

# Driving Growth through Sales Planning, Inventory Management and Supply Chain Expansion

LFMcapital

## BUSINESS PROBLEM

ShopSabre's sales are growing exponentially each year. The capacity of their external supply chain and their inventory management system have not matured at the same rate, causing an increase in customer backlog. Both the supply chain and inventory management system must expand and mature to increase throughput and decrease lead time. Key challenges to meeting this goal include (1) suppliers with high variability in timing and quantity and (2) limited inventory visibility with ad-hoc purchasing processes. ShopSabre's goal is to increase throughput by improving inventory management and growing their supply chain capacity.

## DATA SOURCES

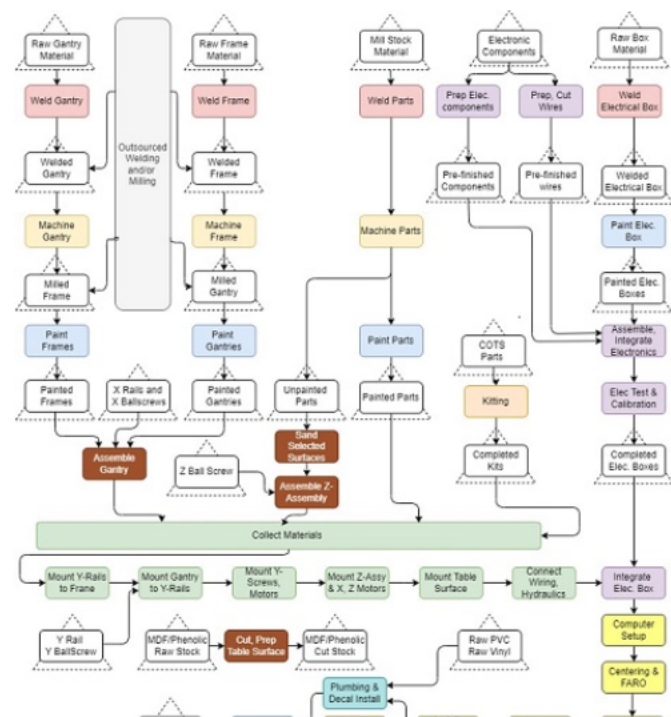
Process improvements require data about quantities and times. ShopSabre implemented an ERP system in late 2021. The researcher extracted raw ERP data and performed post-processing to generate actionable insights. The ERP system data was supplemented with observational studies ("spaghetti diagrams) and cycle time studies.

## Data Types and Format

The data within the ERP system are databases that were extracted into analysis/visualization packages (e.x. Excel, PowerBI, etc).

## APPROACH

The project began by mapping the existing supply chain and internal inventory processes. Sales and Operations Planning (S&OP), inventory models, resiliency analysis, and new partnerships were then used to develop policies that expand supply chain capacity and reduce variability, thereby enabling the company to increase production rates.



## IMPACT

The combination of interventions enabled ShopSabre to increase production throughput by 3%. Employees at ShopSabre are now aligned to a single sales and operations plan enabled by a scientific inventory system and expanded supply chain network. The company's production rates are at an all-time-high and it has the business processes in place to continue growing exponentially. Sales & Operations Planning succeeded in aligning different functions towards a common target. The company was able to forecast lead times in real time based on the current backlog and projected production rates. These reduced yet realistic lead times were crucial for driving sales in the holiday season of 2022. The development of an effective inventory resulted in the percentage of parts with an inventory position in the acceptable range between *MIN* and *MAX* to grow from 66% to 95%. The system also reduced variance of physical counts by 80% and percentage of parts with obsolescence risk by 10%. Supply chain expansion increased the production capacity of a critical-path component by over 92%, eliminating a production bottleneck. The expansion increased resiliency against long term disruption such that ShopSabre will no longer incur any financial impact if one supplier is disrupted. By qualifying new suppliers, ShopSabre increased its own negotiating power and was able to reduce cost of goods sold, directly increasing EBITDA.

### DRIVERS

ShopSabre has a "can-do" culture that rewards action. If someone asks for help, employees are expected to drop whatever they are doing and provide assistance. The investigator benefited from this culture by being able to quickly iterate on proposed solutions with team members.

### BARRIERS

The data in the ERP system was often incorrect due to data entry issues or incorrect bill of materials (BOM). For example, the system may say that the quantity on hand was five units of a part, but a physical count performed during a Gemba walk would reveal ten parts in a bin. A root cause investigation revealed the BOM assumed two parts were used on each machine when in reality there was only one. ERP data discrepancies were common.

### ENABLERS

The poor performance of the existing systems for tracking inventory enabled the project to gain leadership support that drove rapid development. For example, ShopSabre had years worth of inventory for some parts while simultaneously experiencing stockouts for other parts. ShopSabre had established a Kanban system, but it was not followed rigorously to prevent stockouts. These failures were highly visible and drove the desire for change.

### ACTIONS



The researcher used a structured approach to eliminate barriers to increased production throughput. The investigator documented the initial state by observing processes and learning from employees. The investigator then proposed, validated, and implemented solutions to each root cause. Finally, the investigator established systems to monitor that the intervention was producing the desired results and made adjustments as needed.

### INNOVATION

A basic Min-Max inventory system requires 9 key assumptions hold (4 related to demand and 5 related to supply). All 9 of the assumptions were violated at ShopSabre. The development of a model that adjusted for these violations and delivered dramatically improved inventory performance across multiple metrics is novel and innovative.

### IMPROVEMENT

The percentage of parts with an inventory position in the acceptable range between *MIN* and *MAX* grew from 66% to 95%. The reduced number of stockouts contributed significantly to ShopSabre's success in raising production throughput by 3.0% in the months following the intervention. Additionally, the variance in inventory value calculated after physical counts decreased from 3.65% prior to the implementation to 0.72% after the intervention.

### BEST PRACTICES

Those seeking to replicate the solution should start with a basic model and then add complexity only where clear violations of model assumptions are identified. The complexity should be added in small, manageable blocks by working directly with domain experts at the Gemba. Additionally, utilizing a structured approach to problem solving was key to delivering consistent results and simplifying communication with leadership.

### OTHER APPLICATIONS

The proposed solution could be extended to any manufacturer of assembled finished goods. In particular, companies facing clear violations to assumptions underpinning inventory models in ERP systems, such as those faced with suppliers who deliver neither on-time nor in full.