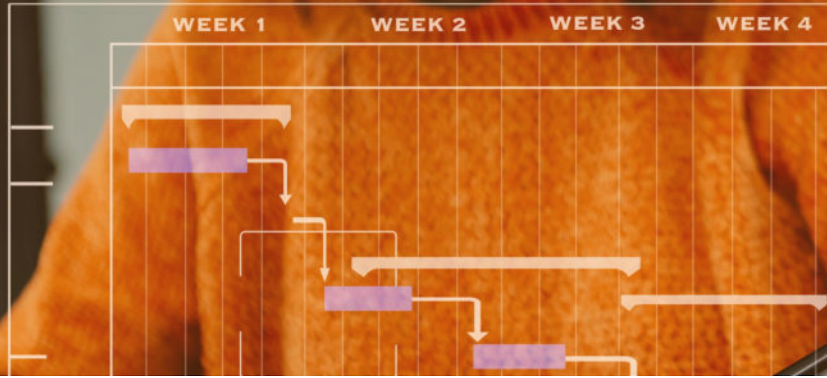
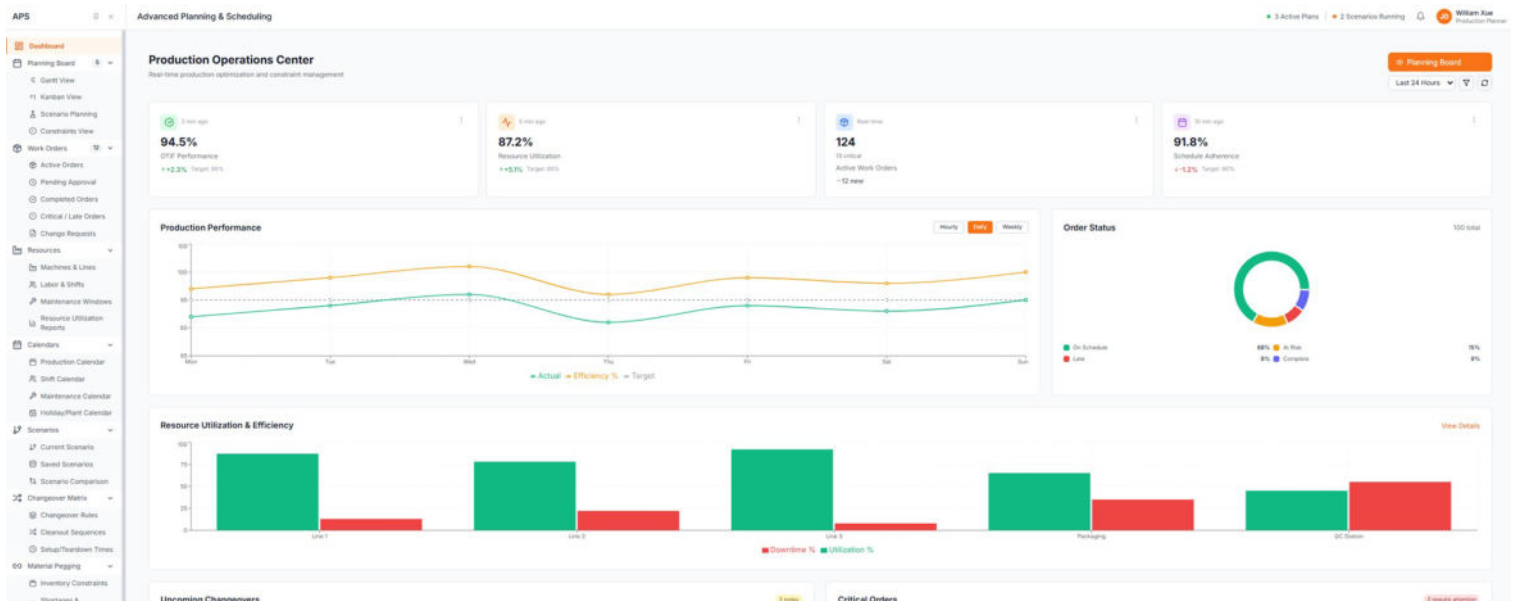


DATASHEET

Advanced Planning & Scheduling

Plan Smarter. Schedule Faster. Deliver On Time.

