

Op.pla

Production optimization system:
plan, optimize, and monitor production processes.



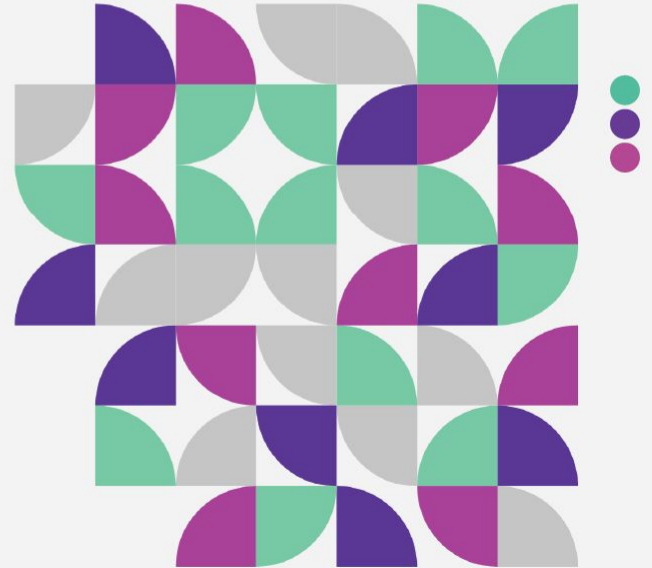
OUR SOLUTIONS

Op.pla

Finite capacity production planner and scheduler for Industry 4.0

Op.pla is the innovative **finite capacity scheduling software for industrial production optimization and planning**, available in Cloud and On Premises.

It makes it possible to encode constraints of real-world processes, check data quality automatically for errors, missing information and inconsistencies and create optimized production schedules with delivery estimates that are constantly updated.



Main features and benefits available through Op.pla:



PREDICTIVE
DATA ANALYSIS

GENERATION
OF CORPORATE VALUE



REDUCE LEAD TIMES
AND WIP

CLOUD AND ON PREMISES
AVAILABILITY



INCREASE
ON-TIME DELIVERIES

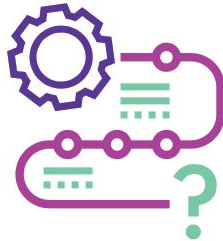
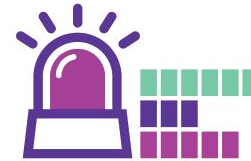
ADAPTABLE
TO ALL INDUSTRIES



Main features and benefits available through Op.pla:

REDUCE LEAD TIMES AND WIP

Based on a **finite capacity optimizer**, Op.pla suggests the best possible sequence for production orders according to the "critical chain / buffer" management approach, which avoids fine-grained scheduling, but focuses on reducing lead time and increasing general efficiency.



PREDICTIVE DATA ANALYSIS

Capability to **make decisions based on data** and simulate potential scenarios to **anticipate problems**.

INCREASE ON-TIME DELIVERIES

For each optimized order, Op.pla **automatically calculates a deployment priority**, which is displayed simply through a color-coding system, in relation to the estimated time to completion and the remaining time in the safety buffer. The program will then display orders that have a high chance of being late, compared to other orders that are proceeding as planned, in different colors. Based on the priorities suggested by Op.pla, operators are tasked with creating the **daily production schedule** and reporting how much was actually produced so that the information is passed on automatically to the management system and used in subsequent optimizations.



GENERATION OF CORPORATE VALUE

Simplification and factual description of planning methods **using fewer resources for scheduling and planning, thereby dedicating more resources to monitoring**. Planning and organization thus become a corporate asset that relieves resources of automated and habitual tasks, allowing more time to perform analyses that create great value for the company.

CLOUD AND ON PREMISES AVAILABILITY

Op.pla is **available as SaaS**, with **dedicated infrastructure on Cloud**, or **On Premises** for all scenarios where there is some criticality in exposing customer data externally.

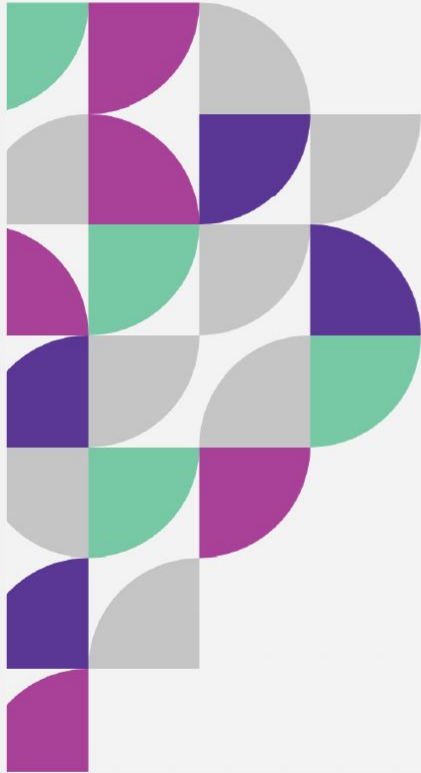


ADAPTABLE TO ALL INDUSTRIES

Op.pla is **compatible with the most popular IIoT systems and Industry 4.0** enabling technologies currently in place and used in all industries.

