

# OptPro

State-of-the-art solution for solving complex production scheduling problems

## OPTIMIZE TO:

- Size a job, and
- Assign to a line, and
- Sequence all lines, to:
  - *Maximize throughput*
  - *Minimize cost*
- While addressing constraints:
  - *Inventory (raw and finished)*
  - *Resource availability*
  - *Changeovers*
  - *Maintenance*
  - *Planned/unplanned downtime*
  - *Priority orders*

Manufacturing companies whose production costs represent a significant portion of the price of their products can gain a source of competitive advantage by creating optimal production schedules.

For these companies, multiple products often share common manufacturing infrastructure and resources, and production schedules are required on a regular and timely basis. In addition, plant expansions are very expensive and better production schedules allow companies to increase throughput significantly without incurring large capital expenditures.

Current alternative solutions either make severe simplifications of the processes they are trying to represent, or consider only portions of a complete process, or do not provide an integrated system capacity and job sequencing framework. Although appealing for their simplicity, these methods produce inferior results as they ignore relevant attributes of the tasks such as penalties for tardiness, interactions with other tasks, availability of resources to perform all the work, variable batch sizing, changeover and setup times and costs, etc.

OptPro uses superior optimization-based metaheuristic techniques to find an optimal solution to maximize or minimize metrics such as throughput, capacity utilization, makespan, or operating cost.

## FEATURES & CAPABILITIES

- The product of 30 years of OptTek leadership in optimization technology
- Optimizes production schedules by simultaneously optimizing sequencing, line-assignment, capacity and layout decisions
- Enables better satisfaction of customer demands
- Enables production schedules that drive competitive advantage
- Increases total production 10-15% without capital increase
- Improves On-Time-In-Full (OTIF) delivery by 10-20%
- Reduces production cycle time by 8-12%
- Reduces product waste by 30-50%

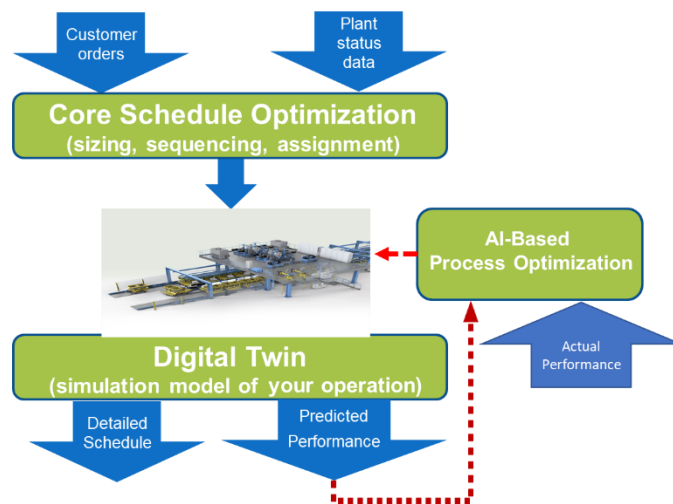
# OptPro couples optimization with a digital twin of operations, and utilizes powerful algorithmic and analytical techniques to deliver truly optimal schedules

Developed by a team of PhD scientists and industrial engineers, OptPro fills a void that currently exists for companies with complex planning and/or operational process scheduling requirements.

For more information on OptPro or any of our products or services please visit us at: [www.OptTek.com](http://www.OptTek.com).

## A Modular Approach

Production scheduling and operations are intricately connected with the best schedule requiring the best process to produce the best results. Most production systems can be improved by tuning the process to the schedule. OptPro is the only system that combines these functions into a modular integrated system to optimize the production facility from production plan to finished goods.



## Core Optimization

Highly complex production environments are often tractable enough that they can be solved with OptPro Core Optimization alone. OptPro uses powerful, but flexible, algorithms to create an optimum schedule for these cases.

## Digital Twin

For systems exhibiting a larger degree of complexity, OptPro uses a digital twin model of the process combined with OptTek's proven simulation optimization AI-based technology to optimize the production environment. The result is maximum efficiency, minimizing waste while meeting customer demands.

## AI

In some cases, the core problem is process inefficiency. The schedule may be optimal, but the process needs to be tuned to produce the best results. In this case, OptPro can take the schedule and utilizing AI, determine the values for operational parameters (e.g., flowrates, speeds, capacities, buffers, and many other operating conditions) that optimize performance to that schedule.

In summary, OptPro's modular design can be used to optimize schedules and processes all at once or in phased approach, depending on the needs.

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