



ERP VENDOR UPDATE

Metal Fabrication

8 Software Companies,
8 Top ERP Solutions

Insight on Today's Top ERP Providers

ULTRA
CONSULTANTS

ABOUT THIS REPORT

ERP Vendor Update: Metal Fabrication

is compiled by Ultra Consultants from interviews with software company product experts, product documentation and product briefings, independent research and Ultra internal documents.

Ultra's Insight is the opinion of our expert consultants, is based on interviews, project experience, sales experience and product knowledge, and is not intended to provide a complete review or comprehensive analysis of the products or companies described.

Note: This report covers selected ERP vendors, which were chosen based on market presence, and Ultra's most-recent product information and project experience.

Company and product information in this report has been reviewed by the software vendors featured.

The **Key Software Capabilities** tables focus on capabilities determined by our expert consultants to be essential or useful for manufacturers of fabricated metal products. The definitions used for classifications are as follows:

- **Core:** A capability that is native to the ERP solution. A module in the ERP's base offering and included with all implementations.
- **Add-On:** A capability that is an addition module (for a cost), available from the same ERP company and currently fully integrated with the base ERP system.
- **3rd-Party:** A capability from a third-party company that has been integrated with the ERP. Requires minimal or no configuration to implement.
- **None:** A capability that is not included with the base offering, an add-on module or third-party software.

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WHAT IS THE RIGHT ERP NOW?

With a tough 2021 in the rearview mirror, and with a difficult 2020 now far behind, what will the coming year look like for metal fabrication companies?



Industry economists say the issues that have been a drag on the industry – labor shortages, supply chain instability, outdated technologies, operational inefficiency, rising metals prices – will continue in 2022. But those same experts predict steady growth in many fabricated metal products sectors, and note that higher demand, increased new orders and other indicators point to growth for manufacturing overall.

Unfortunately, this (probably) better “new now” continues to be defined by the ongoing (and seemingly never-ending) COVID pandemic – and the resulting risk of supply chain, production and operational disruption.

So it’s critically important for metal fabrication companies to defend against disruption by continuing to invest in modern ERP and connected technologies.

The right ERP solution can deliver the capabilities you need to improve processes, find new efficiencies, automate process management, enhance decision-making, increase manufacturing velocity, reduce waste and, most important, ensure that your company can prosper despite any challenges that lie ahead.

But what is the best solution for your organization? That’s a difficult question. Because every company is different. Because no company handles any phase of operations the same way. Because business processes are built around the unique requirements of each organization.

Start by asking a different set of questions: What new capabilities does your organization need and want? What problems are you trying to solve? What do you want your core processes to look like? How can new tools enable your organization’s digital transformation?



5 BEST PRACTICES FOR ERP VENDOR SELECTION

Whether your company is implementing an ERP system for the first time, or replacing a legacy implementation, it's critically important to make the right choice.

We asked our expert consultants to give us their thoughts on best practices in ERP selection for metal fabrication organizations, and this is what they told us:

1. Emphasize Industry Experience

Focus on metal fabrication industry experience when choosing an ERP vendor, including (and especially) your particular segment. Here's why this expertise is important: An ERP vendor may have broad manufacturing experience but may not have deep knowledge of the unique needs of your segment. Look at its overall presence in metal fabrication, too. Is its toolset widely used by companies like yours?

Ask your potential vendors to tell you how they plan to be a leading solution in your marketplace. Evaluate its features and functions to see how well they align with the industry's challenges. Read the case studies and success stories provided by the vendor - they are a good source of insight into how they build solutions for companies like yours. Ask for the product roadmap for your industry segment.

2. Assess the Total Cost of Ownership

Establish a budget in terms of implementation and total cost of ownership (TCO), then ask potential vendors if your budget and their solution are a fit.

A solution quote usually includes software (subscription or license), first-year support and implementation consulting. (Additional sites and add-on modules will be extra.) TCO, however, is broader, and takes into consideration per-user license costs, training, maintenance, customizations, upgrades, internal costs and other fees.

If the system is cloud or software as a service (SaaS), take a hard look at the Service Level Agreement (SLA) for any hidden costs, such as system enhancements and upgrades.

The scale and complexity of most ERP projects make it difficult to get, and stick to, a fixed price. Be aware that ERP vendors that offer a fixed price might exclude necessary work and training. Identify and note all inclusions and exclusions.

3. Consider Technology Strategy

Know that an ERP solution must fit the overall IT strategy of your organization. And because the IT department plays a key role in deciding whether an ERP system is feasible, it should determine and provide any technology requirements at the outset.

If on-premises ERP systems are a consideration, the IT department will need to have the resources to maintain and upgrade the software, as well as be able to provide the necessary infrastructure, servers, databases and security.

If the company is going with a cloud-based system, it's still essential to have the IT department involved in the ERP vendor selection process. There may be connectivity and integration issues with existing systems, particularly legacy on-premises systems.

4. Put the Vendor Under a Microscope

Where will the vendor be in the next five or 10 years? Many niche players have been acquired or merged with other ERP vendors - with both positive and negative results.

What's important to your company? The major ERP vendors offer big, broad solutions that will meet most of your needs, but come with greater complexity, risk and investment. Specialized vendors offer "smaller" solutions that will meet your industry-specific requirements but may not be as strong in some core functions.

5. Speak with Real Customers

Don't let your ERP vendor get away with giving you a list of hand-picked customer references in a variety of industries.

To get the best idea of how a solution will perform for you, ask for references that have been on the solution for at least a year, are in the same industry as your company, are roughly the same size, and have similar requirements. Then make the effort to speak with these customers (particularly their ERP professionals) to get their insight, opinion and feedback. Choose one for an on-site visit.

By applying these best practices, your company will better understand the strengths and weaknesses of potential ERP vendors. And it will be easier to narrow down the list and choose a software solution that will deliver greater efficiency, improved visibility and a competitive advantage.



Top 10 ERP Selection Criteria

- Functional fit
- Industry experience
- Software price, TCO and ROI
- Vendor viability
- Implementation project considerations
- Technology
- Risk
- Scalability
- References
- Post go-live support

EXPERT Q&A: CHALLENGES, SOLUTIONS AND CRITICAL ERP CAPABILITIES

For manufacturers of fabricated metal products, the last couple of years have been bumpy – for obvious reasons.

We asked two of Ultra’s most experienced manufacturing consultants, **Brad Staats** and **Tony Chalet**, for insight into today’s challenges and the difficulties of operating in a complex manufacturing environment. We also asked them about modern ERP solutions and how they can create opportunities for improved efficiency, greater operational visibility, better production planning and more effective management. Here is an edited version of the conversation:

Let’s start by setting the stage. The ongoing pandemic aside, what are the current challenges in metal fabrication?

Brad Staats (BS): From our position as ERP consultants, we see metal fabrication organizations struggle with systems integration. So many companies need a solution that gives them the ability

to get data from the shop floor – from their process control systems – into their ERPs, so that they can really know what’s happening.

Tony Chalet (TS): Cost control is a major challenge, too – accurately knowing and effectively managing costs can be a make-or-break issue. And once companies identify their costs, they need an easy and fast means of making and applying pricing changes, so that they don’t lose their margin.

BS: Efficiency is critical, and always has been. New machines require a massive investment. So, companies must work hard to get everything they can from their resources.

TC: It’s all tied together. Today, companies are focused on maintaining machine utilization and increasing production, working around supply chain instability, managing rising materials costs, and minimizing waste and scrap.

How do modern software solutions make it easier to manage?

BS: Okay. Let's look at a specific example. Say I develop a quote for a part that's nested and laser-cut. I can estimate the losses – waste – that are going to occur, and price accordingly. But then I actually put production of that part into a schedule.

The assumption when I quoted that part was that I was going to cut 50 pieces from the piece of steel. But when I actually produce it, I only need to make five of those pieces – and 20 pieces of something else. So, the cost and waste are going to be different.

Modern software makes it possible to quote as the part will be produced, minimize steel usage, maximize a single piece of material, and get as many parts as possible. A client was doing production planning by hand, and was getting 70% usage out of a sheet of steel. But as soon as we went to a nesting logic software, he was getting 95% usage.

TC: Nesting capability is critical. Because each part is its own production order or work order, it's important for software to make it possible to group and schedule multiple parts. That way an operator is not reporting against five or 10 work orders produced from a single sheet. Standard ERP is not well suited to manage many orders from one piece of material.

So, this type of capability needs to be part of the ERP discussion, correct?

BS: Of course. When metal fab companies look at a new ERP, they need to look at the total solution, not just the core ERP capabilities. A complete ERP solution has specialized tools that integrate in both directions with the ERP. So it's the ERP. It's nesting. It's the PLC. It's third-party tools. It's the WMS. It's really one big solution.

TC: And connectivity – integration – is what makes it all work. When you have complete integration, it's possible for ERP solutions to leverage the data that's coming out of specialized machines. Whether it's direct integration or via APIs, easy connectivity makes it possible for metal fab companies to maximize their technology investments.

BS: Let's talk about another important capability. In metals, it's important to be able to look at things from an attribute point of view. In other words, I need steel of a certain dimension of a certain spec, etc. And I can have millions of combinations of attributes. But I can't make standard part numbers for them all. That's not feasible. But if I could look for inventory and my orders based on attributes, I can do matching and more accurate production planning.

