

India's Roadmap to 2047: Intelligent Transportation as a Catalyst

Debasish Debsikdar : Sr. VP & BU Head

(Transportation Traffic & Tolling)

Jio Platforms Ltd

VIKSIT BHARAT @ 2047

A Developed, Inclusive, Sustainable, and Globally Competitive India

Moving People, Powering Progress







Economic Growth
High income, high value economy

Social Progress
Better quality of life, inclusiie growth

Environmental Sustainability
Net Zero, greener future

Global Competitiveness
Innovation, productivity, global leadership

TRANSPORTATION & LOGISTICS
A NATIONAL PRODUCTIVITY ENGINE

Connecting Farmers, Manufacturers, Businesses and Citizens

Enabling Trade, Creating Jobs, Strengthening Supply Chains

5 STRATEGIC PILLARS FOR INDIA'S MOBILITY JOURNEY TO 2047

1 CONNECTED INFRASTRUCTURE
- Multimodal networks
- Road-Rail-Port-Air integration
- Economic corridors & logistics parks
- PM GatiShakti as the planning backbone

Every economic centre connected

2 COMPETITIVE LOGISTICS
- End-to-end visibility
- Faster, predictable, safe movement
- Lower logistics cost
- Digital + physical integration

From cost centre to growth engine

3 SAFE & SEAMLESS MOBILITY
- Intelligent traffic management
- Incident response & traveller info
- Multi-modal public transport
- Smart tolling & enforcement

Safe journeys. Greater productivity.

4 GREEN & SUSTAINABLE MOBILITY
- EVs & clean energy
- Public transport & multimodal freight
- Intelligent routing & less congestion
- Energy-efficient infrastructure

Cleaner today. Greener tomorrow.

5 INTELLIGENT & DIGITAL TRANSPORTATION
- Data, AI & analytics
- Connected vehicles & V2X
- Digital twins & predictive systems
- Integrated command & control

From smart roads to intelligent networks

ITS
THE DIGITAL INTELLIGENCE LAYER

Integrating systems.
Turning data into decisions.
Enabling better outcomes.

- AI & Analytics
- IoT & Sensors
- ANPR & Enforcement
- FASTag/MLFF Tolling
- ATMS & TMC
- V2X & Connected Vehicles
- Cloud & Cybersecurity

GOVERNMENT IS EMBRACING ITS

- **PM GatiShakti** — Integrated planning & multimodal connectivity
- **National Logistics Policy** — Digitalisation, process reforms, logistics competitiveness
- **ULIP** — Integration across government systems
- **FASTag** — Nationwide electronic tolling
- **MLFF** — Barrierless, next-gen tolling
- **ATMS & TMCC** — Intelligent highway management
- **eDAR / iRAD** — Digital accident reporting & response

THE OUTCOMES

A Smarter, Safer, Greener and More Competitive India

- Lower Logistics Cost
- Reduced Congestion
- Safer Roads
- Faster Freight Movement
- Predictable Mobility
- Sustainable Growth

INTELLIGENT TRANSPORTATION FOR VIKSIT BHARAT @ 2047

More Movement | More Opportunity | A Stronger India

5G → 6G CONNECTIVITY: THE DIGITAL NERVOUS SYSTEM OF SAMP 2047

Always-on, low-latency, high-reliability connectivity links roads, vehicles, tolling, traffic, freight and control centres — turning ITS from isolated systems into a real-time mobility network.

CONNECTIVITY EVOLUTION

4G / TODAY
Connected devices
Basic telemetry
Video backhaul

5G / SCALE
Massive IoT
Low latency
Edge computing
Network slicing

6G / 2040+
AI-native networks
Sensing + communication
Extreme reliability
Ubiquitous intelligence

CONNECT → SENSE → DECIDE → ACT

5G / 6G ENABLED ITS MOBILITY FABRIC

TOLLING
MLFF • ANPR
RFID • GNSS

TRAFFIC
ATMS • signals
AI video • incidents

VEHICLES
V2X • connected
fleet • safety

LOGISTICS
Freight visibility
ETA • routing

5G / 6G CONNECTIVITY + EDGE + SECURE CLOUD
Dedicated slices • resilient coverage • edge AI • cyber security • precise positioning

SENSE
Roads • vehicles
cameras • IoT

CONNECT
Real-time
network fabric

UNDERSTAND
Edge / cloud AI
Digital twin

PREDICT
Congestion • risk
ETA • demand

ACT
Signals • tolling
routing • response

FROM CONNECTED INFRASTRUCTURE → PREDICTIVE & ADAPTIVE MOBILITY

WHY CRITICAL TO SAMP

CONNECT	Continuous road / rail corridor coverage
FLOW	Real-time freight & network optimisation
SAFE	V2X warnings + rapid incident response
GREEN	Smarter routing, charging & lower idling
INTELLIGENCE	Edge AI + digital twins + predictive control

2047 STRATEGIC OUTCOME

Free-flow tolling • Predictive traffic • Connected & safer vehicles • Intelligent freight • Faster incident response • Network-wide optimisation

Strategic concept slide: 6G capabilities shown are forward-looking and should be validated against standards, spectrum policy and deployment maturity over time.

