



Eight Ways Manufacturers Can Cut Costs

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Introduction

This white paper describes how manufacturers can use technology to cut costs and, at the same time, improve customer satisfaction. It is focused on the needs of mid-sized companies whose primary customers are large Tier 1 manufacturers and distributors or big-box retailers.

This paper details eight ways that the use of a materials tracking system can cut costs:

1. Eliminate Expediting
2. Improve Inventory Management
3. Improve Supply Chain Management
4. Eliminate Time Wasted in Receiving
5. Cut the Cost of Quality Assurance
6. Improve Picking, Packing and Shipping
7. Save Time in Handling Returns
8. Cut Management Time Spent in Problem Detection

Ways of Cutting Costs

1. *Eliminate Expediting*

Much time can be wasted chasing orders in response to customer requests for the status of their orders. This is typically because orders are being shipped late or the customer suspects that they may be shipped late.

Lean supply chains now contain very little buffer stock and any delay anywhere in the chain can have major consequences further up the chain. So it is critical that manufacturers not only get their products out on time but also provide the visibility to their upstream customers of where their orders are.

The way to cut costs and to improve customer satisfaction is to monitor the flow of customer orders through production. Then make this information available to:

1. Production supervisors and managers, so they can make sure that the products are getting out on time.
2. Customer support people, so they can immediately respond to customer requests for the status of their orders without having to call production and have an expeditor wander around the floor looking for customer orders.
3. Supply chain managers of your customers, so they can see the status of their orders directly through web-portals without calling up in the first place.

By making appropriate order status information directly available to the customer, we can eliminate labor wasted in expediting and also reduce the labor needed for customer support.

2. *Improve Inventory Management*

1. Eliminate the time wasted wandering around the warehouse looking for materials that are supposed to be in stock. By using a real-time inventory-tracking system material-handlers can see immediately see where all the inventory is located so they can quickly pick required materials for jobs or customers.
2. Eliminate stock-outs due to inaccurate inventory counts, which result in the inability to make or ship customer orders. This is typically caused by delayed entry of inventory changes from paper forms and also due to back-flushing inventory based on products made rather than accurately tracking inventory as it is used.
3. Minimize over-stock by using pull-based or KanBan techniques to replenish just the needed inventory for customer orders.
4. Use dynamic binning to efficiently use the available warehouse space rather than using a fixed allocation system, which wastes space on infrequently stored materials and often has frequently stored material overflowing their allocated space.
5. Provide materials manager with real-time view of inventory, with alerts whenever inventory issues arise. The time savings can often enable this role to be combined with that of the supply chain manager or production manager.

3. *Improve Supply Chain Management*

1. Use vendor managed inventory or extend KanBan replenishment to vendors and have them automatically deliver inventory to replenish your KanBan bins when barcoded KanBan cards are scanned. This avoids the need for issuing individual purchase orders.
2. Use automated materials requirement planning system to generate purchase orders for raw materials that need to be purchased for custom manufactured batches of products. This avoids much clerical work.
3. Track arrival of materials at receiving dock and automatically alert supply chain manager when materials don't arrive on time. This saves time wasted in tracking deliveries.
4. Have suppliers send advanced shipment notices so that materials can be tracked from when they are shipped to when they arrive. This can be used to alert a supply chain

manager that materials were shipped late or when a shipment failed to be delivered by the carrier on time. This saves time for the supply chain manager and can eliminate the cost of production disruptions due to needed material not being available.

5. Automatically track supplier delivery performance. This can save time wasted due to working with an unreliable supplier. It can also save disruptions in production due to not allowing adequate time for delivery of goods from a specific vendor, even if they were shipped on time.

4. Eliminate Time Wasted in Receiving

Eliminate time taken to record material received by having vendors:

1. Ship each different material and lot number in a separate container, with a unique tracking barcode applied to each container.
2. Send information as to part number, lot number, quantity, and expiration date for each container electronically.
3. Put a unique tracking barcode on each pallet or shipping container. Then electronically send which containers are on which pallet or in each shipping container.

Then, when each pallet or shipping container arrives, all that is needed is to scan each pallet or shipping container barcode to record all the material as having been received. This data is typically maintained in a tracking system and then exported to an ERP or accounting system after receipt and possibly QC acceptance.

This can save a large amount of time and substantially reduce the headcount in receiving.

5. Cut the Cost of Quality Assurance

We often see the case where a qualified supplier tests a component or raw material as part of their production process and then the receiving company repeats the same test. We also see the case where the receiving company implicitly trusts the supplier and has no inspection at all on the incoming parts. Both of which are inefficient.