This materials resource planning (MRP) capability is very rare in the ERP world. In fact, I only know of one solution that does this in its planning system.

TC: Planning is very difficult without attributes. You can have different-size sheets or coils that can be used as a base material for a part. So, it gets geometrically more complicated because, if I don't have a 10"x12" sheet of a specific material, I can use an 11"x10" sheet. But it will be less efficient, and produce more scrap.

Or, to make a part, I need a 12-inch piece of steel that is 12 feet long. But I can also make it out of a 24-inch coil, a 36-inch coil or a 48-inch coil. Attributes make it possible to plan better and understand what is happening on the shop floor.

Attributes aside, what are the most important ERP capabilities for manufacturers of fabricated metal products?

BS: We've talked a lot about interconnectivity of tools. That's a must-have.

TS: Good reporting from the shop floor is key – reporting that is automated and uncomplicated for operators.

And shop floor planning key too. As we've talked about, production scheduling is difficult. You have a production line where something is cut, punched and de-burred. But not all 100 of the pieces that are going to be punched are scheduled to be made first. You have to have the ability to manage single pieces as they flow across multiple operations.

BS: But that's not easy to do. The process resists good tracking, inventory control and lot control. On a shop floor it's common to use bins to move parts from one operation to another. Someone will make 100 parts, and toss them into bins, which are then moved to the next work center. But I might need to make 1,000 parts, so you end up with 10 bins that go to the second operation. And at the second operation the parts may be tossed into only seven bins. Barcoding won't help. You can't track by part. Or by bin.

TC: And it can get even more complicated when there are special operations for some parts so the number of pieces sent ahead is variable. Or when lots go to an outside anodizer or powder-coater and there are defects and waste, so the number coming back is not the same as the number going out. That kind of material handing is problematic in an ERP, and doing it requires a specialized solution.

BS: Also, it's important to be able to manage units of measure well. In metal fabrication you get a lot of combinations. You're buying using a hundredweight number, storing it in pounds or kilograms, and consuming it in pieces. Without good unit of measure tools, you're going to have constant issues.

What's ahead for 2022? What does the metal fabrication industry need to recover from a difficult 2020 and 2021?

BS: Many metal fabrication companies are dealing with archaic systems – ERPs that are 20 or 30 years old. And only some are moving toward new solutions. It's important in tough times to get up to speed and make the move from an old homegrown, highly customized enterprise management solution, or spreadsheets, to a modern ERP.

TC: Here is my pitch for companies with old ERPs: Imagine how efficient you can be with new technologies, better functionality and more sophisticated capabilities. Take stock of where your operation is today, and create a vision for where you want it to be in the future. Then plan how to get there.



Tony Chalet is a Senior Consultant for Ultra Consultants, with more than 27 years of manufacturing industry experience in a variety of industries. He has exceptional expertise

in business process improvement, ERP strategy and advanced supply chain solutions.



Brad Staats is a Senior Consultant for Ultra Consultants, with a broad background in manufacturing and operations. He has more than 40 years of experience,

including work in primary metals manufacturing, and is an expert in supply chain solutions and automated manufacturing environments.



Ultra's Insight: Big Capabilities for Smaller Companies

DELMIAWorks Manufacturing ERP (formerly IQMS EnterpriseIQ) is a full-featured, operations-oriented ERP system that is a good fit for small to medium-sized manufacturers. The foundation of the system is a core product, with numerous native add-on/embedded modules to allow customers to configure the system to their specific needs. These add-on modules offer a lot of specialized, best-of-breed functionality without having to integrate third-party applications.

DELMIAWorks has many large customers, but says its sweet spot is companies with annual revenues from \$20 million to \$75 million – essentially the smaller companies in the metal fabrication industry. The largest segment of its customer base is in USA, Canada and Mexico, where DELMIAWorks provides support. International customers are supported by third-party implementors.

In our interviews, DELMIAWorks product experts said its primary strengths to be 1) that it is a full suite of ERP functionality with strength on the shop floor, that it 2) offers the ability to support complex manufacturing environments and mixed-mode environments, and 3) that it enables the optimization of fabrication operations and highlights cost factors of production in real time.

In addition, the product offers...

- Real-time PLC integrations/statistical process control (SPC) are a core part of how DELMIAWorks provides direct cost analysis

- Strong support for ETO/MTO and ATO processes
- Excellent functionality for quality management, good and project-based costing and strong WMS

Owned by Dassault Systèmes, DELMIAWorks is part of a family of companies that includes SOLIDWORKS (CAD), which gives it the unique ability to blend the products together, further supporting ETO business processes.

The DELMIAWorks design-to-manufacture roadmap includes further improvements in the shop floor processes in order to streamline instructions to the operators and support employees who work multiple operations/work centers at the same time. Given the labor shortages of today and anticipated future labor challenges, this capability is important because getting the most out of the shop floor workforce will be a high priority for manufacturers. The company also plans to utilize SOLIDWORKS in the quoting and design processes to further enhance the ETO business opportunities.

Smart manufacturing, IOT and 4.0 MES are native technologies that DELMIAWorks incorporates into its product, with the goal of providing a single solution that uses a single database with few bolt-ons, giving them an edge on the shop floor and in manufacturing operations.

For perspective on what DELMIAWorks customers think of the product and its support: In the last 12 months, there were 55 cases where a customer using DELMIAWorks bought another plant that had an existing ERP system already in place, yet they replaced it with DELMIAWorks.

KEY ERP SOFTWARE CAPABILITIES: DELMIWorks

CATEGORY	FUNCTIONALITY	CLASSIFICATION	DEMONSTRATED INTEGRATIONS
Customer/Order Management	Order Configuration/CPQ	Core	
Customer/Order Management	cost based pricing, margin analysis	Core	
Customer/Order Management	Over/under quantity adjustments	Core	
Customer/Order Management	Truck/rail shipping	Core	
Customer/Order Management	Freight rate shopping	Add-On	
Customer/Order Management	Load creation/load building	Add-On	
Customer/Order Management	Packaging/shipping specs	Core	
Customer/Order Management	Total order weight/cubing calculation	Core	
Information Technology	EDI	Add-On	
Information Technology	LPN	Core	
Planning/Scheduling/Operations	Material reservation	Core	
Planning/Scheduling/Operations	Capacity planning	Core	
Planning/Scheduling/Operations	Order consolidation, reporting	Core	
Planning/Scheduling/Operations	Resources detail scheduling: finite, infinite	Core	
Planning/Scheduling/Operations	Plate nesting during detail scheduling	None	Requires integration to a 3rd party
Planning/Scheduling/Operations	Setup optimization	Core	
Planning/Scheduling/Operations	UOM conversion	Core	
Planning/Scheduling/Operations	Sub-contracting, outside processing	Core	
Planning/Scheduling/Operations	Inventory management	Core	
Planning/Scheduling/Operations	Product labeling	Core	
Planning/Scheduling/Operations	Remnant management	Core	
Planning/Scheduling/Operations	Develop Material Plan	Core	
Planning/Scheduling/Operations	Scrap Planning/Tracking	Core	
Planning/Scheduling/Operations	Tooling management/planning	Core	
Planning/Scheduling/Operations	MRO - Maint management	Add-On	
Planning/Scheduling/Operations	Bins/Container tracking	Add-On	
Planning/Scheduling/Operations	Kitting	Core	
Planning/Scheduling/Operations	Develop Demand Plan	Core	
Planning/Scheduling/Operations	Develop Operations Plan	Core	
Planning/Scheduling/Operations	Integrate S&OP	Core	
Planning/Scheduling/Operations	PLC Integration	Add-On	Level 0 and 1 is third party
Planning/Scheduling/Operations	SPC	Add-On	
Planning/Scheduling/Operations	Deviation Tracking	Add-On	
Planning/Scheduling/Operations	Collaborative planning with suppliers	Add-On	
Planning/Scheduling/Operations	Kanban Management	Core	
Planning/Scheduling/Operations	OEE Reporting	Core	
Quality	Heats/chemistry	Core	
Quality	FMEA	Add-On	
Quality	PPAP	Add-On	
Quality	Quality Standards Compliance	Add-On	
Quality	QC testing control plans	Add-On	
Quality	Serial Tracking, genealogy tracking	Core	
Quality	Lot Tracking, genealogy tracking	Core	
Quality	CAD Design integrated with ERP	Add-On	
Quality	Corrective Action Management	Add-On	
Supply Chain	Material Scrap Factor	Core	
Supply Chain	Surcharges	Core	
Supply Chain	Alternate uses of RM, material substitution	Core	
Supply Chain	Inbound container tracking	Add-On	
Supply Chain	Variable lead times	Core	
Supply Chain	Pricing agreements/blanket orders and tracking	Core	
Supply Chain	Consignment inventories: customer	Core	

Customers by Industry



22% Automotive
20% Medical Devices
20% Industrial Supplies & Equipment
17% Consumer Goods
11% Aerospace & Defense
10% Other

Targeted Verticals

- Aerospace & Defense
- Automotive
- Consumer Goods
- Industrial Supplies & Equipment
- Medical Devices

Metal Fabrication Customers

- Accessible Technologies (Procharger)
- Load Trail LLC
- Northern Industrial Manufacturing Corporation
- SMC Metal Fabricators, Inc.
- Standby Screw Machine Products Co.
- TOA USA, LLC

DELMIAWorks' Pitch

DELMIAWorks is a leading provider of manufacturing ERP and MES software for repetitive and batch process manufacturers. As part of the Dassault Systèmes 3DEXPERIENCE Works portfolio, DELMIAWorks provides real-time financial, resource planning, production monitoring, quality control, supply chain, CRM, and eBusiness solutions to the automotive, medical device, consumer goods and industrial product industries.

