

ILOG Plant PowerOps

Integrated planning and scheduling for optimized process manufacturing



Danone uses ILOG PPO at dairy plants like this one in Irapuato, Mexico.

Overcome production challenges

ILOG Plant PowerOps (PPO) is an integrated planning and scheduling tool specifically designed for the fast-moving consumer goods, pharmaceutical and chemical industries. Part of the ILOG Supply Chain Applications suite, ILOG PPO tackles unique challenges such as tank management, complex material flows, shelf life and maturity constraints. It quickly guides the user through difficult trade-offs, and applies user-defined key performance indicators (KPIs) in generating cost-effective production schedules.

Improve operations – with existing systems

Most planning and scheduling applications can only manage simple production processes. Companies typically address the shortcomings of these systems with manual or spreadsheet solutions, or spend millions on additional software that almost always fails. The consequences are unrealistic schedules, high manufacturing costs, and poor inventory coverage and service levels. ILOG PPO leverages existing ERP, SCM and MES investments to provide dramatic improvements in production efficiency and flexibility without an expensive system replacement or a risky customization project. It complements transaction systems, providing excellence in integrated production planning and detailed scheduling.

Make the best operational decisions possible

ILOG PPO offers an interactive planning and scheduling environment built on top of the most fine-grained optimization models available for process manufacturing. Its scenario creation and comparison interface lets supply chain and operations managers evaluate alternative plans and schedules, comparing them across key business and manufacturing metrics. Managers can balance the trade-offs between service level and profitability, and make the best operational decisions possible.

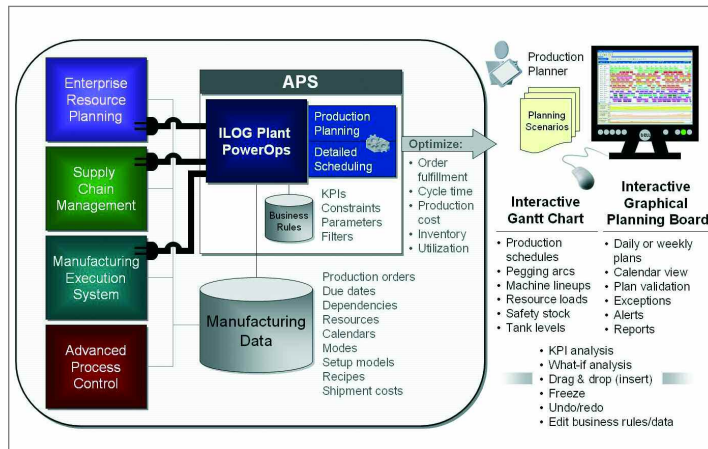
- **Improve profitability and service level**
- **Bridge the gap between planning and execution**
- **Leverage existing ERP, SCM and MES investments**
- **Increase plant efficiency by 20% or more**
- **Manage demand variability and scheduling complexity**



Changing the rules of business™

ILOG Plant PowerOps

Increase plant efficiency...



ILOG PPO is a powerful decision support tool that works with your existing systems.

Integrated production planning and detailed scheduling

ILOG PPO's integrated production planning and detailed scheduling model generates optimized solutions for mid - and long-term planning, and short-term planning and scheduling. By providing a single model for planning and scheduling, planners can better align manufacturing with demand. They can find the best trade-offs among supply chain and manufacturing goals, and quickly change schedules in response to variations in demand or manufacturing conditions.

Improve coordination between intermediate products and finished goods

With ILOG PPO, you can model all the production steps and materials from raw to finished goods to reduce work in progress (WIP) and product waste, and improve throughput. Planners can optimize all the production processes together or sequentially, planning the production of intermediate products before finished products, for example, or vice versa. A material rebalancing engine helps planners re-optimize the production quantities and batch sizes of a given schedule to improve the synchronization of plans between intermediate products and finished products, and between finished products and stock coverage requirements. The material rebalancing engine can also change the production quantities of finished products for a given fixed schedule of intermediate products.

Interactive GUI

The ILOG PPO user interface allows factory planners and supply chain managers to view and modify data and proposed production schedules through state-of-the-art displays, taking advantage of ILOG's award-winning visualization technology. Planners can easily analyze a given plan and discover bottlenecks, and multidimensional product and time aggregation enables them to analyze the results of planning based on several dimensions defined by product families. For example, it lets planners analyze stock coverage on products grouped by packaging or flavor.