As a production scheduler Op.pla has interfaces for **other management systems, such as ERP, MES and data collection and analysis applications**, guaranteeing consistency in the flow of information.





Op.pla

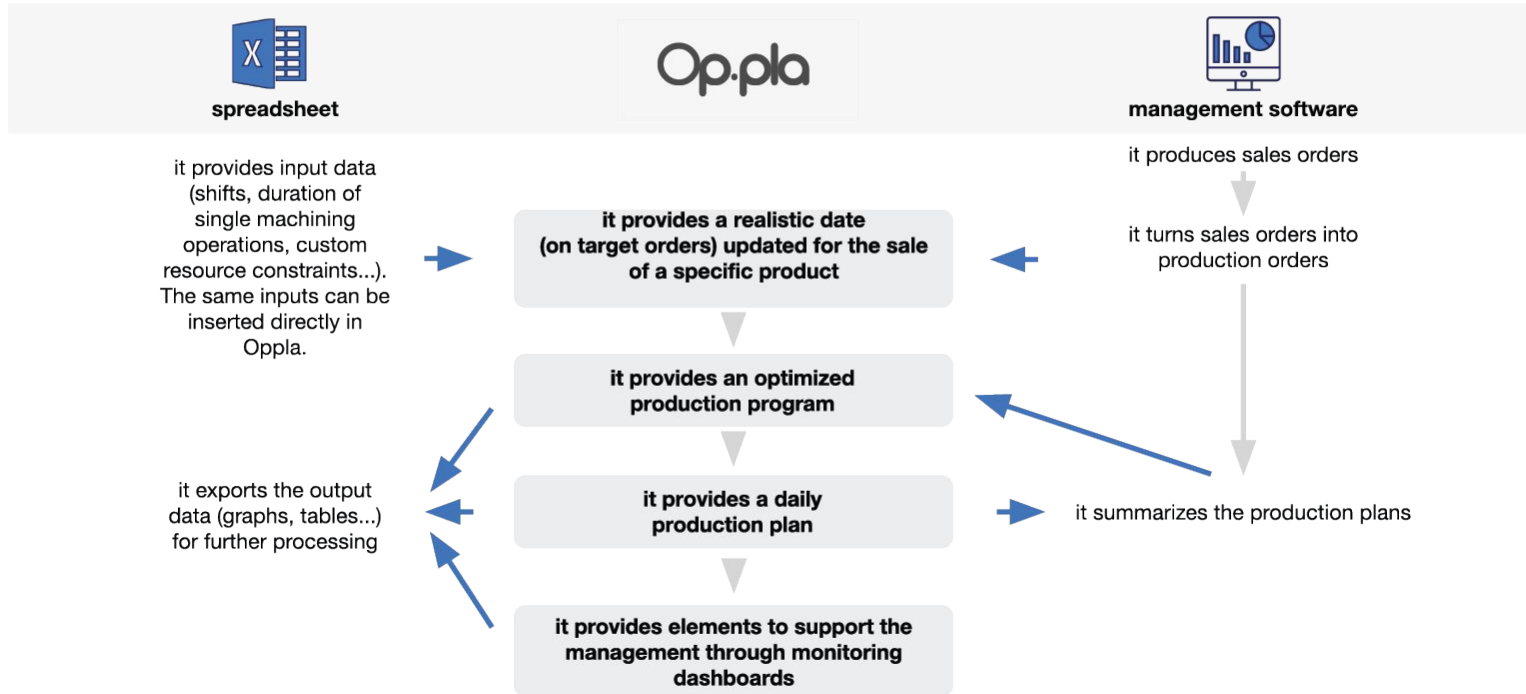
Simplify and optimize finite capacity production planning

