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MARKET OVERVIEW

Cloud ERP Drives Back-Office Digital Transformation

Vendors Move Toward Self-Driving and Autonomous ERP

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EXECUTIVE SUMMARY

The COVID-19 pandemic exposed weaknesses in every organization's back-office system. The inability to easily access data, enable self-service capabilities, and intelligently automate processes has created demand for self-driving and autonomous enterprise resource planning (ERP) solutions. Add the shift to the cloud, the pressure of digital transformation, and replacement-cycle dynamics, and customers are seeing the greatest level of innovation in a decade as vendors compete for a five-year refresh cycle. Moreover, new cloud deployments provide a catalyst for improving and automating back-office processes like never before.

This market overview examines the wide range of cloud ERP solutions from the lenses of product- versus services-centric and unregulated versus regulated solutions. Although the number of vendors in the market has diminished due to mergers and acquisitions, this consolidation has led to concentrated platform investments in the cloud, leading to an estimated $44.6 billion market by 2026.

Successful deployments will achieve the elusive goal of improving efficiencies and preparing for exponential growth. The use of artificial intelligence (AI) in the back office will power the next wave of postdigital ERP advancements.

Business Themes

 New C-Suite

 Future of Work

 Technology Optimization

MARKET DESCRIPTION

Market Definition

ERP refers to a transactional system that manages the "back" office functions of an enterprise. These departmental areas typically comprise finance, human resources, supply chain and logistics, and project management. Cloud-based systems refer to a deployment option in which the software is hosted on a vendor's server. Multitenant cloud solutions are a deployment option in which only one copy of the software code is available to all customers, although the data is unique to each customer.

Modern global cloud ERP suites encompass a wide range of end-to-end business processes, including:

- Procure to pay
- Order to cash
- Hire to retire
- Assess to acquire
- Financial plan to report
- Project initiation to project closure

Constellation estimates the global cloud ERP market will be worth $44.6 billion by 2026, with a compound annual growth rate (CAGR) of 11.2%. Surveys among customers show that the top migration market is North America, and services-based ERP is leading the charge in cloud migrations or new cloud deployments. Key vendors in this market overview include Epicor, FinancialForce, Infor, Microsoft Dynamics, Oracle, Oracle NetSuite, Sage, SAP, Workday, and Unit4.

Market Trends

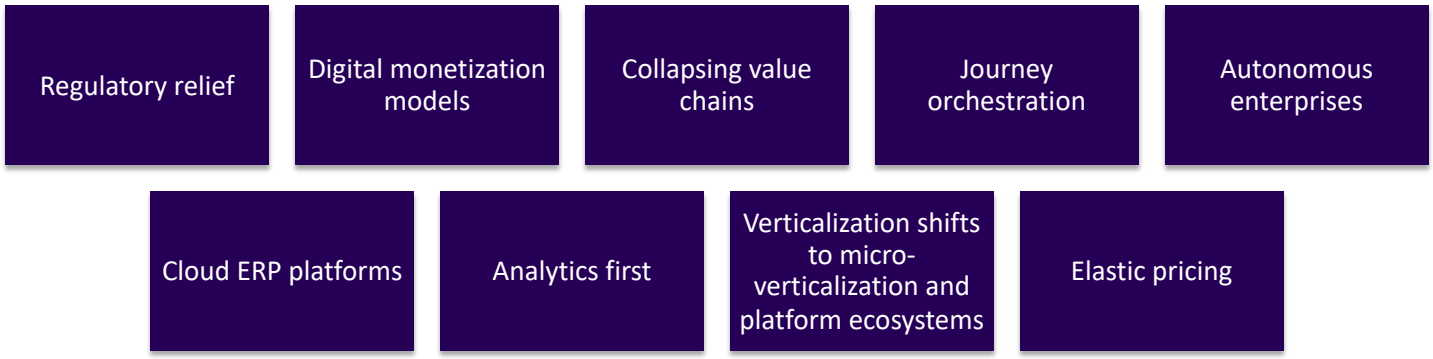
Digital business models meet automation, AI, people-centric, and cloud-migration requirements for the global cloud ERP market. Technology leaders who own legacy on-premises ERP systems face massive challenges ahead to balance technical debt and short-term business requirements. ERP market trends highlight the major challenges ERP users face and the trends in ERP that will impact the business over the next decade. The good news: Cloud ERP vendors have started to close the gap between functional parity and replacement economics.

As more users consider cloud ERP options in their upgrade and digital transformation strategies, Constellation believes choosing a vendor it can trust will be the most important decision an organization can make in the postdigital ERP era. In Constellation's ERP conversations with more than 300 technology leaders over the past six months, nine major trends have emerged for 2021 and beyond for postdigital ERP users (see Figure 1):

1. **Regulatory relief as a service.** Users depend on their cloud ERP provider to keep them up to date on regulations, compliance requirements, and legislative burdens. CFOs and risk-management types have found that cloud ERP solutions mitigate compliance risk as well as ensure timely implementation of key regulations. Among its many use cases AI is useful for fraud prevention, helping organizations avoid bad outcomes by applying cognitive reckoning to identify potential threats. The goal is to mitigate risk, achieve regulatory compliance, and prevent disasters. Customers also seek AI to augment human decisions and suggest next-best actions.

2. **Digital monetization models.** The shift from ownership to access requires ERP systems to support subscription business models. These new models enable postsale revenue opportunities such as installation, warranty, and vendor-managed inventory. Subscriptions also require regulatory compliance for revenue recognition rules such as ASC 606. Expect ERP systems to provide growing support to customer success management platforms and new outcomes-based pricing models.

