7 Reasons Companies Invest in New ERP

Executive Summary

You aren't happy with your current ERP software. Which is why you are searching around, evaluating and researching other ERP options. Because each manufacturer has specific business challenges, each has a different path when finding the perfect ERP solution. Let's see if we can help get you started on the right foot. Which one of these reasons to invest in new ERP software applies to you?

Why Should You Leave QuickBooks and Invest In Your First ERP Software?

Leaving behind the familiarity of QuickBooks and Excel spreadsheets might seem like taking off the training wheels of your business. However rudimentary, the two systems got the job done and for the most part, grew your company to where it is today. But there comes a time in every manufacturer's life when they realize that cobbled together spreadsheets, scheduling whiteboards and a QuickBooks program are not enough.

The QuickBooks path is common for young businesses. It begins with Excel spreadsheets and a manual whiteboard, and as the company grows and matures, a reliable accounting package such as QuickBooks is integrated into the mix.

Unfortunately, there is a limit to how far QuickBooks can take you and eventually, it no longer becomes about maintaining your company with multiple software systems in place, but rather taking the business to the next level. You need a new business management solution. This is why so many people invest in Enterprise Resource Planning (ERP) software. An ERP software system increases visibility throughout the whole company, allowing for quicker decision making and more opportunities to grow the business.

With ERP, gone are the stacks of spreadsheets and buried alive number crunchers who have to input duplicate data! Comprehensive ERP software serves as single data storage for all aspects of your business by integrating CRM, financials and production all in one place. With automated workflow tools, you don't have to wait on other departments to bring you batched information to upload - your ERP software can automatically update inventory levels, sales orders, capacity planning, production reports, the master schedule and much more.

Unlike QuickBooks, ERP software is fully scalable and will grow with your business, rather than limit the number of users you are allowed. QuickBooks has been known to have functionality issues as more concurrent users sign into the system.

ERP software is designed to keep your shop floor running at the most optimal levels. For example, powerful ERP software can automatically load your schedule, taking into account material constraints, BOM complexity, WIP processes, tooling conflicts and priority orders, while simultaneously evaluating the resources required to meet demand and allow for unplanned events.

ERP software can optimize your batch quantities through minimum and maximum run sizes, multiples of designations and time fences to eliminate unnecessary teardowns and resets and optimize production runs. With the ERP software's real-time, automatic production monitoring module collecting data at each work center, you can catch and respond to defect issues before they require costly re-runs.

An ERP system's business activity monitoring capabilities can notify you if you begin running out of a particular inventory item or if one of your production lines fails. It can also introduce business intelligence capabilities to your business' day-to-day operations, with forecasting tools, SPC analysis and dashboards tailored to your needs.

If you manufacture for an industry that is heavily regulated and requires you to meet certain quality standards, an ERP system can greatly assist in that area too! With lot and serial traceability, audit tools, electronic signatures and document control, ERP software systems are invaluable with audits and high level compliance.

ERP packages come in various levels of sophistication and price. There is a next step out there for every QuickBooks user, but you are cautioned against taking too small of a software leap. ERP software is a long term investment, not just in software cost, but in employee training and business practice effectiveness. Look to the future and choose a package and a provider that can grow with your business.

Moving away from QuickBooks and into an ERP software system will give you the confidence in your data that you never once felt. By eliminating those training wheels, you can rely on one system that doesn't involve third party vendors or limited scalability. Choosing a great ERP provider will leave you wondering why you didn't make the switch sooner.

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Why Ultimately Every Company Outgrows its Homegrown Software System

It is easy to understand how homegrown ERP software systems began. Companies evaluated off-the-shelf software and either didn't like the price or didn't find the business fit they were looking for. So instead of paying more than they felt comfortable with or changing business practices to fit the software, these companies set out on their own to build a homegrown system through internal employees, friends or local programmers.

