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Preface

Indian Railways is at an inflection point. The new government, with its strong emphasis on infrastructure, has laid out a number of initiatives to transform the sector. The Railways is confronted by a number of challenges. The increasing cross-subsidization of passenger transport along with a declining share in freight transport is making it difficult to balance social and financial objectives. Moreover, the ambitious development plans of Indian Railways pose an immense financing challenge. The government has taken these challenges head on, pursuing several innovative ideas through a strong implementation focus.

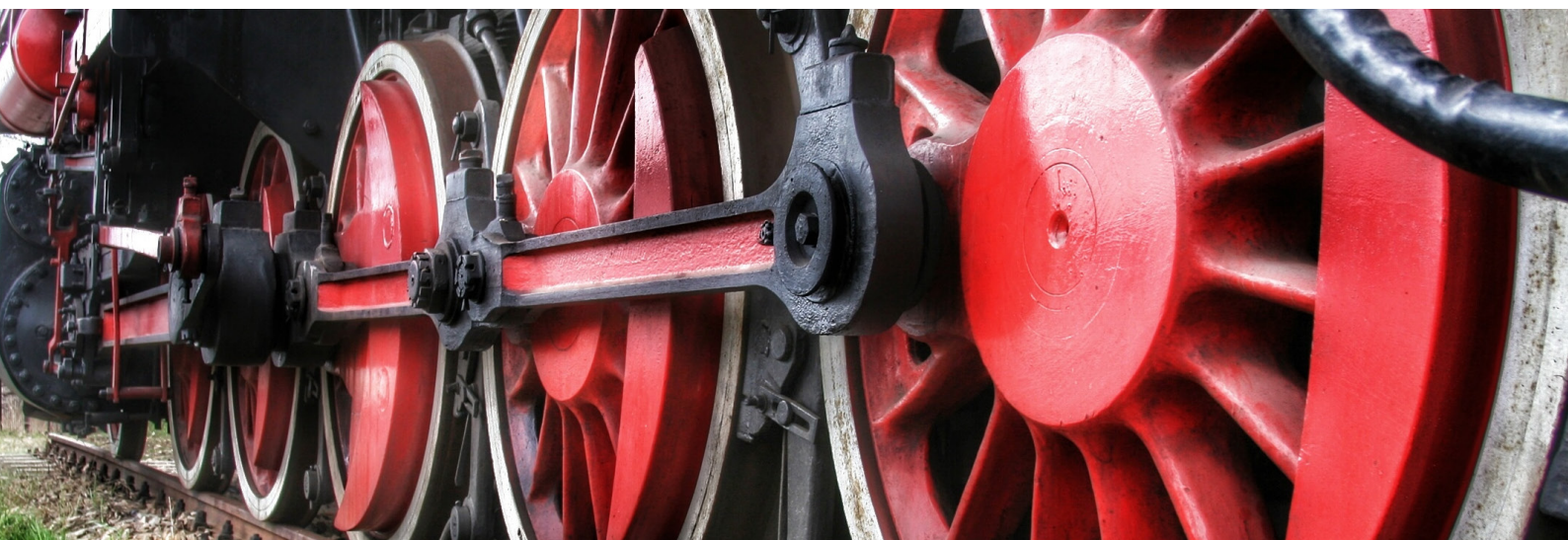
This paper describes the challenges and the opportunities that lie ahead for Indian Railways as it gets on the fast track to growth. The effort would not have been possible without a dedicated project team comprising of Abhishek Agrawal, Devesh Trivedi, Abhinav Singh, Avinash Kasinathan, Ayush Agnihotri and Anupam Garg in McKinsey's India office, and Kriti Zaidu and Anshubhi Karolia at the McKinsey Knowledge Centre. In addition, this report has benefitted tremendously from the expertise of several of our colleagues. We thank Rajat Gupta, Alok Kshirsagar and Subbu Narayanswamy, all senior partners in our Mumbai office, and Martin Joeress, senior partner in our Beijing office.

