



DRIVING GROWTH THROUGH SAVINGS

How our solution enabled Jeronimo Martins
to expand without extra investment

**Jerónimo
Martins**

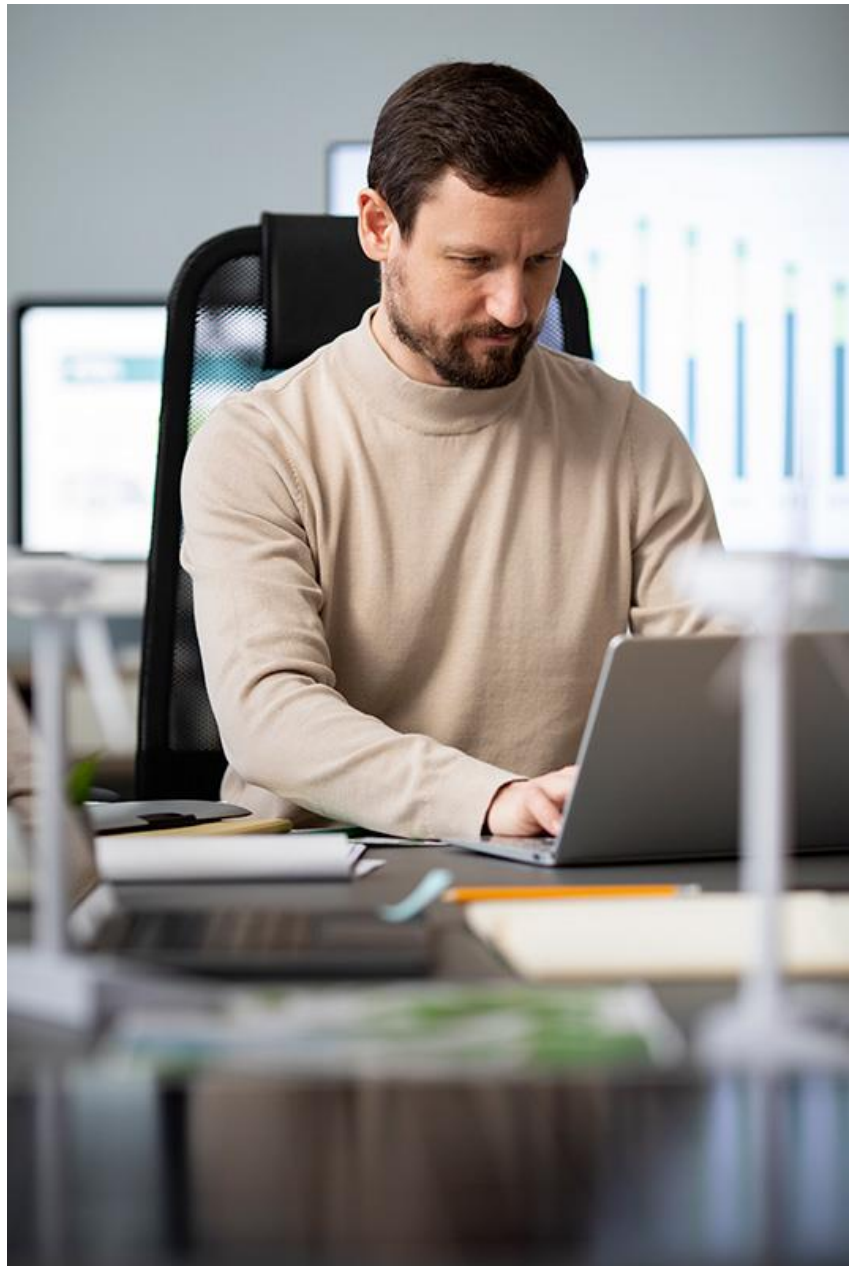


About client

Jerónimo Martins is an international group based in Portugal with over 230 years of experience in the food business. They address the daily needs of millions of consumers in three countries, through a value proposition based on quality food at competitive prices. The Polish food store chain Biedronka is their largest business with 3.400 stores. Today, it seems everything has its place, but it wasn't always like that.

Project

SolForLog



Understanding client's challenges

Biedronka had a large and fast growth and took an increasing share of the Poland market. It happened almost overnight, and the Senior executives were taken aback. The company's top management had to do something to take advantage of favorable moments and ensure future high incomes. They decided to open new distribution centers, expand the market, and come closer to customers. Instead of using a human factor, they decided on an innovative solution for that delicate task.

