



# Manufacturing ERP Handbook

A guide to selecting  
the right cloud ERP  
software for your  
manufacturing business

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*Take your business to the next level*



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# Evolve and thrive with the right cloud ERP system

There are hundreds of ERP applications available today, so choosing the right one for your manufacturing business can be confusing. Each ERP has its strengths and weaknesses. Some are specialised by industry, while others are more general. Some systems work better for smaller manufacturers, while others scale up for larger, multi-site manufacturing operations.

Established ERP applications provide robust features built on aging platforms. These are challenging to integrate with modern business technologies. Newer products built for the cloud and connectivity provide a modern platform for growth. They streamline your operations, providing simplicity, flexibility and mobility.

Manufacturers have options including ERP systems designed for configure-to-order, engineer-to-order, make-to-stock, and other production methodologies.

This guide will help you better understand your manufacturing ERP options and the features to consider when choosing which one is the best for your business.



# Discrete ERP versus Process ERP

## Two distinct ERP options

There are two fundamental categories of manufacturing ERP— discrete and process. Both provide similar accounting, inventory management, purchasing and order management features. However, they provide entirely distinct manufacturing functionality. MYOB Acumatica is one of the few ERP systems that support both discrete and process on a single platform.

**Discrete ERP** software centres on a bill of material comprised of solid materials formed or assembled into a finished good. Recipes or formulas are the cornerstones of **process ERP** systems where liquids, powders, or gases are mixed, blended, or combined to create finished goods. The table below highlights the key differences between discrete and process ERP systems.

	Discrete ERP	Process ERP
<b>Disassembly</b>	It is easy to disassemble finished goods back into the original bill of material components.	It is difficult or impossible to disassemble finished goods into the original ingredients.
<b>Structure</b>	Bill of Material	Recipe or Formula
<b>Materials</b>	Solids	Liquid, Powder, or Gas
<b>Operations</b>	Cut, bend, drill, assemble, mold, bore, ream, weld, etc.	Blend, mix, react, cook, reduce, hydrate, dehydrate, infuse, etc.
<b>Quality and Compliance</b>	Limited lot and serial tracking. Minimal industry quality regulations.	Significant quality and compliance including lot attributes, hazardous materials, safety data sheets, regulations and more.
<b>UOM Packaging</b>	Typically managed in limited discrete units of measure (each, grams, etc.). Simple product packaging.	Managed in multiple units of measure with complex UOM conversions and intricate packaging requirements.
<b>Other Features</b>	Engineering change orders, product configuration, estimating, installation, more.	Yield and loss, specific gravity, catch weights, concentrations, potency, expiration dates, more.

# Production Methodology

## Specialised or General? Large or Small?

Manufacturing ERP software comes in many shapes and sizes. Smaller manufacturers use accounting applications with plug-ins for manufacturing or entry-level ERP. These low-end applications historically support make to order with minimal functionality for make to stock. As manufacturers grow, they then need to move to more robust midmarket ERP applications like MYOB Acumatica.

Some ERP systems are specialised for engineer to order, configure to order, and lean manufacturing. Other systems focus on repetitive, remanufacturing, job shop, or batch process manufacturing. Further, the ERP market provides specialized industry ERP applications and broader, general manufacturing ERP applications. The table below compares each type of ERP system.

	Industry ERP	General ERP
<b>Technology</b>	Generally, older technology. Difficult to integrate.	Typically, modern technology with easy connectivity.
<b>Business Features</b>	Simple accounting with limited business management.	Strong accounting with advanced business management features.
<b>Manufacturing</b>	Specialised industry features.	General manufacturing with limited industry-specific features.
<b>Customisation</b>	Few customisation or personalisation tools.	Stronger customisation and personalisation tools.
<b>Services</b>	Direct consulting and support provided by the ERP vendor. Few, if any, other options.	Multiple consulting and support options including direct support, as well as partners and independent consultants.

# General ERP Features

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Today's ERP systems represent a homogenous collection of features evolved from the industry's best ideas. As a result, most ERP systems provide similar functionality with as little as 10 to 20 percent difference between applications. The following are features common in midmarket ERP applications. However, the way each feature is supported is often different. Manufacturers must pay careful attention to detail to differentiate between systems.

## Platform and tools

Every ERP system has multiple levels of database and user security, with some capability to customise screens. Most systems provide user-defined fields (UDF). UDF functionality varies widely between applications. Most ERP systems also provide import and export utilities to manage data.

Most ERP vendors restrict access to source code or charge fees for source code. All ERP applications provide reporting and inquiry tools. Mobile applications are critical for many manufacturers, especially for remote field service. Help files are available for all major ERP applications. Few systems offer customisable help in the form of built-in wikis. Support for multiple languages and localisation for international regions varies widely across ERP applications.