Figure 1. Global Cloud ERP Trends for 2021 and Beyond



Source: Constellation Research

3. **Collapsing value chains.** Classic mega-processes such as invoice to close, procure to pay, hire to retire, and order to cash have traversed functional fiefdoms. Early adopters of cloud ERP seek multithreaded value chains that support a multiparty-centric view. These parties could include the employee, customer, supplier, partner, and others. The convergence of classic mega-processes makes way for multiparty value chains. Context is key, because each role sees only the relevant information at the right time.

4. **Journey orchestration.** ERP users expect to design, execute, and automate end-to-end business processes. Organizations would like to be able to orchestrate external and internal processes and to enable key business leaders to craft their own cross-functional capabilities.

5. **Autonomous enterprises and AI.** From chatbots to mixed reality, AI has entered the ERP market. Systems that mimic three out of the five senses—sight, hearing, and touch—have entered the mainstream. Natural language processing and video intelligence enable large quantities of unstructured data such as documents, chats, log files, and transactions to be ingested and organized into logical categories by using techniques such as topological data analysis. Customers expect the ability to use voice as an interface as much as they use touch and gestures.

6. **Cloud ERP platforms.** Extension of key capabilities in industry verticals, last-mile functionality, and custom requirements will require cloud ERP vendors to open up their platform layers to enable user-based configuration. Users need to extend and expand ERP footprints to accommodate changing business models and new requirements.

7. **Analytics first.** The ERP market landscape has shrunk from hundreds of vendors to a dozen core providers. During the merger-and-acquisition binge over the past decade, customers have emphasized the stability of a vendor over innovation. With a refresh cycle ahead, customers have increased their expectations for obtaining both stability and innovation from one core vendor.

8. **Verticalization shifts to micro-verticalization and platform ecosystems.** Customers expect their cloud-based ERP solution to deliver on deep industry-vertical functionality. Customers also expect their ERP vendor to provide integration support for adjacent solutions in the ecosystem. Why? Years of experience have taught customers that they need a platform to extend as well as one that is part of a larger ecosystem.

9. **Elastic pricing.** Customers have become accustomed to cloud-based pricing models based on number of users. As complexity in cloud products grows, customers expect to see flexible pricing models based on users, usage, and platforms. Moreover, customers who face divestitures and mergers also would like the ability to reduce licenses as needed. Constellation has developed pricing models that clearly state discounting based on volume metrics that enable flex-up and flex-down pricing.

IMPORTANCE TO BUYERS

Buyer Challenges

Enterprises and brands seeking new ERP systems must compare their current-state and future-state requirements of existing legacy on-premises customization with the out-of-the-box configured requirements of cloud-based ERP systems. In many cases, legacy on-premises ERP systems may have outlived their useful life for supporting both regulatory requirements and integration with newer technologies.

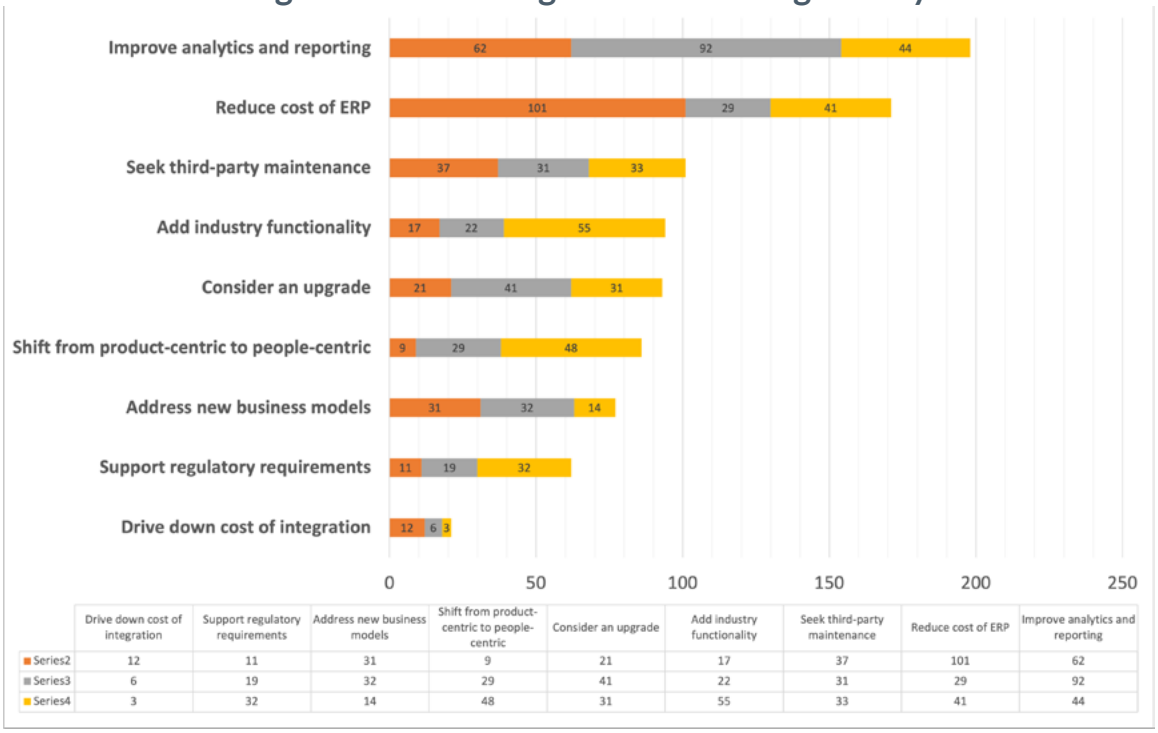
Integration with existing and new systems is one of the most significant factors in migration from on-premises to cloud-based ERP systems. In addition, the market has rapidly consolidated around a dozen ERP suites with varying degrees of cloud deployment options.

