

DAY 1 – 17 DECEMBER 2024  
**Addressing Strategic Challenges In The Context Of Financial Constraints**  
 SUPPLY CHAIN DISRUPTION... ACCESS TO HUMAN RESOURCES... INTEGRATING NEW TECHNOLOGIES...

SUPPLY CHAIN SOLUTIONS TO ACQUIRE NECESSARY PARTS FOR MAINTENANCE THAT ARE ADAPTABLE TO THE CURRENT GLOBAL ECONOMIC CLIMATE

0845 Chair’s Opening Remarks

**KEYNOTE SUPPLY CHAIN PANEL – SOLUTIONS FOR ADDRESSING DISRUPTIONS, DELAYS AND HIGH COSTS**

**0850 – 1100 Best Practices For Overcoming Delays & Shortages In Parts & Equipment - Supply Chain Optimization Techniques For Crisis Situations**

This keynote panel will dissect critical learning points on overcoming part delays and equipment shortages alongside optimization techniques for supply chain resilience in crises.

"Amidst global supply chain unpredictability, every step counts. Mastering the rhythm of resilience amidst disruption isn't just strategic; it's survival." *VP Of Rolling Stock Maintenance, Urban Passenger Transport Authority*

Electrical Components Semi-Conductors	Brake Systems	Wheels & Axles	Engine Components & Valves
Railcar Interiors	Coupling Systems	HVAC	Battery & Power

**0850 PASSENGER URBAN SERVICE PERSPECTIVE ON ADDRESSING SUPPLY CHAIN DISRUPTIONS**  
**Strategies To Mitigate Supply Chain Disruptions, Including Innovative Inventory Management**

- How urban rail service maintenance is impacted by supply chain disruptions
- Techniques that urban rail services can employ to mitigate supply risks
- Developing strategic partnerships for priority access to critical components
- Assembling dedicated groups to manage and respond to supply chain disruptions

**0910 LEARNING FROM A US RAIL FREIGHT OPERATOR ON ALTERNATE SOURCING STRATEGIES**  
**Practical Approaches To Managing Supply Chain Disruptions Impacting Parts Availability And Cost**

Learning from a rail freight operator with actionable insights on managing supply chain disruptions, specifically addressing parts availability and associated costs.

- Identifying the most vulnerable elements in the supply chain that can impact rail freight maintenance services
- Strategies for mitigating the financial impact of disrupted supply chains on parts procurement
- Establishing secondary suppliers and alternative sourcing options to reduce dependency on affected supply chains
- Adapting operational strategies, like flexible scheduling and routing, to accommodate supply variability

## 0930 CANADIAN PASSENGER OPERATOR PERSPECTIVE ON PREDICTIVE ORDERING

### **Strategies For Predictive Ordering, Optimizing Inventory Management, And Handling Increased Lead Times**

Pre-emptive ordering processes, inventory optimization, and the management of extended lead times. Strategies to ensure that parts and supplies are available when needed, balancing cost-effectiveness with high service levels.

- The criticality of accurate demand forecasting in predictive ordering for passenger rail operations maintenance
- Employing sophisticated inventory management systems that dynamically adjust to changing supply and demand
- Establishing strategic partnerships with suppliers to ensure priority and reduce lead times
- Implementing flexible operational strategies that can adapt to unexpected changes in equipment availability

## 0950 ELECTRICAL COMPONENTS & SEMICONDUCTORS MANUFACTURER FOR COMMS & IT

### **Practical Solutions For Diversification of Electrical Component Supply To Meet The Needs of The North American Rail Industry**

This presentation will address the urgent need for diversification in the supply of electrical components and semiconductors, which are vital to the communications and IT infrastructure of the North American rail industry. The session will explore current challenges, risk mitigation strategies, and practical steps manufacturers and rail operators alike can take to ensure a reliable supply of essential components.

