Hawkrose

Infrastructure Optimisation

Service Definition

Copyright

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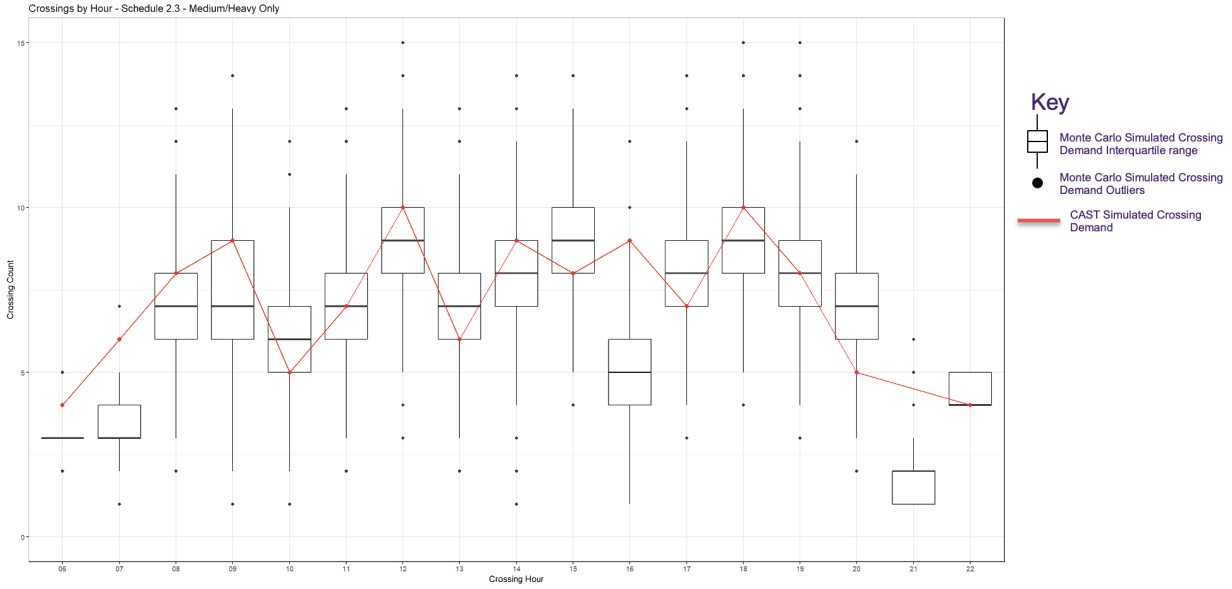
1 Infrastructure Optimisation

1.1 Service Description

The Infrastructure Optimisation tool uses machine learning optimisation to calculate the best place to build certain infrastructure in order to maximise project benefits – whether that be cost, performance or time.

This tool has been used at a major international airport to perform analysis of the impact of a large infrastructure change on the airfield. This included:

- **assuring** whether a simulated crossing demand is a **fair representation of likely demand** that could be experienced in **real operations,** given the typical delays exhibited by departures.
- Rather than a single demand value for each time-period, the analysis identified the **probable range of crossing demand** (distribution of demand) resulting from the particular flight schedule but modified by typically observed distribution of push-back times (delays) relative to the schedule.
- For each flight, the off-block delay was sampled from a constructed delay distribution through a Monte Carlo method.
- The Monte Carlo generated demand (MC demand) was then compared to the demand generated within the demand model to enable a critical review of the conclusions derived from the simulation analysis.

