



Source: Qantas

Qantas Airlines uses Servigistics for managing inventory and intuitive forecasting parts requirements

Qantas Airlines

Commercial aviation is one of the most volatile industries in the world. In recent decades, the combination of high fuel prices and low fares was pushing many major carriers to the financial brink. By 2014, Qantas Airlines Limited, the third oldest airline in the world, was facing an uncertain future.

To put the company back on a sustainable path, it launched a two-year Transformation Program with the objective of reducing its cost base by \$2 billion. The program called for improvements across the airline, including in Qantas Engineering's (QE) Supply Chain, where spare parts are distributed to 70 locations across the globe for maintenance. The QE Supply Chain was uniquely positioned to deliver significant value to Qantas given its large cost base and inventory holdings.

Even before 2014, QE Supply Chain had begun a journey to reduce its cost base by 30 percent and rationalize the inventory holdings of its legacy fleet.

"The Supply Chain Transformation Program is a four-stage process that is still ongoing," says Rick Fraccaro, Qantas Engineering Head of Supply Chain. "First, we consolidated our footprint in line with changes in the maintenance organization and to reduce duplication. Then, we reengineered our processes and operating model to deliver the next wave of value. Now, we are working on continuous improvement to increase our operational efficiency, planning capability, and visibility of data. Finally, we will look to extend collaboration further with our customer and suppliers so as to improve our ability to predict changes and risks in our network."

QE supply chain is now focused on the third stage of transformation. The specific organizational goals include reducing total cost of ownership, helping to improve aircraft dispatch reliability and parts availability while drawing down the airline's inventory so it aligns with aircraft end-of-life. Developing accurate inventory forecasts was critical for meeting these requirements as Qantas needed to have enough parts on-hand to ensure a high level of service without maintaining too much expensive inventory.

To achieve the company's goals in these areas, QE Supply Chain wanted a more effective tool for managing inventory and forecasting parts requirements. Previously, the Supply Chain planning team had been trying to meet these needs with an enterprise demand planning system, but the application did not allow users to interact with the forecasts or inventory recommendations, nor did it provide the required business processes necessary for an end-to-end solution. Justin Pollard, Supply Chain team lead for the expendables and consumables planning portfolio says, "Because of our vast number of SKUs, we could not effectively plan and proactively manage our inventory using our current processes and tools."



The planning team did not have faith in the tool and recommendations and would manually control inventory," says Pollard. "We needed a tool that users could understand."

Forecasting requirements to better serve a competitive market

Qantas needed a proven inventory forecasting solution to ensure parts would be available at the right time and place. An acquisition team completed a discovery process on three solutions before recommending that Qantas invest in PTC's Service Parts Management solution.

"PTC was able to provide all the features Qantas needed to create real-time parts visibility," says Bob Merrifield, PTC service lifecycle management business development director. "Service Parts Management is designed specifically for optimizing global inventory and forecasting lifecycle requirements. It makes it easy for users to forecast parts requirements, optimize inventory to support service, model scenarios, and manage a part's entire lifecycle."

The decision to invest in PTC was finalized in 2014 when the airline was experiencing extreme financial difficulty, Fraccaro says. "That year Qantas reported a loss of \$2.8 billion (AUD). It took courage for our company to move forward with the investment under the circumstances, but the business case had a strong cash return and fast payback."

Building user proficiency and supply chain visibility

PTC Customer Success implemented Service Parts Management on infrastructure provided by Bulletproof, an Australian provider of cloud and hybrid architectures. The solution required one year for full implementation, which included importing 28,000 components part numbers and 60,000 expendables part numbers.

Fraccaro characterized the project as one of the smoothest software launches he had ever experienced.



PTC Customer Success delivered the project on time and on budget. The project team was dedicated and we were very happy with the end result."

PTC Customer Success team needed to train 16 Qantas employees on Service Parts Management. The team decided to assign half the staff to intensive training and user acceptance testing while the remaining employees carried on business as usual.

"The training tested the teams resolve for how the solution would work in our environment," said Petros Rigopoulos, Supply Chain team lead for components. "In the beginning, they had to do a lot of problem solving to figure out why it was not giving them the answers they expected. Even during the hardest of issues, the team could always see the potential of the system and the benefits it would provide".

At first, some of the users thought there was a problem with the software. But after investigating further, they found a problem with source master data. After the data was sanitized, the solution began to produce the type of insights users were expecting. For example, one process report revealed the airline could release millions of dollars of excess parts from inventory while holding service levels constant.

Rigopoulos says “The tool gave us the ability to manage an extremely large number of parts at over 70 stocking locations in a systematic way with consistency in how we assessed usage and forecast. Part of our journey was that we developed and refined our stocking policies on how we stock and manage different parts due to their classification (i.e. cost, usage, essentiality).”

The initial group of Qantas employees trained on the tool was immersed in the project by interacting with the tool and completing user acceptance testing. They then used their new-found expertise to accelerate training for the second group of users while also helping to define the processes for stabilizing inventory recommendations. The project was implemented incrementally from late 2015 so that skilled users could assist other employees in coming up to speed quickly.

Creating a plan for success

More than 50 processes affect parts availability. Using current methods, this metric is at 94 percent. But after Service Parts Management is fully implemented in mid-2016, Fraccaro expects parts availability to average a best-in-class 95 percent level within two years.

Along with mastering the solutions forecasting and optimization features, employees also are learning how to use inventory data to create product configurations, model probabilistic maintenance bills of materials (BOMs), and rebalance materials across Qantas’ global footprint to lower costs and enhance parts availability.



As an organization, we were very reactive,”
Rigopoulos says. “We were chasing and not planning.
That’s starting to change now with this tool.”

Extending visibility company-wide

PTC worked closely with Qantas at each stage of the engagement. Bob Merrifield, who is based in Australia, along with other members of PTC's Customer Success implementation team provided feedback and advice that helped the company create an agile system for optimizing inventory while also suggesting systematic strategies for acquiring data, deploying technology, and training users. But the work continues.

"This has been a hugely successful transformation," Pollard says. "Continuing to improve our planning capability in the system is our current focus. Improving connections with our customers and driving supplier delivery performance are the next steps in the process."

To learn more, please visit:

[PTC.com/service-lifecycle-management/service-parts-management](https://ptc.com/service-lifecycle-management/service-parts-management)

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