenger information systems, automatic sliding doors, retractable footsteps, zero discharge vacuum bio-toilets, CCTV cameras and contemporary global-standard features. As of January 2024, 82[17] Vande Bharat trains are operational.

Figure 3: Estimated cost of procurement of new rolling stock

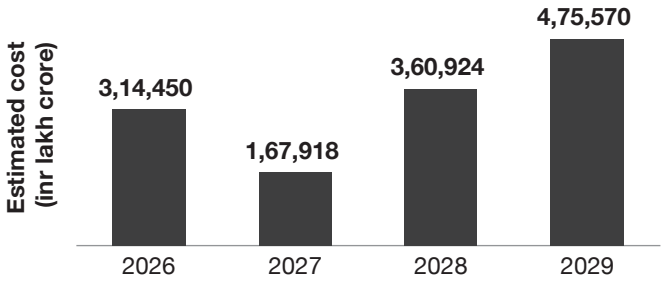


Source: PIB, During the period 2014-23, 2024

The government plans to upgrade 40,000 regular rail coaches to meet Vande Bharat's standards, aiming to enhance the safety, convenience and comfort of the passengers. Additionally, the Indian Railways aims to procure 4,500 new Vande Bharat trains by 2047. These investments are expected to yield widespread benefits, including improved cost-competitiveness, increased rail capacity and a substantial reduction in CO2 emissions through modal shift to rail by passengers and freight.[18]

Indian Railways is also replacing the outdated integral coach factory (ICF) coaches with advanced Linke Hofmann Busch (LHB) coaches, having ceased ICF production in 2018. For the fiscal year 2025–26, the Railway Board has sanctioned the production of 8,692 coaches, including 4,840 LHB coaches and 3,708 self-propelled units. The NRP has outlined a phased procurement of rolling stock to meet the demands of both freight and passenger services at a cost of around INR 13 lakh crore. The Indian Railways also plans to procure more than 10 lakh wagons and 46 thousand locomotives by 2051.[19]

Figure 4: Number of ROBs / RUBs



Source: National Rail Plan (NRP)-India

Enhancing the passenger experience

Indian Railways has been making efforts in becoming more attractive and customer-centric by implementing a range of initiatives focused on enhancing passenger experience and convenience. A key part of this effort is the upgradation of stations across India under the 'Amrit Bharat Station Scheme,' which prioritises improving accessibility and passenger flow. This includes widening roads, removing unnecessary structures, installing clear signage, creating dedicated pedestrian pathways,

14. PIB: High Speed Rail; 2024
15. National Infrastructure Plan
16. Ibid
17. PIB: Vande Bharat Train, 2024
18. https://economictimes.indiatimes.com/industry/transportation/budget-2024-with-vande-bharat-comes-greater-need-for-indian-railways-safety-shield/articleshow/111777158.cms?from=mdr
19. National Rail Plan

enhancing parking facilities and upgrading lighting. Stations will also feature modern passenger amenities like roof plazas, landscaping, intermodal connectivity, improved façades, kids' play areas, kiosks and food courts. These enhancements aim to make railway stations more user-friendly and efficient, with a long-term approach for continuous development. 1,318[20] stations have been identified for development or redevelopment at an estimated cost of INR 19,000 crore and 508 stations are already undergoing renovation at an estimated cost of INR 24,470[21] crore.

Furthermore, to provide a world-class traveling experience, Indian Railways has introduced Vistadome coaches. These coaches feature panoramic views through wider windows and transparent roof sections, allowing passengers to enjoy the scenery. Currently, 57[22] Vistadome coaches are running on various sections of the Indian Railways.

