

IOT INDUSTRY

IPLANNER

Optimization of manufacturing resources with a Discrete Event Simulator based solution



European Union's Horizon 2020 Programme

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 777455.

iPlanner

A *Discrete Event Simulator (DES-based)* SW tool, implementing a *Finite Capacity Scheduler (FCS)*, with the purpose to **optimize all the manufacturing orders and processes within a factory**

The simulator will act as a **Cyber Physical Production System (CPPS)**, monitoring the physical resources of the factory-floor to control the complete production chain and its performance

The system is leveraging on two additional important aspects: **it can learn and evolve with the experience and time (optimization capabilities)**, and it can relate to the Business Intelligence, to manage big amount of data

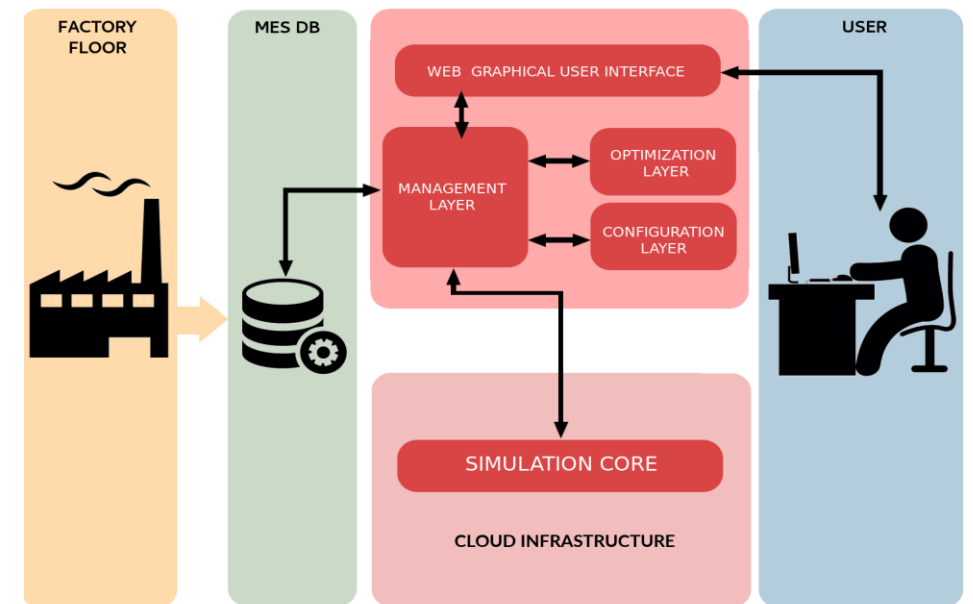
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IOT 4 INDUSTRY


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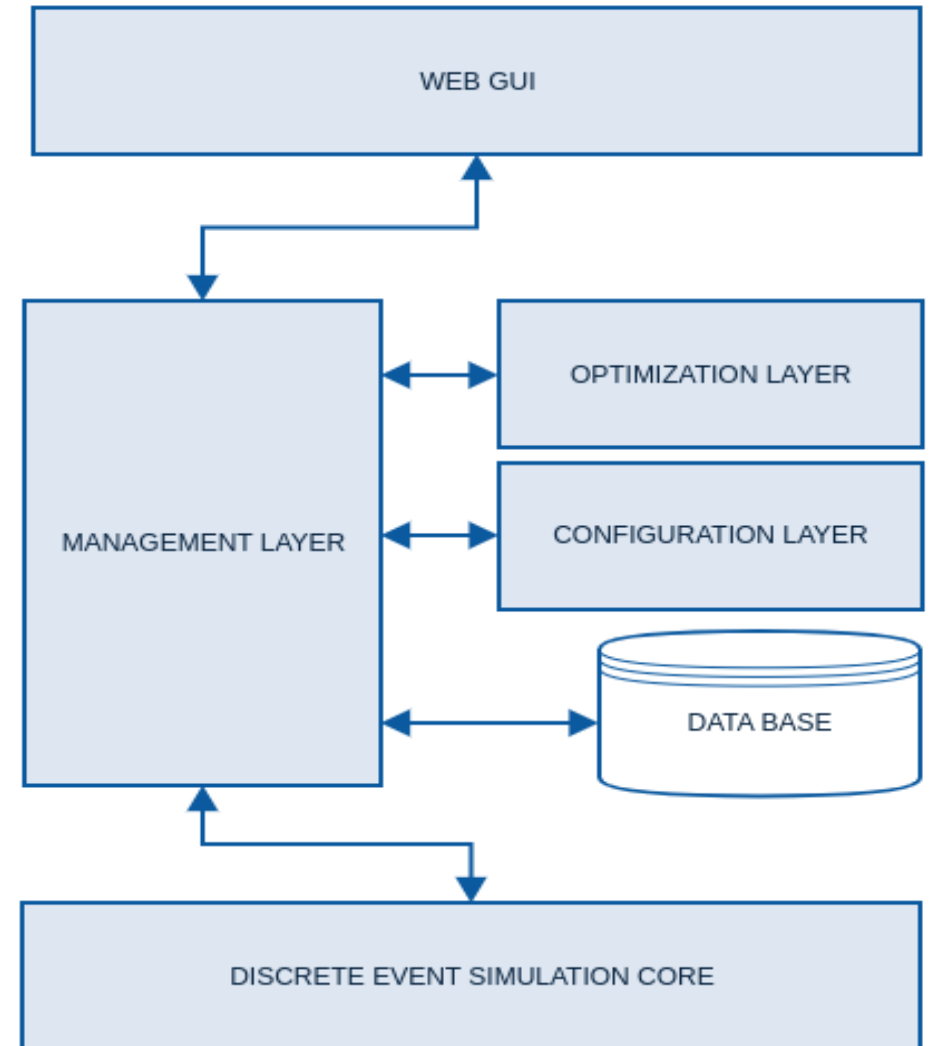
How the FCS Works

