

Nick Stevens • Curriculum Vitae

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Profile

I am a highly skilled, motivated and creative Fellow of the Institute of Mechanical Engineers (IMechE), able to rapidly assimilate new skills and with a diverse background, including seismic design, finite element analysis and simulation, technical governance and assurance, and asset management, all in highly regulated environments of nuclear or aerospace engineering. I have excellent team management skills and am a leader, able to communicate, motivate, and work effectively with all levels of an organisation. I am a doer and a team player, and am committed, passionate, reasoned, friendly and inclusive, with these softer skills complimenting a breadth and depth of technical engineering capability. I have management, leadership, business process and commercial responsibility which makes me a valuable asset.

In my current role as Asset Management Investment Decision-Making Lead I am leading a team in transforming asset management for Babcock, Devonport. This includes significant innovation with digitisation, including integration of optimisation algorithms and machine learning. I am experienced in taking risk-based, objective and considered technical judgements, with demonstrated authority and accountability. I have a passion for systems thinking, and in actively developing the people, processes and tools to effectively deliver this capability within Babcock.

Key Skills

- Excellent communication skills, both written and verbal.
- Management and leadership; I am empathic, open, honest, challenging and supportive.
- Calm, reasoned, creative, analytical and objective decision maker and problem solver.
- Resilient, positive, friendly, and extremely organised.
- Engineering process development. Developing and continuously improving design process approaches and tools to deliver better solutions more efficiently.
- I am passionate about a number of areas of engineering, including systems thinking, systems engineering, probabilistic / statistical methods (Monte Carlo sampling, Design of Experiments), response surfaces, etc.), and this passion makes me challenge the status-quo, creatively problem solve, and look for areas to improve how we deliver.
- Dynamic finite element analysis, including seismic analysis and soil-structure interaction, and the associated validation.
- Verification and validation of designs using methods proportionate to the technical risk.
- Asset management leader and practitioner.
- Expert in using Excel, PowerBI, VBA and Python for data analysis, machine learning and analytical insights.
- Computer literate; with experience in ANSYS, Excel VBA, Palantir Foundry, Jupyter, Mathcad, Matlab, Nintex, PowerBI, Python.
- Fellow of the Institute of Mechanical Engineers, FIMechE.

Employment History & Project Experience

Asset Management Investment Decision-Making Lead, Babcock International Group, Devonport

(October 2024 – present)

Achievements and responsibilities:

- Leading the Investment Decision-Making team within the Asset Management Transformation Programme at Devonport. Delivery using Agile Scrum.
- Developing novel digital tools to streamline asset management and decision-making. This includes Bayesian Networks and Portfolio Optimisation, including use of Machine Learning models.
- Leading and inspiring a small team to delight the internal and external customers.

- Trialling asset management tools within three facilities at Devonport.
- Stakeholder engagement, communication, requirements capture and verification.
- Improved the scores within several asset management competence areas as assessed by an external surveillance visit by AMCL.

Chief Engineer, Babcock International Group, Devonport

(April 2021 – October 2024)

Achievements and responsibilities:

- Leading the Office of the Chief Engineer and recruit to expand the team to meet the expected future demand during the major construction works at Devonport Royal Dockyard, a nuclear licensed site (2024).
- Championing the use of data-driven decision making, utilising PowerBI dashboards, digital workflows, and machine learning predictive models to support the Office of the Chief Engineer (2023).
- Leading the Major Infrastructure Projects Office of the Chief Engineer in providing independent technical governance and assurance to the design and development of new facilities and systems at Devonport Royal Dockyard (2021-2024).
- Leading and managing delivery of two digital workflow improvement initiatives, innovating verification and design review processes (2021-2023).
- Leading the technical recruitment to grow the Office of the Chief Engineer team, commensurate with the scale of the forward workload (2022-2023).
- Leading an initiative to develop a suite of technical standards to support the delivery of all Major Infrastructure Projects. The technical standards will provide an end-point for organisational learning from experience, as well as a definitive collection of relevant good practice for the design of systems, structures and components for nuclear facilities (2022).
- Leading the technical governance functional area of the company Business Management System Simplification initiative. This involves conversion of a range of arrangements into a single Process document plus a handful of Work Instructions. This is not just a copy-paste task but a ground up rewrite starting from the principles of technical governance and building up (2022).
- Chairing Design Reviews across the portfolio of Major Infrastructure Projects (2021-2023).

