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Is Your Company Being Held Hostage by Poor Inventory Performance?

Is your organization's inventory performance creating a significant obstacle to growth and profitability? Has poor visibility across your supply chain led to faulty inventory performance, poor cash flow and decreased financial performance?

Adopting a strategic methodology designed specifically for inventory transformation can give you the right answers to these questions, eliminating the obstacles caused by poor supply chain visibility and opening up new opportunities for your organization.

This white paper outlines the critical steps any company can take today to drive inventory improvements, improve cash flow and enhance visibility across their supply chain. It includes a case study that clearly illustrates the inventory transformation process and the significant results it can yield.

Key steps in the process focus on:

- Identifying the burning platform;
- Forming an executive-sponsored transformation team;
- Realizing integrated visibility to enable advanced analytics;
- Identifying opportunities for improvement;
- Modifying/establishing process and controls;
- Optimizing the ability to handle variability or complexity; and
- Keeping score of progress.

Like any 'transformational' initiative, the process begins with understanding the compelling reasons for change. As our case study demonstrates, one company realized that its failure to transform its inventory performance hindered its competitiveness.

Establish an executive focus and a transformation team to support it

Once urgency is established, building the guiding team, establishing a vision and outlining goals are critical to winning over key stakeholders.

In the journey toward optimal inventory management, executive sponsorship and the creation of a cross-functional transformation team is the key to success.

Make it Visible – You can't improve it if you can't measure it

A successful visibility initiative requires the integration of data from the multiple sources that make up the supply chain network, including manufacturing plants (in-company and outsourced), suppliers, warehouses and hubs.

Since these sources of data are usually not in one system and likely incompatible with one another, visibility initiatives often stumble amid the challenge of providing usable information in a timely manner. Thus, it is critical to obtain a framework for the required data that translates it into one clear and accessible body of information. Once translated from diverse sources into one clear language or model, the data can be analyzed in detail.

Visibility then begins with 'basic analytics' – an understanding of what happened. It provides access to data across the entire supply chain as well as the capability to report on this data. This enables insights into how the supply chain has operated in the past and what actions are required for the present and future.

To be meaningful, the visibility platform must answer the questions of why an organization is in the state it is in, where current trends will take it and what course of action will best move it toward advanced analytics.

Moving from basic to advanced analytics requires data to be classified or organized in a way that contextualizes it and makes it useful at the point in time when operators need to make a decision. The context of the data – where analytics will be used, when it will be used and what decisions it facilitates – cannot be separated from the business process context. Flexible data models and methods to extract and load data are essential to keeping the process nimble.

The key to achieving meaningful results is to create a centralized data hub in which normalization, standardization and storage of disparate data can be performed. Such a model allows the centralized team to quickly develop and modify data models and to correct errors in the source data, without relying on multiple outside parties to put the data into a usable form.

Companies that push data transformation and normalization onto the source systems are exposing themselves to development priorities, IT freeze windows and other issues that go along with maintaining multiple and diverse development systems. By focusing on transportation, transformation and normalization of

data in the data hub and its supporting architecture, visibility, and the ability to adapt to changes and errors is accelerated.

Identifying Opportunities

As noted in the study 'The Journey to Successful Supply Chain Inventory Management Requires a Sequenced Plan' by Paul Lord, [April 2013], "Once visibility is established, successful inventory management is based on the capability to control product supply. This requires clear processes and roles for making replenishment, production and sourcing decisions. Inventory performance is more than a financial metric. It reflects the degree of alignment of supply with demand, and is the complex result of numerous individual decisions made within an organization and across the value chain."

Visibility allows organizations to clearly see and understand precisely how much inventory they have and where it exists. Here's where the disciplines of Six Sigma and Lean Manufacturing can be valuable. It is important to map out the current state and then gather data to build a basic understanding of what makes up the inventory. From there, the organization takes a system-level view of business processes to establish the inputs and outputs that drive or impact inventory.

Doing this reveals how best to segment the data in order to accurately perform an analysis of 'How many? How often? And where?' Then, it is possible to understand the underlying reasons of 'why' and rank to prioritize value-added activities.