## Accounting

Every manufacturing ERP system provides general ledger, accounts payable, accounts receivable, and bank management (i.e. cash management or bank reconciliation). However, functionality varies widely for specific features in these modules. For example, some ERP systems are restricted to a limited number of account segments. Others don't support national and parent accounts, or budgeting. Multi-company and multi-currency support are other common features. However, not all ERP systems support inter-company features. Nor do all systems provide tools for allocations or financial consolidations. Project accounting, fixed assets, and payroll are provided natively or through third-party applications.



## Sales

All manufacturing ERP applications provide sales orders. Most systems support drop-shipments, returns and exchanges, blanket sales orders, sales commissions, quotes, and CRM. Commerce integration is available in most ERP systems with connections to leading commerce platforms. Retail point of sale (POS) and rental software are available with many ERP systems. Other common sales features include shipping, pricing, backorder management and labelling.

## Purchasing

Purchasing includes blanket orders, receipt of goods processing and put-away features. Other common features include landed costs, FOB definitions, vendor returns and bar code scanning. Few systems like MYOB Acumatica natively support purchase order requisitions with approvals workflows. Those that do support requisitions often provide tools for vendor request for quote (RFQ) bidding processes.

## Inventory

Standard inventory functionality includes stock and non-stock item management with unit of measure definitions, pricing and packaging. Common inventory management features include physical inventory, warehouse transfers and ABC Codes. Many also provide country of origin and advanced replenishment based on safety stock, lead times, reorder points, economic order quantities, or min/max stock definitions. Kitting, disassembly, barcoding, and labelling are also common. Lot and serial tracking, expiration dates, and inventory allocation for orders are less common across applications. Most systems support average and standard costing and inventory valuation. Some also support FIFO, LIFO, and actual or specific (lot-based) costing and inventory valuation methods.

## Manufacturing

Every manufacturing ERP system supports either bill of materials and routing, a formula or a recipe. Material issues and labour entry with backflushing automate data entry. Work orders or batch orders capture costs and transactions for work in process. Other core features include phantom bills of material, advanced planning and scheduling, material requirements planning, and engineering change orders. Make to order ERP systems support manufacturing estimates. Some systems provide rules-based product configurators and demand forecasting. Many systems also provide a light manufacturing module for fast, after-the-fact production reporting. Advanced capabilities such as manufacturing execution systems (MES), product lifecycle management (PLM), and Quality Management vary across ERP systems.

# Industry-specific ERP features

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## Specialised ERP Features by Industry

Manufacturing ERP is available from larger, general software companies, and smaller vendors focused on specific industries. General ERP solutions support multiple industries with strong cross-functional processes and applications. General ERP systems offer more specialised features today than ever before. Smaller ERP vendors focus on niche industries with specialised systems. Manufacturers must choose between the two options. Below is an overview of features common for each industry segment.



## Food and Beverage

Manufacturers of food and beverage products can be either discrete or process. They may require batch processing, lot tracking, and recipe or formula management. Catch weights, unit of measure conversions, expiration dates, and variable product packaging are also common. Route management for direct store delivery (DSD) is required for some businesses.

## Chemicals and Life Sciences

Chemical, petroleum, pharmaceutical, coatings, cosmetics, and similar businesses are predominantly process-based. Batch production, formula and recipe management, and lot tracking are essential. Advanced features include potency, concentrations, specific gravity, and yield and loss tracking. Compliance for the EPA, TGA, Medsafe, and other regulations are also common.

## Apparel, Leather and Jewellery

Matrix items are an essential requirement for textile, leather, apparel, and jewellery products to manage pricing and availability across product families where style, colour, and size combinations are difficult to manage. Commerce integration, retail sales, and product configuration are also popular. PLM is also a major requirement.

## Timber Products

Few ERP systems support the timber and building products industry well. Features such as matrix items are useful for managing items with slight variations such as dimensions or grade. Other requirements common in the industry include co-products, by-products, lot tracking, and point of sale for in-store sales.

**We have a system that can manage our manufacturing and distribution processes in one package. But more importantly, we know that we can trust our data – that's a massive relief."**

**Toni Dodge** Director, ATP Science

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### Additive Manufacturing (AM)

Additive manufacturing is the process of building products by printing layers of materials on top of one another to create parts. Advances in 3D printing have lowered costs and improved product quality. AM system may be integrated with ERP applications to capture material costs, scrap quantities, process times, and finished goods quantities. Look for ERP systems with strong integration tools and Open APIs to ensure your system is ready to take advantage of new manufacturing technologies like AM.

**“I looked around and lots of systems were either too big or too small or required lots of add-on packages. MYOB Acumatica was the right size for the mif-market, at a reasonable price and could do exactly what we wanted to do.”**

**Sarolta Albert**, Connec Operations

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### Furniture and Home Goods

Product configuration is a must-have for most furniture manufacturers. Commerce and retail sales are also increasingly common for manufacturers of furniture and home goods. Other requirements include CAD or PLM integration and serial tracking.