DELMIAWorks provides manufacturers with a comprehensive and affordable system that improves the collaboration, manufacturing efficiency, and business agility needed to serve customers successfully. DELMIAWorks is a proven end-to-end ERP and MES software solution that provides manufacturers complete functionality in a highly scalable platform that supports their growth.

Deployment Options



Profile

DELMIAWorks (IQMS.com) provides real-time ERP software designed for repetitive, process and discrete manufacturing companies. IQMS was acquired in by Dassault Systèmes in December 2018, and its solutions were rebranded DELMIAWorks and incorporated into the 3DEXPERIENCE cloud platform. Headquartered in Paso Robles, Calif., USA, DELMIAWorks has 325 employees at locations around the world.



Ultra's Insight: Powerful, Highly Capable Solution

Metal fabrication is an area of strength for Epicor – and the company recently acquired KBMax, which is a next-generation configure/price/quote toolset with interactive 2D/3D visualization and engineering automation.

Epicor's customer targets are companies with annual revenue from \$10 million to \$500 million.

Epicor Kinetic's differentiators include its advanced planning/scheduling capabilities, embedded MES, integrated back-end financials, mobile CRM with integration APIs to top CRM solutions, CPQ capabilities, strong product management and integration with CAD/PLM systems, and strong cost solutions.

What does Kinetic offer that addresses the unique needs of metal fabrication? Advanced units of measure with dimensional attribute capabilities. A relationship with SecturaSOFT, which sits on top of the estimating function for calculation of nested estimates in quotes. Nest Link API for CAD/CAM integration. Methods

of manufacturing capabilities that allow the definition of BOMs and routing within a single user interface.

A good reason customers select Kinetic over its competitors: Remnant tracking handled from advanced unit of measure that can track dual units of measure/dimensional attributes.

Continuing, Epicor says customers choose Kinetic because of...

- Embedded workflow that ensures new products are defined, and manages hand-offs between departments.
- Smart technology with wireless data warehouse data collection.
- Integrated Enterprise Content Management
- Advanced Tier 1 QMS system integration
- Advanced MES with integrated SPC

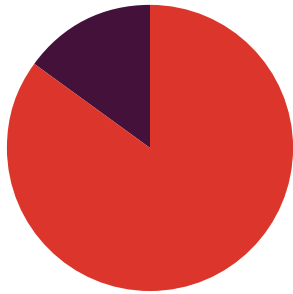
Epicor values input from its Customer Advisory Board and Product Advisory Board, and uses it to guide functionality.

Epicor Kinetic customers get significant value from its enhanced user interface and from its user-agnostic and upgradeable configurations.

KEY ERP SOFTWARE CAPABILITIES: Epicor

CATEGORY	FUNCTIONALITY	CLASSIFICATION	DEMONSTRATED INTEGRATIONS
Customer/Order Management	Order Configuration/CPQ	Add-On	Epicor CPQ
Customer/Order Management	cost based pricing, margin analysis	Core	
Customer/Order Management	Over/under quantity adjustments	Core	
Customer/Order Management	Truck/rail shipping	Core	Truck, but not rail
Customer/Order Management	Freight rate shopping	Core	
Customer/Order Management	Load creation/load building	Core	
Customer/Order Management	Packaging/shipping specs	Core	
Customer/Order Management	Total order weight/cubing calculation	Core	Weight, but not cubing
Information Technology	EDI	Add-On	Epicor EDI
Information Technology	LPN	Core	
Planning/Scheduling/Operations	Material reservation	Core	
Planning/Scheduling/Operations	Capacity planning	Core	
Planning/Scheduling/Operations	Order consolidation, reporting	Core	
Planning/Scheduling/Operations	Resources detail scheduling: finite, infinite	Core	
Planning/Scheduling/Operations	Plate nesting during detail scheduling	3-P	NestLink by Qbuild
Planning/Scheduling/Operations	Setup optimization	Core	
Planning/Scheduling/Operations	UOM conversion	Core	
Planning/Scheduling/Operations	Sub-contracting, outside processing	Core	
Planning/Scheduling/Operations	Inventory management	Core	
Planning/Scheduling/Operations	Product labeling	3-P	Bartender
Planning/Scheduling/Operations	Remnant management	Core	
Planning/Scheduling/Operations	Develop Material Plan	Core	
Planning/Scheduling/Operations	Scrap Planning/Tracking	Core	
Planning/Scheduling/Operations	Tooling management/planning	Core	
Planning/Scheduling/Operations	MRO - Maint management	Core	
Planning/Scheduling/Operations	Bins/Container tracking	Core	
Planning/Scheduling/Operations	Kitting	Core	
Planning/Scheduling/Operations	Develop Demand Plan	Core	
Planning/Scheduling/Operations	Develop Operations Plan	3-P	SMART IP&O
Planning/Scheduling/Operations	Integrate S&OP	3-P	SMART IP&O
Planning/Scheduling/Operations	PLC Integration	Add-On	Advanced MES
Planning/Scheduling/Operations	SPC	Add-On	Advanced MES
Planning/Scheduling/Operations	Deviation Tracking	3-P	Reliance ETQ
Planning/Scheduling/Operations	Collaborative planning with suppliers	Add-On	Supplier Portal
Planning/Scheduling/Operations	Kanban Management	Core	
Planning/Scheduling/Operations	OEE Reporting	Add-On	Advanced MES
Quality	Heats/chemistry	3-P	Reliance ETQ
Quality	FMEA	3-P	Reliance ETQ
Quality	PPAP	3-P	Reliance ETQ
Quality	Quality Standards Compliance	Core	
Quality	QC testing control plans	Core	
Quality	Serial Tracking, genealogy tracking	Core	
Quality	Lot Tracking, genealogy tracking	Core	
Quality	CAD Design integrated with ERP	3-P	CADLink by Qbuild
Quality	Corrective Action Management	Core	
Supply Chain	Material Scrap Factor	Core	
Supply Chain	Surcharges	Core	
Supply Chain	Alternate uses of RM, material substitution	Core	
Supply Chain	Inbound container tracking	Core	
Supply Chain	Variable lead times	Core	
Supply Chain	Pricing agreements/blanket orders and tracking	Core	
Supply Chain	Consignment inventories: customer	Core	

Customers by Industry



85% **Other**
15% **Metal Fabrication**

Targeted Verticals

- Aerospace & Defense
- Automotive
- Furniture & Fixtures
- Industrial Machinery
- Medical Device
- Metal Fabrication
- Metal Service Centers
- Rubber & Plastics

Metal Fabrication Customers

- Anchor Fabrication
- Chandler Industries
- D&S Mfg. Inc.
- Dalsin Industries
- Metalworks Inc.
- Midwest Metal Products Co.
- Rev-A-Shelf
- Team Industries Bagley

Epicor's Pitch

Capture the true value of cloud ERP with Kinetic, a solution made with manufacturers, for manufacturers. An intuitive, configurable, and guided user experience with embedded learning helps you maximize your profitability with real-time business intelligence and built-in collaboration tools.

Kinetic has the functionality you need to run a modern, future-ready business poised to capitalize on data, transform digitally, and innovate without limits. All the features you need to scale, compete and attract top talent to your organization. Trust the manufacturing expertise of Epicor to gain the momentum and know-how you need to accelerate growth and innovation. This is the future-focused force in manufacturing.

Deployment Options



ON-PREMISES



SINGLE-TENANT



MULTI-TENANT

Profile

Epicor Software Corporation (epicor.com) provides flexible, industry-specific on-premises and cloud software solutions designed for manufacturing, distribution, retail and service industry organizations. Headquartered in Austin, Texas, USA, the company has 27,000 customers in 150 countries, and more than 3,800 employees in offices around the world. In 2020, the Epicor generated \$950 million in revenue.



Ultra's Insight: New Interface, Strong Functionality

IFS is a full-function, feature-rich top-tier system that serves a multitude of industries that can be broken into these segments: A/D, Engineering, Construction and Infrastructure, Energy, Utilities and Resources, Manufacturing and Service Management. The metal fabrication capabilities exist in the Manufacturing segment of their business, which it breaks into five segments: Automotive, Chemicals, Discrete, Food & Beverage and Life Sciences. IFS supports ETO and MTO, and all types in between, including mixed-mode manufacturing.

Based in Sweden, IFS has a strong presence in North America, with a regional headquarters in Itasca, Ill. About 10% of its 4,500-plus employees worldwide are based in the United States.

Although there are plenty of examples of smaller client success stories, IFS says that its sweet spot is companies with annual revenues from \$500 million and up.

