Sales, Inventory, & Operations Planning

How to unlock transformational change in enterprise value

Philip Lee and Scott Sparks

TriVista

SIOP

Sales, Inventory, and Operations Planning is the heartbeat of every manufacturer, distributor, and consumer products company.

SIOP is the integrating function that ties each part of the business' operations together to achieve targeted financial outcomes. When effective SIOP processes are in place, management teams and investors know with confidence that revenue and margin plans can be achieved.

Demand patterns, customer needs, product mix, supplier lead times, and service level requirements inevitably change over time. Without strong SIOP processes, any of these changes can create unpredictable operational and financial results, and understanding how to react to get back on track can be a real challenge. SIOP provides clarity and visibility into exactly what needs to change in the operations to stay on-track and achieve target financial outcomes.

The value of SIOP

Effective SIOP processes give clarity to exactly which levers in the operating model address the common business issues outlined in the box to the right, and exactly how to move these levers to achieve the desired business outcomes. At a tactical level, SIOP is the process and routine used to define future demand and most optimally balance it with supply in a consistent cadence of consensus-based review and agreement. The individual building blocks of SIOP include forecasting and demand planning, inventory planning and management, capacity and capital planning, and supply planning (supplier order management, manufacturing production scheduling, and daily shop floor production sequencing). Each of these tactical parts must be in place and working effectively as a necessary condition

Common issues that companies without effective SIOP processes face when the business environment inevitably changes:

We are missing our revenue targets.

We have poor or declining inventory turns and excessive investment in working capital.

Our past due backlog continues to build.

Our on-time delivery/customer service is below target, causing our customers to jump to the competition.

Our manufacturing productivity/gross margin is unacceptably low.

Our production cannot keep up with demand.

We want to compete for higher margin business through improved service levels.

to achieve this demand and supply balance. While all of this is essential, these steps alone are not sufficient for SIOP to be complete and achieve the benefits outlined in Figure 1.

At a strategic level, SIOP is about bringing together all relevant inputs of future business opportunity, competency, and each of the tactical sub-components in a consistent balancing routine that minimizes or eliminates confusion and maximizes financial performance. In the recurring demand and supply balancing routine of SIOP, a business can more dynamically address and shape future outcomes — even in the face of changing business and market conditions.

With an integrated SIOP capability, the system responds and adjusts. The individual elements of the distribution or manufacturing process consistently come together to balance supply and demand. This routine meeting structure and SIOP system also produce a high degree of certainty in financial projections.

Companies that start with limited SIOP capabilities often see substantial financial gains when an effective SIOP process is implemented.

Figure 1

The foundational processes of SIOP

Demand planning

Supply planning

Financially optimized and balanced production planning

Cross-functional alignment and continuous improvement

SIOP improvement creates transformational enterprise value*

Revenue Growth	Inventory Reduction	EBITDA Growth
3-15%+	**10-30%+**	**5-20%+**

* Results are based on small and mid-market manufacturers. Opportunities vary by business and industry.

