IBM

IBM ILOG Plant PowerOps

Highlights

- *Improve profitability and service levels*

- *Increase plant efficiency by 20 percent or more*

- *Bridge the gap between planning and execution*

- *Manage demand variability and scheduling complexity*

- *Maximize existing ERP, SCM and MES investments*

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

Overcome production challenges

IBM® ILOG® Plant PowerOps® (ILOG PPO) is an integrated planning and scheduling tool specifically created for the fast-moving consumer goods, pharmaceutical and chemical industries. Part of the IBM ILOG LogicTools® 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 address the shortcomings of these systems with manual or spreadsheet solutions, or expensive software that often fails. The consequences are unrealistic schedules, high manufacturing costs and
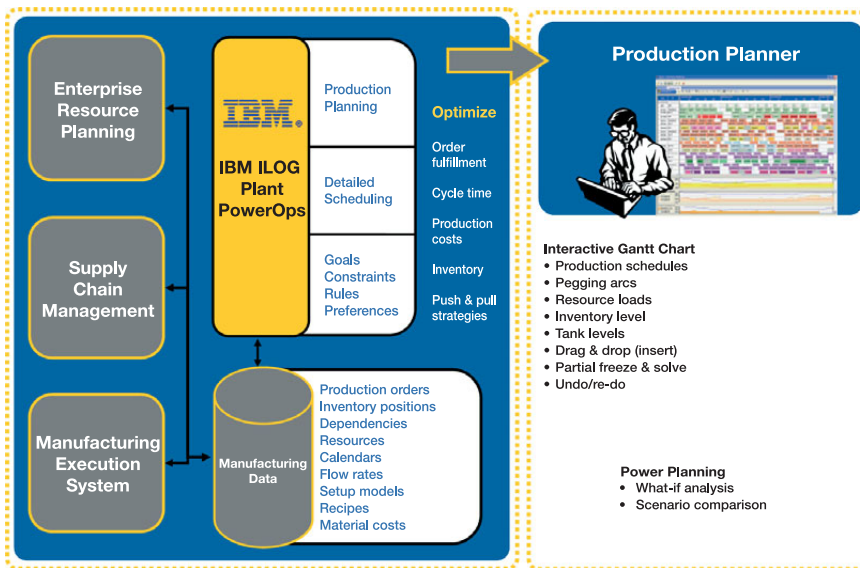
ILOG PPO is a powerful decision support tool that works with your existing systems

poor inventory coverage and service levels. ILOG PPO maximizes existing enterprise resource planning (ERP), supply chain management (SCM) and manufacturing execution system (MES) investments to dramatically improve efficiency and flexibility without an expensive system replacement or a risky customization project.

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 the process and hybrid industries. Its scenario creation and comparison interface lets supply chain and operations managers evaluate alternative plans and schedules, comparing them throughout with key business and manufacturing metrics. Managers can balance the trade-offs between service levels and profitability to make the best operational decisions possible.

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- *Bridge the gap between planning and execution*
- *Maximize existing ERP, SCM and MES investments*
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- *Manage demand variability and scheduling complexity*

Integrated production planning and detailed scheduling

ILOG PPO generates optimized solutions for mid- and long-term planning, and short-term planning and scheduling. With ILOG PPO's 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 fluctuations in demand or manufacturing conditions.

ILOG PPO is the first planning tool on the market able to both set safety stock targets and generate production plans, all within a single global optimization model that takes into account demand variability. Before ILOG PPO's introduction, safety stock targets were set at plants using guesswork, formulas or algorithms that could only make assumptions about average production lead times. With ILOG PPO's global optimization, safety stock accurately covers production and demand variability, leading to improved service levels and reduced inventories.

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 process (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 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.

Design plants and processes with ILOG PPO

ILOG PPO provides extended functionality for what-if analysis, reporting and master data editing, making it a perfect tool for designing plants and processes. Industrial engineers and production planners can now collaborate in making decisions affecting plant profitability.
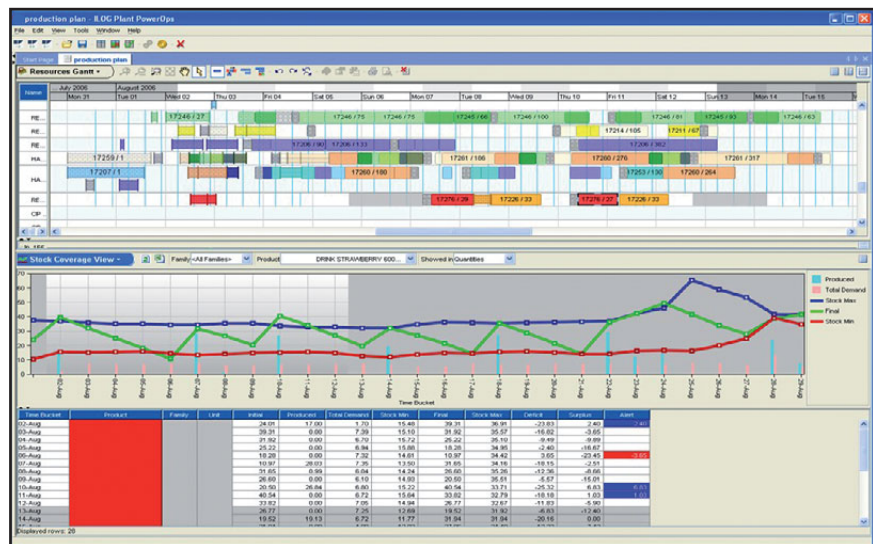
Using ILOG PPO, planners can analyze inventory levels, monitoring days of supply over time

The engineers can validate their models by generating realistic schedules using manufacturing data, supply and demand constraints, and the same sophisticated optimization technology used by their colleagues in manufacturing.

