Application of Systems Engineering to Major Enhancement Programmes

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Developing System Engineering

- Extend Process to Industry Issues
- Expand Application in NR
- Systems Approach to Validation for all Projects
- System Integration
- Establishing a System Engineering Discipline
Systems Methods for Reliability
Asset Performance – Network Wide

Reliability Data Handbook – National Analysis

40 Delivery Unit League Tables: One Format – One Way

3 Infrastructure Reliability Groups – Actions for Improvement

40 Delivery Unit ‘Frontline’ Reports
System Integration – One Industry?

- SI - ‘Free’ Environment to develop Opportunities for Commercial Implementation
Focus on the basics: Establishing requirements hierarchy

- Business case
- Client Requirements **Level 1**
- Concept of Operations
- Infrastructure Functional Specification
- Train Technical Specification
- Train Infrastructure Interface Specification **Level 2**
- Programme Delivery Specs
- RS Subsystem Specs
- Operational Requirements Spec **Level 3**
Activity: System architectures

• The objective of system architectures is to present the overall system requirements graphically.

• There can be many different views
  – Operational
  – Maintenance
  – Engineering system
  – Contractual

• Architectures allow you to identify the critical interfaces, gaps and inconsistencies.

• Gain control by helping people visualise what is coming accurately.
Example: system architecture – maintenance view
Developing System Engineering

• Good progress – Recognised ‘solution’
• Continued growth – People and Process
• Work with Industry – Incentives & Mechanisms
• Work with Experts - e.g.INCOSE

Major Challenges for Rail

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SE key to achieving them
Q&A