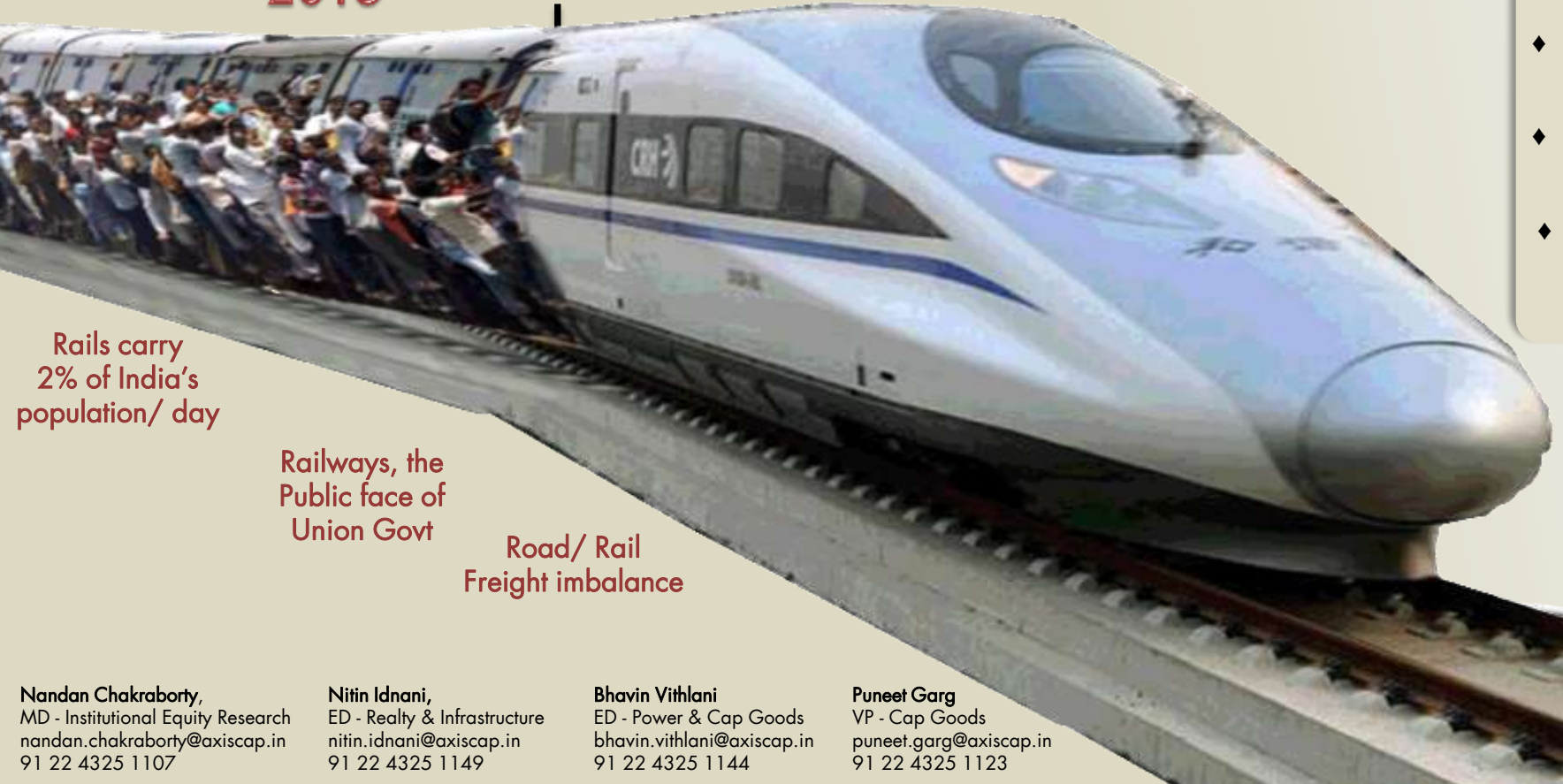


Railway 360°: ACTUALLY what will happen

Passenger bonanza coming:
decongestion by 2020- 30 using
near-free foreign money

2015

2030



What's in this report

360* views from
IR, ex-IR, MNC
Supplier CEOs, etc

- ◆ What is Realistic capex?
- ◆ What are Realistic timelines?
- ◆ Huge Metro rail capex ~ 1/2 of IR
- ◆ L&T, ABB, Siemens key beneficiaries

Rails carry
2% of India's
population/ day

Railways, the
Public face of
Union Govt

Road/ Rail
Freight imbalance

Jan 08, 2016



“Railways, perhaps along with post offices, are the only two institutions in India with a deep network which if tapped judiciously can create substantial improvements in the hinterland. Railways was always considered only as a mode of transport in our country, we want to see Railways as the backbone of India’s economic development.”

- Shri Narendra Modi, Hon'ble Prime Minister of India



- Shri Suresh Prabhu
Railway Minister of India

Recognizes the strategic importance of IR. Chosen railway minister from ruling party

IR & Metro capex ~ Rs 1.4 trn p.a. over next 5 yrs with 5x GDP multiplier
(Roads, Power, Oil&Gas capex at Rs 1- 1.3 trn p.a. each)

Mindset both Tactical (budget) and Strategic: White paper (5-year plan) and Vision 2030 (awaited)

Railways are complex – what seems simple has been difficult to implement for decades!

To gauge what is possible, in what realistic time-frame, and estimate realistic capex, we got a **360° view** by interacting with:

- 1 CEOs of Dedicated freight corridor, High speed rail , Station modernization – Great Enthusiasm!
- 2 Ex Member, Railway Board – Some low hanging fruits
- 3 Various CEOs of leading MNC suppliers to the IR including some ex-IR – Opportunity landscape, What is changing, Realistic timelines
- 4 Leading technical consultant for Railways, and CEO of leading logistics Co (ex-IR) – Challenges ahead
- 5 Directors of various services within IR – Operational limitations even for great ideas; What is possible

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Indian Railways

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Abbreviations

Indian Railways

- ◆ DFC: Dedicated Freight Corridor
- ◆ GBS: Gross Budgetary Support
- ◆ DMICDC: Delhi Mumbai Industrial Corridor Development Corporation Limited
- ◆ HSR: High Speed Rail (Bullet trains)
- ◆ IR: Indian Railways
- ◆ IRFC: Indian Railway Finance Corporation
- ◆ IRSDC: Indian Railway Station Development Corporation
- ◆ JICA: Japan International Cooperation Agency
- ◆ LIC: Life Insurance Corporation of India
- ◆ Abbreviations for Publications referred:
 - Bibek Debroy Committee report: **BDCR**
 - Railways Progress Report: **PR**
 - Railways White Paper: **WP**

Passenger bonanza coming

- ♦ Without quantum jump solutions like DFC & HSR, current incremental solutions (tracks doubling, electrification etc.) can not lead to decongestion. DFC & HSR are not elite projects – they are remunerative projects, cheaply funded externally to lead to less load on current creaking infrastructure

What is so complex about the Indian Railways!...

Indian Railways

- ◆ **Public face of Govt (single largest interface*)**, transporting the equivalent of Australia's population daily - with 23 mn Pax/ day (2% of India's population)**:
 - A key indicator of Govt's success for public – hence the crying need to improve and modernize overcrowded travel
 - Subsidized Pax tariff makes it lifeblood for everyday life, allows for cheap mobility of labor and integration of India
 - **Safety aspects:** A reason why opening up to private sector, for manufacturing, ancillary services etc, requires abundant caution***
- ◆ **Employs 1/3 of all Union government staff (ex defense):**
1.3 mn + 1.4 mn pensioners = 2.7 mn
 - Large vote bank
 - Large union which makes wage bill control, restructuring, etc difficult
 - Unlike NHAI which owns only the road, IR also owns the vehicles and employs drivers – thus need to handle Unions with kid gloves – e.g. the 70s strike crippled India, paving the way to the Emergency
- ◆ **Rail vs. Road:**
 - High Rail freight costs to subsidize Pax have tilted balance even for long haul towards Road which is not cost effective for industry and increases our energy dependence and pollution
 - IR controlled by Union government, so theoretically easier to reform/ execute; and yet the above limitations equally apply

*Think! – only 4 places where an ordinary citizen interacts with Union Govt offices? – Rail, Airport, Passport and Income Tax – Rail most visible!

**This compares to ~20 mn (16% of population) in Japan, ~6 mn (7% of population) in Germany, ~6 mn (0.5% of population) in China and ~0.1 mn (0.03% of population) in US

***For eg drivers/ tracks/ products need regular certification/ inspection to meet IR standards. Hence difficult to outsource hospitals, increase procurement efficiency eg buying sub-assemblies vs. individual components & changing historical suppliers, etc.

IR: Pax tariff heavily subsidized

Rail route	Distance (Km)	Time (hours)	Travel cost^ (USD)	
			Value	Premium
New York - Boston	350	4	76	115
Mumbai - Aurangabad	350	7	2	22
New York - Chicago	1,324	17	134	496
Mumbai - Delhi	1,378	21	5	71

^ Travel cost in absolute USD and not adjusted for PPP

Source: Axis Capital

...What is so complex about the Indian Railways!

Indian Railways

- ◆ **Capex on balancing Present Needs vs. the Future:**
 - What people want NOW (as per IR survey): Timeliness, Safety, Cleanliness esp. on board, Cost, Availability
 - However, if money only spent on improving current network & systems, these problems will balloon uncontrollably in future, as losses and congestion will only increase unless strategic projects taken up NOW
 - Until now, small amounts were spread over numerous projects; hence huge cost & time over-runs and decongestion being indefinitely delayed
 - Focus now given to decongestion vs. new lines. Long term funding enables corridor approach to completing stretches

- ◆ **Strategic projects*:**
 - **DFC:** Decongesting ~70% of freight traffic to free-up Pax capacity. Timing apt as general elections in 2019. But IR needs to make up for lost revenues post DFC. Paves the way for industrial corridors (Refer [Appendix](#) for DMIC)
 - **HSR (Bullet trains):** Decongestion of stretches which are both Pax and freight-heavy. Reduces country's dependence on oil (air and road) making this a strategic consideration. Also, no airports in many affluent and business cities
 - **Station modernization:** Critical, as point of touch and feel for public

Japan decongested from the 60s by building bullet trains. So did China in the 90s

Given our Pax subsidization, India is choosing to achieve Pax decongestion through the DFC, followed by HSR

***50 yr cheap foreign money** can be available for ring-fenced strategic projects, but is **obviously not available for IR in general or govt's other priorities**

DFC: 20x freight carrying capacity: Speed to treble to over 70 kmph (hence more trains), carrying capacity/ wagon to 6x (incl double stacking) and longer rakes

Will enable rail to win back lost share of freight from roads

HSR: Decongests corridors where utilization is >150% (metro connectivity) as more trains can run given higher speeds

The future is NOW ! Decongestion won't be solved even with doubling and electrification even by 2030s, unless we plan and fund strategic projects NOW !