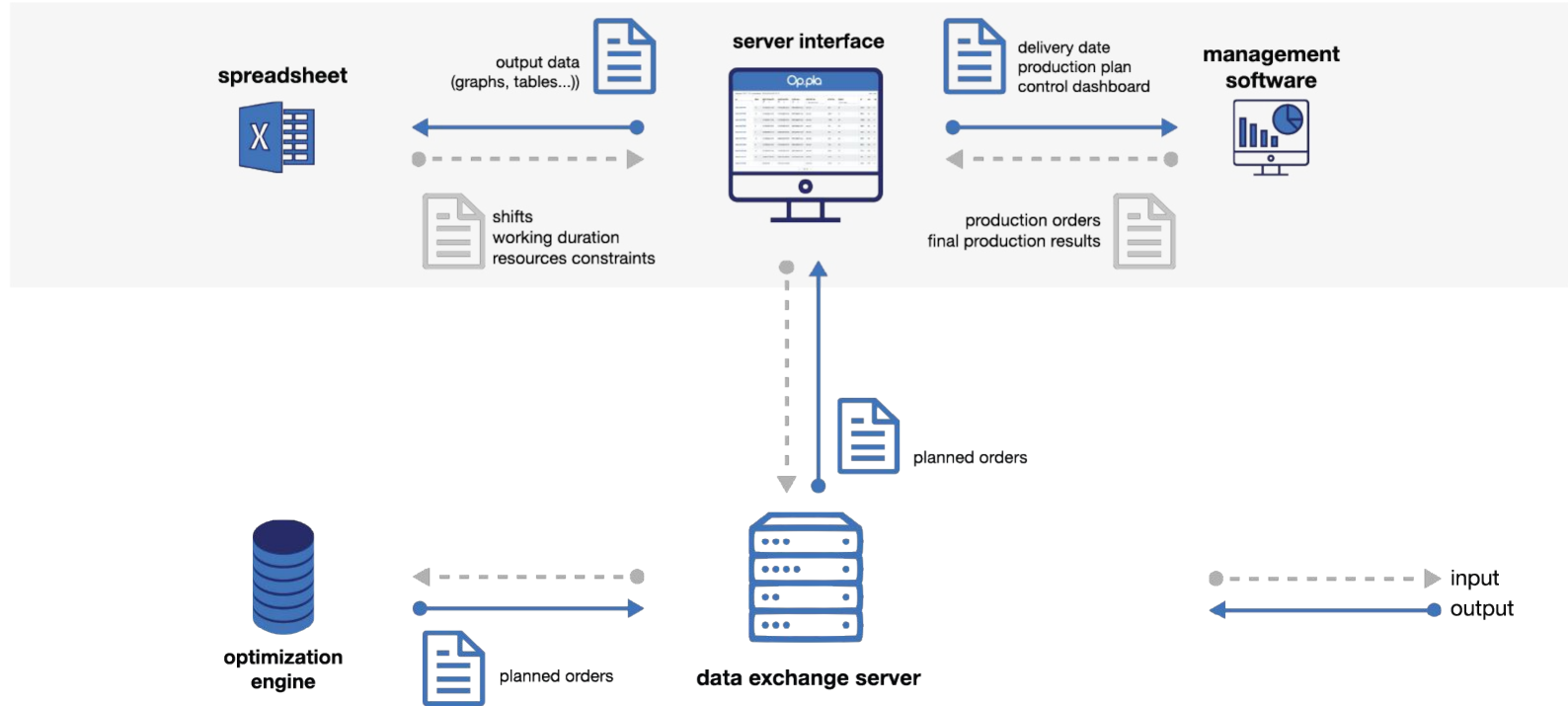
Op.pla meets the needs of those involved in production planning, starting from scheduling, until the simulation of unexpected scenarios.

- Business side: it allows to **know the plant load**, the state of orders and to provide clients with realistic delivery dates;
- Operational side: it makes it possible to **define priorities between production orders**;
- Decision-making side: it enables the **supply chain planning and managing**, the knowledge of the actual availability of resources and the **simulation of unexpected scenarios**.



Op.pla - Interaction between instruments





Configurazione / Configurazione 1

Nome File Errori Avvisi Valido

Estendere intervallo di date fino alla data 2021-07-22

configuration

Ordini

Operazioni rapide

ID	STABILIMENTO	STATUS	CODICE ARTICOLO	LIVRO	DATA_MIGRO	DATA_PME	DATA_MIGRO_PPLA	DATA_PME
...	...	Completato

orders

Calendario

Legenda

color

Stabilimento

Centri di lavoro

calendar

Carichi

Periodo selezionato: 20/01/2021 01:00 - 20/01/2021 01:00

loads

Tipo di carico	Ore nel periodo	Saturazione % (ora totale)	Saturazione % (ora libera)
Altre elaborazioni	0	0,00%	0,00%
Difficile	0	0,00%	0,00%
Stabilizzamento	0	0,00%	0,00%
Chiusura Arretrata	708	32,48%	32,48%
Chiusura Totale	0	0,00%	0,00%
coloni	10	0,45%	0,45%
coloni2	7	0,31%	0,31%

loads

The screenshot displays the 'Configurazione' (Configuration) page in the Op.pla system. The page title is 'Configurazioni / Configurazione 1'. A status indicator shows 'Valida' (Valid) in green. The configuration data is as follows:

Nome	File	Errori	Avvisi	Valido
Turnistica	Scarica(http://oppla-demo-orobix.ngrok.io/media/configuration/0bb5412a/cd_turnistica.xlsx) Caricato da orobix@demo.com il 04/02/2021 14:51 Scegli file		Estendere intervallo di date fino alla data 2021-07-22	Sì

Below the table, there is a 'Note' section with a text area and an 'Aggiorna note' (Update notes) button. The left sidebar contains a 'MENU PRINCIPALE' with options: Elaborazioni, Ordini, Carichi, Calendario, Magazzino, Spedizioni, Configurazione (selected), File, Profilo utente, and Licenza. The top navigation bar includes 'Op.pla', 'Configurazione', and the user email 'orobix@demo.com'. A version number 'Versione v0.0.30' is visible at the bottom left of the interface.

Op.pla allows the **display of all the information at the base of the system** that is loaded through spreadsheets. An **analysis of the consistency and congruence of the data entered** is performed automatically and any **blocking and warning errors** that require changes by the scheduler user or confirmation of the use of preset standard values are reported.

The screenshot shows a web application interface for 'Ordini' (Orders). The top navigation bar includes 'Op.pla', 'Ordini', and 'orobix@demo.com'. Below the navigation, there are filters for 'SCENARIO' (Base), 'ELABORAZIONE' (28/01/2021 01:00 (2)), and 'VISTA' (Tutti gli ordini). A search bar is labeled 'Ricerca modifiche'. The main content area shows 'ORDINI: 3954 | GRAFI: 3205' and a section for 'Operazioni rapide' with a button 'Modifica centro di lavoro' and '3205 grafi selezionati'. The main table has the following columns: ID, SEMAFORO, STATUS, CODICE ARTICOLO, LOTTO, DATAORA_INIZIO, DATAORA_FINE, DATAORA_INIZIO_OPPLA, and DATAORA_FINE. The table contains several rows of order data.

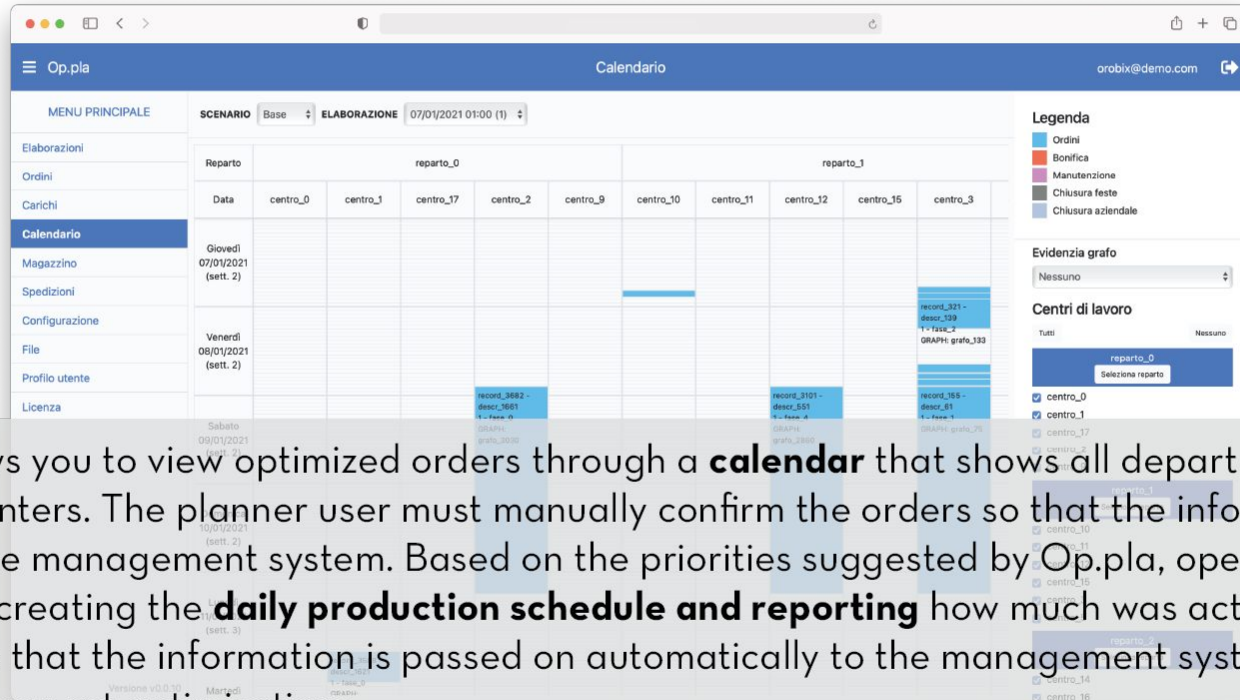
ID	SEMAFORO	STATUS	CODICE ARTICOLO	LOTTO	DATAORA_INIZIO	DATAORA_FINE	DATAORA_INIZIO_OPPLA	DATAORA_FINE
record_0	●	Congelato	codice_0	lotto_0	28/01/2021 15:30	28/01/2021 16:30	28/01/2021 15:30	28/01/2021 16:30
record_1	●	Congelato	codice_0	lotto_0	28/01/2021 15:30	28/01/2021 16:30	28/01/2021 15:30	28/01/2021 16:30
record_2	●	Congelato	codice_0	lotto_0	28/01/2021 15:30	28/01/2021 16:30	28/01/2021 15:30	28/01/2021 16:30
record_3	●	Congelato	codice_0	lotto_0	28/01/2021 16:30	28/01/2021 17:30	28/01/2021 16:30	28/01/2021 17:30

