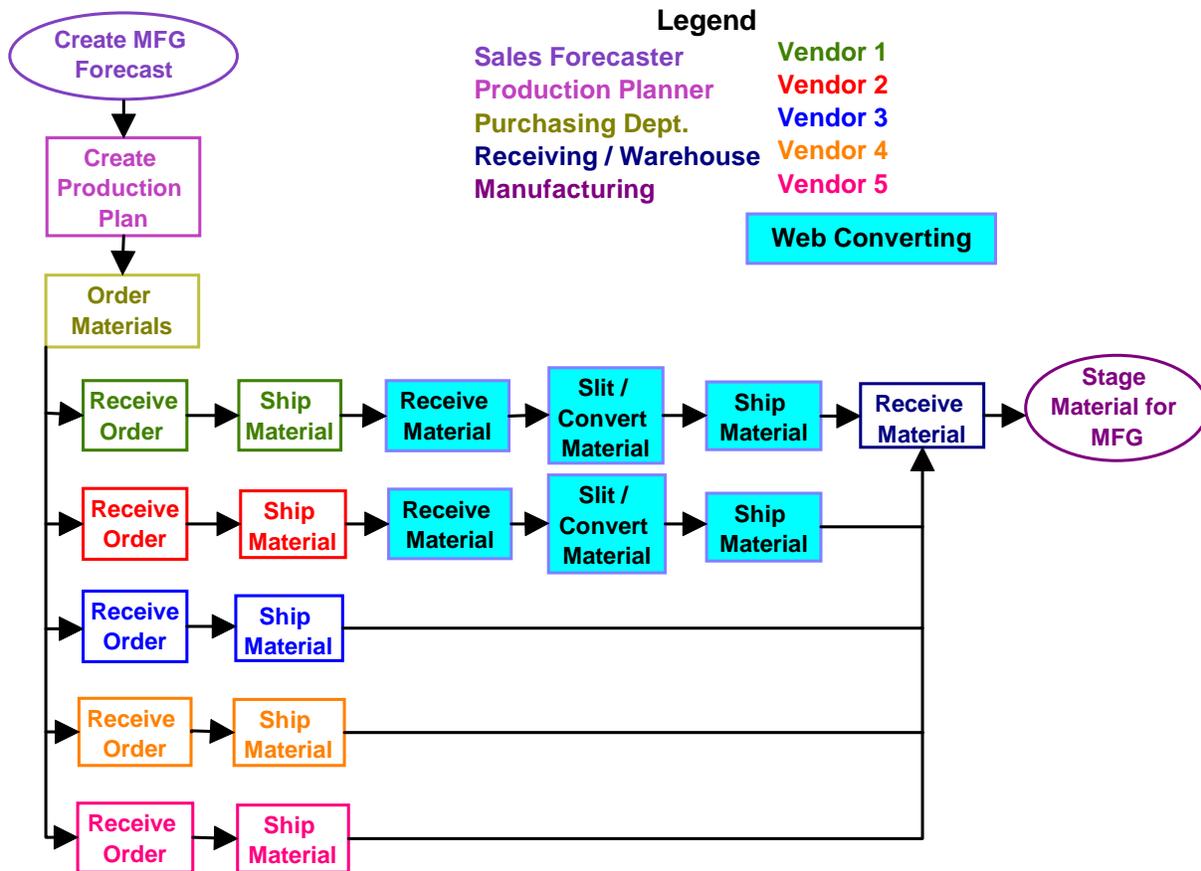


# Supply Process Reduced from 21 Major Steps to 6 Major Steps

## Closing the Inventory “Black Hole”

by Tom Ingram, PMP

### BEFORE



Imagine that you are a harried purchasing manager for a medical products manufacturer. Your primary product, a disposable surgical facemask, requires raw materials from five different sources. You must oversee the ordering, pricing, lead times, delivery, inspection, quality and payment approval for all five sources.

You are currently doing the work that used to require three people. You also know that inventory tends to vanish into a “black hole” and the likelihood of inventory losses increases with each hand-off. Perhaps worst of all, you have a nagging sense that the coordination of all of these supplier activities is not the best use of your

time. There are other areas where your professional purchasing skills could yield much higher benefits for the company, but you are saddled with “babysitting” and “firefighting” in this fairly low-value area.

What would you do? How would you approach the problem? Following is how Mask Manufacturing (not the company’s real name) and Web Converting partnered to address these problems and produce some excellent results. The effort involved the operations, purchasing, planning, logistics, engineering and quality assurance departments of Mask Mfg.

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**Bob Williams, Operations Manager**

In addition, Bob Williams (not his real name), operations manager, provides some insight from his experiences on the project.

One interesting result was that the process that the Mask Mfg. purchasing department was responsible for was reduced from 21 steps to just 6 steps. Purchasing labor was saved, the risk of supply was reduced, inventory shrinkage was reduced and a predictable raw material cost was achieved. Most importantly, executive management and the purchasing department were able to redirect time and attention to much higher value activities. This case study is intended to describe the solution and some of the steps along the way.