Buyers must consider their requirements for deployment options that range from hosted single-tenant multi-instance cloud to true multitenant software as a service (SaaS).

Customers who implemented ERP prior to the year 2000 (Y2K) push have slowly begun the much-needed process of upgrading or replacing existing ERP installations. Over the past decade, the slower-than-expected adoption of cloud ERP has stemmed mostly from a lack of functional parity with highly customized legacy systems and from an inability to achieve meaningful ROI by replacing those systems. However, as vendors double down on reinvestment and users must adapt their ERP to a barrage of changing business models and increasing regulation, an ERP renaissance is occurring.

In conversations with more than 300 CXOs in 2020 about ERP, leaders told Constellation they face the following challenges (see Figure 2):

Figure 2. Executives Face Significant Challenges With Existing ERP Systems



	Drive down cost of integration	Support regulatory requirements	Address new business models	Shift from product-centric to people-centric	Consider an upgrade	Add industry functionality	Seek third-party maintenance	Reduce cost of ERP	Improve analytics and reporting
Series2	12	11	31	9	21	17	37	101	62
Series3	6	19	32	29	41	22	31	29	92
Series4	3	32	14	48	31	55	33	41	44

Source: Constellation Research

- **Improve analytics and reporting.** Analytics and reporting have moved from afterthought and once-a-week management team discussions to a daily first-and-foremost focus. Teams begin the day with corporatewide dashboards and expect real-time information. A growing number of organizations seek improved forecasting, planning, and scenario-building tools powered by some level of AI. Existing systems continue to require workarounds and a patchwork of solutions.

- **Reduce the cost of ERP.** Users seek to drive down the cost of ERP ownership. The cost of maintaining a legacy ERP system over five years often exceeds the cost for a replacement cloud ERP system. Customers who seek to reduce on-premises licenses face an uphill battle with legacy vendors on maintenance costs. Technology and procurement leaders seek pricing elasticity in user-based, usage-based, and platform pricing.

- **Seek third-party maintenance.** Independent maintenance for on-premises systems enables customers to consider a replacement or upgrade strategy while saving as

much as 50% in maintenance costs. The money saved in maintenance is often used to fund the upgrade or replacement project. Leaders must make a determination to soldier on with existing systems, upgrade, or consider third-party maintenance.

- **Add industry functionality.** The collapse of industries along value chains has shifted what industry functions businesses require from their ERP systems. Deeper out-of-the-box requirements by micro-industries and the ability to configure platforms to deliver on unique business requirements make it challenging for organizations to work with their current ERP systems. As industry-specific requirements grow and industries collapse and converge along new value chains, ERP systems face breaking points that often require expensive customizations.

- **Address emerging digital-business and monetization models.** With an increase in postpandemic business models built on less density and more digital business, brands and enterprises must consider digital monetization. Customers seek subscription services, support for digital goods and services, and the ability to create new pricing schemes. Organizations also seek postsale business-model and monetization support from their ERP systems, which were not originally designed for such business models.

- **Consider an upgrade.** Aging systems, pressure from indirect access, audit threats, and need for new functionality plague enterprises with legacy on-premises ERP systems. Business leaders seek more capabilities from their ERP systems but expect to pay less. Legacy vendors expect to grow their accounts with upgrades and more modules sold to show revenue growth. Technology and procurement leaders must find business value in upgrades.

- **Shift from product-centric to people-centric requirements.** Most ERP systems deliver well-refined processes designed for making goods or products. Over the past decade, customers have been seeking ERP systems that also address the services-centric requirements and people-centric approach to humanizing digital processes. From postmarket installation to project management, services delivery, and warranty management, people-centric processes have blended with the product-centric world and in many cases spawned people-centric-only businesses.

- **Support regulatory requirements.** ERP systems often bear the brunt of all legislation, regulatory requirements, and compliance initiatives. ERP systems must address every new whim of government as well as ensure the mitigation of risk to regulatory bodies. Leaders must manage the challenges of keeping their ERP system up to date.

- **Drive down the cost of integration.** Managing and maintaining integration of disparate cloud systems requires competencies in data and process integration. Given the lack of maturity and availability of open APIs and micro-services for legacy on-premises ERP systems, most enterprises face a tough challenge managing the cost of integration. Further, the proliferation of cloud systems in marketing, sales, service, commerce, and human resources often complicates the overall environment. Legacy ERP systems are expensive to integrate with other key business systems.

Inclusion Criteria

Key vendors in this market:

- Support two or more mega-business process flows
- Support North America or EMEA and one other geography
- Have more than 100 deployed cloud customers
- Have 500 overall customers
- Generate more than $100 million in overall revenues

Vendors and Offerings

Today's postdigital cloud ERP offerings represent emerging and full-suite capabilities. With more than two dozen potential solutions available, Constellation's latest market overview assesses the 10 most common solutions discussed, considered, and purchased among clients:

- Epicor
- FinancialForce
- Infor
- Microsoft Dynamics 365
- Oracle Cloud ERP
- Oracle NetSuite
- Sage X3
- SAP S/4HANA Cloud
- Unit4 ERP
- Workday

Epicor

Epicor Software Corporation was founded in 1972. Through both organic and inorganic growth, the company has grown to more than 27,000 customers in 150 countries. In 2020, the company posted more than $900 million in revenues with 3,800 global employees. Epicor was acquired by Clayton, Dubilier & Rice (CD&R) in August 2020 for $4.7 billion and is headquartered in Austin, Texas. The software vendor has seen 60% year-over-year SaaS growth rates.