Based on a **mathematical optimizer** that can be set to reflect **finite capacities**, Op.pla suggests the best sequence possible for the orders entered according to the **critical chain/buffer management approach**, which includes the management of a **single safety time buffer** throughout the development of the job, increasing general efficiency and reducing overall lead time.

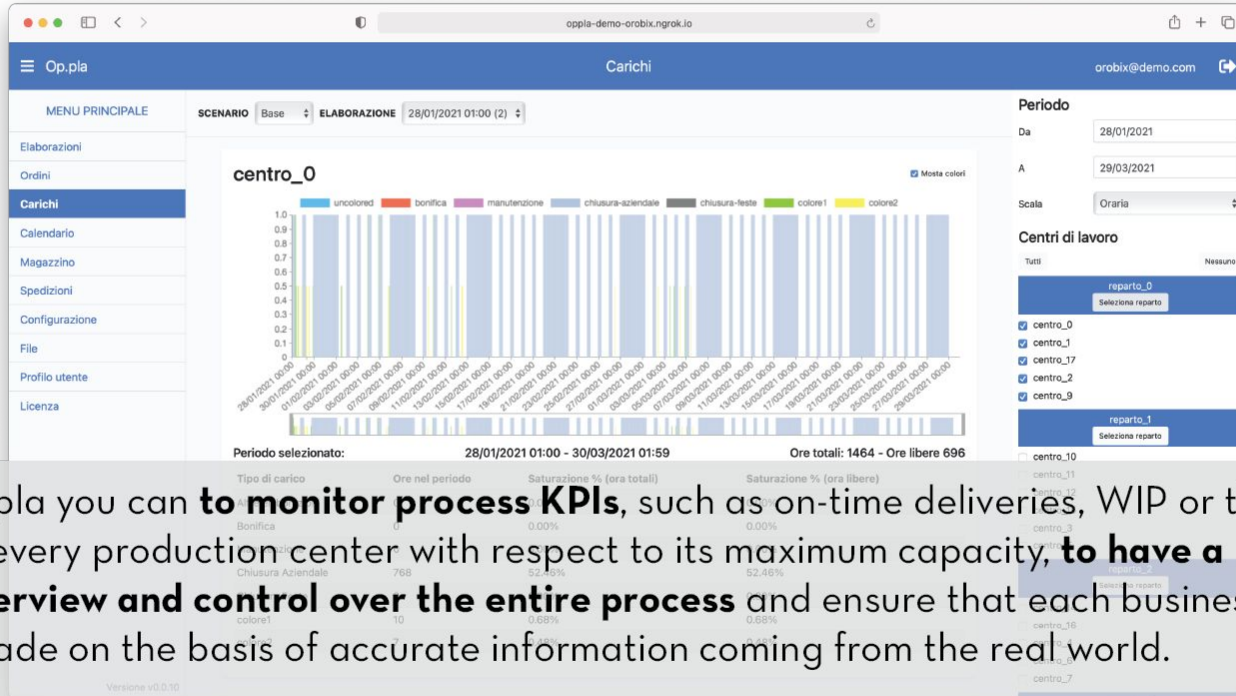
The screenshot shows the 'Ordini' (Orders) section of the Op.pla application. At the top, there are filters for 'SCENARIO' (Base), 'ELABORAZIONE' (28/01/2021 01:00 (2)), and 'VISTA' (Tutti gli ordini). Below this, a summary shows 'ORDINI: 3954 | GRAFI: 3205'. A 'Operazioni rapide' section contains a button for 'Modifica centro di lavoro 3205 grafi selezionati'. The main part of the interface is a table with columns for ID, SEMAFORO (Traffic Light), STATUS, CODICE ARTICOLO, LOTTO, and four columns for start and end times (DATAORA_INIZIO, DATAORA_FINE, DATAORA_INIZIO_OPPLA, DATAORA_FINE_OPPLA). The SEMAFORO column uses colored circles to indicate priority: black (highest), red, yellow, green, and blue (lowest). The STATUS column shows 'Congelato' for all visible orders.