**Problem:** As described above, this type of manufacturing requires the coordination of a large number of suppliers providing a high volume of relatively inexpensive materials. The manufacturing lines run

continuously, so raw goods must always arrive in time to keep production going. Inventory space, however, is at a premium, so a supplier shipping too much material, or shipping too early also creates problems. The materials need to arrive “Just In Time” – but not all suppliers are good at JIT.

In addition, some of the materials need to be “converted” from their original large width, big rolls to much smaller widths. This process, often called “slitting” or “converting”, might reduce a raw material from 24-inch width to ½ inch width. Since this is one more step in the manufacturing process, with little room for error, the oversight burden of the purchasing department becomes very large. The accompanying “BEFORE” diagram shows a view of the major steps necessary for the process before the raw materials operation was outsourced to Web Converting. Not shown are all the minor steps such as P.O. verification, inspection, reporting, payment approval, expediting, etc.

**Maintaining Cost Advantages As Market Matures**

**Solution:** Review the accompanying “BEFORE” and “AFTER” diagrams. Notice how many hand-offs exist in the BEFORE diagram. As a supplier of slitting/converting services to Mask Mfg., Web Converting understood the problems that Mask faced. One of Web’s core capabilities was in the coordination of multiple suppliers for Just In Time delivery. Web Converting also had substantial experience in controlling waste, improving yield and taking responsibility for providing the right goods at the right time for a fixed price.

Working closely with Mask Mfg., Web Converting designed a “turnkey” solution to allow Mask to outsource a large portion of the supply operation for facemasks. The

solution included Web Converting taking responsibility for the following steps:

1. Acquire raw materials
2. Inventory raw materials
3. Slitting/converting of raw materials into appropriate widths
4. Stage the slitted/converted finished goods
5. Ship finished goods “Just In Time” to keep production lines running, but not too early. (If materials are shipped too early, inventory space

overflows and creates logistics problems.)

6. Provide reports on receiving, yield, traceability, etc.
7. (Coming in a future phase) Connect to Mask Mfg's computer system to take additional steps out of the process and reduce planner/buyer labor costs even further.

The end result is that Web Converting takes responsibility for conducting all the steps shown in the “AFTER” process for a fixed cost per finished unit.

**AFTER**



**Reporting:** Finding someone to take your money as an “outsourcer” is easy. Doing so effectively, and remaining in control of quality and costs is another matter. Web converting provides Mask Mfg. with the following up-to-the-minute reports to help Mask stay in control:

- Receiving reports (quantity received, date, rejects, etc.)
- Yield report (Accounts for all material used, including formally recorded waste and incidental waste.)
- Lot Traceability report (to meet medical product law requirements

for tracing raw materials back to the source.)

- Master Roll Summary report (shows the exact status of each master roll of raw material at any point in time.)

“Will my critical material arrive in time?” Web Converting has developed processes that keep track of material on an up-to-the minute basis. With a single phone call, the Mask Mfg. purchasing department can find out the amount of any raw material on hand, in process of being slitted / converted, finished and shipped.

**Results:** Results from this effort have been excellent in several areas:



- **Cost Savings:** Purchasing, Receiving and Warehouse labor costs have been reduced. Inventory carrying costs have been reduced, Safety Stocks have been lowered and waste/scrap has been reduced. Williams adds that “This helped us reduce the number of buyers and planners, saving approximately one quarter of a full time position.
- **Support of Strategic Goals:** Executive management time has been freed to work on strategic issues, instead of the “firefighting” typically needed when coordinating a large number of vendors and keeping a manufacturing line running. This project has also allowed Mask Mfg’s purchasing department to free up valuable time to concentrate on higher priorities. The project supports Mask’s strategic goal of consolidating purchasing in one location for six acquired plants.
- **Reduced “Risk of Supply”:** Mask now deals with fewer suppliers and has reduced the complexity and risk of its raw materials supply. An additional risk reduction item is that the “ready to machine” inventory is held locally by Web Converting.
- **Predictable Raw Material Cost:** Mask Mfg. is now paying only for “good” finished product. Previously it had to pay for the waste at each step, inventory costs, work in process costs, tracking and logistics labor, purchasing labor etc. The outsourcing arrangement keeps the price of raw material stable, and includes the cost of having the right materials at the right place at the right time.
- **Reduced Production Line Downtime:** The reduced “risk of supply” and other benefits of this project have

resulted in substantial savings by reducing production line downtime.

- **Inventory Space Savings:** Mask Mfg. has been able to free up critical inventory space for other uses and avoid the capital cost of additional inventory space.
- **Quality Improvement:** Williams explains that “Web Converting supplies raw materials to us that meet the quality standards of an ISO-certified facility. We can now receive this material “on certification”. This means that, as a supplier, Web Converting performs to the ISO audit standards we need. This saves us substantial labor in inspection and receiving, as well as the normal savings that come from having high quality materials and performance from a supplier.”
- **Improved Quality of Life for Mask People:** Removing risk and complexity has improved the quality of life for Mask’s QA and planning associates. In addition, Web Converting is accustomed to working with Mexican manufacturing firms and has been able to reduce some of the language and cultural barriers that can sometimes create additional stress.

