



**Top 10 Technologies  
Small and Midsize  
Manufacturers Can't  
Afford to Ignore**

## Abstract

Manufacturers today are looking for innovative ways to differentiate themselves in the competitive global marketplace. Understanding customers' needs in great detail has become an essential to being competitive.

One way to gain this understanding is to implement an enterprise resource planning (ERP) solution. ERP solutions consolidate business operations, enhancing your businesses ability to be agile. Not only do these systems deliver on technology that you can boast about over coffee with a colleague, the business advantages include the ability to streamline your organization's processes to reduce waste, improve throughput, and ultimately meet your customer's value stream; improving odds for continued business in the future.

As we delve into the *"Top 10 Technologies Small and Midsize Manufacturers Can't Afford to Ignore"*, you may see opportunities to reinvent the business processes you currently deploy by investing in new technology. You will also see barriers to complex industries come down as technology that bridges the gap for complying in these industries exist. Epicor has experience in nearly all industries in manufacturing, including Medical Device, A&D, Industrial Machinery, Electronics, Energy, and much more. Epicor can help your business reduce risk and add industry diversity to its strategy.

Epicor is a technology partner with over 40 years of expertise in helping small and midsize manufacturers meet new challenges with agile technology. To this end, a report from Gartner names Epicor as a Visionary in Gartner's Magic Quadrant for Single-Instance ERP for Product-Centric Midmarket Companies.<sup>1</sup> Between the lines of functional and technology value that we will be discussing, our ultimate goal for your time investment is that you understand that you're not alone in executing on your manufacturing business strategies, Epicor can help.

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<sup>1</sup> Gartner Inc. "Magic Quadrant for Single-Instance ERP for Product-Centric Midmarket Companies" by Christian Hestermann, Chris Pang and Nigel Montgomery, June 27, 2012.

# Table of Contents

- Technology for Small Manufacturers In Review ..... 1
- Top 10 Technologies.....2
  - Respond Faster, Go Paperless .....2
  - Tailored Business Processes That Execute Your Value Stream.....3
  - Highly Productive, Satisfied Employees.....4
  - Tightly Manage Cash: Buy Only What You Need .....4
  - Execute on Your Lean Strategy.....5
  - Engineer, Cost, and Build Complex, Multilevel Products.....6
  - Reduce Cost of Quality.....7
  - Worker on the Go, Data on the Go .....8
  - Bowling with the Bumpers Up .....9
  - Opportunities Drive Business Growth–Be Ready.....10
- Conclusion ..... 11
- About Epicor ..... 12

## Technology for Small Manufacturers In Review

The last two decades have seen a dramatic shift in use of technology to drive improvements in manufacturing operations. Just twenty years ago, many small and midsize manufacturers relied on paper based systems to run their businesses. These systems offered little business-wide visibility to aide customer support and required duplication of manual effort many times over.

With the wide adoption of Windows® technology in the 1990's, we started to see many applications developed to improve manufacturers operations through the use of computers to specifically help them more accurately track costs, improve on time delivery with online scheduling, and improve business visibility. You might know these systems as shop management systems, manufacturing and financial systems, ERP, and more. The end goal was to integrate the functions required to estimate, procure, produce, ship, and service customers better for improved profit.

And then came the internet and around the year 2000 we had the dot com bust. The technology of systems at that time just wasn't ready for internet availability. We have a very different story today. Today applications are built using a service-oriented architecture (SOA) which feeds off the power of the internet to deliver applications that can be deployed either at your shop or over the internet. We call the latter cloud-based solutions and many times they are available in a new model, which is subscription based called software as a service (SaaS).