Epicor's cloud-based ERP offerings support manufacturers (ERP Cloud), distributors (Eclipse, Prophet), retailers (Retail Cloud, Eagle), building suppliers (Eagle, Vision, BisTrack), and automotive organizations (Eagle, Vision). More than 6,000 cloud customers and 120,000 users primarily seek to fulfill product-centric requirements. Although customers do have a choice of deploying the software on-premises, most new ERP customers deploy on Microsoft Azure.

Epicor typically supports customers with 100 to 500 employees and $50 million to $500 million in revenues. Company size can range from small to enterprise size, and many customers have scaled seamlessly as they have grown over the years. Epicor makes two major upgrades a year and minor updates every month. Epicor's vertical and subvertical focus includes industries such as industrial machinery, fabricated metals, electronics and high tech, plastics, consumer goods, measuring and controlling devices, furniture and fixtures, and medical devices.

Epicor's latest release, 10.2.700, includes vast improvements to user experience, Epicor Application Studio to configure and personalize Kinetic Applications, and new ISV partnerships. New capabilities for industry verticals include Epicor for Metal Services: advanced unit of measure; Epicor for Medical Devices; Epicor Manufacturing: proof of delivery; integrations with 1EDISource; Epicor Service Pro; and Epicor Mobile Wireless Warehouse. Most common buying scenarios include discrete manufacturers, Microsoft shops, manufacturers seeking automation and digital transformation, make-to-order or mixed-mode manufacturers, and manufacturers seeking deployment choice in the cloud or on-premises. A new major product release of Epicor 11 for manufacturing is expected in 2021.

FinancialForce

Founded in 2009 and headquartered in San Francisco, FinancialForce built its ERP offering on Force.com, the cloud computing platform from Salesforce.com. The combination of Salesforce and FinancialForce provides a 360-degree view of the front and back office, which the company terms Business 360. The company has received $193.3 million in funding over five funding rounds. Constellation estimates that FinancialForce posted $134 million in revenues for 2020. Key investors include Salesforce.com, TCV, and Advent International. More than 725 employees in nine countries support 1,300 customers in more than 34 countries with users in more than 50 countries for this services-centric ERP offering.

Customers often start with FinancialForce for the product's project-based solutions and native SaaS ERP. FinancialForce customers range from small- to medium-size businesses (SMBs) through enterprise companies that have more than 4,500 employees. FinancialForce supports services-centric ERP requirements. Key capabilities include professional services automation, subscription usage billing, revenue recognition and forecasting, accounting and finance, analytics, and procurement order and inventory management.

Overall differentiators focus on data-driven approaches, accelerating time to value, and driving IT efficiency. FinancialForce delivers four seasonal releases a year. Investment themes for the fall 2020 release concentrated on experience, agility, and insights. Experience improvements include new workspaces for revenue management, services revenue forecasting, time and expense, summary pages, reimagined business processes, in-app prompts, and expanded localizations. Agility features include flexible billing, payments plus enhancements, utilization summary, customer engagement, workspace builder, customer life cycle experience (CLX) hub, and a professional services automation (PSA) Zoom connector. Insights enhancements and features include dashboards for cash-flow forecast, inventory, procurement, and services forecasting.

Customers choose FinancialForce in the following scenarios: Salesforce CRM customer seeking ERP, competitor on-premises ERP replacement, two-tier ERP deployments, project-based requirements, and services-centric ERP requirements.

Infor

A stand-alone subsidiary of Koch Industries, Infor serves more than 14,000 cloud customers and generated $3.1 billion in FY 2020. Headquartered in New York City, the company has 17,000 employees across 47 countries. In 2020, Koch Industries acquired the remaining portions of Infor from Golden Gate Capital and now is the sole owner. Founded in 2002, Infor grew through organic growth and more than 40 acquisitions. Known for an industry-specific focus, Infor deploys its cloud applications in the Amazon Web Services (AWS) cloud for both product-centric and services-centric requirements.

Infor's customer base ranges from the midsized end of the midmarket to a growing large enterprise base with revenues of $20 million to $5 billion and 250 to 50,000 employees. Core applications for cloud ERP include financials, human capital management (HCM), asset management, manufacturing, distribution, and business intelligence (BI) via Infor's embedded analytics. Infor's cloud offering is updated multiple times a year, and users choose what capabilities of each release they want to switch on. A hallmark of Infor is the layered approach to its cloud solutions. The product builds on the Infor OS platform, adds industry last-mile features, provides an industry-focused Infor CloudSuite Industrial Enterprise, connects to a network for commerce and Internet of Things (IoT), adds analytics via Infor's embedded analytics, and then delivers AI via Infor Coleman.

At the core of the ERP offering for services-based businesses is the Infor Financials & Supply Management solution that includes global and project ledger, liquidity IQ, payables automation, customer management, supply chain management, inventory management, and supplier and contract management. Financials and supply management are at the core of three industry-specific Infor CloudSuite platforms that address the markets of healthcare, public sector, and corporations. Each CloudSuite platform includes capabilities unique to that industry; the platforms share a common financials core.

