National Academy of Indian Railways,
Government of India, Ministry of Railways

सत्यमेव जयते

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Ideas on How to Raise Money for Railways to Provide Better Services

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Abstract of the Proposed Competition

Financial performance of Indian Railways (IR) is measured in terms of operating ratio (Earnings - Expenses). This ratio has increased to more than 96% which means IR with the current sources of earnings will not be able to cover its expenses in the short to medium term without additional investments. Although, IR has taken several measures to overcome this challenge, it seeks ideas to supplement or enhance earnings limited to various conditions in the competition brief

With operating ratio deteriorating to lowest level of 96.5% during 2016-2017, reduction in invest-able surplus and deteriorating quality of services Railways is seeking new revenue sources

Source:
- Page 28, CAGOI Report 1 of 2018 Finance Audit on Railways, For year ending March 2017
- Jan Bhagidari Brief

The Challenge

- Objective
  - Development of an Idea, Development of business plan and Development of implementation strategy
  - For 'How to raise money for Railways to provide better Services (Jan Bhagidari)'
- The idea should not focus on
  - Energy Efficiency, Economical Land Use, Operating Efficiency
  - Infrastructure Expansion, Substantial Public Investment, Changes, Raising Money from institutions
- Ideas should be inline with
  - Rapid Industrial growth & Rapid Infrastructure development
  - Short to medium term oriented, & network independent
- Application Areas limited to transportation business including Passenger transport, Freight transport, Parcel Service, Non-fare areas, etc.
- Ideas should fall under following standard categories
  - Increasing the range / quantum of services
  - Increasing rate of recovery per unit of transportation
  - Plugging leakages of revenue
- Broad expectations include Scalability to organization level, Financial and commercial feasibility, Transparency, Customer friendly, Sustainability, Scope for further improvement, Compatibility with national economic requirements
- Social obligation of Indian Railways is of utmost importance
- Key constraint include use of existing Infrastructure

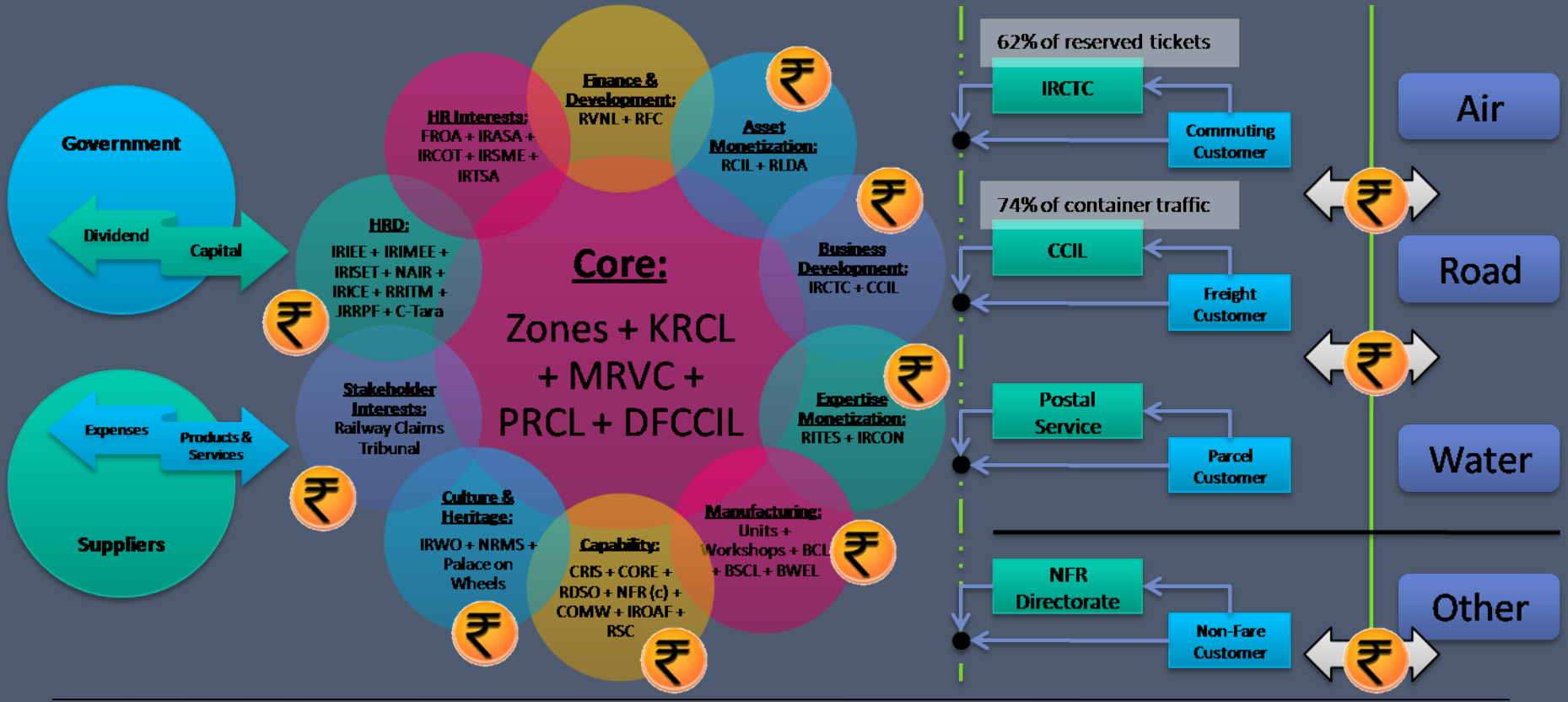
Non-Fare Revenue Directorate is already working on following areas to raise the revenue

