

## **Curriculum Vitae: Mike Essex BSc(Hons) MSc(Eng) CEng CMath FIRSE MIMA**

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A uniquely experienced and qualified senior railway systems engineering director and asset manager specialising in high-speed rail. Currently working in a consultancy capacity supporting railway projects. Over thirty years railway experience including HS1 and HS2 in the UK.

Previously responsible for all engineering aspects of High Speed 1, having previously led the specification and project delivery for Control, Communications & Signalling (CCS) systems for HS2, in the UK.

Experienced across all railway disciplines but principally CCS, having led the implementation of systems engineering, and asset management for the UK's first high speed railway. This was coupled with the development of modern railway systems in the UK leading to being recognised as one of the UK's leading high-speed railway systems engineers/specialists, including a period of three years developing the UK's strategy for the deployment of ERTMS as part of the national programme for future signalling and train control.

### **October 2023 – Present**

Acting as a part-time advisor in an ad-hoc capacity to railway consultancy.

### **March 2022 – October 2023**

#### **HS2 - High-Speed Rail Expert/Consultant - Control, Communications & Signalling**

Supporting the tender and specification phase of HS2 in the UK, offering real-world high-speed rail experience to HS2.

This role involved the establishment of operational concepts evolving into system requirements and subsequent technical bid evaluation, surrounding the proposed railway control systems, including signalling, traffic management and the infrastructure engineering management system.

### **May 2019-March 2022**

#### **Network Rail Highspeed – Director of Engineering & Asset Management, Highspeed 1**

Responsible for the strategic management of all infrastructure on the UK's only high-speed railway. I managed a team of asset specific professional heads, project engineering managers and asset management specialists. This included defining the scope, quality and standards of maintenance as well as defining the renewals strategy across the full lifecycle. All high-speed and long-tunnel assets managed, including signalling, control & communications, track, mechanical & electrical and rail plant, civils & environmental and telecommunications. I also provided engineering advice regarding station assets.

The role required significant stakeholder and client engagement, notably with HS1 Ltd. and the Office of Rail Regulation.

I chaired the HS1 R&D investment panel and represented NRHS at the ERTMS working group within the European Infrastructure Manager's forum.

**Sep 2016 – May 2019**

**High Speed 2 (HS2): Head of Control, Communications and Signalling (CCS)**

Professional Head within HS2 for all Signalling, Communications and Control systems. Technical authority responsible for establishing the vision and defining policy, strategy, scope, engineering specifications, operational requirements and the delivery for a digital railway as well as telecoms engineering throughout the lifecycle of the HS2 project.

I managed a team of four direct employees as well as a large multi-skilled team of consultants who established requirements and writing the specifications for all CCS works to be applied to HS2. I set the policy for all CCS aspects regarding engineering, safety, assurance and competency. This included defining the technical scope and establishing processes to achieve operational deployment. I developed the procurement process for the tender and evaluation phase for suppliers, leading to the design/build and subsequent management of all CCS assets. I was responsible for establishing and defining the budget for CCS provision for HS2 and the creation and ownership of all standards applicable to HS2.

The role required significant stakeholder management both internally and externally. In particular I represented HS2 for all digital rail/CCS aspects at senior (Director) level within the Department for Transport (DfT), the Department for Culture Media and Sport (DCMS) and the ORR. I was widely consulted by the DfT concerning CCS matters and the integration of DR into the wider UK network at interfaces.

**Jun 2014 – Sep 2016**

**Network Rail: Route Asset Manager (Signalling) Anglia Route**

I managed the full range of signalling assets across the Anglia Route I challenged the conventional strategies to introduce the deployment of ERTMS and Digital Railway systems. This resulted in Anglia becoming prominent in the deployment of ERTMS at the time and the first deployment of the National Traffic Management system.

Also, within this role, I was directly responsible for all existing and future signalling asset management. This included ensuring existing assets were maintained and renewed in a cost effective and safe manner. I was responsible for a budget in excess of £200m over the regulatory control period. I had line management responsibility for eight direct reports.

**Jun 2011 – Jun 14**

**Network Rail, STE, National ERTMS Programme: Principal Engineer**

Having gained extensive and diverse experience of modern, high speed railway systems, in a front-line management role, I decided to move into an area where I could use that experience in future emerging projects by developing the introduction of ERTMS and Traffic Management in the UK. I believe gaining detailed ERTMS specification and operational experience will prove invaluable as the UK develops train control for the future.

As a Principal Engineer, I was responsible for the national application of ERTMS specialising in the readiness to adopt trackside infrastructure into operational service and the management of the newly introduced assets thereafter. This involved early engagement pre-handover and the support arrangements once in service.

In addition, I also led all engineering aspects for the implementation of the ETCS National Integration Facility (ENIF). Once operational, I managed the delivery of the technical demonstration and assessment phase of the national ERTMS framework contracts and the evaluation of outputs from suppliers.

In the wider ERTMS context, I participated in a lot of essential stakeholder management, internally and with industry partners in the UK and Europe.

