

OPTIMISED

CONTACT US

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WHAT IS OPTIMISED?

OPTIMISED is developing and demonstrating a logistics & manufacturing scheduling optimisation system, which uses smart sensors, simulation and AI methods to monitor and improve performance.

By monitoring the impact of energy management on factory planning, the OPTIMISED project stands out from the crowd of similar projects.

OPTIMISED is delivering

- Digital twins of each of the 3 demonstrators
- Real-time monitoring, allowing comparative analysis vs simulation, pinch point identification
- Optimisation methods for schedule generation and the ability to rapidly re-optimize in response to emerging scenarios
- Distributed big-data processing framework enabling advanced in-network evaluation
- Digital simulation modelling toolbox
- Understanding real-time factory energy performance and cost modelling
- Flexible data gathering and information management infrastructure

• OPERATIONAL
• PLANNING
• TOOL
• INTERFACING
• MANUFACTURING
• INTEGRATED
• SIMULATIONS
with
• EMPIRICAL
• DATA



PARTNERS

INDUSTRIAL PARTNERS



Advanced Data Processing GmbH are experts in data analysis and automatic control.



Alstom is implementing OPTIMISED in its train servicing facilities for improved competitiveness.



Dassault Systèmes provide advanced planning tools.



Goimek are using OPTIMISED to gain insight and knowledge into the energy consumption of their machining facilities.



Keonys is a leading integrator in software solutions.



Laing O'Rourke is the consortium leader and is implementing OPTIMISED in its offsite manufacturing facility.



Simplan are delivering data driven model generation for OPTIMISED.



Smarter Grid Solutions provide expertise in energy management, including demand side response.

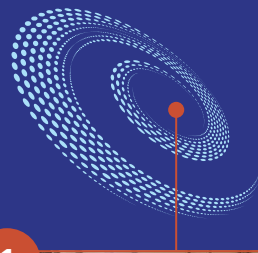
RESEARCH PARTNERS



IK4 Ideko are integrating data capture, process monitoring and factory simulation into OPTIMISED.



University of Nottingham are focused on the research into cyber-physical systems and optimisation algorithms.



DEMONSTRATORS

1



ALSTOM provides a wide range of services including maintenance of assets such as trains and depots.



The challenge of all maintenance operations lies in the capacity to deal with unplanned events or disruptions. An example being adverse weather conditions causing late arrival of trains to depots. OPTIMISED will allow Alstom to consistently deliver a working fleet every day, with the expected level of performance.

OPTIMISED delivers a real-time and agile planning tool providing the depot management team with the optimal train allocation to routes. This digital twin of the West Coast Mainline allows forecasting of the fleet on mid and long term horizons, to identify any maintenance bottlenecks and smooth maintenance peaks. This also provides improved availability and reliability for the customers.

IMAGE: ALSTOM / T.MILES

2



GOIMEK is a precision parts machining company engaged in a high mix/ low volume environment. The company offers complete machining solutions for clients with diverse requirements and demands. GOIMEK is an expert in the machine tool, aeronautic and railway sectors. However, in these environments, there are frequent changes to product catalogue, process flows, labour, material and energy usages.



OPTIMISED has implemented a solution which:

- shows the current state of the live factory through links to the live data streams from the shopfloor (machines and energy meters) and enterprise management software streams (such as ERP and the MES) into the information management backbone
- is a decision support system which allows evaluating production scheduling by the use of integrated dashboards and the holistic factory simulation model.

3



LAING O'ROURKE is an engineering enterprise with expertise in the manufacturing of construction components in a controlled offsite environment.



This offsite manufacturing or Design for Manufacturing and Assembly utilises modularisation of the design to enable easy componentised assembly at site, reducing construction time. Productivity gains are delivered by this approach, but are more susceptible to external factors influencing the scheduling and down-stream manufacturing and logistics.

OPTIMISED will deliver an optimal scheduling capability that will use the digital twin to provide an as-planned production schedule. A combination of factory systems and retro-fitted sensors, which monitor production in real-time, will be used to compare the as-planned schedule with actual performance allowing an AI optimisation algorithm to be used to react and re-optimize production.