And it worked. Encouraged by the early success, these companies then integrated their software with an accounting package that gave them access to the source code. The years passed and more specialized packages were integrated and more custom code added to the base. Pretty soon, the company had three programmers and a couple of local consultants working on the system. Business progressed along great for five, 10 or even 15 years …

But then one or several of the critical pieces began to unravel. The accounting package grew seriously out of date and compliance. The programming tools or operating system became no longer supported by their vendor. A key programming employee or consultant retired. The list can grow long, but the results were the same. The homegrown system had become a costly project and the business was at risk if just one more thing changed.

Custom systems are not much different. A company buys a competent ERP package from a regional vendor. They negotiate and win the rights to the source code so they can tailor the system to their preferences. Over time, the customization grows deeper and deeper. More products are bolted on. But just like a homegrown system, a software demise begins. The vendor is long gone, the programmers have changed jobs and the system is now irretractably isolated from modern technology …

While the benefits of a homegrown or custom system can be substantial, the risks and expense eventually become overwhelming. It is uncommon today to see a mid-market manufacturer start down the homegrown path. Today's best practice is to work with an established ERP vendor and, if necessary, have that vendor write special code to meet critical business needs. Not custom code, but code included in the ongoing mainstream base of the system so that future updates include the special features and they do not have to be reprogrammed with each new release.

Ultimately, over time, nearly every competitive manufacturer outgrows its homegrown system. The challenges (cost, time and lack of functionality) are too steep to keep company growth on track. Let's take a look at an example of a manufacturer who had

utilized its custom ERP system to the fullest before realizing it was time to move on: Mar-Bal, Inc. is a one-source solution provider of thermoset composite products. From design and formulation to compounding, molding and finishing, Mar-Bal is a privately-held manufacturing company with 350 employees producing state-of-the-art products across four facilities in North America. Over the last few years, Mar-Bal had been experiencing challenges in its day-to-day operations. Mar-Bal's customized (AS400-based) ERP software was outdated, preventing the necessary increase in manufacturing activity required to keep Mar-Bal competitive in today's global economy. As each year passed, it became more expensive to operate the old ERP system due to the specialized support required to maintain and upgrade it.

Among many of the old system's pain points was the absence of a strong Electronic Data Interchange (EDI) program required by Mar-Bal's customers. Inventory control with the old system was also sorely deficient. The inability to scan inventory from the shop floor was making inventory management a manual and extremely time-consuming process that included redundant data entry and unavoidable data entry errors. To round it all out, the old ERP system contained very limited reporting tools and forecasting abilities and no way to easily segregate the separate plants' costs and sales.

Mar-Bal had two options: pour more money into its outdated system and attempt to manually streamline processes in its manufacturing system, or find a new ERP provider. Mar-Bal chose the latter and the search began for a modern system with more capabilities that wouldn't add more operational costs to the existing organization. Mar-Bal selected a manufacturing-specific ERP and MES solution from an established ERP vendor.

After implementation, Mar-Bal's total annual savings were $270,000 across its four plants as well as nearly 5,000 potential machine hours that were no longer lost to downtime for monthly physical inventory checks.

Like most manufacturers, Mar-Bal, Inc. was ready to significantly grow its business. The company realized that its homegrown, customized system was holding it back and took the steps necessary to find and implement a new, modern ERP solution.

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Legacy ERP Systems: The Backstory

A legacy ERP system is older enterprise software that is largely no longer being enhanced. Legacy ERP systems were usually first created in the 1980s or early 1990s and were often based on older technology like PIC, Progress or even DOS. Their original user interfaces were character-based, though many received facelifts over the years, often using Windows clients to provide some degree of modern UI look and feel. Most also have some sort of bolt-on business intelligence tool for improved reporting and analytics.

Legacy ERP systems typically have rich, industry-specific business functionality, which is often how they came to be legacy systems in the first place. Their creators kept writing application code to meet the needs of existing customers and never invested in re-platforming the system on modern technology.

At some point, the original ERP vendor reached a point in the product lifecycle where they could no longer convince prospects to accept the rich functionality as a viable tradeoff for the outdated technology. This made continuing to invest in selling the system unprofitable and left the owners with no strategy for the business other than to sell the product and its installed base to a larger software company with forward focused ERP technology.

