



SANMINA®

REDUCING INVENTORY & SUPPLY CHAIN COSTS

PROACTIVE COLLABORATION WITH YOUR
MANUFACTURING PARTNER REDUCES
INVENTORIES AND SUPPLY COSTS.

In theory, Enterprise Resource Planning (ERP) and manufacturing planning work perfectly. Demand is calculated and materials arrive just in time for manufacturing start dates. If this were true in practice, inventory would simply be a function of manufacturing lead-times and lot-sizes. But in reality, demand planning and inventory management are complicated by a variety of factors, both within your operations and at your contract manufacturer (CM).

Fortunately, some of these issues are within our grasp to fix, especially with a proactive and collaborative approach. The following five steps can help Original Equipment Manufacturers (OEMs) and their manufacturing partners drive down inventory levels and reduce excess and obsolete components.

1 Include Factors Outside the “Normal” Forecast

Standard forecasting techniques such as the moving average, exponential smoothing and linear extrapolation do a reasonable job of predicting demand. Even after including characteristics such as seasonality, new product introductions and products turning end of life, forecasts are still far from taking all relevant factors into consideration. Rather, having a clear understanding of attributes impacting forecasts can result in a much more successful demand plan.

Consider Uncommon Factors Across the Entire Organization

In addition to considering trend data and seasonal issues, ask yourself: Are there any unusual factors affecting the forecast? These may include a sales incentive plan for a product line unknown to the forecasting group, a field service organization shifting stocks at global hubs or major engineering changes to products.

Cross Functional Review and Approval Must Involve Senior Managers

When reviewing the final demand forecasts submitted to your manufacturing organizations and your manufacturing partners, ensure there is an effective business process in place. This should be cross functional and include experts from sales, engineering and the field service. Senior managers with experience in analyzing both expected and uncommon forecasting factors should be involved in the final review.

“There are ways to profile your product forecasts to find the right balance between aggressive forecasting, buffer strategies and customer lead-times.”



2 Narrow Your Forecast

Whether you are manufacturing internally or building through a manufacturing partner, your forecast sets the stage for the supply pipeline. But forecasting dozens of products, each with multiple variants, reduces the chances of producing an accurate projection. Instead, focus on the product family, which you can control more effectively. This may mean buffering or forecasting the unique components of the different variants within that family.

Give Higher-Priority Products More Demand Time

Usually, a company has some idea of demand patterns, which are reflected in the forecast. When there is early evidence that demand will not meet expectations, companies mistakenly leave all demand in the forecast “just in case”. This demand eventually emerges as a past-due forecast and continues to create excess and potentially obsolete components.

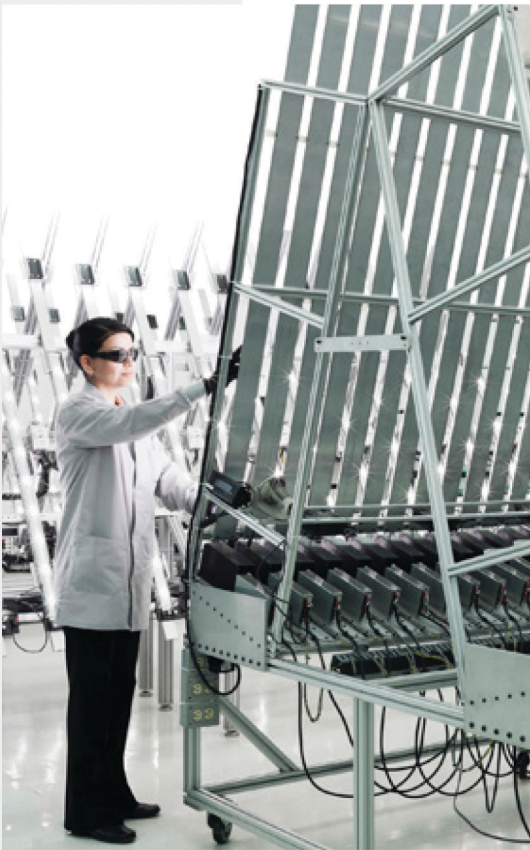
Once again, the answer involves segmenting your products. Higher priority and newer products likely deserve more of a raw material buffer and demand will likely catch up to forecast. Shorten forecasts for less important products when demand does not meet expectations.

Do Not Take a Shotgun Approach to Forecasting

Since companies are often unsure which products they are going to sell, they tend to over-forecast everything hoping that all of these products will ultimately ship to customers. While you may want to aggressively plan for a few key products in tough competitive environments, generously forecasting across the board runs the risk of excess inventory. There are ways to profile your products to find the right balance between aggressive forecasting, buffer strategies and customer lead-times, especially when products share custom (non cancellable and non returnable) components.



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3 Reduce Mismatched Sets

A mismatched set occurs when you or your manufacturing partner has most of the components to build a product, but inventory is still waiting for one or two missing parts. While supply and quality problems often create mismatched sets, the main issue is determining how to obtain additional parts inside lead-time when demand rises.

Determine the Lead-Time Profile

By consistently dropping new demand inside the extended lead-time of the product, you increase the chances of generating mismatched sets. To avoid this, first determine the lead-time profile, which is the combination of transformation times, lead-time offsets and component lead-times. Then clarify where it is reasonable to add new demand without creating undue risk.

Change Prior Decisions to Load Demand Inside Lead-Time

When this new demand is loaded, it will cause shortages and pull-ins at your manufacturing partner.