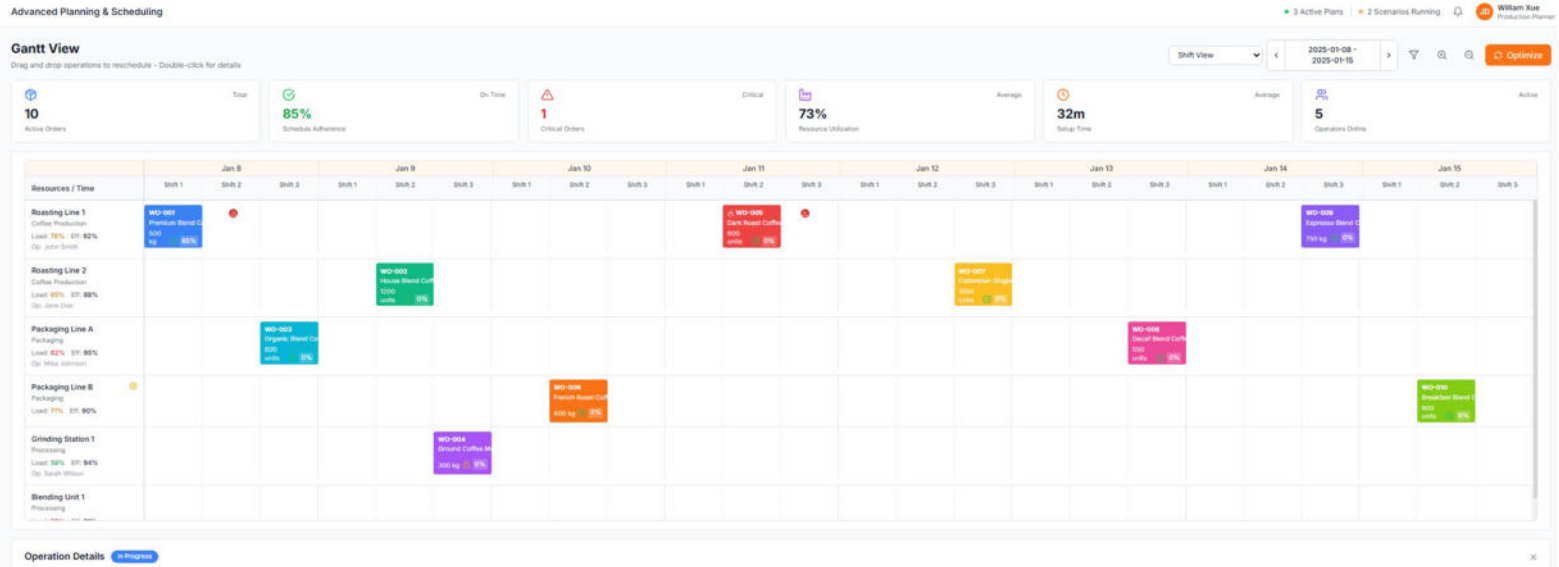
Manufacturers face constant disruption from raw material shortages, machine breakdowns, labor unavailability, and sudden rush orders. Traditional ERP planning modules lack the agility to reflect shop-floor realities, while spreadsheets cannot keep pace with today's complexity. The LOGICAL SYSTEMS Advanced Planning & Scheduling (APS) application transforms this challenge into opportunity by synchronizing demand, capacity, and materials in real time. With APS, schedulers move from reactive firefighting to proactive control. Built on the Inductive Automation® Ignition platform, APS delivers dynamic, constraint-based scheduling that adapts instantly to changing conditions and empowers planners to act with confidence. Finite-capacity planning accounts for machines, tools, labor, and materials, while intelligent sequencing reduces changeovers and maximizes throughput. Interactive “what-if” scenarios allow teams to test the impact of disruptions - such as late suppliers, absent staff, or equipment downtime before committing to a plan. The result is measurable improvement: higher utilization, shorter lead times, reduced WIP and finished-goods inventory, and consistent on-time, in-full (OTIF) delivery.