THE MOBILITY GAP TO VIKSIT BHARAT @ 2047

India has built strong physical and digital foundations. The next challenge is to remove network friction and convert infrastructure into predictable, safe, green and intelligent mobility.

1 CURRENT BOTTLENECKS		2 GOVERNMENT ENABLERS		3 WHAT MUST CHANGE	
FRAGMENTED NETWORKS	Mode / agency silos; first–last mile gaps; weak multimodal integration	**PM GatiShakti**	Integrated, GIS-enabled multimodal planning & last-mile connectivity	**INTEGRATE**	Plan and operate mobility end-to-end — across modes, jurisdictions and operators
UNPREDICTABLE FLOW	Congestion, variable travel time, dwell time and incident disruption	**National Logistics Policy**	Process reform, digitalisation, services, skills and logistics competitiveness	**PREDICT**	Move from monitoring congestion/incidents to forecasting and proactive intervention
FREIGHT IMBALANCE	Road-dominant freight; rail / waterways constrained by capacity and integration	**ULIP + Logistics Data Bank**	Cross-system logistics data integration, visibility and decision support	**SHIFT & OPTIMISE**	Move appropriate freight to rail / waterways; optimise road capacity and routing
URBAN MOBILITY PRESSURE	Rising private-vehicle use; public/shared transport and NMT integration gaps	**Sagarmala / DFCs / corridors**	Port-led, rail and corridor capacity; multimodal logistics development	**DECARBONISE**	Scale public/shared mobility, EVs, multimodal freight and energy-efficient operations
DATA → DECISION GAP	Many systems collect data; fewer operate as an integrated, predictive network	**FASTag → MLFF + ATMS/TMCC**	Free-flow tolling, unified highway operations and digital traffic management	**GOVERN BY OUTCOMES**	Measure reliability, safety, throughput, emissions and user experience — not technology deployed

WHY ITS MATTERS

ITS is the intelligence layer that connects infrastructure + vehicles + users + logistics + data — enabling real-time visibility, prediction, coordinated response and adaptive operations.

SILOED & REACTIVE → CONNECTED & INTEGRATED → INTELLIGENT & PREDICTIVE → SAFER • FASTER • GREENER • GLOBALLY COMPETITIVE

Evidence base: NITI Aayog Transport 2026; PIB/DPIIT PM GatiShakti & NLP; IHMCL 2026 MLFF / Unified ATMS / TMCC 2.0 procurements.

SAMP 2047

Strategic Architecture for India's Mobility Platform

A five-pillar architecture to transform India from connected infrastructure to intelligent, predictive and sustainable mobility.

1 CONNECTED INFRASTRUCTURE

2 COMPETITIVE LOGISTICS

3 SAFE & SEAMLESS MOBILITY

4 GREEN & SUSTAINABLE MOBILITY

5 INTELLIGENT & DIGITAL TRANSFORMATION

CONNECTED → INTEGRATED → INTELLIGENT → PREDICTIVE → ADAPTIVE

SAMP FOR INDIA — A STRATEGIC MOBILITY ARCHITECTURE FOR VIKSIT BHARAT @ 2047

Mobility is a national productivity system. SAMP should translate the 2047 ambition into measurable mobility outcomes — with ITS as the intelligence layer and catalyst.



SAMP — FIVE NATIONAL MOBILITY OUTCOMES

CONNECT
Integrated Infrastructure

FLOW
Competitive Logistics

SAFE
Safe & Seamless Mobility

GREEN
Sustainable Mobility

INTELLIGENCE
Digital & Intelligent Transportation

ITS = THE CATALYST

AI • IoT • GIS • FASTag / MLFF • ATMS • ANPR • V2X • Cloud • Digital Twins • Integrated Command & Control • Predictive Analytics

MEASURE WHAT MATTERS

Reliability ↑ • Logistics efficiency ↑ • Safety ↑ • Multimodal share ↑ • Emissions intensity ↓ • User experience ↑ • Global competitiveness ↑

Proposed governance architecture for SAMP; not an existing Government of India programme or approved reporting structure.