- Strategies for maintaining continuity in rail communications and IT systems amidst supply fluctuations
- Establishing partnerships with alternative semiconductor manufacturers to widen the supply network
- Implementing strategic stockpiling policies for critical electrical components
- Adopting flexible design standards that allow for the use of components from multiple suppliers

## 1000 BRAKE SYSTEMS MANUFACTURER

### **Future Strategies To Reduce Lead Times Amidst Supply Chain Disruptions**

Exploring the critical aspects of reducing lead times for brake system manufacturers amid ongoing global supply chain disruptions. Presenting a future-focused perspective, the speaker examines the challenges and innovative strategies that can be employed to maintain a smooth supply chain in challenging economic times.

- Developing closer ties with raw material suppliers to secure priority access and reduce procurement time
- Collaborating with logistics partners to identify and mitigate transport-related delays

## 1020 ENGINE/AXLE COMPONENT MANUFACTURER

### **Establishing Contingency Plans For Rapid Response To Raw Material And Component Supply Disruptions**

Tackling the urgent need for contingency planning in the face of supply disruptions affecting engine and axle components within the manufacturing sector. We will explore the essential considerations for assessing supply chain risks, the latest strategies for creating responsive and adaptive systems, and practical steps for establishing a rapid response framework.

- Assessing the vulnerability of engine/axle component supply chains to raw material disruptions
- Building a diversified supplier base to mitigate risks associated with raw material shortages
- Creating strategic stockpiles of essential raw materials to safeguard against sudden supply shocks

1040 – 11 Extended Interactive Session Including Curated Q&A

Questions include:-

*What strategies can be implemented to balance the trade-off between inventory holding costs and the need for buffer stock in critical components like semiconductors and brake systems?*

*Can you discuss the financial models supporting investment in diversified sourcing and stockpiling?*

*What contingency measures are most effective for managing the risks of single-source dependency for essential rail components such as axles and engine parts?*

11 – 1130 AM Morning Networking Refreshment Break In The New Technology Showcase & Demonstration Arena

## **Optimizing Rolling Stock Maintenance & Lifecycle Planning Within An Ever-Evolving Technology Landscape & In The Face Of Financial Constraints**

### **STRATEGIC DECISION-MAKING PANEL - MANAGING COSTS AND ENHANCING EFFICIENCY**

#### **1100 – 1230 pm Diverse Perspectives On How Budget And Lifecycle Planning Shape Fleet Investment And Maintenance Decisions**

Optimizing maintenance practices in these financially constrained times directly impacts fleet investment decisions. The learnings from this panel will be invaluable for rail operators looking to enhance operational efficiency, manage costs, and make informed strategic decisions.

##### **1100 BEST PRACTICE LIFECYCLE MANAGEMENT AND BUDGETING IN FINANCIALLY CONSTRAINED TIMES Strategies For Effective Budget Management Throughout The Lifecycle Of Rolling Stock In The Current Economic Climate**

- Balancing short-term operational needs with long-term investment strategies
- Adapting to changing technological and regulatory environments in budget planning
- Establishing a reserve fund for unexpected repairs, upgrades, and supply chain disruptions
- Regularly reviewing and adjusting the budget to align with operational changes and needs

##### **1120 FLEET INVESTMENT DECISIONS AND OPERATIONAL IMPLICATIONS**

##### **Comparing New Vehicle Acquisition vs. Overhaul: *Impacts on Operational Costs, Service Quality, and Financial Sustainability***

This session delves into the strategic decisions of fleet investment. Bridging the gap between long-term planning and the operational implications of maintaining or upgrading rolling stock.

- Conducting a thorough cost-benefit analysis of purchasing new rolling stock versus overhauling existing fleets
- Assessing the impact of technological advancements on fleet performance and maintenance
- Evaluating the operational needs and how they align with the investment decisions

##### **1140 ONE STRATEGIC PERSPECTIVE ON OPTIMIZING ROLLING STOCK MAINTENANCE**

##### **Adapting Maintenance Practices To Aging Subsystems While Integrating New Technologies**

Concluding with a more focused, operational perspective, this session applies the insights from lifecycle management and fleet investment to the practicalities of day-to-day maintenance incorporating new technologies and practices.

