



Ten Critical Questions to Ask a Manufacturing ERP Vendor

Plex Online
White Paper

At a Glance:

- The ERP industry has earned such a poor reputation for delivery in the last 20 years that users have learned to live within a very narrow set of constraints.
- Many manufacturers focus on the wrong issues when considering ERP solutions and neglect to assess business model fit, architecture, and manufacturing functionality.
- Plex Systems offers this guide to help manufacturers break free of this limited mind-set and ask the more important questions when searching for a new ERP solution.



Cloud ERP for Manufacturers

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Business Model Fit

1. How does the proposed solution support the style of manufacturing?

There are dozens of types of manufacturing environments, from job-shop to cell-type organizations to highly complex automated systems and robotics. Additionally, manufacturers use hundreds of manufacturing processes (e.g., stamping, forging, machining, coating, assembly, etc.) across dozens of industries (e.g., automotive, aerospace and defense, medical devices, food processing, etc.). Each combination of manufacturing style, process, and industry has a completely unique set of requirements.

For example, makers of complex, highly configured machines cannot use the same interface as someone who runs high-speed automated equipment making thousands of pieces per hour. It simply isn't optimized for both businesses. The solution chosen must support the specific style of manufacturing and business model.

When evaluating ERP, ask the vendor if plant floor workers can attend system demonstrations or reference visits. If the system is difficult to use, it will become "shelf-ware" and the ROI will be completely compromised. If workers won't use the software, the company will not get the accurate, timely data it requires to streamline operations and improve quality.

2. Can a non-programmer develop a new business process in the system?

Billion-dollar industries have been created in the follow-on market, where consultants and programmers charge hundreds of dollars per hour to program hard-to-use legacy systems.

A new alternative is available, however: software supporting new business processes tailored to needs. Through point-and-click and drag-and-drop interfaces, advanced users should be able to create new screens or reports without writing any code.

3. How does the system support the "extended enterprise"?

The manufacturing operation doesn't exist as a stand-alone environment; suppliers and customers around the globe require direct access to data from the enterprise. That data connection must be both reliable and highly secure.

For the ultimate flexibility, an ERP system should expose any transaction to a customer or supplier— without any programming, and without installing software at the trading partner. Additionally, the interface to the system should be intuitive enough that suppliers and customers will not need training to use it effectively.

Useful reports include Problem Reports to track Corrective Action Requests; Lean Replenishment reports to support kanban or pull inventory; and Quality Management reports to track supplier quality.

Reporting and data should be accessible via a simple Web browser, without the need to build a separate “portal” for manufacturing partners. This not only simplifies access; it greatly accelerates deployment schedules— from weeks or months to just minutes.

4. How is the software licensed?

The enterprise software industry often plays games with software licensing, offering variable feature sets on a “per user” basis.

For example, software vendors convince their customers that only 20% of their workforce should be licensed. This keeps the initial price low and acceptable. Once the software is deployed throughout the enterprise, it becomes clear that to get full value from the software, many more people need to use it— and they all need full licenses, as opposed to the restricted functionality licenses often sold in initial implementations. Manufacturers, especially, are not accustomed to having so many people use the software and will underestimate the number of users necessary.

The plant floor is where the most important data in a company is created, and any system utilized in manufacturing must treat plant floor workers as knowledge workers, capturing and validating this important data at the point of origin. This means that plant floor workers need access to the software as well.

A more flexible, open licensing model allows complete deployment throughout the enterprise. Everyone adds value to the products and services, so the most effective system will capture important facts about everything going on as it happens.

Architecture & Development Approach

5. How many ways of accessing the system are there? Is the user interface consistent throughout the application?

ERP vendors might offer different client applications they have developed— one for Windows XP, one for Mac, one for Linux, two or three for various mobile devices, etc. This is not an optimal situation. Each software package must be tested and deployed,

and then maintained and upgraded according to its own schedule— and oftentimes features in one client package are not exactly duplicated in another application. The solution is simple: standardization on a Web browser as an interface, accessible from virtually any PC or device with a Web connection.

Look for consistency in navigating from screen to screen, in tabbing from field to field, and in how to enter, update, and find information in various parts of the system. A truly consistent interface across all sections of the software reduces training costs and increases adoption— driving faster time to value.