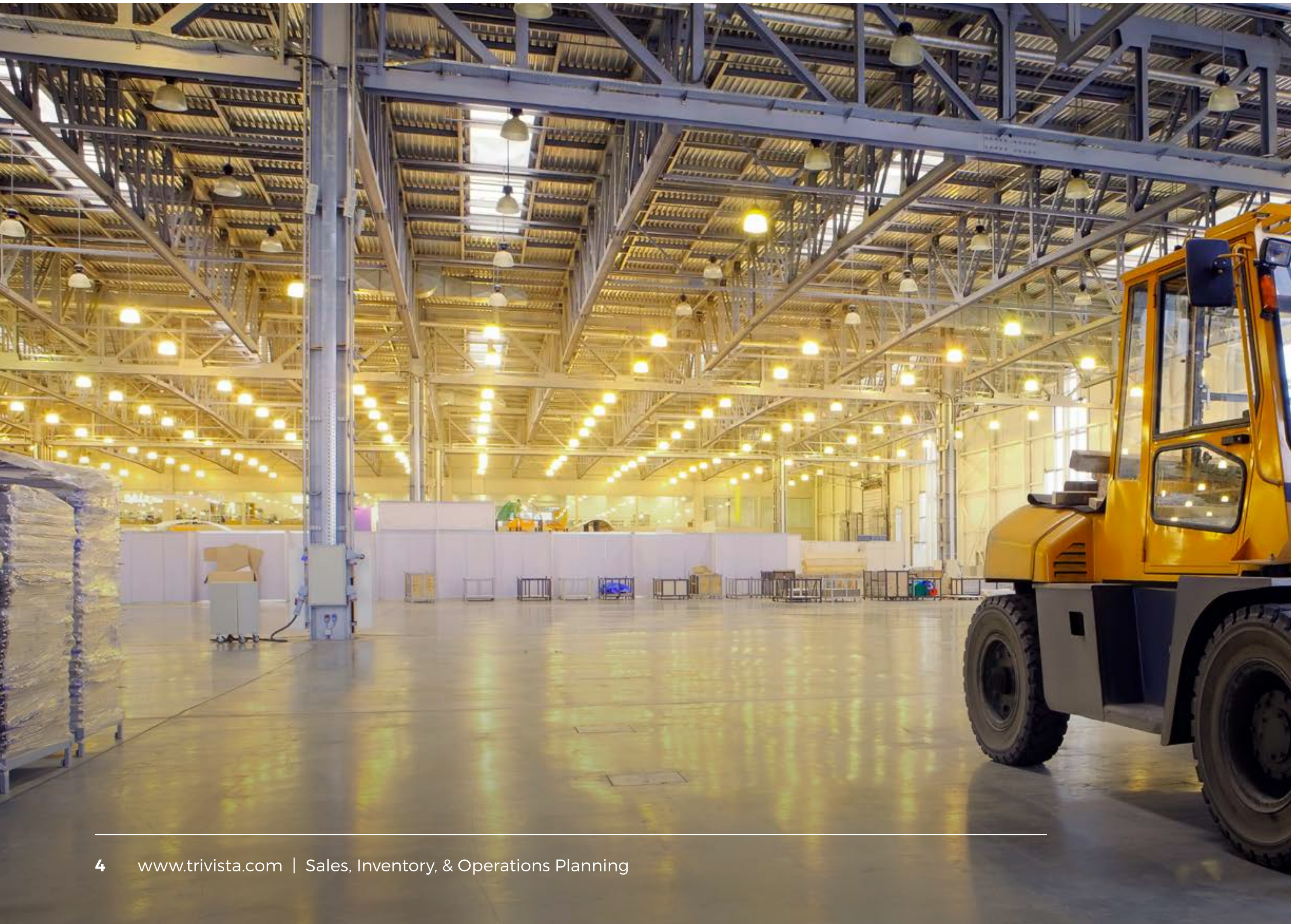
Diagnosing your SIOP need

With this level of financial and operational impact, why hasn't SIOP become an essential process that all manufacturers and distributors have mastered? The answer is that it can be difficult to diagnose the need for SIOP. Other, more physically visible issues typically get the attention of management teams and, therefore, get the resources and effort to resolve them. In fact, few mid-market manufacturers and distributors have complete, high-functioning SIOP processes in place.

When business issues (like those in the box on **Page 2**) arise, we often point to the things we can see as the probable cause. We can observe that product or component suppliers have shipped late when our orders do not show up to the warehouse dock on time. We can also see manufacturing productivity issues by walking the shop floor. But do we know that these are the right or complete set of issues that will drive the financial or business outcome that we need to achieve? SIOP removes the guesswork and gives management clarity and answers to these questions on a consistent basis.

> You can't physically see SIOP, but it has a significant impact on your operational and financial performance.

SIOP lets you to know with confidence if the company is going to achieve its annual operating plan, deliver its products and services on time, and satisfy its most demanding customers' lead time requirements.



Assessing your SIOP opportunity

If you answer “yes” to any of these questions, you likely have an opportunity to improve your operations and financial performance.

YES NO

1 Are you uncertain about the business regularly achieving revenue and profit targets?

Organizations without monthly SIOP balancing often keep finance siloed and don’t have accurate financial plans. ● $$$

2 Are inventory turns trending unfavorably?

Raw material inventory: Growth may point to an issue with MRP (material requirements planning) driving material requirements from a forecast vs. a firm production plan. ● $$$

Work in progress inventory: Growth may suggest a manufacturing flow process problem with batched production, rather than single piece flow; or production scheduling without a clear understanding of manufacturing capacity. ● $$

Finished goods inventory: Growth may indicate a suboptimal forecast or lack of demand and inventory planning alignment. ◐ $$

