

Business Simulation and Modelling for Healthcare

Service Category: Cloud Migration Planning, Cloud Support Services

About Our Service

We apply advanced modelling techniques to help you make better informed, evidence-based, care decisions. If you are operating in a new, uncertain or volatile healthcare environment we can help you tackle your complex business decisions across care settings by using systems thinking to understand what options and outcomes are available.



Service Features

Computational whole-system modelling; proven industry best practice and latest innovations

Mathematics application to actual problems (e.g. waiting lists, care pathways)

Forecasting of demand, predicting shape of waiting lists

Numerical modelling, applying conventional or Bayesian statistical analysis and techniques

Probabilistic models of future demand, staffing and performance

Business process modelling and business analysis, "as-is" and "to-be"

Operational modelling to permit asset management and value optimisation

Analytics of large datasets and handling of data quality issues

Modelling approaches combine with systems engineering concepts

Introduces patient pathways into the assessment of requirements compliance

Service Benefits

Good, and justifiable, decisions are made appropriate for care setting

Shared vision across your stakeholders (patients, clinical and operational staff)

Rapid analysis of large/complex datasets through intuitive user interfaces

Professionally managed software quality assured outputs

Allows optimal prioritisation of resource procurement/use; operational modelling

Prediction of future assets/ enterprise performance permitting "what if" testing

Prediction of project economic performance/risk

Parametric modelling of CAPEX OPEX revenue

Provides visibility for pan-integrated care system decision-making

Significantly de-risks complex decisions before committing investment or action

Detailed Service Definition

The world is transforming quickly and in the healthcare sector we are operating in new, ambiguous, volatile or uncertain environments. The multi-layered interactions of people, systems and processes in any enterprise mean that when a problem arises, or a new activity is planned, identifying the dynamic factors that can influence the outcome is difficult. Decision-makers can no longer rely on intuition because critical connections will be missed. Knock-on effects often cause unexpected outcomes.

Frazer-Nash's modelling and analytics experts specialise in developing solutions to health and social care problems, using computational and analytical techniques to act as a critical enabler that supports patient flow and informs decision-making at care setting and integrated care system level.

Detailed Service Definition (continued)

Our modelling provides decision-makers with the right information to understand the options, their risks and likely success. Working at discovery phase we can help elicit user stories, and importantly the interaction and feedback between them. This will help ensure good, and justifiable, decisions are made on the features for your minimum viable product. Continuing through alpha phase, user data and interactions can be analysed and incorporated into the model.

Our aim is to achieve value by providing an appropriate solution for a fraction of the cost when compared to more intensive approaches. For example, we have developed high-level tractable solutions to assessing through-life risks of a complex programme, where others have tried a fully data-driven approach and failed. We take a systems approach to the problem to ensure that we are solving the real problem, making the right assumptions and communicating results that add value to the client.

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We offer a wide range of techniques including value mapping, enterprise modelling and model-based systems-engineering. We can apply numerical techniques such as Monte Carlo, systems dynamics and agent-based models. Coding languages include JavaScript, C++/C#, Java, Python, Visual Basic, and even legacy languages such as C and Fortran.

Detailed Service Definition (continued)

We can tackle a broad range of cloud service applications. A few examples are listed below:

Computational modelling; consistent with the philosophy and benefits articulated in the Blakett Review (Government Office for Science 'Computational Modelling: Technological Futures' 2018).

Logistics or operational modelling; for example, a network flow model of a patient pathway through elective surgery, often making use of machine learning or artificial intelligence to account for an evolving environment.

Business strategy modelling; for example, quantifying the benefits of a new scheduling philosophy permitting testing of counter-intuitive solutions in a safe virtual environment.

Numerical modelling; for example, prediction of material properties in systems where the uncertainty / variability overwhelms the data, applying statistical techniques such as uncertainty modelling, bootstrapping and Bayesian techniques.

Detailed Service Definition (continued)

We can tackle a broad range of cloud service applications. A few examples are listed below:

Visualisation of data or systems; harnessing the power of modern visualisation techniques to communicate complex ideas to all stakeholders.

Developing intuitive user interfaces; for example, interacting with requirements databases to make rapid impact assessments, and allowing the client to rapidly analyse large and complex data in a repeatable, quality assured manner.

Cost / benefits modelling; for example, cost benefit analysis of a change in prioritisation of elective surgeries which includes consideration of the impact of input data uncertainty from the outset.

Applying mathematics to complex real-world problems; for example, modelling of acoustic transmission through vessels, and modelling of internal ballistics.