In the years between 2000 and 2010, it was commonplace for legacy system founders to sell their businesses to larger software companies. It was a sound exit strategy for the founders and they found ready buyers in the larger enterprise software companies. The number of independent legacy ERP vendors shrank by hundreds during this era. The larger companies saw the legacy installed base as a ready source of reliable cash flow from maintenance fees and as a captive market to sell their newer technology. The thinking was that the legacy customers would quietly and quickly upgrade to the new parent's go-forward system.

The acquiring company's business plan was to cut the sales, marketing and development costs out of the legacy system's operating infrastructure. They would typically keep one or two key development and support personnel to keep the system on life support, then raise or hold maintenance fees and cut out all other the costs. With this strategy, profit margins on legacy systems often exceeded 75 percent.

As it turned out, legacy customers did not always jump so quickly to the new owner's modern ERP solution. There were several reasons the migration did not go as smooth as planned. The first reason was that there was really no commonalty between the old system and the new system the customer was being asked to migrate to. From a training and implementation perspective, you really were just starting over. Second, the

new systems lacked the deep, industry-specific functionality of the older system. The customer had to give up a lot of finely-tuned business processes to use the new system.

Third, many of the new systems' developers overreached on the underlying system programming languages, middleware and databases. This resulted in technical complexity that manifested itself in slow performance. Finally, many of the acquiring companies got greedy with support fees, significantly increasing them shortly after acquisition and alienating the legacy customer base.

To counter these missteps, many of the acquiring companies offered like-for-like no cost license exchanges. However, when customers got to the end of the sales process, the cost of was not like-for-like and the additional cost of re-implementation was so large that customers began to look at what other providers would charge for a new system. They often found that they could buy an entirely new system, from a different vendor, with better business fit and for less money, than what the new owners were asking. Today, it is entirely typical to see a company that has decided to move away from its legacy system, enter the marketplace and evaluate multiple vendors.

The roll-up of legacy ERP systems has mostly played out and the desirable legacy ERP companies have largely been acquired. In some cases, they have been bought and sold more than once. More commonly, what we see in the marketplace today, is the larger ERP companies buying third-party technology to fill holes in their product line. Extended functionality such as business intelligence, CRM, MES and WMS are being scooped up and then attempted to integrate into the parent company's core system.

For the most part, the acquiring companies have learned their lesson about dramatically raising support prices, but they still shortcut the integrations of the companion technologies and reduce staff and service levels. The bolt-ons gradually assume the status of "not invented here or didn't work out like we planned" and are pushed to the backburner while yet another acquisition assumes a role as front stage darling—until the next big thing comes along.

Several early ERP system companies did have the foresight to re-platform their systems. Today, these companies enjoy rich, industry-specific functionality and the modern technology that enables advanced features like mobile apps and touch screen user interfaces. They are often the best choice for small and mid-market companies that require deep functionality and fast system performance.

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IQMS
Manufacturing ERP

Are Customer or Regulatory Requirements Keeping You From Obtaining New Business?

Securing new customers is not a straightforward task. How many times have you negotiated a prospective contract to the finish line, only to discover that you are missing a critical piece of software necessary to obtain the new business? For example:

- A medical device seller requires that you have end-to-end lot and serial traceability functionality in the event of a recall.
- A large automotive manufacturer requires EDI in order to communicate.
- A new prospect requires a very unique and specific labeling and pallet structure in order to accept the goods you produce for them.
- The automotive (TS), medical (FDA, 21 CFR Part 11) or ISO certification you are struggling to obtain requires functionality that your current software does not offer.

You are not alone. Many manufacturers struggle to secure new customers (and ultimately grow their business) because they lack technical functionality found in a modern software system. Whether it is because you own a legacy ERP system that is no longer being supported, you operate with a cobbled together combination of Excel spreadsheets and QuickBooks or your software is too general or mis-purposed for manufacturing, in order to land large, long-term customers, you need to consider upgrading to a more modern ERP solution.