Once a baseline of clear and relevant data has been established, further analysis needs to be done. The process of uncovering and further exploration is achieved either by gaining access to more granular data or by collecting new data that is not being systematically generated.

Typically, the centralized inventory team will own the data discovery process and execution. These teams are lean in size and need to understand the levers that influence the result. It is more effective to take the granular data, organize it in a way that is actionable and disseminate it to specific teams that can influence the result. Contextualizing here becomes critical to driving actions and outcomes, while keeping overhead minimal.

Where data doesn't exist systematically to address the causes of excess inventory, tools can be built to support capturing causes and approvals. Ensuring the right level of information allows for behavioural trending that leads to actionable alerts.

Process and Controls

Applying a data-driven, systematic approach, along with a clear understanding of the inputs and outputs, uncovers the critical areas for process change and/or creation, along with necessary controls. In a typical outsourced manufacturing supply chain, teams look first at variations between their customer forecast and the executed forecast. Establishing the right controls over investment inventory is critical.

Ensuring each functional team is aware and responsible for their part in inventory creation is key to any new process – ensuring that the initiative is not simply perceived as a top-down direction that can be ignored.

It is equally critical that each functional team understands how their efforts will affect the company's overall inventory performance. To achieve true success and effective transformation, every initiative must be tied back to operational goals and financial performance metrics.

Optimization

In previous pages, we have discussed how an organization can leverage supply chain visibility, process clarity and defined roles to improve control over inventory. Initially, cost containment and freeing up cash through inventory reduction are the main drivers of inventory-control initiatives.

Once control is established and companies shift focus to optimization initiatives that support growth, they must provide employees with targeted analytical capabilities for each point in time when decisions are made. Optimization for growth means managing diverse elements of the supply chain differently, so as to tailor decision-making to various demand and supply conditions.

Such a differentiated approach can only be successfully implemented with employees that are equipped to make informed decisions.

Some areas to consider include:

- Differences in demand patterns and order management models between partners along the supply chain. This will require a tailored focus on balancing the cost-to-serve, customer service level and inventory reduction targets.
- Driving improved management of A-class parts through the development of applications that optimize levers of minimum order quantity (MOQ), lead time and part value. This will help inventory analysts identify areas for improvement. Critical to this is ensuring a clear linkage to the highest level of the measurement hierarchy.
- Enabling supplier collaboration platforms so that the operations team can manage by exception – focusing on those parts and suppliers that have the highest impact on delivery while seeing the immediate responses to transaction status.
- Investing in multi-echelon inventory optimization (MEIO) to take the guesswork out of buffer management in the planning process. MEIO uses analytical models to define optimal levels of inventory buffers at each node in the supply chain in order to achieve service level targets.

Measuring the Success of a Journey

Measuring progress along the way is critical to understanding whether current efforts are bringing about desired outcomes. This process is endless.

Data turned into information begs more questions. Processes today will be antiquated tomorrow. Success therefore demands widening the scope and reaching upward and downward along the supply chain. Pull in and analyze more data, and continuously restart the process of identifying areas for optimization.

Ultimately an organization's inventory performance will have a significant impact on its competitiveness and growth, as demonstrated in our case study. By enabling visibility, opportunities to improve inventory performance become operationally viable, executable, and measurable. The increased performance has a positive effect on cash flow, which in turn has a significant influence on financial performance.

As businesses evolve, whether entering new industry segments, growing the customer base, growing volume, or dealing with product mix and volatility changes, organizations need to continually reevaluate. It is necessary to establish a new current state and restart the engine.

Success requires identifying root issues, monitoring key levers through data visibility and analytics, holistic data management, and a process-driven approach to drive targets and continuously improve. Leadership and organizational accountability – a commitment to create the vision and stay on course – is critical.



CASE STUDY

This case study provides a real-world example of how the inventory transformation process can be successfully implemented to generate significant benefits for growth. It relates the successful journey of a large high-tech company that was strategically focused on improving inventory performance to dramatically turn its financial and operational performance around.

