How to Make Your Life Easier with ERP Scheduling

DE-STRESSING THE MOST STRESSFUL JOB IN THE ENTERPRISE ENVIRONMENT

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Global Shop SOLUTIONS ERP SOFTWARE

We simplify your manufacturing.™

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ASK ANYONE IN A MANUFACTURING OR PROJECT-DRIVEN COMPANY WHO HAS THE MOST DIFFICULT JOB AND WITHOUT HESITATION THEY WILL TELL YOU: *THE SCHEDULER/PLANNER.*

It's no wonder. Foolproof scheduling is critical to the smooth operation of most companies. Yet, planning and scheduling the workflow is like trying to juggle 150 different balls all at once. Only the balls are all different shapes and sizes, some move faster or slower than others, and while you're juggling, other people are constantly pulling some of the balls out of the air and throwing new ones at you. Keeping track of all the different orders, managing all the different tasks and work processes, and meeting all the due dates, change orders and everything else the customer throws at you is truly a Herculean task.

It's not surprising that many schedulers work 60 to 70-hour weeks and still feel like they need another 20 or 30 hours to get the job done.

At the same time, the job scheduling function has a huge impact on productivity and profitability. It also impacts the customer relationships your company depends on. Your ability to manage limited resources, satisfy customer demands and respond to the ever-changing conditions on the shop floor determines, to a large degree, whether individual orders and the company as a whole make or lose money.

> "Every time you pull a job in progress out of a machine, you're making a decision to lose money on that job."

For example, how many times have you gone in and pulled a job before it is completed in order to react to another, more urgent customer order? You know that prematurely pulling jobs will significantly impact the flow of work currently on the shop floor. Plus, you have no idea how it will affect future orders that may be scheduled days or weeks out. Yet, you do it anyway because the customer is screaming and you were late on their last two jobs and you can't afford to lose their business. The resource relationships are too complex to be accurately accounted for with "gut feeling" guesses.

We all want to keep our customers happy. But the fact is, every time you pull a job in progress, you're making a decision to lose money on that job. The job was in there for a good reason, and making a reactionary decision not only means that the job that got pulled will be late, but within the next few days, the customer whose job got bumped will be calling and demanding that you expedite the job. Chances are you will have to pull another job to get it back in the queue, which only leads to another round of headaches and potentially bad decisions. Moreover, unless you practice lean-setup procedures, you have now doubled your setup time, lost several hours of production time on that machine, and increased the probability of higher scrap and rework.

Most companies try to solve these kinds of problems by hiring more schedulers to manage the chaos. But all that does is increase overhead costs, add to the complexity of the scheduling process, and increases the number of schedules. Fortunately, there is an easier, better and much more cost-effective way.

ERP Scheduling Makes Life Much Easier

ENTERPRISE RESOURCE PLANNING (ERP) SOFTWARE IS SPECIFICALLY DESIGNED TO AUTOMATE, STREAMLINE, AND REDUCE THE STRESS OF SCHEDULING WORK ORDERS IN A BUSY MANUFACTURING ENVIRONMENT.

ERP software serves as a highly-sophisticated central communication hub for all the activities in a manufacturing business. It consists of different modules that handle everything from estimating to job scheduling to final delivery and billing, as well as the financial aspects of work generation, purchasing, inventory management, administrative overhead, and all the accounting and financial activities. The end result is a software system that integrates all the essential activities of the business into one nice, neat electronic package.

The benefits of using ERP software include faster cycle times, better on-time delivery rates, reduced administrative overhead, lower labor and materials costs, improved productivity and more. ERP also enables companies to manage the numbers in realtime (instead of at the end of the month or quarter), so that management can make better decisions for the long term. When properly implemented, ERP acts like a company-wide, ongoing process improvement tool that empowers the entire organization to become leaner, more efficient and more profitable.

WHAT DOES THIS MEAN FOR YOU, THE SCHEDULER?

At its core, your job involves making decisions. And not just one or two decisions, but hundreds of them every day that determine the flow of work on the shop floor. Ultimately, your decisions determine whether the job gets done on time and whether you end up with a happy or a disgruntled customer. The difficulty lies in the fact that so many variables go into each decision: the number of machines, part attributes, employee availability, employee skill set, the capacity of each machine, the work order, the due date, the number of jobs currently on the shop floor, and on and on. With large, complex jobs, the decision criteria can extend ad infinitum, until it seems like they are almost completely unmanageable.

ERP software, and in particular the scheduling module, streamlines the decision-making process by making most of the decisions for you. By doing so, it allows you to manage the entire job-scheduling process faster, more efficiently and more effectively. With ERP scheduling, work orders that used to take hours and even days can be completed in a matter of minutes, freeing you to spend more time on the shop floor reacting to all the situations that typically come up in the course of a normal day.

