

## DAY 2 – 13 NOVEMBER 2024

### EVALUATING THE PRACTICAL REALITIES, EFFECTIVENESS AND PITFALLS OF MULTIPLE STRATEGIES FOR MAINTENANCE TRANSFORMATION AND ROLLING STOCK OPTIMIZATION

0830 Coffee and Registration

0900 Chair's Opening Remarks

### EVALUATING THE EFFECTIVENESS OF CONTRASTING APPROACHES TO ROLLING STOCK OPTIMISATION CONSIDERING OPERATIONAL CHALLENGES AND TECHNOLOGY'S REALISTIC IMPACT

#### MAINTENANCE PLANNING PANEL – ADAPTING TO VARIABILITIES AND NAVIGATING OPERATIONAL CHALLENGES

##### 0910 Dissecting The Factors Influencing Maintenance Decisions For Effective Rolling Stock Optimization & Tech-Driven Transformation – *Realistic Practices That Address Operational Challenges*

*This panel will share insights on improving efficiency in today's operational contexts. Variability in passenger volumes, freight loads, and seasonal changes demands flexible and responsive scheduling and maintenance practices that adapt to changing needs without compromising service quality. With finite resources—both in terms of funding and skilled personnel—rail operators must also find ways to optimise maintenance activities and scheduling to do more with less, ensuring the effective use of every asset and minute of track time. How do rail operators maintain momentum on ambitious maintenance transformation projects?*

- Managing the impact of real-time operational challenges on maintenance schedules
- Achieving the balance between safety, reliability, and efficiency in maintenance scheduling
- Implementing dynamic scheduling systems that adapt to real-time operational data
- Developing maintenance standards that reflect the actual conditions and capabilities of train operations

##### Putting Into Practice The Latest Advancements In Data-Driven Asset Performance Optimization & Unattended Condition Monitoring Utilising AI

##### 0950 Leveraging Condition Monitoring Data for Proactive Asset Management and Predictive Maintenance.

*A strategic use case laying out the value of a holistic approach to rail asset management innovation that encompasses both proactive optimization and continuous condition monitoring*

- Practical Applications of AI: Understand the advantages of AI in rail asset optimization and maintenance
- Integrating AI solutions with predictive maintenance technologies such as automated visual inspection techniques to maximize performance
- Practical experiences using AI for maintenance logistics such as stockpiling
- Aligning workflows and processes with maintenance objectives to enhance efficiency
- Successes and failures with AI, what examples can be shared?

Philippe de Laharpe, *R&D Project Manager for Remote Diagnostics & Artificial Intelligence, SNCF Voyageurs*

##### 1010 THIRD PARTY MAINTENANCE: THE VIEW FROM THE OPERATORS

This presentation will outline the experiences of Operators when managing their third-party fleet maintenance providers. Good practice and potential areas for improvement will be identified.

Mark Molyneux, *National Fleet Performance Manager, Rail Delivery Group*

1030 – 1050 Curated Interactive Discussion For The Entire Panel

### Exploring Remedies to Overcome Current Challenges Affecting Rail Operators

- Identifying current challenges that impact efficiency and cost
- Exploring practical solutions and remedies to address the challenges faced by rail operators
- Discover cost-effective maintenance approaches that drive profitability
- Fostering collaboration between rail operators and third-party maintainers to overcome challenges jointly

Questions To Get The Conversation Started Include:

*What recent innovative approaches are optimizing maintenance activities and scheduling, ensuring the most efficient use of assets and track time?*

*What are some effective methods for maintaining momentum on ambitious maintenance transformation projects despite the challenges of organisational inertia and resistance to change?*

*In the context of sustainability goals, how can rail operators evaluate the environmental impact of new technologies and practices when implementing maintenance transformations?*

*How do you strike a balance between the need for flexibility in maintenance transformation projects and maintaining cost-effectiveness in the face of cost reduction pressures?*

1050 – 1115 Morning refreshment break and networking

## TECH SAVY WORKFORCE DEVELOPMENT PANEL ACTIONABLE STRATEGIES

### 11:15 – 12:00pm **Attracting, Retaining, and Training A Technologically Proficient Multi-Generational Workforce While Fulfilling Their Ambitions and Requirements**

The industry confronts unique challenges when faced with recruiting, retaining, and effectively utilizing skilled labor in a fiercely competitive market, especially in AI and data analytics. Today's rail maintenance engineer must be not just a master of engineering but also adept in data utilization and interpretation, navigating an ever-evolving technological landscape. *What are the leading-edge best practices?*

#### 1115 TRAINING THE ENGINEER OF TOMORROW – TODAY.

As the rail industry evolves, the need for skilled technicians adept at handling advanced technologies becomes paramount. This presentation will outline the skills that will be required by future rolling stock engineers and discuss how the Railway Engineering Graduate Scheme is helping to attract and train the future industry engineering workforce.

