

# INTEROPERABILITY SAFER, CHEAPER, EASIER

Institution of  
**MECHANICAL  
ENGINEERS**

26 November 2014  
One Birdcage Walk, Westminster, London  
[www.imeche.org/events/S1830](http://www.imeche.org/events/S1830)

Railway Division  
**Seminar**



# INTEROPERABILITY SAFER, CHEAPER, EASIER

26 November 2014, One Birdcage Walk, Westminster, London



## THIS SEMINAR WILL SHOWCASE EXPERIENCE AND BEST PRACTICE FOR THE IMPLEMENTATION OF TECHNICAL INTEROPERABILITY ON UK RAILWAYS FOR BOTH TRAINS AND INFRASTRUCTURE.

These are significant requirements for operators, infrastructure managers, train owners, other railway group members and their suppliers. In addition to this the implementation of the Fourth Railway Package brings new regulatory requirements that need to be understood.

The engineering aspects underpinning this capacity challenge will be presented, including innovation, technical development, systems integration, operation and maintenance. The seminar will also identify and share areas of best practice, providing you with knowledge to take away and apply to your organisation.

### BENEFITS OF ATTENDANCE:

- **Learn** from companies, maintainers and TOCs who excel in dealing with the capacity challenge
- **Network** with senior industry experts and peers in an open forum
- **Develop** an understanding of research outputs and relevant emerging technologies
- **Recognise** more advanced and effective methods of approaching interoperability on UK railways
- **Understand** the practical aspect of future developments

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## PROGRAMME

DAY 1		WEDNESDAY 26 NOVEMBER 2014
	09:00	REGISTRATION AND REFRESHMENTS
	09:30	<b>KEYNOTE SPEAKER</b> <b>Bridget Eickhoff, Principal Infrastructure Engineer, RSSB</b>
VISION & COST		SESSION 1
	09:35	<b>THE FUTURE DIRECTION OF INTEROPERABILITY</b> <b>Ian Jones, Head of Interoperability, DfT</b> <ul style="list-style-type: none"> <li>• Experience to date of applying the 2011 interoperability regulations and the role of the Competent Authority</li> <li>• Future challenges for interoperability including a more strategic approach</li> <li>• Possible changes to the interoperability regime under the Fourth Railway Package</li> </ul>
	10:00	<b>THE EUROPEAN STANDARDS FRAMEWORK – HOW TO SIMPLIFY IT</b> <b>Cliff Cork, Departmental Head of Standards Delivery INS &amp; RST, RSSB</b> <ul style="list-style-type: none"> <li>• A look at the types of standards that exist</li> <li>• An explanation of how they all fit together</li> <li>• Those that apply to different projects</li> <li>• How the structure can be simplified</li> </ul>
	10:25	<b>PROCUREMENT – IT'S SUPPOSED TO BE CHEAPER</b> <b>Paul Hooper, Interoperability Manager, Office of Rail Regulation</b> <ul style="list-style-type: none"> <li>• The longer term benefits of applying interoperability now</li> <li>• Recent learning from a safety authority's perspective</li> <li>• Looking ahead and preparing the UK for future authorisations</li> </ul>
	10:50	DISCUSSION SESSION
	11:05	<b>BREAK</b>
GUIDANCE		SESSION 2
	11:25	<b>APPLICATION OF CSM-RA TO PROJECTS WITH RIR AND ROGS</b> <b>Stephen Clarke, Professional Head of Independent Assurance, Lloyd's Register Rail Limited</b> <ul style="list-style-type: none"> <li>• Scope of CSM-RA and its relationship with other relevant regulations and standards</li> <li>• Overlap of work, including NOBO/assessment body tasks</li> <li>• Key points in the application of the CSM-RA process</li> <li>• Assessment body objectives and scope of work</li> </ul>
	11:50	<b>NETWORK RAIL'S BUSINESS CRITICAL RULES</b> <b>Jamie Trigg, Programme Director for Business Critical Rules, Network Rail</b> <ul style="list-style-type: none"> <li>• The Business Critical Rules framework</li> <li>• Alignment with existing and future legislation</li> <li>• Implementation approach across Network Rail and primary suppliers</li> </ul>
	12:15	<b>CHALLENGES MET AND EXPERIENCES OBTAINED BY THE DANISH NSA (APPLYING THE "EC" APPROVAL PROCESS FOR ERTMS)</b> <b>Lars Mortensen, ERTMS Programme Manager, Danish Transport Authority</b> <ul style="list-style-type: none"> <li>• Scope of the Danish ERTMS programme</li> <li>• Organisation</li> <li>• Roles and responsibilities</li> </ul>
	12:40	DISCUSSION SESSION
	12:55	<b>LUNCH</b>