IFS says its product's primary strengths to be:

- A full suite of manufacturing functionality, including field service capabilities
- The ability to support complex manufacturing environments and mixed-mode environments
- Embedded (vs. integrated) functionality for WMS
- Successful linkage to multiple third-party CAD and nesting software products
- A robust rules-based configurator to support sales for ETO and MTO situations

IFS's roadmap for the future is to increase its utilization of machine learning, heuristic optimization techniques and IOT capabilities. In our interviews, IFS product experts said the company's focus for the manufacturing sector is to provide insight into five strategic

development objectives:

1. To increase the depth of functionality with changes to existing processes and functions
2. To broaden the IFS applications footprint with new capabilities that will deliver further value
3. To extend the product with additional technologies and applications
4. To increase automation capabilities throughout the product
5. To provide a positive user experience built on modern open technology

When selecting IFS, businesses can opt for on-premises or cloud deployment. However, the cloud version is the way of the future. IFS offers direct implementation services (as they have almost exclusively in the past), but is moving more and more to the use of a growing network of implementation partners. When implementing with such a partner, it still has a customer success manager assigned to the implementation project to ensure compliance with IFS standards.

One of the most interesting recent changes is a change in the user interface from one that was very difficult, complex and confusing to one that is easy to use and navigate, and which is almost intuitive.

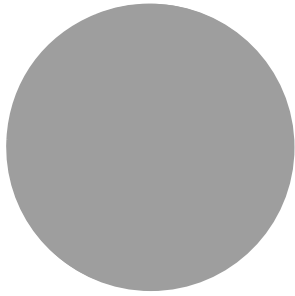
With functionality such as Warehouse Management System (WMS) embedded in the software, customers do not need to worry about how the two sections of the business (manufacturing and warehousing) intersect in the system.

The service management functionality is viewed as a best-of-breed solution, and it is frequently integrated with other ERP systems for large corporate accounts. The system will track and maintain the as-designed, as-manufactured, as-delivered and as-maintained bill-of-material, repairs, and other tracked activities for each serialized asset.

KEY ERP SOFTWARE CAPABILITIES: IFS

CATEGORY	FUNCTIONALITY	CLASSIFICATION	DEMONSTRATED INTEGRATIONS
Customer/Order Management	Order Configuration/CPQ	Core	
Customer/Order Management	cost based pricing, margin analysis	Core	
Customer/Order Management	Over/under quantity adjustments	Core	
Customer/Order Management	Truck/rail shipping	3-P	
Customer/Order Management	Freight rate shopping	3-P	
Customer/Order Management	Load creation/load building	Core	
Customer/Order Management	Packaging/shipping specs	Core	
Customer/Order Management	Total order weight/cubing calculation	3-P	
Information Technology	EDI	Core	
Information Technology	LPN	Core	
Planning/Scheduling/Operations	Material reservation	Core	
Planning/Scheduling/Operations	Capacity planning	Core	
Planning/Scheduling/Operations	Order consolidation, reporting	Core	
Planning/Scheduling/Operations	Resources detail scheduling: finite, infinite	Core	
Planning/Scheduling/Operations	Plate nesting during detail scheduling	3-P	
Planning/Scheduling/Operations	Setup optimization	Core	
Planning/Scheduling/Operations	UOM conversion	Core	
Planning/Scheduling/Operations	Sub-contracting, outside processing	Core	
Planning/Scheduling/Operations	Inventory management	Core	
Planning/Scheduling/Operations	Product labeling	Core	
Planning/Scheduling/Operations	Remnant management	None	
Planning/Scheduling/Operations	Develop Material Plan	Core	
Planning/Scheduling/Operations	Scrap Planning/Tracking	Core	
Planning/Scheduling/Operations	Tooling management/planning	Core	
Planning/Scheduling/Operations	MRO - Maint management	Core	
Planning/Scheduling/Operations	Bins/Container tracking	Core	
Planning/Scheduling/Operations	Kitting	Core	
Planning/Scheduling/Operations	Develop Demand Plan	Core	
Planning/Scheduling/Operations	Develop Operations Plan	Core	
Planning/Scheduling/Operations	Integrate S&OP	Core	
Planning/Scheduling/Operations	PLC Integration	3-P	Crosser.IO
Planning/Scheduling/Operations	SPC	3-P	
Planning/Scheduling/Operations	Deviation Tracking	Core	
Planning/Scheduling/Operations	Collaborative planning with suppliers	Core	via Supplier Portals
Planning/Scheduling/Operations	Kanban Management	Core	
Planning/Scheduling/Operations	OEE Reporting	Core	
Quality	Heats/chemistry	Core	
Quality	FMEA	Core	
Quality	PPAP	Core	
Quality	Quality Standards Compliance	Core	
Quality	QC testing control plans	Core	
Quality	Serial Tracking, genealogy tracking	Core	
Quality	Lot Tracking, genealogy tracking	Core	
Quality	CAD Design integrated with ERP	3-P	
Quality	Corrective Action Management	Core	
Supply Chain	Material Scrap Factor	Core	
Supply Chain	Surcharges	Core	
Supply Chain	Alternate uses of RM, material substitution	Core	
Supply Chain	Inbound container tracking	Core	
Supply Chain	Variable lead times	Core	
Supply Chain	Pricing agreements/blanket orders and tracking	Core	
Supply Chain	Consignment inventories: customer	Core	

Customers by Industry



Data not provided

Targeted Verticals

- Aerospace & Defense
- Distribution
- Energy/Utilities/Resources
- Construction & Engineering
- Manufacturing (including Metal Fabrication)

Metal Fabrication Customers

- Chief Industries
- Cleaver-Brooks
- Deublin
- Durham Manufacturing
- Tennsco

IFS's Pitch

Built to meet the specific needs of your industry, IFS Cloud combines deep industry and functional strength with intelligent and autonomous capabilities that can be put to work from day one. Easy to use and tailored to you, it connects to business applications easily. With an end-to-end integrated functionality, it provides higher performance, better security, uptime, lifecycle, advanced BI, not to mention scalability and adaptability. With its enhanced analytics, workflow simplification, and AI capabilities, you can step into a fully digital environment that offers better visibility and more control. Pull your core business activities together into something greater: moments of service that delight your customers.

Deployment Options



Profile

IFS AB (ifs.com) is headquartered in Linköping, Sweden. The company develops and delivers enterprise software for manufacturing and distribution customers. The company is on track to generate \$1 billion in revenue in 2021, has more than 4,500 employees, and 10,000 customers worldwide.



Ultra's Insight: Built with Discrete Manufacturing in Mind

Infor LN is installed at more than 2,700 customers worldwide. A cloud-focused ERP provider, Infor's customer sweet spot is companies with revenues of \$500 million to \$4 billion.

Some of Infor LN's strengths are its ability to provide genealogy tracking/lot tracing, handle subcontracting in the manufacturing process and manage the art of the procurement and sourcing. In addition, its support of Kanban through the floor for replenishment is a big value-add.

Infor LN's ability to capture costs is deep and broad, particularly overhead assignment of labor and/or materials. Its robust inter-company transaction management system can create relationships between legal entities with specific costing and transfer pricing methodologies.

And Infor LN's enterprise structure and multi-company/site capabilities allow for a rules-based engine to simplify and automate traditionally complex intercompany transactions. It offers the ability to manage multiple modes of manufacturing for fabricated part, including support for ETO, configuration, custom metal parts and MTS. And finally, it provides the ability to integrate to machine PLCs in order to pass information into the ERP system.

The capabilities that differentiate Infor LN from its competitors? To start, its functions for planning, manufacturing and scheduling in complex manufacturing environments, including management of the supply chain and management of mixed-mode manufacturing. Its project-based manufacturing toolset is extremely strong. It offers the incorporation of industry-specific requirements. Its mobility capabilities enable the use of any hand-held mobile device for transaction reporting.

The roadmap for Infor LN is broken into these areas:

- Technology of the solution – zero-downtime in the cloud and incorporate new solutions, including artificial intelligence and predictive analytics.
- Globalization of the solution – continuously keep up with tax and regulatory compliance.
- Industry Specialization – focus on aerospace & defense, automotive, industrial manufacturing and high-tech electronics.

And, Infor is investing heavily to radically change the user experience and make it more like modern Internet search-based engine applications. The company also is working to reduce total cost of ownership and implementation, enhance data migration tools and the ability to provide business processes and workflows, and accelerate implementation. Infor is investing in customers that are moving from on-premises solutions to cloud – and provide the ability to copy all settings and configurations to the cloud with minimal cut-over delay.

Infor provides every customer with a customer success manager and a subscription to Infor Campus, a subscription tool with a knowledge base, simulated exercises, and educational content and training.

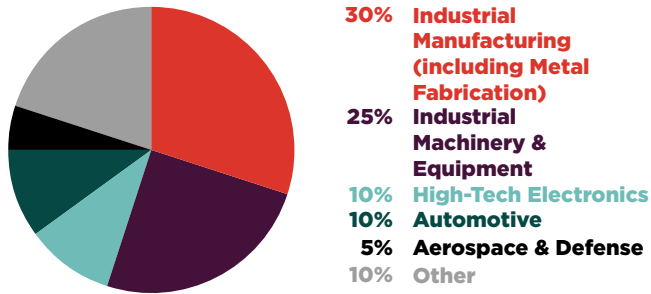
Infor says that customers see a significant benefit from LN's...

- cloud application's monthly update vs. old-school updates that required a large internal resource commitment.
- testing-as-a-service capability, which enables automated capture of Intellectual property and allows customers to test new capabilities.
- ability to be redeployed in the organization.
- layer of personalization that is not impacted by the monthly/quarterly updates
- dedicated space for extensibility to accommodate complex logic – space that does not impede updates.