- Implementing predictive maintenance to anticipate and prevent failures
- Leveraging data analytics for informed decision-making and maintenance optimization
- Regular training for maintenance staff on new technologies and practices
- Developing a maintenance schedule that balances regular upkeep with predictive insights

1210 – 1230 *Interactive Q&A Include Questions Like:*

*Considering the current economic climate, what are the critical factors in deciding whether to invest in new technology or to upgrade existing rolling stock?*

*How can predictive maintenance be effectively integrated into older rolling stock systems, and what are the cost implications of such integration?*

*How do you adjust your budget planning to remain flexible and responsive regarding regulatory changes and technological advancements?*

1230 – 130 pm Networking lunch break in the new technology demonstration arena

## NEXT-GEN WORKFORCE EXCELLENCE & TALENT MANAGEMENT 2.0 Strategies for Building a Workforce Capable of Handling Tech Integration, Evolving Maintenance Regimes, and Sophisticated Data Utilization While Meeting Their Ambitions & Needs

TECH SAVY WORKFORCE DEVELOPMENT PANEL - THINK TANK AND ACTIONABLE STRATEGIES

### 130 – 330 pm **Attracting, Retaining, and Training A Technologically Proficient Multi-Generational Workforce While Fulfilling Their Ambitions and Requirements**

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

130 ADDRESSING RECRUITMENT AND RETENTION CHALLENGES FOR SPECIALIZED SKILLS

### **Strategies For Investing In Apprenticeship Programs, Partnering With Educational Institutions, And Developing In-House Training Centres On Maintenance Skill Development**

As the rail industry evolves, the need for skilled technicians adept at handling advanced technologies becomes paramount. The discussed approaches are about building a sustainable talent pipeline that ensures the long-term viability and advancement of the rail industry.

- Designing apprenticeship programs that are closely aligned with the real-world demands of rolling stock maintenance
- Forming strategic alliances with technical schools and universities to create specialized rail industry curriculums
- Implementing in-house training centers equipped with the latest technologies and best practices in rolling stock maintenance
- Developing attractive career progression pathways to enhance employee retention and attract new talent

150 BEST PRACTICE TRAINING PROGRAMS – *WHAT WORKS?*

### **Successes & Learnings On Implementing Comprehensive Training Programs That Address Generational Differences & Knowledge Gaps**

Creating training programs that resonate and deliver across generations of engineers, fostering a skilled, versatile, and collaborative maintenance team.

- Developing flexible training modules that cater to varied learning preferences, from traditional methods to digital platforms
- Integrating hands-on, practical experiences with theoretical learning for comprehensive skill development
- Implementing mentorship programs that leverage the expertise of experienced engineers while fostering knowledge transfer to younger staff

- Utilizing feedback and continuous improvement processes to adapt training programs to the evolving needs of the workforce

**210 RECRUITMENT FOCUS - ENSURING ATTRACTIVENESS OF THE INDUSTRY FOR NEW TALENT**  
**Innovative Strategies to Draw Top Talent into Rolling Stock Maintenance & AI/Advanced Data Analytics Positions**

This session addresses the nuances of making the rolling stock maintenance industry appear attractive to new talent amidst a competitive job market. Hear actionable strategies for bridging the skills gap, enhancing the industry's appeal, and cost-effectively developing a sustainable talent pool.

- 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

**230 DEVELOPING THE SKILLS FOR COMPLEX DATA ANALYSIS, UTILIZATION, AND DECISION-MAKING**  
**Strategies For Staffing In Rail Data Science Developing Targeted Outreach And Recruitment Campaigns To Attract Data Analytics Talent**

- Strategies for overcoming challenges in attracting data-savvy professionals to the rail sector
- Effective methods for upskilling existing staff to fill analytics roles
- Offering competitive analytics training programs and clear career progression for current employees
- Establishing mentorship and internship programs to nurture in-house analytical expertise

**250 MANAGING MAINTENANCE STAFF'S ADAPTATION TO IT-CENTRIC DIAGNOSTIC SYSTEMS**  
**Adopting Customized Training Modules For Both New Hires And Experienced Staff In IT-Centric Diagnostics**

Data-Driven Decision-Making Training	Interpreting Sensor Data
Software Updates & Maintenance	Legacy System Integration Complexity