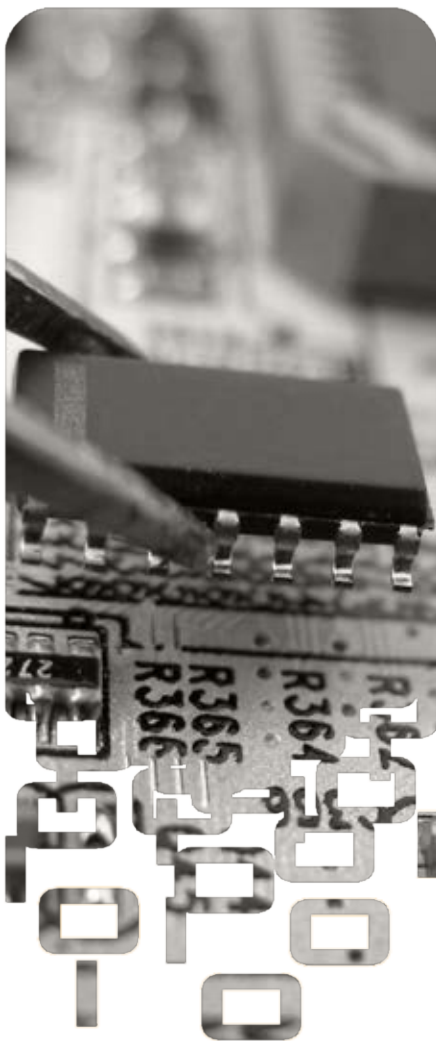
### Benefits of Cloud-based Solutions

The business benefits in choosing cloud-based solutions include the ability to reduce the noise of deployment of new technology; the IT component of installation and ongoing management of the systems is done for you. Your time can truly be spent doing what you do best, which is focusing on your customers. In addition, the pricing model for these systems is very attractive to small and startup businesses that are cash conscious. An ongoing predictable monthly fee for use of the system with a small startup covers not only the cost of licensing the software, it covers the application server needed to run the application, the ongoing maintenance and support of the systems needed, and access to phone and online support teams that are available to help.

### Epicor Express for Job Shops and Small Manufacturers

Epicor has developed a unique offering for small business, Epicor Express. Epicor Express is a comprehensive software system for job shops and small manufacturers that is provided in the Software-as-a-Service model. Epicor Express combines broad functionality into a complete end-to-end software system. As a manufacturer you are provided everything you need to manage your business, from quote to cash, including functionality for managing:

- Customers and contacts
- Opportunities and orders
- Products and production
- Accounting and payroll



**“We wanted the most current and future looking technology, and Epicor, with its roots in contract manufacturing, applications, as well its strong software as a service ERP solution, was a great fit.”**

Anthony L. Chirchirillo,  
CEO of Chirch Global

As it is delivered in the SaaS model, it enables you to focus on your core business instead of managing IT.

## Top 10 Technologies

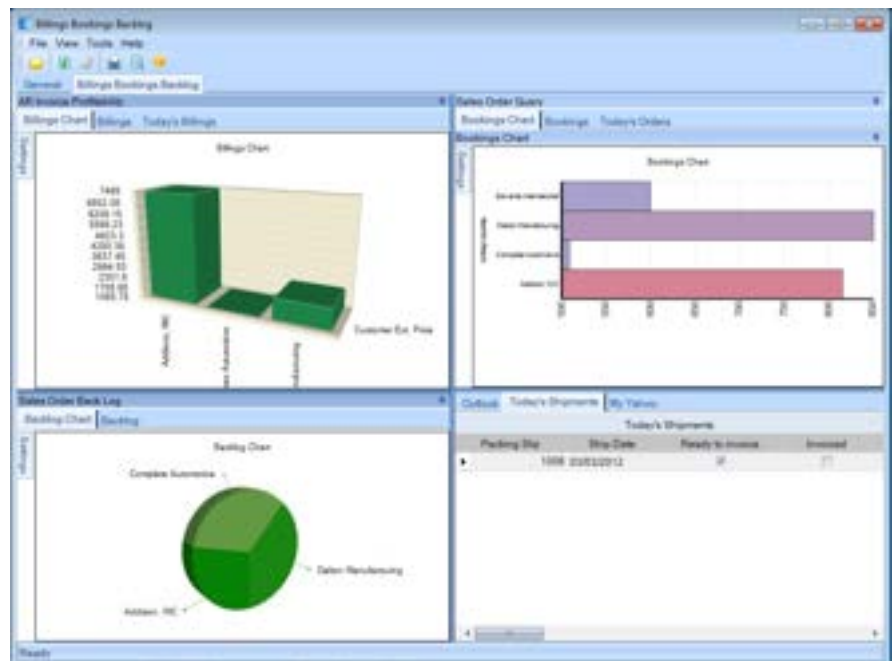
Epicor has experience in working with over 4,000 manufacturers around the world. Technology is what we see as a real advantage that enables our customers' ability to stay agile in the face of change while executing on their business strategies.