> "ERP software streamlines the decision-making process by making most of the decisions for you."

How Does Erp Scheduling Make Your Life Easier?

Through a variety of features and functions, ERP scheduling evolves from a hair-pulling exercise in frustration into a streamlined, low-stress process that efficiently and effectively guides and directs all the activities that need to occur on the shop floor.

THE MOST IMPORTANT OF THESE FEATURES AND FUNCTIONS INCLUDE:

- **Automated scheduling.** Scheduling with ERP is completely automated. Once all the job and machine data has been entered into the router or project and other modules, the system automatically schedules the jobs for you. Simply enter a work order, click on a few buttons and the system instantly schedules the job. Jobs that used to take all day to schedule can now be done in seconds.
- **Improved accuracy.** Because ERP tracks what you're making, how you're making it, how many you're making, and work in progress at any given moment, the system allows you to say exactly when the job will be done. With ERP, "safe" dates are a thing of the past, as you can tell customers an exact due date. On the sales side, this accuracy also allows for precise promise-date generation.
- **Improved visibility.** Perhaps the hardest part of manual scheduling is tracking down all the information needed to make decisions about when and where to schedule jobs. ERP gives you complete visibility by storing all the data in one central location. Every piece of information about every job - from work order number to completion due date - is instantly available to you in a variety of formats. In addition, you can search the data using a wide variety of criteria such as work order number, part number, project number or customer.
- **Amazing flexibility.** ERP delivers amazing flexibility to manage everything from individual work orders to every project in the entire system. For example, you can balance your load across resources by instantly identifying which resources have excess capacity or excess load. You can modify the labor default schedule, including interjecting holiday calendars or schedules. You can easily create work groups and assign alternate work centers for a resource. Best of all, most changes, whether big or small, are made with only a few clicks of the mouse.
- **Fewer bottlenecks.** A major source of frustration with manual planning occurs when multiple jobs get stacked on top of each other due to limited capacity. ERP reduces and, in many cases, eliminates these bottlenecks by making it easy to schedule the right job on the right machine at the right time. You can also reschedule a job at any point in the system and, with just a few clicks of the mouse, instantly see how that rescheduling affects every other job in the system.
- **Reduced costs.** Customers often order the same item to be delivered at different times. ERP allows you to significantly reduce setup time by scheduling multiple jobs of the same item to run concurrently, rather than running them days or weeks apart, as is often the case with manual scheduling.

Ultimately, ERP scheduling allows you to stop juggling all the balls because the system juggles them for you. Once you input all the job, machine and employee data into the router and other modules, the system instantly and automatically schedules every job for you, performing in a few seconds what used to take hours or even days to accomplish. Now, instead of struggling to get your jobs in the right order, you can spend the bulk of your time and energy responding to and managing the events that take place out on the shop floor.

By freeing up your time, ERP scheduling allows you to make better decisions and become more of a proactive manager of people and resources. It redefines your role, elevating it to a more strategic position and increasing your value to the company.

How ERP Scheduling Works

The ERP scheduling module is a sophisticated tool that allows the planner to efficiently and effectively manage the entire job-scheduling process from the moment the order comes in the door until the part or project is completed and shipped off to the customer.

The schedule can be completely automated or can require minimal input. The system tells you what parts need to go on which machines and when, how much material is required, whether that material is in stock or needs to be ordered, employee availability and constraints, and any other task that needs to be performed for that specific job.

More important, the ERP scheduling module allows you to track everything you need to know about every job or project in the system from beginning to end, including labor costs, machine efficiency, setup and run times, work in progress and on-time completion rates. In fact, everything you used to do on multiple spreadsheets, white boards or in your head is now handled instantly and error-free by the ERP system. As a result, you can now spend more time managing events as they occur on the shop floor and less time stuck in your office trying to unblock the latest bottleneck or miscommunication.

But the real power of the ERP scheduling module lies not so much in what it does for you (automatically schedule jobs) as in what it enables you to do by providing instant access to critical information in a variety of formats.

