

The State of the ERP

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The Modern ERP

Widespread use and development of the ERP as we know it today—a multi-functional, integrated, company-wide system of record—boomed in the 1990s. Since then, many companies have kept those same base systems, simply upgrading, patching, and bolting on more capabilities.

Today, nearly 25 years later, organizations are finding ERPs have advanced to such a degree that patches and bolt-ons may no longer be enough. After all this time, their systems have been so customized they can no longer be supported or upgraded to house modern tools.

ERP systems have evolved, and the industry is nearing maturity. We will soon see the full development of once cutting-edge technologies, increased demand for integrated, real-time data transmission, and automated compliance capabilities.

Technology Jargon

Technology is rapidly advancing and changing how businesses operate. Incorporating advanced technology within an ERP is a trend for many ERP providers. Below are explanations of the jargon ERP vendors use along with recent trends.

Artificial Intelligence (AI)

AI was, at one time, arguably the most disruptive concept on the planet. Today, it is accepted and working its way into the ERP space. Whether companies are using it to identify unique customer characteristics, simplify system functionality, or improve production utilization, AI in ERP has potential. Larger companies like SAP, Oracle, and Microsoft are exploring this space.

Organizations are looking at platforms like ChatGPT to harvest data from their ERP solutions to perform complex analyses of business results. An obvious example of this use would be harvesting past maintenance history within the maintenance module to develop realistic preventative maintenance schedules and steps.

Beyond using AI to perform complex analyses of data from the ERP, AI has the potential to allow for correlation between the ERP and internal/external systems. There's opportunity to match data from non-ERP systems with data from the ERP for insights that would be difficult or time consuming to obtain otherwise.

Business Intelligence (BI)

BI is where the most applicable, current use of AI is seen in ERPs. BI's ability to gather data, analyze trends, and bring them to attention is invaluable. BI capabilities are also becoming an expectation of ERP providers. The downfall is that BI relies on specifically formatted data to work correctly. If the data in your current ERP system is messy or unorganized, BI will likely not work as it should. Before investing heavily in this capability, data quality should be evaluated to ensure optimal BI function.

The Cloud

In its early days, the cloud held little consumer confidence. In recent years, it has come to be trusted as one of the most secure places to store data. Cloud computing has become preferred, and ERP companies are racing to develop full cloud solutions. While the cloud has significant benefits, including nearly unlimited scalability, faster implementation, and reduced need for on-site IT staff, there's one major drawback: the cloud relies on interconnectivity. Getting two cloud software providers to integrate often requires a lot of hand holding.

Keep in mind that while ERP providers have moved many available modules into the cloud, they haven't necessarily moved them all. Be aware of which modules are required for your business and make sure they're all offered in the cloud before switching. For those modules that have been moved, the cloud often restricts customization because significant code changes could impact upgrades, infrastructure, and security particularly for single-tenant cloud environments.

The Internet of Things (IoT)

This is most likely where ERPs will advance in the near future. Some pre-IoT activities—process monitoring, for example—have been automated and integrated for a long time. The next logical step is combining those capabilities with technologies like AI so anomalous data can immediately shut down a process or trigger maintenance work orders.

Optical Character Recognition (OCR)

OCR caused a rebirth several years ago. In theory, it's a wonderful technology that could nearly eliminate coding errors and the need for employees to process invoices. Yet in practice, OCR is only useful if incoming invoices are consistent. Only sometimes AI can be used to shore up when they aren't. A mortgage company might find significant value in OCR because they're almost guaranteed that forms will come back formatted and complete. In most circumstances, incomplete forms or invoices are sent to a human for correction. OCR may not actually save more time or money. Electronic invoicing is a more reliable option, allowing both the customer and vendor to work together to define how to best exchange billing and payment data.

Robotic Process Automation (RPA)

RPA is a classification of technology that replaces human behavior within specific business processes. It initially generated hype over its ability to drastically reduce operating costs and boost efficiency. Fact is, there aren't real robots here. RPA's roots and software can be traced to the old Business Process Management (BPM) software. RPA is really a software bot that mimics clicks within a system and automate repetitive tasks. RPA is effective for things like providing customer service line automated recordings and fulfilling standard warehouse orders. However, similar to OCR technology, RPA is beneficial only in scenarios where processing steps are consistent every time. Although RPA providers claim that companies can reduce overhead and automate back-office functions completely, RPA cannot solely take over all back-office functions. Why? Exceptions, what-if scenarios, and problem solving are not within RPA's capabilities and must be redirected to a human for resolution. The back office will not be replaced by robots anytime soon, and RPA is slowly starting to lose its allure.