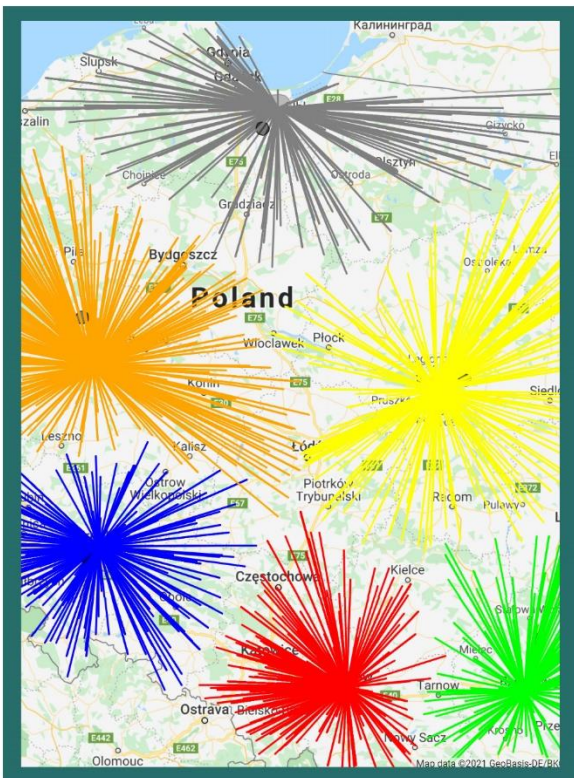
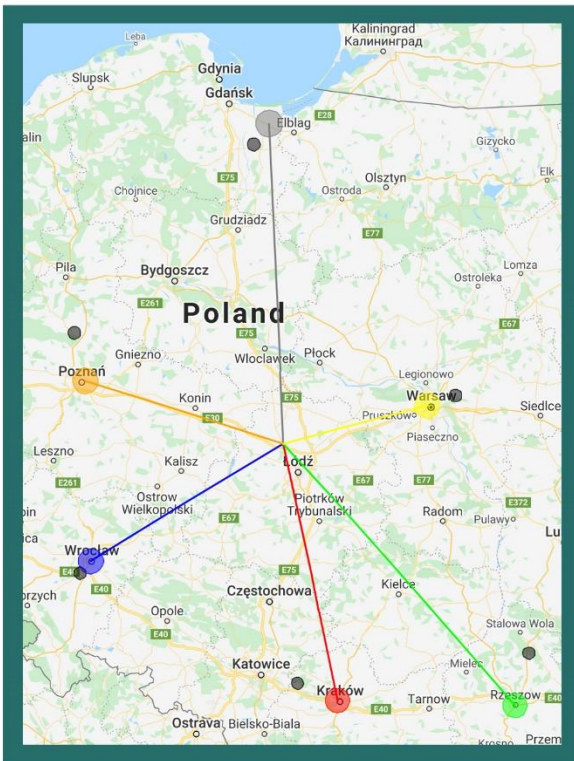
Suddenly, the need for opening new distribution centers and relocating existing ones shows up. Also, there were several additional requests – capacity issues, compatibility with different types of vehicles and warehouses, and time window issues for goods delivery. We had to solve the well-known, complex „Traveling salesman multiparameter problem“ with very high accuracy.

Solution

We started by analyzing Biedronka's situation at that time – warehouse positions, sizes, capacities, cost level, time spent on distribution, delivery time windows, planned countries for expansion, planned increase in sales of goods, vehicle types, and capacities.

Our analysis indicated that we would need two advanced algorithms – one for the determination of optimal warehouse position and a second to solve the „Traveling salesman multiparameter problem“. For the first algorithm, we used the one we have already developed for Mazda Automotive which could determine a Gravity point of the area and the exact position that would allow us the shortest distances to all outlets. Of course, for adequate outcomes, we had to „feed “ it with Google Maps data for Poland and fine-tune their logistic network to better address their needs.

