

NEXTEC ENGINEERING



**QUALITY, INTEGRITY,
RESPONSIBILITY**

ABOUT US

Nextec Engineering Limited is a specialist consultancy with extensive experience in Engineering Consulting, Systems Engineering, Safety Engineering and Assurance Activities. Nextec Engineering work on 'cutting-edge projects' across industries that shape our world and future infrastructure.



Quality, Integrity & Responsibility.

Nextec Engineering Limited has a diverse team of highly driven and competent individuals. We have a Quality Management System (QMS) that has been awarded ISO 9001 Certification and Nextec Engineering meets all UK policy and Insurance requirements.

Nextec Engineering consultants have experience in working in the following areas:

- Systems Engineering & Assurance (Transportation)
- Safety and Risk Engineering (Process, Nuclear and Energy)



Nextec Engineering Industries include:

- Transportation
- Oil & Gas
- Nuclear Energy and Renewables.
- Software Engineering and Data Analytics
- Education and Training



SYSTEMS ENGINEERING & ASSURANCE

Nextec Engineering Consultants have extensive experience in Systems Engineering and and Systems Assurance Activities. Across various sectors we have expertise in what can be classed as systems level assurance.

Systems Assurance is the planned and systematic set of engineering activities necessary to assure that systems conform with applicable requirements for:

- Safety
- Maintainability
- Security
- Standards
- Reliability
- Procedures
- Availability
- Regulations

Assurance Planning

Assurance Planning clarifies the safety roles and responsibilities of project stakeholders and is key to reducing delivery risk. Assurance planning is “cradle to grave” i.e. it is reviewed throughout the lifetime of a project and provides all stakeholders with details of the safety and assurance activities to be carried out, and the resultant deliverables from these activities.

Nextec Engineering Consultants have been involved in the production of assurance plans for a large number of projects over the years as well as developing, or reviewing and accepting deliverables against plans. Recent clients include:

- Transport for London
- Alstom
- Thales



ENGINEERING SAFETY MANAGEMENT (ESM)

Nextec Engineering Consultants have extensive experience in engineering safety management. Engineering Safety Management (ESM) is a field of engineering that deals with accident prevention, reducing the risks associated with new systems or changes to existing systems.

The Engineering Safety Activities, Nextec Engineering consultants have been involved in include:

- ESM Planning
- Human Factors and Ergonomics.
- HAZID and HAZOPs
- Safety Requirement identification and management
- Automatic Train Control and Protection
- Qualitative and Quantitative Risk Assessments
- Safety Integrity Level Determination and Assessment
- Failure Modes, Effects and Criticality Analysis (FMECA)
- Fault and Event Tree Analysis
- Cost Benefit Analysis
- CSM compliant deliverables

Nextec Engineering are able to provide full ESM consultancy up to and including gaining the necessary approvals from client System Review Panels (SRP), Independent Safety Assessors (ISA), Assessment Bodies (AsBo) and Approved Bodies (ApBo) for product or system safety cases. Clients have included:

- Crossrail
- Network Rail
- Transport for London – Dockland Light Railway and London Underground
- Thales - TBTC and CBTC
- Doha Metro Gold Line
- Alstom Paddington to Reading ETCS



RELIABILITY AVAILABILITY & MAINTAINABILITY (RAM)

Nextec Engineering Consultants have experience in undertaking RAM activities. RAM activities are undertaken to understand the inherent product or system attributes that should be considered throughout the development lifecycle.

The RAM Activities, Nextec Engineering consultants have been involved in include:

- Reliability Analysis including MTBF and MTTR calculations
- Reliability Block Diagrams
- Maintainability analysis
- Common Cause Failures
- Availability calculations
- Failure Modes, Effects and Criticality Analysis (FMECA)
- Single Point of Failure (SPoF) Assessment
- Chi Squared
- Root Cause Analysis



Nextec Engineering Consultants have conducted RAM activities for the railway and energy industries. This is inclusive of companies such as:

- Crossrail
- Transport for London
- Thales

Requirements Management

Nextec Engineering Consultants have experience in requirements management to system verification & validation. Examples of this experience include the following companies:

- Crossrail
- Alstom
- Jacobs
- Thales
- Bechtel

Nextec Engineering consultants are experienced in configuring and using the Dynamic Object-Oriented Requirements (DOORs) software for requirements management, providing traceability and audit history. Nextec Engineering are also in the process of developing a bespoke product to provide similar functionality but with open-source tools.

SAFETY & RISK ENGINEERING

Nextec Engineering Consultants have extensive experience in Safety and Risk Engineering for the Process, Clean Energy and Power Generation industries. Safety and Risk Engineering includes identifying, analysing, evaluating and treating the risks associated with equipment, operations and facilities to acceptable levels.

Nextec Engineering Consultants have worked with the following clients:

- EDF
- Shell
- Aker Solutions
- SSE Beatrice Offshore Wind
- Fluor

The technologies used in these industries face tough regulation which assures safety and underpins engineering requirements.

This support is inclusive of the following services across the lifecycles of client assets:

- Hazard Management
- Safety Case
- Operational Support
- Independent Verification and Review

Hazard Identification & Hazard Management

Hazard identification and hazard management is the process of identifying, analysing, managing and eliminating potential hazards across various stages. This includes design, commissioning, experimentation, operation and decommissioning.

The Hazard identification activities, Nextec Engineering consultants have been involved in include:

- Hazard Register
- Walkdown survey
- HAZOP/HAZID Studies and workshops
- DSEAR assessments
- Internal / External Hazards
- Environmental Hazards
- Failure Modes and Effects Analysis studies and workshops (FMEA / FMECA)
- Risk Reduction and ALARP
- Hazardous Area Classification

SAFETY CASE

Nextec Engineering service provision of safety cases includes production and management of safety documentation, authorship and independent peer review throughout the project lifecycle.



Operational Support

The Energy sector contains some of the most regulated high hazard industries which demand the highest standards in safety, reliability and security.

Nextec Engineering help our clients by supporting through investigation and providing practical solutions throughout a project lifecycle to aid in performance and optimisation of facilities and stations. Nextec Engineering consultants have experience in providing operational support for the following:

- Equipment Reliability
- Reliability Centred Maintenance
- Obsolescence Management
- Project Management
- Maintenance, Inspection and Testing optimisation
- Surveillance testing optimisation



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