

Make vs. Buy Optimization for Industrial Manufacturing & Distribution Business



BUSINESS PROBLEM

Optimas is uniquely positioned as both a distributor and manufacturer in the global fastener industry with ~50 distribution centers and 2 manufacturing sites (US & UK). Increased end market volatility, raw material scarcity, and global supply chain challenges have resulted in a ballooning portfolio of suppliers, elevated inventory levels, challenges serving customers. Optimas is seeking to develop the methodologies, tools, and processes to optimize its supply base to appropriately leverage its internal manufacturing capabilities & capacity and rationalize its portfolio of suppliers in a sustainable & recurring fashion.

DATA SOURCES

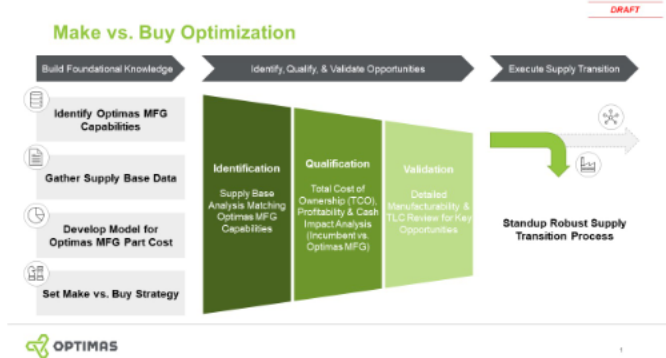
Recent distribution data at Optimas became increasingly available following a 2021 ERP transition, although data across new & legacy systems remains disconnected although generally available. Manufacturing data exists in a separate ERP/MES system. The researcher worked to combine, augment, and validate data sources in novel ways to support research efforts and implementation.

Data Types and Format

Data is contained in new & legacy distribution & manufacturing systems, a web-based supplier portal, Tableau reporting, and offline Excel spreadsheets.

APPROACH

This project developed a framework and decision support tool for optimizing make vs. buy decisions in Optimas' business context. A strategic framework incorporating supplier strategy, internal & external supplier capabilities, internal capacity, and total cost was built to identify, qualify, and validate opportunities.



IMPACT

The impact of this project is threefold on Optimas' business. First, the effort quantified the total addressable market for external threaded fastener insourcing and outsourcing. Second, the project identified an initial prioritized set of insourcing opportunities representing ~20-30% of the total addressable market. Finally, the decision support tool developed will aid Optimas in tactically evaluating and executing on make vs. buy decisions.

DRIVERS

This project was initially motivated by three main factors: increased uncertainty of global supply of products, increased inventory due to the bullwhip effect in customer demand from the COVID-19 pandemic, and a desire to improve business profitability. Additionally, Optimas wanted improve strategic coordination between internal manufacturing and the Supply Chain organization.

BARRIERS

Barriers to the project's success included a challenging data landscape due to an ERP transition prior to this effort and differing views among senior management at Optimas and AIP on the value of internal manufacturing.

ENABLERS

Enablers to the project's success included a reorganization of the sourcing team centered around product categories, strong manufacturing data on production costs and capacity that could be extrapolated to new parts, and enthusiastic support from senior leadership to make improvements to the supply chain.

ACTIONS



The make vs. buy strategy was developed in collaboration with key stakeholders at Optimas, backed by available data. This strategy was then translated into an SKU-level decision support tool with the help of the Business Intelligence team and published. Feedback was solicited from users and incorporated into revisions of the tool.

INNOVATION

One of the more innovative aspects of the decision support tool was the novel combination of siloed datasets to produce an at-a-glance decision support tool that embodied the make vs. buy strategy in quantitative and qualitative ways.

IMPROVEMENT

The final improvements that the make vs. buy strategy and decision support tool provided were: quantification of the total potential of insourcing/outsourcing in the external threaded category, a prioritized list of SKU-level opportunities totaling approximately 20% - 30% of the total opportunity, and a method for identifying additional opportunities at the SKU level.

BEST PRACTICES

Best practices include: utilizing quantitative data at the backbone of strategy development where possible, leveraging live data connections wherever possible to minimize the costs of refreshing data-based tools, and including key stakeholders throughout the development process to minimize rework.

OTHER APPLICATIONS

Similar strategies and tools could be developed for similar organizations that manufacture and distribute commoditized products (e.g., purchase or produce complete parts for distribution) by utilizing strategic sourcing best practices and bringing together organizational data in a novel way.