Build the architecture in waves — standards first, integrated networks next, predictive mobility over time

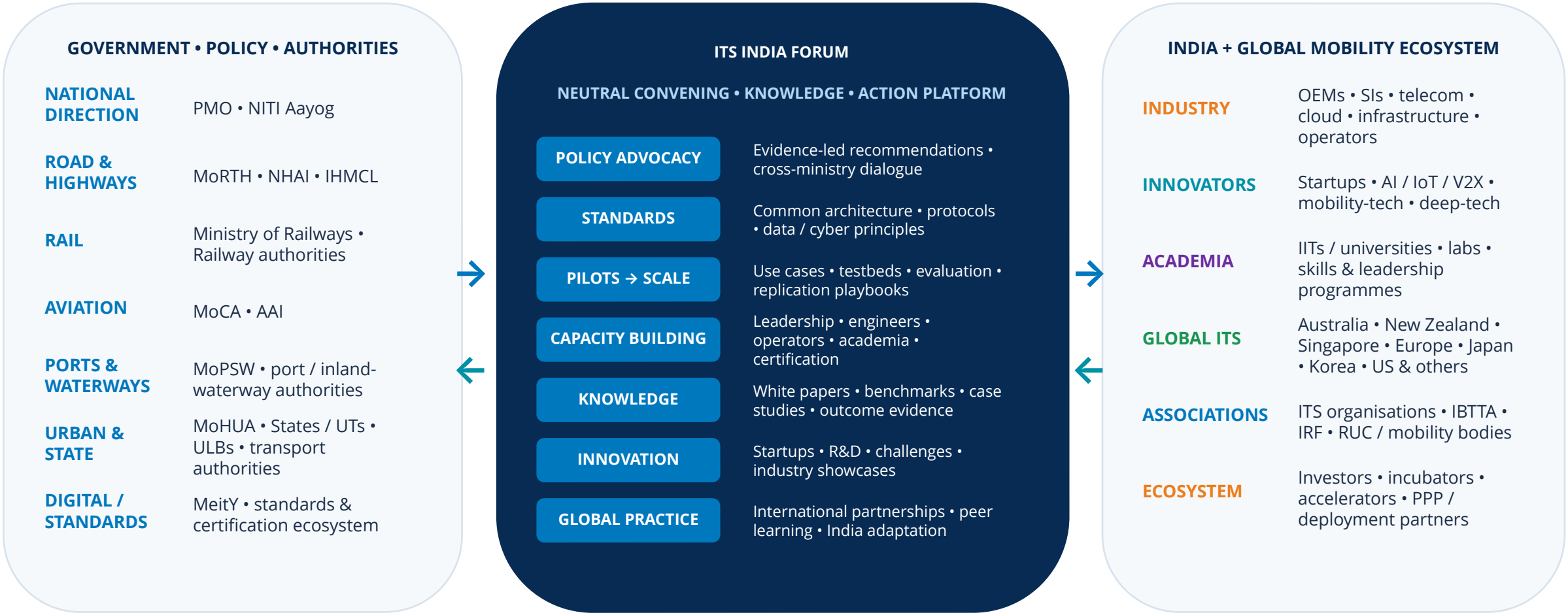
Illustrative sequencing for industry dialogue; detailed milestones should be aligned to national and state programmes.

NOW–2030 FOUNDATION	2030–2035 INTEGRATION	2035–2040 INTELLIGENCE	2040–2047 PREDICTIVE / ADAPTIVE
Interoperability standards	Cross-mode workflows	AI-led operations	National predictive mobility
Priority corridors / cities	Freight + urban mobility integration	Predictive maintenance	Adaptive operations
Federated mobility data	Digital twins for priority networks	Dynamic network optimisation	Human-supervised automation
Scale MLFF / ATMS / logistics digitisation	Connected mobility expansion	V2X at scale	Continuous outcome optimisation

NON-NEGOTIABLES: OPEN STANDARDS • CYBERSECURITY & TRUST • FEDERATED GOVERNANCE • OUTCOME-BASED INVESTMENT

ITS INDIA FORUM — THE STRATEGIC BRIDGE FOR INDIA'S INTEGRATED MOBILITY ECOSYSTEM

Connecting policy & public authorities with industry, innovation, academia and global ITS experience — from dialogue to standards, pilots, capacity and scaled adoption.



FOR VIKSIT BHARAT @ 2047

Aligned policy • Common standards • Faster innovation • Skilled institutions • Bankable pilots • Scalable ITS adoption • India-to-world knowledge exchange

Proposed ecosystem role; relationships shown as engagement architecture, not formal reporting lines. Source: ITS India Forum mission / programmes, 2026.

JIO-Unified Mobility Platform (JUMP)

One Stop Mobility Platform

Connected Automobiles
Revolutionizing mobility with 5G connectivity

Location Intelligence
Geo-intelligence for predictive decision-making

JioMotive
Smart vehicle control with aftermarket IoT solution

AvniOS – Cluster + IVI
Vehicle's Digital Soul: Next-gen OS powering connected vehicles



Smart Fleet Management
AI-powered fleet optimization and insights

Smart EV Charging
Ultra-fast, intelligent EV charging ecosystem

Smart BMS
Advanced AI-driven battery intelligence platform

Smart Battery Swapping
Instant, automated EV battery replacement

Traffic & Tolling
End to end management of traffic & tolling related services

VIKSIT MOBILITY

KEY TO

VIKSHIT BHARAT 2047

Thank you !