All the Insiders and Outsiders we met unanimously said couldn't have been a better man than Mr. Prabhu for this fine balancing act

- ♦ Track record in the Energy sector (SEB reforms in 2002 and Electricity Act 2003) which involved dealing with various state & central power centers
- ♦ PMO's confidence in him, as evident in his coming a year post Govt formation and yet pushing through a 3.3x increase in capex plans

♦ Tactical measures already taken for the immediate term:

- **Prioritization:** Prioritized high impact projects (largely decongestion vs. new lines) of ~Rs 2 trn vs. pending projects of Rs 5 trn
- **Funding:** Earlier, money (annually sanctioned in the budget) had to be dribbled across a wide variety of both remunerative and social projects. Long term Institutional financing (LIC/ WB/ JICA) will now allow a **corridor financing approach** (funds committed to remunerative and ring fenced projects), enabling faster execution of strategic/ large projects
- **Delegation:** of tendering powers to zonal and divisional managers. Shortened avg project approval process to 6 months vs. ~3 years earlier. Gentleness in bringing structural changes by **carrying along ground-staff** and unions
- **Improve public experience:** Refer [Appendix](#) for sample of hosts of measures undertaken in a variety of areas: Eg ticketing, customer response, IR info dissemination to public, e-catering, on-board housekeeping services
- **Energy savings:** Direct purchase of electricity and conservation led to Rs 40 bn savings
- **Results:** Thus improved operating ratio from 94% to 91%, FY16BE target of 88.5%. Spent ~40% of FY16 capex in H1

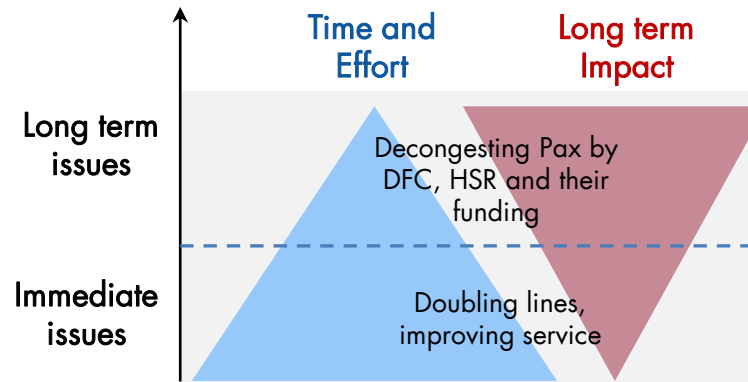
Focusing on revenue maximization and cost savings!

This scene in 2030 too? – incremental solutions like tracks-doubling, electrification* etc can't solve this

*Electrification: faster, greater load – only 25K km/ 65K electrified so far – target is to double in 5 years



Source: Indian Express



- ◆ **Uptrending evident:** Demand today constrained by supply (eg airline pax growing at >20% p.a. vs rail pax declining. AC coaches also increased from 10% to 25% of new coaches manufactured in 5 years
- ◆ **These need to be planned NOW for 2030!:** DFC and HSR are first steps in golden quadrilateral railway corridors, essential for quantum jump in freeing pax capacity
- ◆ **Multilateral funding:** Cheap, very long tenor with moratorium, and associated technology, is available only for such ring-fenced projects. This is not from govt's resources which could have been used for anything else. Domestic funding stretched for incremental solutions
- ◆ **Conceptualizing various structural reforms** such as modern accounting, independent regulator and organizational restructuring

While Railway minister focuses on funding, PM would market at appropriate time

The vicious cycle

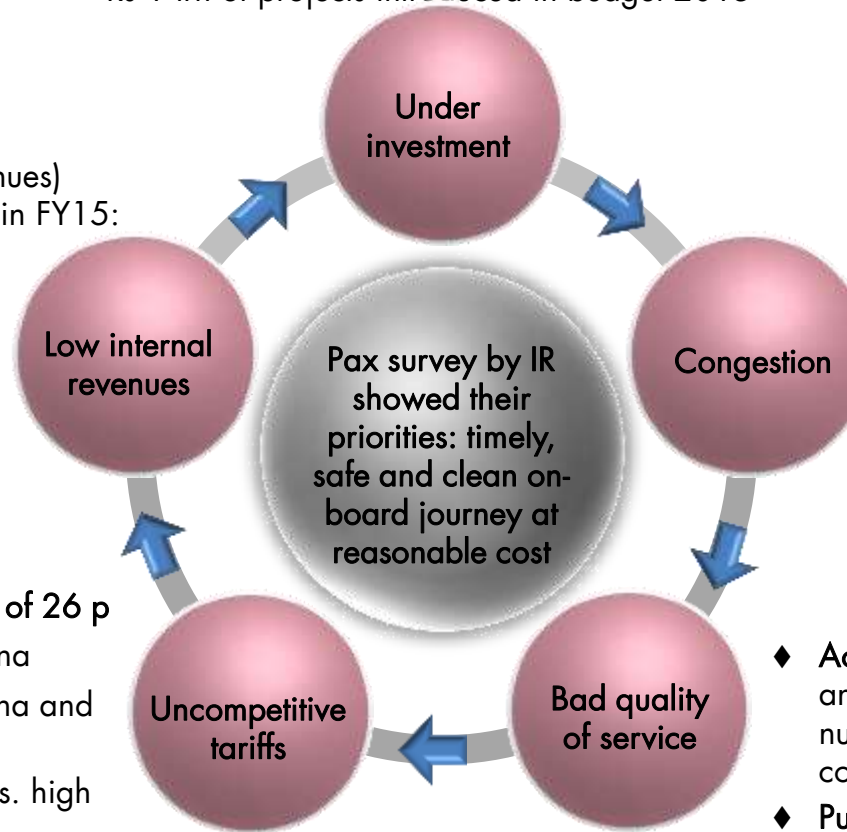
The vicious cycle

Indian Railways

- ◆ Network length up by just 0.06x since FY90 even as Pax and freight traffic increased 3.3x and 2.2x
- ◆ Pending projects ~Rs 5 trn, of which ~Rs 0.75 trn (historic cost basis) taken up on priority. Additionally ~Rs 1 trn of projects introduced in budget 2015

- ◆ Operating ratio (expenses/ revenues) up from ~76% in FY08 to ~91% in FY15:
 - Burgeoning wages + pension
 - Social costs
 - Unfavorable dividend policy

- ◆ Costs 54 paise/ pax km vs. revenue of 26 p
 - Pax yield (adj. for PPP) 63% < China
 - Freight yields (adj.PPP) 72% > China and 96% > USA
 - Low recovery rate of 49% in pax vs. high recovery in freight at 164%
 - High freight tariff subsidizing pax makes it less attractive to roads!



- ◆ ~40% of all railway sections and ~65% of high density sections >100% utilization
- ◆ Low avg speed of 25 kmph (freight) and 70 kmph (pax) – among lowest globally

- ◆ Accidents/ mn train kms 0.20 vs. 0.05 in UK and 0.21 over Europe; however ABSOLUTE number of accidents HIGHEST vs. any country
- ◆ Punctuality of express/ mail trains 78% YTD till Oct 15 vs. 83% in FY 15
- ◆ Lack of station & train amenities

- ◆ **Inefficiencies and under-investments** have led to rail losing freight to roads and now losing pax to air
 - **Capex on rail vs road** – Share of rail as % of transportation capex down to 30% from 56%
 - **Quantum of freight/ pax** – Railways share in freight declined to 36% in 2012 from 62% in 1981, Pax volumes too have declined to 14% from 28% in 1981

- ◆ **Even though rail is most efficient in carrying freight over long distances, roads have a lion's share**
 - **Cost/ km** – Even though rail freight rate have increased by ~40% while Road freight rate has increased by ~15% in FY11-14, rail tariff remains cheaper
 - **Accidents** – No. of rail accidents have gone down from 840 in 1970 to 234 in 2004, while road accidents have increased from 114k to 430k during the same period
 - **Pollution** – Rail has a smaller CO₂ footprint

- ◆ **Given India's high dependence on oil, investments in rail (and electrification of existing routes) of strategic importance**

Spending on Rail has lagged spend on Road

	7th plan	8th plan	9th plan	10th plan	11th plan
Year	1985-90	1992-97	1997-02	2002-07	2007-12
Capex on transport (Rs bn)	295	656	1,196	2,422	6,472
Railways share (%)	56	49	38	36	30
Road (ex PPP) share (%)	22	24	40	47	40

Source: National Transport Development Policy Committee

IR losing share in both Freight and Pax to road...

	1981	1991	2001	2005	2012
IR share in Freight (T km)	62	62	39	39	36
IR share in Pax (pax km)	28	28	18	13	14

Source: IRFC.org

...despite Rail being substantially cheaper than road

Cost (Paisa/T/Km)	2011	2014
Rail freight rate	97	138
Road freight rate	189	212

Source: Ministry of Rail, Indian Foundation of Transport Research and Training

In US, avg road freight (container) vs rail rates are 1.5x for 1500 km and 1.25x for 500 km. For >500 km, cost advantage increases with distance as short distances are impacted by local drayage cost, time for changing transport mode, etc.

While the ratio is similar in India, rail doesn't include total cost & time from door to door + higher pilferage

Need of the hour is a Hub and Spoke model – rail for long distances with roads for shorter feeder routes

Internal accruals assumptions at risk

Indian Railways

(Rs bn)	FY10	FY15	FY16E
Revenue from freight	585	1,069	1,214
Growth (%)		14	14
Volume in MT	888	1,098	1,186
Growth (%)		4	8
Tariff/ MT	659	974	1,024
Tariff growth (%)		9	5
Revenue from pax	235	430	502
Growth (%)		18	17
Passenger km (bn)	905	1,117	1,184
Growth (%)		(4)	6
Tariff/ pax km (paisa)	26	38	42
Tariff growth (%)		22	10
Others	50	93	120
Total Revenues	870	1,592	1,836
Depreciation	22	78	79
Total expenditure	814	1,428	1,585
Net revenue	55	165	251
Dividend payable	55	91	108
Excess/ Shortfall	8	73	143

H1FY16 freight growth just 2% (vs 10 yr avg 6%) due to lower food grain movement (overstocking by FCI, local procurement) & cement (lower demand). In future, Railways may lose freight revenue allocated to DFC's debt repayment

Tariff hike FY06-15 (10 yrs) avg= 5%, largely AC fares. Data from coach manufacturers shows share of higher tariff AC coaches up from 10% 5 years back, to 25%. H1FY16 growth = 9%

Staff and pension bill > 50% of revenues. Staff productivity has increased; but beyond FY 16, 7th pay commission to impact wage and pension bill by ~40%. Impact from increase in staff to run more loss-making pax lines after DFC implementation

Solutions required to meet internal accrual target of Rs 1 trn over 2015-19. Historically, **Govt has increased the GBS to make up any shortfall** – capex spend in 11th plan was 90% of target despite 25% shortfall in internal accruals

Source: Indian Railways, Axis Capital

Funds will be obtained from GBS and multilaterals as required

High wage bill, with 7th pay commission to boot

Indian Railways

- ◆ The Railway wage hike expected by ~Rs 320 bn = jump of ~40%. IR has already approached Ministry of Finance for help
- ◆ IR employs 1.33 mn people, 2nd only to Defense. It is also the only Central Govt organization which pays its own pension bill rather than the govt
- ◆ Wages (33%) + pensions (18%) amount to 52% of total revenues (FY16BE) and is the single largest expense
- ◆ Mechanization has led to some improvement in productivity (traffic unit/ employee up 4.2x since 1990), however wages + pensions in absolute terms is unsustainable
- ◆ Opportune time for reform given the higher number of annual retirees over next 2 years (~13% of total)

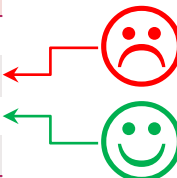
Productivity gains visible, but absolute wage bill unsustainable