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Indian Railways: On the fast track to growth

The mammoth Indian Railways owns the world's third-largest network (66,000 route km) and operates over 21,000 trains every day¹. In FY 2015, Indian Railways transported 8.3 bn passengers², and was among the world's largest freight carriers (1.1 BT). The share of Indian Railways in per capita mobility could rise from 6,000 km in 2010 to 26,000 km by 2050 as India and its economy grow³.

How can Indian Railways ensure its share in this growing mobility of Indian passengers and goods? The Ministry of Railways (MoR), under the leadership of Honourable Minister Suresh Prabhu, is actively working to turbo-charge the growth of the Railways, and plans to invest heavily (around INR 8.5 trillion) over the next five years towards its chosen goals of improved customer service and safety, expanded network and financial sustainability⁴.

The 2016 Rail Budget promises exciting changes, and the Railways is working to introduce new types of trains, modernize to improve services and safety, and even to use solar power. The rail network is expected to grow to offer greater capacity and decongest crowded areas⁵.

Such changes are crucial—with its imminent and huge investment plans, Indian Railways needs to remain competitive and profitable through an effective growth strategy. The overarching themes for the growth and success of Indian Railways are tied to its goals, and the Railways will benefit from finding innovative ways to raise money, improve customer service, develop multi-modal transport nodes; and enable supportive regulatory, technical and financial standards.

The rest of this paper outlines the challenges as well as the opportunities across each of these focus areas. Work is underway for these initiatives, so the Railways is on the right track. But it needs to charge ahead at full speed to capture opportunities and fulfill its ambitious growth aspirations.

Accelerating investments

Indian Railways is tackling head-on the challenge of recapturing market share, which has declined over the past few decades to 15 percent for passenger traffic and around 30 percent for freight. The viability of the business model rests on strategically setting rail tariffs, which are the primary source of revenue. Under-recovery from passengers affects financial health, especially since the Railways has a cross-subsidy system where freight movement subsidizes passengers. Passenger fares have not risen in step with rising input costs, prompting losses in the passenger segment to jump from INR 6,159 cr in 2004–05 to an estimated INR 30,000 cr in 2015–16⁶.

1 http://www.indianrailways.gov.in/railwayboard/uploads/directorate/Environment_Management/Environment_Annual_Report.pdf

2 <http://www.thehindubusinessline.com/economy/budget/indian-railways-at-a-glance/article8279957.ece>

3 *Promoting low carbon transport in India*, an IIM, Ahmedabad and United Nations Environment Programme paper, September 2015

4 <http://www.ndtv.com/india-news/railways-needs-rs-8-5-trillion-investment-over-next-5-years-union-minister-suresh-prabhu-1205067>, published on 7 August 2015

5 <http://economictimes.indiatimes.com/industry/transportation/railways/highlights-of-the-railway-budget-2016-17/articleshow/51137122.cms>, published on 25 February 2016

6 <http://www.indianrailways.gov.in/railwayboard/uploads/directorate/infra/downloads/RDA-Regulator.pdf>

The World Bank estimates that India's logistics costs (10 to 14 percent of sales) are around double that of global best practice figures⁷. Financially speaking, the operating ratio of Indian Railways has been under pressure, and the impact of successive Pay Commissions can also be significant, causing a rise in operating costs.

This financial stress must ease up for Indian Railways to realize its growth plans. It aims to invest around INR 8.5 trillion over the next five years—almost four times the investment in the last five years. The largest proportion will be in network expansion (INR 1.93 trillion) and network decongestion (INR 2 trillion). Safety (INR 1.27 trillion), station redevelopment (INR 1 trillion) and high-speed elevated corridor (INR 0.65 trillion) are other major areas proposed for investment. Improving the railway network, services and tariffs can boost India's trade by 5 percent, and the country's GDP by 120 to 150 basis points⁸.

