TFD Europe

Q. Why use Modelling for Logistic Decision Support?
A. To Deal with, rather than Sink Under, the Complexity of Logistic Support

Are you struggling to understand how modelling can help you to:

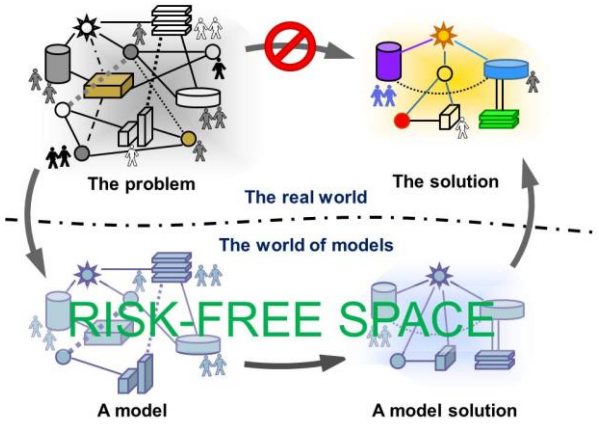
- Choose between equipment to minimise through-life cost?
- Evaluate optimum repair policies and locations?
- Maximise availability while minimising the cost of spares and repairs?
- Estimate all support costs through-life?
- Identify the support cost drivers and develop business cases to improve them?
- Maintain support solutions at peak efficiency?
- Evaluate how to manage future change?
- Make support decisions, set budgets or prices, agree service levels and manage costs
- Defining the best Support and Repair strategy?

Stop Struggling!
TFD can solve these problems by modelling using our Supportability Workbench

The support of modern systems, regardless of their environment, has become very complex. Their use is more varied, demanding and with higher expectations that systems will work when required. Equipment has become increasingly sophisticated with systems having thousands of components. And Support needs have become more exacting with advanced technology and diverse supply chains. All the time affordability pressures are increasing to '***do More for Less'***.

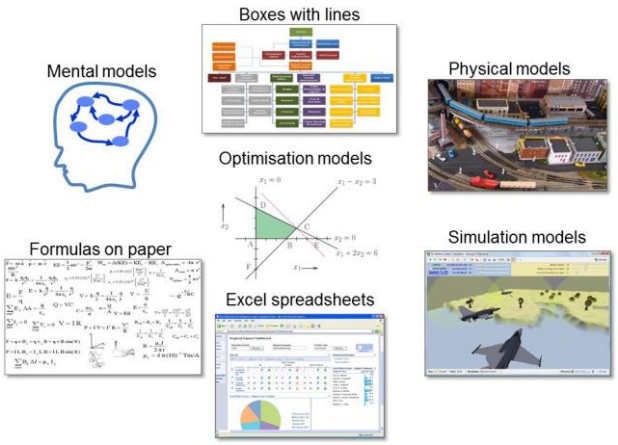
The elements describe an extremely large and complex problem with many uncontrollable, time-based but interconnected variables. Faced with this complexity, our ability to understand and evaluate the most effective solutions is becoming overwhelming. The system does not behave linearly but in unpredictable ways with planned actions having disproportionate or no effect in specific circumstances. Indeed, whatever you do, including doing nothing, changes the problem on you.' Analysis by traditional deterministic means is simply not possible as there are more potential solutions than atoms in the universe, calculations time would exceed the life of the universe, and there is no single right answer. It is not a puzzle but a clear example of a 'Wicked Problem'.

Modelling can help deal with this challenge. vModels may take many forms but they all have one key feature – they are abstractions of the real system. They represent the real world sufficiently to provide a risk-free space or 'sand box' in which to explore behaviour and experiment with solutions.



In the world of logistic support, the most useful models are software tools that hide the complexity from the user within the algorithms. The problem thus translates from a need to have a deep scientific understanding of how all the elements interact into a set of processes to use the tools and analytical techniques.

As an analogy, Airbus pilots do not know the full technical detail of their complex, software-based flight control and autopilot laws, but they can fly the aircraft easily, effectively and efficiently to their destination.