Year	No. of Staff ('000s)	Wage Bill (Rs bn)	Avg wage (Rs '000) p.a./ employee*	Traffic per employee (000)**
1980-81	1,572	13	8	244
1990-91	1,652	52	32	346
2012-13	1,307	670	527	1,432
2013-14	1,334	762	589	1,462

* Basis: Average staff employed in the year

** Traffic unit represents pax kms and net tonne kms

Source: Ministry of Railways, Axis Capital



High retirees over next 2 years

Year	Likely number of retirees	Total likely outgo on pensions (Rs bn)
2013-14	50,476	249
2014-15	54,937	286
2015-16	57,233	335
2016-17	57,682	394
2017-18	57,284	463

Source: Ministry of Railways, Axis Capital

Opportune time for reform

Current Public Private Partnerships (PPP) structure flawed

Indian Railways

- ◆ **PPP target of Rs 1.3 trn over 5 years**
 - Station redevelopment, electrification & Signaling (EPC, PPP-annuity) , freight lines/elevated corridor (PPP–BOT/Annuity), Port/Mine connectivity (JVs/PPP- annuity)

- ◆ **Current PPP structure and mindset needs to change**

- **Feasibility:** IR is unable to figure profitability of specific services which is necessary for pvt. sector to evaluate potential and also to get appropriate funding
Accounting reforms are a must

- **Risk-reward skewed in favor of IR:** Construction, financing, clearances, execution traffic risk all borne by pvt. player. Proper sharing of risk-reward and an independent regulator are thus essentials

- Only port connectivity projects have seen some success as strategic to pvt. player and revenue visible

Details of projects under PPP

Project type	No. of projects	Length (kms)	Railway (Rs bn)	Non Railway (Rs bn)	Total (Rs bn)
Commissioned	7	950	5.5	22.6	28.0
Sanctioned/ under construction (NGR/ JV)	7	793	3.2	95.6	98.8
Sanctioned/ under construction (customer funded)	5	466	4.0	17.3	21.3
In-principle approval granted	7	264	0.7	37.4	38.1
Total	26	2473	13.4	172.8	186.2

Source: Ministry of Railways, Axis Capital

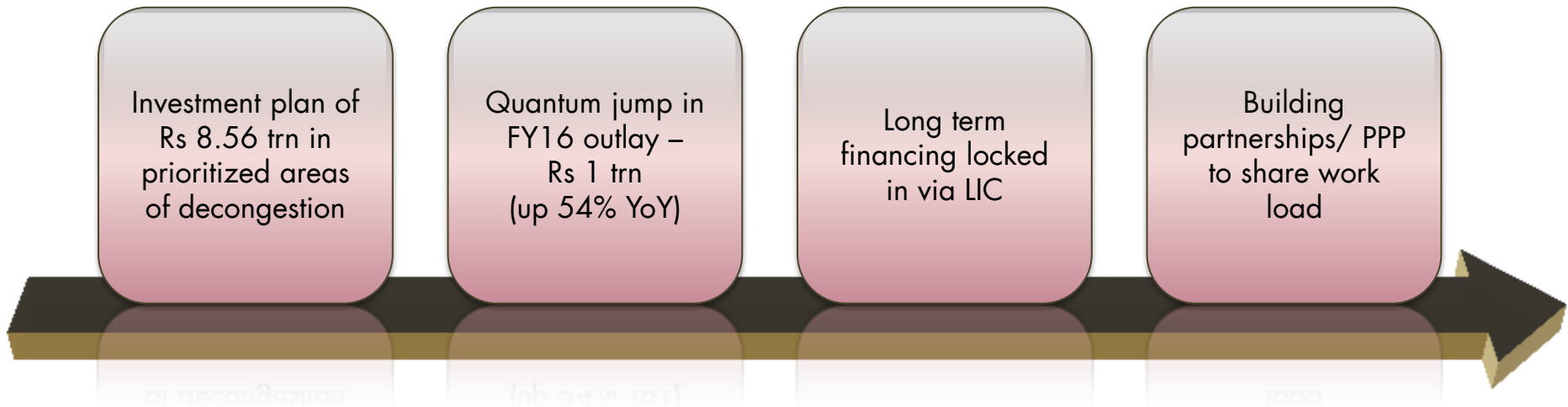
Pilot project on accounting reforms as well as concept paper on regulator already underway

- ◆ **Possible solution: Rebalancing of risk** (Refer [Appendix](#) for recent Kelkar panel recommendations)

- Existing public assets should be given on PPP to pvt. sector to operate/ maintain (low risk) and modernize/ improve amenities to boost additional revenue streams. International long term money (ex-multilaterals) prefers to invest in PPP only post commercial operations.
- Govt. to focus on building new capacities (high risk) as clearances, etc from diverse stakeholders are difficult for private sector. Alternatively, use PPP model such as Delhi airport's T3 terminal where a national facilitation council set up
 - SPVs with empowered managements essential (eg Delhi metro, Mumbai Pune expressway)
 - Easier for Govt to get long term funding for such new projects vs private sector

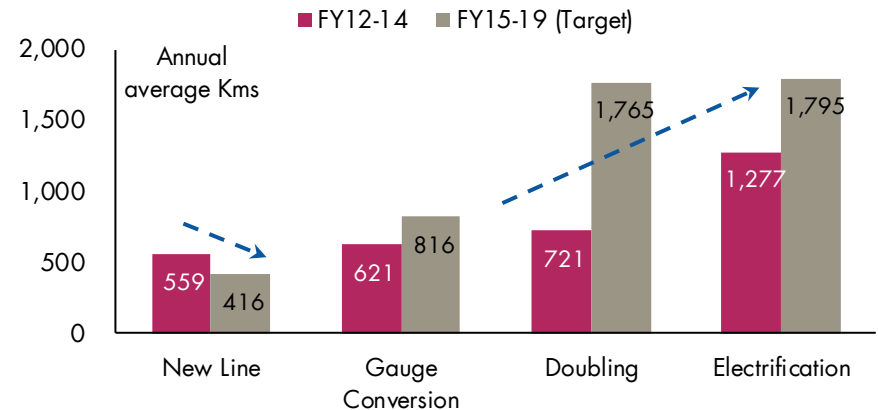
Solutions, Capex, Reforms

Five year master plan (FY15-19) involving Rs 8.6 trn of capex



- ◆ **Getting priorities right: Spending on de-congestion (doubling and electrification) rather than new lines**
 - Target to electrify 10K km in 5 years (currently ~25K km) to improve throughput. Note total rail length is 65K km
 - Trimmed focus list for projects under implementation to Rs 2 trn (projects wherein utilization is >100%) from Rs 5 trn
 - **Focusing on improving speed, efficiency and thus capacity**

Prioritizing capex



Source: WP, PR, Axis Capital

4x jump in capex plans in FY15-19 vs. 11th plan

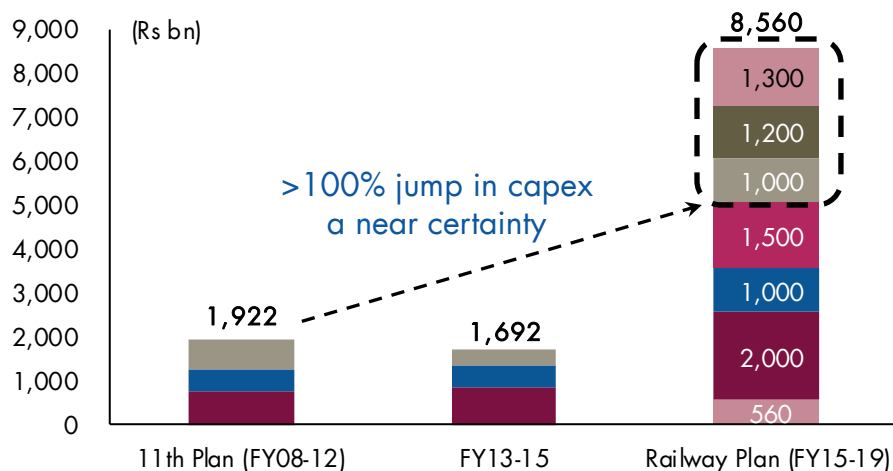
Indian Railways

- ◆ **Reasonably achievable (Rs 5 trn) as required immediately:** Decongestion, Safety, Rolling stock and passenger amenities – possibly funded by Budgetary Support, LIC and IRFC. **Even this is >2x capex of 11th plan**
- ◆ **Looks difficult as of now (Rs 3.5 trn) but critical for future:** New lines, High Speed Rail and Station redevelopment – possibly funded through PPP, State JVs and Internal accruals which need structural reforms to materialize. However, much like 11th plan, we think higher GBS will be made available

Note: Allocation of fund sources to projects are partly fungible. Hence we assume funds would be first spent on immediate items and which are easier to implement. However given past commitments, decongestion and political considerations, much money would still go to new lines. Hence the above mapping is largely for simplicity

Sources of capex funds

■ JICA & WB (DFC) ■ GBS ■ IRFC ■ LIC ■ Internal Generation ■ State/PSU JVs ■ PPP

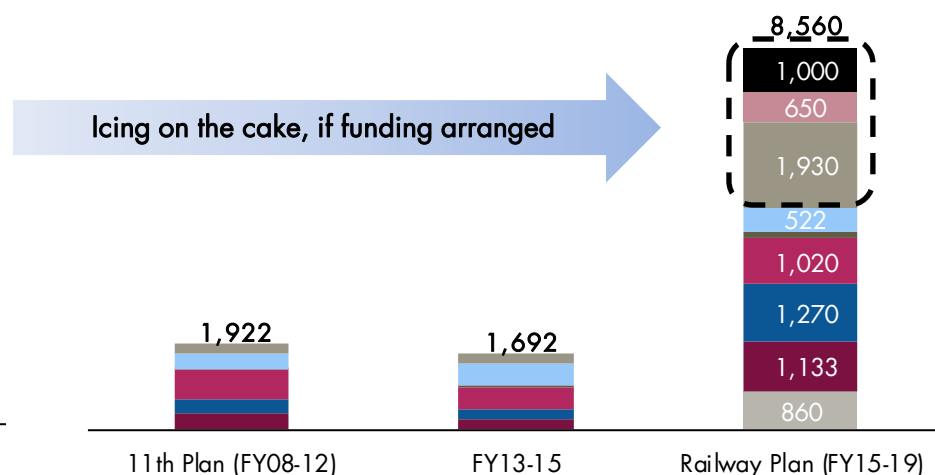


Source: Indian Railways, Axis Capital

Note: FY15 is included in two of the above bars = Rs 650 bn

Capex in key segments

■ DFC ■ Decongestion ■ Safety ■ Rolling stock ■ Pass amenities
 ■ Others ■ New Lines ■ HSR ■ Station