Blockchain

Outside of cryptocurrency usage, blockchain is currently most useful in document management-type functions. Blockchain allows items like ship plans or maintenance manuals to be shared and updated instantly across an entire organization, even globally. This is somewhat limited due to the need for a single blockchain ecosystem, which could increase the implementation cost for systems using this technology. In finance organizations, blockchain is still widely unused and seems to be losing its steam. It could ultimately replace ACH and EDI transactions and the open API, but exploration and widespread utilization is ongoing. Blockchain in ERPs will likely not come to maturity for several years.

3 C's: How ERP Vendors Compete

More demand than ever is on suppliers to provide platforms that will integrate throughout the value chain with their customers' systems and allow nearly instantaneous data exchange. Customers want to know what a service costs before it's provided. As organizations seek to cut costs and improve efficiencies, integration will be the road most traveled. Following are the three C's: cloud, customization, and connection.

Cloud

The concept of cloud computing has existed in some form since the 1960s when multiple computers started to share a single mainframe. This allowed several users to be "online" at once, greatly reducing the cost of operating said computers. The cloud of today is much more advanced—it's a worldwide phenomenon with massive providers and infinite scalability. Some applications can be built in the cloud, while others simply run through it. Either way, remote infrastructure management saves money in both hardware and human resources. With the cloud, organizations don't need to worry about failover, data backups, or anything else. It happens automatically and is often undetectable.

Almost all popular ERP providers have made some form of investment in the cloud. However, companies you might think are on the leading edge might not be. For SAP and Oracle, a full cloud transition is a challenge. Most clients are so huge that transitioning to a full cloud base could take years and millions of dollars. With clients in mind, ERP providers have had to be selective about how much to invest in cloud functionality.

Some of the top cloud providers include Alibaba, Amazon Web Services, Google, IBM, Microsoft Azure, and Oracle (only available if you sit on Oracle database).

Customization

More than ever, demand exists for companies to conform to customers' needs, which includes system capabilities and preferences. ERPs are shifting to more easily customized and user-friendly interfaces. ERP companies are also expected to provide more support than ever for heavily customized systems.

When implementing a new system or working with an upgrade, organizations must decide how much to customize. Should processes be changed to fit the system, or should systems be changed to fit processes? The best answer is somewhere in between. The goal should be to customize as little as possible without losing what makes the organization unique. If a guarantee to reach a live purchasing agent over the phone every time differentiates one organization from all others, they should customize order screens to be as user-friendly and efficient as possible.

Low-code platforms are also an option for customizations. For example, tools like Novacura, Appian, and Microsoft Power App improve ease of use and workflows instead of customizing the ERP. Systems should support processes that make an organization stand out. Heavy

customization in more standard areas such as journal entry processing may not be worth the time, effort, and cost.

System modifications should be made without altering the application's base source code. Altering core code can wreak havoc on future upgrades and integrations. Modifications made in an extension are a safer, yet just as effective, method of customization.

Connection

Customers want access to shared data and demand visibility into real-time spend to keep costs low. Gone is the era of waiting 30-45 days for an invoice to come through. Customers want to see service costs almost before service is completed. Advancements in cloud computing and electronic inventory tracking are not quite instantaneous, but they do allow as close to real-time data as possible. For project bids, customers want contracts to be generated immediately, accurately, and consistently. Suppliers must alter their processes and technology to compete in the connected customer space. These parameters are forcing suppliers into a platform-like environment. Not only are they expected to be integrated internally, but they have to be integrated externally now, too. This includes integrating with payment processors, logistics providers, and financial institutions. Suppliers who can build these integrations the fastest will gain a significant competitive advantage over those who lag behind.

ERP Classification Tiers

ERPs typically fall into one of three categories, or tiers, based on their relative size and functionality. Such organization helps companies narrow down which options might fit best. It's important to note that tiers one, two, and three are merely segmented based on the size and complexity of companies they typically serve. The following table is how our team categorizes various solutions based upon our experience and the capabilities of each solution.