These investments could help to enable some of the following mega projects announced as part of Rail Budget 2016:

- Eastern and Western Dedicated Freight corridors (DFCs) by 2019; the latest Budget has proposed additional DFCs, which may require considerable investment
- The pioneering INR 7,500 cr heavy haul railway line to move bulk volumes of coal from the Talcher coal fields to Paradip port
- India's first high-speed rail corridor (Mumbai–Ahmedabad HSRC), finalized in cooperation with Japan—the agreement extends to receiving support for around 81 percent of the total expenditure. Several other semi high-speed projects are also being planned to improve speed and quality, but need to be carefully prioritized for execution—executing an HSRC costs nearly 10 times more than a standard line

Besides these capital-intensive mega projects, Rail Budget 2016 proposes intelligent solutions for a better customer experience. Backed by technology and innovation, these include free Wi-Fi at 100 railway stations, ticket booking on mobiles, bar-coded tickets, a complaints app, faster trains, modern refurbished coaches that include mobile charging points and high-tech toilets, and many other facilities, all to attract passengers and improve service. For internal operations, the Railways is working on a centralized and paperless asset purchase and approval system based on online bidding.

Recognizing the financing imperatives for these ambitious but timely plans, the Government of India has taken several measures to ease the flow of capital.

- It has allowed 100 percent FDI in the railways under the automatic route for the construction, operation and maintenance of suburban corridor projects, high-speed train projects, railway electrification and signalling, among others⁹

7 *The Next India: Industrials – The return of the transportation behemoth*, November 2015, see <http://www.indianrailways.gov.in/Morgan%20Stanley%20Report%20on%20Indian%20Railways.pdf>

8 Investment figures and projections are taken from *Indian Rail: Preparing for the future—Vision 2030*, a 2016 study by the Indian Merchants' Chamber

9 http://zeenews.india.com/business/news/economy/cabinet-clears-100-fdi-in-railways-infrastructure-49-in-defence_105602.html, published on 7 August 2014

- The Railways has signed an MoU with the Life Insurance Corporation of India for financial assistance of INR 1.5 lakh cr over five years¹⁰
- The Ministry of Railways is also in talks with the World Bank to create a railway infrastructure development fund¹¹. But the flow of funds has not kept pace with the huge needs of the railways—the Government estimates that of the required INR 3.5 lakh cr for more than 400 projects, the Rail Budget in 2015 could allocate only INR 37,604 cr

The Government is also encouraging more public–private partnerships (PPPs), which are discussed in a later section.

Creating customer delight

The Railways is committed to improving customer satisfaction levels, especially since independent studies¹² have revalidated concerns about service quality and punctuality—which was at 83 percent in 2014. Efforts to improve marketing and service quality could yield dividends by bringing in increased traffic. Besides the intelligent solutions already described, other plans include¹³:

- Better service through a 24x7 helpline and SMS update facility, the Go-India smart card, an e-catering service, etc.
- Improved hygiene and cleanliness through cleaning-on-demand facility (passengers can request this via a toll-free message), clean bedrolls from automatic laundries, bio-toilets, dustbins in all non-AC coaches, etc.
- Catering for varied food preferences based on the region—for example, serving rasgullas as dessert on a Delhi–Kolkata route
- A stronger safety emphasis through the use of technology such as the Train Protection Warning Systems and Train Collision Avoidance Systems, which will be launched on select routes.

Developing multi-modal transport nodes

The current share of rail for long-haul traffic (over 1,100 km) is a mere 38 percent; road dominates as the favoured mode of transport. Rail can penetrate this niche by rationalizing freight tariff—Indian Railways charges INR 1.32 per tonne per km (PTPK) but can optimize the price to INR 0.93 PTPK, and reduce it further, to INR 0.91 PTPK for DFC freight (Exhibit 1).