3 Are you missing customer delivery dates?

Request date: Low on time delivery to request date indicates capacity issues or broken SIOP. ● $$$

Promise date: Low on time delivery to promise date almost always suggests a broken SIOP process. ◐ $$

4 Does actual production regularly vary from the planned schedule?

An unstable production schedule can prevent a manufacturer from making a seven-day locked schedule and accurately producing those scheduled items. ○ $

5 Is employee turnover high?

Not addressing SIOP can often lead to low employee morale and overall production misses due to labor utilization and effectiveness, ultimately dragging down gross margin percentage. ● $$

COMPLEXITY TO FIX		POTENTIAL FINANCIAL IMPACT	
○	EASY	$	MODERATE
◐	MODERATE	$$	HIGH
●	COMPLICATED	$$$	VERY HIGH

Let's consider each question and SIOP opportunity more specifically.

1 Are long-term financial forecasts of gross profit and EBITDA updated monthly, and are they accurate?

Organizations that do not have (or use) monthly SIOP demand and supply balancing activities as an input into financial forecasting will generally not have accurate financial plans. Additionally, companies that are not reviewing (monthly) the source of variance from profitability forecasts are missing out on the insight and opportunity that these reviews provide.

One of the most important activities in a strategic SIOP or S&OP routine is demand and supply balancing. During this monthly activity, once both demand and supply have been defined, a set of alternative actions for production, inventory, and purchasing are developed. These alternatives will generate several scenarios with often varying impacts to on-time delivery (OTD), inventory, working capital, and profitability. Having the voice of Finance in this routine, and having the agreed upon unified course of action as an input into the recurring financial forecast of profitability, is essential for accuracy and performance optimization.

Having an integrated and finance-focused SIOP routine will also enable a business to adapt and take advantage of changing market conditions. Shaping demand through promotions, pricing, rationalization, or new product introductions is an excellent way some mature SIOP organizations lift EBITDA even when the market conditions begin experiencing unforeseen headwinds after annual planning is complete.

2 How has total inventory changed over the last year, and what are inventory turns doing (by month) for the last year?

High inventory, growing inventory, and/or declining inventory turns all generally suggest something is broken or missing in SIOP alignment that could spell future problems for customer service, working capital, capacity, operating cost leverage, and a growth thesis. This condition could also indicate a **significant** upside cost take out, along with revenue growth opportunity.

The source of excess or growing inventory can also suggest certain conditions at play with respect to the broken or missing elements of SIOP:

Raw materials are aging or growing disproportionately to sales generally points toward a disconnect between the demand forecast, capacity to produce, and timing or quantity of supplied material inputs. Often, an organization with this condition is running a materials requirements plan (MRP) based on a forecast that assumes infinite capacity, as opposed to a much preferred defined and capacity balanced master production schedule (MPS).

Disproportionately growing or aging of work in progress (WIP) inventory may also originate from the general conditions as outlined for raw materials, but more specifically, this condition suggests a manufacturing flow process problem where production is batched and pushed along to the next process of manufacturing. In this situation, the drumbeat of demand in SIOP is not being driven into the upstream processes of daily production. What we see instead is missed critical orders and long manufacturing lead times as production cells produce too much of what is not needed – and conversely, not enough of what is required at the time.

Disproportionately growing or aging of finished goods inventory is often the function of a suboptimal forecast, demand plan, and inventory planning alignment within SIOP. Aligning demand and inventory in a make to stock (MTS) environment requires a monthly process of consensus and cross functional alignment that is likely broken or non-existent in this condition of growing inventory. This is the predominant area of focus for most off-the-shelf SIOP solutioning software. Forecast accuracy measures (1-WMAPE[1]) and inventory targets that consider variability of demand, lead time, and service level by SKU[2] strata come standard with nearly every software package available today.

3 What is the last 12 months (by month) on time delivery (OTD) against request date and promise date?

Low OTD to **request date** may indicate upstream SIOP alignment issues alongside potential capacity deficiency. Low OTD to **promise date** will almost always suggest very poor SIOP alignment. A business that does not, or cannot, readily generate this measure is likely suffering from very low OTD (once this is ultimately measured). Low performance to order dates is a critical area for improvement, and a key point of reference for identifying poor SIOP maturity.

A business with low OTD will face demand and growth challenges, along with pricing pressures, that a high service model competitor will not. Fixing this service issue through SIOP will yield increased demand at better pricing and margins into the future.