Safety

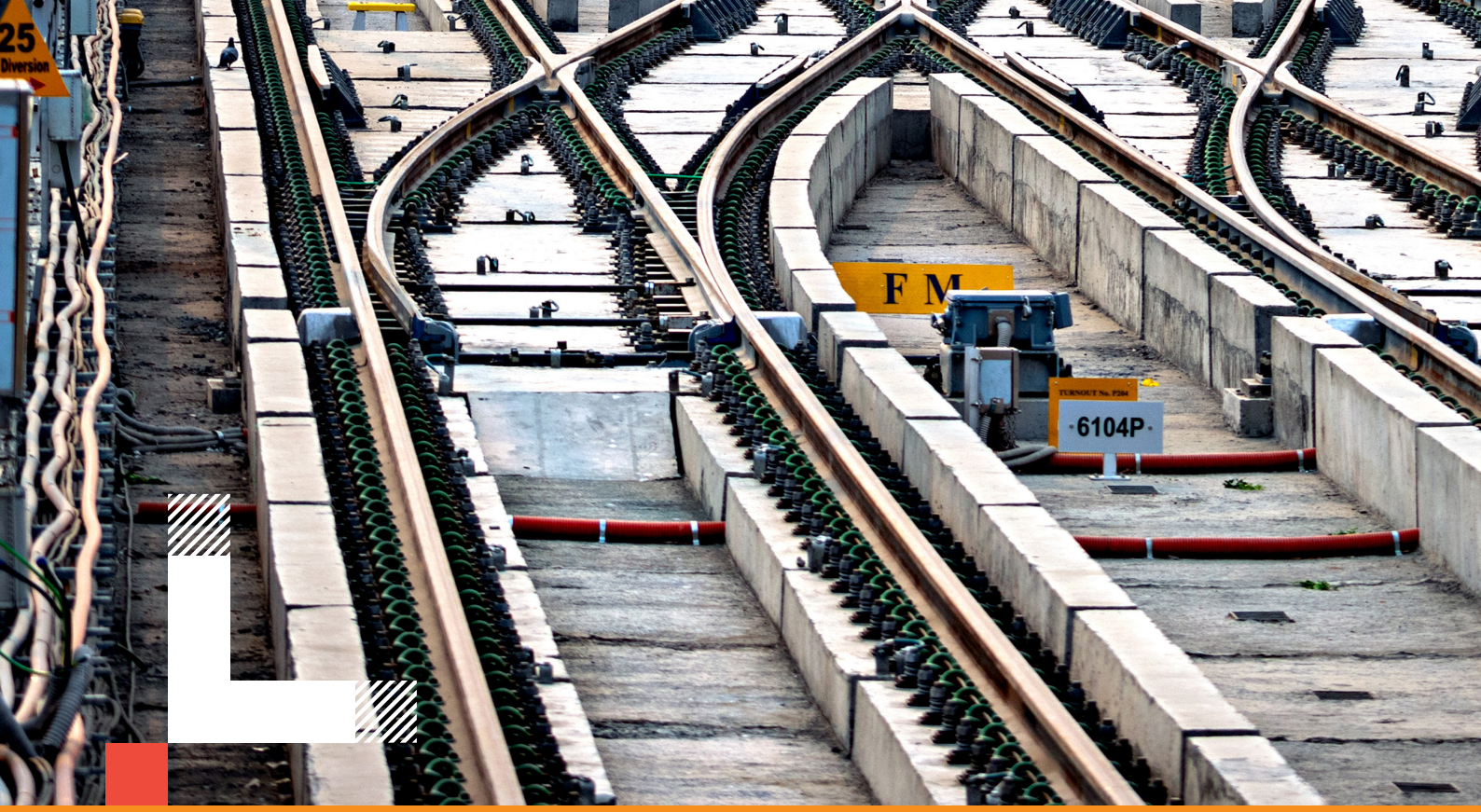
Kavach, an indigenously developed Automatic Train Protection (ATP) system is the flagship intervention towards improving safety of the rail system. It assists loco pilots by automatically applying brakes if the pilot fails to do so within specified speed limits and ensures safe train operations during inclement weather. The cost of implementing the Kavach system includes providing trackside and station equipment costs at around INR 50 lakh per km and equipping a locomotive at around INR 70 lakh per unit. Kavach has so far been deployed on 1,465[23] route km and 139 locomotives (including electric multiple unit rakes) on South Central Railway. The budgetary allocation for Kavach in 2023–24 was INR 710 crore, and about INR 560 crore was allocated in the Interim Budget of 2024–25.[24] Electronic Interlocking is also being adopted to increase throughput and enhance safety. Currently Indian Railways has replaced the old mechanical signaling system at 6,521[25] stations.