10 <http://www.livemint.com/Politics/HUhm3TyE17Rnh91EBzWfL/LIC-signs-agreement-to-commit-Rs15-trillion-for-Indian-Rail.html>, published on 12 March 2015

11 <http://www.livemint.com/Politics/hqLSfj7c4g5T3t48sr84xl/World-Bank-to-be-anchor-investor-in-Rail-Development-Fund-S.html>, published on 16 January 2016

12 *Satisfaction and service quality in Indian Railways – A study on passenger perspective*, by V. Rajeswari and K. Santakumari, published in the *Journal of Economics and Finance*, Vol. 4, Issue 1, 2014

13 Press search

Exhibit 1

Enabler for increased rail share: Rationalization of rail freight charges

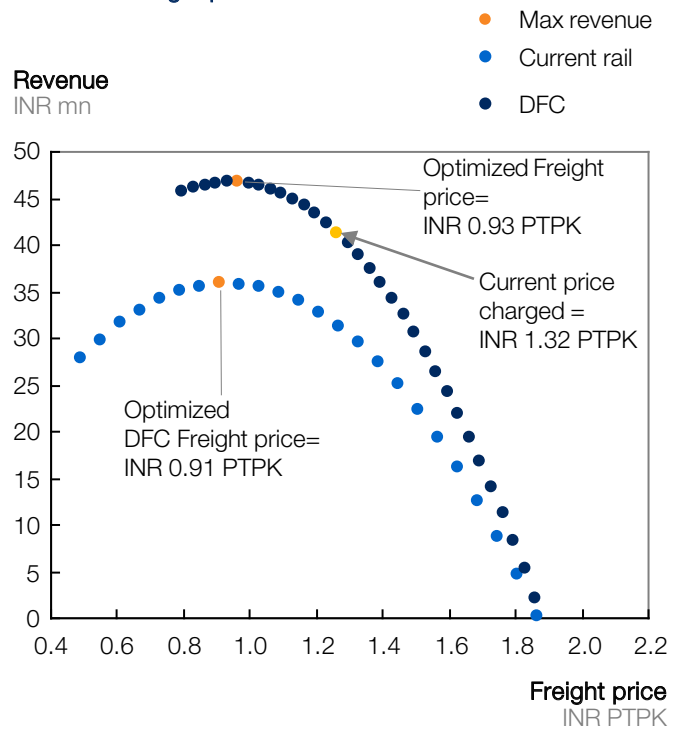
Revenue maximization price for railways

Per tonne per km

Revenue vs freight price

Assumptions

- Cost for current rail = INR 0.9 per tonne per km
- Cost for DFC = 25% of current rail cost, INR 0.7 per tonne per km
- Price = INR 21 per TEU per km
- 1 TEU = 15.8 tonnes
- Current share of rail for long haul traffic (> 1,100 km) = 38%
- Current long haul traffic = 3.7 mn TEUs



SOURCE: Sagarmala National Perspective Plan

Indian Railways could thus boost revenue by focusing on market niches like the container market, which have not yet been captured.

The Railways could also gain from monetizing existing assets—following the example set by Major Ports that have redeveloped and mechanized several operational berths. The National Highways Authority of India (NHAI), too, intends to monetize its constructed highways by bidding out stretches to private operators through the Toll-Operate Transfer (TOT) model¹⁴.

At the same time, Indian Railways is also looking to enhance non-tariff revenues through redeveloping stations; monetizing the land along tracks; monetizing soft assets such as PNR enquiry, e-commerce through the IRCTC website; advertising at stations and land next to tracks outside big stations; overhauling the parcel business; and improving manufacturing activities¹⁵. Several new, non-tariff revenue streams are also being explored, which include

14 <http://indianexpress.com/article/india/india-others/toll-operate-transfer-private-tolls-to-fund-new-roads/>, published on 5 August 2015

15 http://www.prsindia.org/administrator/uploads/general/1456931078_Railway%20Budget%20detailed%20Analysis%202016.pdf

exploiting air rights over stations and buildings, solar projects along the tracks, and the export of products.