	Tier Three	Tier Two	Tier One
Products & Critical Functionality	Sage 50, 100, 300 QuickBooks	Acumatica SYSPRO Rootstock IQMS Epicor SAP ByDesign SAP BusinessOne Infor CloudSuite Microsoft Business Central Oracle NetSuite	Microsoft Finance & Operations SAP S/4HANA Workday Infor CloudSuite Enterprise (LN & M3) Oracle Cloud (eBusiness/Fusion) IFS
Countries/currencies	1 - 2	2+	10+
Localizations	1	2 - 15	15+
Legal entities	1 - 2	2 - 15	15+
Lines of business	1 - 3	3 - 10	10+
Active products/SKU	1 - 100	100 - 80,000	20,000+
Active customers	1 - 20	20 - 5,000	5,000+
Transactions/mo.	0 - 500	50 - 50,000	50,000+
System/end users	1 - 30	30 - 500	500+

Note: The order of the ERP solutions listed above is arbitrary. They are not ranked.

Tier One

Tier one ERPs tend to have vast computing power, many available standard modules, lots of support documentation, and the capacity for multiple languages, currencies, and accounting regulations. Typically, these providers operate on their own databases and are the first to develop marketable capabilities around the newest technologies. They have proven to be viable providers and will likely be around for years to come.

Tier one ERP companies can be difficult to navigate due to the sheer number of options that are standard. If an organization doesn't have the right consultants helping, they might be left with poor options that are not a fit for the business model. Configuration and customization are usually necessary and can be long, expensive processes. Many tier one players have huge professional services arms that compete with third-party system integrators, making the purchase decision difficult.

Tier Two

Tier two ERPs operate well for mid-sized companies with one or many locations. Systems tend to come with quality base functionalities, and many have industry-specific packages that include appropriate modules for manufacturing, retail, services, distribution, technology, etc. Some tier two companies choose to fully specialize in one or two industries with multiple business lines. While such specialization means minimal customization, consumers should be aware it also means a smaller client base and limited growth opportunities for large user communities.

Tier Three

Tier three ERPs tend to operate the back-office functions for small businesses. They can handle single lines of business, are very easy to implement, and come with a very low total cost of ownership. We will not be discussing tier three ERPs in this assessment.

ERP Players Overview

Changes are happening in the ERP environment. The once considered industry-standard providers are going through acquisitions and becoming increasingly expensive for mid-market companies to support. Oracle and SAP together have acquired dozens of companies in the last few years. Subsequently, they are changing their requirements and target audiences for existing solutions. For example, companies with \$250MM+ in annual revenue are no longer a fit for NetSuite or SAP BusinessOne. These two solutions are now geared toward companies with less than \$50MM in annual revenue. Companies exceeding this threshold are pushed to flagship solutions. IFS is quickly gaining market share and we see them as a real threat to Oracle and SAP, particularly outside the Fortune 50.

This has also allowed Microsoft to break through and reach some new customers, but customers are noticing that Microsoft doesn't offer a robust ERP solution for manufacturing companies. A gap has been created for other ERP vendors to enter and provide solutions for many mid-sized companies. This presents a great opportunity for IFS and Infor to blossom quickly. Recently, many tier one system providers have rebranded and consolidated all of their cloud solutions under an umbrella brand name. This makes it challenging for consumers interested in a new ERP system to truly understand which system they're purchasing, particularly when references are provided.

Our Review

In the past few years, we have seen major ERP players move toward the cloud and rebrand products, and we expect updated products from other providers to gain market share. There are many ERP solutions in the market. In this handbook, we were unable to include every one. In addition to the solutions you'll read about here, there are others available.

We did not include tier three solutions in our analysis as they are competing on a much smaller scale for smaller companies than tiers one and two. We also did not include niche systems tailored for specific industries or solutions (e.g. exploration and production, EPC, healthcare). Our review only includes companies with international capabilities across various industries.

Note: The ERP solutions listed on the following pages are in no particular order/ranking.

Major Players

SAP | Oracle | Microsoft | Infor | IFS

SAP

SAP started in 1972 with the vision of transforming the world of information technology and creating software to allow for real-time data processing. More than 50 years later, SAP is the largest ERP provider in the world. Over the past few years, SAP has taken steps into the cloud, focusing on adequately integrating its products with one another.

SAP is making strides toward becoming an all-in-one solution and prefers to operate on the newly developed proprietary SAP HANA database. HANA is a hybrid (relational/in-memory) database that provides faster processing speed than prior database platforms. It comes packed with database services, advanced analytic capabilities, and other SAP-specific features that make it a global leader.

The creation of HANA moved SAP from a business software company to a broader technology company. While the HANA database alone is marketed, SAP hasn't made strides in selling HANA databases to non-SAP environments and has faced complexities when converting current SAP customers to a HANA database environment.