In 2017–18, the Indian Railways established a corpus of INR 1 lakh crore under the Rashtriya Rail Sanraksha Kosh fund for the replacement, renewal and upgradation of critical safety assets over a five-year period, which had a gross expenditure of INR 1.08 lakh crore. The fund has been extended for another five-year term beyond 2021–22, with an estimated allocation of INR 45,000 crore from which about INR 12,309 crore is estimated to be spent in 2023–24. The fund was used in the construction of road over bridges (ROBs) and road under bridges (RUBs).[26]

Green initiatives

From 2014 to 2023, Indian Railways has electrified about 40,000 route kilometre of its broad gauge (BG) network, making a 61,508[27] route kilometre electrified as of December 2023 which is 93.83% of the total BG route of Indian Railways. A budget of INR 6,500[28] crore has been allocated to reach 100% electrification in 2024–25. Indian Railways has also commissioned approximately 211 MW of solar plants (rooftop and land-based) and 103 MW of wind power plants and secured additional 2,150 MW of renewable capacity.[29]

20. PIB: Station Development, 2024
21. PIB, Station Development, 2023
22. PIB: Vistadome Trains, 2023
23. PIB: Kavach, 2024
24. PIB, Kavach Protection System, 2023 and Rajya Sabha, Unstarred Questions, Installation of Kavach in Indian Railways, 2024
25. PIB: Interlocking system, 2024
26. PIB: Unstarred Question, 2024
27. PIB: Railway Electrification, 2024
28. Expenditure Profile 2024-25
29. PIB: Green Inititaivtive, 2023



Outcomes of planned investments

Enhancing speed and improving transit performance

One of the most significant outcomes of increased investments in track renewal, gauge conversion and the addition of new lines has been the enhancement of maximum speed across the network. A landmark achievement in this regard is the increase of maximum speed to 130 kmph over a significant portion of the Golden Quadrilateral – Golden Diagonal route.[30]

While maximum speed has increased significantly on select routes, average speeds across the Indian Railways network have only shown modest improvements. From 2019–20 to November 2024, average speeds of freight trains remained at around 23.6 kmph while mail/express trains increased slightly to 51.1 kmph and ordinary trains improved marginally to 35.1 kmph. Notably, average speeds of freight trains temporarily peaked at 44.36 kmph in 2021-22 during the COVID-19 pandemic due to reduced passenger traffic.[31]

There is an urgent need to shift the focus of the Indian Railways towards translating investments in track infrastructure to improve average speeds of trains and enhanced transit reliability.

Increased modal share of rail across commodity segments

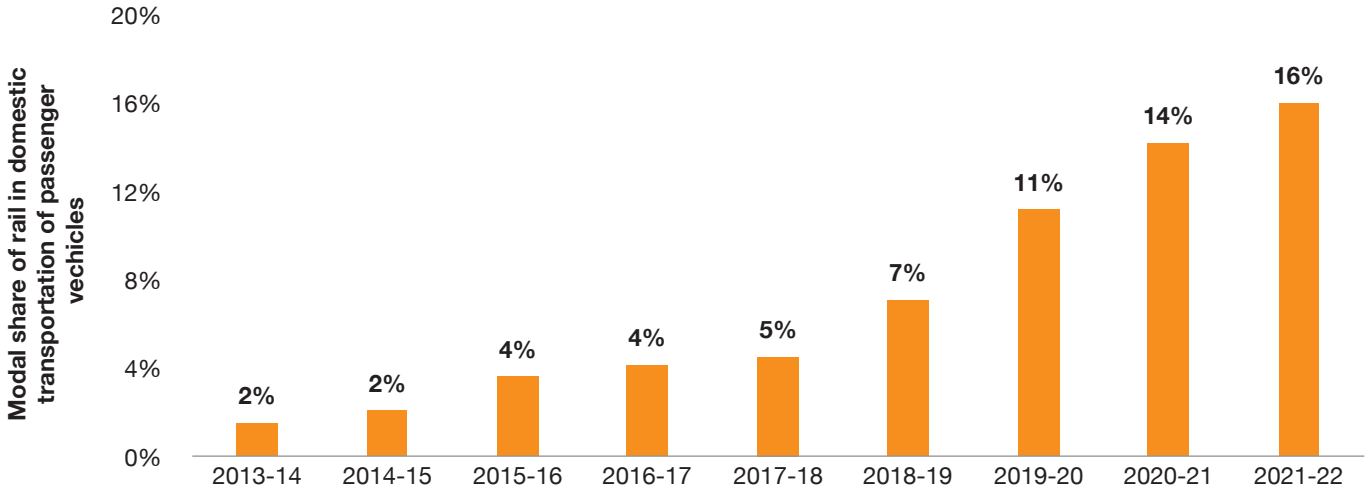
The Indian Railways achieved a record 1,512 MT of originating freight loading in 2022–23 – a 7% increase over the previous financial year. This upward trend continued into 2023–24, with the April-November period showing an improvement of 36.95 MT compared to the same period in the previous year.[32]