Modern diagnostic systems often generate vast amounts of data that must be processed and analyzed in real-time. The challenge is not only in managing this data but also in making sure staff interpret it correctly to make informed maintenance decisions. Integrating new diagnostic IT with older systems can also be technically challenging for the workforce, requiring bespoke solutions and sometimes expensive and time-consuming training programs that soon become outdated. *What are the practical solutions?*

310 – 330 Extended Q&A Includes The Following Questions

*What are the most successful approaches to integrating apprenticeship programs with real-world rolling stock maintenance needs that you have encountered or implemented?*

*How can we bridge the technology gap when training new staff on legacy systems while preparing them for future advancements?*

*What strategies have proven effective in adapting training programs to accommodate the diverse learning styles of a multi-generational workforce?*

*Regarding partnerships with educational institutions, what curriculum developments or program initiatives have yielded tangible results for the rail industry's workforce needs?*

*How do we effectively communicate the excitement and opportunities within the rail industry to a new generation of workers who may not view it as a high-tech career path?*

**HARMONIZATION OF DIVERSE MAINTENANCE APPROACHES TO MAXIMIZE RELIABILITY & OPTIMIZE COST**  
**Cost Effectively Optimize Fleet Performance, Meet Evolving Safety Standards & Extend The Life Cycle**

**STRATEGIC LEADERSHIP PERSPECTIVES - OPTIMIZING MAINTENANCE WHILE CONTROLLING COST**

**4 pm – 620 pm Cost-Effective Strategies for Ensuring Equipment Reliability & Balancing Safety with Innovation**

An in-depth exploration into the intricate balance of cost, efficiency, and safety within rail maintenance, delivering strategies to harness innovative technologies and methods effectively.

**400 INNOVATIVE MAINTENANCE PLANNING IN THE CONTEXT OF LIMITED BUDGETS**

**Practical, Implementable Strategies For Integrating Condition-Based And Predictive Maintenance Strategies To Optimize Fleet Performance With Evolving Technologies**

How to cost-effectively balance old and new tech for improved reliability and efficiency.

- Implementing and adapting condition-based approaches for different equipment ages
- How predictive maintenance can be integrated with traditional methods
- Equipping staff with skills to handle both old and new systems
- Keeping older systems up-to-date while integrating new technologies

**420 ACTIONABLE INSIGHTS ON BALANCING COST AND SAFETY – MAINLINE**

**Strategies For Extending Maintenance Cycles Without Compromising Safety Standards**

Discover how innovative strategies and technological advancements can lead to significant savings while maintaining high safety standards.

- Integrating new technology to improve maintenance efficiency
- Using data analysis for optimizing schedules and predicting future maintenance needs
- Evaluating AI and advanced analytics for proactive maintenance planning
- Enhancing workforce skill development for better detection and handling of potential issues

**440 ADVANCED MAINTENANCE STRATEGIES FOR NEWER HIGH-SPEED FLEETS**

**Integrating Advanced Tools And Data Analytics For Newer High-Speed Passenger Fleets To Operate At Peak Efficiency With Minimal Downtime**

- Tailoring maintenance strategies for the latest rolling stock incorporating cutting-edge technology.
- Leveraging IoT, AI, and data analytics for predictive maintenance in modern rail vehicles.
- Training staff to handle advanced diagnostics and maintenance for new-age equipment.

**500 SUSTAINING PERFORMANCE OF MID-AGE LOCOMOTIVES IN THE FREIGHT SECTOR**

**Balancing Cost-Effective Maintenance With Performance Optimization For Mid-Age Fleets**

This session focuses on the unique challenges and strategies for mid-age rolling stock, where the equipment is neither brand-new nor outdated. It explores how to maintain these fleets efficiently, balancing cost with the need to keep them running effectively.

- Balancing cost-effective maintenance with performance optimization for mid-age fleets.
- Implementing condition-based maintenance tailored to the specific needs of this equipment category.

