

This OVER-SIMPLIFIED view of an ERP System for manufacturing startups shows What it is, Why, and How to do it.

- **What is ERP - Simply?**
- **Why Should Small Manufacturing Companies use ERP?**
- **Deploying ERP at a Startup Site**

What is ERP simply?

Enterprise Resource Planning, ERP System, is software for the manufacturing company. It helps users stay in sync with the business and with each other.

Manufacturers invest in people, suppliers, facilities, equipment, materials, and piece parts. All these components can function as a whole when using Enterprise Resource Planning software.

Overview from the 10,000 foot level

Enterprise Resource Planning – Oversimplified

INDUSTRIES SERVED



Manufacturing



Distribution

APPLICATIONS BUNDLED IN ERP Systems

Finance and Accounting



Human Resources



Sales and Marketing



Manufacturing



Supply Chain Management



ERP - The Big Picture

Supply Chain Management



A supply chain management (SCM) system manages **the flow of products, data, money, and information throughout the entire supply chain**, which starts with the suppliers of raw materials, runs through the intermediate tiers of the processing companies, and ends with the distributors and retailers.

SCM World View

Supply Chain Management- Core Functions: ²

Supply Chain Management - Processes



1. **Plan**- Plan Resources Needed to meet Customer Demands



2. **Buy**- Procure Suppliers, negotiate their contracts, maintain relationships

Automate:

- Purchase Orders
- Receiving
- Invoices
- Inventory Management



3. **Make**- Control raw materials, manufacture the product, test for quality, package for shipping, and schedule for delivery.



4. **Deliver**- Coordinating customer orders, scheduling delivery, dispatching loads, invoicing customers, and receiving payments.



5. **Returns**- For taking back defective, excess, or unwanted products



6. **Connections**- The network includes: **Finance**, **HR**, **IT**, **Facilities**, Business Planning, Product Design, **Sales**, and **Quality Assurance**.

SCM Plan, Buy, Make, Deliver, Reject, Integrate

Manufacturing- Core Functions: ³

Manufacturing



The manufacturing module **plans production runs and ensures availability of raw materials, piece parts, and machines.**

- Work Order Generation – Demand Driven
- Work Order Scheduling – Supply Driven

Manufacturing requirements are specific to the product.

Manufacturing Execution Systems are a subsystem handling specifics, like:

- ✓ Digital Machine Instructions
- ✓ Overall Equipment Effectiveness
- ✓ Availability- Scheduling Machines
- ✓ Quality- Check Drift from Specifications
- ✓ Performance- Production Effectiveness
- ✓ Downtime tracking- Equipment Maintenance



Controlling a 3D Printer with Digital Technology

Sales and Marketing



ERP sales and marketing- core functions:

1. **contact customers**
2. **follow-up sales invoices**
3. **receive invoice payments**
4. **track lost orders**
5. **identify the reasons for losing orders**

Sales and Marketing

Human Resources



Human Resources- Core functions:

1. Payroll
2. Benefits
3. Personnel Management
4. Employee self-service
5. Employee performance metrics
6. Health and safety
7. Workforce management
8. Training

HR Functionality

Accounting



Accounting- Core functions:

1. Reports and Analysis
2. Payment Processing
3. Opening Balances & Migration
4. Invoice & Payments
5. Inventory & Fixed Assets
6. Compliance Reports
7. User Authorization & Security

Accounting

Financial Management



Financial Management- Core functions:

1. Profit Tracking
2. Ledger Management
3. Accounts Payable
4. Accounts Receivable
5. Fixed Asset Management
6. Risk Management
7. Reporting
8. Multi-Currency Management
9. Tax Management

Why Should Small Manufacturing Companies use ERP?

The world has changed and the demand for closer-to-home manufacturing has increased. Small manufacturing must step up to fill the void in the supply chain.

In the US, there are thousands of Software as a Service offerings to choose from. So, it is a matter of selecting the software that fits the business's needs. The costs are in line with what small businesses can afford. Once everything is working together, the business is *cost-effective, efficient, and competitive*.

Small manufacturing companies should use ERP software to reduce costs, improve communication across departments, optimize business processes, manage accounting processes, facilitate effective maintenance, and automate manual and repetitive tasks.

To-Do

(Define Small: 10-100 employees)

Deploying ERP at a Startup Site

Best practices for installing ERP software at small manufacturing sites include:

- Benchmarking current operations

- Use benchmarking to measure performance against industry standards and identify areas for improvement
- This involves setting metric goals, comparing current practices with best practices in the industry, and analyzing what is effective in other businesses
- understanding and defining the current and future state
 - This involves examining key areas such as situation analysis (pain points), workflow (subpar areas), and metrics (measure performance)
 - and, conducting research to identify business needs.
- overhauling processes
 - providing employees with new tools
 - reducing utility costs
 - implementing manufacturing operations management strategies
 - creating a culture of safety
 - implementing a risk management strategy
 - providing cross-training for employees
 - utilizing real-time, accurate, and reliable data
 - and, monitoring and improving production processes
 - updating processes and technology
 - and, create new processes or organize and simplify industry standard processes for better efficiencies
- getting data ducks in a row
- focusing on critical business requirements
- and, following an ERP implementation plan.

Some implementation articles:

[1 cumula3.com](http://cumula3.com)

[2 manufacturing.net](http://manufacturing.net)

[3 cio.com](http://cio.com)

[4 netsuite.com](http://netsuite.com)

[5 mrpeasy.com](http://mrpeasy.com)

Activities to consider:

- Set up your office at the site. Have laptops on the desks and notepads on the shop floor.
- Visit competing companies that use ERP software.
- Make a vetting checklist based on what your business needs.
- Have a technician evaluate solutions against your checklist.
- Choose a product that can grow with the growth of the company.
- Get the starter set.
- Start with the HR module. Let the administrator implement the HR Module after training.
- Train your users or hire them
 - Procurement, Supply Chain Management, Inventory Control
 - Shop Floor Planners, Manufacturing
 - Accounting and Finance
 - eCommerce, Sales, and Marketing
- Work with your ERP vendor or hire a consultant

The best selections for small manufacturers 2023, depending on situation, are:

- NetSuite
- Cetec
- Prodsmart
- Striven
- ERPAG
- ProShop
- Katana Manufacturing ERP
- shopVOX
- MRPeasy
- Acumatica Cloud ERP
- Plex Systems
- Microsoft Dynamics 365
- Deacom
- Infor Cloudsuite
- SAP/S4 HANA

ERP Selection Articles:

[1 mrpeasy.com](https://www.mrpeasy.com)

[2 top10erp.org](https://www.top10erp.org)

[3 softwareadvice.com](https://softwareadvice.com)

[4 thirdstage-consulting.com](https://thirdstage-consulting.com)

[5 selecthub.com](https://selecthub.com)

February 2023

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