Source: Jan Bhagidari Brief

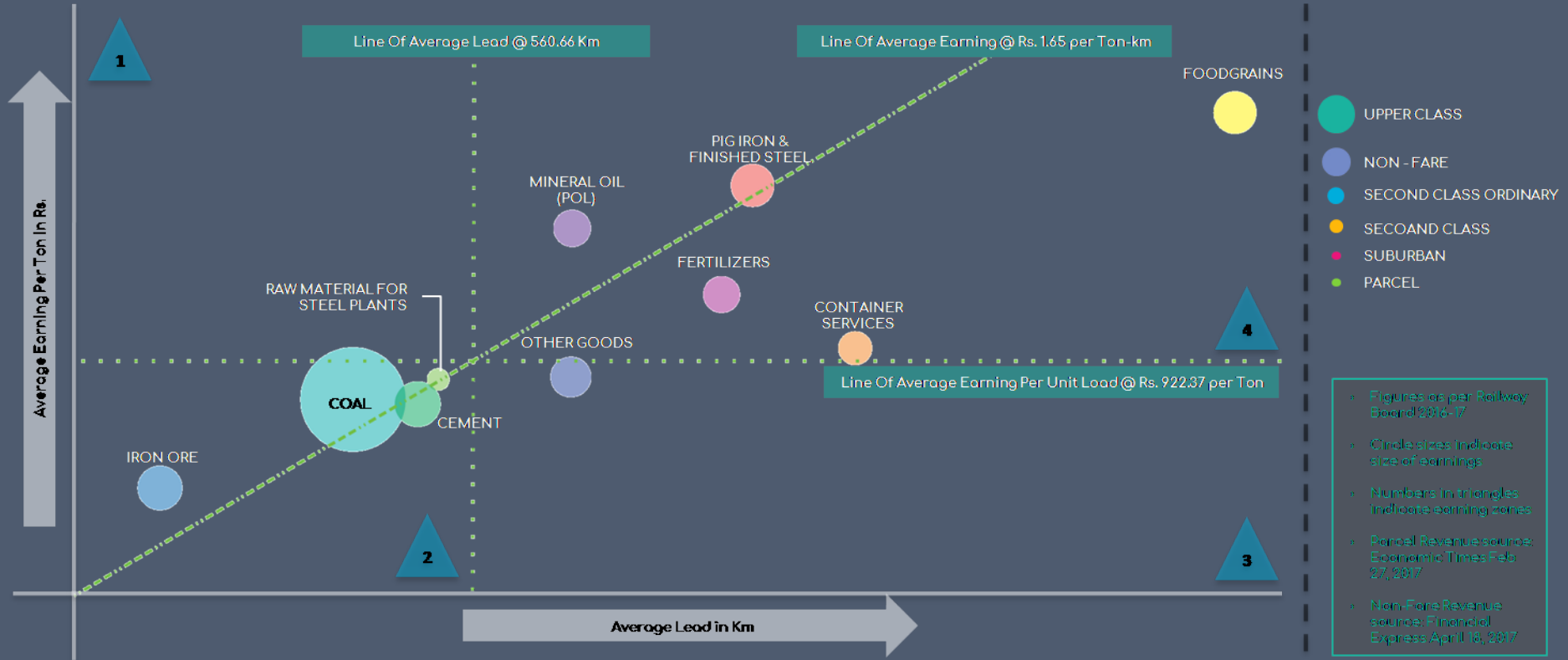
Non-Fare Revenue Initiatives

- Advertisement at stations;
- Commercial exploitation of vacant land and space rights over station buildings including station re-development;
- Advertisements on coaches (both inside / outside) and on locos;
- Sponsorship of uniforms for railway personnel, wherever in vogue;
- Advertisements through hoardings on land alongside tracks and on land near railway stations;
- Commercial farming alongside railway tracks;
- Monetization of soft assets, including generation of revenue from websites through advertisements and web links;
- Sidings and way-leave charges;
- Operation / licensing of Multi Functional Complexes;
- Parking of vehicles in railway land other than at stations;
- Advertisements on wagons, FOBs, ROBs, RUBs, Railway buildings, Loco Sheds, Production Units, Structures on railway premises (like water tanks, microwave towers, OHE masts etc);
- On board (trains) and off-board (stations) entertainments, magazines on trains, displays at railway premises including stations (LED screens, video walls, translides etc.);
- Sponsorships of activities and events at stations, branding etc;
- Operation of Pay and Use toilets in land outside railway stations (circulating area, approach roads, near LC gates etc.);
- Radio, Video, Internet, Wifi, Mobile Apps, Interactive services (like video games etc.) in railway premises including stations;
- Tourism.

Indian Railways Ecosystem



Railway – Visualizing Earnings & Key Metrics



Category: Integrated approach towards increasing range & quantum of service, rate of recovery per unit of transportation and plugging leakages of revenue

IDEA # 1: WORLDS FIRST & LARGEST REAL TIME TRANSPORTABLE INVENTORY EXCHANGE, MARKETPLACE & BIDDING PLATFORM

By redefining both transportable inventory and capacity while monetizing their Management generate revenue, bring about monumental change and insure against future capacity under-utilization

Solution: Worlds First & Largest Real Time Transport Inventory Exchange, Marketplace & Bidding platform

Like in every industry, profitability in the transport industry also relies on efficient capacity utilization and inventory management. In case of Indian railways(IR) if we **redefine transportable inventory** as "passengers, freight and parcels" while also **redefining capacity** as "the space available on a train to carry this transportable inventory". We can devise a system which can leverage IR's existing infrastructure to simultaneously manage both its capacity and transportable inventory. Moreover, if this system is designed in such a way that **monetizes** the aforementioned simultaneous management, IR can realize additional revenue and also provide better services to its customers. Keeping in mind the current challenges and future plans of both the IR and the Indian transport industry, this system ultimately **should become a platform for integrated multi-modal