KEY ERP SOFTWARE CAPABILITIES: Infor LN

CATEGORY	FUNCTIONALITY	CLASSIFICATION	DEMONSTRATED INTEGRATIONS
Customer/Order Management	Order Configuration/CPQ	Add-On	Infor CPQ
Customer/Order Management	cost based pricing, margin analysis	Core	
Customer/Order Management	Over/under quantity adjustments	Core	
Customer/Order Management	Truck/rail shipping	3-P	
Customer/Order Management	Freight rate shopping	Add-On	Infor Nexus
Customer/Order Management	Load creation/load building	Core	
Customer/Order Management	Packaging/shipping specs	Core	
Customer/Order Management	Total order weight/cubing calculation	Core	
Information Technology	EDI	Core	
Information Technology	LPN	Core	
Planning/Scheduling/Operations	Material reservation	Core	
Planning/Scheduling/Operations	Capacity planning	Core	
Planning/Scheduling/Operations	Order consolidation, reporting	Core	
Planning/Scheduling/Operations	Resources detail scheduling: finite, infinite	Core	
Planning/Scheduling/Operations	Plate nesting during detail scheduling	3-P	
Planning/Scheduling/Operations	Setup optimization	Core	
Planning/Scheduling/Operations	UOM conversion	Core	
Planning/Scheduling/Operations	Sub-contracting, outside processing	Core	
Planning/Scheduling/Operations	Inventory management	Core	
Planning/Scheduling/Operations	Product labeling	Core	
Planning/Scheduling/Operations	Remnant management	Core	Roadmap 2022
Planning/Scheduling/Operations	Develop Material Plan	Core	
Planning/Scheduling/Operations	Scrap Planning/Tracking	Core	
Planning/Scheduling/Operations	Tooling management/planning	Core	
Planning/Scheduling/Operations	MRO - Maint management	Core	
Planning/Scheduling/Operations	Bins/Container tracking	Core	
Planning/Scheduling/Operations	Kitting	Core	
Planning/Scheduling/Operations	Develop Demand Plan	Core	
Planning/Scheduling/Operations	Develop Operations Plan	Core	
Planning/Scheduling/Operations	Integrate S&OP	Add-On	Infor S&OP
Planning/Scheduling/Operations	PLC Integration	Add-On	Infor Bridge
Planning/Scheduling/Operations	SPC	Core	
Planning/Scheduling/Operations	Deviation Tracking	Core	
Planning/Scheduling/Operations	Collaborative planning with suppliers	Core	
Planning/Scheduling/Operations	Kanban Management	Core	
Planning/Scheduling/Operations	OEE Reporting	Add-On	Infor Bridge
Quality	Heats/chemistry	Core	
Quality	FMEA	Core	
Quality	PPAP	Add-On	Infor Supplier Exchange
Quality	Quality Standards Compliance	Core	
Quality	QC testing control plans	Core	
Quality	Serial Tracking, genealogy tracking	Core	
Quality	Lot Tracking, genealogy tracking	Core	
Quality	CAD Design integrated with ERP	3-P	
Quality	Corrective Action Management	Core	
Supply Chain	Material Scrap Factor	Core	
Supply Chain	Surcharges	Core	
Supply Chain	Alternate uses of RM, material substitution	Core	
Supply Chain	Inbound container tracking	Core	
Supply Chain	Variable lead times	Core	
Supply Chain	Pricing agreements/blanket orders and tracking	Core	
Supply Chain	Consignment inventories: customer	Core	

Customers by Industry



Targeted Verticals

- Aerospace & Defense
- Automotive
- High-Tech Electronics
- Engineering & Construction
- Industrial Machinery
- Industrial Manufacturing/Metal Fabrication

Metal Fabrication Customers

- Bray International, Inc.
- Flexible Steel Lacing Company
- Inglass S.p.A.
- Kongsberg Defence & Aerospace
- Mokveld
- Oberg Industries, LLC
- Velan Inc.
- VZ Industries BV

Infor's Pitch

Tailored for discrete manufacturers, including the specialized needs of metal fabricators, Infor LN is an advanced cloud ERP that is smart, preconfigured and modern. The solution combines a state-of-the-art user experience with robust industry-specific functionality, such as the ability to manage shop floor operations, job site inspections, work in progress and configured sales quoting. Available on an open-source technology stack, Infor LN provides manufacturers with an end-to-end solution that is highly agile and able to scale as your organization grows. It helps metal fabricators keep pace with today's fast-changing business landscape and align with customers expecting a highly collaborative experience.

Deployment Options



Profile

Infor (infor.com), headquartered in New York, N.Y., USA, brought in \$3.2 billion in revenue in 2019 and, with 67,000 customer organizations worldwide, is a leader in industry-specific cloud software products. The company has 140 offices across 44 countries and 17,000 employees. In 2020, Infor was acquired by Koch Industries.



Ultra's Insight: Focus on Metal Fab's Unique Needs

When talking about capabilities in the metal fabrication industry for Microsoft Dynamics 365, it's important to consider the Crowe Metals Accelerator (CMA) developed and implemented by Crowe LLP. By providing a solid base for development, Microsoft allows partners like Crowe to go deep in vertical development such that the developed logic seems as if it is embedded in the Dynamics 365 system. In this case, Crowe has developed a metals specific extension of Dynamics 365 that satisfies many of the needs of the metals industry.

Crowe has more than 10 years in the metals industry, with 300 employees devoted to the product, many of whom have spent time in the industry as users. It caters to companies with annual revenues from \$75 million \$1 billion, but it considers its sweet spot to be \$100 million to \$250 million.

Crowe claims its "secret sauce" is in dealing with the complex details of the metals industry with capabilities that include:

- OOTB nesting for coil slitting and linear cutting

- Out-of-the-box nesting for coil-slitting, linear cutting and plate cutting
- Ability to integrate with plate nesting software such as Sigmanest
- Attribute-based inventory tracking
- Attribute-based material planning
- Capacity planning
- Metal fabrication-specific analytics and reporting metrics
- Complete customer view across quotes, orders, payments and quality concerns
- Material utilization
- A scalable solution which supports organic growth and large acquisition growth

The future roadmap is focused on systems with IoT and PLC integration. Crowe also plans to dig deeper into the specifics of machine learning, as well as getting even more specific relative to:

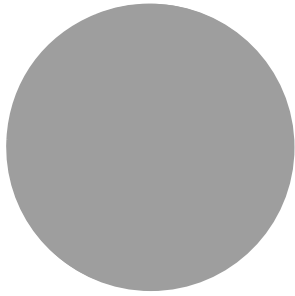
- Tube manufacturing
- Primary metals producer
- Wire/cable
- Metal building products

Deployment options include all that Microsoft has to offer, including on-premise and SaaS. With implementation, again, in order to get the metals expertise, Crowe will need to be the implementor of choice who will implement the entire suite of Dynamics 365 along with CMA.

KEY ERP SOFTWARE CAPABILITIES: Microsoft Dynamics 365/Crowe

CATEGORY	FUNCTIONALITY	CLASSIFICATION	DEMONSTRATED INTEGRATIONS
Customer/Order Management	Order Configuration/CPQ	Core	
Customer/Order Management	cost based pricing, margin analysis	Core	
Customer/Order Management	Over/under quantity adjustments	Core	
Customer/Order Management	Truck/rail shipping	Core	
Customer/Order Management	Freight rate shopping	Core	
Customer/Order Management	Load creation/load building	Core	
Customer/Order Management	Packaging/shipping specs	Core	
Customer/Order Management	Total order weight/cubing calculation	Core	
Information Technology	EDI	3-P	TrueCommerce, DiCentral, SPS Commerce, and others
Information Technology	LPN	Core	
Planning/Scheduling/Operations	Material reservation	Core	
Planning/Scheduling/Operations	Capacity planning	Core	
Planning/Scheduling/Operations	Order consolidation, reporting	Core	
Planning/Scheduling/Operations	Resources detail scheduling: finite, infinite	Core	
Planning/Scheduling/Operations	Plate nesting during detail scheduling	Core	
Planning/Scheduling/Operations	Setup optimization	Core	
Planning/Scheduling/Operations	UOM conversion	Core	
Planning/Scheduling/Operations	Sub-contracting, outside processing	Core	
Planning/Scheduling/Operations	Inventory management	Core	
Planning/Scheduling/Operations	Product labeling	Core	
Planning/Scheduling/Operations	Remnant management	Core	
Planning/Scheduling/Operations	Develop Material Plan	Core	
Planning/Scheduling/Operations	Scrap Planning/Tracking	Core	
Planning/Scheduling/Operations	Tooling management/planning	Core	
Planning/Scheduling/Operations	MRO - Maint management	Core	
Planning/Scheduling/Operations	Bins/Container tracking	Core	
Planning/Scheduling/Operations	Kitting	Core	
Planning/Scheduling/Operations	Develop Demand Plan	Core	
Planning/Scheduling/Operations	Develop Operations Plan	Core	
Planning/Scheduling/Operations	Integrate S&OP	Core	
Planning/Scheduling/Operations	PLC Integration	Add-On	
Planning/Scheduling/Operations	SPC	None	
Planning/Scheduling/Operations	Deviation Tracking	Core	
Planning/Scheduling/Operations	Collaborative planning with suppliers	None	
Planning/Scheduling/Operations	Kanban Management	Core	
Planning/Scheduling/Operations	OEE Reporting	None	
Quality	Heats/chemistry	Core	
Quality	FMEA	None	
Quality	PPAP	None	
Quality	Quality Standards Compliance	Core	
Quality	QC testing control plans	Core	
Quality	Serial Tracking, genealogy tracking	Core	
Quality	Lot Tracking, genealogy tracking	Core	
Quality	CAD Design integrated with ERP	3-P	BlueStar PLM
Quality	Corrective Action Management	Core	
Supply Chain	Material Scrap Factor	Core	
Supply Chain	Surcharges	Core	
Supply Chain	Alternate uses of RM, material substitution	Core	
Supply Chain	Inbound container tracking	Core	
Supply Chain	Variable lead times	Core	
Supply Chain	Pricing agreements/blanket orders and tracking	Core	
Supply Chain	Consignment inventories: customer	Core	

Customers by Industry



Data not provided

Targeted Verticals

- Commercial Metal Fabrication
- Industrial Metal Fabrication
- Structural Metal Fabrication

Metal Fabrication Customers

Data not provided

Crowe's Microsoft Pitch

Microsoft Dynamics 365 and Crowe Metals Accelerator allows the modern business application platform to stay in front of the evolving manufacturing requirements and the unique needs of a metal fabricator. Microsoft Dynamics 365 Finance and Supply Chain Management provides the flexible platform to excel in a rapidly changing business environment.