Modelling the industry process in order to allow the end-user to improve its production scheduling activities, basing on simulation data analysis

It is a cloud-based scheduler for planning the production orders on-demand

The FCS can emulate different configurations of the related production process simultaneously, selecting in a few minutes the most appropriate sequence of production orders

Optimization criteria will produce a ***First-in-First-Out (or FIFO) scheduling path***, which grants that the first fabrication orders should also be the first to be executed



Production Scheduling

iPlanner
by gradient ▶



Production plan



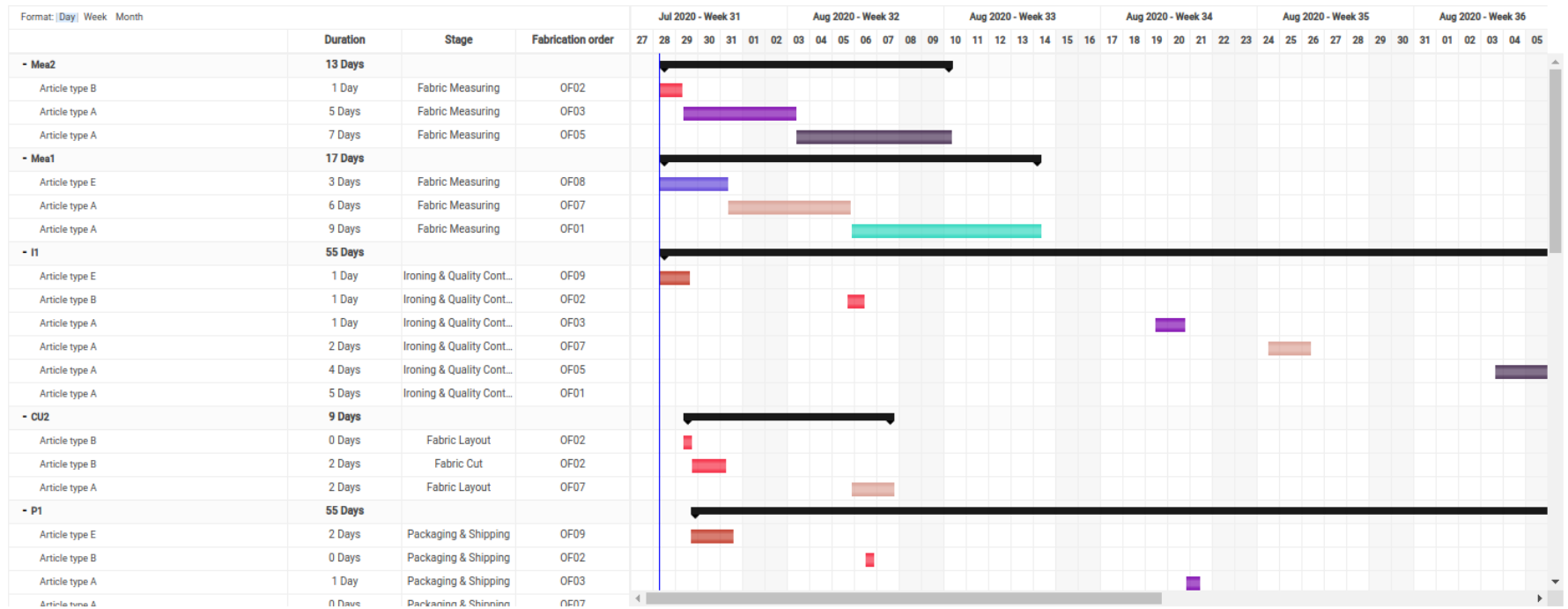
Scheduler

KPIs

PRODUCTION

planning_week_1

⌵ Collapse all



Production KPIs

- ☰
- Production plan
- Scheduler
- KPIs**
- Planning history

PRODUCTION