SAP's recent focus has been using the cloud as an additional value proposition to indirectly move customers into a HANA environment. While the SAP Cloud is getting fully established, SAP hopes to provide a faster computing environment for cloud ERPs all within a HANA database environment. While customers should be aware of the limitations and alternatives when rolling out SAP applications in the cloud, SAP is actively looking to address limitations. As of now, customers looking at the following SAP solutions should be cautious and request multiple references when evaluating their cloud offerings.

SAP S/4HANA

SAP S/4HANA debuted in early 2015 and was hailed as SAP's largest update to its strategy and platform in more than 20 years. S/4HANA can be run through a public cloud service like AWS, Azure, SAP's private cloud, or the customer's on-premise data center. Depending on the infrastructure, various functional flexibility will be impacted:

- SAP S/4 HANA Cloud has numerous prebuilt, preconfigured modules with limited customization capability to ensure upgrades/patches are simple and won't hurt your environment.
- The on-premise and hosted solutions allow for more flexibility but can make upgrades and patches costly and more expensive to maintain.

The SAP S/4 system is packaged as S/4HANA because it can only run on the HANA database. Embedded analytics and virtual data models (VDMs) allow customers to easily work with prebuilt models and reports all based in a core data system (CDS). The CDS is intended to make the S/4 system a single source of truth that eliminates the need for a separate data warehouse.

SAP continues to invest in improving cross-application capabilities, which is their key differentiator in the market. SAP is also investing in their asset management solutions to better compete with IBM's Maximo and Infor's CMMS where they are typically bolt-on solutions to SAP.

SAP Business ByDesign

Business ByDesign is marketed to mid-sized companies with a revenue base of \$350MM or less. ByDesign is SAP's cloud solution for midmarket companies that don't have the infrastructure to support in house. In its early stages, ByDesign was limited because only pieces of functionality were supported in the cloud. SAP leverages the HANA database to process transactions and data, allowing it to reap the same benefits from HANA as SAP S/4. Now that HANA S/4 is in the cloud, it remains to be seen if SAP will continue to market ByDesign as a separate product from SAP S/4HANA.

SAP is making strides to integrate with Microsoft Teams, which has quickly become the 'standard' business communications. SAP has recently added enhancements to support multi-country specific requirements which allow companies that operate in multiple countries to improve productivity.

SAP BusinessOne

BusinessOne is SAP's tier two product now offered in the cloud and only offered to clients with a revenue base of \$50MM or less. BusinessOne has the capacity to support mid-sized to large companies. However, SAP's position is to drive businesses that fall above the \$50MM threshold to their other two more expensive solutions.

BusinessOne is built mainly as a core system that can be tailored to individual company needs via add-ons. The overall system is highly configurable, easy to maintain, and perceived to be more user friendly than any other SAP ERP. However, customers who require custom modifications to the base functionality will require highly technical resources via SAP Business One's Software Development Kit (SDK). These types of customizations are not recommended. Prior to selecting/implementing SAP BusinessOne, organizations must ensure critical requirements and processes are in the base system capabilities or add-ons, otherwise they might be in for a challenging implementation.

Relative to their sister products, SAP is making slight updates to the BusinessOne platform.

Oracle

Originally called Software Development Laboratories (SDL), Oracle developed the first relational database management system for businesses. Since its start in 1977, Oracle has become the leader for database technology, offering numerous solutions to companies around the world.

Over the past few years, Oracle has advanced its flagship ERP solution mostly into the cloud. Oracle has gained additional cloud coverage and customers when they acquired NetSuite. They have leveraged NetSuite's nimble platform and broad customer base to advance their flagship Oracle eBusiness Suite. Additionally, Oracle is investing in integrating leading technologies into their AI and IoT solutions. Many users appreciate the ability to build easy-to-use interfaces using Oracle forms, which allows for Oracle products to usually demo well.

Potential customers should note that Oracle has grown by acquisition and hasn't always fully integrated the purchased products. Oracle has built integrations, but the lack of a single seamless offering can prove difficult to manage during implementation.

Oracle ERP Cloud

Previously known as eBusiness Suite or Fusion, Oracle ERP Cloud is Oracle's current push for large and mid-sized enterprises. ERP Cloud is a tier one solution offering a variety of cloud applications and modules, including financial, procurement, project management, risk management, and enterprise performance management. Our clients have reported Oracle's financial module and human capital management modules are currently the two with full cloud functionality. Other modules are reported to be moved or in process of being integrated with the modules in the cloud. This could cause data management issues since all modules may not be in the same platform.

Oracle announced procurement, sales orders, manufacturing, and other updates for early 2020, but they were slightly delayed as a result of the nationwide COVID-19 response. While Oracle is advancing to become a world class cloud environment, companies interested in implementing Oracle solutions should ask references about their experience with all modules in the cloud.

