

RE-PLAN

Real-time Explainable Planning for
Energy- and Maintenance-Aware
Discrete Manufacturing





ORGANISATION PROFILE

SISKON Industrial Automation and Software

Founded in 1997

- **HQ:** Izmir/Türkiye | **Offices:** Braşov/Romania

Team

- 90+ engineers & specialists

Core Expertise

- Advanced Manufacturing Digitalisation
- Industrial Data Platforms & Interoperability
- AI & Advanced Analytics for Manufacturing
- Traceability, Transparency & Compliance
- Energy, Carbon & Sustainability Intelligence
- Industrial Automation & Systems Integration

International Project Experience

- Industrial software solutions deployed in 66 factories across 44 countries

Key Products

- OnSuite Industrial Software Platform
10 Products, 90+ Modules
A modular industrial software platform that collects, interprets, and converts real-time data from the production floor into actionable insights.

R&D Expertise

- 6 National R&D Projects
- 1 Eurogia2030 Project (labelled in May, 2024)
 - “Manufacture CarbonIQ” – Project Coordinator

PROPOSAL INTRODUCTION (I)

Vision Production plans that survive reality: explainable, just-in-time replanning that reacts to disruptions, energy prices and maintenance needs within seconds.

Motivation

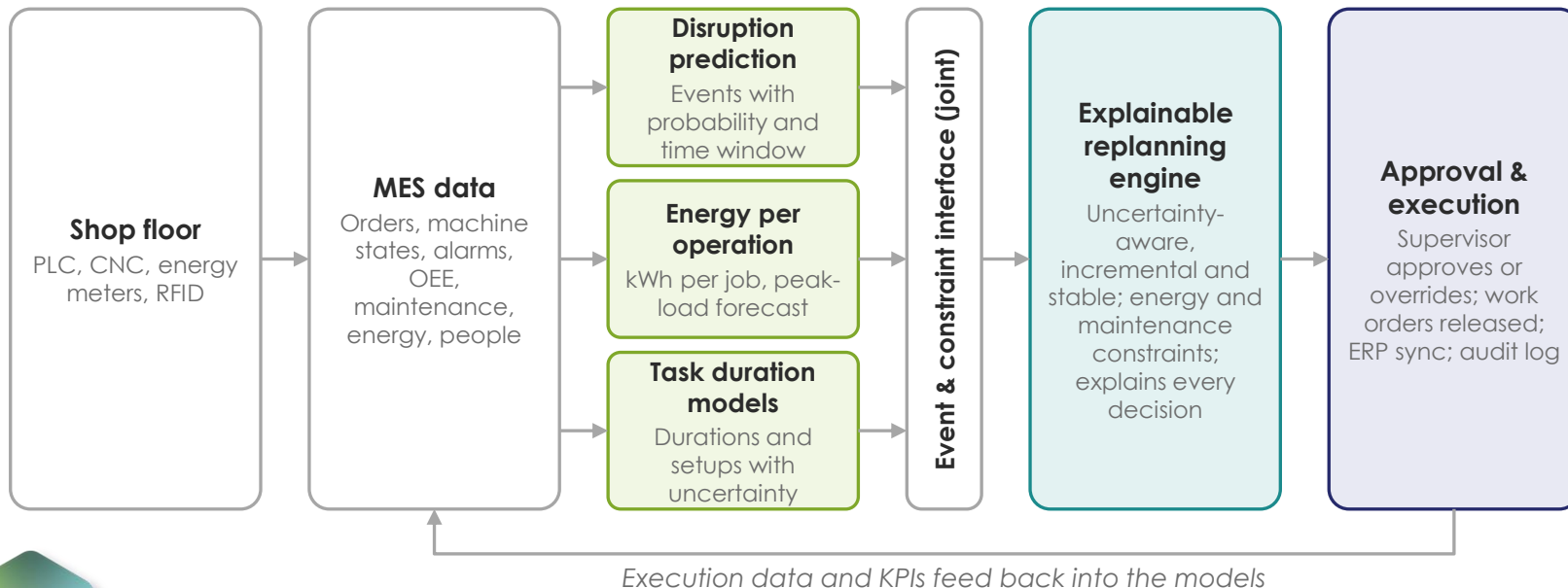
- ERP/MES plans go out of date within hours; supervisors replan by hand
- Manual replanning is slow, inconsistent and leaves no audit trail
- Production, maintenance and energy are planned in separate silos
- High-mix demand, labour shortages and volatile energy prices raise the pressure
- The EU AI Act calls for transparent, explainable AI decisions