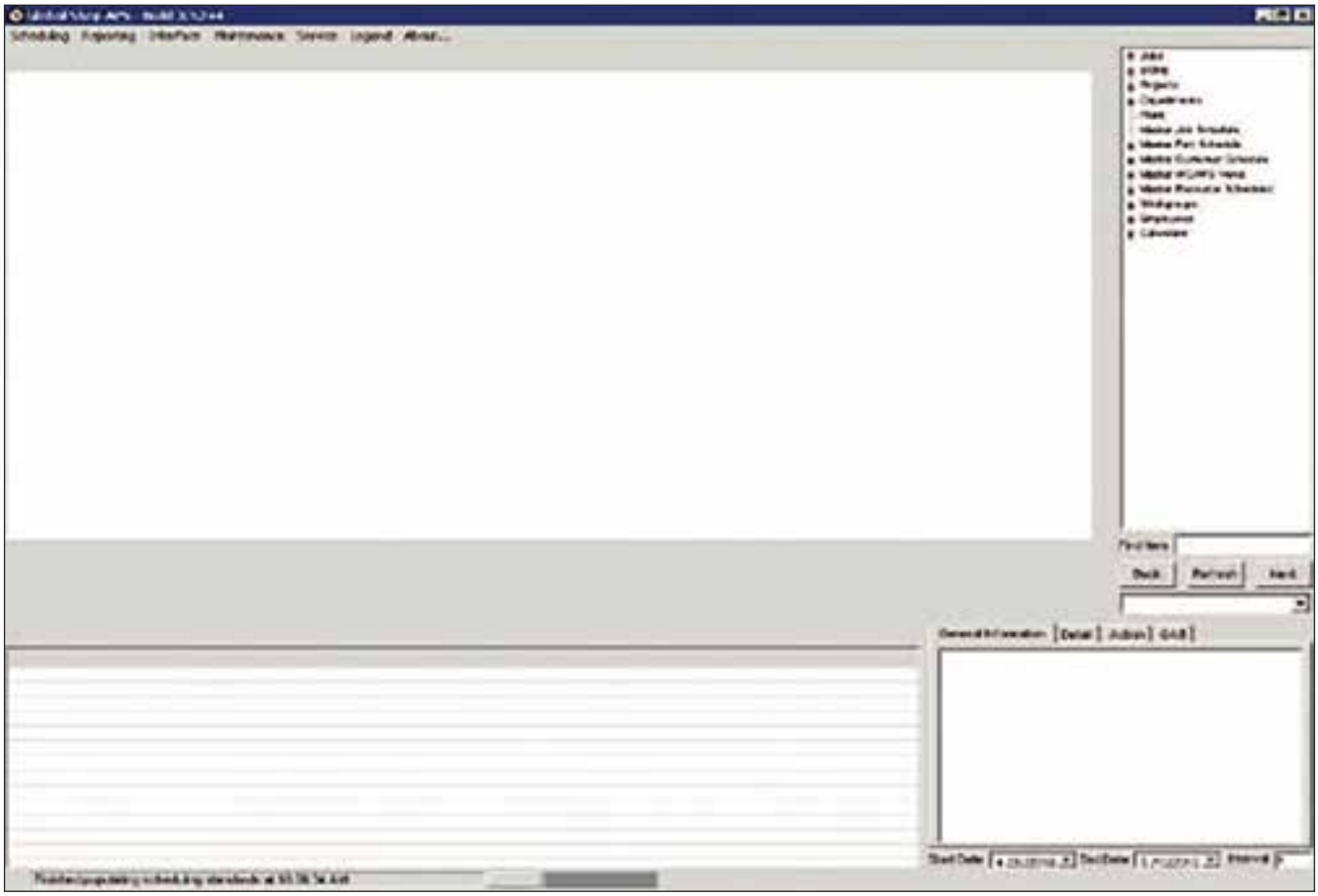
Perhaps the best way to understand this amazing power and flexibility is by looking at a few screen shots from the Global Shop's Advanced Planning and Scheduling (APS) module.

Most scheduling modules consist of five to seven primary functions that track and manage every aspect of the scheduling process. In Global Shop, for example, primary functions consist of scheduling, reporting, interface, maintenance, and service. Within each of these functions, which are listed as drop-down menus on the main scheduling screen, are dozens of menu selections that allow the scheduler to perform all the essential tasks required to schedule and manage a busy shop floor.

Global Shop Solutions' Advanced Planning and Scheduling (APS)