An important development has been the increase in share of railway in domestic transportation of small passenger vehicles, rising from 1.5% in 2013–14 to 16% in 2021–22. To support this growth, the Indian Railways has expanded their fleet to 90 newly modified goods (NMG) rakes and 43 bi-level auto

30. South central railway press conference; 2023
31. MoR: Unstarred question, 2023
32. https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1913114

car wagon (BCACBM) rakes under the Automobile Freight Train Operator (AFTO) scheme.[33] The success of this development is driven by combining capital investments with the introduction of adequate wagon designs and the right commercial and operational policies

Figure 5: Domestic transportation of passenger vehicles (cars)



Source: PIB, Indian Railways registers growth in Automobile Traffic, 2022

The freight landscape is also not without challenges. The freight portfolio of Indian Railways remains heavily concentrated towards bulk commodities, particularly coal (accounting for 40% of rail freight volume), iron and cement.[34] This composition has shown minimal diversification over the past 15 years. **The Indian Railways' ambitious target of 3,000 MT by 2027 cannot be achieved without adequate interventions towards diversifying this commodity mix hauled on rail.[35]**

The Gati Shakti Cargo Terminal policy of Indian Railways for multi-modal connectivity aims to reduce the end-to-end cost for movement of varied commodities when using rail. This initiative encourages private investment in cargo terminal development. Despite commissioning 48 Gati Shakti Multi-Modal Cargo Terminals (GCTs) in June 2023,[36] there has been minimal impact on diversifying the range of commodities transported by railways.