Whether your business strategies are focused on elimination of paper processes, driving new automation in the business, or empowering your employees with new access to information, you will find the return for today's latest technologies more than supports the cost and limited business disruption in considering and deploying a new system.

### Respond Faster, Go Paperless

#### User-based Dashboards

Everyone in the business has them; watchdog reports that you run every night or morning, sometimes throughout the day. They offer the status of production on the floor, purchases expected for delivery, quality events, and more. Without these reports, we are lost. What if there was a better way? What if we could have this information available to us online and have it live—with the latest information at all times. User-based exception dashboards enable us to do just that. It's a slice of your data with your applied filters that remove the "data noise" so you can focus on the problems. It might be the "late jobs" or "purchases received today" or "quality incidents today, this week, this month". It's really up to you as you can easily configure the dashboards one time, using your data, and continue to use them on a daily basis.



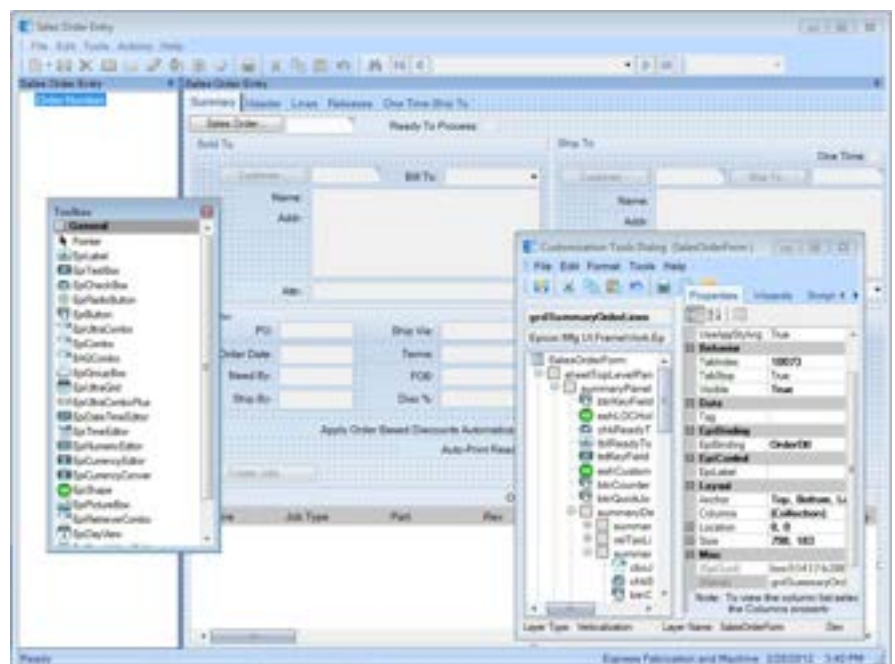
*Instantly see the operational data for improved decision making and exceptions-based management.*

## Tailored Business Processes That Execute Your Value Stream

### Embedded Customization and Personalization

Each manufacturer has developed their own set of personalized business processes that make them unique, and provide a competitive edge in their business. Some of these processes may be industry driven, customer driven, or driven from within the business based on the goals and strategies of your management team. For example, you might need to track on the order “special information” your customer needs and be able to include it in documentation that goes with each shipment of the order. This information can be tracked in the system alongside the other order data and used in printing, lookups, anywhere your data is accessed. In using embedded customization to tailor the system to meet your customer’s requirements, not only are you able to easily fulfill their requirements for data, you can also respond quickly when their needs change. Perhaps they want more data.

Another example of customization and personalization includes being able to tailor the environment your employees use on a daily basis. With so many manufacturers looking for ways to improve employee productivity and satisfaction at the same time, this is a win-win. To do this, we recognize that not every employee uses the system in the same way. Many times we see casual users “those that access and review information periodically” and power users “those that are heads down in data entry.” In general, it’s impossible to develop an interface that pleases everyone. Some have to compromise. The compromise can be either one type of user giving up functionality to “keep things simple” or another user living with complexity they don’t need. Customization and personalization provides a technology solution that can bridge the gap by delivering a tailored interface that optimizes the time a user spends on the system. The user can tailor the tab stops (where the system stops as you tab through the application), make a field invisible, modify the colors and fonts of fields, even the positioning of windows so that they can maximize use of the interface to quickly see what’s needed and to get the job done.