“We save money because Web Converting holds the inventory and we save the capital costs of maintaining inventory space.”

**Bob Williams, Operations Manager**

- **Incremental Sales:** Regarding sales issues, Williams observers that “This outsourcing effort has helped lower the cost of operations and made us more competitive. It has helped us maintain our market share of a

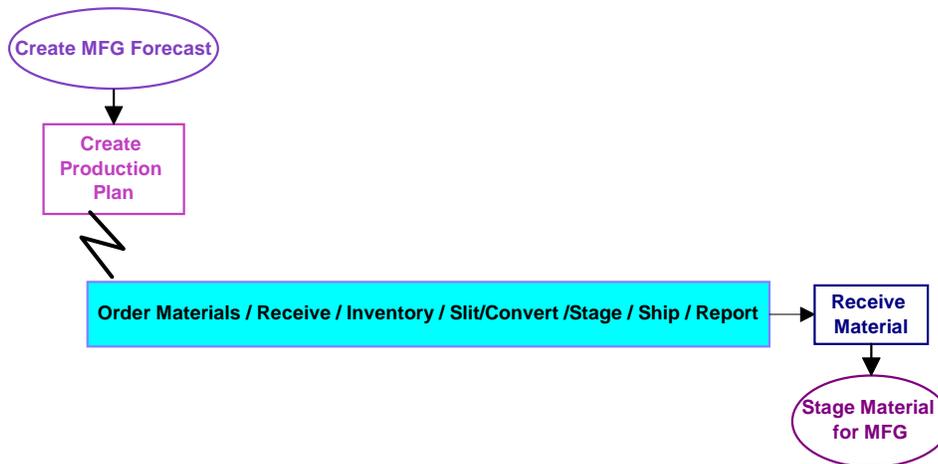
commodity product as the market matured and competition increased.”

- **Able to Quickly Expand Capacity to Meet Market Opportunities:** The 2003 outbreak of SARS (Severe Acute Respiratory Syndrome) was both a significant world health crisis and an opportunity for Mask Mfg. In just a few months, Mask was able to increase its production of surgical facemasks by nearly half. This extra capacity helped Mask Mfg’s customers quickly distribute facemasks and aided in slowing the spread of SARS. Mask Mfg. was not constrained by the normal bottlenecks associated with a significant increase in manufacturing volume. Williams notes that “We could not have

ramped up our volume the way we did if we were doing our slitting in-house.”

- **Future Improvements:** Please refer to the “FUTURE IMPROVEMENT” drawing attached. Shortly, Web Converting expects to be connected directly to Mask’s computer system to remove the step of Mask having to place orders with Web Converting. Web will take responsibility for reviewing Mask’s production plan and initiating appropriate orders with no direct action on Mask’s part. This will save, perhaps, one full time purchasing position and further reduce the cycle time needed to deliver materials.

**FUTURE IMPROVEMENT**



**Additional Tips for Those Facing Similar Situations:** Williams provides some additional insights. “Web converting was able to prove that they could provide a quality product over time. This allowed us to receive “on certification” and allowed Web Converting to handle vendor-managed inventory for us. This reduced the workload for our planners, receiving associates,

quality associates, slitting associates and warehouse associates.”

“We save money because Web Converting holds the inventory and we save the capital costs of maintaining inventory space.”

**Summary:** Mask Mfg. chose to focus its attention on the things it did well and offload an important part of its operation to Web Converting. This effort was successful



because Web Converting had strengths in areas where Mask needed strength. At first glance the above list of results from this project might seem too good to be true. Keep in mind that this outsourcing project was the second major initiative between Mask Mfg. and Web Converting (see Case Study #1). Mask and Web worked together to achieve win-win solutions and produced

outstanding results. At the time of this writing, Mask Mfg. is actively considering outsourcing more of its operations to take advantage of what Web Converting does well. Hopefully this case study will prove of some use to you if you ever find yourself on either side of a similar situation. Win-win business works!



**WEB CONVERTING**

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**About this Case Study...**

The research for this paper has included multiple interviews and sources of data to help provide a balanced picture and confirm key assertions. It is written as a teaching and communication tool and is not intended to fully describe exact details or dialog. Contact Tom Ingram & Associates, Inc. if you have questions about this case. This paper has been prepared for a fee. **You are free to duplicate and redistribute this paper,** provided you distribute it as a whole, with credit to Tom Ingram & Associates, Inc.

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Since 1983, Tom Ingram and his project teams have delivered over \$15 million in project contracts substantially on time, on budget and as promised. These projects have generated some **\$55 million in measured benefits for clients.** Ingram has published two dozen articles and newsletters. His book, *How to Turn Computer Problems into Competitive Advantage*, was published by the Project Management Institute in 1998. This case study is part of Ingram's ongoing efforts to recognize, promote and teach about *High Impact Projects*.