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

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.*

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.*

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

Features & Capabilities

- The product of *30 years* of **OptTek** leadership in *optimization technology*
- *Optimizes production schedules* by simultaneously optimizing sequencing, *line-assignment, and capacity*
- 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%

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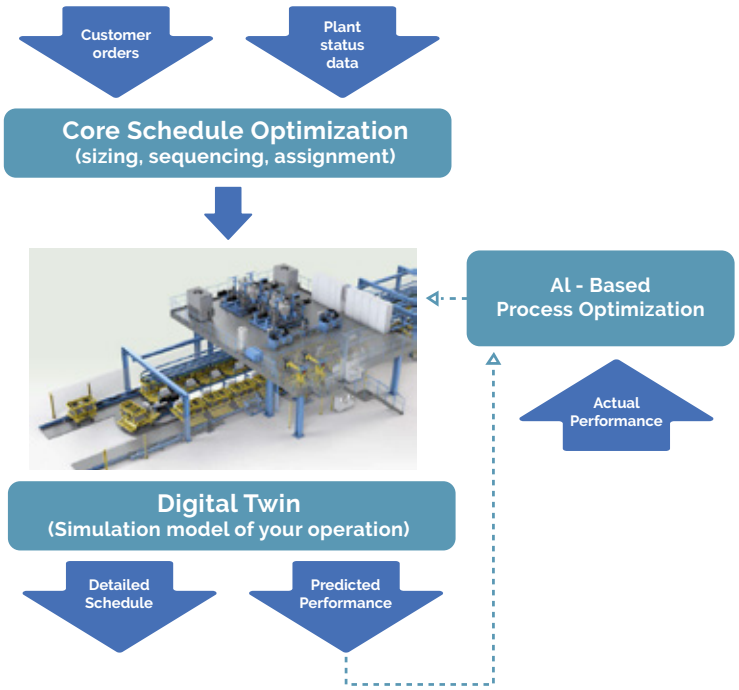
A Modular Approach

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.