1.1 MAIN APS SCREEN

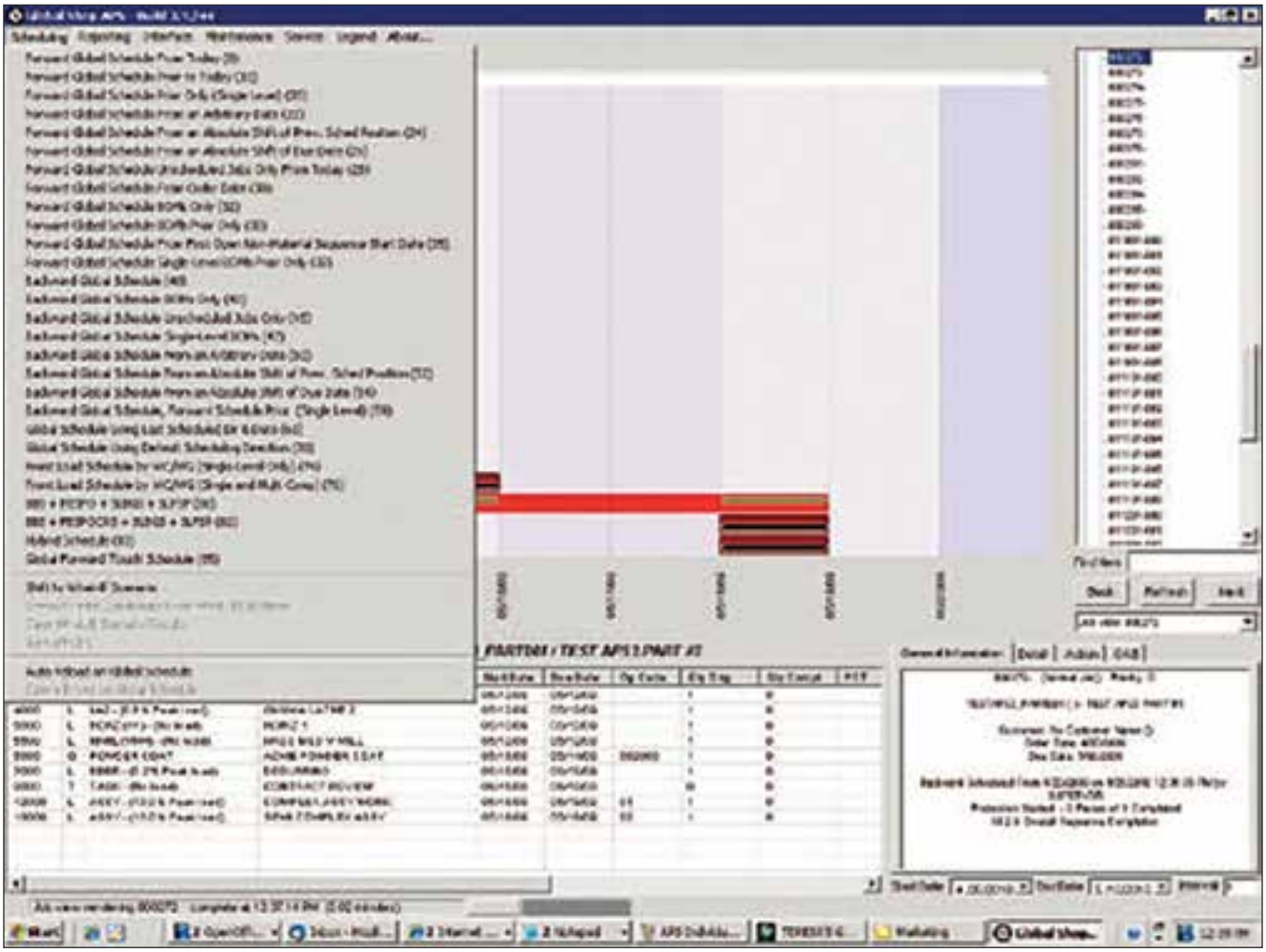
Here we have the main screen for the Global Shop APS module. Listed on the menu bar along the top are the primary functions of scheduling, reporting, interface, maintenance, and service. To the right is the Master Menu, which consists of a list of icons that give the scheduler instant access to the most frequently used functions. These include:



- **Job** – Allows you to view detail on each job.
- **BOM** – Allows you to view multi-level work orders
- **Project** – Allows you to view all detail on a project, as well as link relationships
- **Plant** – Allows you to drill into plant/department/ work center loading
- **Master Job Schedule** – Allows you to see all work orders in date order
- **Master Part Schedule** – Allows you to see all work orders, grouped by part number
- **Master Customer Schedule** – Lets you review work orders grouped by customer
- **Master WC/WG** – Lets you look at efficiency by job/machine over time, or sequential WC/WG dispatch
- **Work Groups** – Shows loading by machine in work group view and displays attribute matrices
- **Employee** – Constraint management of employees
- **Calendars** – Allows you to easily define a workcenter's capacity and can be viewed by workcenter and employee

Now, let's drill down into the "Scheduling" menu to see some of the many scheduling functions this module performs.