**Jul 2009 – Jun 2011**

**Network Rail(Highspeed)Ltd. Head of High-Speed Infrastructure, Highspeed 1**

From Head of Signalling, I was promoted to manage all engineering and maintenance for the UK's first high speed railway. This provided a real opportunity to develop high speed rail systems engineering practices. I was Responsible for all railway disciplines, including: Signalling, Control Systems, Track, Electrification, Plant, Civils, Environmental, Asset Protection and Planning. This involved leading a workforce of 200 engineering and support staff as well as a budget in excess of £20m. In the first year, I delivered final £5m saving against budget forecast for annual maintenance, project, personnel and engineering activities.

My responsibilities included all aspects of asset management, including management of Professional Heads and standards as well as maintenance delivery including planning and the formulation of asset management plans.

During this time, I was a permanent panel member of System Review Panel, acting as approvals authority, in association with ORR, for all authorisation and acceptance elements for Highspeed 1. I was also an accident investigator and accredited agent of the RAIB.

**Mar 2002 – Jul 2009**

**Network Rail(Highspeed)Ltd. Professional Head of Signalling, Control & Communications Engineering, Highspeed 1**

Following a period within the consulting sector, I was asked to lead signalling, control and communications engineering for the introduction of Highspeed 1. This appointment represented an opportunity to consolidate consulting skills with front-line senior railway management experience in an emerging technical environment on Britain's first high speed line. I was presented with the opportunity to define and establish all aspects of the signalling, control & communications organisation, set policy, introduce standards and manage the transition from a project phase to high-speed operations.

To be able to do this successfully from a blank starting point, I needed to:

- Define signalling policy and engineering strategy;
- Define CCS system requirements;
- Become company's expert on train control and in-cab signalling systems;
- Recruit and manage the training of a team of signalling and control & communications managers;
- Ensure all logistic support in place to support operations (e.g. spares, test equipment, tools, documentation);
- Oversee project test and commissioning activities;
- Establish, manage and participate in supplier training for HS1 systems, mainly with the SNCF and equipment suppliers such as Ansaldo & Siemens;
- Act as technical authority for Highspeed 1 signalling, control & communications;
- Manage system changes and system evolution, including the avoidance of obsolescence;
- Establishing maintenance support contracts;

**Dec 1999 – March 2002 - Senior Consultant, Booz Allen & Hamilton**

Gained wider railway systems experience by becoming a consultant with BAH. This presented the opportunity to work in a number of different environments as a consultant over a relatively short space of time. Assigned to various projects, mostly acting as a technical and management advisor regarding railway systems engineering and full life project support. During this time, I gained a lot of client facing experience. Assignments:

HSL–Zuid ERTMS – The Netherlands: Technical advisor to Dutch Government during tender and evaluation process for the award of the infrastructure ‘Design, Build, Operate and Maintain (DBOM)’ for HSL Zuid project (Dutch high speed line) with specific responsibility to evaluate ERTMS train control and commercial aspects of tender bids.

Office of the Rail Regulator: Examination and review of Railtrack’s SAMP 99 (Signalling Asset Management Plan). Critical review performed for Rail Regulator.

Office of the Rail Regulator: Analysis and review of West Coast Mainline Route Modernisation proposal. Critical review of Railtrack’s WCRM plan to establish basis for regulatory funding. Findings delivered to ORR with recommendations.

Croydon Tramlink – Systems integration and completion engineer ensuring tram control system and control system achieved compliance with design prior to handover.

Betuweroute, The Netherlands – Maintenance contracting advisor for contract definition of freight line.

Confidential Client – Review of safety performance with recommendations to reduce safety related train incidents, mainly SPADs.

Aug 1997 – Dec 1999 - Signalling Manager, Eurotunnel

Nov 1991 – Aug 1997 - Control Systems Engineer, Eurotunnel

Dec 1988 – Nov 1991 - Test Engineer, British Aerospace (Dynamics)

Nov 1986– Dec 1988

Electronic Engineering Technician, Flight Systems, Royal Air Force Lossiemouth

Oct 1983 – Nov 1986

Electronic Engineering Technician Apprentice, Flight Systems, Royal Air Force Cosford

## **Professional Registration and Organisations**

CEng - Chartered Engineer through The Engineering Council

Fellow of the Institute of Railway Signal Engineers (passed all Institute exams 2005)

CMath - Chartered Mathematician

Corporate member of The Institute of Mathematics & Its Applications

## **Qualifications**

**1997 – 1999**

**MSc(Eng) Rail Systems Engineering**, The Advanced Railway Research Centre, University of Sheffield.

**1991 – 1996 (part time)**

**BSc(Hons) Pure Mathematics & Computer Systems Engineering - The Open University** (upper second class)

### **Additionally:**

- Higher National Diploma (Electronic Engineering) Royal Air Force Cosford
- Ordinary National Diploma (Aerospace studies, avionics) Royal Air Force Cosford

**Languages:** Advanced standard in French, conversant with technical phraseology and can operate effectively in the technical and business environment in French.