## 520 EXTENDING LIFE AND PERFORMANCE OF OLDER EQUIPMENT ON AN URBAN TRANSIT SYSTEM

### **Maximizing Lifecycle: Innovative Approaches to Maintaining Older Rolling Stock**

- Customized approaches to maintain and extend the life of older, legacy rolling stock
- Overcoming challenges of outdated technology through innovative retrofitting and repairs
- Specialized training programs for technicians working on older rail equipment

## 540 WORKING WITH THE FRA ON EXTENDING MAINTENANCE INTERVALS FOR SOPHISTICATED AIRBRAKES

### **Extending Brake Life in Rail Maintenance: Balancing Safety and Cost-Effectiveness**

- Exploring advanced techniques to prolong the lifespan of brake components beyond standard overhaul periods
- Navigating the regulatory landscape, including FRA guidelines, for extending maintenance intervals utilizing airbrakes
- Implementing advanced wear-monitoring technologies for predictive brake maintenance
- Developing customized maintenance schedules based on real-world performance data

6 – 620 pm Extended Curated Q&A Includes The Following Questions

*What are the key challenges in integrating predictive maintenance with traditional methods, and how can they be overcome?*

*How can older systems keep up-to-date with new technologies without prohibitive costs?*

*What are the best practices for tailoring maintenance strategies to newer high-speed passenger fleets to ensure minimal downtime?*

*How can operators balance cost-effective maintenance with performance optimization in the context of mid-age locomotives in the freight sector?*

*620 pm Chair's closing remarks*

*630 – 730 pm Sponsored VIP Drinks Reception*

*8 pm – 10pm Sponsored Executive Speaker Dinner*

**Best Practices On Data Utilization for Enhanced Decision-Making, Data Management Workflow Optimization & Integrating Emerging Technologies**

0845 Chair's Opening remarks

**STRATEGIC DISCUSSION PANEL - PROVEN EXAMPLES SHOWCASING HOW DATA IS BEING UTILIZED EFFECTIVELY**

**0850 – 1050 Best Practice Data Utilization For Determining Equipment Condition, Enhancing Operations & Predictive Capabilities**

Innovative rail maintenance leaders demonstrate how data utilization transforms fleet maintenance and operational efficiency and addresses critical challenges.

**0850 DATA UTILIZATION PRACTICAL APPLICATIONS AND RESULTS ACROSS DIVERSE FLEETS**

**Results On Using Real-Time Data To Determine Actual Maintenance Needs Based On Equipment Condition**

- How real-time data analytics extends equipment lifespan and enhances asset utilization
- Quantifying actual cost savings informed by accurate data utilization
- Maximizing safety and compliance through precise and timely maintenance actions based on data insights
- Customizing data dashboards for instant visibility into equipment health and performance metrics

**0910 PREDICTIVE MAINTENANCE IN ACTION**

**Demonstrating Value From Utilizing Data Collected From Vehicle Operations To Anticipate Maintenance Needs Before Failures Occur**

- Analysing the cost-benefit relationship of predictive maintenance
- Challenges in integrating diverse data sources for accurate predictions
- Developing data analytics models specifically tailored for predictive maintenance
- Establishing a systematic approach for routine data analysis and maintenance planning

**0930 WHEEL HEALTH MONITORING**

**Insights Into Utilizing Wheel Performance Data To Predict & Prevent Flats, Misalignments & Metal Fatigue**

- Cost-benefit analysis and results so far
- Challenges in collecting and interpreting wheel performance data accurately
- Integration of wheel performance data into predictive maintenance software
- Optimizing staff training on interpreting wheel performance data and taking proactive maintenance actions

**0950 BRAKE HEALTH MONITORING FOR SAFETY COMPLIANCE**

**Evaluating the Cost Benefits Of Utilizing Brake Health Data To Ensure Optimal Stopping Power & Safety Compliance**

- Understanding the critical role of brake health in railway safety and compliance
- Balancing cost and safety benefits in brake health monitoring
- Integrating brake health data into a centralized maintenance management system
- Training maintenance teams in data-driven brake health assessment techniques



## 1010 UTILIZATION OF DATA FOR ENGINE MONITORING

### **How Monitoring Engine Performance Data, Including Fuel Consumption, Exhaust Temperature, And Oil Quality, Translates To Cost Savings And Reduces The Risk Of Engine Failure**