### Plastic and Rubber

Lot tracking, co-products, and by-products are a major concern for plastic and rubber products manufacturers. They require traceability for regrind for recovered material and often schedule production by colour to reduce clean-up between production runs.

### Fabricated Metal Products

Many fabricated metal product manufacturers rely on manufacturing estimates. Stamping operations have co-product requirements. Open APIs and integration tools must support machine integration for data capture. Other requirements include lot tracking, job costing, and outside processing. Integrated CAD for bill of material management with engineering change orders are popular in some businesses.

### Paper Products

Paper product manufacturers include paper mills and manufacturers of cardboard, envelopes, and publications. Paper mills have specialised requirements best suited for process-oriented ERP systems. There are specialized ERP systems for the publishing industry to manage writing and layout for books and magazines. Other companies in this industry rely on general manufacturing ERP systems for basic manufacturing capabilities.

### Non-Metallic Minerals

Manufacturers of stone, clay, glass, concrete, tile, and other products commonly need lot traceability. Dimensional inventory and matrix item requirements are also common. Other requirements include lot attributes, co-products, by-products, and commerce integration.

### Industrial Equipment

Industrial machinery manufacturers rely heavily on serial tracking, engineering change orders, CAD and PLM integration, and product configuration. Many also require warranty and service management for installation and repair.

### Electronics and Electrical

Engineering change orders and integration with CAD and PLM applications are crucial for electronics, electrical, and high-tech manufacturers. Product configuration and commerce are both common for commercial and consumer products. Serial and lot tracking and warranties are common as well.

### Automotive and Transportations

Repetitive, cellular, and lean manufacturing are common in the automotive industry. Cumulative demand forecasts and EDI are prevalent. Serial tracking and warranties are essential for component traceability to vehicle identification numbers (VIN). Project management applications help manage programs. Kanban, quality, and engineering change orders are also prevalent.

### Primary Metals

Primary metal manufacturers depend on lot tracking and often use lot attributes to manage lot characteristics such as heat numbers, mill certifications, and quality results. Tool and die management is also crucial for scheduling and production management.



**With accurate inventory control and management, now we can accurately track out inventory from start to finish and it's all on one platform”**

**Peter Finch** General Manager, Cooloola Custom Stockfeeds

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### Instruments and Medical Device

Instrument manufacturers have similar requirements to electronics and electrical manufacturers, as well as specific regulations outlined by Medsafe or the TGA. Medical device companies face increased requirements to comply with regulations for security and data- base audits.

### Other industries

Tobacco manufacturers face stiff regulatory compliance. Sign manufacturers often have serial numbers. Toy and hobby manufacturers sell online via B2B or B2C storefronts. Non-manufacturing industries including distribution, agriculture, forestry, fishing, mining and other industries often choose manufacturing ERP applications like MYOB Acumatica as the foundation for their businesses.



**“I haven’t spoken to anyone that MYOB Acumatica wouldn’t work for, purely because of the scalability of it. You can grow as big as you want and there’s no handbrake forcing you to change systems again.”**

**Nathan Vickery** Director, Vickery Holdings

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# MYOB Acumatica Manufacturing

## Manufacturing ERP – The MYOB Acumatica Way

Selecting the right ERP system for your business is difficult with hundreds of manufacturing ERP options out there. Should you choose a larger publisher with a strong top-down ERP system or should you implement an industry-specific ERP from a smaller publisher? Does the system support your manufacturing methodologies and industry-specific requirements?

Manufacturers across industry segments rely on MYOB Acumatica Manufacturing Edition to maximise resources, reduce costs and improve profits. An extensive suite of connected and mobile business applications provides unparalleled manufacturing depth for production, estimating, engineering, material planning, scheduling, product configuration, and manufacturing data collection.

Last-mile features such as disassembly, engineering change control, demand forecasting, and outside processing streamline critical manufacturing processes. MYOB Acumatica supports make-to-stock, make-to-order, batch process, and other manufacturing methodologies. Project Accounting provides project centric manufacturers with a comprehensive production and resource planning system.

Commerce and mobile field service extend MYOB Acumatica for manufacturers who sell online or provide on-site services. Balance supply and demand with inventory, sales, and purchasing on top of a comprehensive suite of accounting applications. Leverage automation, workflows, and document management to connect data and processes throughout all parts of the manufacturing business for improved customer service, customer retention and growth.

MYOB Acumatica provides ease of use and rapid integrations to connect modern technologies, including cloud computing, big data and analytics, additive manufacturing, robotics, and the Industrial Internet of Things for streamlined processes and meaningful insights into manufacturing operations.

MYOB Acumatica cloud ERP provides the best business and industry management solution for helping your business thrive in the new digital economy.

Ready to reap the benefits of an integrated ERP built for manufacturing businesses?

Get in touch for an in-depth look at our MYOB Acumatica platform.

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