Oracle continues to improve its B2B commerce integration capabilities with trading partners in the areas of payment processing, expense management, and logistics services. Oracle continues to work on building their true cloud security and infrastructure to meet customer promises over the past few years.

NetSuite

NetSuite was the "darling" in the ERP market before they were purchased by Oracle. Previously, NetSuite was marketed to mid-sized and large enterprises as a cloud solution, which proved a problem for Oracle since NetSuite competed with Oracle's eBusiness Suite. Oracle has repositioned NetSuite as a solution for smaller customers with \$50MM in revenue or less.

Further, Oracle is reported to be encouraging larger legacy NetSuite customers to move to their tier one ERP Cloud solution. NetSuite is solely a cloud solution accessible anytime from most devices. With an advanced presence in the cloud and incredibly user-friendly interface, NetSuite has been a big asset to the Oracle suite. Oracle has taken cues from the NetSuite offering and added some similar capabilities to its larger offerings.

It's encouraging to see Oracle's continued investment in NetSuite reversing a historical trend of decimating acquired competitor software solutions (e.g. JD Edwards). NetSuite continues to be a leader in integrating the customer delivery experience. For example, NetSuite recently released Configure, Price, Quote (CPQ) capabilities and packing and shipping automation. NetSuite is making the product even easier to implement by introducing the cloud MyLearn platform to assist with customer training.

Note about Oracle:

Although prompting customers toward their SaaS solutions, Oracle still supports on-premise solutions, including Oracle E-Business Suite, PeopleSoft, and JD Edwards EnterpriseOne. These solutions can be combined with some of Oracle's IaaS (Infrastructure as a Service) and PaaS (Platform as a Service) offerings to move these solutions to the cloud. Additionally, companies can add SaaS solutions, such as Procurement Cloud and Project Portfolio Management Cloud.

Oracle continues to push JD Edwards and PeopleSoft customers into implementing Oracle ERP Cloud. For most companies, the business case is not sufficient to make the move. Oracle's claims of "being in the cloud" for the sake of being in the cloud doesn't offer much in the way of driving business value. We have seen cases where the Oracle ERP Cloud solution requires companies to lose functionality they previously appreciated with JD Edwards and PeopleSoft. JD Edwards and PeopleSoft were remarkable solutions and Oracle foregoing innovating these products is a disappointment (to say the least) for many customers.

Microsoft

Microsoft Dynamics offers a diverse set of ERP solutions for companies of all sizes. Since starting in 1975, Microsoft has acquired several solutions to provide a variety of products for their customers, including Great Plains, Solomon, Navision, and Axapta (AX). Currently, Microsoft is merging all solutions into their Dynamics365 cloud platform, giving the solutions a unified front. Solomon and Great Plains have been discontinued and replaced by Business Central, which is really NAV. AX is now Dynamics365 Finance & Operations.

One of Microsoft's strongest points is user interface. In most cases, it looks and feels just like the MS Office Suite, which most business users are already familiar with. Microsoft has focused on integrating Power BI with their ERP solutions. Power BI is their business intelligence reporting tool that is integrated with Dynamics365, Business Central, and Excel, putting the power of reporting in the hands of users. Microsoft products work with multiple languages and currencies and have highly customizable user interfaces that make products easy to use.

In regards to pricing, Microsoft offers subscription-based or perpetual user pricing options. Microsoft's portfolio of cloud solutions is built on Azure and includes IoT, AI, and other leading-edge technologies. Microsoft is also backed by its own Microsoft SQL database, which results in higher profitability since it doesn't have to pay to use someone else's database.

Considering the amount of legacy functionality Microsoft has had to sort through and reconstruct, they successfully moved their products to the cloud. Microsoft has worked to provide an almost seamless integration with other Microsoft 365 products, allowing for more continuous workflow.

Customers interested in implementing Business Central or Finance & operations must check references and identify whether the references are for the legacy systems or new cloud systems. When talking to Microsoft and references for the Business Central solution, ensure critical requirements can be supported with configurations and extensions since, as with all cloud products, customers cannot edit the application base source code. With regard to Finance & Operations, ensure system demonstrations show how company-specific critical requirements would be supported. Ask what the ultimate support model will look like and who will provide support for the source code and configurations versus custom work.

Microsoft offers many more service and product lines in addition to its ERP solution, giving it strong viability for the future.