transport** within India. Since, IR has the necessary resources, expertise and experience; it is one of few organizations that can develop this system, run it, expand it thereby inflicting **monumental change in the transport industry**. The system which is envisaged may be termed as "Real Time Transport Inventory And Capacity Exchange Cum Marketplace". Within this system IR could **generate revenue by selling its excess transportable inventory** and also **generate revenue by filling is excess capacity.** By selling its excess transportable inventory through reverse auction, IR's customers get the advantage of bulk discounts which they would not have got individually. By filling its excess capacity through auctions IR's customers get the advantage of low costs. Moreover, as IR develops its infrastructure in coming years it does not need to worry about **future capacity under-utilization** This system would also enable a more accurate per unit per km transportation price discovery based on supply and demand. The system would also enable transparent interaction between different operators within a multi-modal transport network.

Original cost effective solution complying to boundary conditions having monetary benefits for both end and intermediate customers

Solution Compliance to brief:

- Value Proposition
  - For the end customer (Passenger, Freight Owner & Parcel Owner) Value proposition is economies of scale. For the carrier customer (Bus operators, taxi service providers, truck fleet owners, courier service providers etc.) Value proposition is their own capacity and transport inventory efficiency
- The solution complies to boundary conditions as it:
  - Solves railway problems
  - Utilizes existing back-end infrastructure
  - Needs minimal public investments
  - Proposes no change in organizational structure
  - Is not a financing solution
- Originality
  - The proposed solution has not been implemented in IR, neither has anyone suggested the same in previous non-fare competition on mygov.in, nor has there been any news in past one year regarding the same
- Cost Effectiveness
  - The proposed solution envisages to use existing back-end infrastructure already deployed by IR coupled with capabilities already present with IR
- Possible Constraints
  - Might be cumbersome to deploy for passenger business
  - Not in the best interests of large transporters and transport lobby
  - First of its kind solution

Opportunity Size

Earnings per Transportable Inventory → EPTI
Total Transportable Inventory Carried → TTIC
Total Earnings → TE
Passenger Business → $|_P$
Freight Business → $|_F$
Parcel Business → $|_{Pl}$
Lost Opportunity due to Capacity Shortfall → LOCS
Proxy for Lost Opportunity → PLO
Total Transportable Inventory Lost due to Capacity Shortfall → TTILCS
Total Lost Opportunity due to Capacity Shortfall → TLOCS
Percentage of Network Underutilized → NU
Percentage of Network Over-utilized → NO
Total Lost Opportunity → TLO

Opportunity Size (Cont..)