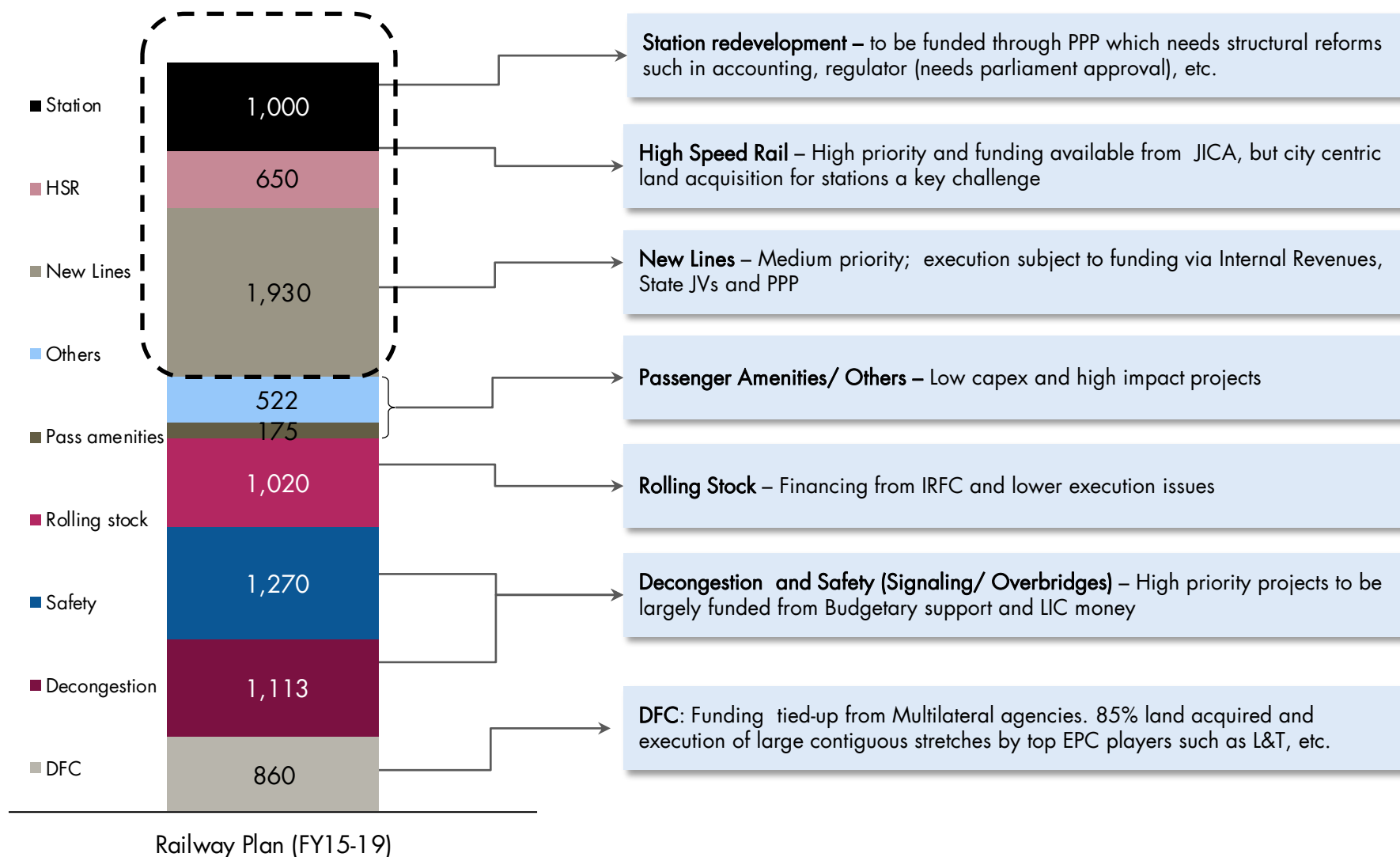
Source: Indian Railways, Axis Capital

Note: FY15 is included in two of the above bars = Rs 650 bn

Average annual ordering to double to Rs 1 trn p.a. over FY16-19

Why we have conviction on capex

Indian Railways



What has been done so far...

Indian Railways

- ◆ **Locked-in institutional financing – Corridor approach enables faster execution**
 - Tied up Rs 1.5 trn from LIC. This has allowed for adopting a **corridor approach to capex spending** rather than piece-meal approach (unfunded weakest link delays entire project commissioning)
 - DFC and HSR funded via multilateral agencies. World Bank conducting due diligence to put together a USD 30 bn Rail India Development Fund (not limited only to IR, but also PPP projects)
 - Adhering to financial discipline by investing LIC money only in projects with IRRs > 14%

- ◆ **Faster decision making by delegating powers**
 - Compressing timelines from project conception to approval from ~3 years to 6 months. 21 out of 80 projects announced in FY15 budget approved. Delegated powers to GMs/ DRMs to award contracts

- ◆ **Improved transparency and governance through e-tendering of all contracts**

- ◆ **Building partnerships**
 - **JVs with the State government** for projects that have higher social impact, but are less remunerative
 - 17 states have signed in principle approval to form SPVs with Odissa & Maharashtra recently having signed an MoU
 - **JVs with PSUs** such as Coal India, NTPC, etc. for mine, power plant connectivity projects - 9 projects totaling 962 km worth Rs 95 bn under implementation
 - **PPP** for port connectivity projects - 1,030 kms of rail lines worth Rs 32 bn of capex under implementation

- ◆ **Increasing throughput of freight trains by increasing carrying capacity per rake and faster turnaround**
 - New wagons of higher axle loads (25 ton vs. 22.8 ton) → carrying capacity per rake up 18%
 - Defunct factories revived for maintenance resulting in faster turnaround

Mindset change visible in IR functioning

...What has been done so far

Indian Railways

- ◆ **Rising share of AC coaches and coach swapping, as they are remunerative**
 - Share of profitable AC coaches up to ~25% of total production of IR's coach manufacturing cos from ~10% 5-years ago
 - Swapped 4,000 coaches from less patronized to higher remunerative sections

- ◆ **Fuel cost (22% of revenues) rationalisation measures**
 - Direct purchase of electricity from power generators rather than SEBs – to save Rs 30-40 bn annually on a Rs 130 bn bill
 - Electrification target of 10,000 kms over 5 years to help further reduce diesel bill
 - Diesel inventory rationalization to reduce annual Rs 180 bn bill

- ◆ **No fresh capex in new manufacturing facilities**
 - New contracts awarded for loco factory to Alstom (12,000 HP electric) and GE (6,000 HP diesel). This translates into more than doubling the trailing-load-capacity to 10,000 tons per train from 3,900 tons currently
 - New coach factories at Pallakad, Kerala and EMU factory at Kachrapara, West Bengal also through PPP
 - Will help in curtailing in addition to employee costs - Average salary of a loco factory worker is ~Rs 1.5 mn p.a. vs Rs 0.5 mn p.a. for private sector

- ◆ **Commenced EPC contracting and e-tendering for better execution**
 - With long term money, IR now able to award turnkey EPC contracts rather than piece meal
 - To attract larger players with better execution capabilities such as L&T, Tata Projects, etc
 - However, IR to start slow with 2-3 EPC projects/ zone before a larger rollout
 - E-tendering and online submission of bids for contracts for projects; stores procurement already online

Host of other smaller changes also being undertaken which cumulatively can have a larger impact!

Structural reforms yet required...

Indian Railways

◆ Accounting reforms

- Current consolidated and cash based accounting cannot measure project wise profitability and thus the best allocation of resources. PPP and external funding is also difficult in current method
- However, it is difficult to figure out the exact method of accounting suitable to the Railways as it is difficult to allocate the high overheads and capex over different items. Thus, marginal cost of each service is difficult to determine
- IR has selected a small and simpler division to adopt commercial accounting (model prepared with CA Institute) as a test case before they consider rolling it out – taken up Ajmer division and Rail Coach Factory, Kapurtala on pilot basis and now even Northern Railway

◆ Independent regulator

- Politics decides tariffs and capital allocation. As a monopoly, a regulator would ensure the best of interest of the country is not jeopardized by shorter term political imperatives and provide a redressal mechanism for external parties (e.g. private sector & financiers) – **Will be a game changer for PPP. However needs to be approved by Parliament**
- The regulator would look at tariffs, performance standards, etc. However, appropriate accounting is a precursor
- IR has prepared an internal concept paper, which has been made available [online](#)

◆ Restructuring

- IR has 8 group A services which operate as silos. This leads to dilution of IR's top priorities, lack of ownership, delayed decision-making (eg upward delegation instead of downwards), non-fungibility of staff across groups for better re-allocation of excess staff, etc.
- Vested interests, there being 2 recruitment streams (Civil services & Engg), the huge unions' dependence on higher membership, etc act as roadblocks
- Chairman of IR is in discussion with the Federation of Railway Officers which has also been asked to come up with solutions

...Structural reforms yet required, and some revenue suggestions

Indian Railways

- ◆ **Reducing wage bill**
 - Current wage bill (33% of revenues) and pension bill (18% of revenues) untenable warranting a restructuring of departments and staff strength
 - With many retirees over next 2 years, this is an opportune time, however, politics (unions vs. Govt.) remains a roadblock
- ◆ **Pax tariff increase**
 - While a political issue, just like power or diesel prices, a gradual increase warranted versus a massive step jump every decade. This is not only unpalatable to the public but also requires increase in ticket examiners. For e.g. a 5-6% hike p.a. over the last 10 years would have garnered Rs 1.3 trn vs. the current pax loss of Rs 220 bn
 - Note that DFC implementation would take away 70% of freight revenue, thus necessitating an immediate increase in pax tariffs, esp. as the freed up capacity would see more loss-making pax trains coming
- ◆ **IR can also be the country's largest e-commerce player**, with 20 mn registered users, 0.3 mn ticket sales/ day and annual sales of USD 2.5 bn. With an improved online/ mobile interface and products and services on offer besides tickets, IR can easily compete with seasoned players such as Flipkart and Amazon. Possible streams of additional revenues in stations and coaches:
 - **Advertising** at stations and coaches – revenue potential of Rs 95 bn (as per RITES) from Rs 3.5 bn today
 - **Parcel services** – Targeting Rs 50 bn of revenues in 2 years from Rs 20 bn today. While freight rates cannot be increased as timelines are not guaranteed, here trains run on schedule, however utilization is far lower
 - Rail's share of **automobile freight** can be increased substantially from current 3% to potentially 30%
 - **E-commerce and data analytics** of passengers for better advertising and e-commerce revenues
 - **Amenities such as WiFi** at stations and trains at higher fee
 - Maybe hire an FMCG CEO to leverage consumer experience in drawing out services revenues

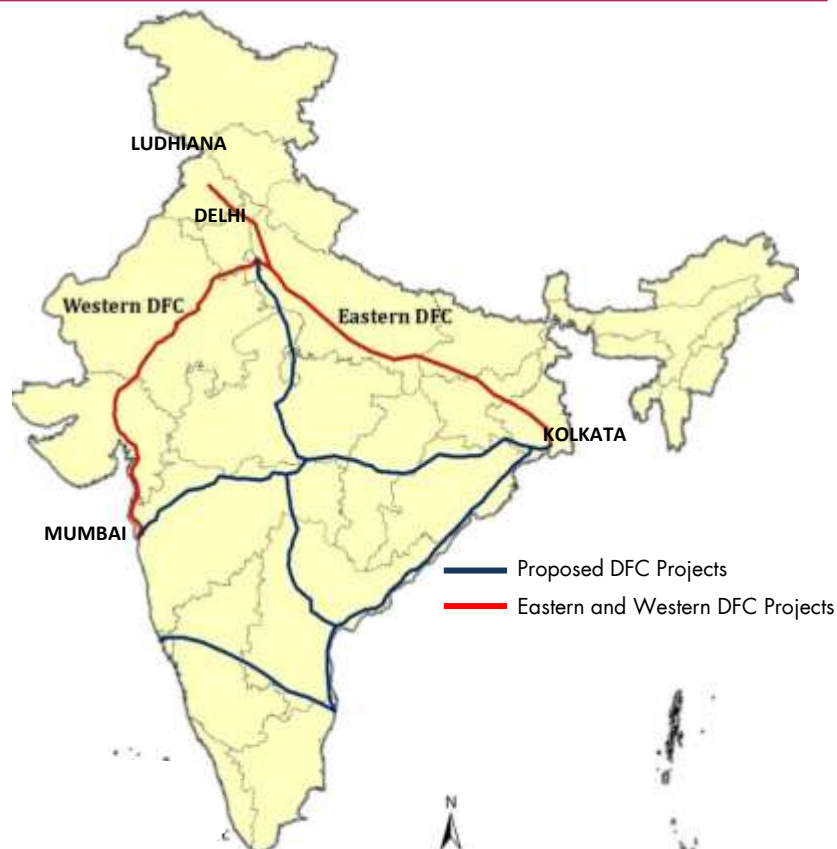
Dedicated Freight Corridor

DFC – as revolutionary as the Golden Quadrilateral

Indian Railways

Will decrease unit cost of freight, currently at 2-3x that of developed countries