Users can modify any form to make it their own and optimize their day-to-day working in the software.

## Highly Productive, Satisfied Employees

### Grid Access

There really was only one thing we gave up in the move away from “the green screen” and that was speed in entering and making changes to information. Back in the day, you could bring up a list of line items, make necessary changes to each line in a single grid and process it. You didn't need to bring up each line individually to make the change, it just worked that way.

With accessibility back in grid entry, systems give productivity power to users by enabling them to make sweeping changes across multiple records more easily. Taking grid entry to the next level, developers have enabled integration with Microsoft® Excel® to simplify bringing in multiple rows of data from Excel spread sheets by pasting them into the grid—there is no need for retyping.

Some great uses of the Microsoft® Excel® integration include bringing in a materials list on a bill of material, updating or entering a new schedule of shipments, and entering a series of closing journal entries received from your accountant.

Open	Del	Deling	Requested Qty	UOM	Ship Dt	Reord Dt	Proc Release	Make	Interhouse
✓	1		1000000	EA	07190012	07190012	SP	SP	mlg
✓	2		30 0000	EA	07200012	07200012	SP	SP	mlg
✓	3		20 0000	EA	08020012	08020012	SP	SP	mlg
✓	4		20 0000	EA	08090012	08090012	SP	SP	mlg
✓	5		10 0000	EA	08160012	08160012	SP	SP	mlg
✓	6		20 0000	EA	08240012	08240012	SP	SP	mlg
✓	7		30 0000	EA	08310012	08310012	SP	SP	mlg
✓	8		10 0000	EA	08140012	08140012	SP	SP	mlg
✓	9		00 0000	EA	08020012	08020012	SP	SP	mlg

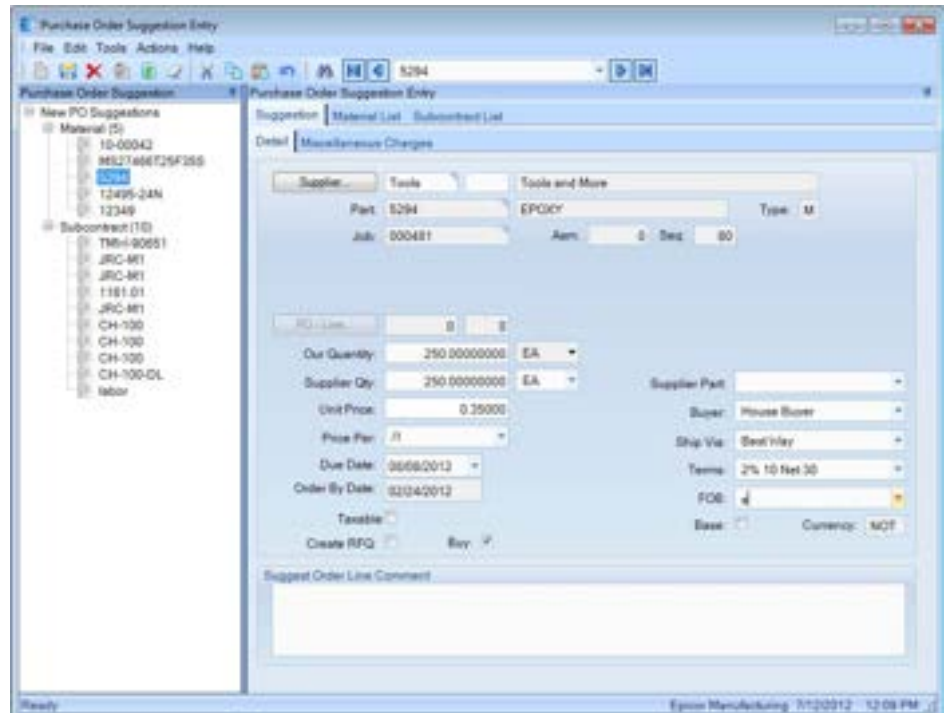
Access and update multiple ship dates with options to copy and paste directly from Microsoft® Excel®.

