

ERP Manufacturing

Discrete or Process Manufacturing ERP? There is a difference.

Is your enterprise ready to make the leap to an integrated ERP system? It's a huge step, fraught with land mines. If you are a process manufacturer, the first mistake not to make is getting the wrong group of software vendors bidding on the implementation. That's because most ERP systems are designed for discrete manufacturing and just aren't up to the task of bending to the ways process manufacturers do business.

Discrete manufacturing entails the production of distinct items, say washing machines, turbines or cement mixers. The factory works to fill specific orders for highly differentiated products that differ from competitive products in easily identifiable ways.

Process manufacturing isn't about assembling pieces into a standardized solution. Instead it is characterized by formulas and recipes for mixing, separating, refining or performing chemical reactions between various ingredients, usually to produce a largely commoditized product, say paint, gasoline or soda pop.

One fundamental difference between ERP systems designed for discrete manufacturing as opposed to process manufacturing is that discrete products have serial numbers, a different one for each product that rolls off the assembly line. Process manufacturing software tracks products by lot numbers, the total weight or volume manufactured at one time. Software systems designed to handle these two very different approaches are fundamentally different, and adapting one to the other is incredibly complex. For example, in discrete manufacturing, quantities are expressed in whole numbers, like one automobile, a hundred photocopiers or a thousand laptops. In process manufacturing, quantities are expressed in ounces and pounds, liters and quarts, and the ability to convert between standard measurements and the metric system is a must.

ERP systems designed from the ground up for process manufacturers have added quality control capabilities that are well-suited to incoming inspection of raw materials and the need for quarantine management. Consistency from batch to batch is fully supported with quality control processes in the production process. Process-ready ERP systems also enable manufacturers to track research and development costs and keep records of all formulas and formula revisions. And, since formulations are the family jewels, process manufacturing ERP systems enforce high levels of security to prevent unauthorized eyes from ever seeing them.

Many process manufacturers, such as those in pharmaceutical, food and beverage industries, must adhere to strict regulatory environments and need an ERP system that helps them comply with applicable regulations. Serious lot tracking, from incoming raw materials, whatever the source, to every shipment, regardless of through what channel, is essential. Should a product recall be necessary, it is in a process manufacturer's best interest to keep it as focused as possible, rather than a wholesale and indiscriminate destruction of product. But it also needs to be instantaneous, with the ability to locate all affected lots with a few keystrokes. The FDA requires documentation establishing that an ERP system has a fully functioning traceability feature, including audit trail and electronic signatures.

A final tip for process manufacturers: Once you have ascertained that the ERP systems you are looking at have been architected at their core for process manufacturing environments, go one step further. Check to see what implementations they have made in your very specific vertical niche. There is a huge difference between refining gasoline and making cat food, something you want to discover earlier than later.