$EPTI\ |_P = TE\ |_P \div TTIC\ |_P$ ----- (1)

$PLO\ |_P$ = Refund due to cancellations ----- (a)

$LOCS\ |_P = PLO\ |_P \div TE\ |_P$ ----- (2)

$TTILCS\ |_P = PLO\ |_P \div EPTI\ |_P$ ----- (3)

(1) → ₹ 4,35,91,02,00,000 ÷ 355,00,00,000 = ₹ 123 /-
(a) → ₹ 70,00,00,00,000
(2) → ₹ 70,00,00,00,000 ÷ ₹ 4,35,91,02,00,000 = 15%
(3) → ₹ 70,00,00,00,000 ÷ ₹123 = 57,00,00,000 Passengers per year

Opportunity Size (Cont..)

$EPTI\ |_F = TE\ |_F \div TTIC\ |_F$ ----- (4)

$PLO\ |_F = (PLO\ |_P \times TE\ |_F) \div TE\ |_P$ ----- (b)

$LOCS\ |_F = PLO\ |_F \div TE\ |_F$ ----- (5)

$TTILCS\ |_F = PLO\ |_F \div EPTI\ |_F$ ----- (6)

(1) → ₹ 10,20,27,80,00,000 ÷ 1,10,61,50,000 = ₹ 922 /-
(a) → ₹ 1,50,00,00,00,000
(2) → 15%
(3) → ₹ 1,50,00,00,00,000 ÷ ₹922 = 16,25,00,000 Tones per year

Opportunity Size (Cont..)

$EPTI\ |_{Pl} = TE\ |_{Pl} \div TTIC\ |_{Pl}$ ----- (7)

$PLO\ |_{Pl} = (PLO\ |_{P} \times TE\ |_{Pl}) \div TE\ |_{P}$ ----- (c)

$LOCS\ |_{Pl} = PLO\ |_{Pl} \div TE\ |_{Pl}$ ----- (8)

$TTILCS\ |_{Pl} = PLO\ |_{Pl} \div EPTI\ |_{Pl}$ ----- (9)

Opportunity Size (Cont..)

$TLOCS = (LOCS |_P \times TE |_P) + (LOCS |_F \times TE |_F) + (LOCS |_{Pl} \times TE |_{Pl})$ ----- (10)

$\% TLOCS = TLOCS \div TE$ ----- (11)

%TLOCS ~ % of network over capacity (%NOU) ----- (12)

& %TLOCU ~ % of network under utilized (%NUU) ----- (13)

Therefore $TLOCU = (NUU \div NOU) \times (TLOCS \div TE)$ ----- (14)

Finally $TLO = TLOCS \times (1 + ((NUU \div NOU) \div TE))$ ----- (15)

Strategic Implementation Plan

- Opportunity Assessment
  - Separate Assessment for Freight, Parcel, Passenger & Non-fare Business segments
  - Asses monetary impact of lost opportunity due to capacity shortage and excess capacity separately for each business segment
  - Identify key routes for each business segment on which a pilot project could be run
- Assess market prevalent rates for transporting one unit per km across substitutable mediums on the above routes for each business segmentTest acceptability of the concept through minimal primary research (quantitative & qualitative) with both end customers and carrier customers across all business segments
- Implement pilot project for proof of concept, data collection, finding loop holes, correcting false assumptions and identifying key success factors and key performance metrics
- Abandon, upgrade or expand the concept based on above three steps

Business Plan

- A sufficiently reasonable and detailed business plan can be made with availability of reliable data
- Since the idea looks at things from a different perspective, such data is not available in public domain possibly due to the fact that things are not looked at with such a perception
- Since IR is the only organization of its kind in India data from an alternative source is also not available
- However, an assumption based method is presented to build a detailed business plan.