Infor's manufacturing and distribution ERP solutions for enterprises and large enterprises come in two flavors, Infor LN and Infor M3. Infor offers a CloudSuite solution for each of its major industries, including aerospace and defense, automotive, industrial manufacturing, high tech and electronics, food and beverages, fashion, equipment, and distribution businesses. These eight industry CloudSuite platforms share two common ERP cores known internally as ERP LN and ERP M3, and as with the services-based industry setup, each platform has different capabilities in the software stack according to the verticals it serves. Key advancements in the latest deliveries to CloudSuite include a focus on Infor OS optimization, enterprise analytics and talent science, new user experiences, role-based mobile access, and modern cloud services.

Infor's recent wins show a willingness to partner with industry leaders to develop deeper micro-vertical capabilities for general availability. Infor customers generally seek a cloud-first strategy, ERP consolidation, micro-vertical functionality codevelopment, global capabilities, packaged industry content, and a strong design-thinking aesthetic.

Microsoft Dynamics 365

Microsoft Dynamics 365 delivers a full suite of cloud-native ERP solutions that can be deployed as a suite or as individual workloads. In July 2020, the Redmond, Washington-based technology giant claimed more than 4,500 customers for Finance and Supply Chain. Overall, ERP is the fastest-growing business for Microsoft Dynamics 365. The ERP solution supports regulatory and various other country-specific requirements for 43 countries/regions out of the box and provides language support out of the box for more than 48 languages. Microsoft updates the product via two major releases

and eight monthly updates each year. A broad partner ecosystem delivers more than 6,000 partner customizations in 83 countries for this product-centric and services-centric ERP offering.

The ERP customer base for Microsoft Dynamics 365 has shifted over the past five years and now attracts customers with $250 million to $1 billion in revenue and enterprises with 500 to 2,500 employees. Key components of the cloud ERP offering include human resources, financials, enterprise asset management, project operations, manufacturing execution, procurement, order management, supply chain management, and field service. The strength of the suite comes from tightly integrated workloads with deep vertical capabilities delivered with hundreds of built-in automations to improve user productivity. Microsoft Dynamics 365 is built on a common data model—a foundation that can expand with Power Apps and Power Automate, and a common data service (i.e., Dataverse), which allows for apps automation via a single business process engine. Other core capabilities include embedded AI functionality, strong analytics, and easy-to-use BI capability with Power BI.

The Dynamics 365 Finance 2021 release wave 1 (GA April 2021) capabilities focus on insights and automation, globalization, and core financial management. In core financials, expect tighter integration into cash-flow forecast. Financial insights will gain more automation and AI capabilities. This release gains more globalization features from localization to tax, to country and region expansion. Wave 2, 2020 capabilities delivered asset-leasing (IFRS 16 and ASC 842) support, electronic invoicing add-on (public preview), more country and region expansion, straight-through touchless invoice processing, automatic collection task creation, and touchless email reminders.

Dynamics 365 Supply Chain Management continues to build on the Wave 2, 2020 capabilities in enabling resilient supply chain with the new Cloud and Edge Scale Unit add-ins, allowing organizations to run critical warehousing and manufacturing workloads on the edge in a distributed model using Azure stack devices. This improves resilience and ensures operations without interruptions even when temporarily disconnected from the cloud. The new Inventory Visibility add-in enables large-volume retailers and manufacturers to fulfill orders from multiple channels on time and mitigate stock-outs and overstocking. Inventory Visibility is composable, works seamlessly with third-party systems, and uses CDS to gather inventory information from all disparate systems used across different regions, in real time, making it hyperscalable and hyperperformant. End users can easily query via their point-of-sale (POS) systems in the store or their back-office systems to retrieve accurate on-hand information in real

time and offer a good customer experience by promising an accurate delivery date. The Engineering Change Management Add-in delivers the strong product data management, version control, and product change management required by today's manufacturers to succeed in a world of constantly shrinking product life cycles, increased quality and reliability requirements, and increased focus on product safety. This release includes capabilities supporting inbound transportation management, landed cost, rebates and deduction management, real-time manufacturing planning, and scheduling via planning optimization.

In February 2021, Microsoft announced plans for four new industry-specific offerings—Microsoft Cloud for Financial Services, Microsoft Cloud for Manufacturing, Microsoft Cloud for Nonprofit, and Microsoft Cloud for Retail. These cloud offerings will join Microsoft Cloud for Healthcare. The Microsoft Clouds for Industry will bring together the breadth of Microsoft's existing solutions by industry along with new capabilities, customizations, and standards tailored specifically for each industry. All of this will accelerate customer time to value. Clients who choose Microsoft Dynamics tend to seek a two-tier ERP solution, view Microsoft as their transformation partner for cloud modernization, work with a specific partner for micro-vertical functionality, aspire to achieve international expansion, and seek a full-suite ERP and CRM solution.

Oracle Cloud ERP

Announced in 2011, the Oracle Cloud ERP apps have grown to more than 7,500 customers for the venerable Austin, Texas-headquartered technology giant. Oracle's Cloud ERP includes a broad suite of ERP/enterprise performance management (EPM), HCM, and supply chain management (SCM) offerings. This ERP suite supports both product-centric and services-centric requirements.