## Tightly Manage Cash: Buy Only What You Need

### Purchase Suggestions

We all have seen the spreadsheets and slips of paper come across the purchasing managers' desk with handwritten notes to direct timely purchases. Visual cues are great but what happens when a queue gets missed and a purchase isn't available when you need it? If your business is like many others, you make a quick purchase that ends up costing more than it should or you risk shipping to your customer late. This is compounded by the time spent in the purchasing process for these one off purchases.

Technology exists today that works in tandem with production scheduling to help your business make Just In Time (JIT) purchases and drive buying power from suppliers on bulk purchases. It does this by providing your purchase manager with purchase suggestions that enable them to see what's needed when based on the latest schedule. They can even look into the future to see what demand for material exists next week, next month, potentially even further out.



*Direct your purchase manager on what to buy based on the schedule, not a handwritten note from engineering.*

The tight tie to scheduling, down to an operational step (related operation), is important because, schedules change. Whether your customer has changed their mind or you are predicting a demand change, the ability to make the schedule and material purchases mesh up, enables the business to only buy what is needed and save capital for more important initiatives.

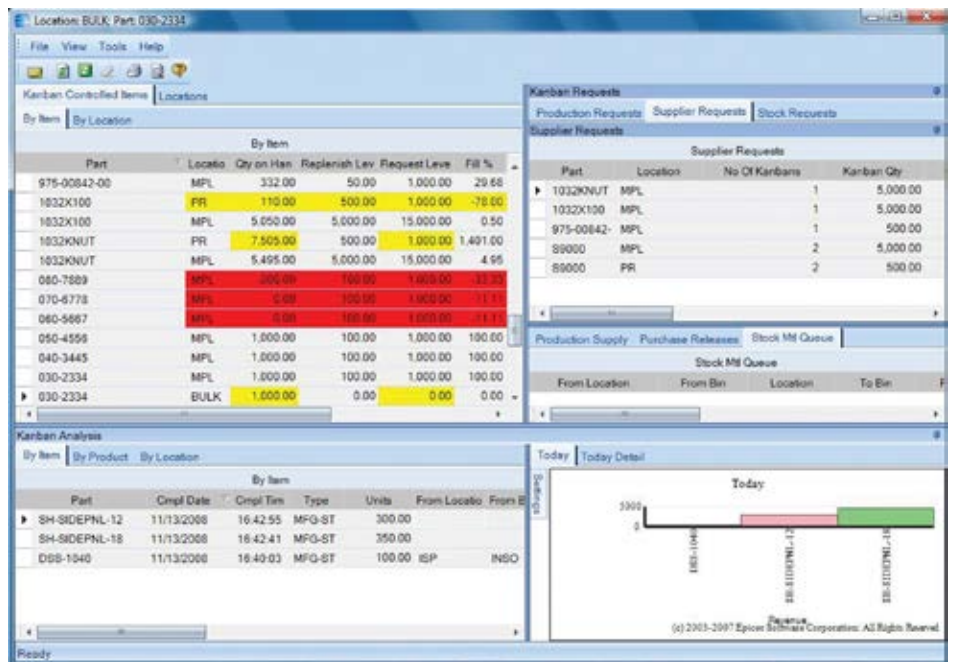
## Execute on Your Lean Strategy

### Lean Production

Reducing waste in the shop often requires thinking outside the box and deploying new methods for production management. Many shops today are executing on this strategy using shop floor visual cues or whiteboards with 10 or 20 parts that they continually maintain at certain stocking levels. They aren't executing production orders in the system for these parts as they fall below a replenishment level—rather, when the on hand inventory gets to a point, they just make more—work orderless.

Technology to support these systems offer Lean Production capabilities and are designed to manage a Work order-less Kanban manufacturing system with electronic replenishment queues-driven from demand (could be customer demand or demand directly from the shop floor). A Kanban Monitor dashboard keeps it real time and visual so that production knows exactly what is needed to meet demand.





Electronic Kanban provides visual replenishment queues.

