



Qantas: Operational Clarity, Efficiency and Bottom Line Soar with Automated and Optimized Manpower Planning Processes

Airlines of various sizes have the difficult and complex task of establishing and maintaining appropriate staffing levels, managing crewmember career progression, and effectively allocating training and vacation.

As with most major airlines, manpower planning at Qantas – Australia’s nationally and internationally renowned carrier – is a highly challenging process. Prior to 2001, Qantas relied on manual processes, and/or basic spreadsheet software to create manpower plans that defined employment needs, identified crew promotions and training requirements, and quantified instructor and simulator requirements. This was a highly labor-intensive, error-prone and extremely difficult task. In fact, a three year business plan would take up to three or four weeks to complete.



In 2001, Qantas began searching for a transparent and accurate system to automate and optimize its manpower planning processes. At that time, no market-ready solution had been deployed. However, AD OPT Technologies (now Kronos’ AD OPT Division), had begun working on an approach to solving the complexity associated with generating an optimal manpower plan. An innovative solution, Altitude Insight is a strategic resource planner designed to address the complex staffing issues at most airlines. Built on AD OPT’s powerful optimization technology, Altitude Insight integrated, automated and optimized Qantas’ processes to provide a complete solution tailored to the airline’s specific manpower planning procedures.

Today, Qantas is better able to plan and optimize its long and short range requirements, make faster and smarter crew-related decisions, provide support for the airline’s promotional training allocation decisions, as well as conduct comparative analysis and generate reports. As a result of this increased efficiency, Qantas has generated an

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ongoing cost benefit of approximately 0.25% per annum of the total Flight Crew budget. But perhaps more significantly, Qantas was able to achieve a financial return on its Altitude Insight investment in less than 12 months following its implementation.

The Journey Towards an Optimal Solution

As a well-recognized technological innovator, Qantas places great emphasis on Information Technology to achieve efficiency and cost savings. This innovation is demonstrated via such initiatives as the implementation of a new flight planning system to optimize fuel consumption, and a workforce management system aimed at improving productivity. It is therefore no surprise that Qantas was the first airline to understand the true need for a strategic resource planner.

In turn, AD OPT is also an innovator in its field, and as such, was the ideal partner for Qantas. The company has over 20 years of crew management experience and an innovative background in optimization technology. AD OPT pioneered the preferential bidding approach and of course, a completely new and strategic approach to manpower planning. While initially the learning curve on both sides was high, AD OPT's extensive knowledge and experience, combined with its technical expertise greatly helped the process. As AD OPT experts became more cognizant of Qantas' specific manpower planning requirements, their suggestions and input became crucial in building a customized solution.

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The Solution to Qantas' Complex Manpower Planning Process

One of the main goals of the manpower planning department is to generate a plan with sufficient staffing levels for every applicable category (a grouping of crewmembers who share the same domicile and qualifications), at all times, to meet the airline's flying program, while taking into consideration company and legislative constraints. Without sophisticated planning tools, Qantas planners had the extremely difficult task of assembling and manipulating a large quantity of data from various sources in order to determine its manpower needs and requirements.

“It took approximately two to three weeks to complete each long-range plan because we had to take into consideration a multitude of factors such as our 15+ categories, two seniority-based awards, four operating bases, retirements, unplanned attrition, the conversion of trainers and management pilots into FTE, projected sick leave, limited training resources, etc.,” said Trevor Voget, Flight Crew Resources Planning Manager at Qantas. “The plans also had to crudely factor in annual leave around peaks and troughs in flying programs, and all resource constraints.”

Typically, manpower requirements were identified for each division, and then amalgamated into one centralized financial program to determine the global impact on operations. Depending on the projected impact, programs would very often need to be reassessed, and the process started all over again, with the final version being passed as budget.

Needless to say, building a manpower plan was an extremely difficult task taking up to three or four weeks to complete. Consequently, comparative analysis and the impact of changes was difficult to conduct due to time constraints and limited staff availability. As Qantas planners recognized that the data integrity was questionable, crew projections

also tended to be conservative to offset possible miscalculation in data input. Altitude Insight has enabled Qantas to address these and many other challenges. The airline has greater visibility in the management of fleet acquisition and/or disposal, and is now able to easily develop manpower plans that take into account the airline's specific training resource constraints. Used as a costing model, the solution enables Qantas to identify instructor requirements, manage the pilot bid award, and optimize the training award while providing planners with greater control and flexibility.

