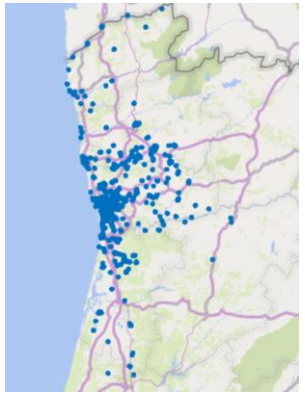
Algorithm for Routing Optimisation

KAIZEN™ INSTITUTE

IMAGES **BEFORE**

Stop Locations

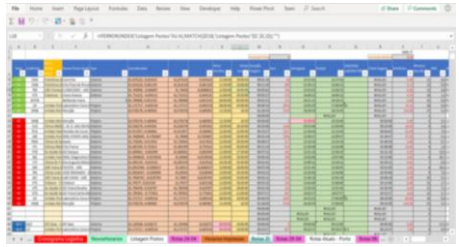


460
Stop Locations

44
Drivers

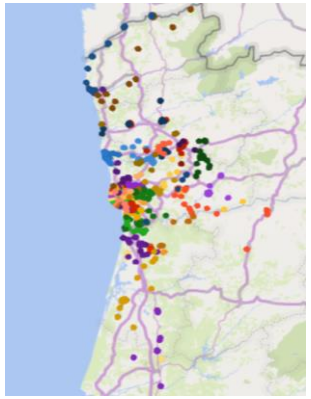
1
Warehouse
(End location
for all routes)

Poorly Performant Tools



IMAGES **AFTER**

Different Routes

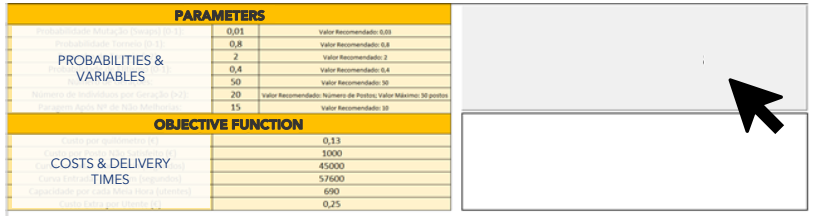


User-Friendly Interface

Visual Studio

Program deployed in C++

Routing Tool



Problem

- **Slow and manual** routing process
- **No visibility** of the impact of the different variables

Root Causes

- Available **tools are heavy and perform poorly**
- Solutions **dependent on one resource and his knowledge**
- **Little flexibility to improve solutions** through adding/removing stops and drivers
- **Difficulty performing sensitivity analysis** to study the impact of each restriction

Solutions

- Creation of a **mathematical model and algorithm** to define the initial solution
- Development of a **genetic algorithm** (based on meta heuristics) **to optimise routes**
- **Solutions displayed in a visual format** to ease understanding
- **Set-up of a user-friendly interface** to guarantee successful deployment of the tool

Benefits