Freight Delays

Transport for NSW (TfNSW)

Background

Approximately 49% of Australia's domestic freight is transported by rail

Freight trains in NSW run through three networks: Sydney Trains, Australian Rail Track Corporation, and Country Rail Network

Each network has its own collection of data sets, with its own set of challenges

Improved understanding of the **frequency, location and cause** of freight train delays can **improve productivity** and **reduce the risk** of freight trains **impacting** the **passenger** rail network

The **DAC** has been engaged to provide **better visibility of issues** on the rail freight network

Implementation

Proof of concept has been successfully delivered, and several parties have expressed an interest in collaborating on further refinement of the tool

The Solution

Proof of concept demonstrating common patterns in the location and cause of freight train delays on the NSW network

Data was sourced from the three rail systems and analysed to draw insights on various dimensions of delay in the freight network

The DAC developed, trained and compared a number of predictive models to characterise an individual trip

Models determine if a given trip will be delayed, and the likely duration of each delay

Predictions of hot spots in delays

"The DAC team knew exactly what they needed to understand from the SMEs within TfNSW and were effective in their engagement by ensuring they asked the right questions."
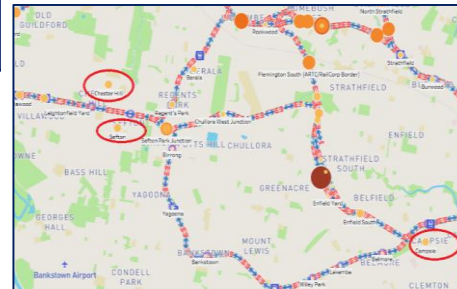
- Elaheh Ostovary, Transport for NSW

Impact

Predictive information can be used to arrange alternative or supporting services to mitigate the impact of freight delays

Savings to fuel and labour costs from reducing the likeliness of freight trains being held in a siding

Increase efficiency by identifying consistent cycle days or weeks where a rail operator may be able to add additional cycles

Minimised risk of delay to the passenger rail network

"Complexity of the various data sets and potential challenges with data assembly indicated this as a suitable project for the DAC, given their expertise in dealing with complex datasets and visual representation. A further aspect that appealed was the method of working… an agile project approach."

- Elaheh Ostovary, Transport for NSW

Next Steps

The Transport Performance Analytics (TPA) of TfNSW is now developing an ongoing real-time predictive analytics tool, developed with knowledge transfer from the DAC and the Proof-of-Concept

TPA is now working to develop the product in line with stakeholder priorities