

# Business-Level Risk Modelling for Asset-Intensive Organisations

Asset-intensive organisations face ever increasing challenges as they strive to balance the demands of customers, regulators and shareholders. The key to striking this balance lies in understanding the factors that link cost, risk and performance.

Tools such as Reliability Centred Maintenance and FMECA (Failure Modes, Effects and Criticality Analysis) can help in understanding the performance of individual assets and components at the micro level but a different approach is needed to gain insights at a business level, such as:

- How is overall business risk influenced by asset reliability?
- What is the most cost-effective way of balancing business risk and asset or process performance?

Working with clients whose asset bases amount to many £billions, Capgemini has developed an innovative modelling approach and analysis toolkit for evaluating the performance of entire groups of assets. This has helped our clients to resolve issues such as:

- Identifying areas where over- or under-investment has led to an unbalanced risk profile
- Comparing the cost of different options for reducing risk, such as increasing standby capacity or altering asset configuration

This Business-level Risk Modelling approach has led to benefits in excess of £10 million from improved design, optimised maintenance and more efficient operating philosophies.

### Business Level Risk Modelling

- Operates at a higher level than traditional asset reliability modelling
- Considers the business consequences of asset failure, not just the consequences to operational processes
- Is particularly applicable to assets with a volatile role profile – e.g. where sudden changes in operating conditions (adverse weather and/or increased throughput) lead to capacity constraints and frequent breakdowns

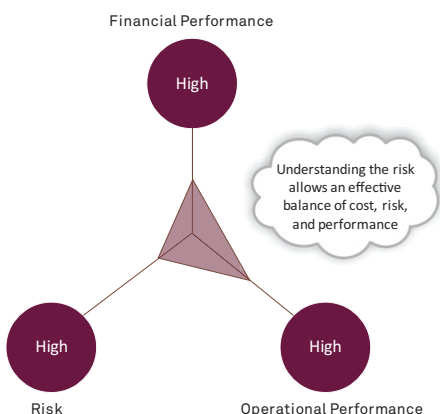
### Our Four Step Approach

Firstly, we work with your experts to identify the key elements that impact on reliability – typically design, configuration and maintenance considerations.

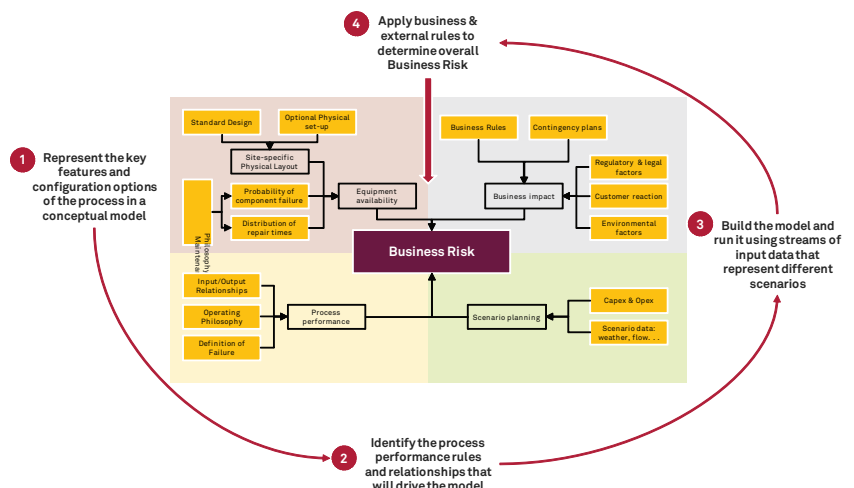
This allows us to capture the key features of the process in the form of a conceptual model. This is a diagrammatic representation of the process showing links, inputs & outputs, and the relationships that will be modelled. The conceptual model acts as a focus for discussion and debate, and at this stage is an initial view of the model scope.

The second step involves detailed data mining and statistical analysis to confirm or disprove the relationships that have been suggested, and to determine failure rates and repair times for the components involved. The high-level end-to-end approach of this analysis phase often yields significant insights into the main drivers of process performance.

### Asset Risk Approach

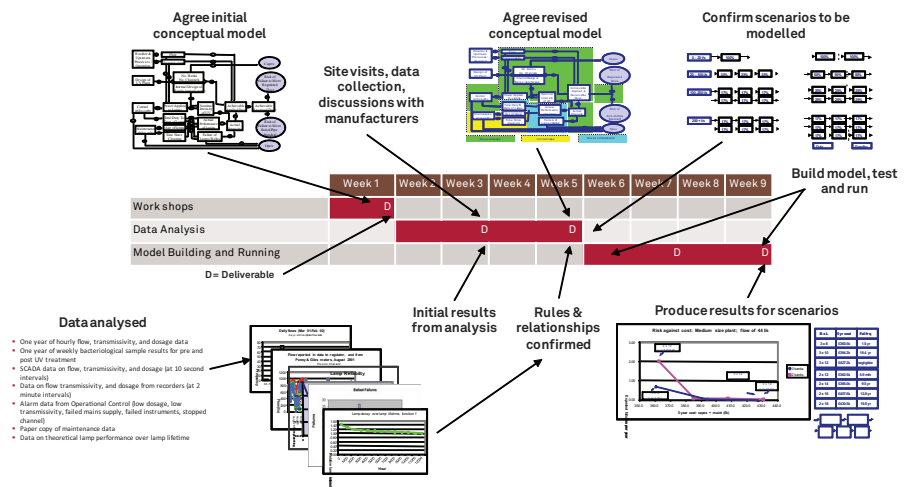


### Our Four Step Approach



In step three, the model itself is configured and run against a variety of scenarios. This tests the robustness of the process at different levels of stress, and determines the effect on process reliability of changing maintenance frequency or operating philosophy.

Step four involves using the model to examine the impact of process performance on Business Risk. This allows different design, maintenance and operating strategies to be tested against a wide range of scenarios, identifying the option that gives the optimum balance of Cost, Risk and Performance.



### Our Experience and Credentials

Capgemini's international reputation in the field of Asset Management is supported by a highly-experienced group of Business Analytics consultants. We work with clients to deliver innovative Asset Management solutions in sectors ranging from Travel & Transport to Energy & Utilities.

As an example, we worked with one of the UK's leading water companies to carry out a nine-week Business-level Risk Modelling investigation into the design, maintenance and operation of the client's ultra-violet wastewater treatment plants.

The work led to savings in excess of £2.5 million through optimising the maintenance strategy. It also identified an improved standard design for smallscale installations, since they were shown to carry a significantly higher risk of failure than medium or large plants.



### About Capgemini

With 112,000 people in 40 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2010 global revenues of EUR 8.7 billion. Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want. A deeply multicultural organisation, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.

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