Their manufacturing partner's supply chain organization will be working diligently to close all of the gaps. How do you know when to pull the plug on a high-risk situation? At some point, if the parts are unlikely to come, it is better to move demand to where it is expected to be successful. By waiting too long, you increase inventory risk and make false commitments to your customers.

Assume Additional Inventory Rise For High-Priority Products

You are likely to avoid mismatched sets and successfully manage a fixed pool of resources if you prioritize. Decide which products you are willing to allow demand inside of lead-time. Manage products that do not make the cut, so new demand is rarely added inside of lead-time. The only exception to this rule is when you are certain you have a reasonable chance of receiving all of the parts.

“Decide which products you are willing to allow demand inside of lead-time. Then work with your manufacturer to apply procurement resources for the highest priority products.”

4 Manage Engineering Changes Quickly

In manufacturing, engineering changes are a fact of life. You can better manage these changes by communicating more proactively in your organization and adjusting certain ordering programs to avoid creating excess and obsolete inventory.

Communicate Early to Your Manufacturing Partner

Usually weeks or months before documenting a formal engineering change, someone at the OEM knows which parts (often in the engineering organization) are under review and may potentially change. Giving your manufacturing partner advanced notice allows supply chain personnel to prepare for and avoid unnecessary inventory costs. For example, staff may need to remove parts from auto-replenish programs, reduce buffers, monitor lot sizes more closely or modify contracts.

Use Better Tools to Assess Engineering Changes

Improved tools allow you to make valuable trade-offs when setting effective dates for engineering changes. At times, you may need to address serious quality or safety issues immediately. But for the most part, changes in engineering allow you to make improvements at a later date. When deciding, make sure you have all of the information about the changing materials. Ask yourself: When will new materials be available? What old parts are available on-hand and on-order? What options exist for reworking or reusing old materials? What is the impact on lot sizes if we need to buy a few more old parts? With these answers, you can establish the date with the lowest inventory impact.

Monitor the Effective Dates

Even if you did a great job setting the initial effective date to minimize inventory impact, engineering changes can alter your inputs. For example, changes may increase the planned delivery of one of the new parts by several weeks. An unaltered effective date creates mismatched sets of the new parts and an insufficient number of the old parts. Supervising key inputs allows you and your manufacturing partner to adjust to changing conditions and react accordingly.



“Giving your manufacturing partner advanced notice of engineering changes allows supply chain personnel to prepare and avoid unnecessary inventory costs.”



5 Manage Buffers Efficiently

Companies who outsource manufacturing usually ask their manufacturing partners to set up buffers to address supply challenges, but they often lead to unwanted inventory. These buffers may be for components (VMI, SMI, RTF programs) or a finished product. Buffers literally buy flexibility. They are usually set up when business is going well and people want to avoid missing product shipments. While OEMs establish buffers for good reasons, they do not continually manage them as the business changes. It is not until the market has turned or a product becomes end-of-life when companies realize a surplus of inventory exists. To prevent excess inventory and coordinated protection for a product, frequently monitor and manage your buffers.

To Create a Robust Flexibility Plan, Start with the Product Needs

A novel product entering an important market with lots of competition needs greater flexibility than an older product serving a limited market with few alternatives. Once you determine the product needs, organize buffers so the forecast, production plan, and purchasing practices are aligned and allow complete coverage.

Buffers Need to Be Changed When the Product Demand Profile Changes

A buffer solution established when a product is launched often needs to be adjusted at various stages of the product life cycle: as product demand grows, becomes more stable and when it nears end of life. Monitor the situation. Alter your buffers if the market shifts, the product matures or lead-times change. You will also need to make changes in your supply chain. Always look

“Companies usually have programs to add buffer inventory or safety stock...But buffers are often established without considering a good exit strategy.”

for opportunities to make your supply chain more flexible so you need fewer buffers. While this sounds simplistic, inventory management programs such as minimum and maximum buffer levels and SMI/RTF, are often not reassessed quickly enough to accommodate changes in the finished product's demand profile.

Summary

Companies can minimize inventory and better manage many of the factors leading to inventory risk if they work collaboratively with their internal manufacturing organizations and manufacturing partners. Effective demand planning can also reduce inventory risks, excess and obsolete inventories.

- Include uncommon and organization-wide factors in your forecast to develop a successful demand plan
- Take a strategic and focused approach when forecasting to reduce the risk of unwanted inventory
- Prioritize products and decide the lead time profile while accommodating any changes to reduce the risk of mismatched sets
- Proactive communication, improved tools and close monitoring can help you successfully address inevitable engineering changes
- Managing buffers successfully requires targeting a product's needs and adjusting as the demand profile changes

Better forecasting processes and robust business processes not only lower inventory risk, but allow you to meet your shipment goals and deliver better results.

About Sanmina

Sanmina Corporation makes some of the most complex and innovative optical, electronic and mechanical products in the world. As a leading integrated manufacturing services company, with revenue totaling USD \$6.2 billion for fiscal year 2014, Sanmina provides custom design and manufacturing, plus global supply chain solutions to high technology Original Equipment Manufacturers (OEMs).

Sanmina maintains a network of highly sophisticated design, quickturn, New Product Introduction (NPI) facilities and repair centers, in addition to an impressive global network of manufacturing operations in 23 countries on six continents. Each day, in every region of the world, 24/7, Sanmina designs, manufactures, ships and repairs complex, mission-critical products. For the past 30 years, customers have come to expect quality, delivery, reliability and service from Sanmina. Together we build productive relationships based on exceptional customer satisfaction. What we make, makes a difference.





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