Oracle's customers tend to fall into the medium-enterprise to large-enterprise categories with between $500 million and more than $10 billion in revenues and with between 500 and more than 20,000 employees as the norm. ERP/EPM includes financials, project portfolio management, procurement, risk management, planning and budgeting, financial close, performance reporting, accounting hub, subscription management, and enterprise data management across a common data model. HCM includes Global HR, talent management, workforce rewards, and workforce management. SCM supports supply chain planning, manufacturing, order management, product life cycle management,

procurement, supply chain collaboration and visibility, maintenance, logistics, inventory, and IoT. Oracle releases updates on a quarterly basis per year. Given Oracle's size and breadth of offerings, most major vertical industries are a fit for Oracle's Cloud ERP offerings.

The latest release of Oracle Cloud ERP Update 21A has some general updates including simplified workflow capabilities and a strong focus on adding machine learning (ML) and AI-driven automation across the suite. Oracle Cloud ERP update areas include an assets focus on lease compliance and the GASB 34 accounting standard, improvements in budgetary controls, automation and reconciliation capabilities for cash management, better mobility and virtual assistants for expenses, additional features for joint-venture management, and new features and integration for payables and receivables. Oracle Human Resources Cloud adds the ability to retain direct reports in source assignment, and the global payroll interface gains new updates for seniority dates as well as global attributes. Many country-specific features also are updated. Supply chain updates include ease-of-use demand-management capabilities, replenishment-management improvements, supply planning usability updates, and deeper sales and operations planning features. Oracle's strategy for Oracle Cloud ERP progresses toward a future of delivering touchless operations, continuous forecasting, and an enhanced conversational experience for its customers.

Customers who choose Oracle Cloud ERP often seek multinational and global deployments, have large enterprise requirements, require vertical expertise, and expect one major technology partner with Oracle.

Oracle NetSuite

Oracle NetSuite was the first cloud enterprise software company to launch in 1998. Headquartered in Austin, Texas, NetSuite provides more than 25,000 customers with a full-suite Cloud ERP. NetSuite employs more than 10,000 people in 30 countries, and the product is available in 212 countries/territories. This cloud vendor has seen huge growth, with more than 5,400 new logos in the last 12 months. NetSuite's ERP suite answers to both product-centric and services-centric requirements.

NetSuite customers often range from $25 million to $500 million in revenues, with 50 to 1,000 employees. The full ERP suite includes financials, human resources, procurement, orders, inventory,

shipping, and billing. Other adjacent suite capabilities include CRM, e-commerce, PSA, and NetSuite OneWorld for managing the needs of multientity companies. Key product-centric verticals include apparel, footwear, and accessories; food and beverage; manufacturing; retail; and wholesale distribution. NetSuite releases two updates per year. Services-centric industry verticals include advertising, media publishing, general business, nonprofits, services, and software.

Major themes for the new releases include Suiteness, intelligence, visibility, ease, and automation. New capabilities across the suite emphasize unified workflows, workflow automation, unified analytics, and richer AI/ML capabilities. This has led to improvements in performance management. On the intelligence front, NetSuite has emphasized insights, automation, and interaction to drive more-proactive recommendations and suggestions for next-best action. This enables more contextually relevant automation. The latest supply chain control tower is an example of this capability in action. Visibility is delivered by SuiteAnalytics Workbooks, embedded analytics, and the NetSuite Analytics Warehouse. Embedded assistance, a knowledgebase, and a trial web store enhance ease of use. Improved usability is delivered via improved navigation and simplified data entry. Improved automation reduces errors, removes friction in processes, and allows users to focus efforts on higher-value tasks. Key release areas include smart financials, accounting-cycle and operational automation, autonomous supply chain, project life cycle optimization, continuous employee engagement, and unified customer experiences.

Customers choose NetSuite for micro-vertical focus, two-tier ERP, modernization of subsidiaries, support for project-based business, preparing for an IPO, and embarking on a cloud modernization.

Sage X3

Sage X3 is the midmarket ERP offering from the Newcastle, U.K.-based Sage Group. The core product Sage X3 has developed over time from the Adonix X3 product acquired from SPEMI in 2005. The cloud offering services more than 6,000 customers in 80 countries, with approximately 750 customers using the cloud deployment option for this product-centric ERP offering. Customers can choose to deploy on-premises as well.

The typical Sage X3 customer profile includes medium-size companies with $100 million to $500 million in revenues and 100 to 500 employees. Core capabilities include financials, supply chain,

and production management. Financial management includes budgets and accounting, fixed assets, and financial reporting. Supply chain management covers purchasing, inventory management, sales management, and customer service. Production management supports bill-of-materials (BOM) planning, shop-floor control, quality control, and project management. Sage issues quarterly releases with an 18-month rolling road map.

Sage X3 releases for 2021 to 2024 will focus on improved comprehensive multicompany financials, enterprise asset management and field service, and resource-management planning; deeper scheduling and quality for manufacturing; advanced wholesale distribution features; and advanced billing, revenue recognition, and asset and contract management. Tech additions include improved data management platforms, cloud development capabilities, improved deployment and provisioning, and better cloud tooling and database management. Expect improved data integration with RESTful APIs and more than 300 GraphQL APIs and mutations, along with better-automated testing platforms. New ISO 27001 certification and SOC 2 certification round out the compliance requirements.

Sage X3 wins on industry-vertical capabilities for wholesale and distribution, process manufacturing, discrete manufacturing, complex distribution, food and beverage, chemicals, and some services scenarios.

