## Use case with Sidenor
## Constant reconfiguration of supply plans

### The challenge

External and internal disruptions require reallocating the production to different production sites than originally planned. Currently, reconfiguration takes place manually and is based on expert knowledge and spreadsheet calculations. Moreover, decisions taken at the network level are not connected to the reconfiguration needed at the factory level.

### The vision of the future process
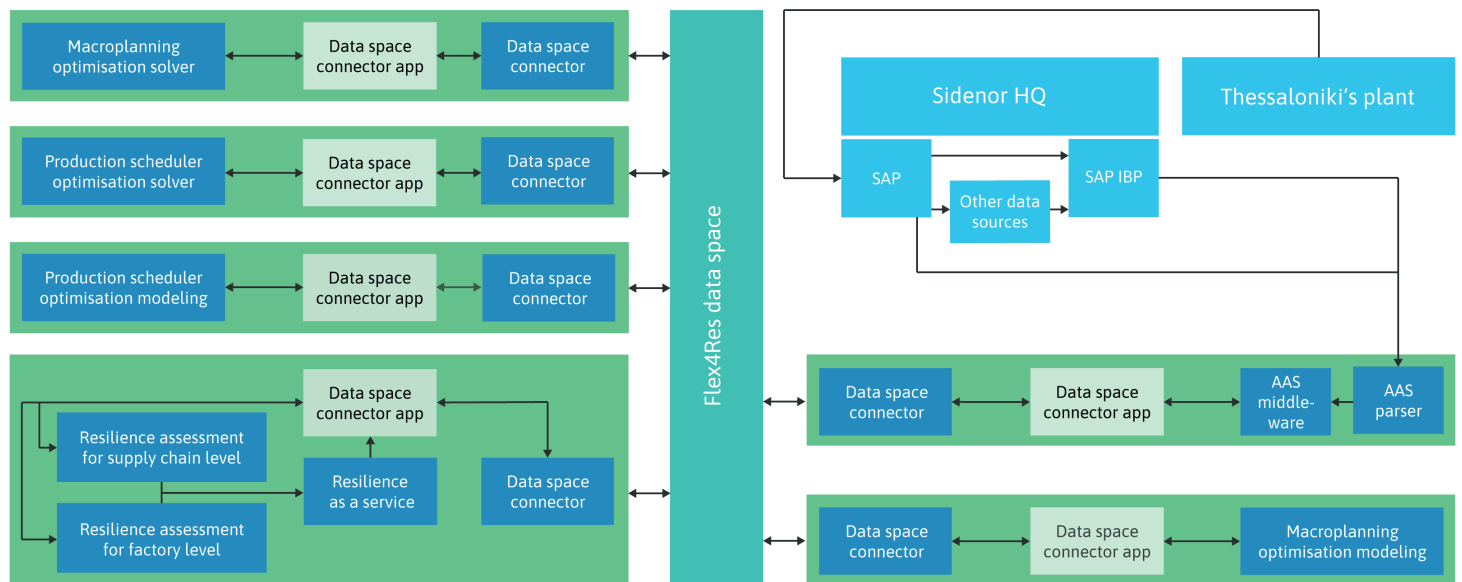


Based on a secure data exchange using IDS and the Asset Administration Shell (AAS) concepts, the resilience toolbox will guide the users through the steps for network reconfiguration by highlighting the differences with the current configuration status.

The macroplanning optimisation tool uses data from the Enterprise Resource Planning (ERP) system to reallocate the production among the facilities and update raw material supplies. In the production scheduler optimisation tool, an Artificial Intelligence (AI) agent computes the scheduling of Thessaloniki's plant based on the output of the macroplanning optimisation tool and data from the ERP. The resulting schedule are displayed to the user through a Graphical User Interface (GUI).

# Flex4Res

**Data spaces for flexible production lines and supply chains**

## About Sidenor

Sidenor Group produces a variety of steel products (e.g., merchant bars, plates, wide rods and more). Their processes range from scrap purchasing and metal processing to packaging and delivering to customers. All orders and the corresponding processes are shared among six plants located in the Balkans and Cyprus. In the project, it is represented by Sidenor Steel Industry S.A. which operates a manufacturing plant in Thessaloniki, Greece.

## About Flex4Res

Flex4Res aims to provide an open platform to support production network reconfiguration for resilient manufacturing value chains. In four industrial pilot projects, the project team will test and validate the integrated solutions on the reconfiguration of different hierarchical levels from the value chain to machines and devices.

The research project was launched on 1 January 2023, runs for three years and is led by the Laboratory for Manufacturing Systems & Automation. The funding framework is provided by the European Health and Digital Executive Agency (HaDEA) as part of the European Union's Horizon Europe research and innovation programme.