

Project Based Companies need Specialized ERP solutions

► **What is ERP?**

ERP is fairly universally recognized as meaning 'Enterprise Resource Planning'. Ultimately, the goal of an ERP system is to integrate the diverse data and processes of a business into a unified system or process. Depending on the business, there can be many different processes to integrate, for example: estimating, resource management, accounting, inventory management, cash flow, cost analysis, invoicing, order entry and job tracking. These are just some of the more popular processes that can be handled by an ERP system.

ERP systems are a natural evolution of Material Requirement Planning (MRP) systems, and Manufacturing Resource Planning (MRP2) systems. Both of these systems had a major focus on supplies and materials required for the manufacturing process. They typically did not focus on business operations.

► **Why is project-based activity different?**

Companies who work on a project basis face the challenge of managing complex projects where each new job is often similar, but with a number of subtle differences, to previous ones. Very few ERP products within the ETO Engineering-to-order category can provide a specialized solution for this type of company.

Project-based companies need to have a customizable set of technical variables, often called "characteristic criteria", that define the complexity and characteristics of a project. These criteria can either be used as inputs sent to a spreadsheet to automatically calculate the cost of any new project, or can be used to filter and find similar projects completed in the past, which can then be copied and edited.

Project-based companies also need an integrated document management system, so that all files and attachments can be saved and shared within specific subfolders for each project.

The data structure needs to support the fact that projects can have many modifications throughout their life cycle. Therefore, a quotation may have more than one version, and a sales order could also have more than one version or index, and the software should make it possible to track costs generated by each modification.

These companies also need tools to handle communication among project members, who can belong to one or several groups linked to each project.

► **ERP systems and large corporations with project-based activity**

Many large corporations have already found they cannot operate efficiently without an ERP type system. Sometimes they develop one internally, utilizing a large amount of resources to make and manage this system. Alternatively, they purchase a third party system and implement it into their infrastructures. In many cases they may have deployed an ERP solution that has not been specifically developed for project-based activity and which therefore lacks many of the features needed to handle this type of operation efficiently.

Implementing an ERP system within a large corporation involves significant time and resources, especially when the system is internally developed or requires an important degree of customization. This is why, when evaluating new systems, a company should also consider training costs, implementation costs, customization costs as well as maintenance costs. When a company decides to develop its own solution internally, it commonly makes the mistake of considering just the developments costs, overlooking the high maintenance costs that the internal solution will run up in future years.

► **ERP systems make sense even for small companies with project-based activity**

Many small and medium sized business owners make the mistake of thinking that ERP systems are only practical for very large businesses. They may think that they will be able to implement a business management solution when they grow to a certain size. However, this thinking will actually cost them more in the long run. As the amount of historical data grows, the more difficult ERP implementation may be. Additionally, once a business has many processes in place, if the ERP system does not work the same way, one of two things will be required. Either the ERP system will require significant customization, or the company will have to change many of their processes to match the software.

Additionally, there are opportunity costs when a small business does not implement some type of solution. Owners may spend a significant part of their time trying to figure out the status of certain jobs in progress, instead of simply looking at a computer screen. This lost time could be spent on acquiring new business, or optimizing the processes to reduce overtime costs.

Certainly, an ERP system that is scalable, meaning that it can grow as the business grows, makes practical sense for a small business. Small companies can purchase just what they need to manage their tasks, and upgrade to additional users and modules as their needs warrant. Starting early means the company avoids future large-scale ERP implementation headaches.

► **Complex ERP vs. Out of the Box**

Different ERP systems offer varying amounts of customization possibilities. Others have several modules that work in an “out of the box” environment. Every company must look at their needs and determine how much customization is required.

Highly customized systems have some disadvantages for the small business owner; they require full time systems administration personnel to manage the system, adding to staff costs. Systems that require a high amount of customization will also bring significantly higher upfront implementation and training costs. This adds complexity instead of simplifying the job management process. ERP systems with high complexity also carry high maintenance costs for upgrades and operating system changes.

► **Estimating and Quoting**

For most small to medium sized project based manufacturers, business begins with quoting or estimating a particular job. This is often an area where significant opportunity costs exist. Often, the most experienced people are the ones who make the quotes. For example, in a mold shop, a experienced moldmaker may be responsible or have input for making all of the quotations. Traditionally, several quotes are made before one becomes an order, with the experienced moldmaker involved in all of them.

Every minute that an experienced manager or employee spends making a quote, is one less minute spent on actual production. That is an opportunity cost the business does not have to accept: if the quoting process could be streamlined and simplified, then managers and employees could spend more time directly on activities that support the bottom line.