SAP S/4HANA Cloud

Released in 2015, SAP S/4HANA is SAP's successor to SAP R/3 and is tailored for large enterprises. As the biggest update to the Walldorf, Germany-based software giant's flagship ERP offering, SAP S/4HANA offers both on-premises and cloud-based deployment options to more than 16,000 customers around the world in 39 languages and 64 country versions. More than 3,200 customers have deployed in the cloud for this product-centric and services-centric ERP solution.

SAP S/4HANA Cloud delivers full functionality for finance, manufacturing, procurement, R&D, sales, service, and supply chain. Analytics, automation, and AI dominate the feature themes in the quest to build an intelligent ERP solution. Customers often seek the prebuilt integration with SAP SuccessFactors, SAP Ariba, SAP Concur, SAP Hybris, and SAP Fieldglass. The offering currently receives four major updates per year, moving to two major updates in 2022. SAP supports industry-specific functionality for 25 verticals.

In January 2021, SAP announced RISE with SAP to address digital transformation across its product portfolio to deliver a unified offering from product to services to subscription-pricing model. At the heart of the approach is an investment and business process intelligence that uses SAP's workflow, robotic process automation (RPA), and AI. New technical-migration capabilities are designed to improve adoption by automating upgrades and reducing migration time and complexity. New intelligent enterprise capabilities focus on access to large business networks including supplier, purchasing, asset intelligence, and logistics business networks. Highlights in S/4HANA include a new digital service management capability, digital supply chain, S/4HANA Cloud for Advanced Financial Close, and improved S/4HANA Treasury Management.

Customers selecting SAP S/4HANA Cloud often seek multinational and global deployments, have medium to large enterprise requirements, either plan to upgrade from an existing SAP installation or are net-new SAP customers, and often seek deep vertical capabilities.

Unit4 ERP

Utrecht, Netherlands-based provider of enterprise applications Unit4 generated more than $480 million in revenue with 2,500 worldwide employees in 2020. The product offering is available in 22 countries. Unit4 launched its cloud deployment option in 2013. With 2,500 Unit4 ERP customers, the vendor provides a full suite of services-centric ERP offerings in on-premises, hosted, and cloud-based deployments.

Unit4's midmarket customer base ranges in size from $250 million to $1 billion in revenue and between 100 and 1,000 employees. Unit4 delivers a full ERP suite of financial management; human resources and payroll; planning, budgeting, and forecasting; procurement management; project management; and enterprise asset management services-centric offerings. The company releases two major updates a year. The focus on a people-centric approach aligns with the vendor's key industries—professional services, education, public services, not-for-profit, real estate, wholesale, and financial services.

Unit4's 2021 corporate strategy focuses on organizational transformation, partner program improvements, operations and processes, enablement and certification, and growing the ecosystem. Constellation expects to see a ramp-up in North American presence. The latest release, Unit4 ERPx,

focuses on the Unit4 business and emphasizes the People Platform, a micro-services-based SaaS architecture, and release themes around self-driving ERP. This ML-driven approach will focus on anomaly detection, fraud detection, and smart invoicing. ERPx is an Azure-based, multitenant, micro-services product with low-code integration tools.

Customers tend to select Unit4 ERP for its deep vertical expertise, midmarket focus, and people-centered design philosophy.

Workday

Headquartered in Pleasanton, California, Workday began in 2005 as a cloud-native HCM software vendor and added financial management software in 2008. Workday has more than 1,000 Workday Financial Management customers, more than 5,400 customers on Workday Adaptive Planning, more than 550 customers on Workday Prism Analytics, and more than 3,350 customers on Workday HCM. The company went public in 2012 with a market capitalization of $9.5 billion. Revenues for FY 2020 were up 28.5% year over year at $3.36 billion for this services-centric ERP offering.

Workday's customers typically come from the Global 2000 with $500 million in revenues and more than 1,000 employees. In fact, many of the world's largest customers by employee count run Workday for HCM and financials. The core suite includes planning, financial management, HCM, analytics and benchmarking, and PSA. Although most clients have started with HCM, Constellation sees a large number of clients starting with PSA and Workday Adaptive Planning and then moving on to other modules such as Workday Financial Management. In July 2017, Workday opened up its platforms with a platform-as-a-service (PaaS) offering called Workday Extend. The company issues two major releases per year. Industry verticals such as communications, energy and resources, financial services, government, healthcare, higher education, hospitality, insurance, K-12 education, life sciences, manufacturing, media and entertainment, nonprofit, professional and business services, retail, and technology often gravitate toward Workday.

Key innovations for Workday 2020 R1 and R2 include user experience changes such as improved shortcuts on the homepage, search details in predictive view, recovery assistant available to access work, and streamlined view of tasks. Purchasing and expenses gained mobile enhancements, an

improved user interface for expenses, and improved receipt adjustments. Recruiting changes improve candidate home updates and candidate profile updates. New reminders for follow-up candidate tasks improve recruiting capacity. Time-tracking gains improved analytics and reporting.