[1] Weighted mean absolute percent error
[2] SKU: Stock keeping unit

4 What is the last 12 months (by weeks) manufacturing plan attainment — or actual vs. scheduled performance (AVS)?

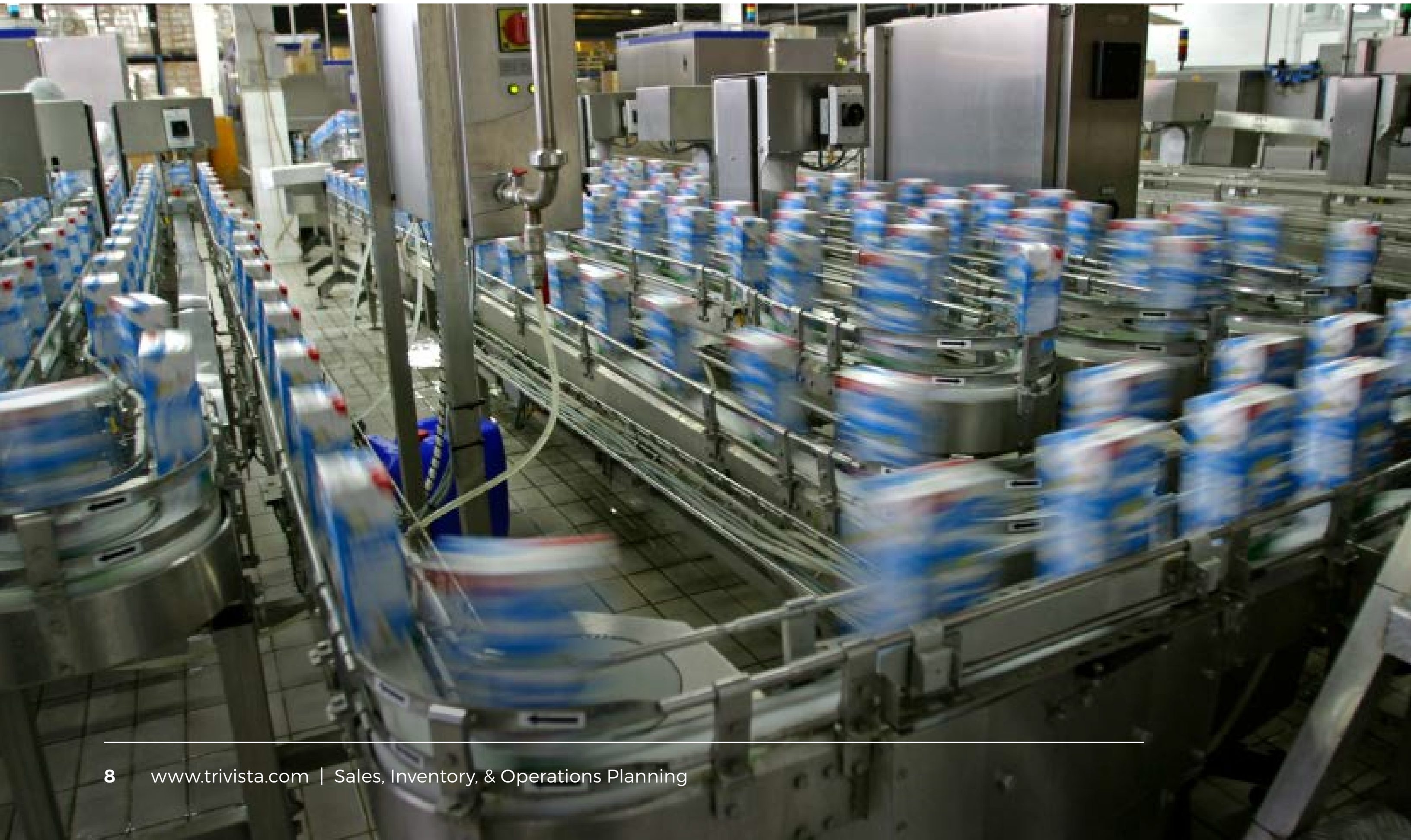
Low AVS attainment and adherence suggests that a manufacturer has upstream SIOP deficiency that prevents it from making a seven-day locked schedule and accurately producing those scheduled items. The deficiency may be due to accuracy of standards, stability of demand signal, overloading production capacity, missing procured or produced components, a lack of production control, or even run rules simply being violated. Whatever the source, it must be addressed and fixed to realize full financial performance.