ID	SEMAFORO	STATUS	CODICE ARTICOLO	LOTTO	DATAORA_INIZIO	DATAORA_FINE	DATAORA_INIZIO_OPPLA	DATAORA_FINE_OPPLA
record_0	●	Congelato	codice_0	lotto_0	28/01/2021 15:30	28/01/2021 16:30	28/01/2021 15:30	28/01/2021 16:30
record_1	●	Congelato	codice_0	lotto_0	28/01/2021 15:30	28/01/2021 16:30	28/01/2021 15:30	28/01/2021 16:30
record_2	●	Congelato	codice_0	lotto_0	28/01/2021 15:30	28/01/2021 16:30	28/01/2021 15:30	28/01/2021 16:30
record_3	●	Congelato	codice_0	lotto_0	28/01/2021 16:30	28/01/2021 17:30	28/01/2021 16:30	28/01/2021 17:30

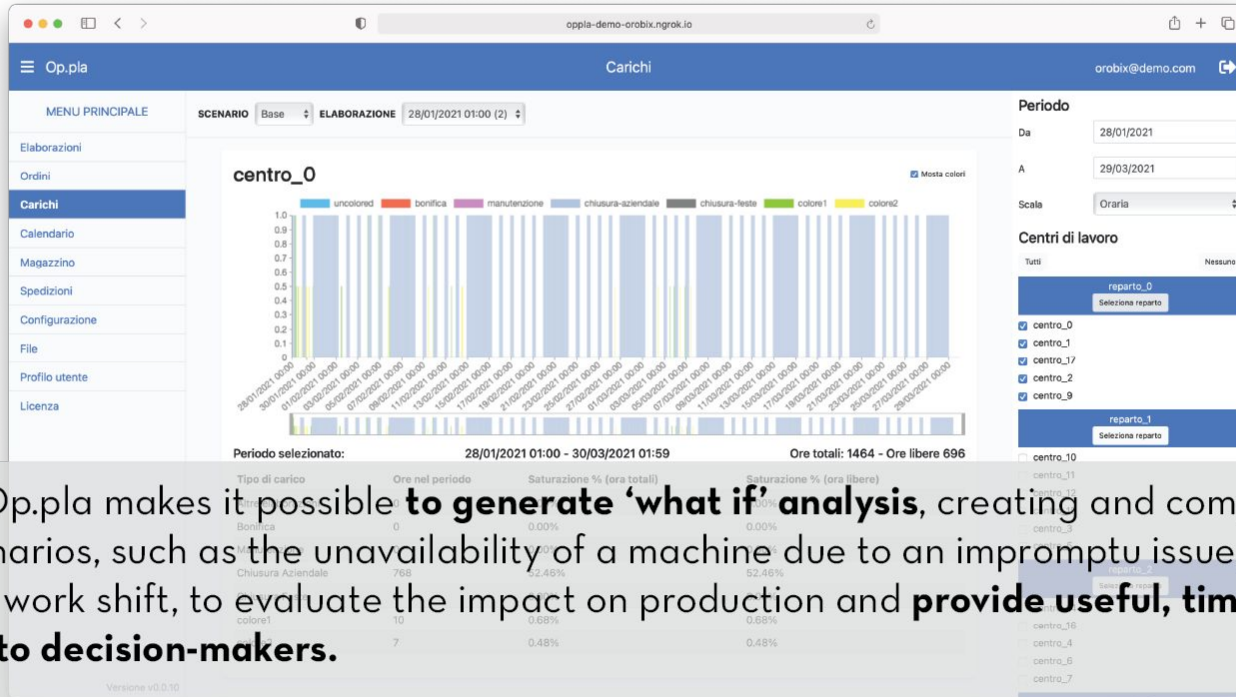
For each optimized order, Op.pla automatically calculates a **deployment priority**, which is displayed simply and effectively through a **traffic light system**, in relation to the estimated time to completion and considering the quantity of time remaining in the system's buffer. The program will then display orders that have a high chance of being late, compared to other orders that are proceeding as planned, in different colors.



