



Department
of Energy &
Climate Change

The Aqua book:

Guidance on quality analysis and
modelling for government

Alec Waterhouse – December 2014



Model Quality

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Three civil servants suspended after government is forced to rerun bidding process for West Coast rail route because it got its sums wrong



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West Coast bid: Minister admits 'unacceptable mistakes'



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20 April 2013 Last updated at 00:53
Reinhart, Rogoff... and Herndon: The student who caught out the pros
By Ruth Alexander
BBC News
This week, economists have been astonished to find that a famous academic paper often used to make the case for austerity cuts contains major errors. Another surprise is that the mistakes, by two eminent Harvard professors, were spotted by a student doing his homework.
It's 4 January 2010, the Marriott Hotel in Atlanta. At the annual meeting of the American Economic Association, Professor Carmen Reinhart and the former chief economist of the International Monetary Fund, Ken Rogoff, are presenting a research paper
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How a steel shortage stopped this being the world's tallest structure
09 April 2014 Wednesday



HM TREASURY
Review of quality assurance of Government analytical models:
final report



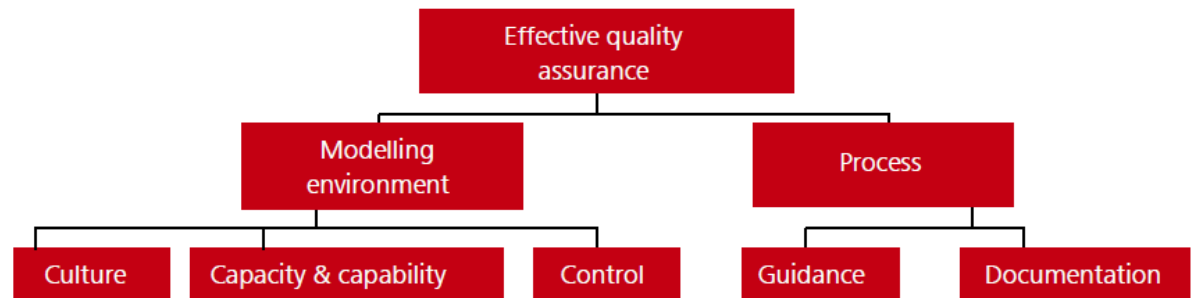
Recommendations

- 1: **business critical models** ...should have appropriate quality assurance
- 2: **business critical models** ... managed within a framework that ensures appropriately specialist staff are responsible ...
- 3: **Single Senior Responsible Owner** for each model ... model should summarise the QA that has been undertaken, ... expert scrutiny and challenge ... SRO is content with QA process
- 4: **The Accounting Officer's governance** ... confirmation that an appropriate QA framework ...
- 7: **expert cross-departmental** working group to share best practice



Modelling Quality Assurance

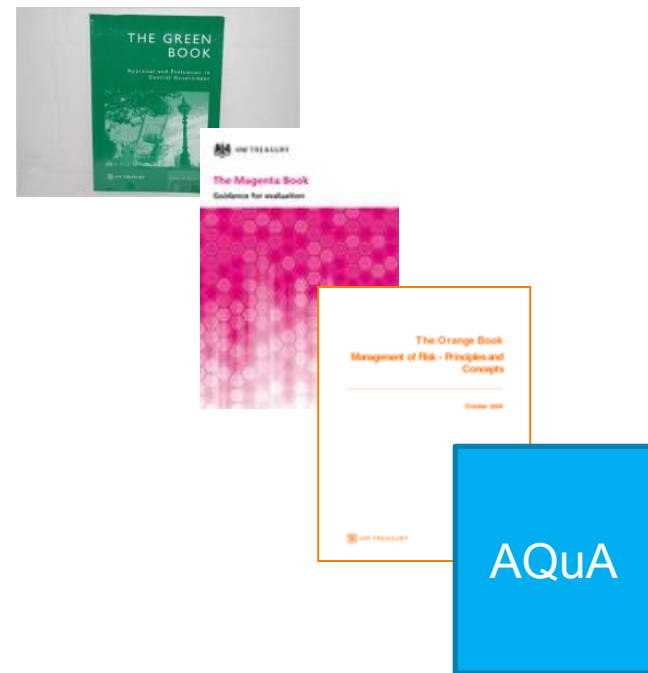
- Changed environment for models in government
- Increased focus on assurance
- Demonstrating application
- Applies to all





Genesis

- Many books
- None covering modelling assurance
- Extended to cover analytical quality assurance