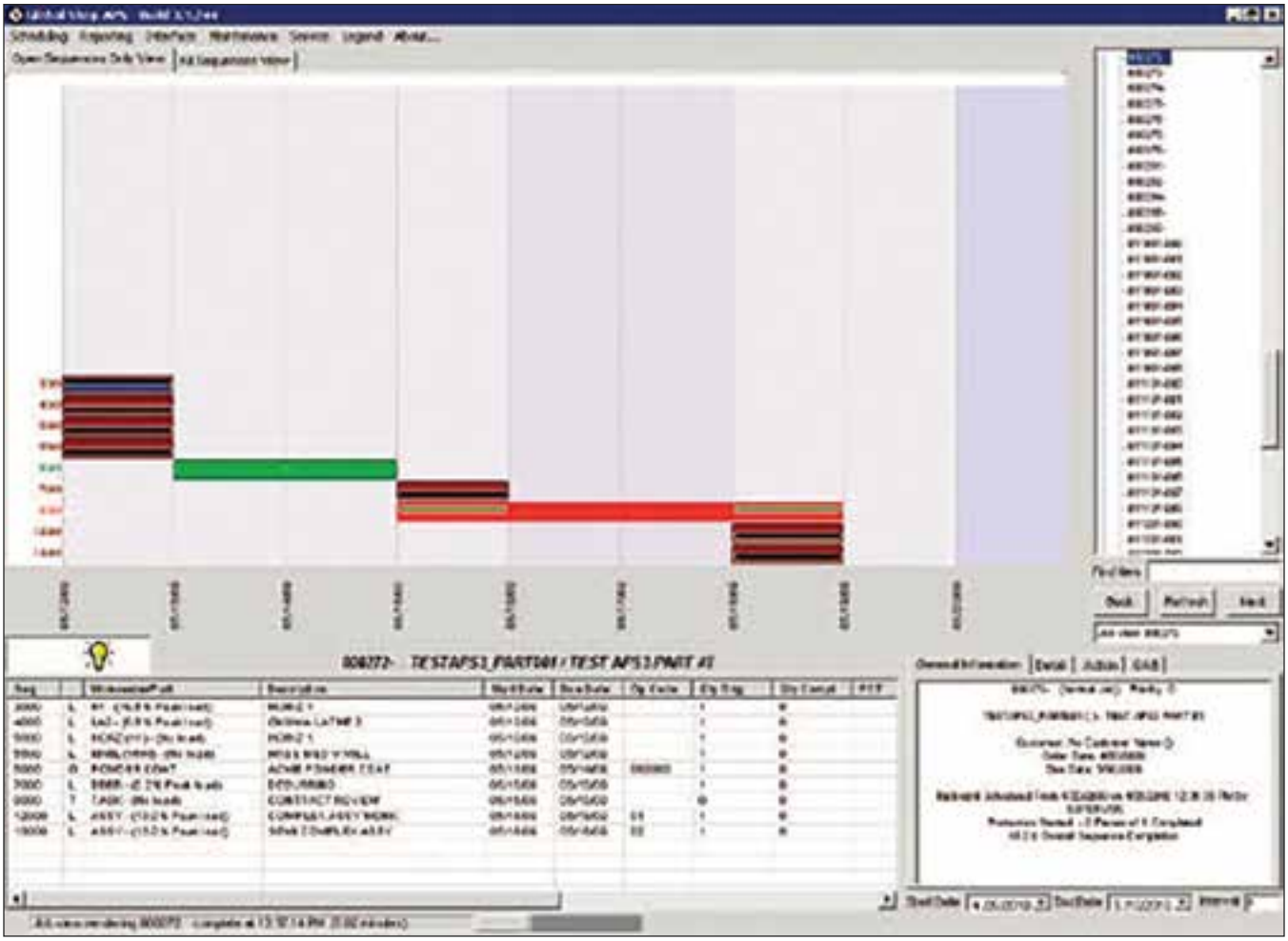
1.2 MAIN SCREEN SCHEDULING MENU



Here we can see all the bulk scheduling methodologies that the module can perform. You can schedule using default scheduling directions. You can even try out different scheduling options (using the "Shift to What-If Scenario" menu selection) before entering them into the system.

One of main benefits of Global Shop APS is the ability to quickly access information at whatever level of detail is needed. For example, suppose a customer calls or emails and wants to check the status of a job. The "Individual Job View" screen tells you everything you need to know about that job. Or, what if an employee doesn't show up, or a machine breaks down. You see the impact immediately.