Metal Fabrication companies manage complex customer requirements, an evolving workforce, and uncertainty in the supply chain. The combination of a leading business application solution from Microsoft with the industry-focused implementation team from Crowe provides metal fabrication companies the tools they need to thrive.

Deployment Options



ON-PREMISES



SINGLE-TENANT



MULTI-TENANT

Microsoft Profile

Microsoft (microsoft.com) is headquartered in Redmond, Wash., USA, and was founded in 1975. In FY 2020, the company had \$143.0 billion in revenue and 175,500 employees worldwide. It is the world's largest software company. Its Microsoft Dynamics 365 enterprise resource planning (ERP) product line contains a long list of applications.

Crowe Profile

Crowe LLP (crowe.com) is an accounting, consulting and technology firm with 40 offices around the world – and industry expertise in banking, financial services, healthcare, insurance, life sciences, manufacturing, metals and tech/media/telecom. Crowe has more than 4,000 employees across its 40 locations. It offers a broad range of ERP solutions, including Microsoft Dynamics 365 and Oracle NetSuite.

ORACLE®

CLOUD



Ultra's Insight: Capabilities for Today and Tomorrow

The current version of the Oracle RP solution, called Fusion Cloud, is a SAS-based, full-featured ERP system that supports all aspects of the business. Oracle utilizes third-party implementors, including Terrilium, which has more than 27 years of experience with Oracle, more than 200 employees across the United States, and a headquarters in Cincinnati Ohio.

Although the Oracle family of products includes JD Edwards (JDE), E-Business Suite (EBS) and NetSuite, the Fusion Cloud software is one of the flagship products of Oracle. Supporting four major industries - Automotive, Food & Beverage, Hospitality and Oil & Gas - the metals fabrication segment lies within the automotive industry focus.

For Oracle, the ideal metal fabrication customer is companies with annual revenues from \$200 million to more than \$1 billion, and Oracle is able to scale the product to the needs of the client.

Oracle's keys to success within the metals fabrication industry include:

- Integrated PLM
- Product configurator (CPQ)

- Best-of-breed S&OP
- Order management with complex promising between order lines
- SCM projects - SCM (ETO/MTO) project-driven industry
- Constraint-based, drag/drop production scheduling
- Lot tracking genealogy including heat tracking
- Attribute-based pricing
- Mixed-mode manufacturing
- Remnant management
- Attribute-based inventory tracking and planning

Oracle's roadmap for the future? More machine learning and stronger IOT capabilities. The focus for metal products manufacturing includes:

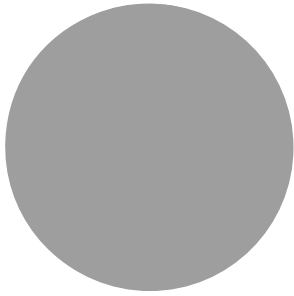
- IOT, SPC including predefined API interfaces
- Increased integration with MES automation
- Production scheduling
- Demand planning
- Broaden in vertical

Deployment options are limited in that all are on the cloud, mostly via single tenant configurations. Implementation services are primarily via third-party providers like Terrilium, but these parties are not resellers of the system.

KEY ERP SOFTWARE CAPABILITIES: Oracle Fusion Cloud/Terillium

CATEGORY	FUNCTIONALITY	CLASSIFICATION	DEMONSTRATED INTEGRATIONS
Customer/Order Management	Order Configuration/CPQ	Core	
Customer/Order Management	cost based pricing, margin analysis	Core	
Customer/Order Management	Over/under quantity adjustments	Core	
Customer/Order Management	Truck/rail shipping	Core	
Customer/Order Management	Freight rate shopping	Core	
Customer/Order Management	Load creation/load building	Core	
Customer/Order Management	Packaging/shipping specs	Core	
Customer/Order Management	Total order weight/cubing calculation	Core	
Information Technology	EDI	Core	
Information Technology	LPN	Core	
Planning/Scheduling/Operations	Material reservation	Core	
Planning/Scheduling/Operations	Capacity planning	Core	
Planning/Scheduling/Operations	Order consolidation, reporting	Core	
Planning/Scheduling/Operations	Resources detail scheduling: finite, infinite	Core	
Planning/Scheduling/Operations	Plate nesting during detail scheduling	3-P	Interface
Planning/Scheduling/Operations	Setup optimization	Core	
Planning/Scheduling/Operations	UOM conversion	Core	
Planning/Scheduling/Operations	Sub-contracting, outside processing	Core	
Planning/Scheduling/Operations	Inventory management	Core	
Planning/Scheduling/Operations	Product labeling	Core	
Planning/Scheduling/Operations	Remnant management	Core	
Planning/Scheduling/Operations	Develop Material Plan	Core	
Planning/Scheduling/Operations	Scrap Planning/Tracking	Core	
Planning/Scheduling/Operations	Tooling management/planning	Core	
Planning/Scheduling/Operations	MRO - Maint management	Core	
Planning/Scheduling/Operations	Bins/Container tracking	Core	
Planning/Scheduling/Operations	Kitting	Core	
Planning/Scheduling/Operations	Develop Demand Plan	Core	
Planning/Scheduling/Operations	Develop Operations Plan	Core	
Planning/Scheduling/Operations	Integrate S&OP	Core	
Planning/Scheduling/Operations	PLC Integration	Core	
Planning/Scheduling/Operations	SPC	Core	
Planning/Scheduling/Operations	Deviation Tracking	Core	
Planning/Scheduling/Operations	Collaborative planning with suppliers	Core	
Planning/Scheduling/Operations	Kanban Management	None	
Planning/Scheduling/Operations	OEE Reporting	None	Custom Reporting
Quality	Heats/chemistry	Core	
Quality	FMEA	Core	
Quality	PPAP	Core	
Quality	Quality Standards Compliance	Core	
Quality	QC testing control plans	Core	
Quality	Serial Tracking, genealogy tracking	Core	
Quality	Lot Tracking, genealogy tracking	Core	
Quality	CAD Design integrated with ERP	Add-On	
Quality	Corrective Action Management	Core	
Supply Chain	Material Scrap Factor	Core	
Supply Chain	Surcharges	Core	
Supply Chain	Alternate uses of RM, material substitution	Core	
Supply Chain	Inbound container tracking	Core	
Supply Chain	Variable lead times	Core	
Supply Chain	Pricing agreements/blanket orders and tracking	Core	
Supply Chain	Consignment inventories: customer	Core	

Customers by Industry



Data not provided

Targeted Metal Fabrication Verticals

- Fabricated Metal Products
- Fabricated Pipe and Pipe Fittings
- Fabricated Structural Metal
- Machine Tools
- Metal Cans
- Metal Stampings
- Metalworking Machinery

Metal Fabrication Customers

Data not provided

Terillium's Oracle Pitch

The Oracle Manufacturing Cloud makes it possible to view all parts of your business for better management decision-making. Metal-fabrication specific functions like production scheduling, serialized inventory and tooling management give you the broad and deep functionality you need for success.

Gain full traceability of materials used in each step of the metal-fabrication manufacturing process to better manage your inventory investment. Connect all the way to the shop floor with connectivity to equipment, industrial automation and sensors. Keep a full history of inventory, heats, production activities, test results and more. Keep equipment operating efficiently for increased effectiveness. Avoid unplanned downtime with predictive and preventive maintenance.

Deployment Options



ON-PREMISES



SINGLE-TENANT



MULTI-TENANT

Oracle Profile

Oracle (oracle.com) is headquartered in Austin, Texas, USA, and was founded in 1977. In 2020, the company had \$39.1 billion in revenue, 430,000 customers, 133,000 employees and 20,000 partners around the world. Oracle claims that it offers the broadest and deepest suite of cloud applications. In 2020, Oracle was the second-largest software company by revenue and market capitalization.

Terillium Profile

Terillium (terillium.com) is an ERP consulting company and Oracle Platinum Partner specializing in the implementation of Oracle ERP Cloud, Oracle NetSuite, Oracle JD Edwards and E-Business Suite solutions. With more than 200 employees at locations across the United States and its Cincinnati, Ohio, USA, headquarters.



