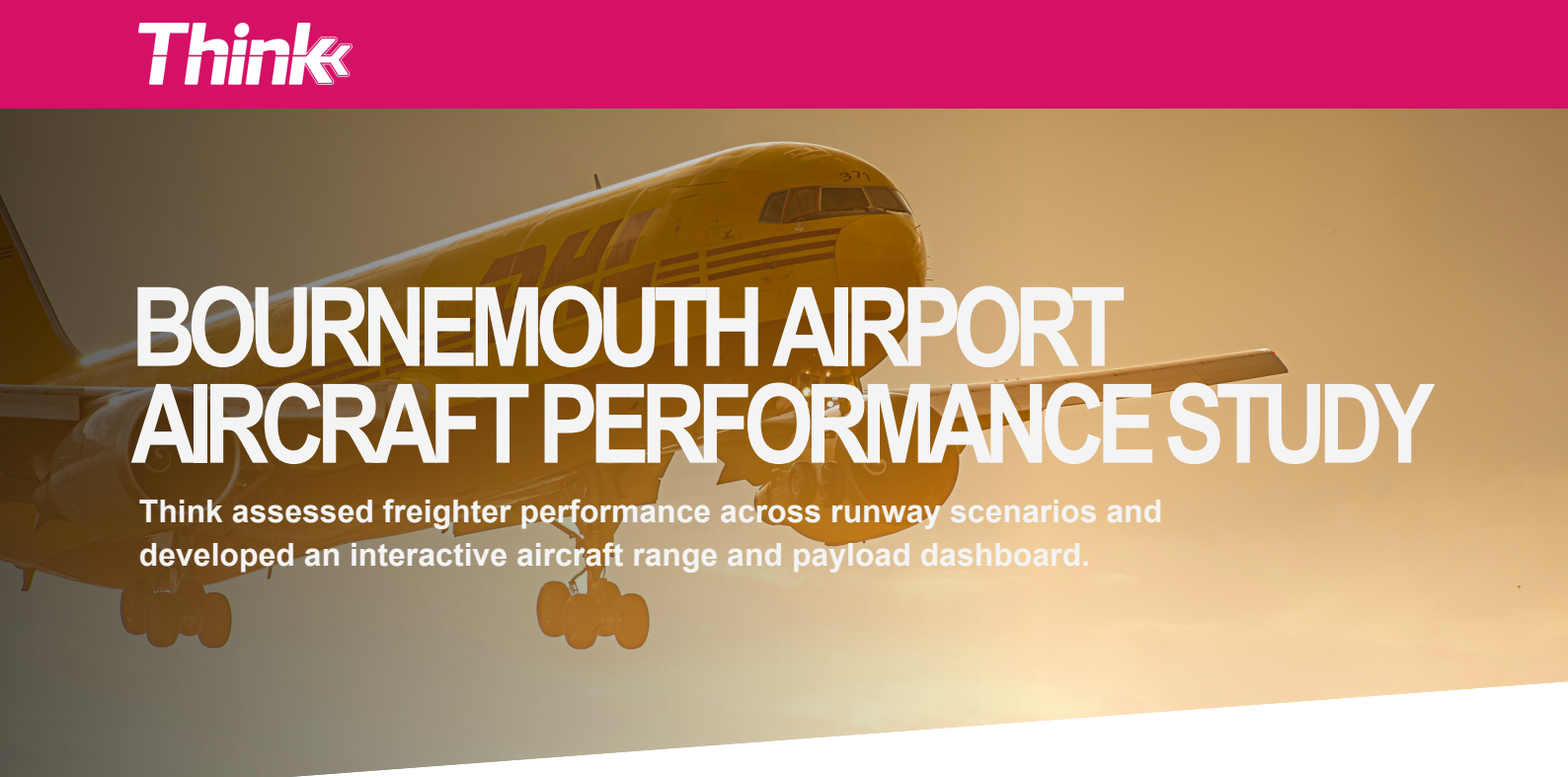


A large freighter aircraft is shown in flight against a bright, hazy sky. The aircraft is white with dark markings on the nose and tail. The title 'BOURNEMOUTH AIRPORT AIRCRAFT PERFORMANCE STUDY' is overlaid in large, white, bold, sans-serif capital letters.

BOURNEMOUTH AIRPORT AIRCRAFT PERFORMANCE STUDY

Think assessed freighter performance across runway scenarios and developed an interactive aircraft range and payload dashboard.

Overview

The work examined how increased landing, take-off distances and runway grooving could affect braking performance, operational range and maximum take-off weight across freighter aircraft commonly operating at Bournemouth Airport. It concluded with a site visit in April, where the team presented the final report and an interactive dashboard.

Challenge

Bournemouth Airport supports cargo operations through its dedicated freight facilities and strategic location, providing an important link for regional and international freight movements. As demand for air cargo continues to grow, the airport wanted to better understand how potential runway enhancements could further optimise its capability to accommodate larger freighter aircraft with increased payload capacity.

Specific Issues

- **Runway Performance**

The study explored how changes to landing and take-off distances could affect freighter aircraft weights, payload capacity and operational range.

- **Runway grooving and weather**

Wet runway conditions can affect aircraft braking performance. Runway grooving involves cutting shallow, regularly spaced channels into the pavement to improve water drainage, enhancing braking performance in wet conditions.

Solution

Approach

Manufacturer aircraft planning documents for a range of freighter aircraft were used to assess how increased landing and take-off distances could affect maximum take-off and landing weights. Relevant runway length and payload-range data supported the calculations.

The impact of runway grooving was assessed through a literature review and analysis of Bournemouth Airport weather data to determine how often its benefits may apply.

Our Impact

Increasing landing and take-off distances could improve payload capability and operational range, particularly for larger widebody aircraft, while runway grooving could support drainage, braking performance and airline payload calculations. The client was particularly pleased with the interactive dashboard, which clearly presented the findings and allowed aircraft and runway characteristics to be adjusted.