A business with low AVS attainment and adherence will incur excess costs/suboptimal profitability because the business will be generating unnecessary changeover costs, extra labor hours, overtime premium costs, excess material costs, and less than optimized capacity utilization. The business may also suffer revenue loss from service risk (OTD), if the business is promising future orders that are not being met in the near-term schedules of work.

5 Does the last 12 months (by month) employee turnover rate look good, and is it positively trending?

Organizations with underdeveloped or limited SIOP often suffer low employee morale. Issues that bubble up, but do not get addressed in the future, frustrate employees. Plans that change too frequently also often create employee dissention — especially during times when overtime becomes a mandatory requirement.

Additionally, declining financial performance, paired with a lack of recognition for contribution to a stable and sound plan, often lead to a loss of trust in management. Turnover escalation that is attributed to an event like a bolt-on transaction is natural but finding a steady state track of high turnover is a great indication of poor SIOP structure (and significant financial improvement upside).



Other questions to consider

Answering "yes" to any of these additional questions is a key indicator of significant SIOP opportunity.

Is there a very low degree of MOQ[3] or EOQ[4] adherence?

A low measure of MOQ or EOQ adherence can reveal significant waste and profitability optimizing improvement opportunities. When a business is in this condition, it is usually the result of upstream SIOP deficiency where it either does not maintain or measure EOQ or MOQ targets or one where the rules are violated because of urgent need and/or competing priorities.

Whatever the source, production runs that are less than MOQ or EOQ create extra setup costs, strand materials purchased to support full production runs, and do not justify or meet the original product pricing and margin targets.

Is revenue per SKU declining?

A business with declining average revenue per SKU often has an underlying SIOP problem contributing to this condition. Whether it is due to price erosion, self-cannibalism through product offerings, low velocity SKU proliferation, or insufficient rationalization and margin control, the outcome is the same: more changeovers, smaller runs, more products to manage, and more inventory—all leading to suboptimal financial performance and more difficulty in SIOP.

Fixing this condition can be part of the natural cadence of developed SIOP, or even sometimes effectively remedied through an active and aligned Sales and FP&A process.

Is there a growing past due to promise date backlog?

Businesses that have a growing condition of backlog to previously confirmed dates of delivery (like OTD) have considerable SIOP deficiency at play. Matching of supply and demand is broken in this condition, and a SIOP solution is necessary to fix this problem.

A business with high past due backlog will face demand and growth challenges and pricing pressures that a high service model competitor will not. Fixing this service issue through SIOP will yield increased demand at better pricing and margins into the future.

Is production performance inconsistent and unpredictable?

A business with inconsistent production performance is contributing to poor SIOP alignment and poor financial performance. When significant performance to a standard or baseline is identified, it is often assigned to a CI[5] or lean-based initiative. Doing this may be completely warranted, but oftentimes the root cause of these situations stem from, or are a contributing function of, upstream SIOP related issues. Poor quality or poorly timed material feeds into manufacturing will diminish line performance. A schedule that is not stable or overloaded will also impair production efficiency as labor staffing and setup teams are not provided with the adequate preparation and planning timeframes. Major maintenance failures often occur in this environment, as well as when meeting customer requests take precedent over preventative maintenance (PM) schedules.

The condition described here is really a component issue of production stability, but if you are not able to test actual versus scheduled attainment and adherence, another related test is to compare variability of line performance to standard (or a reasonable baseline). Where a standard exists, identify what percentage of items or lines have production output greater than 10-20 percent higher or lower than standard. When a manufacturer does not have a standard, a reasonable approach to establish one is to create an approximation using "demonstrated max" performance and setting the standard at 80-85 percent of this value. If this is not the case, you have an opportunity to improve financial performance through better underlying SIOP and/or CI processes.