The Government is promoting PPPs as a key enabler to achieve these objectives, and so the 12th Five Year Plan (2012–17) aims to raise investments worth INR 1 trillion through PPPs. In December 2012, the Cabinet approved the new policy of participative models for rail connectivity and capacity-augmented projects. The policy renewed investor interest in rail by addressing private investors' concerns around ownership of the railway line and repayment of investment. Areas to be considered for private investment during this period could include¹⁶:

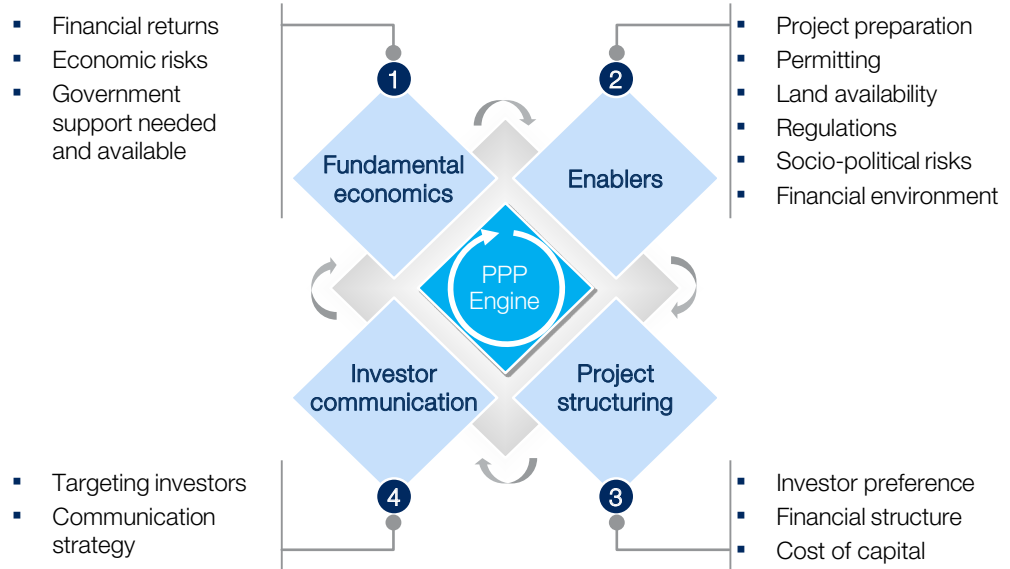
- Redeveloping and equipping major stations with amenities of an international standard (including foot overbridges, escalators, elevators)
- Setting up five wagon factories under the JV/PPP model
- Infrastructure projects such as high-speed railways, railway lines to and from coal mines and ports, projects relating to electrification, high-speed tracks and suburban corridors; Special Purpose Vehicle (SPV) companies have been set up to strengthen rail connectivity with various ports, e.g., the Pipavav Rail Corporation Ltd, Bharuch–Dahej Railway Company Ltd, Kutch Railway Company Ltd
- Providing passenger amenities such as battery-operated carts to help the elderly and differently-abled to navigate railway stations; Indian Railways plans to attract private equity through individuals, NGOs, trusts, charitable institutions, corporates, etc. in this context
- Joint ventures for rail connectivity: Three rail connectivity projects—Gevra Road–Pendra Road new line, Raigarh–Bhupdeopur new line and Jaigarh Port connectivity—are already being implemented

Creating an effective PPP is a function of four main steps: figuring out the fundamental economics, setting in place the enablers, structuring the projects, and strategic communication with investors (Exhibit 2).

16 Press search

Exhibit 2

Creating a PPP engine is a function of 4 key steps



Carefully prioritizing India's top 50 stations for redevelopment through PPPs could help Indian Railways to unlock INR 40,000 cr (nearly its annual revenue from passenger tariff) in real estate and advertisements. While selecting the stations, the Railways could keep in mind seven strategic imperatives (Exhibit 3).