APS provides the backbone for modern manufacturing agility, whether discrete, process, or batch production. It integrates seamlessly with ERP, MES, WMS, TMS, and CMMS systems, creating a single, authoritative version of the schedule. Role-based dashboards give planners, supervisors, and executives real-time visibility of commitments and constraints. The outcome is not just operational excellence but also stronger profitability, improved customer satisfaction, and a resilient foundation for growth. In a world where agility and precision define competitiveness, APS enables manufacturers to keep every promise while driving measurable gains across the business.

Smarter Production Planning

Complete Production Optimization Solution



Planning Board

- Finite-capacity Gantt with drag-and-drop sequencing
- Visual overload detection and slack highlighting
- Color coding by product, priority, or resource
- Critical path and dependency tracking

Work Order

- Centralized production order list with priorities and due dates
- Split, merge, or reassign instantly without losing traceability
- Alternate routing and rework loops supported
- CTP (Capable-to-Promise) with realistic delivery dates

Scenario Planning

- Model "what-if" cases before committing to the live plan
- Compare KPIs across alternative schedules
- Prepare contingency schedules for equipment downtime, late suppliers, or labor gaps

Constraints & Resources

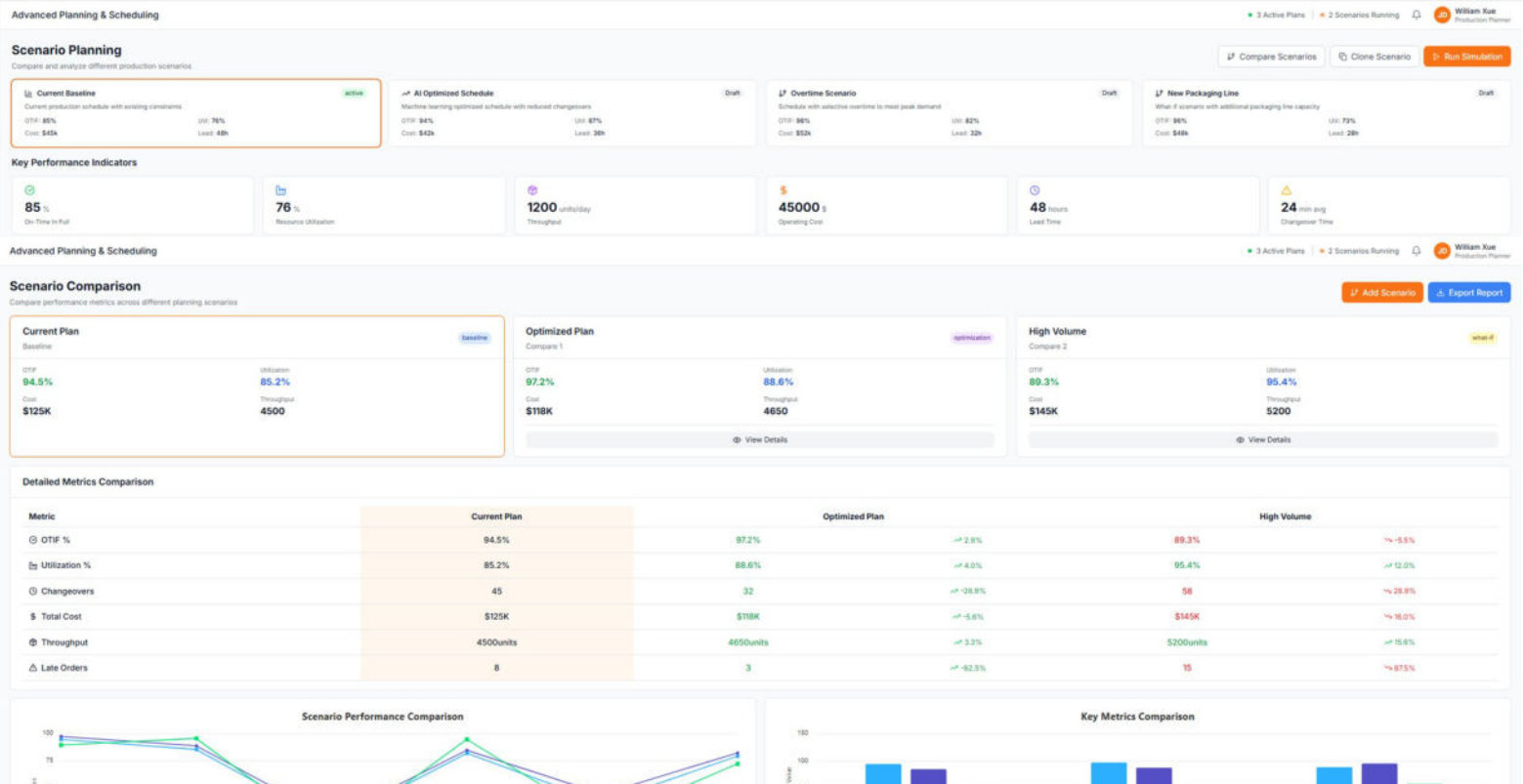
- Define machine, labor, tool, and secondary constraints
- Manage shifts, breaks, downtime, and calendars
- Skill-based crew assignment and labor balancing
- Sequencing matrices to minimize changeovers and maximize throughput

