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Case Study

Advanced Production Planning for Manufacturing Industry

Harnessing AI, Operations Research, and Power BI to Maximize Plant Efficiency

Overview

Manufacturing facilities face recurring underutilization and frequent production downtimes. Despite strong demand and a healthy order pipeline, operational inefficiencies rooted in raw material constraints, manual scheduling, and lack of real-time analytics result in missed opportunities and lost revenue.

Techindo Systems engages to design and deliver a comprehensive digital solution, blending **AI, Operations Research, Power BI**, and **custom-built software tools**, to transform the manufacturing sector's production planning and decision-making processes.

Challenges

- **Underutilization of plant capacity (operational only 70%-80% days).**
- **Raw material supply constraints due to a shared feeder plant.**
- **Lack of predictive visibility into monthly demand and material needs.**
- **Manual, time-consuming scheduling prone to inefficiencies.**
- **High setup and changeover times impacting throughput.**
- **No centralized system to track KPIs or monitor bottlenecks in real time.**
- **Static plans can't adjust to real-time changes, causing inefficiencies.**

Techindo's Solutions

AI-Powered Demand Forecasting
Predicts finished goods and raw material needs using historical data, trends, and customer behavior.

Real-Time Adaptive Production Planning
An AI and OR-driven system that dynamically replans in real time to maximize uptime and efficiency.

Custom Software Development
Centralized system unifying forecasting, planning, and dashboards for seamless collaboration and execution.

Operations Research-Based Optimization Engine
OR-based engine generates efficient production schedules, minimizing downtime and ensuring SLA compliance.

Power BI Dashboard Suite
Interactive dashboards offering real-time insights on:

- Plant Utilization
- Raw material Inventory
- Downtime trends
- Order fulfillment
- Bottleneck processes

Impact

- **Increase in plant uptime through optimized scheduling.**
- **Significant reduction in changeover and setup losses.**
- **Improved raw material planning, reducing last-minute shortages.**
- **Real-time visibility through Power BI dashboards for faster, data-backed decisions.**
- **Projected savings of millions monthly from better capacity use and reduced operational waste.**
- **Repeatable optimization models for ongoing performance tuning.**

Vision

AI-augmented forecasting

Real-time analytics

Research-driven scheduling

Custom, adaptable software

About Techindo

Techindo is a digital transformation partner helping businesses innovate, scale, and stay future-ready. From AI-driven solutions and custom software development to cloud, business intelligence, and IT consulting, we deliver end-to-end technology services tailored to industry needs.

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