



SNCF (FRENCH RAILWAY COMPANY)

OCÉANE PROJECT : SHORTENING WAITING LINES AT TICKET WINDOWS



Objectives:

- Minimize customer waiting time while optimizing the sales force
- Sizing the number of ticket windows in the new station sales areas, while taking into account the growth of passenger traffic

Solution:

EURODECISION's LP-Shift



Results:

- Instant visualization of the forecast workload for ticket windows according to desired quality of service criteria.
- Tool tested in all the stations of the new Mediterranean line high-speed train (TGV Méditerranée) to support traffic buildup on this line

"We can now locally control the opening of ticket windows with Océane to reduce customer waiting time while controlling costs." Christine Chapuis – Organization Consultant – Distribution Channels Center - SNCF

The new price schedule set up in the last few years and the constant increase in passenger traffic have resulted in strong growth in activity in all SNCF distribution channels: SNCF boutiques, on-line or phone sales, ATMs and stations. Railway stations are still the place preferred by passengers for ticket purchases. For SNCF there are many and sometimes contradictory objectives. How to manage this growth as part of a cost control rationale, while trying to reduce waiting times at the ticket windows?

In order to improve passenger service, SNCF had already set up a new unique sales area concept in some railway stations that united all distribution services (information, trip preparation, same-day departures). This deep structural change in station distribution entailed re-organizations: versatility of employees, number of windows open to the public, etc. The Paris Montparnasse railway station was confronted with this issue in 1999 when it had to face a strong increase in passenger traffic (departures of the Paris-Nantes TGV every 30 minutes). There was a tool, based on CCTV data in the stations, that was used to study the flow of customers at the windows, then modeling the flows. It was costly and impractical and was more and more rarely used to size the window operations. The other alternative was

to base the opening of windows on pure sales criterion. This approach was insufficient compared to SNCF's quality of service objectives.

In 1999, SNCF entrusted Eurodecision with an initial study to help it size the number of necessary windows for the Paris Montparnasse railway station, while taking into account cost-efficiency and quality of service constraints. Being satisfied with the results obtained and wishing to expand the field of application of the study, SNCF then wrote more ambitious specifications. The objective then was to design a tool that would be used both by the Intercity Transit division as well as by the regional correspondents in charge of distribution, so that each region could independently control its distribution locally. These correspondents also played an organizational consulting role as they were in a good position to conduct studies with the region's railway stations.

Building on its expertise in optimization and its good knowledge of the field, Eurodecision was awarded the contract and the Océane (Optimization of Sales Area Design and Efficiency Improvement) project started in June 2000. The software solution is entirely written in C++ and is based on software components used in the transport industry: Eurodecision's LP-Shift module to optimize employee daily workload coverage and the ILOG Cplex linear programming solver.

Based on data collected over a full week by timers in the railway stations (waiting time at windows and transaction time), and sales information recorded in the SNCF database, Océane is capable of reconstituting the incoming flow of customers in the sales area. Océane then calculates and displays the window workload curve according to the waiting time criteria selected. The number of windows to open to absorb the flow is expressed in 15-minute steps, over the entire period of the sales area's business hours for every standard day of the week studied. The curve clearly shows the fluid periods and critical periods. But the software always offers the person in charge of distribution the possibility of locally adjusting the number of windows to open so that an acceptable compromise can be achieved.

This task can be undertaken once or twice a year in railway stations to adapt the organizations to service changes (winter and summer) without it being necessary to repeat the timing operations, but by using the initial base data weighted by SNCF data (volume of customer transactions) for the new week studied. Océane can also be used in railway station renovations to determine the number of windows to install. The software is particularly appreciated when running simulations taking into account the growth of passenger traffic.

Océane uses the data concerning the status of employees in the company (full time, part-time, temporary personnel, etc.) and previously obtained results to optimize the coverage of the windows by the ticket agents. Rotations are currently determined manually.

Océane is being tested on the pilot sites of the Austerlitz railway station in Paris, and in Lyon and Bordeaux, and will soon be deployed to 24 locations, (within the Intercity Transit division and in the 23 regions that make up the SNCF network). This will represent significant progress for railway stations that had no window control tools, except for occasional timing operations. "We now offer them a flexible, user-friendly tool for reducing customer waiting time while controlling their costs," concluded Christine Chapuis, Organization Consultant at the Distribution Channels Center and Océane Project Manager.