Op.pla allows you to view optimized orders through a **calendar** that shows all departments and work centers. The planner user must manually confirm the orders so that the information is passed to the management system. Based on the priorities suggested by Op.pla, operators are tasked with creating the **daily production schedule and reporting** how much was actually produced so that the information is passed on automatically to the management system and used in subsequent optimizations.



Through Op.pla you can **to monitor process KPIs**, such as on-time deliveries, WIP or the workload of every production center with respect to its maximum capacity, **to have a complete overview and control over the entire process** and ensure that each business decision is made on the basis of accurate information coming from the real world.



In addition, Op.pla makes it possible **to generate 'what if' analysis**, creating and comparing different scenarios, such as the unavailability of a machine due to an imromptu issue, or the addition of a work shift, to evaluate the impact on production and **provide useful, timely information to decision-makers.**

Request a free demo.

Please fill out the form at <https://orobix.com/oppla/>

or contact us via email:
sales@orobix.com

OP.PLA ✕

Request a Demo

Full Name Company

Mobile - Optional

Email

Message

By using this form I agree to data handling according with our [privacy policy](#)

REQUEST

ORÒBIX

OUR CASE HISTORIES

Don't say AI until you productionize

O1 // Optimization, Steel supply chain

TASKS

Data analysis
Anomaly detection
Optimization

INDUSTRY

Manufacturing
Steel supply chain

TECHNOLOGIES

Finite capacity optimization
Op.pla
Julia

REQUEST

Optimize over 1,200 daily orders relative to an extremely varied portfolio of products in terms of types of steel, measurements, mechanical processing, thermal treatments and coatings. Productive constraints also had to be considered, including: varied external machining, equipment capacity, the grouping of orders to launch a work cycle, organizational constraints, and production sequence limitations.

STARTING POINT

The client was using two tools to plan operations: a management system that assumed infinite production capacity for the plant, and a traditional, generic scheduling system that didn't reflect the technical limits of production, scheduling each center locally.

Programming and scheduling were thus very cumbersome in terms of time, and quite inefficient in terms of results.

SOLUTION IMPLEMENTED

We created a tool that fully optimizes the production workflow, while taking technical, time and capacity restraints into consideration. As such, the daily planning and monitoring of production were simplified, through the creation of a schedule that minimizes waste (both time and materials) to boost earnings. **This tool makes it possible to support each manufacturing department in optimizing its workflow on a short-term timeframe (generally a few days) and make dynamic interaction possible for reprogramming and the creation of what-if analyses** (useful to simulate the unavailability of equipment and raw materials, the availability of back-up/alternative equipment, urgent requests, etc.).

Through the system developed, the company can now plan and schedule new orders in such a way that avoids overloading its facilities. Delays have become negligible for a few product categories, reducing them notably for others. The flow of materials in the department has improved, as has the OTD (on time delivery) indicator, which means better service is provided to customers and improved cash flows. Management costs were reduced in relation to scheduling activities through the creation of a tool to share expertise and knowledge, the company's most important asset. The company's ability to successfully cope with unforeseen events has improved through the option to simulate different scenarios and understand their impact on system capacity.



RESULTS

Late orders
-50%

Average delay measured in days
-60%

Work in process
-20%

Deliveries more than 2 weeks late
-30%

O2 // Nesting & Logistics, Steel supply chain

TASKS

Data analysis
Optimization

INDUSTRY

Manufacturing
Steel supply chain

TECHNOLOGIES

Finite capacity optimization
Op.pla

REQUEST

The client requested our assistance in relation to three problems linked to their production and logistics process: **the optimization of cutting coils of sheet metal, the optimization of production, and the optimization of logistics.**

STARTING POINT

The client was using a **management system that presumed infinite production capacity at its facilities and a traditional, generic scheduling system that didn't entirely reflect the technical constraints of production.** About 3,000 sales orders and an equal number of purchase orders for raw materials related to specific orders were managed. Because this is the steel industry, speculation on raw materials is exceptionally high and the use of an optimization system is even more important for economic savings.

SOLUTION IMPLEMENTED

In relation to the nesting issue (geometric optimization of orders, aimed at reducing scrapped materials as much as possible) **we developed a model that pulls the sales orders (strips or sheets) from the company's management software and the raw materials in the warehouse (coils), aggregates the orders coming from different customers, and then assigns them to a specific coil.** The solution involves the virtual layout of the elements to be produced, starting with a single cutting plan, nesting the pieces among each other like pieces of a puzzle. This entire process is aimed at conforming to the production constraints deriving from the type of machine used and at minimizing the amount of wasted materials (scrap).