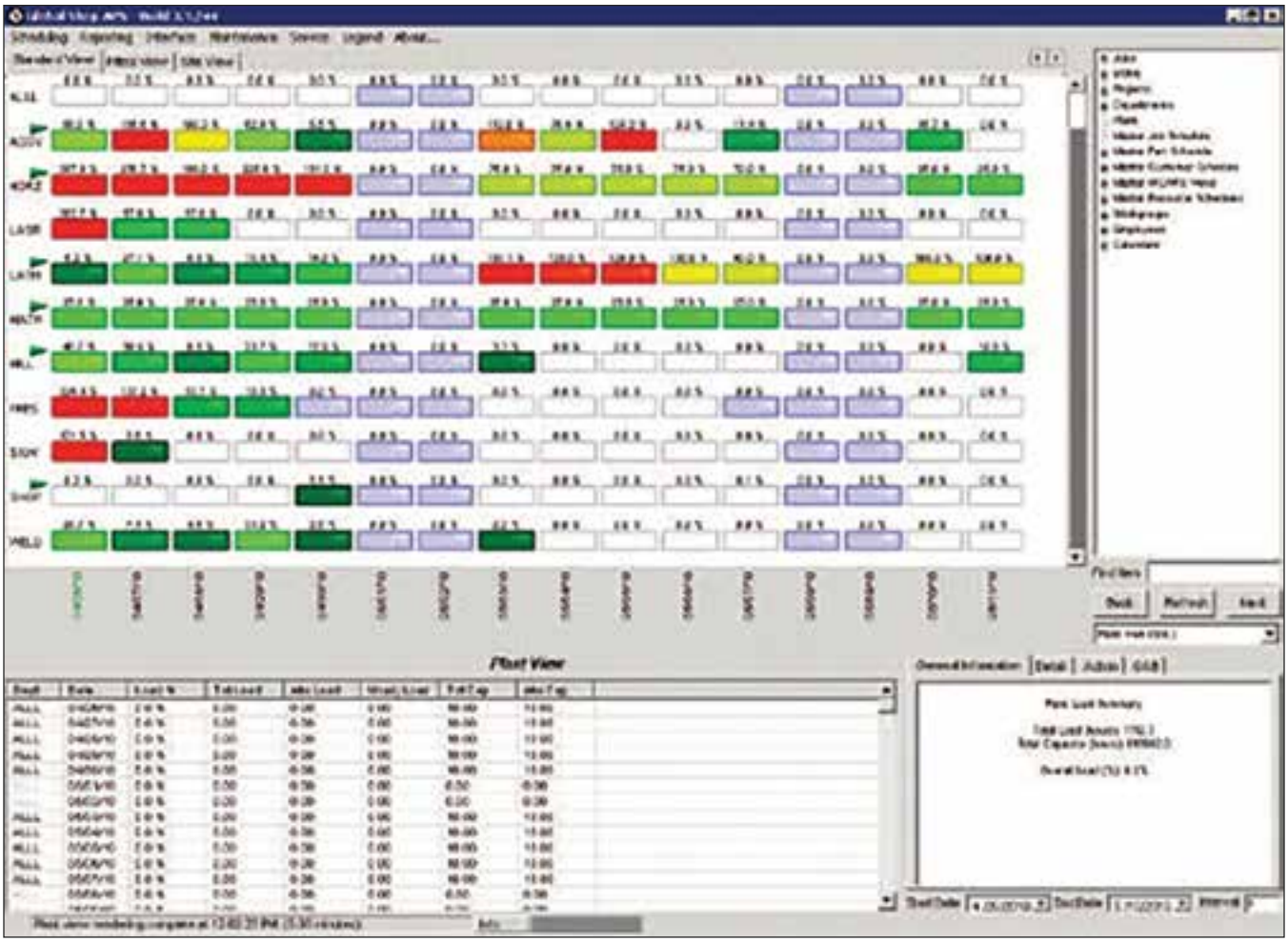
1.3 INDIVIDUAL JOB VIEW



The horizontal bars on the large graph show the material sequence (blue), employee or machine labor (red) and outside service sequence (green). The vertical bars indicate whether the job in on time (light blue) or late (pink). The box at the bottom gives a listing of the work order's sequences, and the options in the lower right-hand corner allow you to reschedule the jobs if necessary. Each bar, color or line of text can be clicked on to drill down for more specific information about that aspect of the job.

Suppose that before scheduling a certain job, you want to get a big picture view of the workload of each department on the shop floor. Again, this information is only a mouse click away.

1.4 PLANT VIEW



Using a color-coded scheme, this screen illustrates the workload by various department. Red blocks mean that a department is overloaded on that particular date. Green blocks mean the department is scheduled under capacity, and yellow means it is scheduled at 100 percent capacity. Blue dates represent weekends or holidays. The box on the lower left provides the same information in list format, while the box on the lower right provides summary information and allows you to change the dates for the information being presented.

These screen shots represent just a few of the many ways you can access the data in the Global Shop APS scheduling module. With such detail at your fingertips, you can easily manage jobs and projects more effectively, respond to customer inquiries and maximize resource utilization.

