

Analytical Model Quality Assurance

Quality Assurance for Cloud-Based Modelling

What Analytical Model Quality Assurance do we provide?

The move to cloud computing has transformed analytical model development and use.

Cloud-based analytics and business information platforms are now prevalent, with models built using tools such as R/Shiny and Python, enabling online deployment.

Specialist modelling applications such as SIMUL8 (simulation), FICO-XPRESS, GUROBI and CPLEX (mathematical optimisation) and MATLAB (mathematical modelling of various types) now allow deployment on services such as Azure and AWS as well as on-premises and private cloud servers.

Software that fosters collaborative decision making, decision models and processes, such as Transparent Choice (Analytical Hierarchy Process) has become more widely used.

As cloud-based model deployment makes analytical models more accessible, the need for disciplined quality assurance has never been greater. Incorrect models and ineffective use of models can be costly to organisations.

InterCity West Coast: A Lesson Learnt

The total cost to the UK taxpayer of the spreadsheet model errors that contributed to the abandonment of the InterCity West Coast franchise competition in 2012 is estimated to be in excess of £50million.

The Macpherson review into quality assurance (QA) of analytical models across government recommended that departments establish the processes and culture to support model development and quality assurance.

Those recommendations recognised that model governance and QA processes should reflect both the level of business risk associated with the model, and the complexity of the model itself.

“Complex models affecting major decisions demand robust quality assurance.”

Why choose Hartley McMaster?

Hartley McMaster is a consultancy specialising in analytical modelling and data science.

We provide Analytical Quality Assurance (AQuA) reviews and testing of analytical models, optimisation of AQuA processes and support in developing new AQuA procedures.

Our consultants have an extensive track record of providing analytical quality assurance support to the public and private sectors.

Clients have included BEIS, Defra, MoJ, HMCTS and HMPPS.

Notably, we contributed to HM Treasury's AQuA Book, which provides guidance on producing quality analysis for government departments. Automate data collection, processing and reporting

Why choose Hartley McMaster?

OUR OFFERING INCLUDES

- Analytical model testing with independent verification and validation
- Quality assurance reviews of individual models and their use
- Reviews of existing quality assurance processes for analytical models
- Mentoring, advice and support in launching new analytical quality assurance processes
- Advice and support in best practice development of analytical models

WHY WORK WITH US?

- Gain stakeholder confidence in mission-critical analytical models with an independent, impartial assessment
- Identify and understand the hidden risks that your analytical models may pose to your organisation
- Strengthen your risk strategy by incorporating best practice model quality assurance
- Rapidly develop a roadmap and specification for improving or launching model quality assurance
- Access the knowledge and experience of proven experts in analytical model quality assurance

Additional Service Details

PLANNING

We work with customers to plan Analytical Quality Assurance (AQuA) reviews, initially exploring how our service can be applied, alternative approaches to modelling challenges, and the outputs of the review.

The plan for an AQuA review typically involves:

- Agreeing the scope and requirements
- Formulating a list of activities, along with software, tool and data access requirements
- Scheduling the work
- Executing the review as a sequence of work packages, activities and tasks
- Reporting the findings and results

We also help customers to set up their own analytical quality assurance processes. We initially review the role and use of models within the organisation. We then provide advice, guidance and assistance, including:

- Advice on embedding analytical quality assurance in modelling and software development processes
- Mentoring on the adoption of best practices (modelling and software development)
- Helping to implement, trial and document new processes and procedures
- Undertaking a review of new analytical quality assurance systems

Additional Service Details

QUALITY ASSURANCE & TESTING

Across all work we are happy to comply with our customer's quality assurance (QA) procedures or, if preferred by clients, can adhere to our own, in-house quality system.

Our procedures are tailored to the AQuA-specific aspects of the review process, from planning, through implementation, management and documentation to delivery and support.

PRICING

For full pricing information please refer to Hartley McMaster's Pricing and Terms and Conditions documents.

Additional Service Details

TRAINING

We tailor our training courses to the stakeholder requirements, modelling needs, development environment and toolsets of our customers.

Courses typically target specific areas of model development or maintenance (e.g. configuration control), specific review techniques (e.g. approaches to testing or profiling) or the transfer of niche skills (e.g. technical documentation).

Additional Service Details

ONGOING SUPPORT

Technical de-brief: We provide a verbal presentation of our AQuA review findings, conclusions and advice to accompany our written report.

Follow-up reviews: Where requested by a customer, we will assess compliance with recommendations and advice from AQuA reviews, at a customer-specified interval after completion of the original review.

We ensure that all review documentation is backed up as part of our standard data backup, business continuity and disaster recovery plans.

The technical de-brief is normally conducted as a semiformal presentation with all interested stakeholders invited. There is the opportunity to question findings, discuss recommendations and ask for further advice or guidance.

The follow-up reviews assess progress made towards meeting the recommendations of the original review.

Additional Service Details

SERVICE CONSTRAINTS

Our services are not usually confined by the original development environment, methodology and tools.

We can work alongside the customer or at our own offices and remotely. In exceptional cases, we may require access to specific customer tools or data sets.

SET UP AND MIGRATION

We provide assistance with setting up, deploying, maintaining and operating the environment within which AQuA reviews take place on customers' premises. We can also provide these same services from our own (remote) offices.