As mentioned above, Microsoft's Power BI is beginning to dominate the market for reporting and analytics. Our clients have used the highly-scalable platform to integrate and report detailed product and sales level data from operational and accounting systems. This includes sales and operations reporting, daily sales reporting, capital and operating expense tracking, and supply chain analytics, among others. Power BI is part of the Microsoft 365 suite and requires a very

small software investment, particularly if implementing in the Azure Cloud. We have helped several companies combine massive amounts of data, including financial and operational transactions, daily sales, and more. The Power BI platform is easy to use and highly scalable to meet the needs of the largest companies and the budgets of mid-market companies. Once the Power BI data model (or materialized views) are set up, it's easy for anyone to build and save custom reports, charts, graphs, and columnar models for analysis.

Microsoft Finance & Operations

Microsoft Finance & Operations is Microsoft's ERP solution for large companies. This solution contains a full suite of operational, finance, sales management, and additional modules for mid-sized and large companies. The solution's primary industries are retail, manufacturing, and distribution, but Microsoft is expanding into other industries. Customers who implement this product are given an opportunity to improve reporting capabilities by leveraging Microsoft's strong business intelligence tools. Finance & Operations can be purchased as an on-premise solution for customers not yet ready to advance to the cloud.

Microsoft continues to invest in improving cross functional and core financial capabilities, particularly for companies operating in multiple countries.

Microsoft Business Central

This is Microsoft's ERP solution for small and mid-sized companies. Microsoft brought all of NAV's functionality into the SaaS environment and has rebranded it as Business Central. Microsoft worked to make sure key functionality from GP and Solomon are included in Business Central and changed the look of NAV to make the rebranded solution more user friendly. Microsoft offers Business Central as an on-premise, cloud, or hybrid solution. Customers can currently purchase Business Central through Business Central partners participating in the Cloud Solution program.

Microsoft has made several technical changes in the cloud version of Business Central to allow for easier integration with established third-party products without impacting the core code in Azure. Prospective customers should thoroughly check references of Business Central's partner support model. Many of our clients have reported dissatisfaction with the level of support received during and after implementation.

Microsoft is improving how Business Central integrates with the MS Power Platform, including Power Automate, Dataverse, and Power BI. Microsoft is in the process of integrating ChatGPT 4 into its ERP systems to help companies automate basic, repetitive tasks. This is similar to the integration that will be imminently released within Office365. This is important because the integration will enable activities like making it easier to create complex workflows, perform basic analysis, and simplify transaction processing. We suspect that once it's proven in the BC environment, Microsoft will release it to F&O as well.

Infor

Infor (formerly Agilisys) started in 2002 and focuses on enterprise software. In 2010, Infor's new management team shifted their focus to becoming the top provider of industry-specific solutions. Infor has grown by acquiring legacy software products, including Lawson S3, Movex M3, Symix, and BAAN. The acquisitions have allowed Infor to expand its product line and offer several different product lines geared toward manufacturing and distribution, aerospace, chemical, retail, and other industries.

Infor focuses on making the user experience relevant to individual employees by creating role-based user interfaces and customizable dashboards. Infor offers several deployment options, including on-premise, private cloud, and Infor Cloud. Infor relies on Microsoft, IBM, and Oracle for their various databases, and we have not seen indications for them to develop their own database technology. Infor sees more opportunity within the cloud via recurring subscription fees, simpler upgrades, and more in-house application support services.

The following table highlights Infor's acquisition history and indicates where Infor's current products originated.

Infor CloudSuite Legacy Explained		
Infor CloudSuite Name	Legacy Infor Name	Legacy Name
Manufacturing Distribution Enterprise Industrial (Styeline) Distribution, Equipment Food & Beverage, Fashion, Financials, Services Field Services CRM PLM	Infor LN Infor Styeline Infor SX.e Infor M3 Infor Service Management Infor CRM Infor Optiva	SSA BAAN Symix Distribution SX.e Lawson S3 & Movex M3 Single Source Field Service SalesLogix Formation Systems Optiva
Not yet offered in the Infor CloudSuite	Infor LX Infor Nexus Infor XA Infor A+ System 21	SSA BPCS GT Nexus IBM MAPICS Daly.Commerce GEAC System 21

Infor, like other major players, is grouping their software offerings together in one marketing bucket. Infor's bucket is called CloudSuite and customers can pick from a comprehensive portfolio of industry-specific solutions (see chart above). The CloudSuite solutions are either an end-to-end ERP solution with additional industry functionality or solely industry-specific software. The CloudSuite solutions marketed as ERPs are built from Infor's existing ERP systems, such as Infor LN, Infor M3, Infor Syteline, and others. We are curious to see what Infor plans to do with the solutions not yet offered in the Infor CloudSuite.