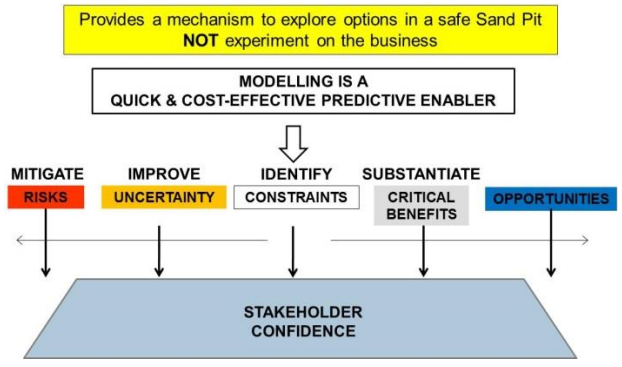


Modelling is the best way to deal with, rather than sink under, the complexity of typical logistic support challenges. Modelling simplifies the user's problem without ignoring the implicit complexity.

Modern equipment is carefully designed and exhaustively tested to ensure that it works as planned. Failures are analysed and measures are developed to control the impact of failure. Similarly, users are trained in both normal and system failure conditions to operate it safely and as effectively as possible. You would not dream of flying in an airliner that had not been fully tested and where the pilot was not regularly trained and tested in a flight simulator.

But often in business, particularly in logistic support, people routinely fail to test and evaluate the effectiveness of their support solutions before implementing them. Judgement or simple calculations substitute for effective analysis. Worse, the outcomes are often based on limited and uncertain data assumptions that are not assured. The outcome is often not as planned or, to control risks, excessive margins are added. In short, logistics Test and Evaluation is not normally conducted and the outcome is left to chance. There is no logistics 'flight simulator' in which to train.

Modelling can solve these issues to provide a mechanism to experiment beforehand in a safe 'Sand Box' ***not on the live business***. It allows constraints to be understood, bottlenecks to be identified, sensitivity analysis applied, and the maximum intrinsic capacity of the system to be determined. From this, the potential operational and financial impacts of alternative operating scenarios, such as stress conditions and risks, and improvement options can be evaluated. In essence, modelling is a low cost, rapidly deployable and effective tool for de-risking decision making without the need for lengthy, costly and uncertain practical trials.



Ideally, modelling is the basis for continuous improvement to enable not just planning but the control of logistic support.

The mission of an Integrated Logistic Support Manager (ILSM) is to:

> ***Plan, implement and improve through-life the effective support of a system to meet the required tasks, while seeking efficiencies to balance more output, with fewer systems at lower cost.***

This translates into the typical tasks below that can all be usefully informed by modelling.

- Periodically re-optimise support resources.
- Assess options to reduce costs while minimising loss of capability.
- Continuous improvement reviews of options to either improve availability, reduce the in-use fleet size, or reduce future costs.
- Logistic impact assessment of operational deployments while maintaining training.
- Supportability impact of task surges.
- Supportability impact of major fleet upgrades.
- Analyse Level-of-Repair strategy break points.
- Cross-platform use of shared repair facilities
- Evaluate new equipment design choices for obsolescence and upgrades.
- Benchmark and evaluate contract prices.

TFD's Supportability Workbench includes a suite of tools to meet all these needs:

- Plan the right Support Solution using ***EDCAS***.
- Optimise spares solutions using ***Tempo*** anticipating changes over time.
- Develop a detailed Life-Cycle Cost across all resources using ***MAAP***.
- Explore 'what if' scenarios using ***mPOWER***.
- Continue to achieve in-service KPIs despite real word events and changing scenarios by monitoring and actively sustainng support solutions using ***SCO***.

TFD's Supportability Workbench combines all these tools based on a single, integrated ***TFD dataVault*** for effective decision making through modelling.

TFD can provide the software, skilled and experienced supportability modelling analysts, and training to solve difficult logistic problems.

STILL Struggling?