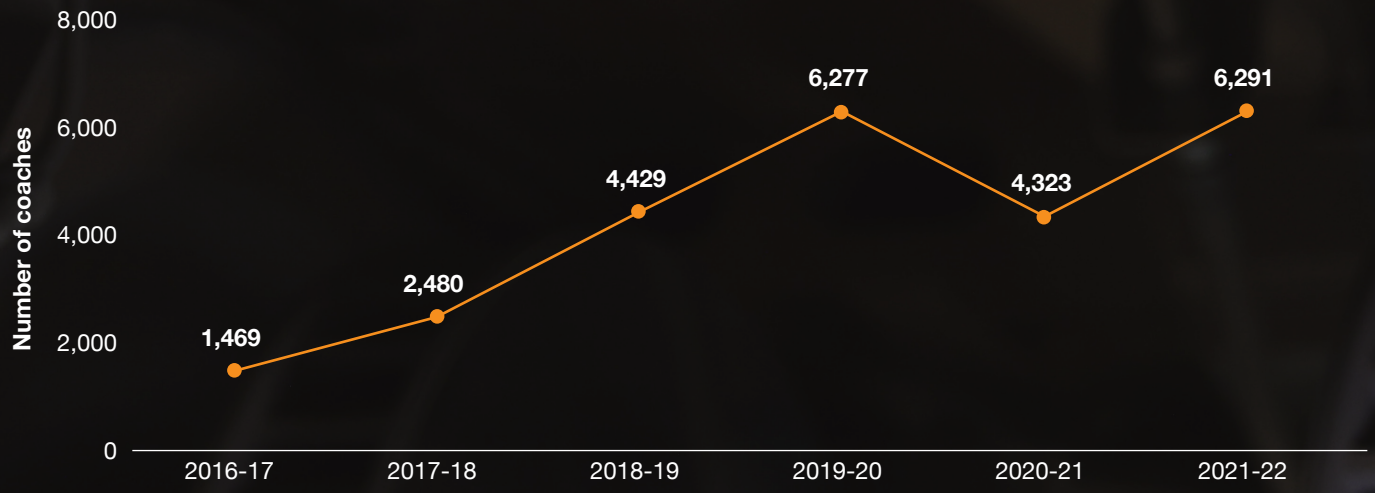
Innovation in rolling stock

In December 2023, the Indian Railways introduced two Amrit Bharat Trains. These LHB push-pull trains, with locomotives at both ends enable improved acceleration and include ergonomic seating, optimised luggage storage, mobile charging points, light emitting diode (LED) lighting, closed circuit television (CCTV), and a public information system, aligning with international standards of rail comfort and safety.[37]

To promote tourism, Indian Railways introduced 57 Vistadome coaches across various gauge sections, offering panoramic views and a world-class travel experience.[38] In a move towards enhanced safety and comfort, about 23,000 conventional coaches have been replaced by LHB coaches since 2015.[39]

33. https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1858765
34. https://www.business-standard.com/economy/news/rail-freight-grows-1-5-in-october-to-131-million-tonnes-shows-data-124110801709_1.html
35. https://www.thehindubusinessline.com/economy/logistics/indian-railways-bulks-up-to-haul-3000-mt-by-2024/article67366651.ece
36. https://pib.gov.in/PressReleasePage.aspx?PRID=1945075#:~:text=Upto%2030th%20June%2C%202023,come%20forward%20to%20setup%20terminals.
37. PIB: Transformational Journey; 2023
38. Ibid
39. Indian Railway year book

Figure 6: Coaches manufactured over the years



Source: PIB, Switch over to LHB Train Coaches, 2018 and PIB, Ministry of Railways: Year End Review 2022, 2022

The Integral Coach Factory, Chennai, has developed Vande Bharat, semi-high-speed trainsets. These trainsets exemplify India's push towards world-class rail technology and can achieve a top speed of 160 kmph. The performance of these Vande Bharat trainsets, however, is impacted by the unavailability of compatible tracks.

The innovation and success in passenger coaches has not been matched in the freight segment. The cycle time and processes for introduction of new wagon technologies and designs is lengthy and fails to encourage the required entrepreneurship.

Safety

Kavach, an automatic train protection system has been deployed on 1,465 km of track and 139 locomotives.[40] Despite the potential benefits of Kavach, its deployment remains limited to a few select sections of the Indian Railways network. The implementation of Kavach in India faces myriad of challenges such as fitment challenges, limited manufacturing capability, vendor development and other procedural delays.

As Indian Railways continues to modernise their operations, it is important for them to focus on adopting suitable adjustments, additional investments and policy and regulatory changes wherever required.

40. PIB: Transformational Journey; 2023

Enhancing the impact of the investments

In order to develop a high-performing and safe railway network, the railways sector must combine track development investments with the implementation of the automatic block signaling (ABS) and the automatic train protect system Kavach on all sections on high density network (HDN) routes and high utilised network (HUN) routes. It may be noted that the HDN comprises of 16% (11,000 km) and transports 41% of the total traffic of the entire network. HUN comprises of 35% (24,230 km) and transports 40% of the total traffic moving on the Indian Railways network. 530 km and 582 km of track were upgraded with ABS in 2022-23 and 2023-24 respectively. As of Feb 2024, Kavach had been deployed on 1,465 route kilometree and 139 locomotives.[41]

At the present rate, it may take decades to implement and realise the envisaged impact from these investments. One of the key interventions to accelerate the implementation of ABS and Kavach is development of an effective and coherent procurement system. Similarly, other hard and soft interventions are required to ensure achieving the envisaged impact from investments planned in the railway sector in India.

