Many critical business deliberations during 2013 will have an inventory orientation. Whether for planning a strategic initiative or introducing a tactical innovation, the objective will be to assure that the proper product will be available in the right amount at the desired location to satisfy anticipated and real market conditions.

For example, John M. Hill, director, St. Onge Company, Watsonville, Calif., observes, “Leading companies are focusing on maintaining inventories at the levels necessary to meet customer demands and fine-tuning solutions that help reduce associated facility, process and labor costs. Companies also need to work on obtaining real-time updates on inventory status at each node in their supply chains to enable quicker responses to changes in demand through adjustment of production schedules and stock redeployment.”

To which Edward H. Frazelle, president and CEO, Logistics Resources International, Atlanta, Ga., adds, “The most advanced supply chain organizations work to determine and maintain the inventory levels that help minimize total supply chain costs, including the cost of materials, production, warehousing, transportation, inventory carrying, and lost sales. The key is to identify the inventory levels that are best for the business and supply chain in total. Inventory is not an end; it is a means to an end.”

The global economy is also a major factor, according to Bill McBeath, chief research officer, ChainLink Research, Newton, Mass. “We are still in a period of prolonged uncertainty internationally, which we expect to continue beyond 2013,” he explains, “The risk of underestimating growth may be as big, if not bigger, than the risk of overestimating growth, as we’re already starting to see signs of capacity constraints in some sectors. So, inventory policies need to take into account this uncertainty.”

Technology and tools for decision support

Inventory accuracy and operating efficiency are at the heart of ensuring that logistics is a core competency. “The basis of inventory control is to maximize efficiency and accuracy when handling, storing and shipping inventory, and these goals have not changed over the years,” states Marc Wultraat, president, MWPVL International
Inc., Montreal West, Quebec, Canada. “What has changed is that we now have available more choices of tools and technologies at lower investment costs to support these goals.”

In organizations with larger investment budgets, there is a “strong trend towards automation and/or semi-automation” for full-case and split-case material handling which removes much of the human handling of inventory, he explains. For less automated environments, the use of RF/barcode scanning, pick-to-light and voice-directed picking are the three main tools being used for AutoID and real time inventory control.

“In fact, these technologies are converging because suppliers want to offer the advantages of each technology combined into a single integrated solution,” according to Wulfraat. “Looking ahead, companies that already have developed core competencies in supply chain execution are now trying to move from having fragmented supply chain applications to having an integrated supply chain execution platform with improved visibility across all platforms.”

“Having end-to-end visibility can help tremendously in better managing inventory,” maintains McBeath. As an example he cites extending WMS systems to track a PO from the placement of the order, through inbound and outbound shipment, and through the store shelf to the POS. He recognized the “improvements in forecasting accuracy, using demand signal repositories and improved algorithms, which translate directly into lower inventory levels or higher service levels.” Also he cites the “increasing adoption of inventory optimization with great results, especially for multi-echelon stocking and distribution scenarios.”

**Waste or need?**

Frazelle takes exception with the Lean community which categorizes inventory as “waste” and argues that most companies have too much inventory. “We are finding that most companies don’t really know the inventory levels that will maximize their financial, service and operational performance,” he explains. “There is so much pressure from the Lean community to reduce inventory without an analytical understanding of the impact of various inventory levels on the combination of financial, service and operational performance that over-Leaning the inventory can be an easy trap to fall into.”

To determine the inventory level for each SKU that optimizes the combination of financial, service and operational performance, Frazelle and his team developed the RightStock model, which employs optimization as its basis for decision support. He shares, “The RightStock model uses a menu of objective functions for inventory decision optimization that are all forms of maximizing or minimizing an aspect of financial performance, and includes the impact of inventory and fill rate on revenue, expense and capital.”

In his new book, *Inventory Strategy: Maximizing Financial, Service and Operations Performance with Inventory Strategy*, Frazelle summarizes the inventory position: “Depending on many factors and interdependencies...Sometimes less inventory is needed; sometimes more. Sometimes the answer is the same inventory, invested differently. Sometimes the answer is different inventory. Sometimes the answer is the same inventory re-located.”

**Recognizing technology challenges**

“Intelligent use of Network and Inventory Optimization and Demand Sensing and Planning tools coupled with order, warehouse, workforce and transportation management systems distinguish world-class supply chain IT organizations,” maintains Hill. However, he cautions, “Launching an initiative without taking a hard look at physical infrastructure and processes will almost certainly produce suboptimal deployments.”

Prospective users must first examine the efficiencies that might be realized with space, layout and equipment modifications. “Minor changes to material flow, receiving, storage and picking procedures will surely yield benefits before systems are introduced,” explains Hill.

“There always will be challenges and risks associated with technology deployment and integration, particularly when older, fragmented legacy systems are anchored in place to manage the business,” states Wulfraat. There are companies that face these risks because few people exist in the firm who actually understand the software code that exists in the legacy application.

“This makes integration to external applications continued on page 8
excruiatingly difficult because the legacy application must delegate responsibility for inventory to an external application,” he explains. Regardless of whether logistics applications are deployed in the Cloud or on a local server, systems integration remains the foremost challenge for most firms.

Wulfraat cautions that when it comes to implementing a logistics software application, “companies must realize that two-thirds of the implementation work will fall onto their shoulders.” Software companies are not responsible for the thousands of detailed tasks that should be executed prior to and after go-live.