- Challenges in integrating and interpreting diverse engine data for effective monitoring
- Implementation of advanced diagnostic tools for real-time engine data collection
- Regular training programs for technical staff on new engine monitoring technologies
- Conclusions on ROI and Maintenance Efficiency Improvement

#### 1030 – 1050 **Interactive Q&A includes the following questions**

*What strategies do you employ to ensure the accuracy and reliability of predictive models given the diverse nature of data sources?*

*Can you discuss a case where wheel performance data directly influenced a major maintenance or operational decision?*

*What have been the cost implications of implementing widespread brake health monitoring across your fleet?*

*Could you elaborate on the challenges of integrating engine monitoring data with broader train management systems and how you've addressed these challenges?*

#### 1050 – 1120 Morning Refreshments In The New Technology Demonstration Arena

### **PREDICTIVE MAINTENANCE TECHNOLOGY PANEL - DEEPER DIVE INTO VALUE & IMPLEMENTATION STRATEGIES**

#### 1120 – 140 pm **Best Practices In Transitioning From Preventive To Predictive Maintenance, Utilizing Technology For Actionable Insights, And Successful Implementation Case Studies**

This panel delves more deeply into the evolving shift from preventive to predictive maintenance, shedding light on the pivotal role of data in this transformation. It will uncover the unique challenges and innovative solutions in harnessing data for predictive maintenance.

##### 1120 PREDICTIVE VS. PREVENTATIVE MAINTENANCE:

#### **Demonstrating The Benefits Of Predictive Maintenance Over Traditional Preventative Methods To Reduce Costs And Enhance Efficiency**

Exploring the paradigm shift from preventative to predictive maintenance in the rail industry underscores the significant cost reductions and efficiency improvements that predictive maintenance offers. Gain insights into practical solutions for implementation.

- Cost implications of transitioning from preventive to predictive maintenance
- Assessing the efficiency gains from implementing predictive maintenance strategies
- Establishing a comprehensive data management system to process and interpret maintenance-related data
- Regular training and development programs for staff in predictive maintenance technologies and processes
- Results and conclusions so far

##### 1140 INTEGRATING A MULTI-PRONGED MAINTENANCE APPROACH

#### **Striking the Optimal Balance: Combining Predictive, Proactive, and Reactive Maintenance**

Exploring the intricate balance between predictive, proactive, and reactive maintenance strategies and how to integrate methods to optimize maintenance operations and enhance fleet reliability.

- Identifying scenarios where proactive or reactive maintenance is more appropriate
- Challenges in integrating predictive maintenance with existing maintenance frameworks
- Training staff in data analysis and interpretation for effective decision-making
- Developing a flexible maintenance schedule that allows for proactive interventions

## 1200 EFFECTIVE INTEGRATION OF PREDICTIVE MAINTENANCE TECHNOLOGIES

### **Practical Aspects Of Implementing And Integrating Predictive Maintenance Technologies**

Explore the challenges, solutions, and best practices for adopting new predictive maintenance technologies successfully. The discussion aims to equip professionals with the knowledge and tools needed for effective implementation, leading to enhanced efficiency, and reduced operational costs.

- Developing a data analytics framework tailored to predictive maintenance
- Establishing cross-functional teams for technology implementation and maintenance planning
- Training and skill development required for staff
- Regularly updating software and technology to stay ahead of maintenance needs

1220 Extended Curated Q&A – Questions include:

*What specific data analytics models have proven most effective in predictive maintenance, and how do they differ from traditional models?*

*In what scenarios is a reactive maintenance approach more beneficial than a predictive one, and how do you decide when to apply each?*

*What strategies have proven effective in integrating predictive maintenance into existing maintenance frameworks without disrupting operations?*

*What role do continuous software and technology updating play in maintaining the effectiveness of predictive maintenance systems?*

1240 – 140 Networking lunch break in the new technology demonstration area

**SOLUTIONS ADDRESSING KEY CHALLENGES IN MANAGING AND ANALYZING VAST AMOUNTS OF DATA**  
**Decision Making Workflows, AI Integration, Analysis Tools, Workforce Alignment, User-Friendly Interfaces**

"While data is plentiful, its effective utilization in shaping maintenance strategies remains complex. It's not just about having data; it's about **extracting meaningful insights and transforming them into efficient maintenance practices**. We are at a juncture where developing sophisticated methodologies and streamlined processes is crucial to translate voluminous data into practical, actionable maintenance plans."