Materials & Inventory Synchronization

- Real-time material feasibility with pegging to batches/lots
- Automatic rescheduling for shortages or delays
- Campaign planning and shelf-life management
- ERP/MRP integration for synchronized planning & procurement

Collaboration Tools

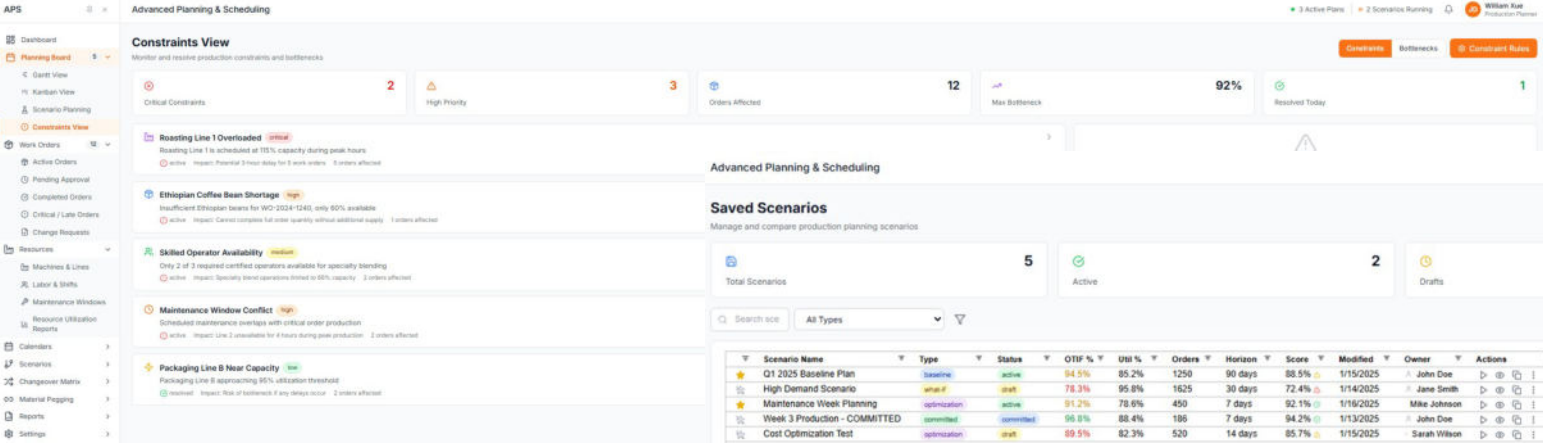
- Embedded notes, alerts, and workflows within the schedule
- Multi-user access with role-based permissions and audit trail
- Shared dashboards for planners, supervisors, and executives



