

SUCCESS CASE 2.2026

MICADO

MODELING AND OPTIMISATION TOOL FOR OPERATIONAL ACTIVITIES AND WORKFORCE PLANNING



THE CHALLENGE

Enedis operates a highly complex operational system, with **5.8 million interventions per year** and **9,000 technicians mobilised across multiple activities** (troubleshooting, customer connections, maintenance, etc.). Within this context, operational teams face several major challenges:

- Managing **high volumes of activities with competing priorities** (“everything is a priority”)
- Anticipating future needs in a context of **strong growth linked to the energy transition**
- Ensuring a consistent **alignment between ambitions (activity demand) and available resources (skills, workforce, capacities)**
- Supporting Hypervision teams, which currently rely on **multiple fragmented and incomplete tools**

The key challenge is therefore to provide a **unified, industrialised tool** enabling both **long-term strategic planning** and **short-term operational steering of activities and resources**.

THE SOLUTION

To address these challenges, Enedis developed **MICADO (Modèle Interventions Compétences des Activités opérationnelles du Domaine Opérations)**, an integrated tool dedicated to Hypervision teams. MICADO is built upon the APACHE optimisation engine developed by EDF R&D, enabling **advanced modelling of activity–resource allocation problems**. The tool provides a comprehensive set of functionalities:

- **Simulation of activity–resource adequacy over multiple years (up to 4 years)**
- **Construction and optimisation of workload plans**
- **Planning and scheduling of activities and workforce** (annual and infra-annual)
- **Performance monitoring and operational steering**

MICADO enables:

- anticipation of resource needs (internal and external),
- standardisation of planning practices across regions,
- and dynamic measurement of operational efficiency.

MAIN ACHIEVEMENTS

- **Transformation of a complex optimisation model (APACHE)** into an operational tool usable by Hypervision teams
- Successful proof of concept in 2025 involving 8 regional divisions
- Integration into Enedis' strategic innovation priorities, especially in AI and data-driven optimisation of operations
- Ability to run multi-scale simulations (long-term PMT and short-term planning) within a single platform
- Positive feedback from operational stakeholders highlighting :
 - better visibility on planning decisions,
 - improved consistency across tools and processes,
 - strong alignment with Hypervision needs.

KEY SUCCESS FACTORS

1. Strong alignment with operational needs

MICADO directly supports the core missions of Hypervision teams: planning, arbitration, performance monitoring and resource allocation.

2. Robust modelling based on advanced optimization

The reuse of the APACHE model ensures a high level of scientific robustness in activity–resource matching and optimisation.

3. Unified and industrialised tool

MICADO addresses the fragmentation of existing tools by providing a single, standardised platform across all regions.

4. Multi-scale planning capability

From long-term strategic planning (PMT) to short-term operational adjustments, MICADO supports decision-making at all time horizons.

WAY FORWARD

MICADO is expected to become a **national reference tool for Hypervision Operations**:

- Deployment across all **25 Hypervisions by 2027**
- Systematic use for:
 - PMT preparation and simulations,
 - annual and infra-annual planning,
 - performance monitoring and decision support

The ambition is to establish MICADO as a **core enabler of operational excellence**, ensuring sustainable alignment between growing activity demands and available resources.