

URBAN RAIL IN INDIA 2019

Market Analysis, New Technologies and Systems,
Upcoming Projects and Opportunities

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India has emerged as a fast growing market for urban rail systems. Currently, 10 cities have an operational urban rail network spanning 536 km. The network has grown significantly over the past 12-13 years, up from about 90 km in 2006. Meanwhile, with the Metro Rail Policy 2017 in place, several cities are ready to rollout work under their respective urban transit systems. In the last five years, 13 new metro projects with a total length of about 248 km have been approved for implementation. About 750 km of metro rail systems and 373 km of rapid rail transit systems are on the drawing board in various cities. While metro will continue to be the dominant mode, new modes such as trams, rapid rail, light rail are also gaining traction. State-of-the-art rolling stock, and advanced signalling and telecommunication technologies are expected to be deployed as part of these projects. Innovations and developments in the fare payments industry are resulting in the adoption and use of a variety of payment methods, especially interoperable electronic payment methods such as smartcards, bank cards, mobile wallets and near-field communication (NFC)-enabled devices. The current level of activity in the urban rail sector spells significant opportunity for consultants, developers, contractors, operators, rolling stock manufacturers, signalling and communications technology providers, fare system providers, equipment manufacturers, construction material suppliers, software solution providers, etc.

SECTION I: MARKET ANALYSIS, KEY TRENDS AND RECENT DEVELOPMENTS

Executive Summary

1. Sector Overview

- ❖ Network Growth
- ❖ Key Sector Trends
- ❖ Role of 'Make in India' and Focus on Indegenisation
- ❖ Growth in Budgetary Outlays
- ❖ Recent Developments
 - Key Government Initiatives
 - Project Completions
 - Recent Contract Awards
 - Projects Approved/Launched/Proposed
- ❖ Investment Requirements (Till 2024-25)
- ❖ Issues and Challenges
- ❖ Future Outlook

2. Metro Rail Policy, 2017 - Impact and Challenges

- ❖ Salient Features
- ❖ Potential Benefits
- ❖ Impact on PPPs
- ❖ Scope for Private Participation in O&M
- ❖ Potential for the Creation of Unified Metropolitan Transport Authority
- ❖ Industry Feedback
- ❖ Expected Amendments

3. Analysis of Operational Projects

- ❖ Current Network
- ❖ Year-wise Growth in Network
- ❖ Trends in Ridership
- ❖ Analysis by:
 - Mode of Implementation
 - Type of System
 - Alignment (Elevated, At-grade, Underground)
- ❖ Analysis by Segment:
 - Stations
 - Rolling Stock
 - Fare Collection Systems
 - Signalling and Telecommunication Systems
 - Traction and E&M

4. Analysis of Upcoming Projects

- ❖ By Status
 - Ongoing
 - Awarded
 - Under Bidding
 - Approved
 - Planned
- ❖ By Mode of Implementation
 - EPC
 - PPP
- ❖ By Type of System
 - Metro
 - Monorail
 - Light Rail
 - RRTS
- ❖ By Alignment
 - At Grade
 - Elevated
 - Underground
- ❖ By Expected Completion
 - By 2020
 - Beyond 2020
- ❖ Key Open Tenders

5. Future Outlook and Market Opportunities (Till 2024-25)

- ❖ Key Growth Drivers
- ❖ Investment Projections
- ❖ Expected Network Addition
- ❖ Market Opportunities: By Segment
 - Contractors/developers
 - Tunnel Construction
 - Traction and E&M
 - Rolling Stock
 - Signalling, Train Control and Telecommunication
 - Fare Collection
- ❖ Market Opportunities: By Stakeholder
 - Developers
 - Contractors
 - Consultants
 - Financiers
 - Material Suppliers
 - Others
- ❖ Future Outlook

6. Emerging Areas of Growth

- ❖ Transit Oriented Development
- ❖ Real Estate/Commercial Development
- ❖ Technology Innovations (MaaS, IoT, Big Data, etc.)
- ❖ Use of Renewable Energy
- ❖ Others

7. Ownership Structure and Key Players

- ❖ Key Ownership Models
- ❖ A Brief Snapshot
- ❖ Segment-wise Presence
- ❖ Project Portfolio
- ❖ Key Completed Projects
- ❖ Key Ongoing Projects
- ❖ Financial Performance
- ❖ Future Plans

8. Financing Strategies and Potential for PPP

- ❖ Experience So Far
- ❖ Business Models (Fully Government-funded, VGF-based PPPs, Hybrid PPPs, Fully Privatised)
- ❖ Value Capture Financing Framework
- ❖ Key Sources of Revenue
- ❖ New Revenue Streams (Advertising Revenue, License Fee, Real Estate Development Rights, Additional Stamp Duty, etc.)
- ❖ Cost Components
- ❖ Project Economics
- ❖ PPP Experience & Potential
 - Case Studies of PPP Projects
 - Key Success Factors
 - Role of Multilateral Agencies
 - Risks and Challenges

SECTION II: SEGMENT ANALYSIS, OUTLOOK AND OPPORTUNITIES (Till 2024-25)

9. Rolling Stock

- ❖ Market Size and Growth
- ❖ Nature of Fleet and Specifications
- ❖ Recent Orders (past 15-18 months)
- ❖ Upcoming Bids and Tenders
- ❖ Market Share of Key Players