Many ERP vendors try to sell best of breed ERP as the ultimate solution. While integration of third-party programs into a core ERP system can work, it won't give you the end-to-end traceability and visibility required by many customers and regulatory organizations. Not to mention, the integration is typically fraught with challenges such as duplicate data entry, information delays and silos, interface issues and customization expenses.

The key to solving the challenges above is a comprehensive ERP solution. Comprehensive being the key word here. Comprehensive ERP is 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 system is what makes every aspect of your business visible, traceable and incredibly efficient.

Let's look at some of the customer and regulatory challenges that are solved with comprehensive ERP:

Serial and Lot Tracking: From the raw materials in your warehouse, to the work center they were processed on, all the way to the shipping truck, comprehensive serial and lot tracking allows you to follow the lifecycle of every piece, part, box and pallet in your company automatically.

Quality and Risk Management: Mitigate risk, adhere to strict certification requirements and maintain customer compliance requests with a suite of quality management products, including certificates of conformance, document control, SPC, quality audit, MRB, ECO, CAR and PLM found in a native quality management system.

Complicated Label Requirements: A comprehensive labeling application with features specific to your manufacturing industry can help you create customer-specific labels with individualized barcodes, print different sized or colored labels on the fly for quick part identification and differentiation, handle multiple label types (product, container, shipping and mix-load), eliminate mismatched items, utilize label sequencing capabilities and accurately print the correct label every time.

EDI: With an Electronic Data Interchange (EDI) module, you can easily translate incoming files directly into your ERP solution and then automatically generate outgoing files for transfer back to your customers and suppliers. Embedded EDI also automatically alerts you to any change in deliverables, quantities or due dates, for up-to-the-minute order accuracy.

Customer or compliance challenges brought on from a lack of modern software tools do not have to keep you from securing new business. With a comprehensive ERP solution, you can wow auditors and customers alike with your traceable and transparent quality processes throughout your organization.

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Auditing ERP for Manufacturing Fit and Functionality

Does this describe your current ERP situation?

My ERP software is not manufacturing-specific and lacks the features and modules my shop floor needs. It is a general purpose or mis-purposed system that is really for wholesale distribution, accounting, etc.

In other words, your ERP system may be lacking software fit and functionality. Software functionality relates to the modules, tools and features available to meet the needs of your business, such as finance and accounting, inventory and purchasing, production execution, warehouse management and customer relationship management.

Software fit equates to how well those modules' functionalities meet the needs of your specific business type and practices. Two ERP systems can have the exact same list of functions, but behave entirely differently (An inventory control module designed for wholesale distribution is of little use to a manufacturer). Both functionality and fit are essential to finding the best ERP solution, so both should be given substantial consideration.

Functionality Audit: In a modern manufacturing environment, common wisdom maintains that three pieces of information technology are essential to growth and business success: Enterprise Resource Planning (ERP) software, a Manufacturing Execution System (MES) and Customer Relationship Management (CRM) software. While this wisdom is most certainly true, it can also be misleading, as ERP, MES and CRM are broad terms that often serve as placeholders for more detailed lists of the functionality necessary to optimize a manufacturing operation.

Below is a more specific list to assist in your internal audit of necessary software tools and features. When evaluating new or current ERP functionality, be sure to also consider whether the tools are native to the core system or whether they are third-party programs loosely integrated by the software vendor.

While integration of external programs can work, the process is often fraught with challenges such as duplicate data entry, information delays and silos, interface issues and customization expenses. The benefits of a native ERP solution are extensive, including visibility and traceability into every aspect of your business, employee-wide accountability and real-time speed and responsiveness.

You can use the list below two ways: To audit your current ERP software for manufacturing functionality, or if you are considering a new ERP system, to narrow your selection to two or three finalists. The Fit Acid Test later in this document is the ultimate arbitrator of which ERP system does or does not make the final cut.

