

# How to Increase Plant Capacity Without Adding Resources



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As the manufacturing industry continues to rise out of some of the worse economic years in recent memory, manufacturers are experiencing a welcomed increase in demand. And while optimistic about the future of the manufacturing industry, many companies are exercising caution when it comes to expansion. This prudent attitude has prompted many to ask: How can I grow capacity without adding floor space, equipment or personnel?

There are two common routes manufacturers take when faced with a surge in demand. The first is to maintain status quo with current business processes and operations, while adding new work centers, employees and square footage to handle the increase. The alternate route is to dial up all existing resources as efficiently as possible first, prior to expanding. With the second option, the ultimate goal would be 100 percent utilization of what you already have, before adding on more.

To have as efficient an operation as possible, you need a shop floor with no downtime or waste - A finely tuned plant that finishes one job and immediately begins the next, with the proper tools, operators and materials prepped and ready to deploy. This is no small order. How can you make the right job, with the right tools and right quantities, all flow together at the right time?

The answer is a comprehensive ERP and MES solution capable of automating your shop floor. Comprehensive is the key word here. While integration of third-party programs into a core ERP system can work, it is fraught with challenges such as duplicate data entry, information delays and silos, interface issues and customization expenses.

The key to increasing capacity is to have an end-to-end solution that covers every aspect of your business, from ERP to MES, MRP, financials, order management, WMS, CRM and more. This single source solution is what makes every aspect of your business visible, traceable and incredibly efficient.

### Where Can I Experience the Greatest Capacity Increase First?

The shop floor module in a comprehensive ERP solution with most immediate ROI is the process monitoring package. By linking directly to work centers and high value production equipment at the PLC/sensor level to collect process parameters, and then relaying that data immediately to an ERP solution for analysis, the process monitoring tools greatly improve efficiency and productivity. And because the two-way communication occurs in real time, process monitoring makes your ERP solution an active participant in the manufacturing process. A few of the benefits of process monitoring include the ability to:

- Collect every important variable that relates to production: Temperature, pressure, dimensions, weight, thickness, fill rate and more
- Auto-populate that collected data into the SPC module of your ERP solution for accurate analysis and improved decision making
- Track whether a job is running too fast or too slow, then review your operations to ensure part quality and adjust your upcoming jobs on the schedule accordingly
- Catch and respond to rejects and parts trending out of specification as they occur, not hours later when you receive a production report of batch upload
- Increase accountability throughout the organization. Unscheduled downtime, employee labor, parts produced and more are fully tracked as they are occurring

The bottom line is that you can't hide from real-time process monitoring - it always exposes the truth about what is actually happening on your shop floor.

One successful manufacturer in Germantown, Wisconsin uses his process monitoring module to run a completely lights out manufacturing facility 24/7. From the central material handling system to the automated box conveyor system, all parts are run without human interaction. This lights out facility is only achievable with a comprehensive ERP system that allows the manufacturing staff to monitor and schedule all production from an off-site facility. Thanks to automatic alerts customized to trigger when certain parameters are not met, the employees know immediately if something is wrong.

Production monitoring tools also allow you to create a second (or third) shift if demand continues to increase. Without an automated tracking and monitoring system, an additional shift would mean a shortage of senior staff members. You can either have fewer eyes on the floor or have less experienced employees working the shift. Neither are ideal. But with automated tracking and monitoring, you can be more comfortable adding more hours with the same number of supervisory employees.

For example, one successful manufacturer uses the process monitoring module in its comprehensive ERP solution to run its work centers in cells, with six machines to each cell. Rather than have six operators, one for each machine, the manufacturer uses the software to employ only one supervisor to oversee all six of the machines in his cell. With automatic alerts that tell him if the job is having difficulty or parts are trending out of specification, the traditional model of one operator per work center is no longer required.

### **Other Areas in the Software That Increase Demand Capacity:**

After process monitoring, there are many other tools that can increase capacity. For example, some systems offer finite scheduling and dispatch list tools that automatically analyze which operators and work centers are the most efficient. The software answers the question: Of all your tools, people and machines, which ones run the best for this

particular job? The system then smart loads your work centers based on historical performance data, ensuring that you are optimally using your assets.

In addition to running on the most optimal equipment, you can also run the most optimal order size. Automated ERP tools create ideal production order batch quantities through minimum and maximum run sizes, multiples of designations and time fences to eliminate unnecessary teardowns and resets and optimize production runs.

Many Bills of Materials (BOMs) found in ERP software are cookie cutter templates that fit only one or two manufacturing processes. But manufacturers today are multi-process companies and need the fields and tools to handle multi-execution manufacturing. Accurate, process-specific BOMs allow the automated schedulers to do their jobs correctly.

One way to increase capacity is with manufacturing-specific BOMs and routing workflows that offer 30-plus different manufacturing types, with fields and features specific to each process. Whether you produce by weight, length or pieces or through continuous or batch production, the BOM should speak your language. The software should also offer multi-level BOMs, display equipment and labor requirements and contain the flexibility to schedule processes that are work center, assembly line, application based or a combination of many types.

The dangers of carrying too much on hand inventory are high. But with a comprehensive ERP solution, just in time material principals are built into your daily practices, thereby lowering your inventory levels and minimizing production costs because materials are only ordered when needed. Intelligent material resource planning (MRP) tools, such as safety stock features that automatically generate purchase orders when common inventory items run low, increase your inventory turns rate and ensure you keep just the minimum quantity on-hand.

A common cause of job resets and rescheduling of production orders occur because of delayed communication between the change in an order and the shop floor. With an Electronic Data Interchange (EDI) module, you gain accurate, up-to-the-minute order accuracy. Did a change in deliverables, quantity or due dates just come in? With native EDI embedded in your ERP solution, you automatically and immediately know about the change. Your ERP solution can check for changes every hour or every minute, automatically, based on your operational needs.

Finally, through maintenance, repair and overhaul (MRO) features in your comprehensive ERP solution, you can avoid costly unscheduled downtime. First, automatically gather usage data and track where the tool or equipment is used throughout your shop floor. Then, based on automatic alerts that remind you of upcoming and pending maintenance, generate work orders and schedule labor and materials for planned maintenance when

you have the parts and bandwidth to take the machine offline. With additional features such as repair documentation linked to the work order and maintenance cost tracking and visibility, your ERP solution can help you maximize equipment utilization.

A need to increase in capacity is a good problem for any manufacturer to have. But rather than investing in new personnel, machines and floor space to handle the boost, manufacturers should first consider if automating their plants to 100 percent capacity with a comprehensive ERP and MES solution isn't a less expensive and more flexible approach to adding capacity.

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*If you would like to learn more about IQMS' comprehensive ERP solution, please visit [www.iqms.com](http://www.iqms.com).*