FUTURE		SESSION 3
	13:40	<b>ASSESSMENT OF TSI COMPLIANCE ON PROJECTS</b> <b>Alan Powell, General Manager, Vertex Systems Engineering</b> <ul style="list-style-type: none"> <li>• Technique used to assess TSi compliance for major projects</li> <li>• What the analysis identified</li> <li>• Can the process be used on other projects?</li> <li>• Benefits to projects and understanding compliance</li> </ul>
	14:05	<b>ETCS OPERATION AND INTEROPERABILITY - A DECADE OF EXPERIENCE IN SWITZERLAND</b> <b>Oskar Stadler, Independent Engineering Consultant</b> <ul style="list-style-type: none"> <li>• At the heart of trans-Europe railway operations, ETCS and Interoperability is not optional in Switzerland</li> <li>• As “Early Adopters,” the Swiss experience resonates around some member states’ relatively slow progress</li> <li>• Valuable lessons learnt</li> </ul>
	14:30	<b>MAJOR RAILWAY SYSTEMS PROJECTS AND INTEROPERABILITY</b> <b>Jignesh Patel, Head of Safety &amp; Interoperability, Crossrail</b> <ul style="list-style-type: none"> <li>• Experience with interoperability and the associated regulations on the largest infrastructure project in Europe</li> <li>• What this experience may tell us in consideration of future major projects in the UK</li> </ul>
	14:55	<b>DISCUSSION SESSION</b>
	15:20	<b>BREAK</b>
LEARNING		SESSION 4
	15:40	<b>CLASS 68 LOCOMOTIVE – INTEROPERABILITY CASE STUDY</b> <b>James Duncan, Senior Engineer - Safety Management &amp; Assurance</b> <b>Paul Harborough, Principal Consultant – Safety Management and Assurance, Interfleet Technology</b> <ul style="list-style-type: none"> <li>• Background to the project</li> <li>• Maximising the efficiency and effectiveness of NoBo and DeBo assessment, such as using evidence from previous assessments</li> <li>• When is an NNTR not an NNTR?</li> <li>• Managing standards change</li> <li>• Using the type authorisation process</li> </ul>
	16:05	<b>AN INFRASTRUCTURE MANAGER'S PERSPECTIVE</b> <b>Peter Knight, Senior Programme Development Manager, Group Strategy &amp; Planning, Network Rail</b> <ul style="list-style-type: none"> <li>• Practical application of the UK interoperability regulations</li> <li>• Integration of the technical specifications for interoperability with domestic standards</li> <li>• Deriving benefit for GB Rail from the regulations</li> </ul>
	16:30	<b>INTEROPERABILITY AND AUTHORISATION - A MANUFACTURER'S PERSPECTIVE</b> <b>David Beacham, Head of Product Integrity Assurance, Bombardier</b> <ul style="list-style-type: none"> <li>• The time before TSIs - historical approaches to managing authorisation/approval, referencing experience in Western Europe</li> <li>• Application of a new framework - theory versus reality</li> <li>• A manufacturer's expectation of the evolution of interoperability</li> </ul>
	16:55	<b>DISCUSSION SESSION</b>
	17:15	<b>CHAIR'S CLOSING COMMENTS</b> <b>Bridget Eickhoff, Principal Infrastructure Engineer, RSSB</b>
	17:30	<b>CLOSE</b>
<b>Find out more about our speakers at <a href="http://www.imeche.org/events/S1830">www.imeche.org/events/S1830</a></b> <ul style="list-style-type: none"> <li>• This programme is subject to change.</li> <li>• The Institution is not responsible for the views or opinions expressed by individual speakers.</li> </ul>		

#### Organising committee:

- James Collinson, Network Certification Body
- John Barber, Rail Safety and Standard Board (RSSB)
- Iain Flynn, Network Rail
- Martin Hayhoe, Lloyds Register Rail
- Cliff Perry, Institution of Mechanical Engineers



