

## **What makes Process Process?**

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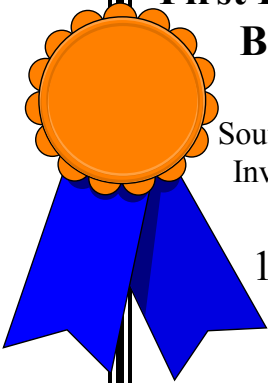
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Process ERP Partners, LLC  
Suite 334  
11 So. Angel Street  
Providence, RI 02906

401-421-6968  
Info@ProcessERP.com

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## What makes Process Process?

In the last few years, many vendors have announced applications focused on meeting the specific and unique requirements of the process enterprise. Analysts have coined the phrase Process-Enterprise Requirements Planning (P-ERP) to define this market. What companies should consider P-ERP products? According to the analyst community -- food, chemical and pharmaceutical companies are key process industries. In addition, paper, building materials, and textiles fit many analysts' description of process industries.

Yes, a lot of ERP attention is on the process industries, but at the same time, many of the larger ERP vendors are flooding the market with promotional strategies such as "centers of excellence" for many vertical markets -- government, retail, etc. One vendor's web page states that it is focused on eight different vertical markets, one being "process". With all the hype, what is this thing called P-ERP? More importantly, why should a company care? What makes process process?

### What's different?

To understand P-ERP, and whether you are a candidate for P-ERP, you need to look at the reality of your business. What characteristics of your business are different when compared to other types of businesses? When looking at ERP or P-ERP software, you need to understand the differences in your business characteristics. Those differences create the need for specific requirements in your business applications.

Look at the reality of your business. Remember:

**If you cannot model reality, you cannot manage reality.**

In running your business you understand what your company needs to be successful. The issue of "different" is one of comparing your needs to what the majority of ERP vendors consider the base requirements for an ERP package.

Looking at the fundamental areas (financials, production, etc.) of a company, we see that some areas have very few if any application characteristics that create these differences. How do the requirements for multiple currency support, or the structure of an earnings statement, change from one type of business to another? The answer is -- not much if at all. Therefore, a financial application is a good example of an ERP component that does not differ greatly from one industry to another. A process company's more unique issues and business characteristics relate to operational areas of the business -- the supply chain, inventory issues, production issues, etc. These areas deal with the processes of producing product and the utilization of materials to satisfy customer demand. These operational

applications are the ones that make or break the ability of a product to serve the needs of your business. Operational areas bring in the money! Operations is where ERP products need to be able to flexible and adequately address the shifting requirements of day-to-day demands of the businesses.

The various requirements that make or break P-ERP come from a number of basic business characteristics. Some of the most basic business characteristics of a process business deal with the most fundamental characteristics of materials, the predictability of both materials and processes, and the “shape of the bill of material.”

Are these issues important to the process supply chain? Yes, the process supply chain is very much impacted by these issues. For industrial sales, these issues impact the entire supply chain from vendor to customer. All parts of the industrial supply chain (inventory, warehousing, procurement, customer order management, planning) must understand these issues and take them into account. For consumer sales, these issues impact the supply chain from procurement to finished goods. From finished goods receipt to the final consumer, the impact of time on the material and lot management issues are required.

### **Characteristics of Materials**

The basic materials utilized by a discrete manufacturing company differ significantly from that of the process manufacturer. The discrete manufacturer “has it easy”. When a discrete manufacturer specifies material (parts) to his vendor, he gives a drawing number and very tight specifications (plus or minus a thousandth of an inch, for example) and exact delivery dates. In the process world, materials are defined more broadly, often with wide specification ranges (water content from 3 to 19%, for example) and date ranges due to seasonality or transportation uncertainty.

Process materials are often powder, liquid or gas on the raw material end -- and either the same (industrial companies) or cases of product (consumer goods companies) on the finished product end. The P-ERP system must allow you to measure and store these types of materials.

Let’s look at some of the basic inventory information that process companies require in a system to define and control inventory. The following analysis considers three types of companies: discrete, simple process, and complex process. Where do you fit? A process manufacturer must pay particular attention to production and logistics for materials management is critical to a process operation. World-class inventory management means 1) storage of inventory, 2) selecting the right material for customer order or production based on shelf life, quality, location, potency, etc. -- so you can maximize customer satisfaction or production performance. One way to understand the ability of a system to meet your needs is to test the database. If the database does not capture and track the kind of inventory information at the core of your business (does it model your particular reality?), it cannot help you manage it.