Key Business Alliances / Partners / Customers

- Passenger Business
  - Road
    - State Transport & Undertakings
    - Private Bus Operators
    - Private Taxi Operators
    - redbus.in
    - Uber / Ola
  - Air
  - Inland water ways
  - Non-Railway Locations
- Freight Business
  - Private Truckers
  - TCIL etc.
- Parcel Business
  - Private Courier Operators
  - Bluedart
  - DHL etc.

Broad Assumptions

Broad Assumptions

- Currently Indian Railways is operating near to its maximum capacity utilization
- IR is an expert at bulk transport and cannot apply its existing expertise to small freight
- 60% of the network is utilized over 100%
- Two third of revenue comes from freight, however, two third of capacity is utilized by passenger services

IR's sister concerns (Few good points)

Indian Railways Ecosystem – Few Key Points

- CCIL:
  - International business accounts for 85% of business by volume
  - ~ 35 million Ton over average lead of 900 km transported using rail Infrastructure
  - ~ Rs. 3750 Cr. earned by Indian railways
  - ~ Rs. 1.2 per ton-km
  - Source: CCIL Annual Report 2016-17
- CRIS:
  - Foreign Currency Receipts = NIL
  - Source: Accounts Report 2016-17
- IRCON:
  - International business accounts for 10% of income
  - Railway business accounts for ~ 70% of Income
  - Competition from private players entering the railway segment
  - Source: Annual Report 2016-17
- RCIL:
  - ~33% operating margin
  - ~22% Profit Before Taxes
  - ~33% Business from Railway / Railwire MSO / Government
  - Source: Annual Report 2016-17
- RITES
  - ~42% Business from Consulting
  - ~25% from Export Sales
  - Source: Annual Report 2016-17

Other Ideas

- Targeting CSR spending through sponsoring clean stations
  - IR Spends ~800 Cr. On cleaning stations
  - A Company spends 2% of profit on CSR
  - If on average 10% of Income is considered as profit for a company
  - i.e. Entire can be funded through for example 160 companies with an average Turnover of 2500 Cr.
  - Value for companies
    - Genuine CSR spending with additional advantage of advertisement like "your clean station sponsored by "XYZ" Company
    - Certificate of "changing Indian lives" through participation in Swatch Bharat Mission
- Integrating with other transport modes for last mile connectivity in Coal Transport
  - Rake availability
  - Congestion
  - Empty flow
  - Accessibility
  - Using fois with real time reverse auction for overbooking and auction for underbooking
- Automated SMS/Call/in-App alert to relevant stakeholder before arrival at destination based on a predetermined distance or time or both
  - Pick up from station becomes easy

Other Ideas

- Developing Agents for local or Micro Market Advertising
  - Assign ticketing agents also to book advertisements on local / nearby stations
  - Give access to local businesses to advertise on stations
  - Outsource business development activity for NFR
  - Help Standup/ startup India
  - Help MSME & Self employment
- Human resource training to Indian & foreign companies & governments
  - Technology know how is extremely specific
  - Indian companies poach railway employees
  - No resource available to train non-railway employees of these companiesCorporate accounts for passenger travel

Other Ideas

- Corporate accounts for passenger travel
  - Heavy and frequent business travelers
  - Analyze accounts where booking is regular & no. of travelers is not normal for a non-business
  - Usually agents book tickets for such travel
  - They charge extra from companies
  - For routes where First class is cheaper than flight or time is equal or distance is very short or overnight journey is possible generally lower grade employees take IR
- Polls & Surveys (Paid market research)
  - Pay citizens to undertake research through email/in-App or physically on train
  - Value to companies through target audience analytics & precision
- Parcel booking agents for railways (existing courier agents in every city)

Other Ideas

- Indian Railways Heritage camps/trips/tourism
  - Rail crosses some very remote areas which are not directly accessible through road
  - For Railway fans
  - Educational trips
  - Adventure tourism
  - Tie ups with state tourism departments
- For remote areas
  - Reverse medical tourism
    - Rail Jan Aushadhi
    - Rail Telemedicine

Problem Areas

- Coal transport
  - Floods: Using road or water transport to nearest available non-flooded area
  - Loading time due to non-availability of coal at loading site
  - Low demand from power utilities
- Iron Ore
  - Current infra cannot support beyond 25 ton per axle load
  - 1700 km route for iron ore
  - Surplus of medium grade iron ore 149 mil ton
  - Slow loading
- Private players to operate their own freight trains
  - Now it's a great idea
  - Private players see profit opportunity
  - But when capacity augmented private players will compete with IR