Synchronized Real-Time

Planning & Scheduling Across the Enterprise

The LOGICAL SYSTEMS APS application serves as the intelligent planning hub that unifies demand, capacity, and material data across your digital manufacturing infrastructure. By connecting bi-directionally with ERP, MES, WMS, TMS, and CMMS systems, APS ensures that every schedule is both feasible and optimized in real time. Constraint-based scheduling automatically adapts to machine availability, labor calendars, and material readiness, creating plans that reflect actual shop floor conditions rather than theoretical capacity. Synchronization with ERP and MRP maintains consistency between sales orders, purchase plans, and production schedules, while confirmed schedules flow back into ERP to update promise dates, resource allocations, and financial forecasts. This closed-loop planning cycle ensures planners, supervisors, and executives work from a single, authoritative version of the schedule, eliminating silos and reducing costly misalignments between departments.



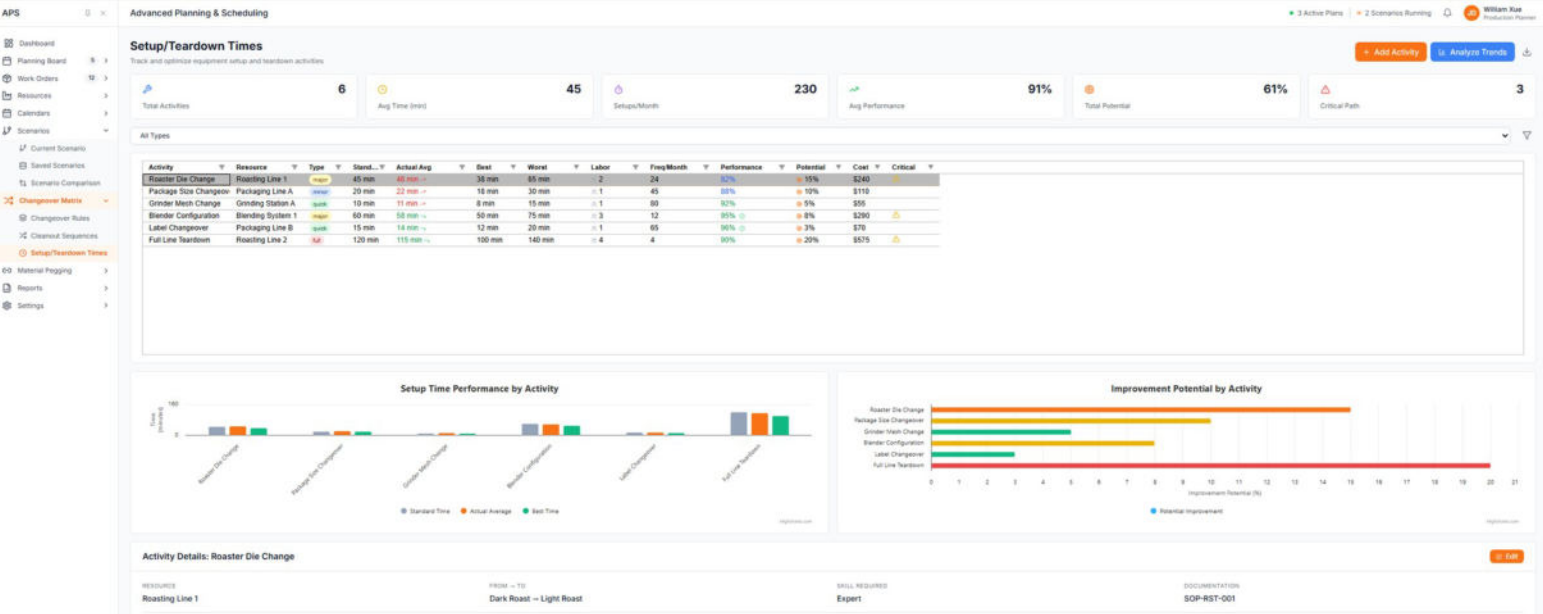
Master data synchronization guarantees that routings, BOMs, and resource calendars remain current across systems. Real-time connections with historians, SCADA, and IoT devices feed APS with live signals on equipment performance, downtime, and material consumption, enabling schedules to adapt instantly to unexpected events. Integrated quality and compliance data link production schedules with product specifications, regulatory requirements, and shelf-life constraints, ensuring that plans honor both operational and compliance obligations. APS also digitizes supporting processes such as sequencing matrices, campaign rules, and changeover checklists so that planners can rely on rule-based automation instead of manual intervention. By tying planning to execution through API-driven data exchange, APS transforms production scheduling from a static exercise into a living, collaborative process that drives agility, reliability, and profitability across the enterprise.