- ❖ Focus on Indigenous Production
 - ❖ Recent Innovations in Design and Introduction of Driverless Trains
 - ❖ Experience with Driverless Operations
 - ❖ Outlook and Projections (till 2024-25)
- 10. Signalling, Train Control and Telecommunications**
- ❖ Market Size and Growth
 - ❖ Technologies and Systems in Use
 - ❖ System Upgrades and Innovations
 - ❖ Market Share of Key Players
 - ❖ Recent Contracts
 - ❖ Upcoming Bids and Tenders
 - ❖ Recent Developments
 - ❖ Outlook and Projections
- 11. Fare Collection Systems**
- ❖ Market Size and Growth
 - ❖ Specifications of Systems in Use
 - ❖ System Upgrades and Innovations
 - ❖ Global Scenario
 - ❖ Market Share of Key Players
 - ❖ Recent Contracts
 - ❖ Upcoming Bids and Tenders
 - ❖ Plans of Key Metro Systems
 - ❖ Key Trends
 - ❖ Recent Developments
 - ❖ Outlook and Projections
- 12. Metro Tunnels**
- ❖ Size and Growth
 - ❖ Analysis of TBM Market
 - ❖ Market Share of Key Players
 - ❖ Recent Contracts (past 15-18 months)
 - ❖ Upcoming Bids and Tenders
 - ❖ Recent Developments
 - ❖ Best Practices in Tunnel Design
 - ❖ Outlook and Opportunities
- 13. Station Area Development and Inter-Modal Integration**
- ❖ Size and Growth
 - ❖ Innovations in Material and Design
 - ❖ Key Components of Station Design
 - Elevators
 - HVAC Systems
 - Public Information Display Systems
 - Safety and Accessibility Aspects
 - Others
 - ❖ Key Players
 - ❖ Recent Contracts
 - ❖ Global Best Practices
 - ❖ Upcoming Tenders
 - ❖ Outlook and Projections (till 2024-25)

14. Construction - At Grade and Elevated Structures

- ❖ Size and Growth
- ❖ Trends in Per-km Construction Cost
- ❖ Prevalent Methods and Techniques
- ❖ Market Share of Key Contractors
- ❖ Recent Contracts
- ❖ Upcoming Tenders
- ❖ Key Trends
- ❖ Outlook and Projections

15. Traction and E&M

- ❖ Traction Systems
- ❖ Market Size
- ❖ Specifications of Traction and E&M Systems
- ❖ Energy Consumption and Expenditure
- ❖ Energy Conservation Initiatives
- ❖ Key Players
- ❖ Recent Contracts
- ❖ Upcoming Tenders
- ❖ Outlook and Projections

SECTION III: PROJECT PROFILES

16. Operational and Under Construction Projects

- ❖ Ahmedabad-Gandhinagar Metro Rail Project Phase I
- ❖ Bengaluru Metro Rail Project Phase I and II
- ❖ Chennai Metro Rail Project Phase I and Phase I Extension
- ❖ Delhi Metro Rail Project Phase I, II, III, and Extensions
- ❖ Rapid Metro Rail Project Gurgaon Phase I and II
- ❖ Hyderabad Metro Rail Project Phase I
- ❖ Jaipur Metro Rail Project Phase I
- ❖ Kochi Metro Rail Project Phase I
- ❖ Kolkata Metro Rail Project (East-West and Expansion projects)
- ❖ Kolkata Monorail Project
- ❖ Lucknow Metro Rail Project
- ❖ Mumbai Metro Rail Project Phase I (Lines 1, 2A, 3 and 7)
- ❖ Mumbai Metro Rail Project Phase III Line 7
- ❖ Mumbai Monorail Project Line 1
- ❖ Nagpur Metro Rail Project
- ❖ Navi Mumbai Metro Rail Project Phase I
- ❖ Noida-Greater Noida Metro Rail Project
- ❖ Pune Metro Rail Project

17. Upcoming Projects (Announced, Planned, Approved and Under Bidding Projects)

- ❖ Metro Rail Projects
 - Agra Metro Rail Project
 - Bengaluru Metro Rail Project Phase 2A
 - Bengaluru Airport Metro Line

- Bhubaneswar-Cuttack Metro Rail Project
- Chennai Metro Rail Project Phase II
- Dehradun-Haridwar-Rishikesh Metro Rail Project
- Delhi Metro Rail Project Phase IV
- Greater Noida-IGI Airport Metro Rail Project
- Greater Noida-Yamuna Expressway Metro Rail Project
- Gurgaon-Manesar-Bawal Metro Rail Project
- Guwahati Metro Rail Project Phase I
- Iffco Chowk-Dwarka Metro Rail Project
- Jaipur Metro Rail Project Phase II
- Jammu & Srinagar Metro Rail
- Kanpur Metro Rail Project Phase I
- Kochi Metro Rail Project Phase II
- Meerut Metro Rail Project
- Mumbai Metro Line 2B Project
- Mumbai Metro Line 4 Project
- Mumbai Metro Line 6 Project
- Mumbai Metro Phase II Line 5
- Mumbai Metro Phase III (Lines 6 and 9)
- Noida Sector 142-Kalindi Kunj Metro Rail Project
- Noida Sector 71-Knowledge Park V Metro Rail Project
- Patna Metro Rail Project Phase I
- Srinagar Metro Rail Project
- Surat Metro Rail Project
- Varanasi Metro Rail Project
- Vijayawada Metro Rail Project Phase I
- Visakhapatnam Metro Rail Project Phase I
- ❖ Light Rail Transit Projects
 - Bengaluru LRT Project
 - Bhopal LRT Project
 - Indore LRT Project
 - Kozhikode LRT Project
 - Ranchi LRT Project
 - Thiruvananthapuram LRT Project
- ❖ Monorail Projects
 - Chennai Monorail Project (First Corridor)
 - Delhi Monorail Project
- ❖ Others

[Each profile will cover the project background and scope (network length, number of stations, rolling stock, fare system, signalling and telecommunication, traction, etc.), the implementing agency, project cost, time and cost overruns, key consultants, key contractors, key milestones, sources of fund, recent contracts, upcoming tenders, current status, etc.]

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