Content: developments in the project

- Disruption prediction from shop-floor data
- Energy model per operation from existing aggregate meters
- Learning task and setup durations with their uncertainty
- Uncertainty-aware, incremental replanning with energy and maintenance constraints
- Plain-language explanations of every planning decision
- MES-scheduler interface, approval UI and closed-loop execution

PROPOSAL INTRODUCTION (II)

One closed loop: sense → predict → replan → approve → execute → learn



PROPOSAL INTRODUCTION (III)

Sample use cases

A

Bottleneck machine breakdown

Automotive supplier, CNC machining

Today: Supervisor reshuffles 12 orders by hand; it takes hours

With RE-PLAN: Rising micro-stops flagged early; a new plan is ready in seconds, each change explained

B

Rush order or priority change

White goods assembly

Today: Order accepted first; the cost is discovered afterwards

With RE-PLAN: What-if shows delays and extra changeovers before the order is accepted

C

Maintenance window conflict

Presses, injection moulding, ovens

Today: Maintenance postponed because the week is full

With RE-PLAN: Failure risk tightens the deadline; the window goes where it costs least output

D

Energy peaks and tariffs

FMCG packaging, curing, heat treatment

Today: Energy-intensive jobs run whenever they happen to be scheduled

With RE-PLAN: Non-urgent jobs shift to low-tariff periods; contracted peak power is never exceeded

PROPOSAL INTRODUCTION (IV)

Expected outcome

- RE-PLAN integrated solution validated at 2 pilot sites (TRL 5 → 7)
- Predictive modules: disruption prediction, energy per operation
- Replanning engine: uncertainty-aware, with energy and maintenance constraints and explanations
- Open MES–scheduler interface specification (ISA-95 / OPC UA)
- Validation protocol and benchmark data set

Schedule

Start: 2028 Q1

Duration: 24-30 months

Impacts (target KPIs)

Hours → seconds

replanning time after a disruption

↓ Manual effort

planner hours spent replanning

↑ On-time & OEE

delivery performance and availability

↓ Energy cost

per unit, plus CO₂ per unit

PARTNERS

Current consortium

Siskon

Türkiye · Industrial software SME

- OnSuite MES platform; software in ~61 factories in 44 countries
- Role: disruption prediction, energy model, MES integration, pilots

Yordando UAB

Lithuania · Symbolic AI start-up

- Orbio: patent-pending just-in-time scheduling engine; EIC Seal of Excellence
- Role: planning intelligence (duration learning, uncertainty-aware replanning, explanations)

Partner search

End user – lead pilot **Essential**

High-mix discrete manufacturer (automotive, white goods, FMCG) with energy-intensive processes

End user – replication **Wanted**

Second manufacturer in another sector and country, to prove transferability

RTO / university **Wanted**

Production planning; energy optimisation (energy-aware scheduling, load disaggregation, demand-side flexibility); human-centred AI; ML under uncertainty

Machine builder **Wanted**

Supplies machine-level energy and condition data, co-develops machine energy and maintenance models, and offers an OEM channel to its installed machines

CONTACT INFO



Burcu Musaoglu

R&D&I Manager

Siskon Industrial Automation and Software

burcu.musaoglu@siskon.com.tr

+90 (532) 673 7602



www.smarteureka.com