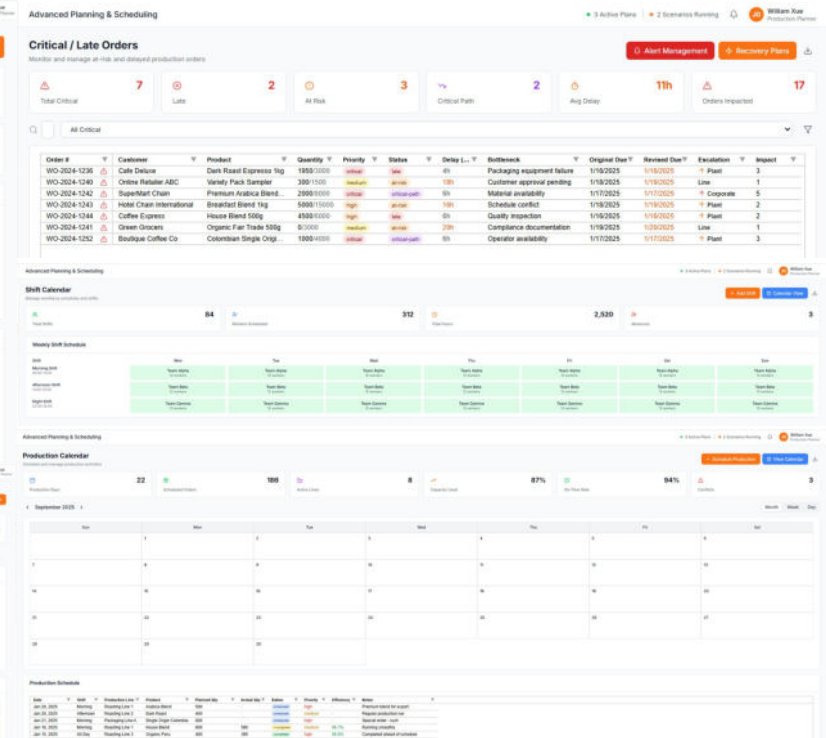
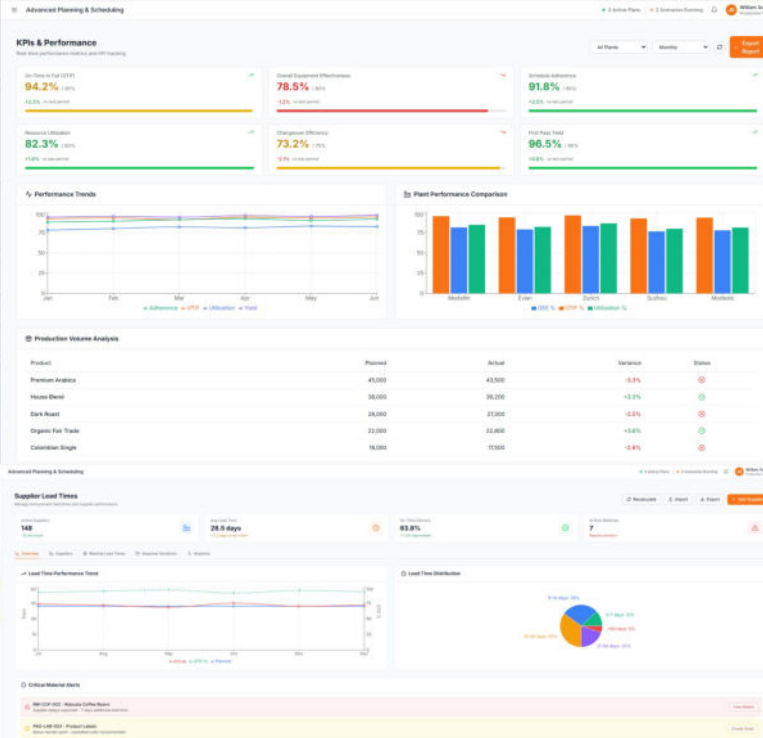
Deployment Flexibility