“The solution's transparency and the associated reports generated allow us to make informed decisions on long range company direction,” adds Mr. Voget. “We use long range scenario modeling to determine how to best manage the movement of pilots around fleet acquisition and disposal programs. In this process we take into consideration factors such as industrial or award constraints, annual leave profiles and simulator capacity.” The solutions allow Qantas to identify the most cost effective and industrially compliant outcome, it also allows the Company to highlight award constraints that impact the introduction of new fleets, any constraint is then flagged as part of future industrial negotiations. These processes are being followed to assess the impact of the B787 acquisition program on flight crew establishments.



Photo: First Officer Anthony Jackson

Solving Long-Term Planning Challenges

Due to the potentially long timeframes in the recruitment and training of its flight crew, the Qantas resource plan must be formulated years ahead of time, and continually updated and adjusted as information (flying schedules, crew award impacts, “unplanned attrition”, leave and training requirements) becomes available or changes. Short notice changes to operating programs – due to market pressures and/or aircraft delivery delays from the manufacturer – can therefore signify a change in the “direction” to which the entire plan is targeted.

In addition, flight crew operate under a seniority system and as a consequence planners are required to take into consideration company rules when managing changes, and must then adapt the plan to reflect these changes. These can include the cancellation of a current training allocation, a category specific cancellation of leave, or a delay in the introduction of a change in schedule or fleet acquisition. As such, the training allocation process took upward of two to three weeks, and as a manual process, generally suffered from administrative errors.

To address this complexity, AD OPT provided Qantas planners with the ability to experiment with different “what-if scenarios” by simulating crew movements, and then comparing and evaluating their impact on the overall manpower plan. The airline can also run scenarios using different simulator availability, both at a micro and macro level. “Today we can run scenarios that help us determine simulator shortfalls, whether we need to train offshore and or find an alternative, whether to train internally, and so on,” said Mr. Voget. “Before Altitude Insight, this was based purely on guess work and it was far too time-consuming to micro manage simulator availability.”

Automated Bidding, Allocation and Award Processes

With the introduction of Altitude Insight, the crewmember bid awards were transformed into a fully automated, paperless and optimized process – even when multiple seniority lists were involved. Pilots submit bids using an internal crew interface that enables them to identify their preferred category promotion(s) and or any date constraint against movement out of their current category. Bids are then imported into Altitude Insight, and training vacancies are automatically allocated over a 12 month block.

Accurate Targeted Average Credit hours

In order to calculate the targeted credited hours for each pilot group, Qantas used historical data and approximated flying time contribution and other pre-assigned activities such as vacations and training.

Unique to Qantas, AD OPT developed a Divisor Calculator – a customized payroll management tool that automatically and precisely calculates crewmember Targeted Average Credit hours and the line type (regular vs reserve) in a given category for an upcoming bid period. The calculation of the divisor is highly dependant on current crew status and line types, supervisor flying time, and training contribution. Altitude Insight takes into consideration the time contribution of each pilot, versus a generic approach where means are used to define the average credit hours. Because Altitude Insight utilizes actual crewmember status, planners can now easily see the granulated availability by day, week, event, etc. “Prior to Altitude Insight it would take a planner two weeks to define the average by category,” said Mr. Voget. “Today, this can be accomplished in less than one hour. This is a remarkable feat in efficiency and productivity.”

This has also greatly improved Qantas’ ability to more accurately project and control its payroll expenditures.

Increased Revenue

The decision-making process with regards to aircraft schedule variation and supplementary or charter requests was also difficult. Requests for extra operations were generally denied due to the lack of detailed information, which created a degree of caution in committing to additional crew requirements. Qantas realized that the airline was missing out on a critical opportunity to earn more revenue, because of its inability to conduct cost and feasibility studies. With Altitude Insight, Qantas now has increased visibility that enables the airline to earn additional revenue by accurately assessing the ability of standard operations to accommodate the needs of such demands.

