



IRSE ///
Institution of Railway Signal Engineers
INDIAN SECTION



IRSTE
INSTITUTION OF
RAILWAY SIGNAL AND
TELECOMMUNICATION
ENGINEERS (INDIA)



AGENDA

International Railway

Convention and Exhibition 2023

on

Digital Transformation of Railways

Train to Track and Operations to Maintenance

11th, 12th & 13th December 2023

MANEKSHAW CENTRE, NEW DELHI

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Institution of Railway Signal Engineers (UK) – Indian Section is now ready to show to Railway World the Major Strides which Digital Technologies have made in all spheres of Main line, High Speed and Metro railways in India. Indian Railways Infrastructure up gradation market is likely to see investment of more than USD 100 Billion for construction of new lines and adoption of best in class rolling stock and more than USD 13 Billion in Railway signaling, telecom in next few years.

Large scale adoption of Modern Geo Technical Tools, Spatial/ Drone based surveys duly supported by backend AI / ML algorithms for new line construction, Industry 4.0 in Production Units & Railway workshops, Digital Control and Command Signalling systems for safety & operational excellence, intelligent machines and automation are the major technologies and solutions that are propelling digital transformation

- Signaling System for a Digital and Safety Critical Rail network
- High Speed Railway – Future of Control & Command Signalling systems
- Integrated Control & Command Center–Safer Track & Rolling Stock
- Role of Quantum tech for a Secured Critical Information Infrastructure
- Kavach for Safety & Digital Transformation
- Innovations and future upgradation of FRMCS
- Cyber security for critical Train Operation.
- Next Generation Data Center and Cloud Services
- ISA – A boon for a safer Railways
- Creating Digital Twin for Optimizing Operational Efficiency & Asset Utilization and Zero Failure Asset performance
- Optimizing Freight Transportation control using AI, Big Data & ML
- Smart Rolling Stock
- Improving Operating Performance using Data Analytics
- CBTC for Metro and Opportunities in Main Line
- Financing Models for Digital Innovations
- IoT and its Impact on Train Operations
- CBM to Predictive Maintenance – Embracing the Maintenance Shift
- New Line Survey using Drone, LiDAR, Geo Spatial Data
- CCTV based Advanced Surveillance system
- Tunnel Ventilation, Instrumentation & Communication
- Digital Technology in Mechanised Track Construction & Maintenance
- Digital Braking for Modern Train Protection & Passenger Comfort
- Role of AI/ ML in Predictive Maintenance of Vande Bharat & Rolling Stock
- Cyber Signalling
- Role of EULYNX
- Migration to LTE -4G/5G
- Next Generation Optical Fiber Backhaul Networks
- Bharatnet and Railways
- Big Data for CTC
- Loco Pilot Advisory system
- Next Generation Vande Bharat Trains – Main Line to Metro
- Innovations, Digitalization & Drone Tech for Track Maintenance
- Digital Sensing and Fire Safety
- Competence Development and Role of Licensing in ensuring Safety

Tentative Agenda

December 11, 2023 - Day 1

08:30 – 10:00: Registration & Refreshments

10:00 – 13:00: Inauguration & Inaugural Session

Tentative Plan for Inaugural Session:

Panel discussions – Country Delegation Heads from Guest Countries, Senior Officers from Railway Board, Railways, Industry

Session 1 : Role of Innovation in Digital Transformation

This session is based solely on short video Clips, Reels with following Digital Rail

Kavach for Digital Transformation

Role of AI & ML in Predictive Maintenance

Cyber security

Data Analysis for Zero Failure regime

Cyber Signaling

Loco Pilot Advisory system

Path to Net Zero Carbon Rail

Next Generation Vande Bharat Trains – Main Line to Metro

Role of Satellites and Drone

Digital Sensing and Fire Safety

13:00 – 14:00: Lunch

14:00 onwards : Exhibition Visit

19:30 onwards: Cultural Evening, Cocktails & Dinner

Tentative Agenda

December 12, 2023 - Day 2

08:30 – 9:30: Registration & Refreshments

**09:30 – 11:30: Session 2
Intelligent Control and Command Signaling**

Tentative Plan for Session 2 :

This session is on case studies, successful project implementation in the area of Modern Control & Command Signaling systems

- a. Signaling System for a Digital and Safety Critical Rail network.
- b. High Speed Railway – Future of Control and Command Signaling systems in High Speed networks
- c. Integrated Control and Command Center – Safer Track and Rolling Stock
- d. Role of Quantum communication in Secured and Faster response for Critical Infrastructure
- e. Innovations and future upgradation of FRMCS
- f. Cyber security for critical Train Operation.
- g. Digital Innovation & opportunity in Modern Signaling & Telecom
- h. ISA – A boon for a safer Railways

11:30 – 12:00: Tea Break

Tentative Agenda

December 12, 2023 - Day 2 cont.

12:00 – 13:30: Session 3

Role of Digitization in Operational Optimization

Tentative Plan for Session 3 :

This session is on case studies, successful project implementation in the area of Digital Technologies for Operational Excellence

- a. Creating Digital Twin for Optimizing Operational Efficiency & Asset Utilization
- b. Optimizing Freight Transportation control using AI, Big Data and ML
- c. Smart Rolling Stock
- d. Improving Operating Performance using Data Analytics
- e. CBTC for Metro and Opportunities in Main Line
- f. Driver Advisory System to make Operations Efficient
- g. Financing Models for Digital Innovation
- h. IoT and its Impact on Train Operations

13:30 – 14:30: Lunch

Tentative Agenda

December 12, 2023 - Day 2 cont.

14:30 – 16:00: Session 4

Development in Modern Asset Maintenance

Tentative Plan for Session 4 :

This session is on case studies, successful project implementation in the area of AI Powered Predictive Maintenance and new methods for Track & Train maintenance

- a. CBM to Predictive Maintenance – Embracing the Maintenance Shift
- b. Predictive Maintenance of Vande Bharat and other Rolling Stock

16:00 – 16:30: Tea Break

16:30 – 17:30: Session 4 cont.

- c. Paradigms shift in Track Maintenance: Role of Drone, Data Analytics and Sensors
- d. Intelligent Rail Management through Digital Technology and Maintenance Excellence
- e. Future Vision – Digital Twin for Zero Failure Asset performance
- f. Competence Development in Digital Technologies
- g. Role of Licensing in ensuring Safety

December 13, 2023 - Day 3

Technical Visits: DMRC / NCRTC / RCIL

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