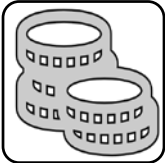


Problem statement and value proposition

How do we undertake optimisation in an uncertain parameter space with competing definitions of 'success'?



Military bridging operations are complex, and the time for a convoy to complete a route depends on the gaps encountered, as well as the number, type, and location in the convoy of the available bridges.



Finite resources for investment, meaning there is a finite pool of assets. Different assets have different attributes and therefore different impacts on route completion time.

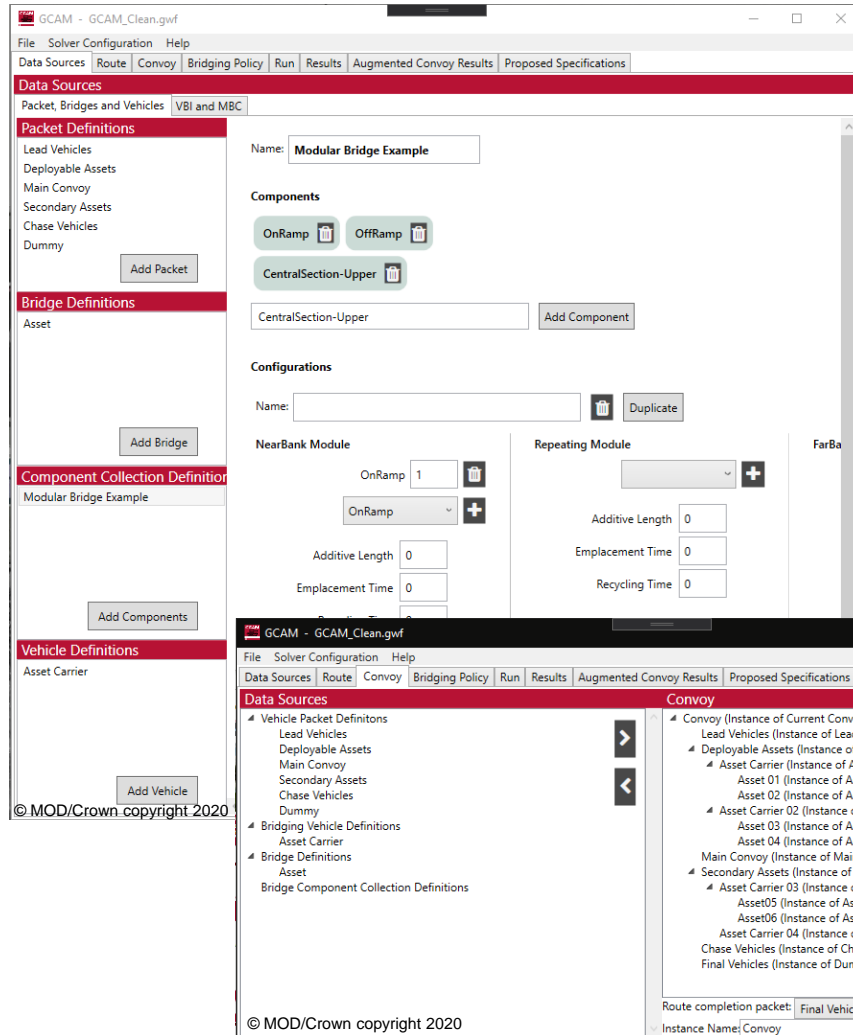


What is the 'best' mix of assets that the UK can invest in? Bearing in mind there may be competing definitions of best, most resilient on average, most resilient for a specific route, faster on average..., etc.



Frazer-Nash and Dstl have worked collaboratively to implement a software solution to improve decision making on asset investment and deployment by using software to encode complex logic to reduce simulation time from one run per day to hundreds per hour to enable meaningful 'what-if' calculations.