APS supports single-site rollouts or multi-plant synchronization. It can be deployed on-premise, in the cloud, or in hybrid configurations, depending on IT strategy. Role-based dashboards adapt to planners, supervisors, and executives, ensuring that each stakeholder has the right level of visibility and control.

Industry Use Cases

- Food & Beverage: Optimize batch runs, allergen changeovers, and shelf-life-sensitive products.
- Pharma & Life Sciences: Support GMP compliance, cleanroom scheduling, and validation activities.
- Consumer Packaged Goods (CPG): Manage high-mix, low-volume operations with frequent changeovers.
- Chemicals: Coordinate multi-stage processes with safety, regulatory, and campaign planning rules.
- Discrete Manufacturing: Optimize shared resources, complex routings, and tool setup dependencies.





Key Features and Benefits

Features

- Finite-capacity algorithms across machines, labor, tools, and materials for backward and forward scheduling
- Drag-and-drop Planning Board with overload/slack visualization
- Multi-site scheduling and multi-plant scheduling integration
- Bi-directional ERP/MES/WMS/TMS/CMMS app integration
- What-if scenario planning with KPI comparison and version control
- Setup matrix and sequencing rules to minimize changeovers
- Shelf-life, expiry, and campaign planning for process industries
- Skill-based labor and crew assignment with shift and calendar control
- Real-time visibility of material pegging, shortages, and substitutions
- Role-based security, multi-language, and multi-currency support
- Prebuilt scheduling templates for weekly plans, batch sequencing, and demand spikes
- AI-assisted planning with machine learning for disruption prediction and optimal sequencing

Benefits

- +15-30% increase in throughput with same resources
- +20-40% reduction in changeover and idle time
- +25% improvement in on-time delivery (OTD)
- +15% inventory reduction through synchronized material planning
- ROI achieved within 6 months, proven across industries
- Greater agility with scenario planning and instant replanning with mid-order updates

Technical Requirements

System Requirements

Ignition® (8.1.+) Core Modules, Quad-core processor, 16 GB RAM, 10 GB free disk space

Supported Operating Systems

Windows Server 2019/2022/2025, Windows 10/11, macOS (X, 10.16+), Linux (Ubuntu, CentOS, RHEL)

Supported Protocols

MQTT, OPC UA / OPC DA, REST API (JSON Payloads)
Kafka (via connector), Snowflake (via pipeline, data bridge)

Supported Databases

Microsoft SQL Server, Oracle, MySQL, MariaDB, PostgreSQL, any database with JDBC driver

Supported Browsers

Chrome, Firefox, Safari, Microsoft Edge

LOGICAL SYSTEMS

APS

Planning Excellence with Digital Intelligence.

LOGICAL SYSTEMS Advanced Planning & Scheduling (APS) replaces static spreadsheets with dynamic, constraint based scheduling. APS synchronizes machines, labor, materials, and demand to move manufacturers from reactive firefighting to proactive control. The result is agile, automated planning that delivers world-class performance and reliable on-time delivery.