## SPEAKERS AND CONTRIBUTORS



### **BRIDGET EICKHOFF CHAIR PRINCIPAL INFRASTRUCTURE ENGINEER, RSSB**

Bridget Eickhoff has worked in a range of railway engineering posts, most related to the wheel-rail or vehicle-track interface. This has included both theoretical and experimental work on ride quality and passenger comfort, derailment risk, vehicle approval testing, track geometry and track deterioration. Throughout her career, she has been able to apply engineering knowledge and know-how to practical railway problems and issues in the UK and internationally, as part of consultancy and research work. Bridget is now Principal Infrastructure Engineer for RSSB with responsibility for GB Railway Group Standards related to the interfaces between infrastructure and trains.



### **IAN JONES HEAD OF INTEROPERABILITY, DfT**

Ian Jones joined DfT in 2000 and has worked on a wide variety of policy areas including maritime and biofuels legislation for road transport. He has four years experience working in rail and has transposed the 2008 Interoperability Directive into UK legislation, being closely involved in the EU negotiations for the Fourth Railway Package and the Technical Pillar.



### **CLIFF CORK DEPARTMENTAL HEAD OF STANDARDS DELIVERY INS & RST, RSSB**

Cliff Cork has over 40 years experience in the field of rolling stock including the last 15 years focusing on standards. Cliff is Departmental Head of the Rolling Stock and Infrastructure team at the Rail Safety and Standards Board and chairs the Rolling Stock Standards Committee. He is also Chair of the senior BSI 'Railway applications' committee dealing with mechanical aspects of rolling stock and infrastructure, sits on the key European standards-making committee CEN TC256 and the recently created International Railway Applications Committee ISO TC269.



### **PAUL HOOPER INTEROPERABILITY MANAGER, OFFICE OF RAIL REGULATION, OFFICE OF RAIL REGULATION**

Paul joined the Railways in 1980 as a diesel locomotive apprentice at Finsbury Park and Bounds Green Depot. After spells as fitter and STO he moved to Metro Cammell /GEC Alstom commissioning Class 91 locos and MkIV coaches and spent 5 years working on Eurostar in the UK France and Belgium. He managed the Juniper 458 project into service and had a spell at Atkins before moving to HMRI in 2002. Here he has been involved with the approvals of rolling stock and is currently responsible for the ORR policy on interoperability and standards. This includes managing reps who attend ERA TSI drafting groups, producing guidance and representing the UK NSA at the ERA for the Energy TSI, NSA network and other European working parties.



### **STEPHEN CLARKE PROFESSIONAL HEAD OF INDEPENDENT ASSURANCE, LLOYD'S REGISTER RAIL LIMITED**

Stephen Clarke trained as a software engineer and after working as a researcher on "safe software" for Professor John McDermid at the University of York, he joined ERA Technology, working on safety cases and assessment of systems across process, military and rail industries, including assessment of the initial TPWS development. For the last 12 years Stephen has worked for LR Rail UK, concentrating on the rail sector, developing the independent assurance business. Highlights include responsibility for leading the ISA work on many of the large railway projects, including various WCML projects, helping in the development of the NOBO process, ISA of the Victoria Line Upgrade and ISA work on the Dubai Metro.



### **JAMIE TRIGG PROGRAMME DIRECTOR FOR BUSINESS CRITICAL RULES, NETWORK RAIL**

Jamie Trigg is a transformation and change specialist, joining Network Rail in 2009 to lead business change for the National Operating Strategy. Jamie graduated in Logistics from Aston University prior to undertaking operational roles within oil and automotive sectors. This was followed by nine years in consulting, leading transformation programmes across a variety of sectors including retail, consumer products, manufacturing, rail, oil and gas.



### **LARS MORTENSEN ERTMS PROGRAMME MANAGER, DANISH TRANSPORT AUTHORITY**

Lars Mortensen has over 18 years experience within the railway business including approval of rolling stock and signalling systems. Lars is managing the activities undertaken by the Danish National Safety Authority, in respect to the approval of the replacement of Danish legacy signal systems with ERTMS level 2.