Burning Platform

At or near the bottom of its industry rankings on key operational and financial metrics, the company launched initiatives to improve profitability and increase asset efficiency. Out of these initiatives, they established a project that focused efforts across the entire organization, transformed the culture of its supply chain management organization and delivered breakthrough operational and financial results.

Looking at inventory-turns performance, which was falling significantly behind its peers, the company set out to become the top-performing organization in its industry for inventory velocity (turns) and ROIC.

The company believed that improving inventory performance would lead to positive contributions to cash performance, EBIAT, ROIC, and customer loyalty.

Transforming the Team

One of the most important steps taken was the appointment of an executive sponsor who championed the needed changes and convince the full executive team that a renewed focus on inventory would result in game-changing benefits.

By focusing on inventory in every management review, all the way to the C-suite, the company set and sustained a change management approach for transformation.

The executive sponsor identified an experienced, process-changing team to drive necessary changes within the organization. The team focused on a comprehensive approach, utilizing an end-to-end review of all decision points (levers) in the management system and process model that caused inventory to come in and out of the organization.

Enabling Visibility

The team looked at everything from sites in the supply chain network to sales and operations (S&OP) and raw materials. The individuals who had accountability and responsibility for each of the levers affecting inventory inputs and outputs along the entire supply chain process were clearly identified.

With a diverse and complex global supply chain network, data was in multiple disparate source systems, sometimes with different operating processes to manage the business at different sites.

Source systems did not handle data in a normalized way. For example, one source system might store part numbers with hyphens, while another might store them with spaces and a suffix. Both numbers refer to the same physical part but, without transformation and normalization capabilities, the system cannot identify them as the same.

Investments were focused on efforts that would yield the most significant results in the least time. Previously, a small supply chain data team had created a data warehouse (DW) to aggregate data from all sites into one system for reporting, as well as to support sourcing and commodity management processes.

The DW team created an extensive set of data normalization and transformation capabilities in the DW architecture to manage disparate data from multiple sites and gain an accurate picture of the supply chain.

This DW architecture formed a solid base upon which to develop the needed visibility platform, and also provided teams with a basic and detailed understanding of the true current state of the supply chain – a baseline performance.

With a baseline in place, the team collected additional, more-detailed data, organized it in a way that was actionable, then disseminated it to the teams that could influence the desired results.

Improving Processes

A crucial step in the process was to create a key, high-level metric that could be used by operational and supply chain teams to assess inventory value compared with demand.

Master production schedule (MPS) Gap is a term used to explain the difference between a customer's forecast – what is loaded into the MPS line in ERP – and what account teams commit to the financial plan in terms of revenue. The two are not always the same. Naturally, when more is loaded into the plan than what is actually shipped to the customer, the result is excess inventory.

The MPS Gap process formally identified and required senior sign-off for any gap between the customer demand profile and what the customer-facing team was committing as company revenue. This was an important early step in turning around inventory performance, since poor demand-forecasting is an important contributor to poor inventory performance. Differences between the two were highlighted to senior management, which required each team to take a closer look at their revenue commitment versus original customer demand.

In some cases, the MPS Gap can generate communication with customers through fact-based discussions about their demand profile and questions about perishable demand, forecast consumption and seasonality. In this way, the MPS Gap recognizes the importance of customer demand performance on inventory performance and can lead to collaborative issue resolution.

The creation of an inventory investment approval process provides another good example. This process tightened the leeway around safety stocks, finished goods inventory and re-order point (ROP) levels.

By controlling the inputs and making the results visible, awareness increased, leading to more conversations among senior management about what was happening at the operations level. As the process tightened, excess inventory decreased because the company was loading less inventory in its supply plan overall and was responding more quickly to changing demand.

Implementing key elements into the company's new financial and operational turnaround plan, led in great measure by the heightened focus on inventory controls and performance improvements, generated a positive cash flow, net cash and returning capital for shareholders.

Optimizing Inventory

Having achieved first-rate operational performance, the company's next priority was to improve customer satisfaction, while continuing to strengthen performance gains in the supply chain network.

What arose from implementing new processes was a super-prioritized focus on gains in a subset of A-class parts. Strategic A-class management and processes were created to manage this at the customer-focused team level, from inventory forecasting to inventory management after parts arrived.