“To mitigate risk, traditional internal implementation resources are increasingly being augmented with external professional resources that are specialized in the application being deployed,” he explains. “To this end, there has been an evolution of a cottage industry of system implementation firms specialized in specific logistics software applications.”

Oldies, but goodies of inventory management practices

Often there is merit in considering—and adapting—the mature, the existing, the proven practices that can still yield improved inventory performance rather than focusing on the new, the radical, the different practices, techniques and technologies.

“The concept of Collaborative Planning, Forecasting and Replenishment (CPFR) has been around since 1995 and, indeed, long before that without the acronym,” according to Hill. “It makes so much sense, but, as dependent as it is upon trading partner openness and trust, it has not gained the traction it deserves.”

However, he predicts renewed interest and support during 2013 “as an increasing number of companies come to grips with CPFR risk-mitigation in return for the significant benefits it can provide.”

According to Wulfraat, “Once the main elements of inventory control are in place, the emphasis shifts to how can we do it better?” In effect, companies begin to look at ways to take out dead stock that may be consuming important storage capacity or perhaps shifting this stock to an offsite location.

Similarly, he mentions there are ways to increase order picking efficiency by improving how pick locations and storage media are assigned to inventoried SKUs. “This is a science and art referred to as slotting that begins to become a focal point once the basics are in place,” Wulfraat explains.

A traditional supply chain methodology—postponement, or differencedifferentiation—can be used to create more effective inventory management, McBeath offers. One form of this is build-to-order of a configurable product. “Many different SKUs share pools of common components, which are not assembled until you have a firm order for a specific SKU in hand,” he explains.

“It is much easier to forecast aggregate demand across all of those SKUs,” he states. “By pooling common components, a manufacturer can hold less inventory (while achieving higher service levels) than if they built out each unique configuration ahead of time, before receiving orders.” However, this must be designed into the product, with the supply chain group brainstorming potential approaches with the engineering group.

“In this case, the product’s design characteristics are being specified with the explicit goal to support more effective inventory management,” according to McBeath.

SIDEBAR

INVENTORY MANAGEMENT 2013
CONTROL PRIORITIES
To ensure that inventory management/control becomes a major contributor to improved company performance this year, Marc Wulfraat, president, MWPVL International Inc., Montreal West, Quebec, Canada recommends the following:

- Establish a logistics operating environment that enables real-time inventory tracking of every SKU/quantity at the bin location level.
- Develop processes that ensure accurate item/quantity validation as part of the picking/shipping process to ensure errors are captured before shipment.
- Develop material handling and operational processes to maximize the efficiency of how inventory is stored, handled and shipped through techniques such as slotting, measurement systems, labor standards, and so forth.
- Seek to move to an integrated supply chain platform that provides visibility of all inventory information across the global distribution network, including incoming supply chain pipelines.
Data cleansing and data management is another traditional but ever important discipline. Some companies are seeing value in outsourcing this type of work to a managed service provider. McBeath shares, “A third party that does nothing but cleanse and manage data may be able to do it more efficiently, economically, thoroughly and reliably than your own team.” The result is higher quality of systems and better results from optimization engines.

Frazelle suggests that “many current global sourcing initiatives are recommending sources closer to home, which could impact the allocation of inventory between in-transit and in-house.”

Reducing lead time and dwell times helps to reduce inventory levels, and create a more nimble organization. As an example, McBeath notes, “Moving production from the far east to on shore can shave two weeks or more off lead times and make it easier to respond to changing demand.”

**Resolving conflicting inventory objectives**

Every inventory decision impacts financial, service and operational performance as Frazelle notes. “Decisions made in customer service, inventory management, manufacturing, sourcing, transportation and warehousing all work interdependently to impact inventory levels,” he explains. “Very few individuals understand those interdependencies, yet these different views need to be reconciled.”

McBeath recommends taking a holistic approach to managing inventory. “In most companies, there is a tug-of-war between the different forces and functions and third parties that have a role in decisions and execution regarding what inventory to carry where,” he explains. “Each has a different perspective. There is no right or wrong answer, but all of these competing objectives need to be synthesized into an optimal holistic approach.”

Each organization has a set of strategic goals. “Ideally the whole organization, including inventory management, is aligned to meet those goals,” says McBeath. However, many parties influence a company’s inventory strategy and the metrics and compensation incentives for those various parties are not always aligned to the strategic goals.

“Those metrics and incentives should be reviewed on a regular basis to understand the underlying causes that create behaviors that may be counter-productive to achieving those goals,” advises McBeath.

Successful companies are constantly reassessing yesterday’s policies and decisions to determine whether they still make sense today. This includes everything from replenishment algorithms to competitive dynamics to changing product characteristics, he offers.

According to McBeath, successful companies are able to bring together all of the intelligence across the organization to make smarter decisions. They align individual metrics to the strategic goals. They have flexible supplier arrangements to more successfully accommodate both downside and upside demand scenarios. They have end-to-end visibility into their inventory across the chain. They incorporate risk management into their inventory strategy. “In short,” he declares, “successful companies take a holistic approach to more successfully manage their inventory.”

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All of us at WERC wish you a happy and prosperous 2013

We look forward to continuing to be your source for logistics news, information and education.