## SPEAKERS AND CONTRIBUTORS



### **ALAN POWELL**

#### **GENERAL MANAGER, VERTEX SYSTEMS ENGINEERING**

Alan started in the rail industry as a track engineer over 25 years ago and has since been involved in various roles covering maintenance, design, installation and assurance on numerous projects of a multi-disciplinary nature acting as either Project Manager or Engineer. Notable achievements include leading fast track delivery of projects, managing a number of projects or products through the safety assurance process and acting as engineering lead. Alan is currently the General Manager for Vertex Systems Engineering, a leading engineering consultancy in the rail sector, providing customers with independent consultancy services.



### **OSKAR STALDER**

#### **INDEPENDENT ENGINEERING CONSULTANT, SWITZERLAND**

Oskar Stalder has over 40 years of experience in the field of railway infrastructure, especially signalling. As a trained electrical engineer he worked for over 30 years, in a variety of engineering posts, for the Swiss Federal Railways. He was involved in the national strategy for traffic control and ERTMS/ETCS migration. As an ETCS consultant he has been involved in several European projects as well as with the development of new products by the industry during the past eight years. Oskar is an Honorary Fellow of the Institution of Signal Engineers (IRSE).



### **JIGNESH PATEL**

#### **HEAD OF SYSTEM SAFETY AND INTEROPERABILITY, CROSSRAIL**

Jignesh has worked on a range of technically complex programmes in the Defence, Telecommunications & Railway Sector. The last 14 years have been in the Rail Industry initially with Alstom Transport; undertaking technical/managerial roles on WCML TCS and NR re-signalling projects. He joined Crossrail in 2006 and has been closely involved with establishing initial systems engineering processes, technical assurance strategy and most recently System safety and Interoperability to deliver progressive assurance. Currently, he is responsible for establishing the System Safety Regime for CRL, ensuring the delivery of CRL's compliance with the Railway Interoperability Regulations 2011 and the Common Safety Method, in order to obtain Authorisation to Place into Service the Crossrail Central Operating Section. Working closely with DfT /ORR and IM's (RfL, LU and NR) to ensure there is a clear understanding of CRL's plan, its interpretation and implementation of regulations and standards to gain common acceptance.



### **JAMES DUNCAN**

#### **SENIOR ENGINEER - SAFETY MANAGEMENT & ASSURANCE, INTERFLEET TECHNOLOGY**

James Duncan joined Bombardier Transportation as a graduate trainee in 2007 and subsequently led the assurance and approvals work for the Class 379 new-build project. Since joining Interfleet in 2011, James has been responsible for a number of new-build rolling stock certification projects, including the Class 68 locomotive.



### **PAUL HARBOROUGH**

#### **PRINCIPAL CONSULTANT - SAFETY MANAGEMENT & ASSURANCE, INTERFLEET TECHNOLOGY**

Paul Harborough has been closely involved with assurance and approvals for over 20 years. During that time Paul has undertaken assessments of a wide range of rolling stock, working with the majority of rolling stock manufacturers and has seen the approval processes evolve from the introduction of Engineering Acceptance and VABs through to interoperability and NoBos/DeBos.



### **PETER KNIGHT**

#### **SENIOR PROGRAMME DEVELOPMENT MANAGER, GROUP STRATEGY & PLANNING, NETWORK RAIL**

Peter Knight has many years of experience in the rail industry in a variety of roles in the UK and USA. Particular successes include working as Client Project Manager for the Docklands Light Railway initial build, Project Manager for London Underground's Track Replacement Programme, including the first introduction of private sector contractors to LU's track programme. Peter has also worked as an Oversight Engineer with London Transport International on New York MTA's investment programme. Peter is currently with Network Rail, working on aspects of the long term planning process, including the considerations for interoperability and TEN-T.



### **DAVID BEACHAM**

#### **HEAD OF PRODUCT INTEGRITY ASSURANCE, BOMBARDIER TRANSPORTATION**

David Beacham joined Adtranz (Derby) in 1997 as the Electrostar Platform Safety Case Manager. He moved onto the MOVIA Platform Project in 2000, after successfully managing the approval of the first two Electrostar variants (Class 357 and Class 375) into passenger service. David, with his team, developed and mastered the requirements-based approach to safety and reliability justification on VLU and SSL. He then took on mainline safety management responsibility in Vasteras and Hennigsdorf, successfully delivering Bucharest Metro, Guangzhou Line 2 and Shenzhen Metro. Since 2007, David has been responsible for Product Integrity Assurance in the UK for rolling stock and services.

# BOOKING FORM

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