# System Safety–Making The Rail Network Safer

All UK public and private sector organisations have a legal duty of care to understand and manage the risks affecting their business. This is particularly pertinent in the rail industry, where failure to control risks can result in significant harm to both workers and members of the public.

Additionally, legislation such as the **Common Safety Method for Risk Evaluation and Assessment (CSM-RA)** and the **Railways and Other Guided Transport Systems** makes specific demands of the rail industry. Frazer-Nash Consultancy can help alleviate the responsibilities and demands placed on your business by these pieces of legislation.

Frazer-Nash is able to apply a broad range of skills and experience to your project, providing pragmatic solutions that are tailored to your specific needs. Approaching projects from a systems engineering perspective allows us to add value by bringing in knowledge from different engineering sectors, and analysing problems holistically.

OUR CAPABILITY

With wide ranging skills and competencies, our experienced practitioners are able to support your project throughout the system life cycle:
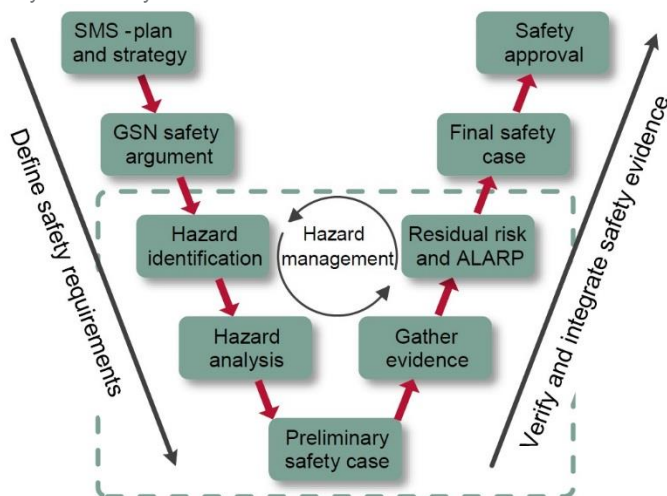
This corresponds to a range of rail safety and assurance services including:

- Safety case and hazard log development (for both infrastructure and rolling stock)
- Strategy and planning
- Safety Management Systems (SMS) development
- Goal Structuring Notation (GSN) safety argument development
- Hazard identification and analysis
- Qualitative and quantitative risk assessment
- ALARP and option selection assessment
- Safety requirement management

Plus a wide range of supporting safety activities including:

- Independent safety assessment / audit
- CSM assessment body
- System optioneering
- Vehicle reliability assessment
- Training requirements
- Configuration management requirements.

We can also offer guidance and support on legislation and standards including:

- Common Safety Method for Risk Evaluation and Assessment (CSM-RA)
- BS EN 61508 and BS EN 5012x series

RECENT PROJECTS

Our track record of delivering safety assurance in the rail sector has given us direct experience in various aspects of the rail industry, including:

- Independent safety assurance of the Automatic Train Control software development process
- Safety case production and assessments for programmable electronic systems, including:
  - National ERTMS programme
  - Network Rail's national supervisory renewals programme
  - IEC 61850 based integrated protection and control safety strategy and case
  - Virtual Lineside Signalling 'proof of safety' review
- Safety support and safety case production for electrification projects, including:
  - North West Electrification project (Phase 1 and 2)
  - East Coast Mainline Power Supply Upgrade (Phases 1 & 2)
  - Crossrail 'On Network Works'
  - Introduction of the first Static Frequency Converter at Potteric Carr
- Bombardier Transportation assurance
- Merseyrail safer d.c. isolations trial
- Systems assurance for the Network Rail Digital Railway.

WHO WE ARE

Frazer-Nash Consultancy (RISQS approved) provides systems and technology to a multitude of engineering sectors. We are independent of any technology, product or project. Our consultants have both deep technical expertise and broad market knowledge, enabling us to provide insight into risk at the technology, project and enterprise level. We recognise the commercial sensitivity of our clients' information and work to confidentiality agreements set by our clients.

FRAZER-NASH CONSULTANCY