Exhibit 3

7 strategic imperatives are absolutely critical to unlock value from station modernization

- 1 Size top-down value creation potential** to create buzz about the effort within and outside the Railways
- 2 Prioritize significantly** because 10 percent of stations will create 90 percent value
- 3 Get asset mix right** because developers often do not get it right and this causes significant NPV swing
- 4 Ensure natural ownership of risk** to realize full value and participation from the effort
- 5 Drive well planned investor outreach** because it is difficult to attract investors in current environment
- 6 Run seamless implementation through war room** to "projectize" effort and drive action
- 7 Build capabilities in owner's team** to drive process across multiple phases and also bid on EPC mode if required

SOURCE: Expert interviews

Indian Railways could prioritize and select the right stations based on value creation potential, ease of implementation and geographical importance, as well as development diversity—a mix of asset classes to minimize exposure across classes and attract maximum returns for each station.

Supportive regulatory and technical standards

In India, attempts to attract the private sector to the Railways have previously met with limited success. Yet, private investment has proved crucial in realizing some big-ticket projects. The Government of Japan stepped in to cover around 81 percent of the project costs of the Mumbai–Ahmedabad HSRC¹⁷. The Japanese are also helping to complete the Western Dedicated Freight Corridor Project¹⁸. Chinese companies have been entrusted with the feasibility study for raising the speed of passenger trains on the Chennai–Bengaluru–Mysore corridor to 160 kmph¹⁹.

A robust regulatory framework could help to tap into the possibilities of alternative funding and attract investors to Indian Railways. Two important focus areas for consideration are:

- Rationalizing the tariff structure: The prevailing cross-subsidy between passenger and freight traffic is a key reason for the declining market share and weak financial position of Indian Railways. Customers may be willing to pay more for improved service quality. For example, faster trains could justify charging up to 10 percent higher fares. The Railways could achieve this move through political consensus
- Railway Regulatory Board: The Government could consider having a detailed discussion to clarify the legislative mandate, powers of regulators, appeal against regulatory orders and appointment and the tenure of regulators

Improved technical standards can help to boost safety, performance, governance and investor interest. Strategic overseas cooperation can be one way to ensure the highest standards of technical sophistication in Indian Railways. As an example, in May 2015 the Government of India signed an MoU and an Action Plan with China to improve technical cooperation in the railways sector. In August 2015, India's Railways Ministry signed an MoU with Czech Railways (Ceske Drahy) and the Association of Czech Railway Industry (ACRI) of the Czech Republic for technical cooperation in the railways sector²⁰.

There are many examples of effective turnarounds. A careful value management approach helped a Southeast Asian mass rapid transit (MRT) system improve bottom-line by 30 percent, all through capex optimization and property development. To optimize capex, the operator prioritized the high value areas that could significantly transform costs. The MRT also developed existing properties with the collaboration of major developers, who stood

17 <http://indiatoday.intoday.in/story/no-new-trains-but-foreign-investments-says-indian-railway-officials/1/556963.html>

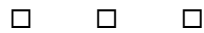
18 <http://www.jica.go.jp/india/english/activities/activity11.html>

19 <http://www.hsrc.in/projects3.html>

20 These agreements are mentioned on the website of the Ministry of External Affairs, see <http://mea.gov.in/bilateral-documents.htm?dtl/25260/List+of+Agreements+signed+during+the+visit+of+Prime+Minister+to+China+May+15+2015>

to gain with the MRT routes boosting property costs. Successful implementation of these required relevant policy changes as well.

Transnet, South Africa's ports and railways operator (government-owned), transformed its approach to customer segmentation and key account management through its "Vulindlela" initiative. For the transformation, Transnet focused on a new approach to customer interaction by strengthening six capabilities: strategic marketing, go-to-market model design, innovation and product/service management, price/contract management, sales and account management, and tactical marketing. In addition, it assessed and consolidated four enablers to drive this transformation—organization design and effectiveness, talent management, performance management, analytical tools and information systems.



With its sights on the right goals—customer service, safety, network expansion and financial sustainability—Indian Railways could be on the fast track to growth. India's lifeline and the world's largest passenger carrier, the Railways faces a variety of challenges. Overcoming these to achieve growth may be difficult, but it is not impossible. A strategic focus on the imperatives described here could help Indian Railways reclaim its rightful market share and power India's resurgence.