ERP	Details
Financial Accounting	General ledger, fixed asset, payables receivables (cash application and collections), cash management, budgeting, costing
Order Processing	Order entry, credit checking, pricing, available/capable to promise, forecasting, sales analysis
Material Resource Planning	Production planning, resource planning, scheduling, inventory control, purchasing
Supply Chain Management	Planning, supplier scheduling, product configurator, purchasing, inventory, claim processing, warehousing
Electronic Data Interchange (EDI)	Electronic interfaces for customer and suppliers, POs, shipping notification, invoices
Warehouse Management	Receiving, put away, picking and packing
Business Intelligence Reporting & Dashboards	Standard reports, reporting writing, ad hoc queries, summary dashboards and alerts
MES	
Product Definitions	Version control and exchange master data focused on defining how to make a product
Production Scheduling	Production schedule, work orders, production requirements, received from ERP to make optimal use of resources
Production Dispatch and Execution	Distribution of batches, runs and work orders, adjustment to unanticipated conditions. Checks on resources and informing other systems about the progress of production processes
Process Monitoring	Collection of process data, equipment status, material lot information and production logs in a data historian. Performance analysis of raw production data. WIP overviews, period production performance,overall equipment effectiveness or any other performance indicator. Track and trace. Registration and retrieval of information that presents a complete history of lots, orders and equipment parameters that can feed a statistical process control module
Digitizing, Audit and Quality	Digitizing log data with edit lock, also pulling data from the supervisory control and data acquisition system into the common databank. Audit utilities to evaluate and document performance and events. Statistical quality control tools

CRM	Details
Customer Information	Company and contact information, sales history, contact history, open and closed opportunities
Prospect Information	Company and contact information, contact history, open and closed opportunities
Pipeline Management	Ability to report of the value and likelihood of open opportunities
Marketing Campaigns	Ability to create and track email campaigns
Customer Service Management	Company and contact information, open calls, closed calls, call metrics, ability to track service calls by issue type.
Technology	
Single Database	All sub-systems run from one database and one native body of code
Real-Time	Information flows through the system in real time. There are no batch updates
Ability to Manage Multiple Locations	Total cross-location visibility of all information in real time
Ability to Scale Users	Ability to maintain performance within broad user, load and storage parameters
Deployment	Software licenses purchased and deployed on company premises. Software licenses purchased and deployed at a third-party data center. SaaS or Cloud software rented from a software provider and hosted in their data center

Fit Acid Test(s): Once you have audited the functionality and fit with the tools above, ask your team the following question, "What makes our business unique and what thing(s) do we do that makes us consistently profitable?" For some, it will be changing colors on the fly, for others it will absolute cost control and for still others is might be a unique pricing plan. It has been my experience that every business has a secret sauce that is actually an essential business strategy. Define that strategy and determine with absolute certainty that the ERP systems you are evaluating can implement it perfectly.

Perform this simple acid test, check the boxes on function and fit and determine that your top vendors offer a choice of deployment options and chances are very high you will pick the right finalists.

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How to Increase Plant Capacity Without Adding Resources

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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Deployment Options to Consider When Your Hardware Needs to be Replaced

One of the most compelling events that leads to investing in new ERP software is a hardware failure or notification from your vendor that your hardware is no longer supported. This event is typically associated with a business that runs a legacy ERP system. When your hardware is no longer viable, there are several courses of action:

- Buy replacement hardware and continue running your old software
- Look for a third-party vendor that will repair and support your old hardware
- Consider updating both your hardware and your ERP software

When hardware fails or becomes excessively risky, often the mindset of owners and business managers is to choose the last bullet above and look at both new hardware and software. To most, the hardware event seems a like bit of an omen or a mark in time that means it is time to upgrade to modern ERP technology. This feeling is usually compounded by the fact that this is not the first time they have had to buy new hardware and in fact their software really is very old.

