ORTEC & KU Leuven Hackathon:
Vehicle assignment

About ORTEC

ORTEC is a leading global provider of advanced planning and optimization solutions. With over 35 years of experience, ORTEC offers software and consulting services for companies looking to optimize their supply chain, logistics, and workforce planning. ORTEC's solutions are designed to help businesses reduce costs, increase efficiency, and improve customer satisfaction.

At ORTEC, we are committed to staying at the forefront of our industry. To achieve this, we collaborate with top universities such as the KU Leuven to incorporate the latest research and technology into our solutions. This allows us to provide our clients with state-of-the-art products that meet their needs and exceed their expectations.

Registration

Teams consist of 1-5 people. Registration can be done by filling in the form: https://forms.gle/R9j1ygQFZ9HaSVnZA

For any further questions, please send an e-mail to: *tim.hellemans@ortec.com*

Business Challenge

At ORTEC, we have many optimization algorithms which help us solve problems such as the Vehicle Routing Problem (VRP). However, before we can solve a VRP, a couple of other steps need to be taken. In particular, ORTEC's customers in the Energy (downstream distribution) industry generally would like to prepare for future operations. For example, receiving capacity information prior to operations. To do this, customers want to estimate the number of vehicles needed in the future, knowing the forecasted demand. With this information customers can be prepared, and the risk of operational challenges can be reduced. For example by relocating vehicles, purchasing extra vehicles, or to collaborate with a 3*rd* party.

Contest

In this contest, you are given:

- A fixed set of distribution centers (with given locations).
- A forecasted demand in the form of customers (assigned to distribution centers), their locations and their order frequency.

It is then up to you to use any methodology (OR/ML/…) in order to come up with an algorithm (with a reasonable runtime of < 15 minutes on any "normal" computer for any "reasonable" instance) which chooses how many vehicles to use & assigns those vehicles to distribution centers in such a way that the VRPs that emerge from simulating instances from the forecasted demand have low cost solutions.

Agenda

This hackathon will take 2 weeks in total in the period 11-22 September.
In particular the agenda is:

- **11/09:** Opening day with problem setting & all involved parties are on site at KU Leuven.
- **22/09:** Final presentations at ORTEC Belgium (Boortmeerbeek).

Each day of the hackathon, someone from ORTEC will be available for questions & remarks.