From what we have seen, Infor has been creative in building out their product suites through acquisition and giving the systems a consistent look and feel. However, it seems Infor left much of the old code intact for their legacy systems. We predict retaining the old code to be problematic. Many of these systems were created years ago, so the user interface isn't as modern as the competition and integration capabilities may be limited. When coordinating with Infor for a demo, companies should make sure to understand the solution they are reviewing.

Since Infor generally markets their products as CloudSuite solutions with your specific industry added on to the end, companies need to ask Infor which components of the portfolio they are proposing (see chart for a quick reference). Because Infor is packaging and integrating several solutions together, opportunity for risk at each integration point is possible. This could create opportunities for master data management challenges.

Overall, Infor has heavily invested in understanding each industry. Since packages are tailored for specific industries, that means customization and modifications are less likely to be made to meet unique industry needs.

IFS

IFS was created in 1983 in Sweden and launched its first software product, IFS Maintenance, in 1985. About five years later, IFS established a complete software program—IFS Application. IFS hit the market in the U.S. in 1995 and expanded in 2009 when they acquired MultiPlus Solutions to expand into project-based solutions. Below is a brief timeline of IFS's acquisition history. Since 2019, IFS has made other acquisitions outside the scope of ERP functionality (ITSM, CRM).

- **2010:** IFS acquired 360 Scheduling to add scheduling and work management into their offering.
- **2012:** IFS acquired Metrix LLC, gaining a fully furnished field service management mobile app.
- **2016:** IFS expanded into the aviation and defense sector when they acquired Mxi Technologies Limited to provide integrated maintenance software solutions for their customers.
- **2017:** IFS acquired mplsystems Limited, Field Service Management Limited, and WorkWave LLC for robust field services and a customer contact center.
- **2019:** IFS acquired Astea International to supplement their field service and mobility offerings.

IFS has done an excellent job integrating each acquired solution into its suite. While considered a sleeper in the market, IFS is growing their market share and making themselves known in regards to software capabilities. However, IFS's skilled consulting resource availability is limited compared to their tier one peers. There have been multiple cases of entire system integrator teams being replaced due to lack of skill, significantly delaying implementation times. Since the IFS cloud version is relatively new, technical support has reportedly had poor response times.

IFS is a strong tier one competitor for project-based and asset-intensive businesses. They outperformed SAP and Oracle in ERP evaluations. Enterprise Asset Management is IFS's strong suit. The software has robust capabilities to manage all stages of the asset lifecycle and has strong analytical capabilities. This provides asset-based organizations with a 360-degree view into asset productivity. Asset-intensive organizations are not shy about using IFS for EAM and connecting the solution to their current financials. IFS has significant financial backing from EQT Partners, a private equity group with more than \$61B in raised capital. EQT Partners signed an agreement to acquire Acumatica, a strong ERP contender for mid-market customers.

Our asset-intensive service clients find that IFS provides integrated enterprise class maintenance and service order capabilities. Field workers find the ticketing solution easy to use, resulting in less billing and collection errors. The current version of the IFS financial model provides support for basic financial reports.

IFS is quickly becoming a blue-chip player in the ERP space with growth in the manufacturing, EPC, and service businesses. IFS is starting to see some light at the end of the tunnel with their cloud platform after a rough deployment through 2022. In addition to their strong EAM capabilities, IFS differentiators include rentals, union rate management, expense reporting, and robust job costing. The IFS platform has these solutions tightly integrated in the IFS core cloud platform, an advantage over Oracle, SAP, and Microsoft who tend to bolt on acquired solutions.

Other Solutions

Epicor | SYSPRO | Workday | Rootstock | Delmia Solutions | Acumatica

Epicor

Epicor heavily focuses on manufacturing, retail, and service industries. The system can be scaled to fit larger companies with many employees. With a manufacturing focus, Epicor's ERP can manage configure-to-order and make-to-stock processes. Able to handle multiple currencies and languages, Epicor also includes CRM, eCommerce, and BI capabilities in all packages. Epicor is attempting to address integrating the collection of acquisitions with their low-code integration platform with Epicor Automation Studio. Epicor is updating capabilities in CPQ, distributor, and commerce; however, they remain challenged to compete with NetSuite's mature true cloud solutions in the middle market. Epicor fits in a unique customer size niche above NetSuite and below Oracle eBusiness for manufacturers and distributors who want to connect to retail marketplaces such as Amazon, Quick Ship, and eBay. Epicor continues their strategy as a software portfolio company with a handful of acquisitions over the past year.