## Basic Material Definitions

Discrete	Simple Process	Complex
Item Number	Item Number	Item Number
Location	Location	Location
Quantity	Quantity	Quantity
	Unit of measure	Unit of measure
	Tank/silo	Catch weight
	Lot number	Tank/silo
	Aging information	Lot number
	Classification	Sub-lot number
		Container ID
		Container type
		Sub-lot number
		Container ID
		Aging information
		Classification
		Quality
		Hazards Information

### Predictability

A discrete manufacturer experiences relatively few surprises. They order 500 part A's from a vendor and he delivers 500, and parts either pass or fail to meet the spec. Since parts are all the same, they do not need to be segregated (no lot control requirement). Part A always fits with part B and together they always make sub-assembly C. When they set out to make 100 C's they almost always get 100 C's. If not, they have 98 C's and 2 scrapped C's. It's simple.

Contrast this to the lack of predictability inherent in a process manufacturing company. You specify 5000 pounds of material X with a range of acceptable spec. The vendor

delivers approximately 5000 pounds, but usually not exactly that amount. You need to test the material to see if it meets your spec and record what that spec is so you can utilize it correctly in satisfying production or customer demand (maybe blending it off or standardizing it if it is at the extreme end of the range). Since each shipment is a slightly different quality, you need to segregate shipments (lot control) to allow you to manage these differences. The formula says 100 pounds of A plus 100 pounds of B makes 190 pounds of C. But each time you produce C, you get a slightly different amount (yield loss or gain). Sometimes, you do not get C -- but you do get a product that is close to C that is called D. You cannot always predict all this. Your P-ERP system must allow you to plan for, react to and account for this lack of predictability in both quality and quantity.

### Bill Shape

Any software system is based on a business model. The discrete industries have always modeled the product with the Bill of Material. The classic Bill of Material application models a set of assumptions that are very valid for the discrete company. One of these assumptions is that many items (parts) make one end item. Since Bills are always drawn with the consumed parts at the bottom and the produced part at the top, the Bill of Material has a basic “A” shape. Outside of the discrete industries, other bill shapes exist. For example, a poultry processor or a refinery has a “V” shaped bill -- one item is processed into many items (i.e., a chicken is cut up and sold in many parts, breast, legs, thighs, etc.)

It is not that the designers of the Bill of Material set down a series of assumptions about the business characteristics that they were trying to address, they just limited their thinking to the needs of a specific kind of manufacturing operation – discrete. What are the assumptions inherent in the Bill of Material? What are the process realities?

	Bill of Materials Assumption	Process Reality
Bill shape	A	A, V, X, I
What is modeled	Product	Process
Predictable quality	Yes	No
Predictable quantity	Yes	No (yield)
Always made the same way?	Yes	No, use different materials and /or multiple processes

The primary determinant of the ability of a system to meet the production management needs of a process company is in the model of the process. If the model, as represented in the database is flawed, no amount of programming can make the system provide for these

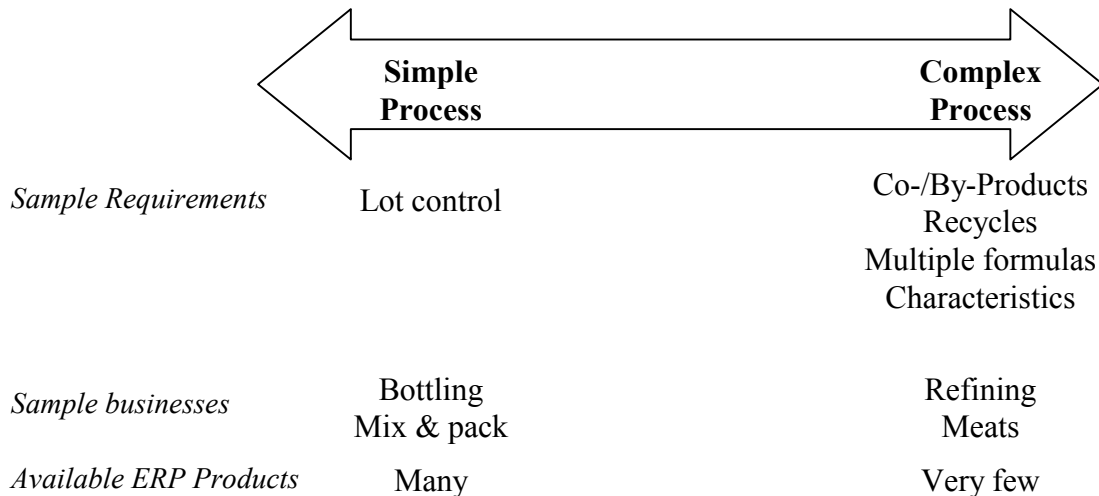
requirements. Where do these errors and problems surface? Typically, these problems arise in planning, scheduling and costing.

