



Case study

Quintiq helps Transavia Airlines optimize maintenance planning

TRANSAVIA





“Thanks to Ab Ovo and Quintiq we have a solution that enables us to optimally synchronize our maintenance planning to the flight program, thus improving our interval usage by more than 10 percent.”

– Art Van Der Hoeven, Project Manager Transavia

Company profile

Transavia Airlines C.V. is an independent organization within the Air France-KLM Group. The airline operates from its home base at Amsterdam Airport Schiphol, plus two secondary hubs (Rotterdam The Hague Airport and Eindhoven Airport) and regional airports, Transavia provides competitively-priced air travel on a broad network of European routes. The airline operates charter flights for tour operators and scheduled services for

individual passengers. Individual passengers can make direct bookings on a larger number of charter flights. Flight arrangements are made via tour operators, the Internet and call centers. Transavia is moving steadily closer to becoming a web-based airline. The company also operates ad hoc flights and leases aircraft to other airlines, either with or without crews and technical support.



The business process

The Transavia business process is highly seasonal. During the summer, it is vital that the airline makes optimum use of its aircraft. Year round, it must maintain a delicate balance between optimizing the operational efficiency, necessary for competing in the low-cost carrier market, and operational flexibility, which is required for charter and ad hoc flight operations.

The business process of the Engineering & Maintenance (E&M) Department is designed to accommodate maximum optimization of the interval usage of maintenance tasks (i.e. optimal performance of a task according to when it is due). This also optimizes the flexibility of aircraft availability for commercial flights, enabling Transavia to quickly react to market opportunities within the ad hoc and charter markets.

Interval usage

The performance measure for aircraft maintenance is interval usage, which indicates how efficiently a maintenance task is carried out in terms of when the maintenance is due. For example, a task that needs to be performed every four weeks can be carried out every three weeks, generating an interval usage of 75 percent. After 12 weeks, the task will have been performed four times rather than the more efficient three times. The costs of non-optimum interval usage are significant:

- Spare parts, which are replaced when performing a task, have a longer life cycle. In the example, four replacements are carried out when only three were needed. One extra spare part is used unnecessarily.
- Transavia can save manpower and hangar capacity by performing the tasks on higher interval usages. In the example, three visits instead of four mean less manpower and hangar time needed.
- Less operational availability – an aircraft that undergoes maintenance at more frequent intervals is less available for commercial operation.



The challenge

Transavia wanted to optimize its maintenance planning for its Boeing 737-700 and 737-800 airplanes. Scheduling maintenance tasks for a fleet of aircraft requires significant expertise and involves constant reassessment of short and long-term plans. Tasks need to be constantly reprioritized and reallocated in response to changes in fleet status, personnel and resources availability, and flight schedules. The planning department produces a Master Schedule based on the Operator's Maintenance Program (OMP) and the long-term forecast. The Master Schedule indicates how often and for how long each aircraft will need a specific kind of maintenance, enabling hangar and workforce capacity requirements to be determined. In short-term planning, the upcoming 10 weeks are scheduled according to the

flight schedule and the maintenance tasks listed in the E&M Database. In collaboration with the Commercial Flight Planning department, a maintenance schedule for each individual aircraft needs to be designed and then verified against hangar and workforce capacity availability.

Additionally, the information on the performance of the E&M Department (in terms of interval usage) needs to be gathered and presented on a day-to-day basis, so both planners and management can evaluate the impact of their decisions.



“Transavia chose Ab Ovo and Quintiq for the huge flexibility they offered in optimizing maintenance planning.”

– Willem van Steenis,
Head of Aircraft Maintenance

The solution

Transavia evaluated airline-specific as well as general planning solutions before choosing the Quintiq software. The combination of Quintiq’s solution and the business knowledge of Ab Ovo was a winner because it enabled Transavia to use the same information and knowledge for both long-term and short-term planning processes. In long-term planning, the Quintiq solution optimizes the maintenance program using tailor-made clustering techniques, known as the pivot-algorithm. In short-term planning, the solution enables the planner to interact optimally with Commercial Flight Planning, facilitating

the handling of constraints and providing direct insight into the consequences of planning decisions. The system generates management information for both long and short-term planning with respect to interval usage. The software solution also includes capacity planning for platform maintenance based on actual flight schedules.



The results

Initially, Transavia aimed for an interval usage improvement of 5 percent, which would guarantee a payback period of just one year. In practice, the results far exceeded expectations. After using the solution for just two months, Transavia improved interval usage by 6 percent; after one year, the improvement grew to more than 10 percent.

In addition to the interval usage benefits, Transavia has enjoyed several less quantifiable, but nevertheless important, results:

- The airline has improved the use of its E&M database through easier representation of the E&M information
- Maintenance department performance can now be measured on a day-to-day basis, supporting management in its decision processes
- Since the solution provides full information and is easily accessible, it has enabled Transavia to improve administrative task efficiency
- Integration with E&M database exposed previously hidden weak points in the E&M system



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