Just-in-Time Training

With all relevant resource planning data centralized in one environment – information that would otherwise be gathered in a painstakingly lengthy process – Qantas can now generate cost-effective and optimized “Just-In-Time” crew training plans that enable an accurate forecast of future crew availability and qualification levels, while highlighting potential problems and providing the necessary tools to resolve them. Altitude Insight takes into account the training resources, pilot movements and availabilities, and provides answers to such questions as who is awarded each vacancy bid position; the training

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required; and when the training should be conducted. As a result, training is now accurately assigned when required with optimized usage of training courses, instructor levels and simulator capacity for a salary/cost benefit. Additionally, Qantas is now able to identify simulator availability and leverage these assets to generate additional revenue.

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Substantial Savings and Quick ROI

An increased accuracy in long range projections using category specific variables and constraints resulted in some very tangible benefits for Qantas. Specifically, a more exact calculation of line crew requirements and associated levels of training/recruitment to support the stated activity have enabled Qantas to easily determine and schedule training programs on an ‘as needed’ basis. This has resulted in significant reduction in costs associated with the process. In addition, the optimal use of crew resources has again reduced costs by enabling the airline to accurately determine the most advantageous time to hire new crewmembers.

In Summary

Today at Qantas, all manpower requirements are integrated into a single view using an intuitive interface that provides planners with instant visibility into manpower requirements and availability. This increased efficiency has translated into significant cost savings for the airline, and a quick return on its Altitude Insight investment – in less than 12 months. However, Qantas is also benefiting from a long list of intangible benefits that may not be as readily measured in dollars.

Traditionally, the purchase justification of software was based on a strict reliance on financial methods and criteria (such as ROI). However, industry best practices have shown this approach to be doubtful, because it can lead the organization to overlook key benefits of the new technology and therefore yield to wrong decisions. With Altitude Insight, Qantas saw tremendous value and strategic importance in the solution’s intangible benefits that provide major indirect savings.

Chief among these is the ability to create fully integrated plans covering long-haul and short-haul divisions and all bases, as required. The better management of flight crew resources also provides the potential to reduce costs by delaying or avoiding the recruitment of new flight crew until the optimum time. Another benefit leading to additional cost reductions is the ability to determine the impact on crew requirements as a result of schedule changes, or short term risk assessment on crew availability to meet reactionary change.



Photo: Troy Cameron

“Without a doubt, Altitude Insight has had a significant impact on our manpower planning processes, and by extension, our airline’s operations and bottom-line profitability,” said Mr. Voget. “Today, our planners are spending their time focusing on strategic planning rather than tedious, time-consuming and error-prone manual data manipulation and integrity checking. AD OPT has been more than a technology partner throughout the process, they’ve been, and continue to be a valued extension of our planning department.” Qantas is currently planning the second phase of the solution which would incorporate a fully optimized leave solver.

About Qantas

Established in the outback in 1920, Qantas (Queensland and Northern Territory Aerial Services) is the world's second oldest airline. As the principal Australian airline group, the carrier has played a key role in the development of Australian and international aviation, and today serves 84 major cities in 36 countries throughout Asia-Pacific, the Americas, Europe and South Africa. Qantas also operates an extensive domestic network. This network serves over 57 destinations, supported by feeder services provided by three carriers under the QantasLink brand - a full service regional airline that develops 'feeder' markets to connect regional business and leisure markets with major cities. Qantas also operates JETSTAR - a low cost airline for both domestic and international services.

Qantas "Core" operates six different aircraft types. The current fleet size is approximately 133 units with a projected fleet growth of a further 32 units over the next 5 years. Today, the "Core" Division employs a flight crew of approximately 2,300.

About AD OPT

AD OPT is a division of Kronos.

AD OPT a comprehensive crew planning solutions provider, delivers powerful insight for result-driven airlines. With AD OPT, airlines can link their crew planning activities to strategic objectives in order to determine what is impacting productivity, profitability, and crew satisfaction – then take decisive action to achieve operational excellence. For more information on AD OPT, please visit www.ad-opt.com.

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