- Designing programs that are closely aligned with the real-world demands of rolling stock maintenance
- Forming strategic alliances to create specialized rail industry curriculums
- Developing attractive career progression pathways to enhance employee retention and attract new talent

David Gould, *Head of Fleet Engineering, Rail Delivery Group*

1145 **PANEL DISCUSSION: SKILLS & RECRUITMENT FOCUS – ATTRACTING NEW TALENT TO THE INDUSTRY Innovative Strategies to Draw Top Talent into Rolling Stock Maintenance & AI/Advanced Data Analytics Positions**

- Challenging current industry perceptions among potential new talent and how they shape career choices
- Creating a compelling employer brand that resonates with the values and aspirations of new talent
- Offering competitive benefits, continuous learning opportunities, and clear career progression paths
- Utilizing modern recruitment tactics, including social media and tech-driven platforms, to engage with potential candidates
- Strategies for overcoming challenges in attracting data-savvy professionals to the rail sector
- Offering competitive analytics training programs and clear career progression for current employees
- Establishing mentorship and internship programs to nurture in-house analytical expertise

1200 – 1300 Lunch Break in the Exhibition Area

## **BEST PRACTICE WHOLE LIFECYCLE PLANNING FOR COST OPTIMISATION**

### **Maximise Cost Efficiency, Reliability & Sustainability Throughout The Trains Service Life**

#### **LIFECYCLE PLANNING AND COST OPTIMISATION PANEL**

#### **1300 – 1430 Strategies For Improving Efficiency & Cost Optimisation At Every Stage Of The Lifecycle**

*How are international operators driving greater efficiency and optimisation throughout the rolling stock lifecycle, from introducing new fleets to repurposing and handing back?*

##### **1300 CASE STUDY - COMPREHENSIVE LIFECYCLE PLANNING ACROSS THE WHOLE DURATION OF SERVICE**

##### **Assessing Financial And Resource Allocation For Complex Maintenance Needs Over The Long Term, Including Heavy Overhauls, Upgrades & Midlife Refurbishment**

How to effectively plan for long-term maintenance and upgrades, aligning financial and sustainability objectives.

- Optimising routine maintenance, including asset utilisation, with budgeting for heavy overhauls and upgrades in mind
- Planning and budgeting specifically for overhauls, selecting cost-effective upgrade options, and ensuring timely execution
- Evaluating the benefits of refurbishment versus replacement and budgeting for cost-effective refurbishment options
- Integrating sustainable practices into whole lifecycle planning that aligns with environmental goals and regulations

##### **1330 OPTIMISING THE INTRODUCTION OF NEW ROLLING STOCK TO AVOID HIGHER MAINTENANCE COSTS**

##### **Optimising Cost & Resource Allocation When Introducing New Trains Into Service, Considering The Whole Lifecycle**

- *Reliability and Performance:* Ensuring reliability and monitoring performance to prevent early wear and tear that could lead to higher maintenance costs
- *Resource Allocation:* Efficiently allocating resources for staff training, maintenance, and performance monitoring
- Identifying cost-effective strategies that contribute to the overall lifecycle efficiency of new trains
- Efficiently allocating resources, including personnel and budgets, for the introduction phase and beyond

## 1400 STRATEGIES FOR REPURPOSING AND HANDOVER

### **Planning For Repurposing, Handover And The End-Of-Life Phase To Maximize Value And Minimize Environmental Impact**

- Best practice planning for the rolling stock's end-of-life phase to maximise value and minimise environmental impact
- Identifying cost-effective methods for repurposing, recycling, or disposing of trains while adhering to environmental standards
  - *Repurposing Opportunities*: Exploring potential uses for retired rolling stock to extend its lifecycle and commercial value
  - Optimisation of the train handover process when handing over to other operators

#### 1430 Curated Interactive Discussion For The Entire Panel – *Questions To Get The Conversation Started Include:*

*In the context of comprehensive lifecycle planning, what financial models and resource allocation strategies ensure the most effective management of complex maintenance needs over decades of service?*

*What innovative approaches to routine maintenance and asset utilisation have proven most effective in optimising both costs and the lifespan of rolling stock?*

*Upon introducing new rolling stock, what strategies have been most successful in avoiding escalated maintenance costs, ensuring both reliability and performance from day one?*

*How are operators navigating the challenges of repurposing and handover to maximize value, minimize environmental impact, and comply with evolving regulations?*