If your realities match the assumptions inherent in a Bill of Material, then many ERP systems can work for you. If your realities do not match -- a system based upon a Bill of Material (even if it is called a “formula” in the sales pitch) needs very close inspection to see if it meets your requirements.

**But is Process really Process?**

But is it really that easy? Unlike discrete companies, the needs of process companies vary greatly. Not all process companies need the gamut of process functions. Some companies have relatively few process requirements and some have very extensive process requirements. The question of “How process are you?” has many answers, from very simple to very complex requirements.

**How Process  
Are You?**



Simple process companies include “mix and pack” businesses that do blends of a few ingredients and package the product (for example bottling companies). These simple process companies can make many ERP products work for them. Complex process companies have very diverse and demanding needs that deal with a wide variety of process requirements. Examples include meat processing, refining, brewing, etc. These complex process companies have very limited choices for their operational needs. Typically, they must go with a product that was designed exclusively for process companies. Between

these two extremes exist many companies. The issue of “How process are you?” is an important question that must be answered before a product is selected.

## **Vendor Approaches**

How a software vendor addresses the needs of process companies falls into one of three categories:

- A few vendors never mention process. By default, they are stating that they do not address the needs of process companies.
- Many vendors started with a discrete ERP product and later decided to market it as a product suitable for process industries. These vendors and products can easily be identified because they typically have a module that includes the word “process”. This add-on module is where they attempt to address the characteristics and requirements that make their discrete product into one for process. If their process module makes them into a process ERP vendor, maybe a good question is “Where is the discrete module?”
- A few vendors started with a strategy that focused exclusively on process. These vendors do not have a process module; the entire product is designed to address the particular requirements of process companies and only process companies.

How can you tell which vendor falls into which category? The first rule is, do not listen to the sales pitch about “process focus”. PowerPoint is amazingly flexible and any salesman worth his salt can make the vendor and the vendor’s software product into a process “contender” in minutes.

## **Where to Look?**

A simple test is to look at the vendor’s web page. This is a generalized message to the market that tells you what the vendor is really trying to accomplish. Where is process discussed? Is it the focus of the first page or is it listed as one of many “areas of focus” among ten other “areas of focus” on page 12 of the web site? Look at the annual report. What percentage of the customers listed are process? What industries do they say they serve? When they talk about specific customers, do they talk about companies who are in your business? When the vendor does have process customers, what did these customers install from that vendor? Perhaps a vendor has many process companies, but most or all of them installed financials. Few, if any, have installed the vendor’s software for operational functions. This may mean that the vendor is an excellent financials vendor, but can the vendor handle your operational needs?

## What Do You Need?

If you are in the market looking for financials, many products can do the job. The industry focus of the vendor is not critical. Yes, General Ledger functionality for an auto manufacturer or a hotel is not that much different from what you need to run your process business (are there any differences in General Ledger?). If you are looking for operational functions or supply chain functions, then the focus and approach of the vendor is very meaningful.

How process are you? Some process companies have relatively simple processes (receive bulk materials, mix and package) and deal with materials that are very consistent. These companies can be called “simple process”. For these companies, any P-ERP should be considered. Even the ERP products that have been extended from discrete products can often do the job.

Companies with more complex process business requirements have a different challenge. If they choose to look at the companies that have taken the add-on approach, they must look in detail at the process functions they need to run the business. Typical problem areas include the full management (planning, execution and analysis/costing) of process with by-products, co-products and recycles and management of inventories to solve customer and production requirements. A second area is the ability of the system to fully define your inventory at the level you need to achieve high levels of customer satisfaction.

For these complex process companies, the vendors who devote themselves exclusively to process bear a closer look. You should expect them to do a better job of modeling and managing your reality.

What is the cost of picking the wrong product? The cost of picking the wrong General Ledger product is important to the CFO’s office and hinders your ability to do a complete analysis of the financial side of the business. Picking operational systems that do not give operational management the tools they need means a choice. The first choice: you can either “make do” with inferior management tools resulting in potentially poor business decisions. The second choice: you can build work-arounds or custom solutions on top of the ERP solution, resulting in a large investment of both time and money – initially, and as part of your long term cost of ownership.

The most important questions remain the same: – Who are you, really? How do you make money? The answers to these questions reveal much about your requirements.

*Portions based upon an article titled “What makes Process Process”, by Olin Thompson originally published in the Process Industry supplement to Midrange ERP Magazine (<http://mfg-erp.com>), January 1998.*