*Vice President Fleet Engineering, North American Urban Transit Operator*

**WORKFLOWS AND TOOLS PANEL - TURNING ROLLING STOCK DATA INTO ACTIONABLE MAINTENANCE PLANS**

**140 – 350 pm Optimizing Data Management Practices Incorporating Decision-Making Workflows, Staff Alignment, AI Integration, The Latest Software Tools, And User-Friendly Interfaces**

**140 STRATEGIES, WORKFLOWS, AND TOOLS FOR TRANSFORMING DATA INTO ACTION**

**Practicalities Of Utilizing The Latest Techniques & Tools For Turning Rolling Stock Data Into Actionable Maintenance Plans**

- Selection of data analysis tools and platforms for effective monitoring
- Techniques and workflows for translating rolling stock data into actionable plans
- Customizing analytics platforms to suit specific rolling stock maintenance needs
- Developing training sessions for staff on interpreting and utilizing data effectively

**200 AI-ENHANCED DATA INTERPRETATION**

**Integrating AI For Data Utilization Into Maintenance Process To Help Turn Data Into Insight & Action**

Practical insights on integrating AI in rail data processing and developing user-friendly interfaces for actionable insights. Learn how AI can transform complex data into understandable and practical insight, enhancing operational efficiency in rail systems.

- Implementing AI algorithms tailored to rail data characteristics
- Balancing technical complexity and practical usability in AI-driven tools
- Challenges in developing user-friendly interfaces for diverse user groups
- Implementing comprehensive training programs for staff on using AI-based analysis tools

**220 A TANGIBLE EXAMPLE OF THE SUCCESSFUL APPLICATION OF AI AND BIG DATA SOFTWARE**

**Practical Integration of AI and Big Data Software To Process & Analyse Data For Enhanced Decision-making**

- Application of sophisticated machine learning algorithms for predictive failure analysis in rail components
- Implementing comprehensive big data software systems and processes for real-time monitoring and trend analysis in rail maintenance
- Development of advanced training programs focused on applying AI and Big Data in rail maintenance
- Integration of complex AI models with existing rail maintenance management systems for enhanced decision-making efficiency

240 EMPOWERING YOUR RAIL TEAM WITH SMART USER INTERFACE SOLUTIONS  
**Developing User-Friendly Interfaces For A Diverse Maintenance Workforce  
To Optimize Decision Making**

Discover how intuitive, role-specific design can streamline decision-making processes, enhancing both efficiency and accuracy.

- Addressing challenges in designing interfaces that cater to a wide range of roles within rail maintenance
- The impact of intuitive design on operational efficiency and maintenance quality
- Implementing AI-driven recommendations within interfaces for non-technical personnel
- Integrating real-time data feeds into interfaces for up-to-date decision-making support

300 – 320 Extended questions and discussion – points to discuss include

*How do you effectively align staff roles and responsibilities with new data management workflows?*

*How do you measure the impact of AI-enhanced data interpretation on maintenance efficiency?*

*What are the best practices for integrating complex AI models into existing rail maintenance management systems?*

*What strategies have effectively overcome challenges in designing user interfaces for diverse maintenance roles?*

*What methods are employed to ensure staff across different roles are effectively trained in utilizing these new technologies?*

320 – 350 Afternoon refreshment break in the exhibition showcase arena

CYBERSECURITY RISK MANAGEMENT

**350 Best Practices On Managing Risks Associated With Increased Reliance On Software And  
Firmware In Rolling Stock Systems**

- Emerging threats, and resilience strategies
- Implementing sufficient cybersecurity for control systems in modern rolling stock, including cab control, propulsion, and communications
- Ensuring data security in the digitalization of rail systems, especially concerning remote access and control

410 – 420 Questions and discussion include points like:

*What are the most common cybersecurity misconceptions in the rail industry, and how can they be effectively addressed?*

*What specific challenges do rolling stock systems face in ensuring data security during the digitalization process, especially with the increase in remote access and control?*