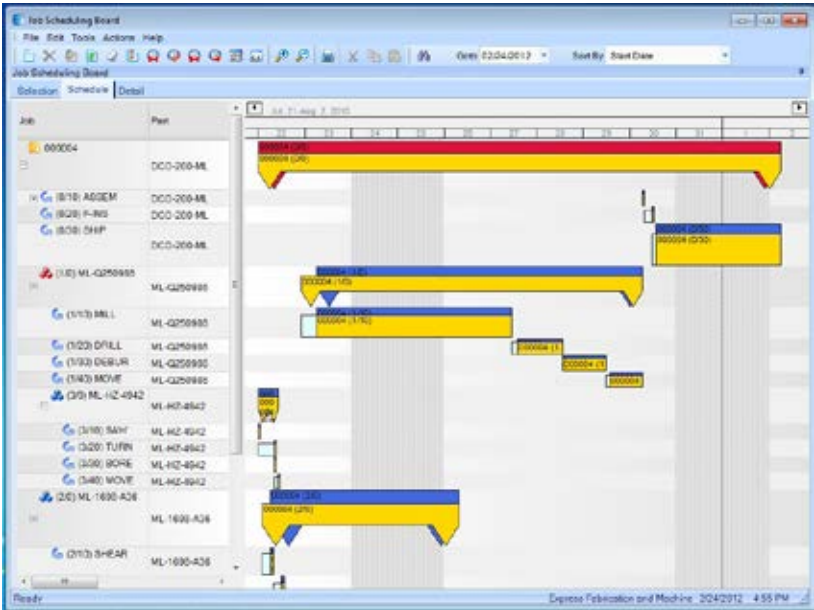
## Engineer, Cost, and Build Complex, Multilevel Products True Multilevel Capabilities

Product complexity is exploding at the same time that many OEMs and Tier 1 and Tier 2 manufacturers are reducing their supply network. As a result, more manufacturers in good standing are being asked to increase their product complexity, which is driving the need to be able estimate, cost, and build multilevel assemblies.

Let's start with the estimate and provide a tool for engineering and estimating to be able to quickly see the tree structure of a multilevel component and build/review the component structure all within a single view. What better way to ensure that no assembly is missing or that no step has been omitted. In doing so, we are mistake proofing the estimating process from potential costly mistakes.

In production, the multilevel assembly can be scheduled and monitored as a complete production job and costs maintained at both the final and assembly level. One of the largest benefits of having a single production job is that moving materials and components from one job to another isn't a concern—because it's all the same job.

And finally, accurately ship from work in process the final assembly, updating with accuracy the cost of sales of the shipment of the complete assembly. If profitability of these assemblies is a concern, multi-level capabilities might be the ticket to understanding where you fall short.

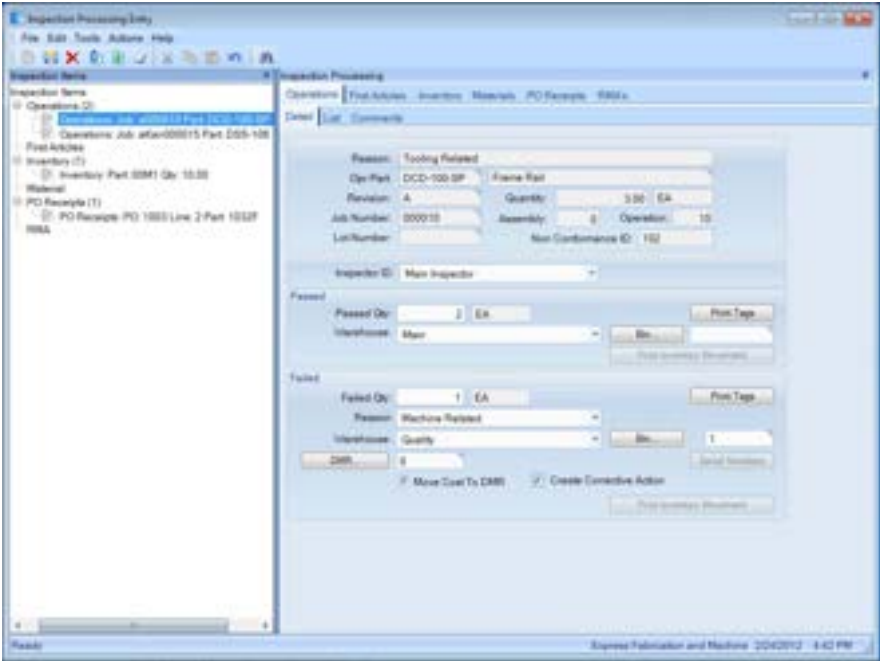


Manage and reschedule a multilevel assembly for optimum throughput.