On the planning side, **we developed a tool that makes fully optimizes the production workflow, taking technical, time and capacity constraints into consideration.** As such, the daily planning and monitoring of production were simplified, through the creation of a schedule that minimizes waste (both time and materials) to boost earnings. Sales orders become production orders associated with a target date, in turn linked to the delivery date promised to the customer. The logistics optimization problem, on the other hand, was resolved by locating customers on a map and analyzing the distances between them to create the best route.

On the logistics side, the problem was resolved by locating customers on a map and analyzing the distances between them to create the best route.



RESULTS

reduction of
the late orders

reduction of the
raw material waste

reduction of the time
and logistic costs

Formalization of data linked to the entire production process, concretizing the best practices tied to operator experience, which is now an intangible asset for the company, facilitating business continuity.

03 // Optimization, Chemical industry

TASKS

Data analysis
Optimization

INDUSTRY

Manufacturing
Chemical

TECHNOLOGIES

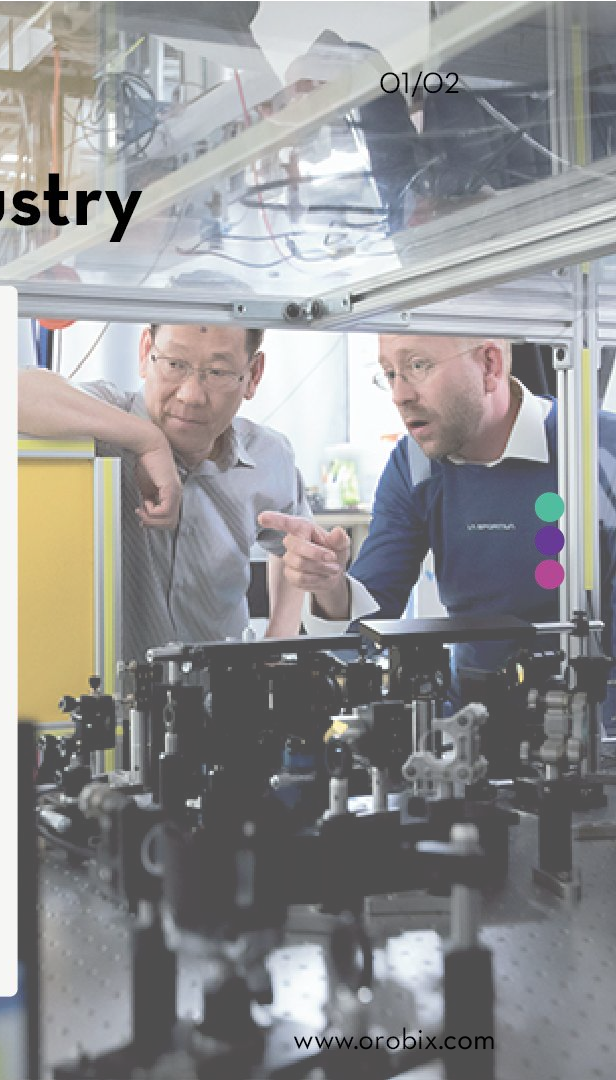
Finite capacity optimization
Op.pla

REQUEST

Optimize the grouping of orders to maximize the use of reactors, considering all constraints present, i.e. the finite capacity of the reactors, their availability, decontamination times between one job and the next, the human resources that are needed to load and unload materials, and the availability of raw materials in the warehouse.

STARTING POINT

The client was using a management system that generated production orders based on the materials available in the warehouse, assuming that the factory's production capacity was infinite. The production cycles are quite short, one or two phases for each semi-finished product, but the sub-orders are closely linked to each other to create the final products, a characteristic that makes mathematical modelling of this type of manufacturing system incredibly complex.



SOLUTION IMPLEMENTED

The system we developed recreates the chain of orders needed to make the finished product and schedules them on different machines, also taking into account additional orders for the creation of semi-finished products to keep in stock (a strategy aimed at optimizing the capacity of the machines). In addition, it schedules the purchase orders for raw materials in a way that keeps the warehouse constantly stocked.

The logic managed by the limited-capacity mathematical optimizer is set to manufacture compatible products on the same machine, minimizing decontamination sessions (in terms of time and human resources) while respecting the sequence necessary to make the final product.

By creating a better manufacturing schedule, the company is now more productive, minimizing decontamination downtimes between one process and another, and more effectively managing the time of the few operators trained in working with the reactors. In addition, a semi-finished materials warehouse that can be tapped into when fulfilling new orders has been created and maintained.



RESULTS

reduction
of the late
orders

increase the
productivity

reduction of the time and
costs of decontamination
and equipment

Formalization of data linked to the entire production process, concretizing the best practices tied to operator experience, which is now an intangible asset for the company, facilitating **business continuity**.



OROBIX

WE MAKE AI HAPPEN

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