Separation of passenger and freight traffic to result in higher speeds (75 km/ hour) and improve efficiency (cut travel time by 66%)



Mega project worth USD 12 bn

	Western Corridor	Eastern Corridor
Length	♦ Mumbai to Delhi (~1,500 km)	♦ Ludhiana to Kolkata (~1,800 km)
Funding	♦ Tied up with Japan (JICA) for USD 8 bn	♦ World Bank (USD 5 bn), Budgetary support (USD 2 bn) and PPP (USD 1 bn)
Land acquisition	♦ 90% completed	♦ 75% completed
Ordering	<ul style="list-style-type: none"> ♦ ~65% of Civil construction and ~55% of electrification and signaling done as of Nov 15 ♦ Balance to be completed by June 2016 	<ul style="list-style-type: none"> ♦ ~65% of Civil construction and ~30% of electrification and signaling done as of Nov 15 ♦ Balance to be completed by June 2016 ♦ The 538 kms PPP Sonnagar-Dankuni to be delayed due to land acquisition
Expected commissioning	♦ June 2018 to Oct 2019	♦ Dec 2017 to Dec 2019 excluding PPP stretch

Direct and indirect benefit of 4-5x the investment of USD 12 bn

- ◆ 70% of freight to shift to DFC, thus freeing up passenger capacity (note Japan followed the opposite route to decongestion, i.e. pax bullet trains)
- ◆ 20x freight carrying capacity: Speed to treble to over 70 kmph (hence more trains can be run), carrying capacity/ wagon to 6x (incl double stacking) & longer rakes
- ◆ Achieved 86% land possession. Note acquisition cannot be delayed by litigation, only compensation may be litigated
- ◆ Awarding update:
 - For both Western & Eastern (ex PPP) corridor, 2/3 of EPC awarded. Electrification & Signaling lags by a year – half awarded. Loco factories awarded to Alstom, GE.
 - USD 2.8 bn of commitment since Nov 2014 vs. USD 1.7 bn since inception to Nov 2014 tenders
 - By April 2016, 90% of all contracts will be awarded, and balance by Oct 2016
 - Current year target for expenditure – USD 1.5 bn

Financing for DFC largely tied up for PH I & II

Financing of DFCC	(Rs bn)	Source of funding
Equity	230	Ministry of Railways
Debt	345	JICA for Western Corridor (Yen 645 bn)
	177	World Bank for Eastern Corridor (USD 2.725 bn)
PPP	~108	Dankuni - Sonnagar (540 kms) - PPP
Total	~860	

Source: DFC, Axis Capital

Timeline of key project awards by DFC

Date	Section	KM	Cost (Rs bn)	Type	Companies
Western DFC					
Jul-13	Rewari - Iqbalgarh	626	67	Civil	L&T - Sojitz
Nov-14	Rewari - Vadodara	915	31	Electrical	L&T - Sojitz
Aug-15	Vaitarma - Vadodara	320	43	Civil & Track	Mitsui - Ircon - Tata Projects
Aug-15	NA	NA	11	Bridges	L&T - IIS
Dec-15	Rewari - Vadodara	915	18	Signalling	Texmaco - Hitachi - Mitsui
Dec-15	Rewari - Mumbai	1337	6	ATCS*	Hitachi - Mitsui
Eastern DFC					
Feb-08	Mughalsarai - Sonnagar	126	8	Civil	BSC - C&C
Mar-13	Kanpur - Khurja	343	33	Track	Tata - Aldesa
Apr-15	Mughalsarai - Kanpur	402	51	Track	GMR - SEW
Jul-15	Kanpur - Khurja	343	15	EST**	Alstom Transportation

Source: DFC, Axis Capital

*ATCS = Automatic Train Control System, **EST = Electrical, Signaling & Telecom

- ◆ Govt plans to commission first stretch by Dec 2017, a third of the total by mid 2018 (note general elections are in mid 2019) & full length (ex PPP stretch, which anyway not important for cargo volume or passenger decongestion) by Dec 2019. Given high end EPC contractors and electoral imperatives, in our view the deadlines may be delayed by at most a year
- ◆ Railways to lose the more profitable freight revenues; hence need to add more remunerative passenger trains/ AC coaches, esp as DFC is planned on a cost-cover model with Nil RoE
- ◆ Four other DFCs also planned, aggregating capex of USD 65 bn, which too will be multi-laterally funded, given the absolute quanta. However, with the decongestion of existing routes, other DFCs MAY be unwarranted
- ◆ Huge enabler for industrial corridors – DMIC (Refer [Appendix](#))

DFC - Year wise commissioning

Year	Eastern DFC (kms)	Western DFC (kms)	Total (kms)
2015-16	56	-	56
2016-17	413	544	957
2017-18	448	892	1,340
2018-19	401	84	485
Total	1,318	1,520	2,838

Source: DFC, Axis Capital

Key Beneficiaries

Project scope	Beneficiary companies	(Cost/Km)
Direct beneficiaries		
Civil, Building, Tracks & Bridges	Western Corridor - Shortlisted contractors Sojitz-L&T JV, Mitsui, IRCON & Tata Projects Consortium	Rs 100 mn
	Eastern Corridor - Shortlisted contractors Tata Projects, GMR (already won) Other civil contractors Simplex, HCC, Gammon etc.	
Electrification	KEC, Kalpataru, Larsen & Toubro Ltd.	Rs 50 mn
Signalling & Telecom	Siemens, Alstom	Rs 30 mn
Indirect beneficiaries Freight users such as Auto, Cement, Power, Steel, etc.		

Source: DFC, Axis Capital



High Speed Rail

<http://www.wisegEEK.net/what-is-california-high-speed-rail.htm#high-speed-passenger-trains>

- ◆ **Mumbai-Ahmedabad Plan (500 Kms) to be taken up first***
 - *Refer [Appendix](#) for other corridors identified. Shorter stretches may be considered eventually if there are insurmountable hurdles for the entire Mumbai - Ahmedabad stretch
- ◆ Project sanctioned by Cabinet. Will take 7.5- 8 years for 1st commercial operations. Land acquisition bill will apply
- ◆ Joint feasibility report by JICA (Japanese International Cooperation Agency) and IR in July'15
- ◆ Speed of 320 kmph (design speed 350) vs. current avg of 70
- ◆ 2 hour non-stop and 3 hours with stops (12 stations of average 50 kms between). Note: Japanese trains are longer and thus meant for non-stop travel. French trains are double stack and shorter, meant for multiple start-stops
- ◆ Point to point could be near air travel time. Given luxury and ease of travel (eg no check-in, wifi, meetings on board), higher reliability and perception of safety
- ◆ Revenues largely from tariffs (near airfare) and economic activities at station (negligible land monetization)
- ◆ 85% to be manufactured indigenously

Proposed route for Mumbai-Ahmedabad HSR



Source: HSRC, Axis Capital

- ◆ **Project Cost:** Rs 700 bn hard cost + IDC/ escalation/ custom duty= Rs 980 bn
- ◆ **Funding after Project sanction:** JICA to fund 80%: 0.1% interest rate, Yen-denominated, 50 year term including 10 yr moratorium on interest and principal
- ◆ **Conditions:** Lead partner to be Japanese, 30% procurement from Japanese companies (equipment or service) - lead company in JV can be Indian company (different from DFC), can procure from any Indian company which has a 10% Japanese stake
- ◆ **Technology:** Design speed can increase from current 160 up to 200 kmph by better engineering in existing network. Above that, technology leap required and existing infra unsuitable. However, existing domestic MNC suppliers can cater to this
- ◆ **Hurdles:** Land acquisition, especially for stations, local body involvement, uncertain traffic forecasts, public perception on elite project and whether a priority, much cheaper to build an airport
- ◆ States being incentivized with equity to help with land acquisition and clearances

Mumbai-Ahmedabad HSR project cost

Item	(Rs bn)
Civil	230
Track	52
Station construction	56
Depot/Workshop & Maintenance depot	47
Electric power facilities	32
Signaling & Communication facility	25
Rolling stock	53
Total construction/Procurement cost	495
Consulting service cost	22
Land acquisition cost	102
Management cost	47
Contingency	33
Total cost	700

Source: HSRC, Axis Capital

The EASIEST place to start construction but the TOUGHEST to acquire land for is the stations, especially in city centres

Note: Maharashtra govt. has already indicated its inability to part with its limited land in the prime BKC area in Mumbai

Why key need despite these hurdles

- ◆ Decongests pax and freight-heavy corridors
- ◆ Better than air and road in energy efficiency, carbon footprint and inter-city travel time
- ◆ Lesser land required than roads (3.2 ha./ km (2 lines) compared to 9.3 ha./ km for roads)
- ◆ Connects many affluent and business cities (like Surat, Vapi, etc) which don't have airports yet
- ◆ Country's dependence on oil (air and road travel) makes this a strategic consideration

Timelines

- ◆ While DFC will commence before general elections, **HSR is likely to gain momentum only in the next term.** Once DFC is implemented, subsequent decongestion will be better known, and the concept, using foreign funds can be better marketed
- ◆ World over, HSR up to 3 hours captures 80-85% of pax traffic. However, the key is to make the project financially viable – to be able to charge tariffs similar to air travel
- ◆ While construction is supposed to begin in 2017, with completion in 2023, we expect HSR to be ready only 7-8 years from sanction (**hopefully by 2024**), by when per capita income would be far higher ensuring willing and affordability to pay
- ◆ A very necessary investment for the future, but will require **level of PMO to sell the idea to the public.** Take the Chinese experience which had tremendous initial opposition and now caters to 700 mn trips in 2013 (from 128 mn in 2008)

Station redevelopment

- ◆ Decongestion of entry and egress, cleanliness, safety. **As public interface, stations are second only to train efficiency** (freight, gauge conversion, etc not seen by public)
- ◆ 7 initial projects assigned directly to IRSDC, like the L&T-Seawoods in Navi Mumbai. Habibganj in Bhopal to be among the first to be awarded
- ◆ 400 other stations (est capex USD 16 bn) identified to be bid under Swiss Challenge method wherein bidders to give designs, of which the best will be selected and put up for bidding with the original proponent having a right of first refusal.
- ◆ Involvement of zonal railways and local Govts to expedite clearances a MUST. States/ municipality incentivized through equity share. Committee of municipality, state and IR to meet monthly
- ◆ If property development given Infra status (Executive decision, not even Cabinet), better funding cost and availability for PPP model of station development
- ◆ Strategic advisor being appointed – RFP stage. Key role to formulate policy, bring stakeholders together (local bodies) and excite public demand for it

