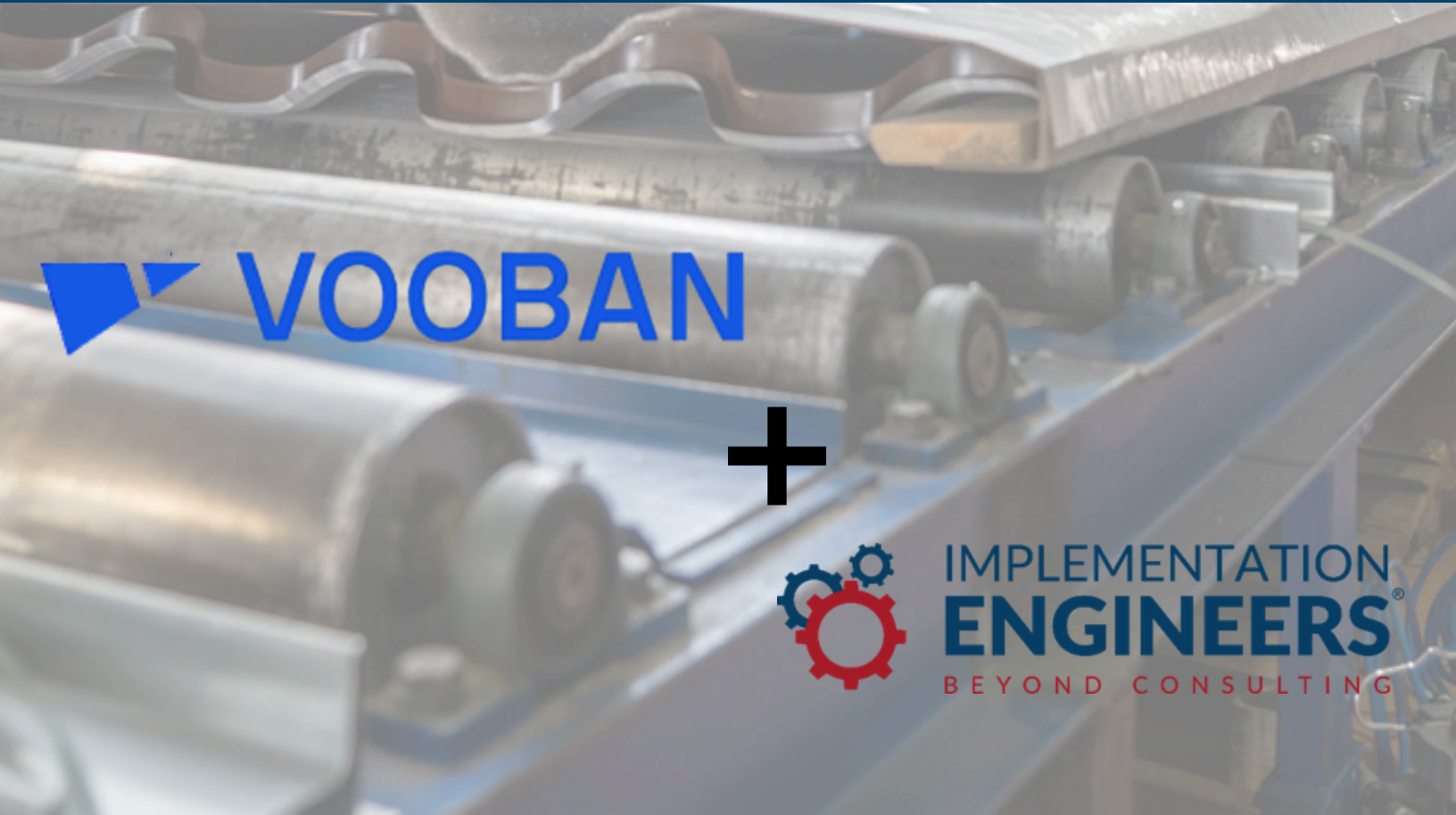




## IX® Case Study

AI-Driven Production Planning to Increase Throughput  
and Eliminate Manual Scheduling



 **VOOBAN**

+



IMPLEMENTATION  
**ENGINEERS®**  
BEYOND CONSULTING

**8–15%**

**Throughput  
Increase**

**50%**

**Fewer Stockouts  
+ Surpluses**

**90%**

**Faster  
Scheduling**

## **Turning Manual Planning into Optimized, Autonomous Execution**

The client is a North American manufacturer of premium finished building materials, operating highly automated production lines that assemble customized product bundles to meet specific customer requirements.

Each order required combining multiple components of varying sizes, configurations, and availability into precise packaging formats.

While parts of the factory were automated, production planning and sequencing remained manual.

Schedulers relied on:

- Excel files
- Hand-built sketches
- Tribal knowledge
- Reactive adjustments

As product variety and order complexity increased, this approach created:

- Frequent stockouts
- Excess inventory and surpluses
- Inefficient changeovers
- Overtime firefighting
- Missed throughput opportunities

Plans were rigid and difficult to update, leaving operations constantly reacting rather than executing against an optimized schedule.

Leadership engaged Implementation Engineers and Vooban to modernize planning — replacing manual decision-making with a data-driven, AI-enabled system capable of automatically generating optimal production plans.

# Turning Manual Planning into Optimized, Autonomous Execution

The joint team embedded advanced analytics and optimization directly into daily production workflows — integrating intelligence into operations rather than layering on another tool.

## Operations Research Optimization Engine

- Mathematical optimization models evaluate thousands of possible production combinations to determine the most efficient plan.

## Automated Production Sequencing

- The system dynamically balances product mix, material availability, and demand to generate optimal schedules.

## Constraint-Based Planning

- Accounts for inventory levels, order priorities, machine capabilities, and customer requirements simultaneously.

## Real-Time Replanning

- Schedules update automatically as conditions change — eliminating manual rework.

## Integrated Execution Workflow

- Production plans feed directly into operations, ensuring alignment between planning and shop-floor execution.

## Continuous Improvement

- Each cycle refines the model using historical performance and new operating data.

## Results

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The AI-enabled planning deployment delivered measurable operational performance improvements:

**Increased Throughput:** More orders completed with the same assets and labor.

**Reduced Inventory Imbalances:** Fewer stockouts and less excess production.

**Shorter Planning Cycles:** Schedules generated in minutes instead of hours.

**Less Manual Intervention:** Planners shift from firefighting to strategic oversight.

**More Stable Operations:** Predictable, optimized sequencing reduces disruptions.

**Scalable Across Facilities:** The model can be deployed across additional lines and sites.

## This Applies Anywhere That...

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- Planning is done in Excel
- Schedules depend on tribal knowledge
- Product mix is complex
- Inventory swings between shortages and surpluses
- Changeovers disrupt flow
- Throughput gains are needed without new capital

# Let's Turn Your Vision Into Results

Implementation Engineers and Vooban deliver together — turning strategy into operational reality through AI-enabled execution.

Our proven **Align-Design-Execute** framework ensures your strategy doesn't stall at planning. From aligning leadership around priorities, to designing AI-driven operating models, to executing change inside your operations, we work side-by-side to deliver results that scale.

## Ready to Get Started?

Let's explore how we deliver together. Contact us today to schedule a conversation. Together, we'll chart the path from vision to execution.

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