Information was needed more quickly at the individual desktop level in order to make decisions. To achieve this, a data-driven hierarchy was developed to translate financial inventory turns into raw material, classified by lead time, MOQ and part value to empower operational supply chain teams to better optimize the levers and see the impact at the highest level of the measurement hierarchy.

An interactive tool enabled the user to link the top-level team and overall financial performance to item-level parameters. By being able to drill down into each ABC class, MOQ category and lead-time ring, each inventory analyst was able

to identify further areas of opportunity. Parameters were investigated and updated, vendor negotiation on MOQs and shipment allowances were prioritized, and supplier-managed inventory programs were improved. Through the creation of a supplier collaboration platform, the ability to perform key business transactions with suppliers using business-to-business electronic data transfer or web-based transactions was enabled. Capabilities cover purchase orders, change orders, inventory updates, expedite signals, shipment status, forecast signals and many more.

Previously, all transactions went largely via email and teams had to chase suppliers for responses to transactions. They could not get a clear comprehensive view of which suppliers were, or were not, complying with the plan. It was a time-consuming process that wasted valuable resources and effort.

Today, the system operates with more than 70 per cent of its 200,000 active parts, allowing buyers to view the dashboard for an immediate and precise picture of suppliers not complying with a committed plan in terms of part quantities or delivery dates.

As business evolves toward new industry segments, a bigger customer base and product mix and better volatility, the team needs to continue to do further analysis. Success requires identifying root issues, monitoring key levers through data visibility and analytics, holistic data management and a process-driven approach to drive targets and continuously improve. Leadership and organizational accountability is critical – with a commitment to create the vision and stay on course to realize transformational change through inventory performance.

The company's inventory performance has gone from a lagging position to a leading position among its peers. This truly was a game-changing transformation that drove proven results:

- More than 90 per cent of customers ranked the company as number one or number two in scorecard performance;
- The company ranked number one or number two in inventory-turns performance within its industry for 20 straight quarters;
- The company was an industry leader in ROIC performance for 20 straight quarters; and
- The company has been recognized formally for its IT and Supply Chain Management leadership.



ABOUT THE AUTHORS

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As a senior manager for Advanced Customer Solutions, Anandhi is responsible for the development of our analytics-based solutions to serve our supply chain services. In this role she defines the product requirements alongside our business experts and data scientists, with the objective of directing and defining the roadmap for product development. In her 12 years at Celestica, Anandhi has led and designed solutions for corporate and customer management systems, and performed point analytics to solve specific business challenges in inventory, returns prevention and market trends. Anandhi holds a Bachelor and a Master of Applied Sciences from the University of Toronto.

Charles Thomas
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Charles has 18 years of supply chain, manufacturing and IT experience focused on the use of technology to transform business operations. Since he began his career at Celestica, Charles has played a role in key initiatives including mergers and acquisitions and global process transformation projects, and was the IT customer solutions lead for a number of Celestica's largest customers. Charles is the co-creator of the Supply Chain Collaboration Center, which underpins Celestica's supply chain services offering. Charles holds a Bachelor of Arts in Political Science from McGill University.

Stacey Greene
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As Director of Inventory Optimization, Stacey ensures that Celestica's customers integrate inventory optimization into their sales and operational planning processes by utilizing Celestica's team of practitioners and toolsets. Stacey has been a part of and has led teams working on inventory management in materials resource planning (MRP), load-and-chase, Kanban and re-order point (ROP) environments. In her 16 years with Celestica, she has been part of several teams, including Supply Chain Services, Operations, Engineering and Business Office. Stacey holds a Bachelor of Business Administration (Honours) from the Richard Ivey School of Business.

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Acting as a consultant to our customers, Robert provides valuable guidance on inventory optimization, utilizing industry-leading tools to facilitate the resolution of complex business problems. Robert has been with Celestica for 16 years, taking on a variety of roles in operations, logistics and supply chain before fulfilling his current role in Supply Chain Services as process and applications advisor. Robert holds an Electronics Technician diploma from Centennial College.

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