6. When and how was the original code base developed?

Be careful to differentiate between the “front-end” and the business logic. The front-end or user interface can be enhanced or modified quickly, giving users the impression that it belongs to a modern application while the original code is still in place underneath the interface. Such a system is difficult and expensive to maintain and enhance.

Likewise, the data structures supporting many older applications were based on inefficient “flat file” structures, not modern relational databases. Transaction control and reporting can be very difficult with such outdated architectures.

7. How many customers are on the latest release of the software and when was the latest release?

Most analysts estimate that fewer than 50% of enterprises are within two releases of the current version of their enterprise software packages.

This is especially important because the traditional method of delivering software is fraught with waste and delays. Makers of on-premise solutions provide software updates, at best, every six months or so. After the planning, hardware upgrades, operating systems patches, migration, testing, retraining and bug-fixing, more time has passed and the customer wonders whether it was worth the work and the disruption to their business. The end result is that most enterprises are two to five years behind the current state of technology, putting them at a disadvantage at a time when the industry is demanding they be more agile.

With SaaS software development techniques and delivery over the Internet, software vendors can release changes with greater frequency— even on a daily basis.

SaaS is a model whereby the software is accessed over the Internet from anywhere at any time. Users need only a Web browser to run their entire organization. Companies don't need to invest in and upgrade servers, operating systems, databases, backup

equipment, and complex programming environments. Organizations can deploy the application very rapidly since they don't have the lead time and hassles associated with configuring their local environments. Their software provider is contractually obligated to provide acceptable availability and response time. Software changes and system software upgrades are done without the customer having to lift a finger.

Manufacturing Functions

8. How are lean principles supported in the system?

Many vendors offer stand-alone solutions to perform certain lean planning functions. These are highly specialized, periodic analytical functions. Once the value streams are optimized, be sure to find out how the system supports lean execution. Is electronic kanban available? Are pull systems part of the core solution? Are transactions poka-yoke'd (mistake-proofed) at the point of origination? Is heijunka (demand leveling) available? And are these functions supported across the supply chain— with customers and suppliers?

Plex Online was designed from the ground up to embrace lean principles, and all of these are supported within the system.

9. How does the detailed data about production, scrap, downtime, labor, and quality inspections get into the system?

These are the most important factors affecting profitability and success at a manufacturer— and this is what manufacturing is all about. If this data is captured and validated as the activities are occurring, virtually everyone in the organization will have accurate, timely information for decision-making. Plex Systems recommends that you look for a single, logical portal to capture and validate this information as it is happening on the production floor and the shipping/receiving docks.

Today's manufacturing solutions should enable shop floor workers to be knowledge workers. Imagine a worker having everything needed at his fingertips to set up the workcenter quickly and accurately and to make, count, and measure parts or assemblies. Drawings, setup instructions, material requirements, customer alerts, inspection specifications and more should be available in electronic form on the shop floor.

10. Are inventory records directly tied to physical reality?

Many software solutions treat inventory as a dollar amount or, at best, several dollar amounts— Raw Material, WIP, Finished Goods. They focus on the accounting transactions. There can be a big disconnect between the physical reality and the dollars in the general ledger.

Consider a system that tracks inventory at the container level— whether it is a box of purchased parts, an expensive end product with its own serial number, or a coil of steel. The inventory listing would show each “container” of inventory, the stage of production that has been completed, and the accumulated cost up to that point.

For manufacturing operations in high-precision/high-liability industries such as aerospace, automotive, medical devices, or food it is critical to track the genealogy of products. Be sure to see how the traceability function works in any system. Is it automated and streamlined, or does it rely on an operator to key in the lot number of the source material?

Plex Online tracks serialized inventory at the container level, and tracks it at each step of the production process. The traceability features within Plex Online enable any user to quickly trace a defective product back to its point of origin, and then quickly track forward to any other parts that include the same defective material or incorrect manufacturing step.

About Plex Online

Plex Online, built on a Software as a Service (SaaS) Cloud model, offers more than 400 functions, providing manufacturers instant access to vital information and management features using a simple Web browser. The on-demand solution includes product lifecycle management (PLM) functions such as program and change management; enterprise resource planning (ERP) functions such as accounting and finance programs; customer relationship management (CRM) functions such as order entry and tracking; manufacturing execution systems (MES) functions such as production scheduling and machine integration; and supply chain management (SCM) functions such as supplier quality and traceability. For more information, see www.plex.com.



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