### Reduce Cost of Quality

#### Embedded Quality

Quality continues to be a key differentiator for many manufacturers; this includes managing the quality of your suppliers. As more and more manufacturers continue to focus in this area, a driving theme emerges which makes quality and continuous improvement of processes a part of the culture of the business, rather than an isolated function in the shop.



Track results of supplier receipts with the online inspection processing.

Quality issues can happen anywhere in the business. As an example, some quality events can be traced to improper work instructions going to a supplier, missing documentation such as MSDS and other certification documentation, and engineering change orders—and that's not even taking into account what is happening on the shop floor that affects quality.

Empowering all your employees with quality information whether they are on the shop floor or the top floor ensures everyone is involved in the quality process and is embracing strategies to improve product quality. It all starts with technology that inherently includes quality in the process flow.

The quality process on the shop floor could be as simple as inspection of material at time of receipt and recording the results. It could also mean executing on a root cause analysis for a piece of equipment that needs to be retired. Armed with information, your management teams can have the data they need to make hard decisions and feel confident with the results.

## Worker on the Go, Data on the Go

### Access to Your Data Anywhere

Access to your business data when you need it, where you need it, is a critical business advantage. It can help you respond quickly to business events and be able to communicate with a higher level of knowledge in front of customers, suppliers, and on the shop floor. Contrast this with "I'll get back to you on that."

In addition, the young workforce coming into the business today is tuned for mobility and expects instant access to information. If creating an environment that is welcoming to these energetic and skilled employees is desired, Anywhere Access to Your Data can help. Below are just some of the scenarios where Anywhere Access can drive business value.

- Delivering a secure login for your accountant to review and report after hours, right from their office, when it is convenient.
- Checking on a critical job while on vacation or before you go into work for the day—did 2nd shift complete what we needed?
- Be able to accurately communicate with customers while you are onsite.
- Check the status of production flow and what's expected while walking around on the shop floor. Why is that machine not running?
- Being able to respond and have the information to execute plan b quickly when needed or to queue purchasing for a hot buy.
- Check inventory status, perform cycle counts, use mobile workers to deliver what's needed to production, rather than have operators looking for material, etc.
- Perhaps you need to just keep a keen eye on cash and want to know what cash was received for the day—to the minute, hour, day

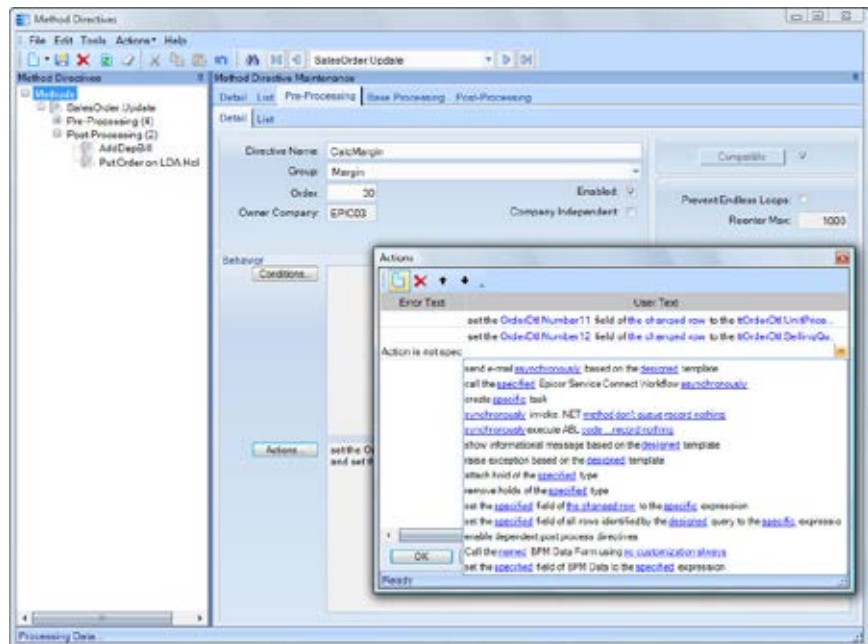
Epicor delivers on Access Anywhere through its cloud based solution, Epicor Express and Epicor ERP. In addition to this, for our on-premise customers, you can use an HTML based interface called Anywhere Access or use Epicor Mobile Access with updatable dashboard capabilities. We aren't always in the office when we need access to our business data, with Anywhere Access you can remove the tether to a stationary pc and take it with you.