One way to streamline the process is to use a software module for quoting and estimating. Another, and important, way to streamline the quoting process is to have historical data readily available during the quoting process. Often one quote will be similar to a previous quote or job. Utilizing historical data as a template, particularly data from previous profitable jobs, can not only streamline the quoting process but also ensure the quotation

is set at the right level. This captured data can be exploited even further and placed with calculations into spreadsheets to accurately calculate costs and hours for a particular job.

► **Analyzing Data**

Manufacturing departments and job shops start the estimating process by first analyzing the part that has to be manufactured. In some cases this may involve loading the geometric CAD data. Being able to load standard file formats such as IGES and STEP is important, yet it may also be necessary to load popular native CAD system files, such as Unigraphics or Catia.

Many people often confuse a CAD Viewer with a CAD Analyzer. The two are not the same. It is important that the person doing the quoting be able to gather data about the model to make the quotation as accurate as possible and to do that an integrated CAD data ‘analyzer’ is vital. For instance, using the volume of the part, and applying a specific density, the weight of the final part can be determined. From knowing the volume of the part, and the stock block size, the amount of material to be removed can be identified. Identifying varying thickness can help determine how to fixture parts. Knowing the smallest radii on the part will help to determine tool sizes for manufacturing, and so on...

► **Streamline and Track Paperwork**

Once a quotation is accepted, a company will usually receive a purchase order. The ERP system should have an automated way of converting the quote into an order. Keeping track of all paperwork associated with a job right from the start can save countless hours later trying to find missing documentation. Raw materials and other necessary components can be ordered from the quote turned job order.

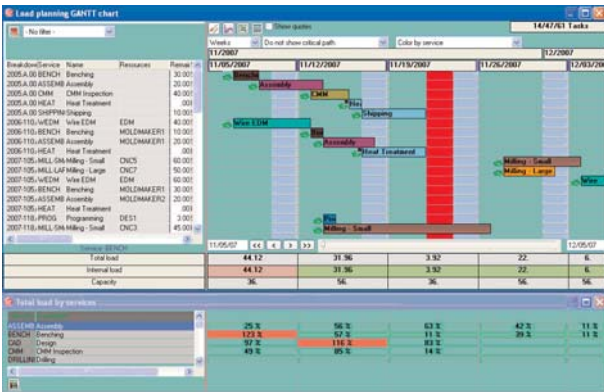
Having a document manager within the ERP system will give users the ability to quickly find all files associated with a particular job and quote – be they files of the original CAD data, purchase orders, invoices, shipping labels or emails and sign-offs associated with the job. Additionally, tiresome paperwork processes can be streamlined and automated. All job-related invoices, shipping labels, confirmations and other necessary documents can be automatically generated, printed or e-mailed.

► **Integrated Job Tracking and Scheduling**

Often the small business owner is also the manager, scheduler and salesperson. This person may spend a significant part of his or her morning’s work checking the status of each job. Add in interruptions, and it may not be until mid morning or

lunch when decisions are made and actions taken, by which time these are based on hours' old data.

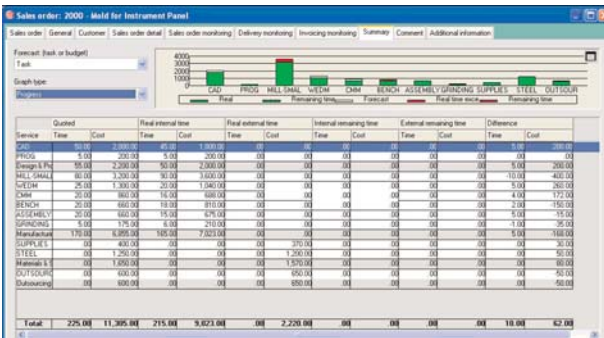
If certain tasks need to be adjusted, it is obviously best to do it when the work shift starts, not in the middle. Having a real time display of job and task status, at any time of day, allows the manager to make adjustments to keep processes moving smoothly. Naturally, the status can be checked any time during the day but also, if a night shift is in effect, it can be checked from a computer at home.



Scheduler shows the different processes, and where things are at.

Spending a few minutes using simple scheduler software can get any job off on track from the start. By setting a preferred finish date, and scheduling backwards with simple drag and drop functions, managers will be able to create information that can easily be shared with the employees. This can keep down-time, while people wait for their next job, to a minimum.