Must-Have Macro Features

Keep in mind that no two ERP products are exactly alike, and their scheduling modules can vary widely in their features, functions and effectiveness. The best ERP systems come with a very robust scheduling module that includes the following macro features:

- **One-time data entry.** When you enter data for a new work order or project, the system automatically makes changes to the entire system.
- **Single screen simplicity.** In many ERP software systems, making a change on a work order or project requires accessing multiple screens. The best programs allow you to adjust your schedule in one screen and see the results of that one rescheduling throughout the system.
- **Multiple sorting capabilities.** The best scheduling modules allow you to view, sort, manipulate and report on the data according to multiple criteria. The system should allow you to see the data graphically and in list view.
- **Simple rescheduling.** The scheduling module should not only allow you to reschedule a job with just a few mouse clicks, it should also show you how that reschedule affects everything else in the system.
- **"What-if" planning.** Suppose you want to see the impact of a potential job change without actually making the change to the system? The "what-if" planning feature allows you to enter any number of scenarios to see the potential impact without actually changing the jobs currently in the system.
- **Finite scheduling.** This important feature helps the planner identify and deal with bottlenecks and backups when available work outstrips resource capacity.
- **Schedule visualization.** This is perhaps the most powerful feature in the entire scheduling module. By displaying the data in various graphic formats, this feature gives the planner unprecedented ability to determine what is really happening on the shop floor and plan accordingly.

Every company is different, and certain features and functions that are critical to one company may be less important than others. When evaluating ERP software for your business, be sure to identify the areas that cause you the most scheduling/planning problems and make sure the software comes with the features and functionality that will allow you to properly manage those areas.

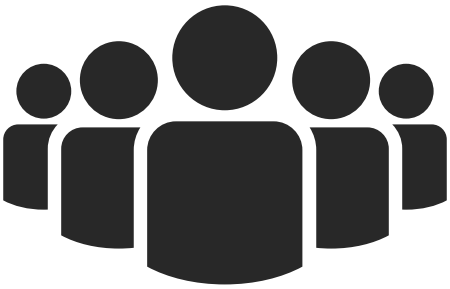
> "Keep in mind that no two ERP products are exactly alike."

Power in Your Hands

But it's not what graphic scheduling allows you to see that makes it so valuable. It's all that it enables you to do. More than any other feature in the ERP scheduling module, graphic scheduling enables you to make timely decisions that cut costs, increase productivity and enhance customer relationships.

For example, suppose a customer calls in with a rush job that requires you to reschedule several other jobs. After you finish rescheduling, graphic scheduling pops up a "bump list," which says, "Based on the transactions you just made, we have taken all these work orders and moved them out to the right. You will be late on these orders if you continue with this decision." The bump list tells you how many days each job will be moved out so that you can look at the effects your rescheduling will have on that job and make any necessary decisions. Figuring that out with manual scheduling would take hours, if not days.

As with the finite scheduling window, not all ERP systems come with graphic scheduling. And of those that do, most do not have the multitude of features and robust capacity of Global Shop. So when evaluating any ERP software, spend extra time test-driving the graphic scheduling feature to ensure that it has all the features and functions you need.



ONE OF THE MOST COMMON PROBLEMS REVOLVES AROUND THE ISSUE OF INFINITE SCHEDULING.

Ultimate Visibility

ERP scheduling gives the scheduler/planner the one thing he or she needs to perform the job at maximum effectiveness: visibility. Without it, you're at the mercy of a multitude of different variables beyond your control.

SUPPOSE A CUSTOMER CALLS UP AND SAYS, "THIS IS JOE FROM A-1 METALS. WHERE IS MY ORDER? I NEED IT QUICKER THAN ORIGINALLY PROMISED."

ERP SCHEDULING GIVES YOU UNPRECEDENTED CONTROL OVER YOUR JOB AND YOUR ENVIRONMENT.

With manual scheduling, you have to get out of your chair, walk onto the factory floor, track down the job foreman and ask if that order is running. If so, you have to determine when it will be done, which involves looking at the router and manually scanning the schedule of every machine and process involved. If conflicts exist on some of the machines, which they usually do, you have to make some very difficult decisions - do you take a job out of the machine because this one is more important? If so, you make one customer happy, but you have no way of knowing what will happen to the other jobs and their customers.

In contrast, ERP scheduling makes it easy to see cause and effect. Without ever leaving your office, you can click on the customer's job and instantly see the status, as well as the detail of raw materials, labor, etc. You can see how much material has been issued for the job and whether it is enough to make all the parts. If not, you can instantly determine how many parts you can make with the material that has been issued. You can also see how much material you have on hand and whether it is enough to complete the job.