SYSPRO

SYSPRO is a long-standing ERP provider that has been in the industry since the late 1970s. SYSPRO offers a variety of products specifically tailored to different industries, including manufacturing and distribution. Their solution is somewhat scalable, and they have established a strong presence with mid-sized customers. The solution can be deployed on-premise, via SaaS hosting, or in the cloud. It's also mobile enabled for iOS, Android, and Windows.

Workday

Workday has traditionally been known as the top tier HR software provider but has begun marketing itself as a complete SaaS ERP solution. Their solution centers around packaging the core financials management solution, procurement solution, and planning offerings. Workday's existing human capital management customer base provides a unique opportunity to market their cloud ERP solution as one seamless system for finance and HR.

Rootstock

Rootstock is used by manufacturing and distribution companies in aerospace, automotive, engineering, medical, and healthcare industries. Most customers are small to mid-sized independents or subsidiaries of larger international companies. Rootstock was developed on the Salesforce cloud platform, relying on Salesforce for infrastructure and platform upgrades. Pricing is offered on a per-user license basis. Since it runs on Salesforce, Rootstock is a 100% cloud-based solution with mobile capabilities. Customers should be aware that mobile abilities are still quite limited offline. Rootstock's most utilized and highest performing modules are Order Management and Production. These modules are typically integrated with another

accounting software such as QuickBooks, Workday, or Sage as a full ERP solution. This leads us to question if Rootstock's newer financial modules have the strength needed to support finance and accounting requirements today. Our concern is Rootstock's dependence on Salesforce. If one of the larger ERP solutions acquires Salesforce, Rootstock could be left to hang out to dry.

Customers should know that Salesforce-based platforms rely on 100% real time processing. This is great for managing continuous transaction processing, but the bulk of financial accounting transactions are more efficiently managed in a batch process for month-end closing, payment processing, financial consolidations. We see this as a potential limitation for Rootstock's (and its Salesforce platform competitor FinancialForce—not included in this report) ability to scale for larger organizations. On a positive note, Rootstock is investing in its supply chain solutions with digital sourcing and supplier collaboration automation. Rootstock has also invested in self-service Einstein Bots, which can be a customer nuisance if not implemented properly.

Delmia Solutions

Delmia Solutions (formerly IQMS before the acquisition by Dassault Systems) almost exclusively serves the manufacturing industry. They are an example of an ERP provider that started in one category and elected to stay there, which can be a good thing for manufacturing customers. Reports, modules, and other aspects will likely require minimal configuration and come tried and true. Where customers may get into trouble is with processes that differentiate them from the norm. Experienced developers can be hard to come by, or Delmia itself may no longer support heavily altered applications. When selecting a system, gather critical requirements and evaluate how well the system can adapt to those needs. Delmia Solutions will be a good bolt-on manufacturing execution system and will require a separate set of core financials to compete in the ERP space. Delmia will likely be removed from this handbook next year.

Acumatica

Acumatica is a strong, relatively new player in the global ERP space, especially in manufacturing, distribution, services, and retail industries. It was built on a modern proprietary technology platform known as xRP in 2008, which allows Acumatica to provide greater flexibility with little need for customization, reducing upgrade concerns. Acumatica leverages the Microsoft SQL database and Amazon Web Services cloud infrastructure to offer a full SaaS solution. Acumatica remains competitive with a focus on customer satisfaction and consistent product improvement. Acumatica has focused on creating a subscription model to encourage small companies to migrate from Quickbooks or the Sage suite of products. Intuit and Sage should be worried about losing significant market share in the small to mid-market categories as Acumatica gains traction. Acumatica is starting to deliver industry-specific functionality to manufacturers, distributors, and retailers. This will enable them to compete head-to-head with NetSuite and likely start ousting Epicor in ERP evaluations for the mid-market.

Looking Ahead

It's hard to say exactly what the future holds, but if recent trends foreshadow anything, it shows us this:

- ERP companies are either in or moving to the cloud to provide better performance and lower cost and complexity to customers.
- ERP companies are doing a decent job of rationalizing their portfolios to give customers a unified end user experience.
- The move to the cloud creates standardized architecture designs, allowing bolt-ons to be used to support critical requirements.
- Tier two packages are becoming more powerful and functional, giving companies many good fit-for-purpose options that will grow with them.

**Find more insights from the
Trenegy team on ERP selection,
implementation, and more [here](#).**