The first step in saving costs is to have the supplier share the results of their testing with their customers. This is typically shared in the form of a certificate of analysis or compliance. In many cases this is provided in the form of a paper copy, which takes labor to file away and to track.

It is much better to have the supplier upload their certificates electronically and to associate these with the tracking barcodes placed on serialized units or containers of parts. In this way, the test data can be reviewed by the manufacturer's quality control personnel without needing to repeat the tests already done on raw material.

The question then arises, "How do I monitor my supplier's QC testing?" One way to do this is to perform statistical inspection of the incoming material.

This saves time in that tests still have to be performed on the received materials; but this is far less testing than is needed for 100% inspection. By using an automated materials-tracking system, all materials in a defective batch can automatically be flagged as needing inspection, if

any of the samples fails inspection. The tracking system can also prevent any container in that lot from being used or shipped until it has passed inspection.

6. Improve Picking, Packing and Shipping

Unlike most retail warehouses, most of the time required in industrial warehouses is not expended on picking. Instead it is expended in:

1. Finding the material to be shipped. The material may still be on the production floor or may have been temporarily stored on a rack in a warehouse. Here a good tracking system will enable material handlers to quickly locate all the material to be shipped without wandering around the warehouse looking for the material.
2. Labeling shipping cartons in customer specific format. Customers often want the shipping cartons and inner packaging to have specific barcodes and human readable information. These labels can be automatically generated by a tracking system in the correct format for the specific customer. This saves the labor and mistakes in “fat-fingering” shipping information into a label generation program.
3. Making sure that the correct materials get picked for a customer order. Here a tracking system can validate that the correct parts are being picked using barcode scanning methods. It can also be used to track the picking in real-time thereby saving significant supervisory time.
4. Generating packing slips for each container and for the whole shipment. Again this can be done automatically as part of the picking and packing process. It can also be done in customer specific formats.
5. Generating advance shipment notice (ASN) data about the shipment, how it is packed and what tracking barcodes were placed on each layer of the shipment containers. This can then be automatically generated by a tracking system and sent over the Internet, by EDI, or using an Excel spreadsheet as an Email attachment. This automation can save a huge amount of time in preparing data about a shipment.
6. Ensuring that the correct materials get loaded on the right truck/trailer. This can require time consuming double-checking or an even larger amount of time if a shipment goes to the wrong destination. Automated barcode or RFID tracking systems can warn material handlers if they attempt to load the materials on the wrong trailer.
7. Generating a Bill of Lading (BOL) for what actually was loaded on the truck/trailer. This BOL may include weight-in and weight-out as well as a detailed manifest for the materials loaded, the specifics of which may only be known at truck loading time.

7. Save Time in Handling Returns

In an industrial setting, tracking returned material can be a time consuming process as it is not just simply a matter of issuing a credit and returning the material to stock. Often the returned material has to be routed to the Quality Control laboratory for inspection and then someone has to make a determination as to whether the return was legitimate under the contract with the customer. Then a disposition has to be made of the material before a credit is issued to the

customer. All of this can be very time consuming unless a material tracking system is used to track the status of the returned material.

8. Cut Management Time Spent in Problem Detection

Many managers and supervisors spend a lot of time reading through computer generated reports to attempt to spot problems, such as a customer order running late, so they can fix the problems before they have major consequences.

Much of this time can be eliminated by inserting “Intelligent Agents” into the material tracking system that can use rules and algorithms to examine the monitoring data and to detect when problems occur. Then these Intelligent Agents can send Email messages or text messages to smart phones to immediately alert managers and supervisors when the problem has been spotted.

This not only saves substantial amounts of management time but also enables problems to be fixed as soon as they occur instead of waiting until a manager has time to examine computer generated reports. Here the old saying “A stitch in time saves nine” is especially applicable.

Conclusion

Many of the suggestions shown above can result in cost savings due to reductions in unnecessary labor. They can also improve customer satisfaction and result in increased sales. Most of these suggestions depend on implementing a real-time materials tracking system, such as BellHawk www.BellHawk.com, augmented by a real-time AI based alerting system, such as MilramX www.MilramX.com, in order to achieve these cost savings and improvements in customer satisfaction.

Author

This paper was written by Dr. Peter Green, who currently serves as the Technical Director of KnarrTek Inc. and Milramco LLC. Dr Green obtained his BSEE and Ph.D. Degrees from Leeds University in England. Subsequently Dr. Green was a senior member of technical staff at MIT and a Professor of computer engineering at WPI. Dr Green is an expert in materials tracking within the industrial, medical, and construction supply chains. He is also an expert in using real-time Artificial Intelligence to assist managers with operational decision-making in industrial organizations.

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