

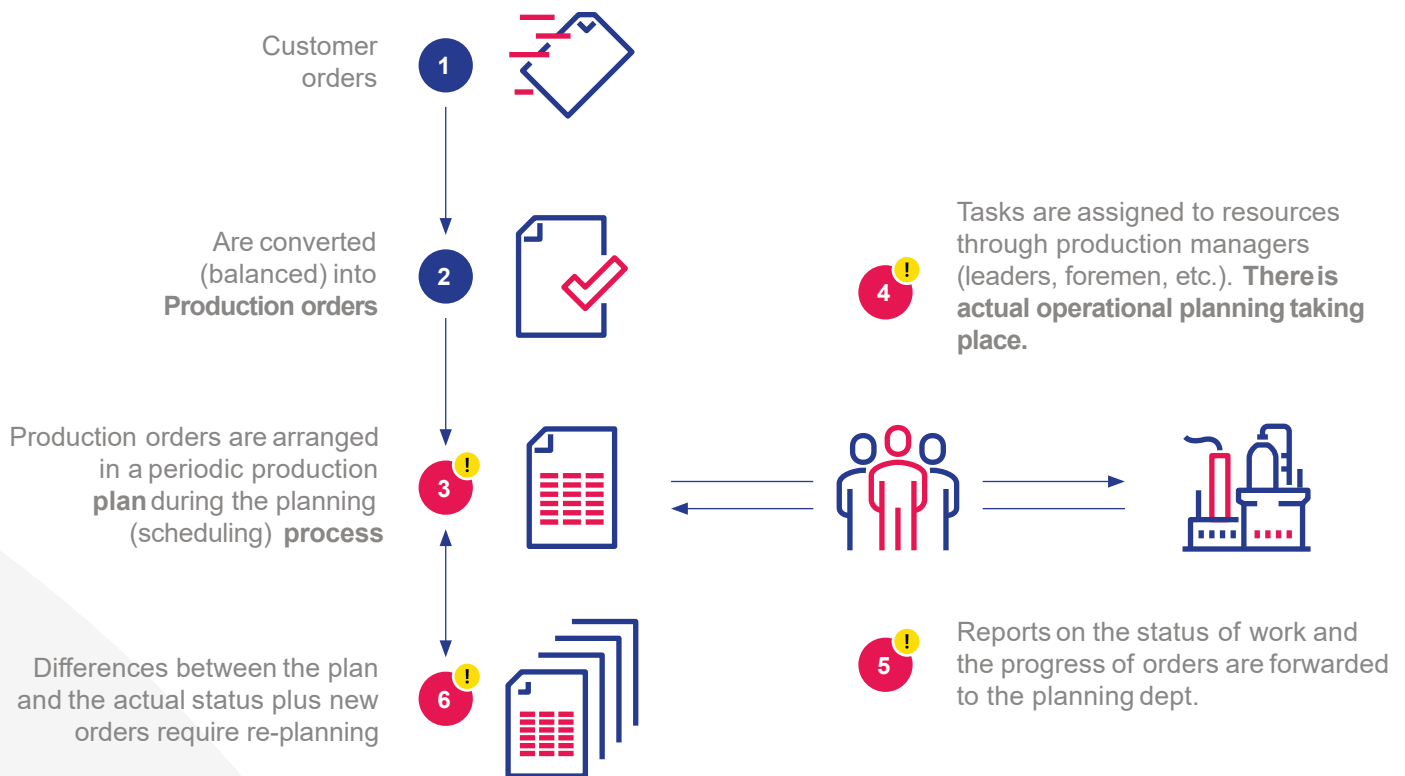


The world's first
autonomous decision-making system (ADS)
that automates the planning processes
and direct resource management in
production halls.

Traditional planning tools !

Operational production management is based on the skillful and effective connection of two worlds, the world of production orders (customer orders, stock production, etc.) and the world of available resources (people and machines).

That is why hundreds or even thousands of operational decisions are required every day – by whom, when, where and what the task have to be executed. Until now, planning systems (APS) and production data collection systems (MES) have been used for this.



Despite the improvement of planning tools, in the era of Industry 4.0, progressing automation, constantly changing customer requirements and the need to improve the flexibility of factories, i.e. faster response to market

needs, production planning based on scheduling is becoming less and less effective. There are downtime and micro downtime of resources, and more and more people are involved in the planning process.

Why is this happening?