Example of implementation



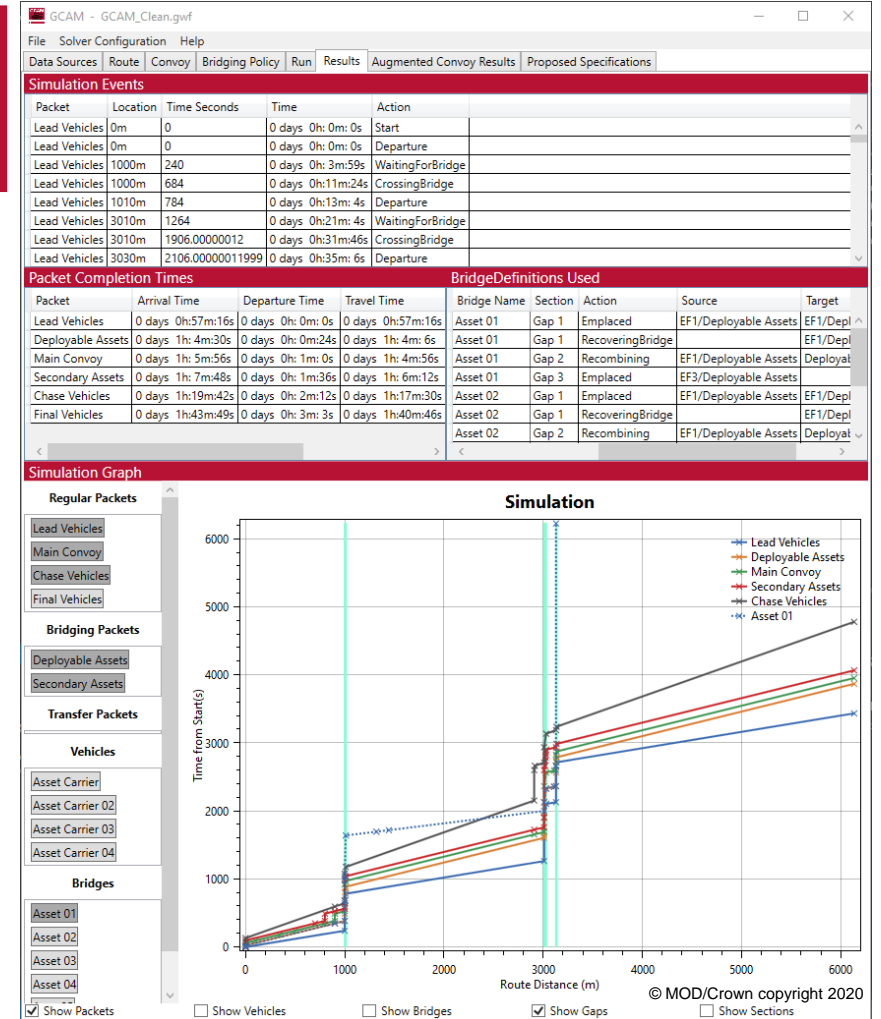
Blend UX with scientific
output to enable clear
decision making

Intuitive setup

Tailored post-processing

Detailed tabular
output

User friendly
graphs



Our solution

We provide desktop and cloud-based software systems that provide insight and value, enabling users to make decisions in an efficient manner to further the sustainability, energy, security and transport sectors.

Software service	Benefit	Case study detail
Requirements capture and an Agile development approach.	Answer the right question, at the right time.	Six-week cycles with Dstl analysts, deploying and responding to change.
Background in fast and efficient algorithms to be coded in many languages.	Reduced turnaround time for simulations.	Hundreds of runs per hour with the new tool, compared to one run a day previously.
Logging and auditing, including ISO9001 and TickIT <i>plus</i> .	Repeatable and auditable.	Encapsulate decisions as code and automatically write detailed log files.
Expertise in understanding Monte Carlo and its application across a range of sectors.	Informs risk decisions.	Option to set bounding cases and run different 'what if' scenarios automatically.
Bespoke software to link to other tools and resources, including pipeline integration.	Informs investment decisions.	Automatic aggregation of cost metrics for the impact of decisions.
Customisable output and visualisation.	Share knowledge to internal and external stakeholders.	Novel visualisation tools and deploying our systems thinking to highlight the key answers.