Assistant Chief Engineer, Babcock International Group, Devonport

(September 2018 – April 2021)

Achievements and responsibilities:

- Providing independent technical governance (oversight, assurance and direction) to major infrastructure projects. This involved responding to emergent technical issues with authority, rigour, and objectivity all within challenging programme timescales. In all cases, I work hard to resolve issues sensitively, effectively and accurately. I Chair a significant proportion of the Design Reviews and Technical Reviews, ensuring technical quality and Design Authority expectations are achieved. With a Technical Governance Manager reporting to me we manage the technical governance processes, managing the independent review of technical documentation (2019-2020).
- Management of a team of technical subject matter experts providing technical advice to the Design Authority and Chief Engineer (2020).
- Authored the Technical Governance Manual, a body of knowledge summarising Babcock technical governance processes and enhancements required to support the scale of major infrastructure projects. Ongoing support to continuous improvement of technical governance processes, as a key member of the Process Improvement Group Lead Execution Team (2018-2020).
- Leading the development of a Systems Engineering initiative, a holistic and systematic approach to improve our ability to deliver projects consistency in the presence of uncertainty and complexity (2020).
- Secretary to the Seismic Working Group, an area of experience of mine, working with industry experts to provide timely and effective advice to our design teams (2019-2020).
- Design process improvement. Leading a team developing process improvements to the Babcock design process, for suitability for major infrastructure projects. Included summarising all design arrangements in a Manual to promote understanding of the processes and the purpose behind them. The design process set up clear expectations for the implementation of Systems Engineering, for right-for-time, robust and optimal design solutions (2018).

Senior Consultant, Tor Engineering, Torpoint

(January 2016 – August 2018)

Achievements and responsibilities:

- Mechanical services lead engineer during concept development phase of a major facility upgrade project. Innovated a data-driven approach to optimising mechanical handling operations and managing interfaces between systems, services and user requirements (2017-2018).

- Providing ongoing technical consultancy for gantry structure and defueling structure during manufacture and commissioning. Managing calculation updates for the as-built condition and providing reactionary support to emergent issues and requirements to meet tight project timescales (2016).

Senior Engineer & Consultant, Frazer Nash Consultancy, Plymouth

(March 2010 – December 2015)

Achievements and responsibilities:

- Became the company-wide single point of contact at Frazer-Nash for all seismic analysis information and support (2015).
- Technical lead for the seismic and structural assessment to BS 5950 and ASCE 4-98 of a gantry structure for Devonport dockyard. Utilised linear response spectrum analysis using ANSYS. Due to early involvement in this project significant value was added in the scoping stage using the finite element model to test various design iterations (2015).
- Technical lead providing support to the reanalysis of the steel-framed structure housing the nuclear defueling operations at Devonport dockyard (14 Dock). Particular focus on non-linear dynamic seismic analysis using ANSYS. Supported the seismic assessment of the structure, including setting out analysis requirements, reviewing results, assessing code compliance and using finite element analysis to review and solve emergent manufacturing issues. Well-versed in ASCE 4-98 for seismic assessment of nuclear structures and equipment. Other applicable codes used included BS 2573, BS 5950 and ASME III (2014-2015).
- Technical lead for finite element analysis of soil-structure interaction analysis of the nuclear-licensed Devonport dockyard site (14/15 Dock area) for a seismic event using ANSYS and SHAKE. ASCE 4-98 used for code compliance. Modelling included transmitting boundaries, non-linear soil degradation and dynamic behaviour (2011-2013).

Mechanical Engineer, Atkins, Derby

(October 2006 – March 2010)

Achievements and responsibilities:

- Bid manager (bid was won) and technical lead for an extended package of analysis and certification on the Trent 1000 Package B turbine casing project. Detailed finite element assessments of low-cycle fatigue, creep and plasticity (2010).
- Technical, managerial and leadership role, responsible for one graduate engineer for the stress analysis and certification of the Trent 1000 HP/IP Turbine Casing. This used Rolls-Royce in-house finite element package (SC03). Low-cycle fatigue analysis (including rainflow cycle counting), creep and plasticity. Certification requirements in line with EASA standards. (2009).
- Responsible engineer for modelling, analysis and certification of several hydraulic pipe systems of Astute-class nuclear submarines. Assessment covered a variety of submarine hull impact scenarios and the subsequent dynamic response of the pipework systems within the submarine (2008).
- Technical lead for certification of the IPC drum of the RB211 Industrial Trent Engine used for power generation. Analysis included fatigue, chocking, margin, creep, overspeed and damage tolerance, forming part of the Engineering Critical Parts Plan required for engine certification (2008).
- Responsible for analysis of several turbomachinery components for the Joint Strike Fighter aircraft Lift Fan engine for first flight certification. Analysis of damage tolerance and crack propagation, fatigue and durability, plasticity and creep, high cycle fatigue and vibration and thermal analysis for both metallic and composite components (2007).

Previous (2002-2006) experience includes University summer placement experience at Moulton Developments Ltd (spaceframe bicycles designer and manufacturer), Ministry of Defence (Lynx helicopters and Javelin Antitank missile project teams) and MSA Environmental Ltd (environmental consultancy) under an engineering training scheme with the Ministry of Defence.

Education & Professional Memberships

University of Nottingham

- Mechanical Engineering , MEng Hons, 1st Class (graduated 2006)

Institution of Mechanical Engineers

- Chartered Member and Fellow, FIMechE (Chartered since 2010, Fellow since 2022)

Hobbies & Interests

I volunteer with the Scouts as an Assistant Section Leader. I enjoy trail running, walking on Dartmoor and the coast path, reading literature and playing guitar. I have three children to keep me on my toes. In my free time I explore my interests in software engineering, personal knowledge management, Austrian economics, Stoicism, systems thinking, mindfulness and productivity.

References

References are available upon request.