*Can you discuss a case study where a rolling stock system successfully mitigated a significant cybersecurity threat?*

*How does the integration of AI and machine learning in rolling stock systems impact cybersecurity, and what measures are in place to safeguard against potential vulnerabilities?*

*How can rail operators balance the need for real-time data access with the imperative of maintaining stringent cybersecurity protocols?*

*Please turn the page*

**NEW TECHNOLOGY INTEGRATION INTERACTIVE PANEL**

**420 – 630 Integrating Emerging Technologies Into Maintenance Process Considering Regulatory Frameworks, Financial & Operational Impacts – Automated Inspection, Comms, Complex Electronics & Green Tech**

**420 ADVANCING RAIL TECH WITHIN FRA FRAMEWORKS: COMPLIANCE AND INNOVATION**

**Harnessing New Green Technologies in Rail: A Roadmap to FRA Compliance and Public Approval**

This session is designed to provide an in-depth understanding of how regulatory bodies like the FRA influence the adoption of new technologies in rail maintenance, ensuring compliance while fostering innovation.

- Insights into adapting rail technologies to meet FRA standards and environmental expectations
- Approaches for comprehensive internal audits and proactive compliance checks
- Navigating the Buy America requirements for rail system components
- Effective communication and collaboration strategies with regulatory bodies

**440 GREEN RETROFITTING FOR LEGACY TRANSIT**

**Navigating Electrification and Zero-Emission Technologies**

Hear one future vision on retrofitting legacy transit systems with sustainable technologies. Gain a holistic view of green retrofitting challenges and practical solutions to help navigate the complexities of modernizing transit facilities for a sustainable future.

- Evaluating the long-term viability of various emerging technologies such as battery, hybrid, or hydrogen
- Challenges and practical strategies in transitioning legacy transit systems to zero-emission operations.
- Implementing green retrofitting initiatives, like battery-powered solutions, for non-electrified tracks
- Developing robust frameworks for assessing and adopting new energy technologies in rolling stock

**500 ADOPTING ATO AND OBSTACLE DETECTION TECHNOLOGIES**

**Best Practices for Integrating ATO and Obstacle Detection Technologies in Rail Operations and Maintenance**

- Financial implications of adopting ATO and obstacle detection technologies in rail operations and maintenance
- Developing a phased implementation plan for ATO systems to minimize financial and operational disruptions.
- Training programs for staff to skillfully operate and maintain ATO and obstacle detection systems

520 INTEGRATING CUTTING-EDGE SCANNERS AND INSPECTION ROBOTS INTO MAINTENANCE  
**Evolution And Impact Of New Technologies Like Train Scanners And Undercarriage Inspection Robots In Rolling Stock Maintenance**

Evaluate the latest technological advancements in rolling stock maintenance, such as train scanners and undercarriage inspection robots, gaining insights into practical strategies for adopting these innovations and understanding their commercial and operational benefits.

600 NEW ELECTRONIC TECHNOLOGY INTEGRATION FOR CONNECTIVITY OF EXISTING ROLLING STOCK  
**Practicalities Of Integrating New Electronic Connectivity Systems Into Existing Rolling Stock Designs Considering Space Limitations, Available Infrastructure, And Obsolescence**

- Tackling backward compatibility challenges when introducing advanced connectivity technologies, including addressing Wi-Fi infrastructure needs in depots for effective data transmission
- Proactive obsolescence management for electronics
- Innovative design solutions to optimize space utilization for new electronics in rolling stock
- Implementing a comprehensive obsolescence management plan to future-proof rail systems

615 Curated Q&A includes the following questions:

*How do current FRA standards shape the development and integration of new green technologies in rail systems?*

*What are the most significant challenges in transitioning existing transit systems to zero-emission operations and how are they being addressed?"*

*What are the practical considerations and potential challenges when integrating train scanners and undercarriage inspection technologies into existing maintenance workflows?*

*How do you address the challenges of backward compatibility and infrastructure limitations when integrating new connectivity technologies in rolling stock?*

*What innovative approaches are used to manage the obsolescence of electronics in the rail industry?*

630 pm Chair's Closing Remarks & Close Of Main Conference