You might decide to run that customer's job today and see how it affects all other jobs. Or you might tell the customer you can't get them out today, but you can get them out tomorrow. If so, you can instantly see how much capacity you have for each machine so that you're not just making an empty promise. The bottom line is that ERP scheduling gives you instant visibility for every aspect of every job in the system, so that you know exactly how any decision you make will affect other jobs and projects.

Your Scheduling Job Easier to Control

ERP scheduling makes your life as a scheduler easier in so many ways.

It dramatically reduces the time required to process a new work order and schedule a job. (In many cases, scheduling a job with ERP takes only a few moments.) It reduces the headaches of trying to track down important data that is stored in many different places. It allows you to view and manipulate the data in many different ways in order to achieve the most efficient and productive use of your equipment and labor resources. And it reduces, and in many cases, eliminates the frustrating bottlenecks that occur due to insufficient information, poor scheduling or simply being overwhelmed by the demands of the job.

Perhaps most important, ERP scheduling gives you realistic promise dates with unprecedented control over your job and your environment. Manual scheduling constantly puts you at the mercy of elements beyond your control – inadequate information, lack of visibility, last-minute changes and the overall complexity of the shop floor environment. ERP provides instant access to all the information you need to manage every job on the shop floor with as much precision, detail and accuracy as you want. Once you try it, you will wonder how you ever managed without it.

ERP SCHEDULING GIVES YOU REALISTIC PROMISE DATES WITH UNPRECEDENTED CONTROL OVER YOUR JOB AND YOUR ENVIRONMENT.

About Global Shop Solutions

THE GLOBAL SHOP SOLUTIONS DIFFERENCE

Global Shop Solutions' unique combination of manufacturing knowledge, software expertise and commitment to customer service has produced hundreds of successful ERP implementations. For manufacturing companies that want to provide better and faster service to their customers, gain more control over their business and accelerate growth and profitability, Global Shop Solutions is the ERP software of choice.

COMPANY

Global Shop Solutions is a family-owned corporation, currently in its fourth decade and second generation of leadership by the Alexander family. Headquartered in The Woodlands, Texas, Global Shop Solutions also staffs offices throughout the United States, and serves customers in a variety of industries throughout the U.S., Canada, Europe, Latin America, Asia, Australia and New Zealand.

MISSION

Global Shop Solutions' mission is to help manufacturing companies streamline their operations for increased sales, lower costs and improved on-time delivery and quality. Global Shop Solutions consistently delivers these results through One-System ERPTM software that include unsurpassed levels of customer training, service and support. With a proven implementation process and built-in customization, Global Shop Solutions provides a comprehensive enterprise management system that can grow with the size and needs of its customers.

OWNERSHIP

Founded in 1976 by H. Richard Alexander, Global Shop Solutions' ownership has not changed hands in over three decades — an unparalleled achievement in today's environment where software companies get bought and sold every few years. As a result, Global Shop Solutions' customers enjoy a level of stability unmatched in the software industry. Currently, Global Shop Solutions is headed by Alexander's son, Dusty, who has contributed to company growth and excellence since 1990.

CUSTOMERS

Global Shop Solutions serves as the preferred management solution for a variety of industries, including aerospace and defense, sheet metal fabricators and machine shops, screw machine shops, machine builders, repair facilities and electronics, wood shops, medical instrumentation, store fixture manufacturers, and countless other industries. Global Shop Solutions' customers include public and private companies which range in size from 10 to 500 employees.

STAFF

Global Shop Solutions' hand-picked employees are some of the most experienced and knowledgeable in the industry. Many of its consultants and trainers have been with the company for more than 10 years. In addition to their software training and expertise, most have work experience in a manufacturing environment. As a result, they understand the unique challenges, issues, and concerns facing today's manufacturing companies. Friendly, caring and hardworking, Global Shop Solutions' employees are dedicated to making each and every implementation a successful one.

ABOUT THE AUTHOR

Dusty Alexander is President and CEO of Global Shop Solutions. Since joining the company in 1990, he has played a leading role in Global Shop Solutions' new product development, with a special emphasis on customer-driven applications and customer success.

Dusty has been instrumental in Global Shop Solutions' growth and development as an innovative leader in the ERP software industry. Under his direction, Global Shop Solutions has increased sales every year, and has grown into one of the largest privately held discrete manufacturing ERP software solutions companies in the United States.

Dusty is actively involved in Global Shop's customers' increased benefits derived from the software. Through his dedication, Global Shop Solutions has earned a reputation for outstanding customer service, superior training and highly successful product implementations.

To learn more about Making Your Life Easier with ERP Scheduling, call 1.800.364.5958 or visit www.globalshopsolutions.com.

Global Shop SOLUTIONS ERP SOFTWARE

We simplify your manufacturing.™