

10 Critical Questions Manufacturers Should Ask ERP Vendors



At a Glance:

- ERP vendors have a poor reputation for delivery, and users have learned to live within a very narrow set of constraints.
- Many manufacturers focus on the wrong issues when considering ERP systems and neglect to assess business model fit, architecture, and manufacturing functionality.
- Plex offers this guide to help you break free of this limited mind-set so you can ask more important questions when searching for a new ERP system.

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Business Model Fit

1. How does the proposed solution support your way of manufacturing?

There are dozens of types of manufacturing environments, from job-shop to cell-type organizations to highly complex automated systems and robotics. Manufacturers also use hundreds of processes (e.g., stamping, forging, machining, coating, assembly, etc.) across dozens of industries (e.g., automotive, aerospace and defense, 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 ERP system must support your 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 you likely won't get the ROI you want. If workers won't use the software, you won't get the accurate, timely data you need 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 by consultants and programmers who charge hundreds of dollars per hour to program hard-to-use legacy systems.

There is an alternative: software that supports new business processes and is tailored to your 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.

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3. How does the system support the “extended” enterprise?

Manufacturing operations don't exist in a stand-alone environment. Your suppliers and customers (from anywhere around the globe) require direct access to data from your 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. The interface to the system should also be intuitive enough that suppliers and customers don't need training to use it effectively.

Make sure the system includes useful reports like:

- Problem reports to track corrective action requests.
- Lean replenishment reports to support Kanban or pull inventory.
- Quality management reports to track supplier quality.

Reports 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 but also accelerates deployment schedules—from weeks or months to just minutes.

4. How is the system 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 percent 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 of licenses often sold in initial implementations. Since manufacturers are not accustomed to having so many people use the software, they will often underestimate the number of users necessary.

The plant floor is where your most important data in a company is created, and your ERP system must treat plant floor workers as knowledge workers,

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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 licensing model allows complete deployment throughout your 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 and Development Approach

5. How many ways can users access the system? Is the user interface consistent?

ERP vendors might offer different client applications—one for Windows, one for Mac, one for Linux, two for various mobile devices, etc. The problem with this is each software package must be tested and deployed, and then maintained and upgraded according to its own schedule. Features available in one client package are not always duplicated in another application.

Look for consistency within the ERP system 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 no matter how the user accesses it 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.

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7. How many customers are on the latest release, and when was it last available?

Most analysts estimate that fewer than 50 percent 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 the 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 cloud software development techniques and delivery over the Internet, software vendors can release changes with greater frequency—even on a daily basis.

The cloud model means the software is accessed over the Internet from anywhere at any time. You need only a web browser to run your entire organization. You don't need to invest in and upgrade servers, operating systems, databases, backup equipment, and complex programming environments. You can deploy the application very rapidly since you don't have the lead time and hassles associated with configuring your local environments. A cloud/SaaS provider is contractually obligated to provide acceptable availability and response time. Software changes and system software upgrades happen—and you don't have 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

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origination? Is heijunka (demand leveling) available? And are these functions supported across the supply chain—with customers and suppliers?

The Plex Manufacturing Cloud was designed from the shop floor 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 your profitability and success. 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. 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 leverage your shop floor workers as knowledge workers. Imagine a worker having everything needed at his or her fingertips to set up the workcenter quickly and accurately 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 several dollar amounts like raw material, WIP, finished goods. By focusing on the accounting transactions, you risk 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, or food, it is critical to track the genealogy of products.

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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?

The Plex Manufacturing Cloud ERP tracks serialized inventory at the container level, and tracks it at each step of the production process. The traceability features within Plex 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.

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About Plex

Plex is the Manufacturing Cloud, delivering industry-leading ERP and manufacturing automation to more than 500 companies across process and discrete industries. Plex pioneered Cloud solutions for the shop floor, connecting suppliers, machines, people, systems and customers with capabilities that are easy to configure, deliver continuous innovation and reduce IT costs. With insight that starts on the production line, Plex helps companies see and understand every aspect of their business ecosystems, enabling them to lead in an ever-changing market.