Status of initial stations undertaken by IRSDC

Station	Status
Habibganj, Bhopal	<ul style="list-style-type: none"> ◆ RFP stage - Award in few months ◆ Completion in 3 years max. ◆ 3 bidders - Bansal constructions, Ahluwalia, GMR
Anand Vihar, Delhi	RFQ stage - Award by Dec 16
Bijwasan, Delhi	Invited bids - Award by Dec 16
Surat, Gujarat	Clarity to emerge in 2 months
Chandigarh, Punjab	Clarity to emerge in 2 months
Pune, Maharashtra	Clarity to emerge in 2 months

Source: Indian Railway Station Development Company, Axis Capital

Our view

- ◆ Very tricky to do for large stations (pax traffic, utilities, space limitations) where it matters the most for the public
- ◆ Hence we believe **a few showpieces in smaller towns will be executed**, thus attracting public demand (forces local bodies to co-operate) for the larger ones

L&T Seawoods: Artistic rendering



Source: L&T Realty

L&T Seawoods: Actual site photograph



Source: L&T Realty

Roadblocks to station redevelopment

- ◆ 50-year lease model is a roadblock as developers want 99-year lease
- ◆ Railways fear that such a long lease may make it difficult to reclaim land
- ◆ New Delhi railway station redevelopment could not go ahead due to local clearance issues
- ◆ Railway provide only facilitation but the entire headache of **all approvals incl. clearances of encroachment is that of developer**

Refer [Appendix](#) for other details on station re-development (role of IRSDC and advisor)

New Delhi railway station modernization: Artistic rendering



Source: www.arup.com

Metro rail

- ◆ PM's aggressive India marketing has seen foreign money making a beeline to fund Metro projects in India at extremely attractive terms
- ◆ Metro's now a political plank to showcase development
- ◆ ~25 metro projects likely to be ordered out over the next 3 years
- ◆ Metro project ordering to rise to Rs 400 bn pa over FY16-19 from ~Rs 200 bn p.a. over FY11-15

Metro rail (ownership not just IR): Largely led by multilateral agencies

Indian Railways

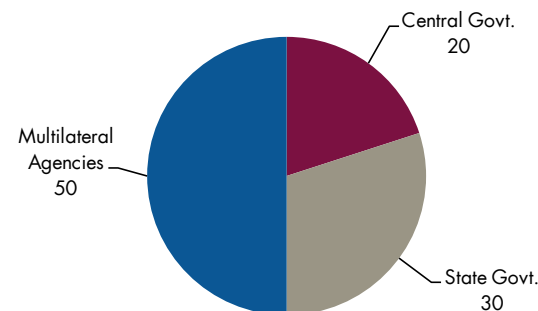
- ◆ **Modi government has put urban rail transport system on a high priority**
 - **Mumbai metro-Ph III:** 33 km with investment of Rs 250 bn
 - **Nagpur metro project:** 39 km with investment of Rs 85 bn
 - **Ahmedabad-Gandhinagar:** 36 km with investment of Rs 100 bn
- ◆ **~25 Metro projects totaling ~650 kms with investment of Rs 2.0 trn under planning stage; to be ordered in 3-5 years**
- ◆ **Financing of metro projects to be done through 20% funding from central government, 50% from multilateral agencies and remaining from state Govt. PSU banks have also started funding Metro projects for e.g. SBI financed Bangalore Metro project**
 - **Several multilateral agencies vying to fund metro projects at extremely attractive terms:** <1.5% interest rate, 20 yr+ repayment with 5-10 year moratorium
 - **Repayment dependent on transit oriented developments, realty monetization rather than just fare collection**

Metro/Mono Rail capex breakdown

Projects	Beneficiaries	As % of project cost
Civil works	L&T, HCC, NCC, Afcons, Gammon, Simplex	55%
Rolling stock	BEML, Alstom, Bombardier	25%
Signalling/Telecom	Alstom, Siemens, Ansaldo-STC	10%
Electrification	ABB India, Siemens	10%

Source: Axis Capital

Financing structure for majority of Metro/Mono Rail projects

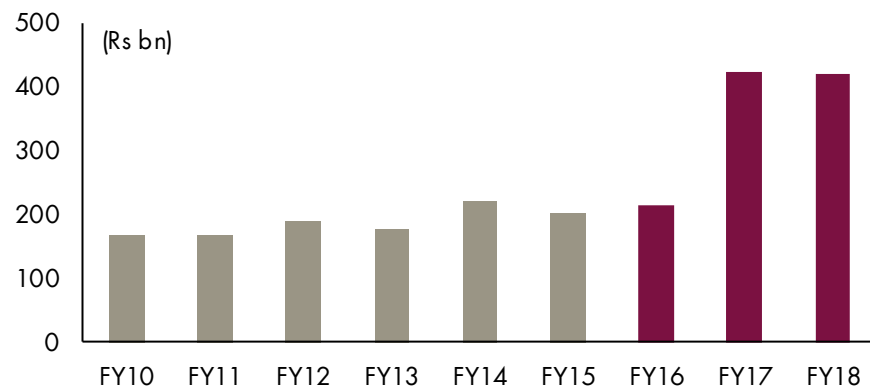


Source: Ministry of Urban Development

Metro rails: Ordering to double to Rs 400 bn pa over 2 years

Indian Railways

Annual orders to be placed for Metro set to double



Source: Ministry of Urban Development, Axis Capital

Metro project	Length (km)	Cost (Rs bn)	Timeline
Completed			
Delhi - Ph I, II & Airport	190	382	Apr-06 to Aug-11
Mumbai - Ph 1 (PPP)	11	24	Jun-14
Ongoing			
Delhi - Ph 3	138	352	Mar-16
Bangalore Ph-1	42	116	Apr-16
Chennai	45	146	Dec-16
Kochi	26	52	Jun-17
Jaipur	12	31	Mar-18
Hyderabad (PPP)	71	141	Jul-17
Lucknow	23	45	Jan-17
Navi Mumbai	23	41	Mar-17

Robust pipeline for Metro projects

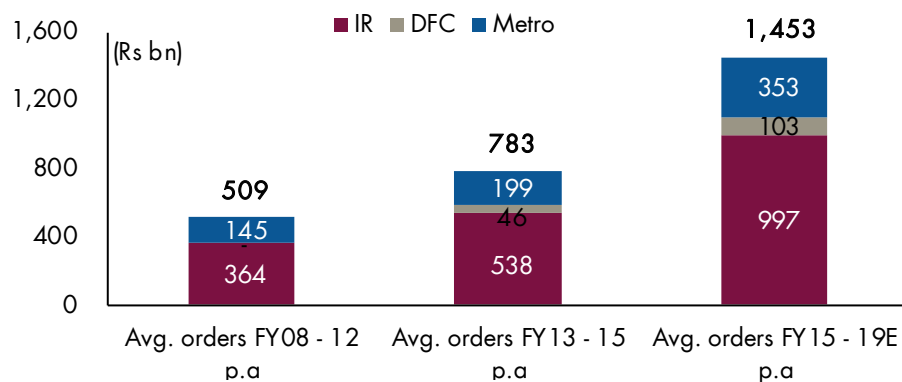
Metro project	Length (km)	Cost (Rs bn)
Ordering expected over FY16-17		
Mumbai - Ph-III (FY16)	33	250
Nagpur (FY16)	42	85
Noida, Jewar & Greater Noida (FY16)	30	55
Bengaluru - Ph-II (FY17)	72	268
Ahmedabad - Gandinagar (FY17)	36	100
Projects in planning stage (expected to be awarded over FY18-19)		
Delhi - Ph IV	104	550
Chennai - Ph-II	63	360
Visakhapatnam	43	135
Pune	32	102
Mumbai (Andheri-Dahisar-DN Nagar)	35	100
Indore	32	75
Vijayawada	26	68
Bhopal	28	60
Thiruvananthapuram	42	36
Gurgaon - Ph-II	7	21
Total	624	2,265
Other projects in planning stage		
Jaipur - Ph-II	23	66
Kanpur	33	134
Patna	36	115
Chandigarh	38	109
Merrut	30	120
Guwahati	44	180
Bhubaneswar	30	23
Kozhikode Light Metro	35	20
Agra	30	120

Source: Ministry of Urban Development, Websites of respective metro, projects, Axis Capital

Multilateral funding largely from JICA leading to surge in metro capex

Key beneficiaries of capex

Average annual orders from IR, DFC and Metro set to double...



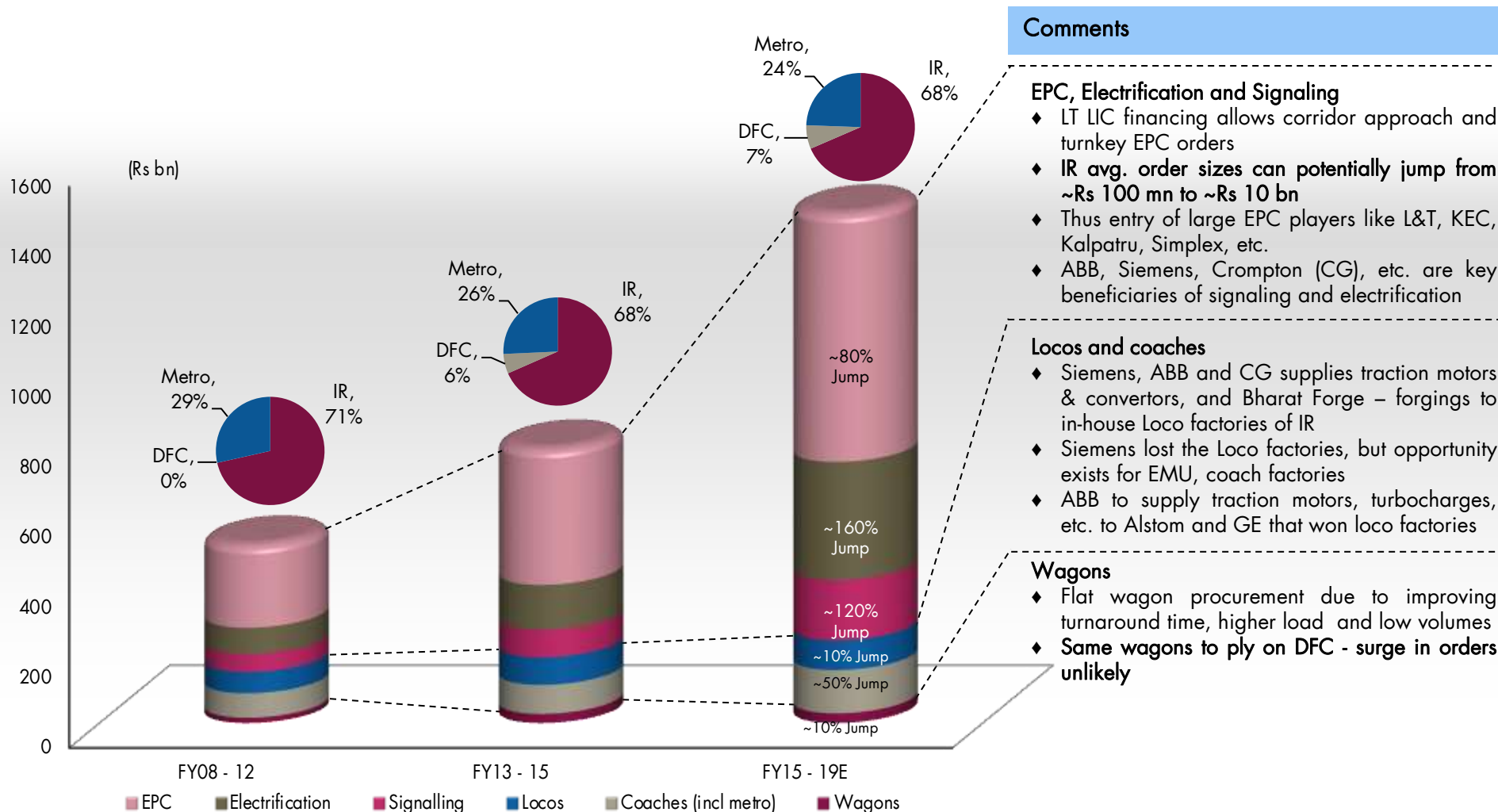
Source: Indian Railways, Ministry of Urban Development, DFC, Axis Capital

...Key beneficiaries of capex surge

Projects	Beneficiaries amongst listed	As a % of project cost		
		IR	DFC	Metro
Civil Works	L&T, KEC, Kalpatru, Simplex, etc.	45%	56%	55%
Electrification	L&T, KEC, Kalpatru, ABB, Siemens	10%	28%	25%
Signalling/Telecom	ABB, Siemens, etc.	10%	17%	10%
Locos, Coaches	ABB, Siemens, Crompton, BEML, Bharat Forge	31%	0%	10%
Wagons	Texmaco, Titagarh	4%	-	-

Source: Indian Railways, Ministry of Urban Development, DFC, Axis Capital

Average annual orders from IR, DFC and Metro set to triple



Key EPC beneficiaries...