#### 1500 – 1530 Afternoon Refreshment Break

## **OVERCOMING INTEGRATION BARRIERS BETWEEN ROLLING STOCK & INFRASTRUCTURE** **Coordinating Rolling Stock With Infrastructure Systems To Boost Safety And Operational Performance**

### **PANEL – GLOBAL PERSPECTIVES ON COORDINATING AND INTEGRATING MULTIPLE RAIL SYSTEMS**

#### **1530 – 1730 Practical Solutions For Synchronizing Rolling Stock, Track Infrastructure, Power and Signal System Data for Superior Operational Efficiency and Reliability**

##### 1530 INTEGRATION OF ROLLING STOCK DATA WITH SIGNALLING AND CONTROL APPLICATIONS

#### **Strategies for Integrating Rolling Stock Data with Signalling and Traffic Control Systems To Improve Performance & Service Reliability**

- Establishing collaborative frameworks between technology providers, rail operators, and regulatory bodies to ensure unified standards and protocols
- Identifying and overcoming the technical challenges in integrating disparate data systems within rail operations
- Data standardisation for seamless integration and efficient data sharing between rolling stock and signalling system
- Developing or adopting robust data integration platforms that can handle diverse data formats and sources

As GVBs Metro operation is becoming more IT/OT focused, necessity is growing for a more integral way of asset and performance management. Both the signalling system (CBTC) and the fleet (especially their newest M5 and M7 metros) have their own IT/OT architecture and development process, sometimes leading to unexpected behaviour/loss of performance.

This presentation will describe how GVB is developing a strategy (both from an engineering as well as business/process point of view) to integrally assess performance and provide a coordinated IT/OT strategy on the system as a whole.

GVB will discuss both the technical aspects and challenges of this, combined with insights on the different considerations throughout the process.

Jos Steiner, *Solutions Architect*, **GVB** and Mariska Koorn, *Business Analyst*, **GVB**

1600 ACTIONABLE INSIGHTS INTO ENHANCING MULTIPLE RAIL SYSTEM CO-ORDINATION  
**Pursuing The Seamless Integration Of Rolling Stock And Multiple Infrastructure Systems For Enhanced Safety And Operational Efficiency**

- Understanding the complexities of integrating rolling stock data with signalling systems, track and electric control applications.
- Standardising communication protocols between rolling stock and infrastructure systems
- Identifying opportunities for automation within the integration process to enhance operational efficiency.
- Addressing security concerns and ensuring the safety of data sharing between systems.

1630 ADDRESSING TECHNICAL INTEGRATION CHALLENGES  
**Overcoming Technical And Organisational Barriers To Integrating Rolling Stock And Track Infrastructure Data**

- Maximising the use of shared data to improve operational decisions and efficiency
- Implementing advanced data analytics platforms that can process and integrate diverse datasets for comprehensive insights
- Establishing cross-departmental teams dedicated to fostering collaboration and overseeing the integration process
- Creating standardised data formats and protocols to facilitate easier data sharing and integration

1700 MASTERING WHEEL-RAIL DYNAMICS: STRATEGIES FOR OPTIMAL PERFORMANCE  
**Understanding & Resolution Of Technical Wheel Rail Interaction Challenges For Advancing Efficiency & Safety**

Gain insights into the challenges and innovative solutions shaping the future of wheel-rail dynamics, including the latest in monitoring technologies, materials science, and predictive maintenance.

- *Understanding the Complexities:* Grasping the fundamental principles and complexities of wheel-rail interaction and its impact on rail operations
- Implementing cutting-edge monitoring technologies and data-sharing solutions to diagnose and address wheel-rail interaction issues in real-time
- Exploring how innovations in materials, design, and technology can offer partial solutions to wheel-rail interaction issue
- Utilizing predictive analytics to address wheel-rail interaction issues before they escalate pre-emptively

1720 – 1730 Curated Interactive Discussion For The Entire Panel – *Questions To Get The Conversation Started Include:*

*What are the most effective strategies for overcoming the technical and organisational barriers to integrating rolling stock data with signalling and control systems, ensuring seamless operational efficiency?*

*How can rail operators standardise communication protocols between rolling stock and infrastructure systems to enhance safety and operational efficiency without compromising data security?*

*Given the complexities of integrating rolling stock data with signalling systems, track, and electric control applications, what are the latest technological advancements that can facilitate this integration?*

*How can cross-departmental teams effectively foster collaboration and oversee the integration process of rolling stock and track infrastructure data, and what challenges might arise in this context?*

1730 Chair's Closing Remarks and Close of Day 2