ILOG PPO's interface components include:
- *Master and transactional data views*
- *Inventory coverage view*
- *Interactive planning book*
- *Interactive Gantt chart*
- *Violation view with explanations*
- *Plant layout view*
- *Distribution planning view*
- *Calendar view*
- *Workload view*
- *KPI view and KPI comparison*
- *Scenario creation and comparison*

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, helping planners to focus on managing exceptions instead of spending time manually repairing schedule breakdowns.
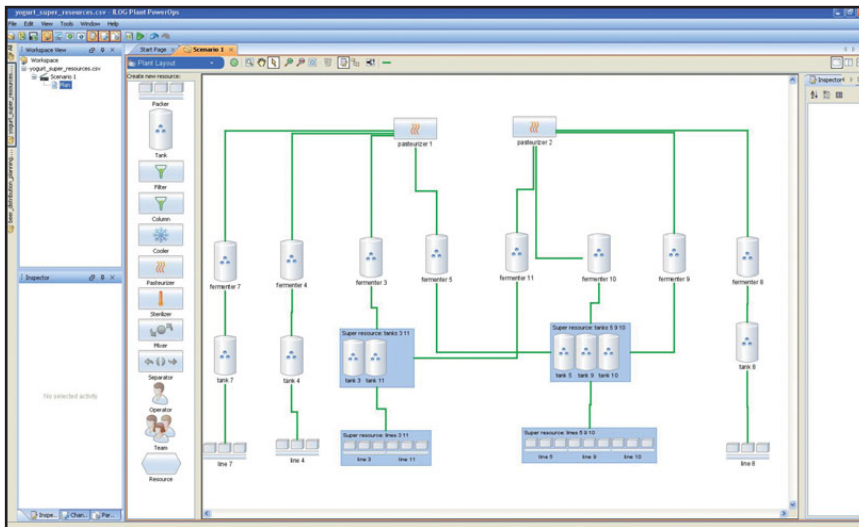
Design and reconfigure your plant with ILOG PPO

Explore alternative scenarios with precise KPI analysis

ILOG PPO provides an easy-to-use "what-if" analysis module that enables planners, industrial engineers and operations managers to simulate production scenarios and compare schedules with KPIs and graphical displays. Scenarios can differ based on demand, profitability, available resources, production recipes, costs or any number of operating assumptions. By simulating alternatives and comparing them through key metrics, manufacturers and engineers 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 plan or 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.

Maximize 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 system.

For deployment, consultants from IBM ILOG apply a methodology specifically created 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.

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*
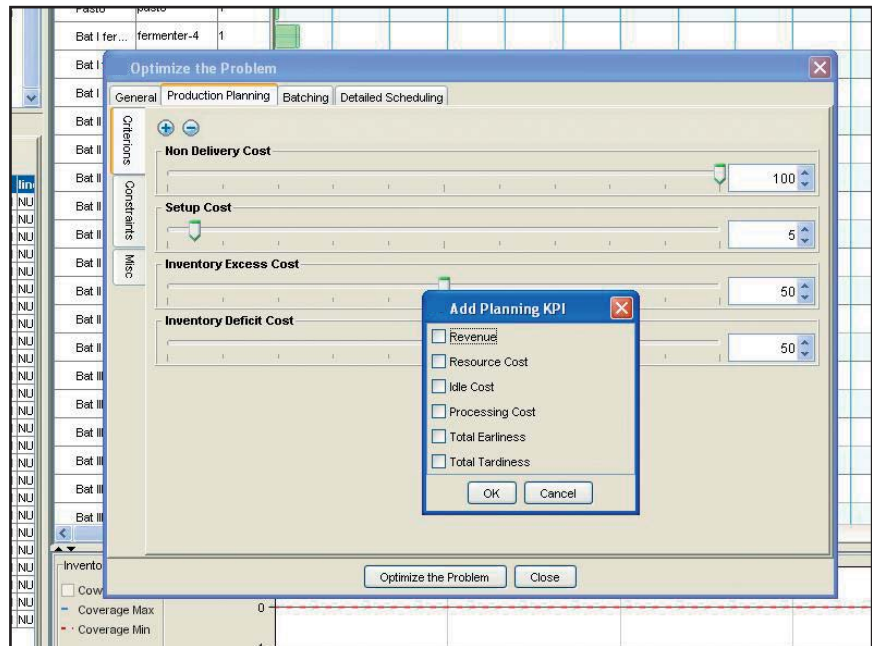
ILOG PPO enables planners to balance conflicting business objectives

- *Maximize 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*

About IBM ILOG LogicTools Supply Chain Applications Suite

ILOG optimization leadership and LogicTools expertise and experience in supply chain management come together in this powerful suite of applications for network design, production sourcing, inventory optimization and transportation planning, in addition to production planning and scheduling. Complement your ERP systems and make better decisions faster to optimize logistics networks and transportation strategies, set safety stock levels for sales and operations planning and improve plant operations in fast-paced industries. Learn more at http://supplychain.ilog.com.

For more information

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PowerOps, please contact your
IBM marketing representative or
IBM Business Partner, or visit the fol-
lowing website: http://ppo.ilog.com.

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