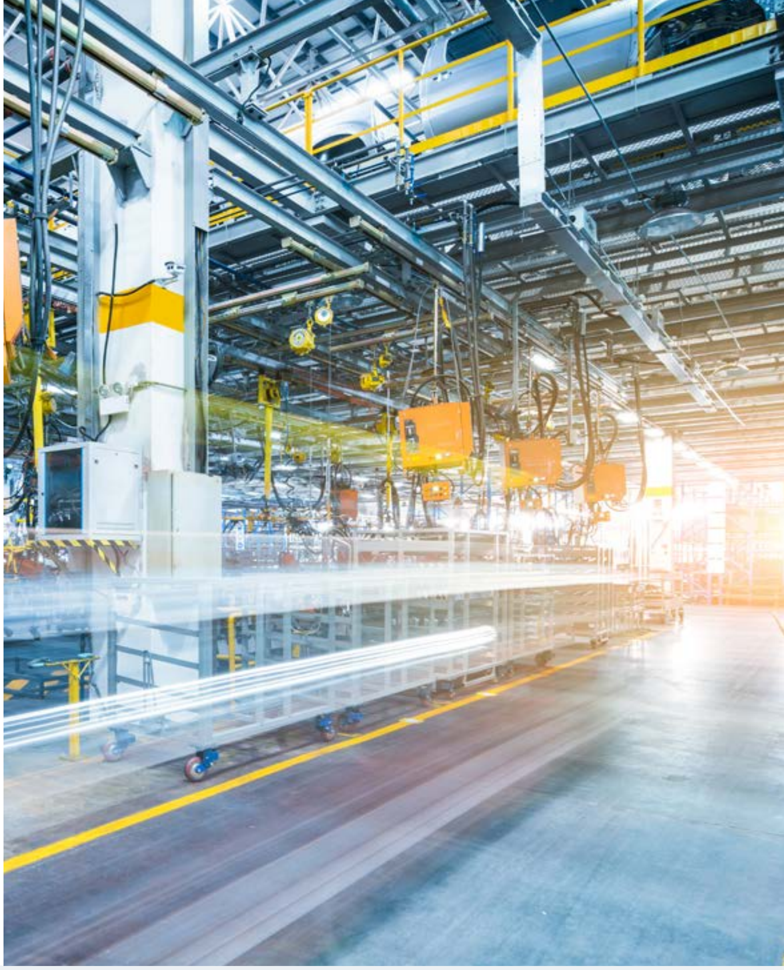
The financial opportunity here is labor savings associated with all production runs that fall outside of 85 percent of standard. In a high-labor manufacturing environment, this could result in millions of dollars of annual EBITDA improvement.

[3] MOQ: Minimum order quantity
[4] EOQ: Economic order quantity
[5] CI: Continuous improvement

Confirming the opportunity, assessing the impact, and realizing the financial benefits

Identifying the root causes and improvement opportunities of an underdeveloped SIOP process is a case by case effort that requires a detailed diagnostic.

The costs of assessing the opportunity and the improvement solution(s) are often a fraction of one year's EBITDA gains. Furthermore, the SIOP improvement solution almost never entails a complicated and integrated ERP for a small or mid-market manufacturer or distributor but, rather, a defined future state process, defined responsibilities and owners, and a disciplined cadence.



Understanding the SIOP Acronyms

SIOP

Sales, Inventory, and Operations Planning

An integrated business management process through which the organization continually achieves alignment and synchronization in planning among all functions, including sales, inventory, and operations (SIOP). The overall goal of SIOP is to connect the sales side of the business (generating product demand) to the supply side of the business (fulfilling that demand) so that they are continually synchronized.

S&OP

Sales and Operations Planning

S&OP is SIOP in most industries—the terms are used interchangeably. Sometimes, SIOP refers to demand and supply balancing in both long range (S&OP) as well as shorter range (Master Production Scheduling or finite scheduling).

IBP

Integrated Business Planning

SIOP or S&OP where a finance focus is adopted to align and adopt actions and opportunities to meet both service and financial optimization within the demand and supply balancing alternatives. This routine provides monthly dynamic feedback into strategic planning, resulting in the elimination of annual operating plans.

Connect with us if you would like to discuss unlocking value with SIOP improvements. We can illustrate the financial gains that your company can derive through this powerful approach to transformational improvement.

CONTACT US

Gustavo Rojas
Managing Director
gustavo.rojas@trivista.com
817-939-6786

Frank Ciotoli
Managing Director
frank.ciotoli@trivista.com
949-439-7680

Joanna Serkowski
Managing Director
joanna.serkowski@trivista.com
206-399-4682

TRIVISTA

About TriVista
TriVista is an operations, supply chain, and IT consulting firm that provides operational due diligence to private equity firms, and performance improvement support to operating companies. As private equity's leading advisory firm focused on operations and supply chain, we've partnered with the world's top investors and executive leadership teams to transform businesses and drive enterprise value. Learn more at http://trivista.com.