The interface's components include:

- Demand, procurement and recipe view
- Inventory coverage view
- Interactive planning book
- Interactive Gantt chart
- Violation view with explanations
- Calendar view
- Workload view
- KPI view and KPI comparison
- Scenario creation and comparison

... to improve profitability

Manage manufacturing complexity with precise operational models

ILOG PPO captures true manufacturing constraints by modeling multidimensional changeover, cleaning and maintenance constraints, convergent and divergent material flows, and intermediate products, tanks and shelf life. Detailed models enable the system to generate schedules and mid- and long-term plans that are both feasible and optimal. ILOG PPO's plans can be executed with minimal user intervention, allowing planners to focus on managing exceptions instead of spending time manually repairing schedule breakdowns.

Explore alternative scenarios with precise KPI analysis

ILOG PPO provides an easy-to-use “what-if” analysis module that enables planners and operations managers to simulate production scenarios and compare schedules with KPIs and graphical displays. Scenarios can differ based on demand, profitability, available resources, costs or any number of operating assumptions. By simulating alternatives and comparing them through key metrics, manufacturers can make better decisions. Plant- or business-specific KPIs can be easily integrated into ILOG PPO, providing the exact information required by plant executives.

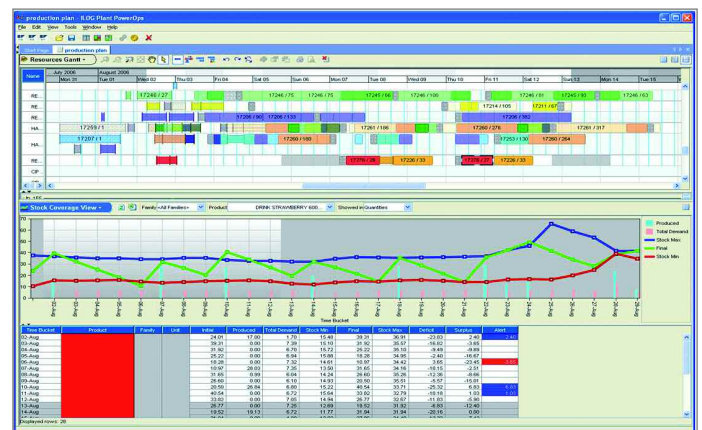
Graphical replanning and rescheduling

With ILOG PPO, production planners and plant schedulers are empowered with a true decision-support system that enables them to easily interact with a generated plan by adding, removing, splitting or merging production orders. They can also add demand information, move production from one line to another, dynamically repeg orders and check the manually modified solution with sophisticated alerts and explanations. They can freeze part of a schedule and make changes in another part, and then run the engine to generate a new schedule, measuring solution quality with comprehensive KPI analysis. Even without the optimization engines, ILOG PPO's replanning and rescheduling capabilities help planners fine-tune schedules based on human knowledge and experience.

Leverage existing IT investments and minimize implementation risks

ILOG PPO has a predefined connector for SAP R/3 and SAP APO, and can be integrated with most leading ERP and SCM systems. Depending upon the customer's IT policies, ILOG PPO can serve as the repository of master data or use the master data of an existing legacy system.

For deployment, consultants from ILOG apply a methodology specifically designed to configure and extend ILOG PPO. Adding plant-specific KPIs, configuring the user interface and creating custom data validation rules are just a few examples of the tailoring that can be done without touching the core optimization and scenario comparison functions.



Using ILOG PPO, planner can analyze inventory levels, monitoring days of supply over time.

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Integrated planning and scheduling

Business benefits

Industries characterized by high product mix, shared equipment, physical batching constraints and high regulatory compliance will gain the greatest benefits from the sophisticated planning and scheduling capabilities of ILOG PPO. The efficiency gains include reduced waste, lower manufacturing costs, better management of variability, improved synchronization between supply chain plans and manufacturing execution, improved throughput, and shorter planning and scheduling cycle times.

