Optimizing Airport Shifts and Personnel Planning

Geneva Airport optimizes shifts to address customer needs and staff preferences—3x faster.

Geneva Airport is the international airport of Geneva, Switzerland. The airport features a route network of flights mainly to European metropolitan and leisure destinations as well as some long-haul routes to North America, China and the Middle East, amongst them Swiss International Air Lines' only long-haul service outside of Zürich.

Industry: Aerospace and Defence
Location: Europe
Use Cases: Workforce (Allocation/Scheduling)
Website: www.gva.ch/en

Results

- Optimized planning tool automatically builds optimized shifts in compliance with regulatory constraints, customer needs, and staff preferences— 3x faster than before.
- Balanced and fair shifts for staff members

Partner Spotlight

Eurodecision combines expertise in operations research and business analytics with skills of human resources, supply chain, pricing and revenue management, production, product design, and data analytics sectors. They provide major companies with optimization services and decision-support solutions.

Learn more: www.eurodecision.eu

In 2011, Geneva Airport registered high growth, and the forecast of aircraft movements (landings and take-offs) in the coming years was increasing. This dynamic had a direct impact on the organization of services for passengers and airlines.

In this context, the Operations Department of the airport had to deal with:

- A sharp rise in traffic levels
- An increase in the Runway Staff's shuttle bus missions, consisting of the transportation of passengers between terminals and aircraft parked at remote hardstands

To meet the growing demand, the number of employees of the Runway Staff team was increased and thus was beset by planning difficulties. The existing shifts were less and less in line with the airline's demand, and staff members reported increasing levels of dissatisfaction with the fairness of the shifts. The Operations Department started revising its Runway Staff schedules by calling in outside experts. It enlisted the services of Eurodecision, the human resources planning

specialist with renowned expertise in the airport sector.

The Project Goals

The goals of the Operations Department of the Geneva Airport were to:

- Anticipate the impact caused by the increased traffic of the airport on the organization of passenger handling by shuttle buses
- Reduce shift-related stress and aspire to harmonize schedules between Runway Staff

The Solution

After an initial on-site audit in 2012, Eurodecision proposed a multi-phased approach. During the study phase, the Eurodecision experts familiarized themselves with Geneva Airport's specific organization rules and invited staff representatives to attend sessions of the task group to gather their opinions on the existing shift allocation. Then, using its workday building (LP-Shift) and shift planning (LP-ShiftPlanner) tool components, Eurodecision carried

"The tool is a big boon to us. We now have an optimized schedule three times faster than in the past."

Claude Verriére
Runway Staff Manager,
Geneva Airport

out simulations to identify the types of shifts and set appropriate rules to build schedules that matched regulatory constraints, while reconciling customer demand and staff wishes as much as possible. As the simulations showed that greater stability in staff schedules would be achieved by limiting to only 10 different types of shifts, this course of action was approved.

Eurodecision used its LP ShiftPlanner optimization engine to develop a nominative planning application in response to the Runway Staff's desire to acquire a tool.

Benefits

Now the application is used on a daily basis by the planner who can:

- Manage the staff shifts with precision,
- Reschedule shifts in the event of unforeseen events,
- Make simulations with ease and obtain accurate traffic indicators.

Results

During the 2015 winter season, Geneva Airport witnessed:

- Improved regularity of the Runway Staff schedules despite having to absorb the sharp rise in shuttle bus journeys.
- Balanced and fair shifts for staff members

Why Gurobi

Eurodecision uses column generation to solve their large-scale optimization models. They tried the COIN-OR open source solver, but Gurobi was twice as fast as the open source solver COIN-OR, on this specific model. Typically, a scenario with 90 employees and a planning horizon of one and a half months takes Gurobi approximately two hours to solve the scenario.

About Eurodecision

Eurodecision combines its expertise in operations research and business analytics with well-known skills of the human resources, supply chain, pricing and revenue management, production, product design as well as data analytics sectors. In France and abroad, we provide the major companies (transportation, industry and services) with optimization services and decision-support solutions. The company was

founded in France in 1987. Its mission is to build quantitative models to analyze and manage complex situations to help businesses to understand, weigh up the issues, arbitrate, plan, and make the most effective choices. Eurodecision is a top company for resource optimization in France, it has customers in 25 countries and has more than 700 successful assignments.

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