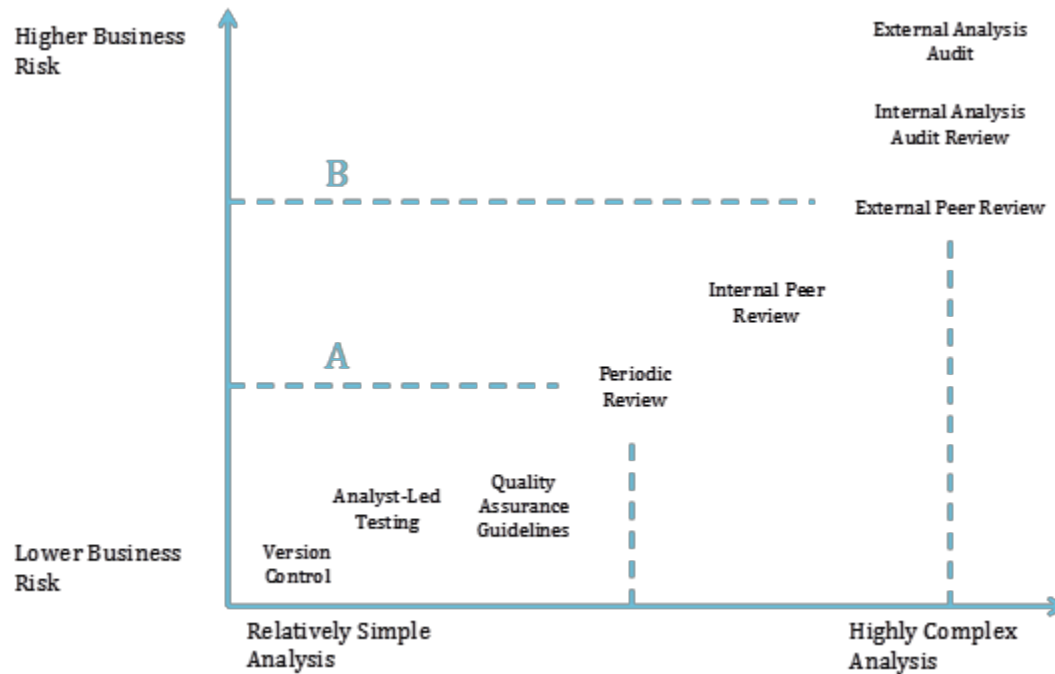


AQuA principles

1. Proportionality of response
2. Assurance throughout development
3. Verification and validation
4. Analysis with RIGOUR
 - Repeatable
 - Independent grounded in reality,
 - Objective,
 - understood and managed Uncertainty
 - address the initial question Robustly



Proportionality of response





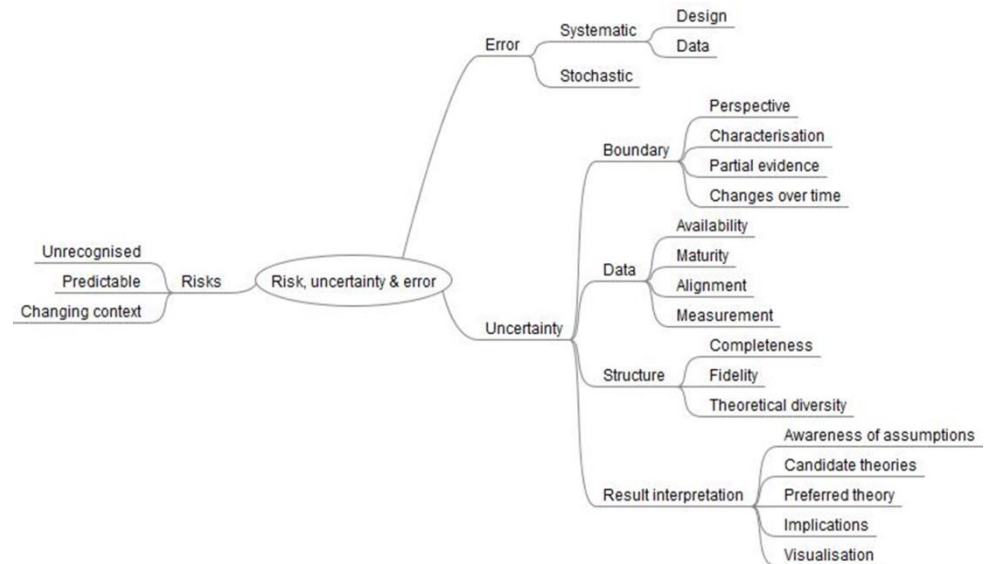
Assurance throughout development





Implications for analysts

- Identify sources of uncertainty
- Quantify them, if possible
- Assess their impact on outcomes





Communication

Layered approach:

concise summary: range and likelihood of outcomes, deep uncertainties, reasons, options

more detail for those who want it

Acknowledge *outcomes* are uncertain

Focus on communicating the *strategy*: how it addresses uncertainties, and the quality of analysis it is based on





AQuA principles

- Apply to third parties
 - Non-departmental bodies
 - Consultants
 - Academics

If you want your work to be used – make sure it is AQuA compliant.



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Thank you

Questions?