Effective and coherent procurement system

Indian Railways has traditionally followed a procurement mechanism where different contractors are onboarded for various small works separately, rather than a single player for a composite work. This often leads to various challenges as contractors work on an item-rate basis and are not incentivised to work towards a common objective. However, there is an increase in the use of engineering procurement construction (EPC) model within Zonal Railways in the case of track, electrification and signaling works. This has led to participation of medium- and large-sized contractors and professional project management consultants, thereby increasing accountability and ensuring timely completion of projects.

41. https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2001908

Another challenge for manufacturing related investments is limited visibility of the pipeline of such investments and of Indian Railways' preferred procurement model (public private partnership or government funded). This leads to indecisiveness amongst private players in making investments related to manufacturing in the Indian railways sector. The fact that railways is the monopoly buyer, and standards and specifications in India (for example broad gauge) further increase the perception of risk amongst private players.

Greater private sector participation must be enabled in operations and maintenance of railway stations, freight terminals, track infrastructure and rolling stock to increase efficiency in the realisation of key performance indicators (KPIs) and introduction of modern technologies. These changes would lead to lowering of cost, tariff and make rail more competitive for passenger and freight movement.

It is important to envisage a greater role for the private sector to enhance the delivery capacity, bring global best practices and ensure greater value creation during the complete product life cycle.

Speed of freight and passenger trains

Speed of trains are dependent on various factors including the condition of track infrastructure, signaling system, rolling stock, operations schedule and availability of trained crew. It is, therefore, critical to align the investments in development of track infrastructure with corresponding investments in ABS, rolling stock design and procurement, Kavach and induction/training of crew.

Project implementation

Implementation of projects on time within the budget allocated is crucial to achieve the envisaged benefits and return on investment. A report by the Ministry of Statistics and Programme Implementation (MoSPI) for Central Sector Infrastructure Projects dated April 2024 studied 237 Railway projects costing INR 150 crore and above. Out of the 239 projects, 139 projects (59%) had cost over-runs and 106 projects (48%) were experiencing time delays.[42]

One of the major reasons for delays are approvals related to land acquisition, forest and wildlife clearances. Choosing the right strategy and identifying bottlenecks early in the planning stage is critical. With the advent of technology, modern surveys using radar and ground penetrating techniques, planning integration with PM National Gati Shakti Master Plan, advanced geo-technical studies near mountains for tunnels and bridges should be considered so that the challenges can be identified and addressed in the initial stages. Additionally, states should be involved with state level coordination committees and task forces to ensure that progress is monitored regularly and approvals/land acquisition are completed time-bound manner. Furthermore, right of way (RoW) for double lines /multiple lines must be in possession during the planning of the single railway line itself, so that any challenge of land acquisition for future expansion is addressed.

Freight terminals and policies

Development of adequately located freight terminals is essential to ensure access to the developed track infrastructure. As part of the initiatives under the PM Gati Shakti framework in Sep 2022, it was declared that 300 GCTs shall be developed by 2027. As per reports in April 2024 more than 77 GCTs have been commissioned with an investment of INR 5,400 crore at an average cost of INR 69 crore per terminal. Railways plan to offer 200 more GCTs which may require around INR 12,000 to INR 14,000 crore private investment.[43]

Freight policies need to be more agile and aligned to customer requirements so that more flexibility can be given to zonal/divisional levels to provide seasonal/systemic discounts, based on available capacity and avoidance of empty rake or less than capacity train movements. An intelligent digital tool with AI-enabled data analytics can be developed and deployed to help officials take informed decisions.

Capacity building

Development of more universities for skill development along the lines of the Gati Shakti university at Vadodara with private sector collaboration would be helpful for bringing innovative technologies and regular capacity building for safe running and rail operations. This could further lead to faster approvals from Research Design and Standards Organisation (RDSO) and other approving/testing agencies. Benchmarking with internal best practices on railways standards for approvals can also help in creating more accountability and enhancing the vendors' confidence.

42. https://static.pib.gov.in/WriteReadData/specificdocs/documents/2022/nov/doc20221124135401.pdf
43. PIB, PM Gati Shakti framework, 2022

About FICCI

Established in 1927, FICCI is the largest and the oldest apex business organization in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policymakers and civil society, FICCI articulates the views and concerns of industry. The organisation serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to more than 2,50,000 companies. FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policymakers, and the international business community.

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About PwC

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