COMPANY PROFILE

Company:

a large food & beverage distributor

Number of vehicles:

45

delivery trucks (mixed fleet covers small vans up to 12 trucks)

Number of orders:

600

average number of delivery orders per day

Distributes to:

Supermarkets, small shops, key accounts (airports, office buildings, remote sub-distribution centers, …) from regional distribution centers

Software available:

SAP,
Fleet Management (telematics solution),
Mobile-based Proof of Delivery

The challenges

1

Main challenge:

Manual planning results in a high number of missed time windows (delays and returns are expensive); broken business rules; more than 20% of orders are late or not delivered.

2

Second challenge:

Complexity of generating a plan due to short multiple time windows; unpredictable service time at each location (subject to warehouse sophistication, staff efficiency, seasonal and daily time of delivery, queues of other suppliers).

3

Other complications:

Temporary time-based road & zone restrictions on trucks creating a large range of Estimated Arrival Times (ETAs) within the mixed fleets subject to departure time. Variation of traffic forecast based on vehicle type (different speed limits), specific vehicle gate passes for particular locations.

Manually planning under these circumstances takes 3 people up to 4 hours to generate a plan every night for the next day. There is no guarantee the plan will be good: often time windows are missed, deliveries are returned, and significant delays happen, more vehicles than needed are used, drivers are driving more miles and spending more time on the road and at delivery locations. Also traffic rules, such as road restrictions for trucks are broken or not considered. It is almost impossible to get accurate estimations on arrival times.

How Norma solved these challenges

Norma uses a lightweight optimization algorithm that integrates with the SAP system and the fleet management software. It automatically generates daily best-case plan, using all available constraints, delivery requirements (time windows and delivery deadlines), available capacity (in-house or rented) and traffic forecasts (pulled from external traffic data sources) as well as traffic rules (road restrictions, speed limits).

This resulted in:

- More than 12 man hours of daily planning saved
- The amount of vehicles used has been reduced from 40 to 36
- Mileages on the road have been reduced by up to 24% due to the optimization of the routes
- Missed delivery time windows have been significantly reduced
- Service times are split into waiting / queuing time, unloading time, delivery sign-of process.
- Using Machine Learning capabilities, waiting time at customer sites has been reduced by 35%.