■ Increase production efficiency and service levels

- Increase resource utilization
- Reduce waste
- Reduce late deliveries and better handle last-minute orders
- Reduce WIP and finished goods inventory

■ Meet business objectives

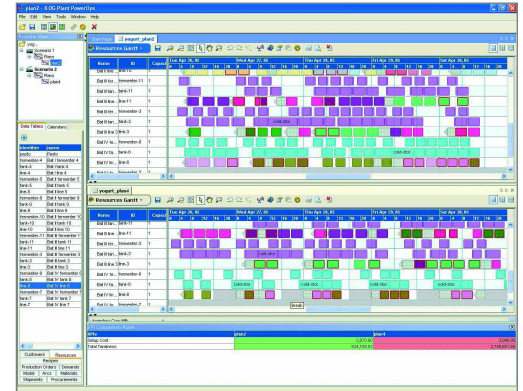
- Simulate scenarios based on any combination of changes
- Measure the quality of plans and schedules with precise KPIs
- Compare different schedules
- Define the best planning strategies

■ Leverage existing IT investments

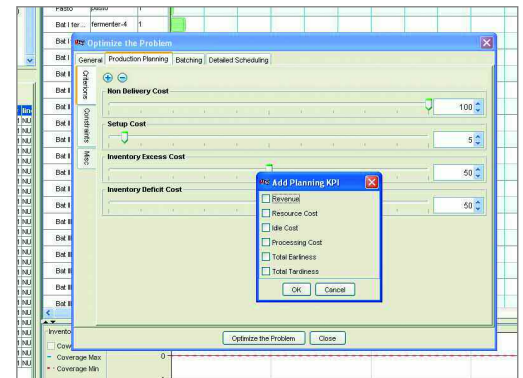
- Add state-of-the-art planning and scheduling without changing existing transactional systems (ERP, SCM and MES)

■ Increase the efficiency of factory planners

- Fast manual editing with a point-and-click interface
- Dynamic repegging during manual rescheduling
- Freeze and reschedule capabilities
- Detection and explanation of constraint violations



Create and compare two scenarios:
What if Line 8 runs two shifts instead of three?



ILOG PPO enables planners to balance conflicting business objectives.

■ ABOUT ILOG SUPPLY CHAIN APPLICATIONS

ILOG Supply Chain Applications capitalize on ILOG's 20 years of leadership in optimization and LogicTools' supply chain customers, expertise and thought leadership. Over 250 companies use the LogicTools suite of supply chain applications for network design, production sourcing, inventory optimization, transportation planning as well as production planning and scheduling. With the acquisition of LogicTools, the company founded in 1995 by David Simchi-Levi, Professor of Engineering Systems at MIT, ILOG today provides solutions that complement ERP systems and enable companies to make better decisions faster by optimizing their logistics networks and transportation strategy, setting safety stock levels for their sales and operations planning and improving their plant operations through sophisticated production planning and detailed scheduling.

■ ABOUT ILOG

ILOG delivers software and services that empower customers to make better decisions faster and manage change and complexity. Over 2,500 corporations and more than 465 leading software vendors rely on ILOG's market-leading business rule management system (BRMS), supply chain planning and scheduling applications and optimization and visualization software components, to achieve dramatic returns on investment, create market-defining products and services, and sharpen their competitive edge. ILOG was founded in 1987 and employs more than 800 people worldwide. For more information, please visit www.ilog.com.

ILOG Worldwide Information Center – Tel: 1-800-FOR-ILOG (US only) or +1 775 881 2800 (International) • URL: <http://www.ilog.com>

Australia – ILOG Australia Pty. Ltd. – Sydney – Tel: +61 2 82 48 28 00 – E-mail: info-au@ilog.com

China – ILOG (S) Pte. Ltd. – Beijing Representative Office – Tel: +86 10 8518 1080 – E-mail: info@ilog.com.sg

France – ILOG S.A. – Gentilly – Tel: +33 (0)1 49 08 35 00 – E-mail: info@ilog.fr

Germany – ILOG Deutschland GmbH – Bad Homburg v.d.H. – Tel: +49 6172 40 60 – 0 – E-mail: info@ilog.de

Japan – ILOG Co., Ltd. – Tokyo – Tel: +81 3 5211 5770 – E-mail: info@ilog.co.jp

Singapore – ILOG (S) Pte. Ltd. – Singapore – Tel: +65 67 73 06 26 – E-mail: info@ilog.com.sg

Spain – ILOG S.A. – Madrid – Tel: +34 91 710 2480 – E-mail: info@ilog.es

UK – ILOG Ltd. – Bracknell – Tel: +44 (0) 1344 66 16 00 – E-mail: info@ilog.co.uk

USA – ILOG, Inc. – Sunnyvale, CA – Tel: +1 408-991-7000 – E-mail: info@ilog.com

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