Resource usage



Deadlines

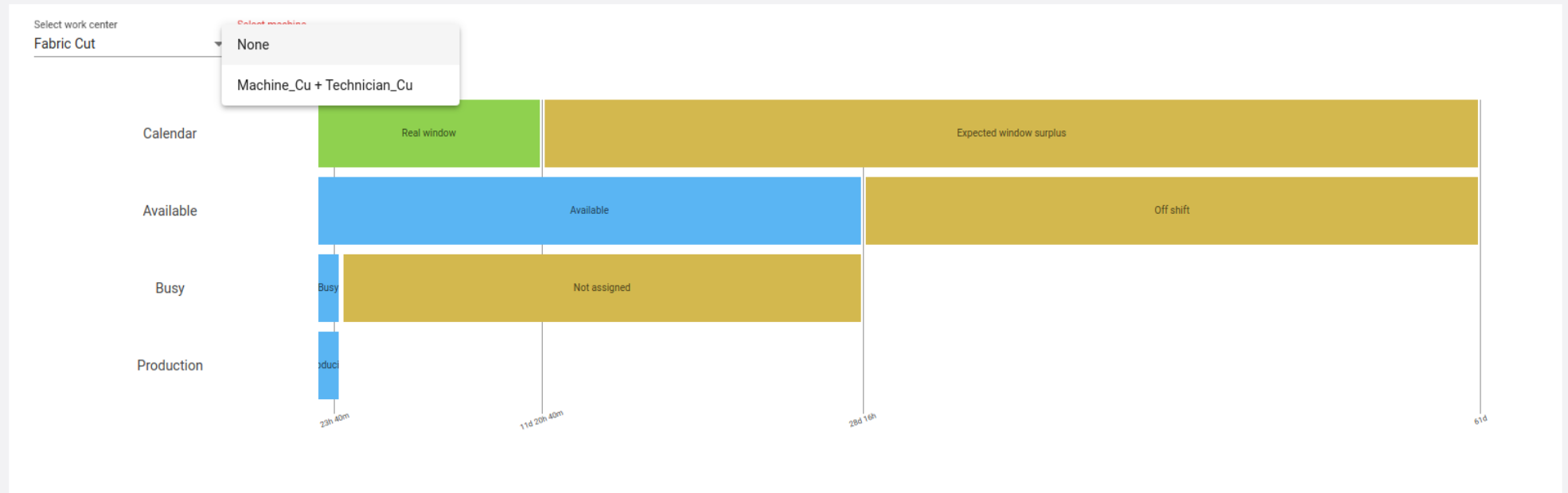


Resource Usage

- Production plan
- Scheduler
- KPIs
- Planning history

PRODUCTION

< Resource usage



iPlanner FCS Key Values

QUICKER decision: the planning tool shows a complete view of: *Demand, Capacity, Use of Resources, Sequence of Operations* or expected time to complete each operation.

MORE FLEXIBLE: the planner can move operations from side to side, change priorities and manipulate the program in any way needed to meet business objectives.

MORE INTELLIGENT: the planner can analyse and observe the impact on all orders before confirming the changes, and quickly creates a production plan that synchronizes all demands. It can also contribute to identify potential problems (*cause and effect*).

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