

# New heights of efficiency by optimised flight planning



Australian airline Qantas faces a unique challenge: compared to most of its competitors, its home base is geographically remote from many major destinations. The company is taking this challenge and turning it into an opportunity, using it as motivation to build the most advanced flight planning system in the world.

Mike Riegler, Manager Flight Operations System Support at Qantas, explains: “Existing solutions are designed for airlines that don’t have to fly as far as we do. With ambitions to offer our customers new non-stop routes even further away from Australia, we set out to design our own, better flight planning system.”

Qantas teamed up with Frequentis, Smart4Aviation and the University of Sydney to create a ground-breaking platform that enables unprecedented efficiency and fuel savings.

## Client profile

Qantas Airways Limited, Australia's largest airline by fleet size, international flights and international destinations is constantly transforming to ensure ideal positioning for the future while aiming for highest standards of safety and integrity. [www.qantas.com](http://www.qantas.com)

## Business situation

Qantas is leading the way in ultra-long-haul flying. To support continued innovation, the airline wanted to release its flight support teams from data-wrangling and enable more accurate flight and fuel planning.

## Solution

Working with Frequentis, Smart4Aviation and the University of Sydney, Qantas created Constellation. The pioneering flight planning platform calculates the best routes, taking factors including time, aircraft capability, weather and external constraints such as closed airspace into account.

## Impact

- Saves millions of dollars on fuel costs
- Reduces flight times, enhancing customer satisfaction and utilisation of resources
- Supports flights to new destinations, contributing to higher revenues
- Increases productivity of flight support teams by freeing them to focus on higher-value tasks

“With support from Frequentis, Smart4Aviation and University of Sydney, Qantas is working towards our aspiration of offering new far-reaching destinations, helping our customers explore the world.”

Mike Riegler, Manager Flight Operations System Support at Qantas

# Unlocking the world's skies

## Envisioning a new approach

Australian airline Qantas has new destinations in its sights, aiming to introduce a wider range of non-stop flights to Europe and the United States. To offer ultra-long-haul flights economically and safely, the company must push the boundaries of fuel efficiency and route planning.

Riegler says: "To use fuel effectively, make great time and stay safe, a support team on the ground uses huge amounts of aeronautical data to advise pilots on the best routes throughout every flight. Before, dispatchers, weather forecasters and database officers were spending too much time fixing problems with data rather than analysing it and sharing their insights."

Seeing an opportunity to do better, Qantas teamed up with the University of Sydney to develop an innovative flight planning algorithm. To turn the proof of concept into a commercial platform, the airline began looking for the right partners.

## Constellation takes flight

Qantas chose smartDM, part of the Frequentis integrated smartAIM/CADAS portfolio, to ingest aeronautical data including digital Notice to Airmen (NOTAM) and to manage company navigation data. As part of the airline's new Constellation flight planning platform, the solution enables Qantas to optimise constraint modelling, fuel prediction and business processes.

"When we realised that we had to build a platform rather than buy, we knew that needed best-of-breed technology," comments Riegler. "As soon as I met Frequentis, I was confident that they could deliver. They provided a dedicated team to help bring their proven technology from the ANSP into the airline world."

The Frequentis technology is combined with core modules from the Smart4Aviation product suite, which integrate with Qantas applications to feed the flight planning engine with operational data and enable an exceptional user experience. The platform models thousands of flight paths across millions of data points



"Together with Frequentis, Smart4Aviation and University of Sydney, we have created a flight planning platform that combines best-of-breed products and latest data standards with cutting-edge algorithmic techniques to enable flight planning optimisation benefits across the Qantas network."

Mike Riegler, Manager Flight Operations System Support at Qantas

to determine the best route, providing dynamic recommendations for pre- and in-flight phases as conditions change, and post-flight analysis to drive ongoing improvement.

## Gateway to the globe

By enabling Qantas aircraft to take advantage of weather conditions and wind direction, Constellation reduces flight times. Shorter, more efficient trips enhance the customer experience and decrease fuel consumption, expected to translate into savings of millions of dollars.

Qantas has boosted the productivity of its flight support teams, liberating them from time-consuming data-wrangling so they can focus on higher-value work instead. Crucially, the airline can now focus on bringing its vision of ultra-long-haul air travel to life.

Constellation was recently recognised with an IHS Jane's ATC Award for Technology, demonstrating the revolutionary nature of the platform.

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