

Analytics



Analytics Optimizes Fractional Aircraft Assignments

The Business

Fractional-aircraft management companies (FMCs) sell shares in business aircraft. Their customers are typically corporations and wealthy individuals who don't want the expense and responsibility of owning their own aircraft, yet prefer the luxury and convenience of private aviation. FMCs also perform all necessary fleet maintenance, pilot management, and scheduling.

The Problem

FMCs must provide an aircraft with as little as four hours notice. If they can't, they will usually subcontract the flight to another carrier at very high cost. However, deciding which aircraft to assign to which flights to avoid this cost is a very complex undertaking. FMCs must balance many factors including pop-up demand, aircraft breakage, owners' schedules, and aviation rules regarding maintenance and crew duty cycles.

Many FMCs enlist some kind of scheduling software to help solve this puzzle; however, few have software that is up to the task. One such FMC called Analytics for help.

The Existing Solution

The client previously had contracted with university researchers to develop a schedule optimizer. The schedule optimizer had numerous limitations:

- It required several hours to produce a result
- It did not accurately model the intricacies of crew duty
- It did not honor maintenance constraints
- It made too many changes in the solution for the operator to execute
- It did not account for future demand
- It could only optimize one day at a time

Because it was so slow, the optimizer could only be run once to create an initial schedule. After that, a roomful of schedulers would manually adjust the schedule as new demands or aircraft breakages occurred. That meant that fewer than 15% of the schedule optimizer's assignments were implemented, resulting in significant extra costs in the scheduling process itself and also due to scheduling mistakes.

Analytics' Solution

Analytics re-designed and re-built the schedule optimizer to correct these faults. Analytics also helped the client change its scheduling processes so that the new optimizer could be used in real-time. Finally, Analytics transferred to the client the competency needed to maintain and further improve the optimizer and the scheduling process.

The Analytics Difference

Analytics is extremely knowledgeable in schedule optimization models and techniques. It also has the computer skills to deploy its optimized schedulers as easy-to-use software tools.

Business Impact

Saved over \$9m in annual operating costs

In addition to cost savings from improved resource utilization, benefits of Analytics' new schedule optimizer and recommended process improvements included:

- Improved customer service, such as faster response times to requests for new trips
- Shorter response times to changes in aircraft status
- Reduced demand on the scheduling department
- Less reliance on the "star" scheduler
- Systematic, controllable processes of making decisions
- A "what if" simulator that greatly leveraged strategic planning

"Analytics is the only consulting firm I am aware of that could meet our needs across a broad range of operations areas and issues. They quickly came up to speed on the important factors unique to our operations, worked well with our people, and were extremely responsive to our needs and feedback. They consistently delivered projects on-time and on-budget, and I highly recommend their services."

– CEO