Using job tracking functions to compare real status to what was forecast in the initial quote or job, managers can know at a glance what is on track and what is not in terms of costs; both for time spent and for purchased materials. The manager can see at a glance whether the company is making money on a job, or starting to lose money.



Job Summary will show at a glance the status of any job. From quoted resources, used resources, scheduled resources and where there may be problems.

▶ Working with Subcontractors

Often a company will have to send certain work out to a sub contractor or third party. Tracking and managing portions of the job that are subcontracted are just as important as tracking internal jobs. Will the subcontracted elements be delivered on time? What has the particular subcontractor's track record been so far? Will the company's own jobs be ready at the same time as the subcontracted jobs?

▶ Working with Legacy Data

Many companies utilize simple office products such as Microsoft Word® and Microsoft Excel® when starting out. Often, a lot of useful data is contained within those spreadsheets. This data may include costs for processes, profit margins, rates for machine operations, etc. It does not make sense to force a small business to re-enter all of that data into a new job management software package. Proficient and easy to use job management software will allow users to utilize the data from existing spreadsheets. This data can be used to get a user productive with their new management software faster.

Similarly, companies may already have print templates in Microsoft Word®, prior to installing an ERP. If the ERP is capable using those pre-existing templates to print, this will save a lot of time during the configuration phase.

▶ Communicating with other Systems

Sharing the status of a job in progress with the customer is often part of the service process. It may be necessary to output job status into a file format usable by the customer, without giving away proprietary and special customer data. The file format to share information may be a simple Microsoft Office® product like Microsoft Excel® or something a little more detailed like Microsoft Project®. In either case, the small business should be able to share job status with their customer, without giving away company confidential information.

▶ Include Accounting or use Third Party Software?

Although there are many advantages to implementing a job management or ERP system early on, the reality is that there are many companies that have not. However, these companies have usually purchased and are already using an off-the-shelf accounting system.

Many complex ERP systems have accounting as a built in function and module. Other systems may work in conjunction with third party or off-the-shelf accounting packages. Many of these third party

accounting packages include an API, an application programming interface, to allow ERP and job management systems bi-directional communication with their system.

There are many benefits to retaining existing third party accounting software including significant time savings as users do not have to re-enter data and learn new software, and the company can pick or stick with the accounting system that works best for them.

► **Room to grow for mid sized manufacturers**

Is the ERP system chosen for the small to mid sized business suitable for the larger enterprise? Is the underlying database structure powerful enough to handle a large number of customers and suppliers? These are important considerations when selecting an ERP system.

When starting out, a company may simply use quoting, job tracking and analyzing functions. As the company grows, they may want to add items like bar code readers or touch screens for automatically entering and tracking time data. Perhaps eventually, they would like to add modules for inventory management, quality management or cash flow forecasting.



Workshop View, this allows you to see instantaneously, and in real time, which resources are busy, and which are idle.

Having a clear and easy growth path makes sense when evaluating the suitability of an ERP system. Ideally, modular software will allow new functionality to be added when needed, as opposed to the company spending up-front for functionality that will not be fully utilized in the short term.

► **Choosing an ERP or Job Management System**

When choosing a program on which to base their business management processes, the following are just some of the criteria a company should consider:

Security: How secure is the database, and how can a company limit access to certain data to different employees? The software should include controls for limiting functions and data by user.

Maintenance: What is required for maintaining and backing up the database? The simpler maintenance is, the more time people can spend on core company work.

Ease of Use: Any employee should be able to be trained on the basic functions in a short amount of time.

Company behind the software: Does the software developer understand the market? How long have they been in business?

Modules: Are the necessary functions available, either in the core product or in modules?

However, the most important aspect to consider is whether the system can grow as the company grows. It would be very expensive and time consuming to replace one system with another just because the original was unable to grow at the same pace as the company.

The answer for many companies may be the new project-based management solutions from SESCOI. The MyWorkPLAN job management system utilizes a powerful database for basic tasks of estimating, job tracking, information management and scheduling. As a small or medium-sized company's needs grow, it can purchase additional modules. Larger companies can purchase additional modules, or upgrade to WorkPLAN Enterprise. This solution allows companies to retain the same familiar user interface and common database at all stages of a company's growth.

► **Conclusion**

ERP systems are not just for large businesses. Using ERP or job management systems can bring benefits to small and mid sized companies. Real costs and opportunity costs increase the longer a company postpones implementing a job management solution. Choosing a small system that can grow as the business grows can make practical sense. This involves looking at systems with easy to use interfaces and a modular structure. In all cases, companies with project-based activity must use an ERP solution specifically designed for this purpose.

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