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DEDICATED TO IMPROVING THE PRODUCTIVITY OF WESTERN METALWORKING

## Software & Controls



Prototype Payoff - Pg. 20

### In this issue:

- Prototype Payoff (pg 20)
- Software Chops Chopper Costs (pg 24)
- Shop of the Future (pg 26)
- Driving Productivity and Profitability (pg 38)

- Training Gold Mine (pg 42)
- Westec 2007 Highlights (pg 46)
- Mazak's New Integrex 100-IV ST (pg 52)

...and much, much more!

**PAN**  
communications



*View of JobBoss workstation on the production floor. JobBoss helps a company integrate front office and shop function, speeding communication, preventing delays in purchasing and improving delivery. JobBoss is produced by Exact Software.*

## Driving Productivity and Profitability

***New Tools Can Increase Productivity and Profits***

*By Dan Deanovic,  
Exact JobBoss*

**H**istorically, the majority of a manufacturer's costs have been labor. In fact, when Henry Ford introduced the moving assembly line in 1913, labor accounted for an estimated 80-percent of total costs. One of Ford's key beliefs was that labor costs could be greatly reduced by eliminating unnecessary steps workers had to take throughout the manufacturing process.

Ultimately, machinery accomplished what Ford and many others set out to do: streamline the production of goods and improve efficiencies on the shop floor. Machines could complete the same tasks as humans on an assembly line but at a much quicker pace and at significantly lower costs. As a result, production and assembly processes required fewer workers and labor costs dropped considerably.

Faced with tighter margins and increasing competition, machine shops and custom manufacturers today are embracing innovative new ways to take shop floor automation and business management to the next level. Driven by new technology advancements, these solutions are

*Production data can come directly off machines into the ERP system, providing a level of accuracy unattainable through traditional data entry methods.*

enabling businesses to minimize costly manual labor practices throughout the manufacturing process to obtain a level of efficiency that their predecessors could only have imagined. In addition, these solutions allow shops to maximize other resources, including existing investments in machines, systems and applications.

### **Shop Management Software**

One such solution, called shop management software, provides a long list of efficiencies to machine shops. These systems, when fully integrated, manage workflows and processes, including quoting, order processing, scheduling, purchasing, labor, tracking, costing, quality, shipping, accounting and more.

Here are some more detailed examples:

**Purchasing applications:** enable staff to improve purchasing material efficiency and reduce interruptions to check on the status of material ordered. In addition, purchasing staff are able keep up with changes to jobs, ensure that materials are available when required by the floor, improve communication with the shop floor, and meet shipping dates.

**Accounts Payable:** enables shops to track which suppliers they owe, how much they owe them and when they should pay them.

**Payroll applications:** helps shops manage the flow of employee information and to quickly and easily make changes to payroll.

**Data collection applications:** help shops collect information faster than with manual data entry and automatically validates it to improve accuracy.

### **Automated Scheduling**

An increasing number of manufacturers are also leveraging shop management software to replace the whiteboards in their shops with an easy-to-use scheduling board that enables drag-and-drop scheduling, finite load leveling, or changing of resources or changing of schedule hours on-the-fly. In addition, the ability to play out "what-if" scenarios helps the business spot problems or manipulate the schedule while there is still time to meet delivery dates.

One machine and tool company specializing in fabrication tools and race car parts implemented shop management software to help automate scheduling. With the software, the company has been able to stay fully loaded, balance the workload and deal with change. The system's flexible scheduling facilitates internal and external change, last-minute rush jobs and customer requests. Moreover, when a user reschedules a job, the purchasing of outside materials and services automatically change along with it.



### **Intelligent Numerical Controls**

Another tool used for driving efficiency on the shop floor is intelligent numerical controls. Capable of running on virtually any machine—from the simplest lathe to multi-function machines running the most advanced algorithms—intelligent numerical controls monitor and measure the output of production data, such as job starts, machine hours and part counts, without manual intervention. These controls provide seamless integration with almost any application and peripheral, including shop management systems, while also interfacing with bar coders, feeders, robots, probes and tool setters to help streamline production.

The true value of intelligent numerical controls is apparent when they are integrated with an ERP or shop management system on the back-end to automate the collection of production data and enable communication with business and production systems on the shop floor. Production data can come directly off machines into the ERP system, providing a level of accuracy unattainable through traditional data entry methods. Moreover, by automating this process, job shops can always have the most up to date data in real-time, and they can also better control headcount and costs.

It is critical for shops and custom manufacturers to have access to this production data along with employee information and other operational data in a single system in order to more effectively manage production. The



*Having the "back office", the production shop, integrated with the front office is critical to increased efficiency and profitability.*

integration between the shop floor and back-office provides a more holistic view of the organization and enables management to better plan and schedule projects, ensuring that the business is running smoothly and that customer expectations are being exceeded.

### **Front and back-office integration**

A similar level of efficiency can be gained by integrating what has traditionally been known as the front and back-office. The front-office typically encompasses those employees and departments within the organization that interact directly with customers. These customer-facing operations generally include sales, customer service and support and other administrative functions.

The back-office, on the other hand, is where all the work gets done. In job shops or custom manufacturers, the back-office includes non-customer-facing employees who work on the shop floor making parts, lead men, shop foremen, production schedulers, etc.

A broad array of applications exist to help companies manage the various functional areas within organizations, and it's nearly impossible to find a single solution that addresses each area. As a result, an important goal for any buyer is to find the solutions that adequately address each area, while also providing tools to seamlessly integrate the front-office with back-office and the shop floor. Without this integration, departments throughout the organization continue to operate in isolation, and not having the left hand knowing what the right is doing can be detrimental to

customer satisfaction, sales and overall business success.

Vendors who recognize the importance of creating and maintaining integration tools that lie "under the hood" of their applications will be the winners in the end, because job shops have a great need for this level of visibility into their business.

When the economy falters or even shows the first signs of slowing, businesses have a tendency to retrench. In an effort to lower costs and reduce overhead, they will slash budgets across a variety of departments. But what they don't realize is that the budgets that are typically cut first are areas where businesses should continue making investments, in order to ensure long-term success.

With the advent of new software applications and the evolution of older market segments, figuring out which technologies are the key to profitability is becoming increasingly difficult for decision-makers. In most cases, they're forced to wade through a confusing array of acronyms (ERP, CRM, BPM, et al.), trying to determine which best suits their business needs.

The ultimate goal of any machine shop or custom manufacturer is to operate with sustainable revenues and profitability. Understanding the software terminology and how "connected," or integrated, applications can drastically improve the ability of organizations to manage their customers, vendors, and internal processes will enable them to bring more cash to the bottom line, and that is the end game. ■