The reason is the high variability of planning parameters in many areas:



Orders:

- New order
- Deadline
- Quantity
- Priority



Employees:

- Availability
- Performance
- Differences in skills



Machines:

- Failures
- Performance
- Tools



Materials:

- Change of delivery date
- Quality (other than expected)

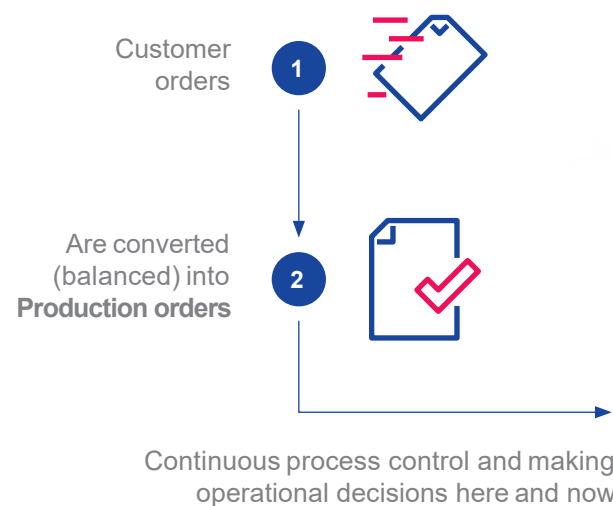


Technologies:

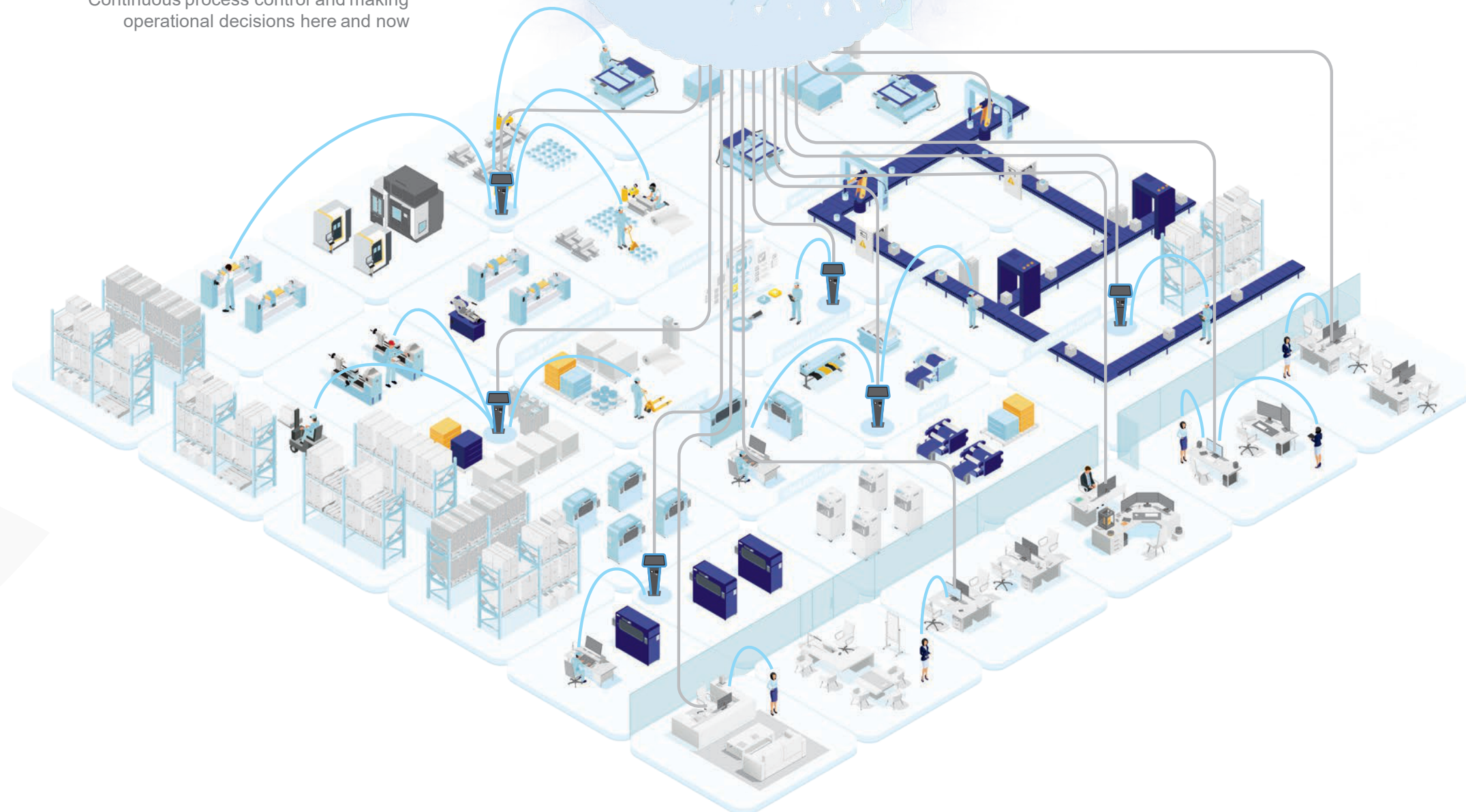
- Differences in routes
- Technological times

The future of production management

The system without the need for scheduling, independently, in no more than 5 seconds, generates optimal decisions about the work of each resource. Task execution commands are issued by the system directly to individual employees, at any time when the need arises.