Detailed Service Definition (continued)

We can also support cloud service on-boarding of analytics capability. Our deep knowledge and experience of developing analysis and simulation tools means we are ideally placed to help migration of your analytical services into the cloud, to support your development of Analytics as a Service (AaaS).

Why Frazer-Nash Consultancy?

Frazer-Nash Consultancy is an independent engineering and technology consultancy with over 35 years' experience delivering high-quality digital and cloud-enabled solutions. We support organisations operating in complex and regulated environments through our collaborative approach and deep expertise in digital engineering, software development and systems integration.

We are **solution and technology-agnostic**. We assess our clients' requirements and provide impartial advice and design solutions based solely on their needs. This independence enables us to select the most appropriate cloud technologies and architectures to deliver secure, resilient and value-for-money outcomes.

Our cloud solutions are informed by experience gained across multiple platforms, sectors and use cases. We combine proven engineering discipline with a strong understanding of integration and whole-system design to support and enable cloud adoption while managing risk and ensuring long-term sustainability.

Our Commitment to Quality

Frazer-Nash is committed to delivering consistently high-quality services and outputs that **often exceed customer expectations**. Quality is embedded throughout our ways of working, from engagement and communication through to delivery and assurance.

We actively monitor progress using our robust, proportionate controls, ensuring key decisions are subject to appropriate challenge. Each project is allocated a dedicated Project Manager, a Project Supervisor who independently reviews and approves monthly reports, and a Project Auditor for ongoing quality assurance.

We ensure accuracy and suitability for purpose of all deliverables, with independent verification by two reviewers. Our Quality Management System is certified to **ISO 9001 and TickITplus** (for software development), providing customers with confidence that our quality standards are externally assured and continuously maintained.

Our Security

Frazer-Nash operates robust security processes and controls suitable for handling sensitive and classified information **above OFFICIAL** up to and including **Top Secret**. Security is embedded across our people, processes and systems, ensuring information is protected throughout delivery.

We support sensitive and critical programmes across government and national infrastructure by applying strict information-segregation controls, including team separation to address security, or conflict-of-interest considerations

All 1500 staff hold **BPSS clearance as a minimum**, with the majority cleared to **SC** and **over 225 consultants holding DV clearance**.

Our IT systems are certified to **ISO 27001 and Cyber Essentials Plus**, providing assurance that information security risks are proactively managed in line with recognised industry standards.

Our Approach to Subcontracting

Frazer-Nash primarily delivers services through our large base of permanent staff, supplementing this capability where required with trusted partner organisations to provide additional flexibility, specialist expertise and scale while retaining full delivery control.

We are experienced in engaging and managing subcontractors across the full project lifecycle, ranging from sole traders to large multinational organisations. Our structured approach ensures the right supplier is selected for each requirement and integrated effectively into the delivery team.

Our subcontracting processes focus on robust supplier identification and assessment, clear definition of scope, appropriate flow-down of contractual terms and conditions, and proactive risk management. All subcontractors are subject to proportionate commercial and technical due diligence to ensure they meet our standards for security, quality and delivery, enabling us to deliver outcomes on time, within budget and to the required quality.



Resourcing

Frazer-Nash employs over **1,500 technical specialists** across all grades, from **Follow to Set Strategy**, providing depth, continuity and scalability across a wide range of disciplines, backgrounds and experience levels.

To support agile and flexible delivery, our people are organised into defined **technical delivery areas** (including Information Systems, Cyber, Modelling and Software), which are deployed across multiple sectors such as central and local government, policing, health and energy. This structure, combined with strong portfolio, programme and project management (P3M), enables us to actively monitor demand and adapt resourcing throughout the project lifecycle.

We deliver complex requirements efficiently, consistently and at pace by forming tailored, multi-disciplinary teams led by a single accountable Project Manager.

Our consultants regularly work across different sectors, enabling us to cross-pollinate ideas, tools and best practice between domains. Drawing on in-house expertise, such as information security and human factors, we ensure effective and responsive delivery for every client.



Our Commercial Approach

Frazer-Nash adopts a flexible and transparent commercial approach to ensure best value and a model that aligns to each client's specific requirements. We collaborate with customers to clearly define the scope of services and agree a commercial structure that is predictable, proportionate and aligned to your required outcomes and effective delivery.

Depending on the requirement, this may include a **fixed-price model for clearly defined scopes**, or **time and materials using agreed day rates** where flexibility is required to accommodate evolving needs.

For longer-term or ongoing service requirements, and where we have control over resource flexibility, we can also offer a **single blended day rate** covering a range of grades. This provides simplicity, transparency and ease of management while maintaining access to the appropriate skills at the right time.

Next Steps

To discuss your requirements in more detail or request an order for services, please contact ccs@fnc.co.uk