Indian Railways

L&T

- ◆ L&T provides EPC turnkey solutions for all types of projects in the rail and urban transit sector. L&T offers Integrated solutions for railway construction, Railway electrification, Dedicated rail links and merry-go-round systems, Complete civil and track works, Signaling and telecommunication, Steel/ concrete bridges and tunnels
- ◆ Railways is a part of Infrastructure segment of the company and Infrastructure constituted 47% of FY15 revenue of Rs 920 bn. We estimate IR and metros contributed ~12% of order inflow in FY15.
- ◆ L&T has a ~30% market share in DFC projects. IR is now following EPC mode of ordering and increase in average order size is expected to benefit large EPC players like L&T.
- ◆ The company would be a key beneficiary of **Railway capex** on New lines, Track renewal, Doubling; **DFC capex** on Civil, Building, Tracks & Bridges, Electrification; **Metro capex** on Civil works, Ventilation and Air Conditioning

Kalpataru Power

- ◆ Kalpataru Transmission operates in the railway EPC business and offers civil infrastructure, track laying, signaling and electrification projects for railways
- ◆ Railways is a part of Infrastructure segment of the company and Infrastructure constituted ~4% of FY15 revenue of Rs 73 bn
- ◆ The company would be a key beneficiary of **Railway and DFC capex** on Electrification projects

KEC International

- ◆ KEC International is a complete turnkey solutions provider in the Railways Infrastructure EPC space including Civil & Track works, Electrification and Signaling projects
- ◆ Railways constituted ~2% of FY15 revenue of Rs 85 bn and 7% of its FY15 order book of Rs 99 bn
- ◆ The company would be a key beneficiary of **Railway capex** on Bridge works, Signaling and Telecom works and **DFC capex** on Electrification

Tata Projects

- ◆ Tata Projects competence comprises design engineering, electrification, related signaling & telecommunications works, bridges, earthworks and other civil works. It works in the area of Railway Track Laying, Railway Electrification, Construction of Bridges and Construction of High Speed Dedicated Freight Corridor
- ◆ Railways is a part of Industrial Infrastructure strategic business unit (SBU) of the company which constituted ~97% of FY15 revenues of Rs 34 bn
- ◆ The company would be a key beneficiary of **Railway capex** on Bridge works, Signaling and Telecom works; **DFC capex** on Electrification and **Metro capex** on Civil works, Ventilation and Air Conditioning

Key capital goods beneficiaries

Indian Railways

Alstom India (Unlisted)

- ◆ **Alstom India** has four businesses: Rolling stock & Components, Systems & Infrastructure, Transport Information Solutions and Train Life Services. The company has won contracts for Metro rolling stock, traction systems, Metro signaling system and Metro infra projects as well as signaling and EMU projects for mainline railway
- ◆ Alstom had sold its energy activities to GE and transport business constitutes 100% of its revenue
- ◆ The company would be a key beneficiary of **Railway capex** on rolling stock - wagons; **DFC capex** on signaling & telecom and **capex on Metro** for rolling stock, signaling/ train control and communications systems

Siemens India

- ◆ **Siemens India** provides solutions for rail automation, railway electrification, light and heavy rail, locomotives, trains, turnkey projects and integrated services
- ◆ Mobility (which caters to Railway business) constituted ~8% of FY15 revenue (Rs 107 bn)
- ◆ The company would be a key beneficiary of **Railway capex** on signaling and telecom works; **capex for DFC** on signaling & telecom and **capex on Metro** for signaling/ train control and communications systems, tractions electrification, power supply and SCADA systems

...Key capital goods beneficiaries...

Indian Railways

ABB India

- ◆ **ABB India** provides traction transformers, main and auxiliary converters, motors, surge arresters, semiconductors, turbo chargers etc. for rolling stock. It also provides traction substations for AC and DC, power and distribution transformers, frequency converters, high, medium and low voltage products for railway infrastructure as well as FACTS, network management solutions and SCADA systems
- ◆ The company would be a key beneficiary of **capex on Metro** for tractions electrification, power supply and SCADA systems and beneficiary of **railway and DFC capex** on electrification

BEML

- ◆ **BEML** manufactures and supplies Rail Coaches, Metro Cars, AC EMUs, OHE Cars, Steel and Aluminium Wagons to the rail sector
- ◆ Railways and Metro constituted ~40% of FY15 revenue of Rs 28 bn
- ◆ The company would be a key beneficiary of **Railway capex** on new lines, track renewal and doubling, rolling stock – wagons and **metro capex** on rolling stock

...Key capital goods beneficiaries

Indian Railways

Cummins

- ◆ Cummins supplies diesel engines to suit a wide variety of Rail Car, locomotive and track maintenance applications and are available for diesel electric, diesel hydraulic and diesel mechanical transmission
- ◆ Railways is a part of Industrial Engines segment of the company which constituted ~12% of FY15 revenue of Rs 44 bn
- ◆ The company would benefit from **Railway and Metro capex** on rolling stock

Bharat Forge

- ◆ Bharat Forge is one of the few indigenous component suppliers to the Indian Railways. It caters to most of the key components of diesel locomotive engines
- ◆ Given that it currently supplies components to GE in the US, it is likely to supply to GE when it sets up its locomotive factory in India. Overall, on the back of expected order wins coupled with steady service related requirements, management expects revenue of USD 100 mn from railways by FY20

Rolling stock suppliers

Indian Railways

Titagarh Wagons

- ◆ **Titagarh Wagons Limited** is primarily engaged in the business of manufacturing Railway Wagons & EMUs (Coaches). It makes a wide variety of wagons including Hopper, Covered, Open Top, Container Flat, Tank, Flat and Special Purpose Wagons
- ◆ Wagons and Coaches constituted ~90% of FY15 revenues (Rs 3.76 bn) of the company
- ◆ The company would be a key beneficiary of **Railway capex on Rolling stock – wagons**

Texmaco

- ◆ **Texmaco** is primarily engaged in the business of manufacturing freight cars including stainless steel cars and custom built special purpose freight cars. It has diversified into manufacturing of “Loco Shell” for Electric Locomotives. It has made a strategic acquisition of 49% equity stake in Kalindee and is in process of merger of the two companies
- ◆ Rolling stock division constituted ~60% of FY15 revenue (Rs 5.57 bn)
- ◆ The company would be a key beneficiary of **Railway capex on Rolling stock – wagons**

Kalindee Rail

- ◆ **Kalindee Rail** is primarily EPC company in the infrastructure space for Rail Transport. It has been active in fields of Signaling, Telecommunications, Track and Information Systems. It has plans to further diversify in the fields of Metro Viaduct and Tunnels, Electric Traction System, Traffic Management
- ◆ Railways constituted ~100% of FY15 revenue (Rs 3.08 bn)
- ◆ The company would be a key beneficiary of **Railway capex on New lines, Track renewal and Doubling**

Container Train Operators – Gateway Distriparks, Container Corporation

- ◆ DFC will drive shift in freight traffic (especially heavy-weight long distance cargo) from road to rail, given dedicated infrastructure, coupled with operational efficiencies like higher speed, greater axle load etc
- ◆ Such shift in volumes will boost containerization (~22% of aggregate cargo vs. global average of 60-70%) and will drive strong volume growth for Container Train Operators (CTOs) like Container Corporation and Gateway Distriparks
- ◆ Double stacking operations on western corridor will bring further operational efficiencies and drive higher profitability
- ◆ Development of an independent Rail regulator to boost confidence among CTOs as this will indicate measured and transparent hike in haulage charges (easier to pass through) going ahead

Appendix

Passenger experience improving: RESPONSIVENESS

Indian Railways

Twitter handle a/c of GM & DRM

Central Railway	North Eastern Railway
General Manager@gm_cry	General Manager@gmner_gkp
DRM	DRM
Mumbai:@drmmumbaicr	Izzatnagar:@drm_drmzn
Nagpur:@drmcngp	varanasi:@drmsbner
Pune:@drmpune	Lucknow:@drmljn
Solapur:@drmsolapur	
Bhusawal:@bhusavaldivn	
Eastern Railway	Northeast Frontier Railway
General Manager@Eastern Railway	General Manager@gm_nfr
DRM	DRM
Sealdah:@drmsdah	Katihar:@DRM_KIR
Howrah:@drmhovrah	Alipurduar:@drm_apdj
Asansol:@DRM_ASN	Rangiya:@DRM_RNY
Malda:@drmmalda	Tinsukia:Drm_tsk
	Lumding:@drmnfr-lmg

Helpline numbers

RAILWAY CUSTOMER CARE SERVICES

138 Customer Care Contact number for lodging **voice complaint** on cleanliness, food and catering, coach maintenance, bed linen, and for emergency medical care

139 For matters such as **enquiry**

1322/182 **Security Helpline** numbers for matters relating to problems like nuisance by co-passengers, crime etc