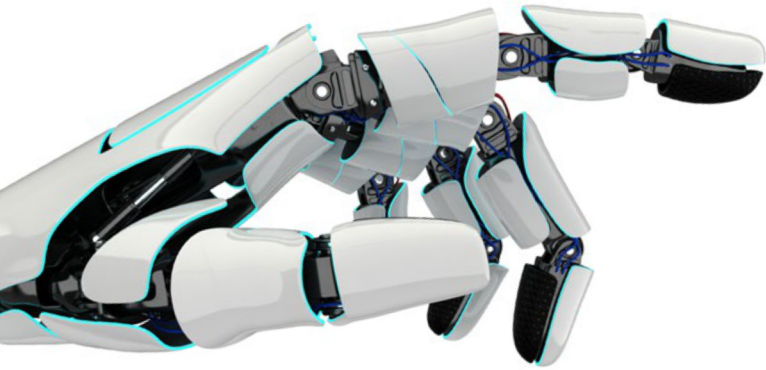
Each event that causes a change of any planning parameter, e.g. disruption in the process, change of the order date, extended time of any task execution, change of the delivery date of the material, etc. is processed in real time by the system's algorithms and included in the next task execution command for the resource.



The main functions of the system:

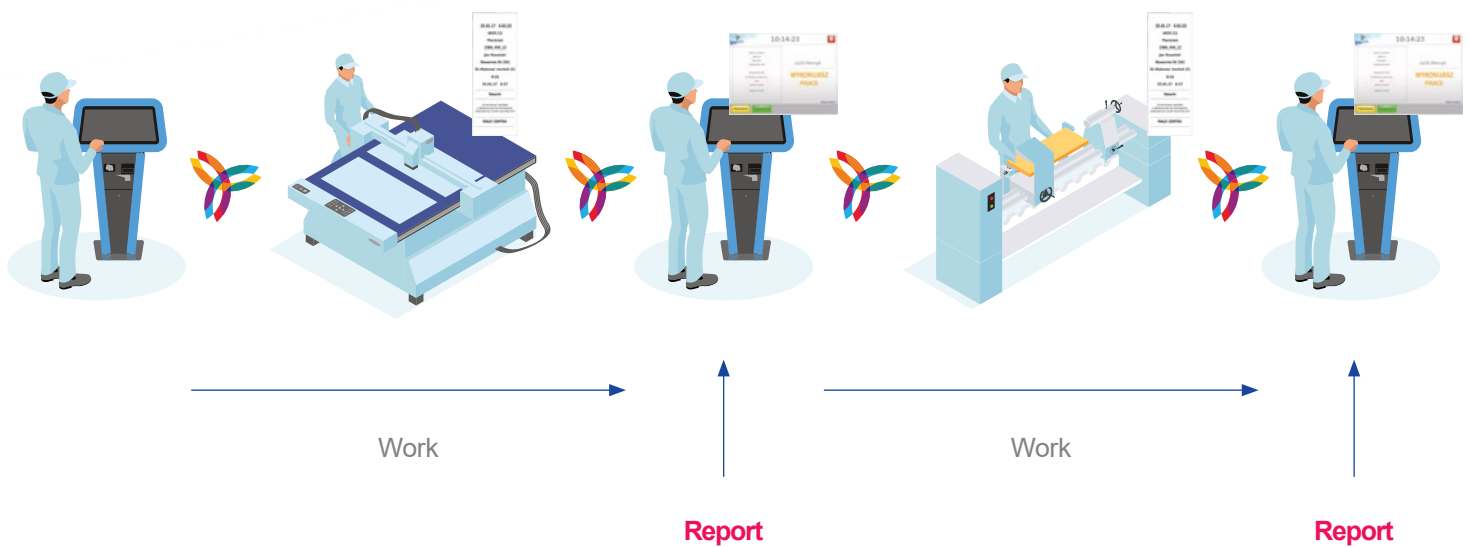
- Automation of operational decisions through the ADS decision-making mechanism
- Managing production orders and their deadlines
- Direct management of production resources (people and machines)
- Continuous supervision of production progress - MES
- Generating production orders (also automatically)
- Multi-level technology management (BOM + BOO)
- Automatic technology creation module
- Balancing material needs (MRP II)
- Balancing of labor needs (man-hours and mth)
- Handling of defective items and repair orders
- Competency matrix management
- Working time management —full control
- Management of external cooperation services
- Quality control management
- Management of work centers
- Team work management
- Extensive work grouping
- Changeover management
- Warehouse management
- Production logistics, including internal transport
- Identification of production details and traceability
- Generation of labels and marking
- Tool management service
- Simulations and scenarios
- Work data analysis
- Analysis of production costs and valuation
- Analysis of bottlenecks
- ...and many others

The future of production management

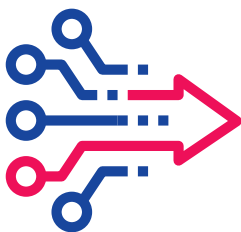


IPOsystem does not
create theoretical plans
**but makes
optimal decisions!**

5sec.