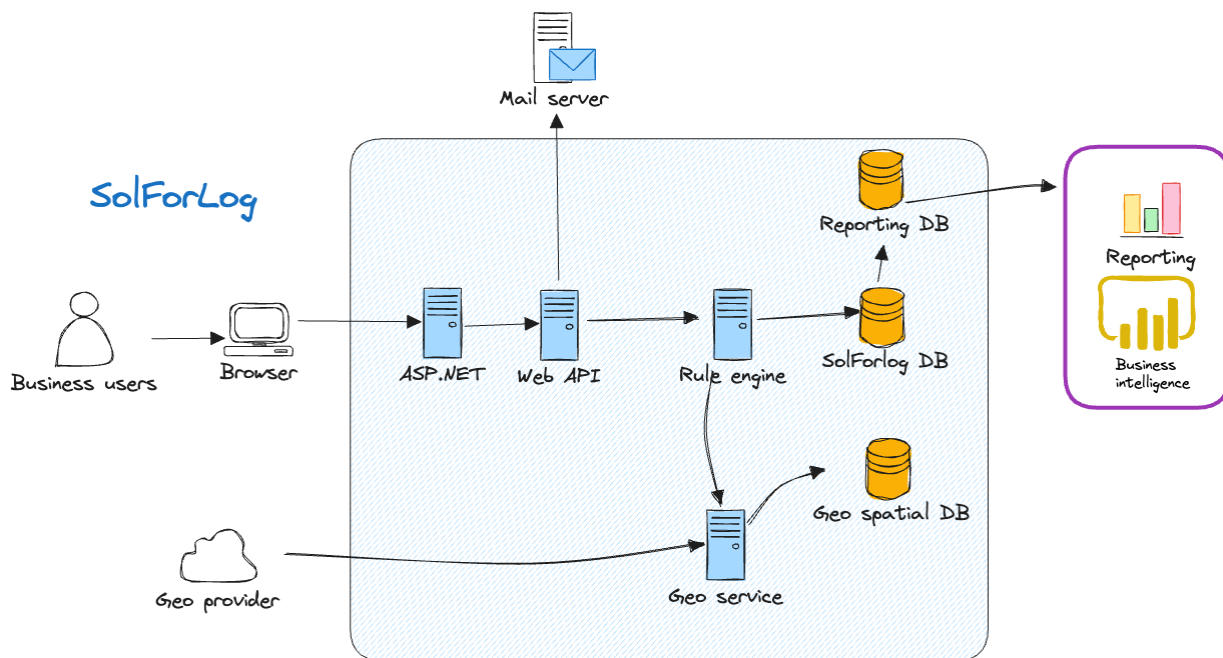
We paid special attention to the second algorithm. There are many public solutions for this problem but none of them is good enough. 1% could be a lot when we are speaking about millions of euros. After four months of hard teamwork, the use of advanced mathematics and Data Science procedures, we solved the „Traveling salesman multiparameter problem“ with **92%** accuracy which was much beyond any known public solution at the time. Both algorithms could calculate an enormous number of data quickly. Then we could connect all components into one huge system – two algorithms, the Backend part (Web services, control mechanism...), adjusted Biedronka's database, and the Frontend part. Upon an additional top management request, we added numerous custom reports and cost forecasts which provided them a powerful tool and a great advantage over competition. After 12 months of dedication and effort, our solution was ready to help Biedronka fulfill its goals.



Technical insight

We decided to use Service-Oriented architecture to make a distributed system that would be modular and scalable but is in same moment flexible for future changes.

The central part in system design was the use of genetic algorithms as the main algorithm engine.



Business value and benefits

SolForLog is a planning tool that enables growth through savings. Our solution allowed Biedronka to create any scenario they could imagine. Different parameters can be used in each scenario – the capacity of the warehouse can be reduced or increased, they can add or subtract vehicles, supply a specific customer from any distribution center, and so on. The whole concept was to create different scenarios and measure their results. It is more affordable to make a scenario with an application than to make a completely new warehouse.

By using the SolForLog, a fine-tuning of the business system is achieved, costs are reduced as well as an increase in competitive advantage. Furthermore, Biedronka by using SolForLog achieved:

15%
REDUCED
KILOMETERS

10%
REDUCED
DEPRICATION &
FUEL COSTS

7%
HIGHER
WAREHOUSE
UTILIZATION

Positioning warehouses by selecting optimal locations

Determining the ideal number of facilities

Optimizing logistics route, which reduced required kilometers by 15%. Reducing mileage reduced fuel and vehicle depreciation costs by 10%.

Determining the optimal number of vehicles, which reduced procurement costs by tens of thousands of euros per year

7% higher degree of warehouse utilization

Prediction future costs/savings based on their previous years which helped Top management in making strategic decision

Biedronka's Logistics Department used SolForLog for over a decade and they made so much savings that they built an additional warehouse every year without extra investment.

„AVS Solutions created a web App specifically for us. The platform helps us make decisions such as where and when to design a new distribution center. It allows us to input different scenarios and models to see possible outcomes and costs. AVS Solutions has greatly impacted our business with the App. It makes things logistically easier by helping us determine the best timing and location for new distribution centers. Throughout the project, they've worked quickly to resolve issues or questions that arise. They are flexible and willing to implement any changes or additional functionalities that we request. They work quickly and deliver high-quality solutions, and their prices are competitive. AVS Solutions is smart, and the team can adapt to your needs to find the right solution for you.“

Michal Gawel, Senior Logistic Manager – Jeronimo Martins