Ultra's Insight: Big Solution With Broad Capabilities

SAP is an ERP system with a full suite of products to support all areas of the business in many different industries. With innovative technologies in play, SAP connects all parts of a business into an intelligent suite on a fully digital platform. SAP has more than 7,000 customers in the metals industry, 50% in North America.

While SAP is well-known for serving large enterprise customers, it claims S/4HANA to be well-suited for any business, and that 80% of their installations are small to mid-sized companies. S/4HANA is geared for companies with annual revenues north of \$500 million, SAP also offers solutions for companies with annual revenues under \$500 million.

In our interview with SAP's product experts, they told us that S/4HANA's strengths are:

- Whole-order entry, including pricing and costing models
- Native integration between sales and ops
- Dimensional attributes as part of planning engine
- Inclusion of scrap across multiple orders

- Quality management, which is Integrated with the operation including full genealogy tracking

While S/4HANA does not have nesting optimization algorithms, it does have the ability to group and execute nested orders.

Recent development added machine learning, a new/improved user interface, and reporting that comes direct from the transactional database.

Future plans include:

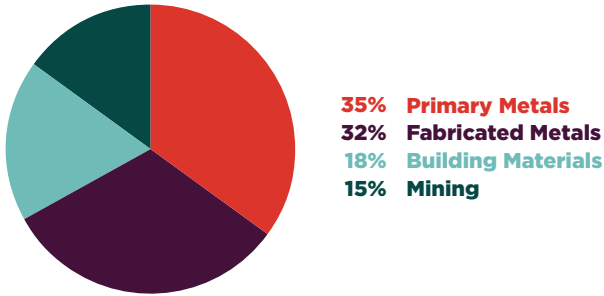
- Integrated Business Platform (IBP)
 - integrated planning with customer collaboration and what-if capabilities
- Logistics Business Network (LBN), including container tracking before receipt
- Production Planning

Implementation services include direct from SAP, third-party implementors, or a hybrid between the two. With implementation time frames from six months to two years, SAP will innovate with customers to provide customized solutions as needed, but supplies a broad base of standard modules that will serve most, if not all, of business needs.

KEY ERP SOFTWARE CAPABILITIES: SAP S/4HANA

CATEGORY	FUNCTIONALITY	CLASSIFICATION	DEMONSTRATED INTEGRATIONS
Customer/Order Management	Order Configuration/CPQ	Core	
Customer/Order Management	cost based pricing, margin analysis	Core	
Customer/Order Management	Over/under quantity adjustments	Core	
Customer/Order Management	Truck/rail shipping	Core	
Customer/Order Management	Freight rate shopping	Add-On	SAP, Non-SAP TMS applications
Customer/Order Management	Load creation/load building	Core	
Customer/Order Management	Packaging/shipping specs	Core	
Customer/Order Management	Total order weight/cubing calculation	Core	
Information Technology	EDI	3-P	
Information Technology	LPN	Core	
Planning/Scheduling/Operations	Material reservation	Core	
Planning/Scheduling/Operations	Capacity planning	Core	
Planning/Scheduling/Operations	Order consolidation, reporting	Core	
Planning/Scheduling/Operations	Resources detail scheduling: finite, infinite	Core	
Planning/Scheduling/Operations	Plate nesting during detail scheduling	3-P	
Planning/Scheduling/Operations	Setup optimization	Core	With embedded PP/DS
Planning/Scheduling/Operations	UOM conversion	Core	
Planning/Scheduling/Operations	Sub-contracting, outside processing	Core	
Planning/Scheduling/Operations	Inventory management	Core	
Planning/Scheduling/Operations	Product labeling	Core	
Planning/Scheduling/Operations	Remnant management	Core	
Planning/Scheduling/Operations	Develop Material Plan	Core	
Planning/Scheduling/Operations	Scrap Planning/Tracking	Core	
Planning/Scheduling/Operations	Tooling management/planning	Core	
Planning/Scheduling/Operations	MRO - Maint management	Core	
Planning/Scheduling/Operations	Bins/Container tracking	Core	
Planning/Scheduling/Operations	Kitting	Core	
Planning/Scheduling/Operations	Develop Demand Plan	Add-On	
Planning/Scheduling/Operations	Develop Operations Plan	Add-On	
Planning/Scheduling/Operations	Integrate S&OP	Add-On	
Planning/Scheduling/Operations	PLC Integration	Add-On	
Planning/Scheduling/Operations	SPC	Core	
Planning/Scheduling/Operations	Deviation Tracking	Core	
Planning/Scheduling/Operations	Collaborative planning with suppliers	Add-On	
Planning/Scheduling/Operations	Kanban Management	Core	
Planning/Scheduling/Operations	OEE Reporting	Core	
Quality	Heats/chemistry	Core	
Quality	FMEA	Core	
Quality	PPAP	Core	
Quality	Quality Standards Compliance	Core	
Quality	QC testing control plans	Core	
Quality	Serial Tracking, genealogy tracking	Core	
Quality	Lot Tracking, genealogy tracking	Core	
Quality	CAD Design integrated with ERP	Add-On	
Quality	Corrective Action Management	Core	
Supply Chain	Material Scrap Factor	Core	
Supply Chain	Surcharges	Core	
Supply Chain	Alternate uses of RM, material substitution	Core	
Supply Chain	Inbound container tracking	Add-On	
Supply Chain	Variable lead times	Core	
Supply Chain	Pricing agreements/blanket orders and tracking	Core	
Supply Chain	Consignment inventories: customer	Core	

Metals Customers by Segment



Targeted Verticals

28 targeted verticals, including Mill Products/
Metal Fabrication

Metal Fabrication Customers

- ArcelorMittal
- Kohler
- Nibco
- Rexam
- Ryerson
- Sloan Valve

SAP's Pitch

With SAP solutions and technology, you can bring data-driven customer devotion and operational flexibility to your entire business. You can build intelligent, individualized products by connecting each customer's voice to everything from product planning to delivery. You can create the kind of production process that adapts dynamically to different demands, setups, and workflows, while using intelligence and networks to integrate every machine, partner and employee.

With SAP, you can connect your entire company – bringing together logistics, sales and service – so every step is orchestrated and you avoid the gaps or delays that keep you from delivering the best-possible experience.

Deployment Options



Profile

SAP (sap.com) is headquartered in Walldorf, Germany, and was founded in 1972. The company had \$32.2 billion in revenue in FY2020, and in July 2021 it had 440,000 customers, regional offices in 140 countries, 103,876 employees and 21,000 partners around the world. The company says that more than three-quarters of the world's transaction revenue touches an SAP system, and that approximately 80% of SAP customers are small and medium-sized enterprises. Its S/4 HANA product is best suited for larger companies or fast-growing middle-market companies.



Ultra's Insight: Scalable, Highly Configurable Solution

Headquartered in South Africa and with U.S. offices in Tustin, Calif., SYSPRO is a privately held provider of ERP software. Established in 1978 by CEO Phil Duff, the company has 12 major offices around the world, and over 15,000 licensed customers in 62 countries. The company offers a robust feature set that focuses on the manufacturing and distribution industries. For organizations that like the ability to customize their ERP solution, SYSPRO allows for this approach by providing modular functionality.

SYSPRO says its sweet spot is companies with annual revenues from \$10 million to \$200 million, or organizations with 50 to 500 employees. But the largest part of their customer base is under \$100 million in revenue. SYSPRO services four primary industries: Metal Fabrication, Food & Beverage, Electronics and Industrial Equipment.

In the metal fabrication segment, SYSPRO says its strengths are:

- Good support for mixed mode operations – ETO/MTO and MTS
- Quoting and estimating
- Demand planning and forecasting
- Capacity planning and labor tracking and analysis

- Quality control/quality management through a third-party tool called Unipoint
- Automation and PLC integration

SYSPRO'S future roadmap includes improved organizational controls via data governance and cyber security, and the use of AI to access all connected data for business analysis. It also plans to improve WMS and QC functionality within the core package so that third-party software is not needed except for customers with extreme needs. The company also intends to focus on improving its supply chain functionality through the use of portals for both customer and suppliers.

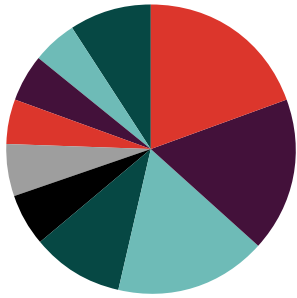
SYSPRO offers a choice of deployment options that include a hosted environment (Azure) or on-premises, with either a smart client or browser-based UI. A SaaS option currently is being developed for the near future. While the majority of SYSPRO implementations are delivered through certified channel partners, the company also offers direct implementation and consulting services. Either way, SYSPRO's focus is on having a team that builds a strong relationship with the customer.

The company feels its real strength is in providing a scalable, configurable solution that is specific to the needs of the customer, rather than a one-size-fits-all solution. Being able to support complex environments with industry specific talent in their organization allows SYSPRO to develop the solution quickly and effectively in a way that supports the growing needs of the customer.