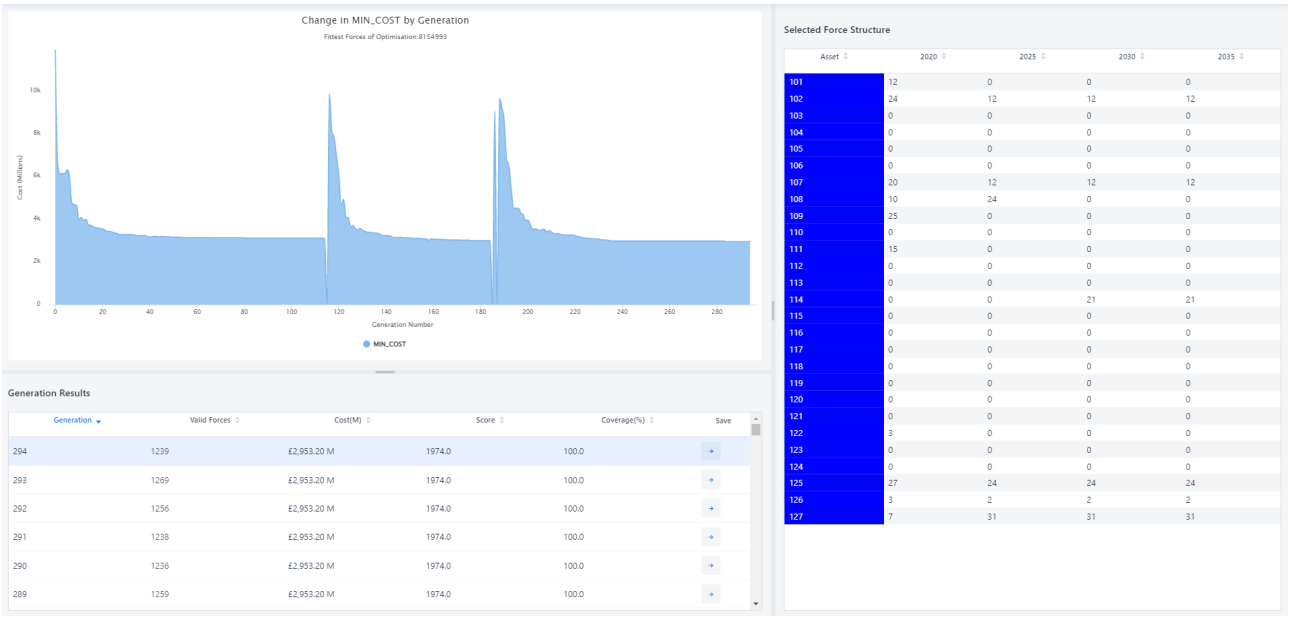


- Capacity review
- Resilience scenarios
- Demand review
- Consequences of exceeding demand
- The analysis will demonstrate if infrastructure change can meet the operational performance requirements of the airfield.
- Using **Hawkrose bespoke modelling** to explore myriad of operational scenarios
- Impact of taking infrastructure out of service when changes are being implemented

For more information see the Hawkrose website: www.hawkrose.com

1.1.1 Optimisation

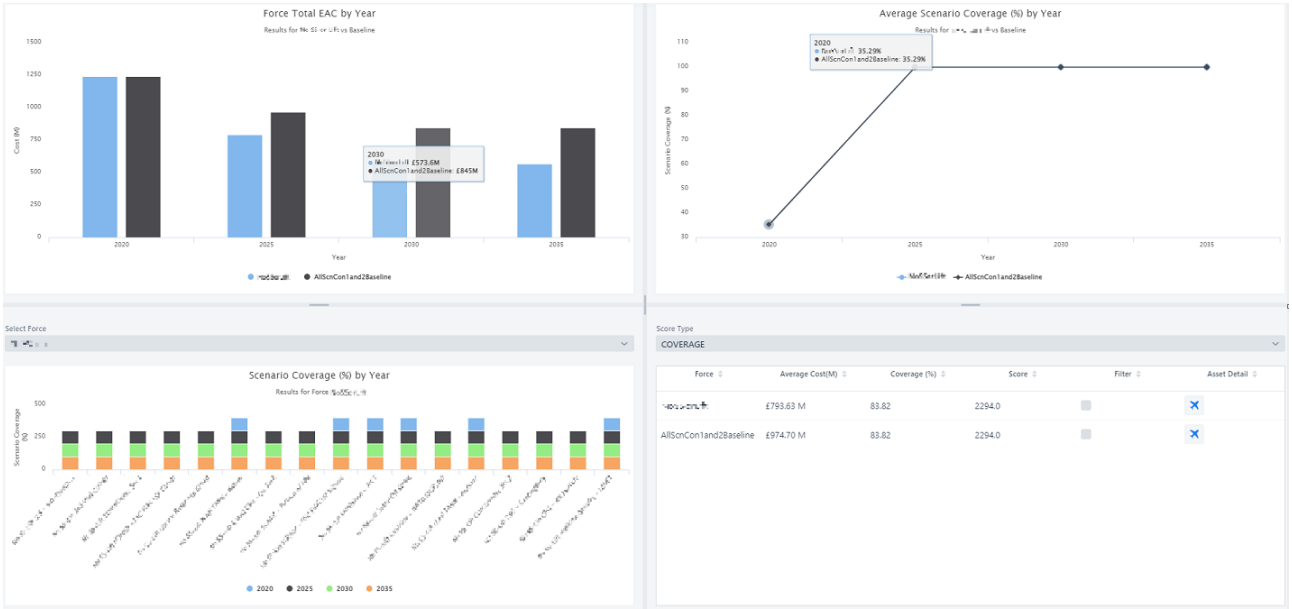
The Optimiser uses genetic algorithms to search for the optimal solution to a problem – in this case that's the optimum infrastructure solution.



The best results can then be saved and assessed using the Evaluator.

1.1.2 Evaluation

The Evaluation module is used to analyse and compare the solutions provided by the Optimiser or solutions that the user has manually created.



1.1.3 Customisation

The tool is designed to be highly customisable and configurable. Customisable elements include:

- Assets
- Reference data
- Data structure
- Page flow
- Optimisation constraints
- Scenarios, scenario scoring
- Scenario linkages and nested scenarios

The platform is designed to be reconfigured and customised for each decision, transformation programme analysis or investment evaluation.

New data can be configured through the UI or uploaded via CSV.

1.1.4 Onboarding

The tool can be delivered as a hosted managed service or deployed into a customers' hosting environment. If deployed into a customer hosted environment a deployment guide is provided and training given to support system upgrades.

User guides are provided as standard, and training can be purchased as an additional service. This can be online or onsite, depending on customer requirements. Hawkrose also offer continuous user support packages where Hawkrose consultants can act as expert users.

1.2 Service Support

1.2.1 Support Levels

Support models are tailored to customers' requirements and based on agreed SLA's. Response times and support coverage is agreed and documented in a managed service agreement and tailored to the requirements of each customer and system deployment.

The Hawkrose standard approach is to offer three levels of support:

- **Bronze** – UK Office hours support with email-based fault notification
- **Silver** – Extended hours (7:00 – 22:00) 7 days per week with email-based fault notification and trouble ticketing system
- **Gold** – 24/7 support 7 days per week with email and phone-based fault notification and trouble ticketing system

Bespoke support packages can be agreed based on a Service Level Agreement with time to respond targets if required.

All customers are allocated a technical account manager to act as a point of escalation if required.