## Bowling with the Bumpers Up

### Business Process Management

You don't have to leave it to chance. Your sales order person has for the fifth time now, accidentally chosen the wrong year for a release date, making you late once again. These are the types of things we can't predict, but perhaps we can control for the future. Business Process Management (BPM) allows you to put in a rule that can do one of the following things:

- Flash a warning message and ask if the operator really wants to do this
- Prevent the entry of an order release that far into the future
- Send an e-mail to a manager to confirm the order release date



Match your business processes with a rules based design tool for Business Process Management (BPM).

This is one example of use of a BPM to control your business processes. Anywhere within the system, when an event occurs, you can put rules around the event that do a check and have an action. Other examples of BPM include:

- Once a shipment is "shipped", the customer and salesperson are automatically sent an e-mail.
- Orders over a certain dollar amount or at a high discount percentage are put on hold, pending management approval.
- Jobs in production are automatically released to the floor once the material is received.
- A quality non conformance event triggers an e-mail to the production manager or quality manager.
- There are so many uses of BPM, this is a key feature that Epicor customers have deployed in their business and is helping to drive out wasted processes, is a critical tool for process automation, and is a critical tool to improve accuracy.

## Opportunities Drive Business Growth—Be Ready

### Platform to Support Business Growth

As your business grows, it's important that the technology you deploy is agile and scalable. With today's latest technology, editions of functionality provide easy transitions from one level of functionality to the next and offers a seamless upgrade experience for end users; same interface, same terminology. Epicor accomplishes this by not only having three editions of its award winning Epicor ERP; Epicor Express (Epicor cloud-based solution for Small Manufacturers and Job Shops), Epicor Standard (Epicor solution for single site manufacturers), and Epicor Enterprise (Epicor solution for enterprise-based manufacturers). Within each of the offerings, is a highly configurable module set so that you can not only scale your investment in licenses, also the implementation effort can be scaled as well.

In addition, many manufacturers today are looking outside the box to markets and geographies that offer enhanced profitability. Whether your business is interested in doing business in Medical Device, Aerospace & Defense, Automotive, Industrial Machinery, Fabricated Metals, Electronics, and many more manufacturing industries, knowing the technology you deploy can help you meet the needs of the new industry is critical, and can reduce risk and profitability in a new venture.



Alongside this, many manufacturers are looking to geographically place themselves closer to their customers; to do this may take locating a plant in a new geography. This could be a scary initiative and perhaps cause anxiety over not only will my technology work in this geography but will I have support for my employees there, and will the software be in their native language?. Will I lose visibility of my operations in an extended enterprise? Furthermore, will the software comply with the local requirements for taxation and reporting?

Epicor supports multiple deployment methodologies from an IT perspective and can manage the processes needed to build in one plant and sell in another, and perform interplant transfers and manage inventories in multiple locations. These robust multi-plant and multi-company operational features mean that whether it is more cost effective to add on to your current operations, purchase a competitive shop in another location, or simply build across the street, Epicor can support your operational needs for information. In addition, Epicor has localized and translated its award winning technologies in over 150 countries with over 30 different languages and has development and support offices around the world.

## Conclusion

If your current solution isn't keeping pace with technology on your behalf or if you have simply outgrown the solution; Epicor can help. Many manufacturing business like yours have partnered with Epicor as they look to leveraging technology to improve profitability and serve customers better.

Epicor with it's single manufacturing functionality coupled with deployment choices that manufacturers need to be successful.

It's a new day. Perhaps it's time for new technology. Epicor as a leader in technology innovation for manufacturers has the power to inspire your business and its leaders to see a new future.

## About Epicor

Epicor Software Corporation is a global leader delivering business software solutions to the manufacturing, distribution, retail, and service industries. With more than 40 years of experience, Epicor has more than 20,000 customers in over 150 countries. Epicor solutions enable companies to drive increased efficiency and improve profitability. With a history of innovation, industry expertise and passion for excellence, Epicor inspires customers to build lasting competitive advantage. Epicor provides the single point of accountability that local, regional, and global businesses demand. For more information, visit [www.epicor.com](http://www.epicor.com).



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