KEY ERP SOFTWARE CAPABILITIES: SYSPRO

CATEGORY	FUNCTIONALITY	CLASSIFICATION	DEMONSTRATED INTEGRATIONS
Customer/Order Management	Order Configuration/CPQ	Core	
Customer/Order Management	cost based pricing, margin analysis	Core	
Customer/Order Management	Over/under quantity adjustments	Core	
Customer/Order Management	Truck/rail shipping	3-P	Multiple shipping & WMS ISV options
Customer/Order Management	Freight rate shopping	3-P	Multiple shipping & WMS ISV options
Customer/Order Management	Load creation/load building	Core	
Customer/Order Management	Packaging/shipping specs	3-P	Multiple shipping & WMS ISV options
Customer/Order Management	Total order weight/cubing calculation	3-P	Multiple shipping & WMS ISV options
Information Technology	EDI	Add-On	
Information Technology	LPN	3-P	
Planning/Scheduling/Operations	Material reservation	Core	
Planning/Scheduling/Operations	Capacity planning	Core	
Planning/Scheduling/Operations	Order consolidation, reporting	Core	
Planning/Scheduling/Operations	Resources detail scheduling: finite, infinite	Core	
Planning/Scheduling/Operations	Plate nesting during detail scheduling	None	Future roadmap
Planning/Scheduling/Operations	Setup optimization	Core	
Planning/Scheduling/Operations	UOM conversion	Core	
Planning/Scheduling/Operations	Sub-contracting, outside processing	Core	
Planning/Scheduling/Operations	Inventory management	Core	
Planning/Scheduling/Operations	Product labeling	Core	
Planning/Scheduling/Operations	Remnant management	None	
Planning/Scheduling/Operations	Develop Material Plan	Core	
Planning/Scheduling/Operations	Scrap Planning/Tracking	Core	
Planning/Scheduling/Operations	Tooling management/planning	Core	
Planning/Scheduling/Operations	MRO - Maint management	Core	
Planning/Scheduling/Operations	Bins/Container tracking	Core	
Planning/Scheduling/Operations	Kitting	Core	
Planning/Scheduling/Operations	Develop Demand Plan	Core	
Planning/Scheduling/Operations	Develop Operations Plan	Core	
Planning/Scheduling/Operations	Integrate S&OP	Core	
Planning/Scheduling/Operations	PLC Integration	Core	
Planning/Scheduling/Operations	SPC	3-P	UniPoint Advanced Quality Management
Planning/Scheduling/Operations	Deviation Tracking	None	
Planning/Scheduling/Operations	Collaborative planning with suppliers	Core	
Planning/Scheduling/Operations	Kanban Management	Core	
Planning/Scheduling/Operations	OEE Reporting	Core	
Quality	Heats/chemistry	3-P	UniPoint Advanced Quality Management
Quality	FMEA	3-P	UniPoint Advanced Quality Management
Quality	PPAP	3-P	UniPoint Advanced Quality Management
Quality	Quality Standards Compliance	3-P	UniPoint Advanced Quality Management
Quality	QC testing control plans	3-P	UniPoint Advanced Quality Management
Quality	Serial Tracking, genealogy tracking	Core	
Quality	Lot Tracking, genealogy tracking	Core	
Quality	CAD Design integrated with ERP	3-P	Multiple CAD Design ISV solutions
Quality	Corrective Action Management	3-P	UniPoint Advanced Quality Management
Supply Chain	Material Scrap Factor	Core	
Supply Chain	Surcharges	Core	
Supply Chain	Alternate uses of RM, material substitution	Core	
Supply Chain	Inbound container tracking	Core	
Supply Chain	Variable lead times	Core	
Supply Chain	Pricing agreements/blanket orders and tracking	Core	
Supply Chain	Consignment inventories: customer	Core	

Customers by Industry



19.6% Industrial Machinery & Equipment
17.2% Fabricated Metals
16.9% Electronics
10.4% Food & Beverage
5.8% Plastics & Rubber
5.7% Automotive Parts & Accessories
5.1% Furniture
5.1% Packaging
9% Other

Targeted Verticals

- Automotive Parts & Accessories
- Electronics
- Fabricated Metal
- Food & Beverage
- Industrial Machinery & Equipment
- Packaging
- Plastics & Rubber

Metal Fabrication Customers

- 360 Sheet Metal Products
- American Wood Dryers, LLC
- Belden Inc.
- Benchmade Knife Co., USA
- CHS Acquisition Corp.
- Crown Packaging Barbados LTD
- Crown Packaging Trinidad Ltd.
- Gaylord Industries
- Nordco, Inc.
- Pick Heaters, Inc.
- Pocahontas Aluminum Company
- Raphael Industries, Inc.
- Retail Space Solutions, LLC
- Spectro Alloys Corp.
- Strong Forge & Fabrication, LLC
- Structural & Steel Products Mfg., Ltd.
- Supercon, Inc.
- Whip Industries, Inc.

SYSPRO's Pitch

SYSPRO is a leading, global Enterprise Resource Planning (ERP) software provider specializing in key manufacturing and distribution industries. With a customer retention rate of 98%, SYSPRO's team of specialists have continued to address unique industry needs and enable customers to easily adapt and grow. The solution is scalable and can be deployed in the cloud, on-premise, or both, and accessed via a browser on any device to provide customers with choice and flexibility.

With more than 15,000 licensed companies in over 60 countries across six continents – SYSPRO offers guidance and support every step of the way as a trusted advisor.

Deployment Options



Profile

Headquartered in South Africa, with a U.S. office in Tustin, California, SYSPRO (syspro.com) is a privately held provider of ERP software for manufacturers and distributors. Established in 1978 by CEO Phil Duff, the company has 12 major offices around the world, and over 15,000 licensed customers in 62 countries.

HOW TO SELECT THE WRONG ERP SOLUTION

The enterprise software selection process can be long and complicated – for several good reasons. The solution you choose will affect the way you conduct business for years to come. It will impact virtually every function. It's a significant investment. And with as much as half of ERP implementations failing to achieve their goals, it's critical to find a solution suited to your business and its unique needs.

But many organizations get off-track right at the start when they go into the selection process believing in some common myths about the process – misconceptions that can result in the wrong choice for your business.

Here are the five mistakes and misconceptions that will – inevitably – result in the selection of the wrong ERP solution:

1. Thinking that technology is the most important consideration.

Many companies replace their enterprise software because it's outdated or no longer supported by the vendor. While these are valid reasons to make the move to a new system, they shouldn't be the only ones. The software selection process is the perfect time to evaluate business goals and map them to your new solution. For example, you may want to reduce operating costs, increase productivity and streamline business processes. If you have these goals in mind, you're better able to narrow down your choices and request relevant demos from vendors.

2. Assuming that all ERP solutions are the same.

If you've ever bought a new car, you know that every model is different, even those built on the same platform. Each includes various features and benefits, including subtle differences in appearance. It's the same with ERP software. At first glance, it may seem like two solutions are exactly alike. But once you look under the hood, you may learn that one is more powerful. As you test drive it with a demo, you may find that one is more comfortable. The differences often may seem small, but looking critically at them is the key to finding software that fits your business.

3. Believing that a highly detailed RFP is required.

Many companies think they need to create lengthy RFPs, which often amount to hundreds of pages. But since most vendor offerings address core pain points, such as automating reports, these documents don't need to be nearly as long. Instead, you should look at the business problems you want to solve and processes you want to improve with the new software, not core functionalities that typically are the same across multiple vendors.

4. Thinking that an ERP project is an IT project.

While the IT department provides critical input, companies need to get various viewpoints from across the organization when they gather requirements in the software selection process. All too often, important stakeholders are left out of the conversation. Before looking at different systems, assemble a team with employees who work with and manage core processes, particularly those who use workstreams that span functions and departments. Whether it's accounting, sales, marketing, shop floor, warehouse, logistics, operations or any other department, it's important to know the challenges they have and what they need to do their jobs better.

5. Assuming that big-name solutions are always the best solutions.

Corporate executives used to say, "No one ever got fired for buying

IBM." And that mindset persists today. Many organizations start their ERP selection with a list of the biggest and best-known companies in the ERP software marketplace. And the big-name vendors offer excellent choices for small, medium and large enterprises in a variety of deployment models. But their powerful products may not be right for your organization. Extensive customization may be necessary to meet the requirements of your segment and company. Or you may have to purchase specialized industry add-ons to get it to function the way you want. Instead, consider all the options available.

There are many ERP vendors that offer broad manufacturing expertise. But there is no one-size-fits-all solution. The functionalities and capabilities required are unique to each subvertical. And finding the best fit starts with evaluating software solutions and functions based on your industry's unique needs.



Ultra Consultants is an independent ERP consulting firm serving the manufacturing and distribution industries. Since 1994, we've helped hundreds of clients streamline their business processes, select ERP software, and implement a complete ERP solution that meets the unique needs of their industry, specialty and organization.



Why Ultra?

It's critically important to choose an ERP consulting partner with deep experience in your industry, expertise in your ERP solution, and experts who have worked in businesses like yours. And you will want to work with a firm that is independent, flexible and able to help you find the right solution for your organization.

For more than 27 years, Ultra Consultants has utilized its proven methodology, ERP knowledge and industry intelligence to deliver measurable business performance improvements to manufacturers and distributors in virtually every vertical.

- Our services are built for your industry. **We understand your processes and requirements.**
- Our solutions leverage our expertise. **We help you choose software to meet your unique needs.**
- Our results reflect our ERP experience. **We maximize benefits, minimize risk and deliver success.**


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