Getting the first hand experience



SMS Alerts



Unreserved Mobile Ticketing Services



To Provide Wi-fi in train/ at stations



Source: Indian Railways; Media reports

Passenger experience improving: AMENITIES

Indian Railways

Amenities in coaches

Cleaner laundry



Source: Indian Railways - PR

E-catering



Source: IRCTC

Amenities at stations

Retiring rooms / Executive lounges



Source: Indian Railways

To install clean water vending m/c



Source: Media reports

Dustbins



Source: www.railnews.co.in

Passenger experience improving: TICKET AVAILABILITY & SAFETY

Indian Railways

Ticket availability

Automatic Ticket Vending m/c



Source: Indian Railways - PR

"Go India" Smart Cards



Source: IRCTC

IT systems



Safety



Source: Indian Railways - PR



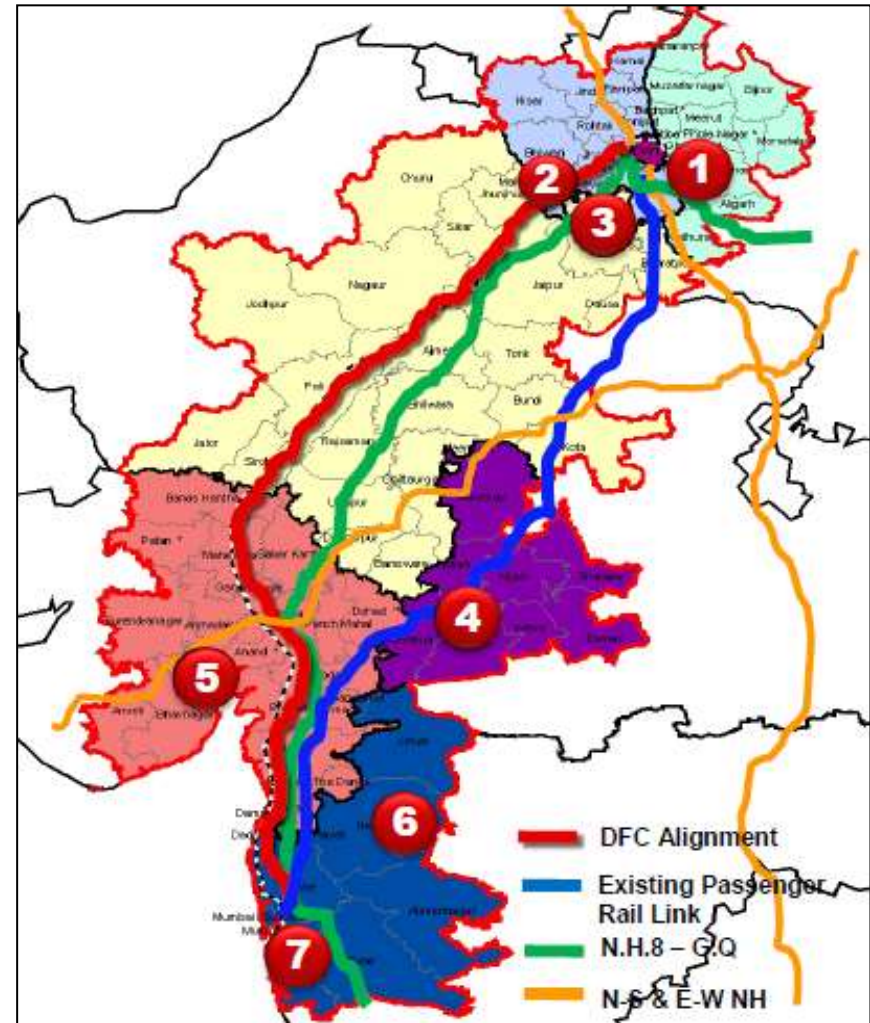
Source: www.hindustantimes.com

- ◆ Identify and quickly address “Actionable stress” in legacy projects. Set up (a) Infra PPP Project Review Committee to recommend on “Actionable Stress” and (b) Infra PPP Adjudication Tribunal to mediate disputes
- ◆ Renegotiations to be invoked in extraordinary circumstances, only after 18 months of completed construction and based on long-term costs/ risks & comparison of financial position for government prior to/ post renegotiation. **Some specific measures** are: (a) Developer should not suffer if land acquisition/ clearance are pending from government; (b) Cancel projects that have not achieved prescribed progress; and (c) If delay is not on account of developer, no penalty to be imposed
- ◆ **Strengthening Policy and Governance** – (a) **Amend Prevention of Corruption Act, 1988** as it does not distinguish between genuine errors in decision-making and corruption; (b) **3P-I institute**: Centre of excellence should be set up enabling research, sophisticated contracting models and dispute redressal; (c) **Discourage authorities from treating PPPs as off-balance sheet funding** (project implemented and funded by private sector) without checking suitability of PPP; and (d) **Discourage unsolicited proposals (Swiss Challenge)** as they bring information asymmetries and lack of transparency
- ◆ **Improve financing options** – (a) Encourage banks to issue Zero Coupon Bonds for Long Term funding at low cost; and (b) Monetize projects with stable revenue after construction
- ◆ **Revitalizing Contractual Process**: There is a need to introduce more flexibility in Model Concession Agreements (MCA). (a) Request for proposal to be issued after at least 80% land is available and delay in acquisition of balance will not affect COD; and (b) No penalty if developer achieves COD in time, even if prior milestones are not adhered to
- ◆ **Sector specific recommendations for Railways**: Simple PPP projects like monetization of existing stations (to tap commercial revenue through use of floor space), or heritage station buildings (through “Adopt-a-monument”) should be tried out. Greenfield development of stations, O&M of identified tracks could also be explored

DMIC to enable development of Global Manufacturing and Trading Hub supported by world class infrastructure

Length	◆ Mumbai to Delhi (~1,500 km) along Western Corridor of DFC
Investment required	◆ USD 90 bn for building infrastructure for Phase -1
Scope of Ph1	◆ 7 mega investment regions along DMIC
Size of each investment region	◆ 200 sq. km
Land acquisition progress (sq. km)	◆ Dholera (Guj) 110 of 200; Shendra (Mah) 32 of 40; Pithampur (MP) 9 of 10
Funding structure	◆ Government of India has given revolving fund of Rs 185 bn. Leverage through Infra bonds, multilaterals. Additional funds by monetization of land parcels
Benefit for industry	<ul style="list-style-type: none"> ◆ Easy availability of land to set up manufacturing operations (Plug and Play) ◆ Single window clearance for environment, etc. ◆ Ready made trunk infrastructure - roads, ports, power and water supply ◆ Significant logistics advantage as it is along the freight corridor

Mega project worth USD 90 bn



Long-term economic benefit of DMIC

Double employment potential in five years (25.5 mn)

Triple industrial output in five years (USD 3.3 trn)

Quadruple exports from the region in five years (USD 720 bn)

DMIC: Large capex opportunity unfolding – multiple beneficiaries

Indian Railways

Break-up of USD 90 bn opportunity

Category	Area (Ha)	Investment (USD bn)
Manufacturing/ Industrial Processing Area/ SEZs	55,000	33.8
Food Processing Area	5,000	2.8
IT/ITES Hubs	2,000	8.8
Knowledge Cities	5,000	7.5
Logistics Infrastructure	8,500	3.8
Integrated Townships	16,500	15.0
Area and other Infrastructure	8,000	
(a) Total	100,000	71.7
Trunk Infrastructure		
Length of Feeder Roads	4,000 km	2.0
Length of Feeder Rail Links	2,500 km	1.9
Ports -3 Greenfield Ports & Augmentation of 2 Ports		3.0
Airports (Augmentation of Five Airports, 2 Airstrips)		1.6
Power Plants	10,000 MW	10.0
(b) Total		18.5
Total (a+b)		90.2

Source: DMICDC, Axis Capital

Key beneficiaries

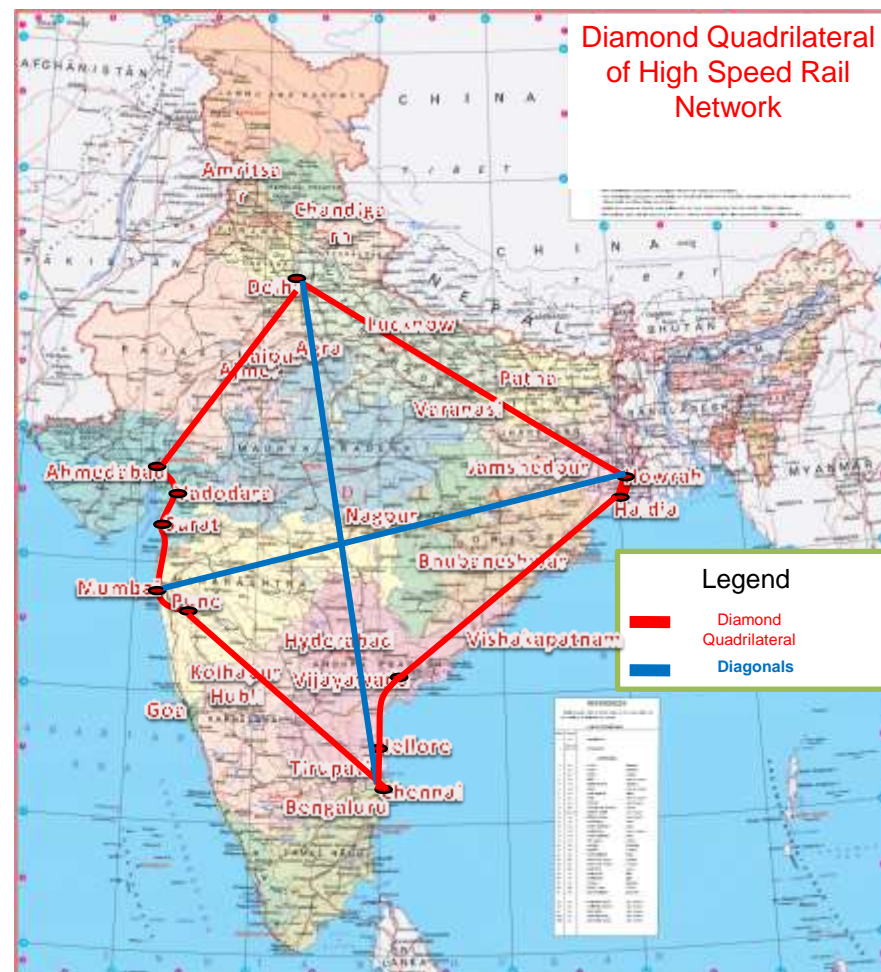
- ◆ PPP Project developers
- ◆ Contractors/consultants/equipment suppliers for metro, roads, airports, ports and power projects
- ◆ O&M operators
- ◆ Financial institutions, PE firms and private investors

High Speed Rail – other corridors identified

- ◆ Several other corridors identified for HSR:
 - Diamond Quadrilateral (connecting Delhi, Mumbai, Chennai and Kolkata)
 - Delhi-Chandigarh-Amritsar
 - Chennai-Bengaluru-Mysore
- ◆ A study report on Delhi-Nagpur (part of Delhi-Chennai stretch) by China Railway SIYUAN Survey and Design Group Co. Ltd has been completed
 - No concrete proposal yet
 - Chinese funding to be through their companies (vendors, suppliers, etc) and shall involve some form of deferred payment mechanism

Indian Railways

High Speed Rail corridors identified



Source: HSRC, Axis Capital

Station redevelopment – other key points

Indian Railways

- ◆ **Indian Railways Station Development Company (IRSDC)** - JV between Rail Land Development Authority (RLDA) and IRCON (Construction arm of railways) in the ratio of 49:51 respectively with key focus on station development (and not on the railway's residential properties at present)
 - Assigned 7 stations so far by the Railway Board via RLDA. In addition, ~400 stations (A1 and A category) short listed for redevelopment
 - Aim is to resolve congestion - access and egress is a challenge (into station, to platform, into train) - must be seamless and barrier free (also for handicapped)
 - Will lead to cleanliness and better amenities for passengers
 - 3 stages of bidding – (1) RFQ, (2) RFTP - Request for Technical Proposal, (3) RFP
 - Looking to identify smaller projects which may not be very lucrative but can be showcased as success stories quickly. Will help excite others

- ◆ **High dependency on advisor, yet to be appointed:** Strategic advisor to prepare comprehensive policy and bring all stakeholders on board. Marketing the project right is of paramount importance. Need to involve public - see example of airports - AAI did not want to privatize but public demanded it and thus AAI could not object

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BUY	More than 10%
HOLD	Between 10% and -10%
SELL	Less than -10%

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