Autonomous Intelligent Decision-Making System (ADS)

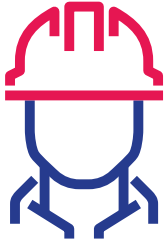


The system is available on computers, work terminals and mobile devices.

IPOsystem can be easily integrated with other systems in the enterprise, such as ERP,WMS,PDM class systems and many other world-renowned systems such as SAP,MS Dynamics, Oracle.

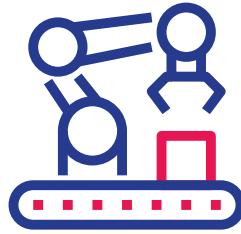
Key differences between traditional planning systems and IPOsystem

Feature	Conventional planning systems, APS	IPOsystem
Purpose of the System	Creating an optimal production plan that can be used, e.g. for resource management.	Optimal, autonomous and direct management of all production and production-related resources in production halls.
System operation outcome	Production plan issued.	Ongoing decisions (task execution commands) issued in real time to all resources in the production hall.
Key algorithms	Resource scheduling algorithms, i.e. a mechanism for simulating the future based on a number of assumptions.	Innovative decision-making mechanisms supported by narrow artificial intelligence.
Calculation frequency	Scheduling is performed from time to time to take into account any deviations from the previous assumptions as well as new incoming data.	IPOsystem algorithms aggregate in real time and automatically all data required in decision-making processes.
Precision of the task execution command and calculation time	The more precise the scheduling, the more time it takes to calculate it. The faster the scheduling, the less data it covers (e.g. scheduling across a group of operations without allocation to resources).	Calculating the decision = issuing the task execution command never takes more than 5 seconds and always contains all the necessary information needed to perform the task - i.e. what technological operation should be done, by whom, at what work station, how many pieces to be produced, from what material, where to collect the material, where to put away ready-made product, and other technological conditions.
Impact of variability	Definitely negative. High sensitivity to any deviation from the assumptions.	Neutral. Automatic compensation of all events affecting the production area, without any human intervention.
Principle of control	Providing information supporting people's decision-making. Human decisions are essential in the resource control process.	Autonomous operational decision making regarding the sequence of task execution and resource allocation without human intervention (planners, direct supervisors).
Resource control rules	Possibility of choosing one of several scheduled tasks by the supervisor or the employee himself.	Instructing a given resource / employee to perform only one task, the most optimal at a given moment, and only after its completion, giving him another one to be performed.
Involvement of the production management personnel	A large team of people responsible for technology, planning, direct and indirect supervision.	IPOsystem independently and autonomously manages the production without planners and direct supervision persons. Significant reduction of fixed management costs.
The role of managers	Managers in ERP, APS and MES systems have to make quick and responsible operational decisions.	The role of managers is to optimize production and production-related processes thanks to access to the detailed data on the actual course of production processes collected by IPOsystem.
Production efficiency	Losses generated by downtime and micro-downtime resulting from unforeseen events.	Working time of each employee and machine is used as much as possible. The result - an increase in the productivity of companies by 10%- 30% in relation to production management based on scheduling.

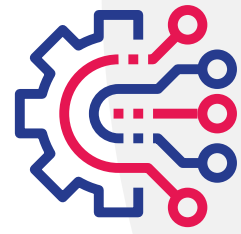


every day the System controls
the work of over

12,000
employees



Over
50
factories



The System generates about
40 - 50
thousand operational
decisions daily

The main goals of implementing IPOsystem in the company are:

- getting rid the existing problems related to planning and resource management in the production area,
- significant increase in productivity,
- lowering the operating costs.

The most important benefits of implementing IPOsystem:



CONVENIENCE

- exceptional ease of resource management,
- full control and knowledge of processes, dates and resources available 24 hours a day from anywhere in the world,
- significant improvement in the timeliness of executed production orders,
- management's focus on optimizing business processes and decisions instead of on-going planning and resource management.



PRODUCTIVITY

- the working time of each employee (from entering the production hall to leaving) and machines is used for direct production activities to the maximum possible extent. The result is a significant increase in the productivity of companies - from 15% to even 30% in the first year after launching the system in relation to companies managed basing on planning,
- real-time decision optimization.



SAVINGS

- significantly lower costs in the area of planning, direct resource management and employee supervision,
- better use of resources thanks to the support of multi-professionalism of employees,
- shortening the lead time of orders.

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