Once this decision is made, there are several choices to consider regarding how your new software is deployed:

- On premise (in-house) based hardware and software
- Buying and implementing new software, such as Rackspace and SunGard, but hosting it on rented hardware in a data center, instead of on premise
- Going the Cloud or SaaS route and effectively renting both the software and hardware from a vendor

On premise-based ERP means buying new equipment, licensing new software and investing in implementation and training. Because ERP systems are typically kept for 10 to 15 years, on premise-based ERP has the highest initial cost of ownership, but the lowest long-term cost of ownership. On premise-based ERP and its start-up costs can be treated as a capital expense. The amortization of the initial cost over this long period actually makes on premise-based ERP very affordable.

For businesses with strict confidentially or regulatory concerns, on premise-based ERP may be the only option. For companies with many locations, on premise-based ERP is also a good option, since the remote locations are effectively hosted anyway, greatly diminishing the benefits of hosted or Cloud solutions. The primary hidden expenses of on premise implementations are:

- Software and database updates and maintenance routines, e.g. the soft costs of ERP ownership
- Less redundant systems, backups, Internet and power options at reasonable prices

Hosting new software in a data center has become a popular alternate to on premise ERP. Hosted services address most of the upfront hardware costs associated with a pure on premise deployment and eliminate the issue of end-of-life hardware, while still allowing for long-term amortization of the software licenses, training, implementation costs and control of updates.

Hosting centers can also provide fully redundant systems, backups, Internet service and power. If necessary, they can also provide physically independent locations that ensure protection from natural disasters such as earthquakes, tornadoes and hurricanes. The downsides to hosted implementations are:

- Continued exposure to strict confidentially or regulatory concerns
- Software and database updates and maintenance are still the company's responsibility
- The cost of hosting over a 15 year period will exceed the cost of on premise hardware
- The hardware costs are not capitalizable

Newer SaaS and Cloud solutions perhaps get more press than any other deployment option. The upside of a pure Cloud solution is the almost complete lack of an IT footprint. No software or database updates, no backup or redundancy concerns and certainly no hardware concerns. SaaS and Cloud solutions are relatively painless to maintain.

There are several downsides to Cloud implementations though. Cost is a key issue. While Cloud or SaaS solutions do have a much lower initial cost of purchase (all you really have to pay for up front is the training and implementation), in ballpark figures, a SaaS or Cloud system's total cost of ownership over a 15 year period will be twice the cost of an on premise solution. The higher vendor costs are offset to some extent by reduced soft costs for updates, maintenance, etc., however not completely. Additionally, as your ERP software is probably not the only technology in the building that requires some IT attention, you will likely still have to keep an IT staff on hand. Finally, keep in mind many vendors require a two to four year subscription commitment.

A few key downsides of Cloud solutions are:

- Performance. It is often the case that SaaS solutions perform as quickly as an on premise solution. For companies that are used to instantaneous key stroke responses, this can be frustrating. It is particularly apparent in heads down back office situations
- If your business is short on cash or if you are not happy with the vendor, there are no options to go off service
- You don't have your data. So if you do decide to switch vendors, your data is in the Cloud. You must firmly understand your ability to access for a system conversion before entering into any Cloud agreements

As a final point, don't forget to understand the IT complexity of the system you are buying. Who is responsible for the database is a key question to consider. Some vendors require the customer to buy, install and support the ERP database. Others embed a database that the end user does not have to maintain.

With all this being said, there is no one right solution. On premise is affordable and comes with a sense of total control. Cloud is easy, but comes with a higher price and some control and security concerns. More and more, we are seeing manufacturers lean toward the middle, hybrid option: Purchase the software licenses outright and own your data, but host the hardware in a reliable data center.

It is difficult to predict your company's future hardware needs, so when it comes time to evaluate new ERP vendors, find one that offers all three options: On premise, hosted services or SaaS/Cloud. A software vendor that offers all three deployment options will not pigeonhole your company but offer you flexibility and scalability.

John Asi has nearly 20 years of enterprise software, system administration and IT experience. He currently works at IQMS, the leading authority in manufacturing-specific ERP and MES software.

If you would like to learn more about IQMS' comprehensive ERP solution, please visit www.iqms.com.