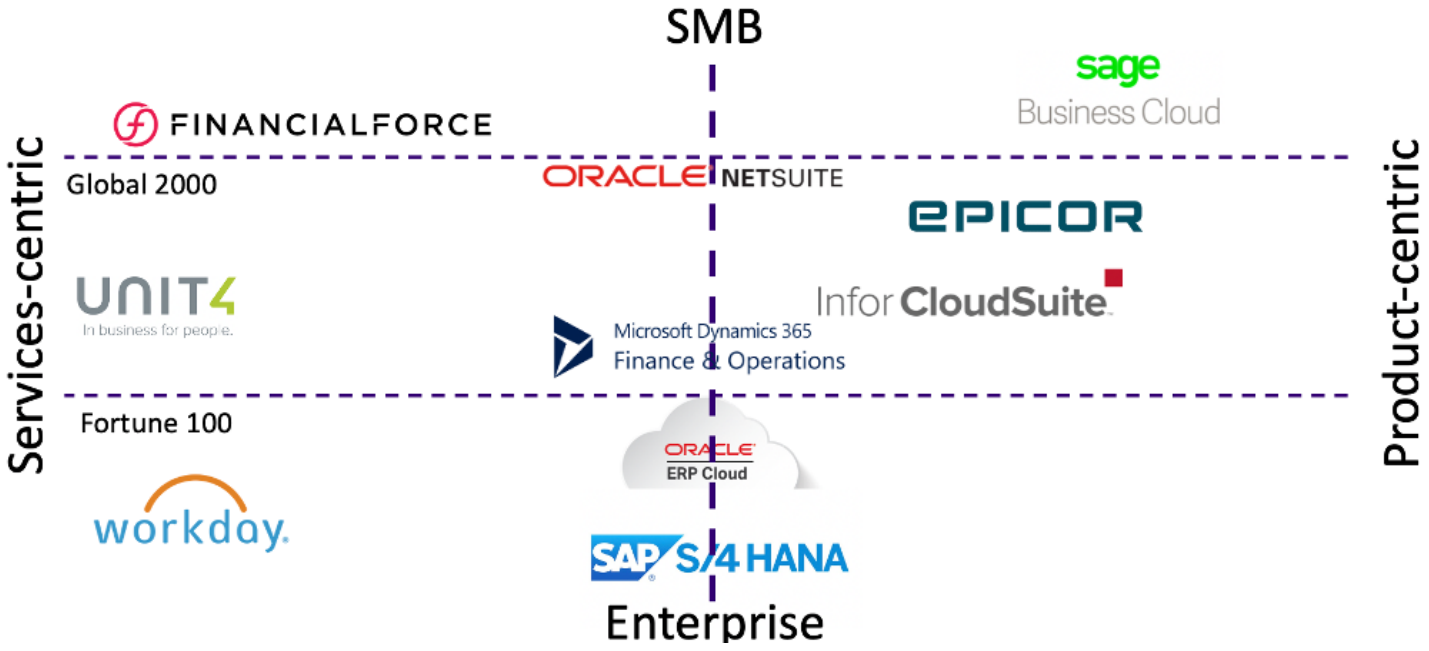
Customers choose Workday mainly for ERP modernization and replacement of legacy ERP systems with finance, HR, and planning unification; a native analytics and adaptive business framework foundation; global capabilities; and a customer-centric ownership experience.

Differentiation

Constellation evaluates the global cloud ERP offerings based on the following five points of differentiation:

1. **Product-centric versus services-centric.** ERP systems often support either a product (things) or a services (experiences) point of view. Although a few solutions can address both, specialization has often bifurcated into things versus experiences to optimize the ability to meet customer requirements (see Figure 3).

Figure 3. ERP Styles Include Product-Centric, Services-Centric, or Both



Source: Constellation Research

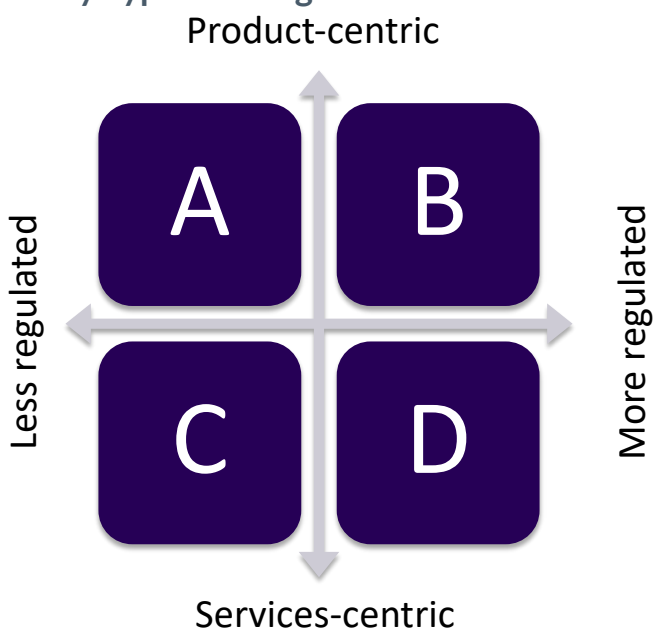
2. **Regulated versus nonregulated industries.** Regulated industries often require constant updates for compliance. The ability to write once and deploy to every customer at the same time is a significant differentiator for cloud deployment. Cloud vendors supporting regulated industries dedicate teams to translate legislative action into software updates (see Figure 4).

3. **Industry support and specialization.** One of the most critical requirements will be industry fit. Customers seek micro-vertical industry specialization and expect solutions to be built for their industries with minimal customization and minimal added professional services costs.

4. **Deployment options.** Cloud ERP solutions often refer to multitenant SaaS deployments. However, some solutions offer deployment choices that include multi-instance, single-tenant cloud; hosted solutions; and on-premises delivery (see Figure 5).

5. **Suite-centric versus best of breed.** A few best-of-breed solutions remain in the ERP market. However, massive vendor consolidation over two decades has led to suite-centric solutions. Today's global cloud ERP suites often span more than one mega-process such as procure to pay, order to cash, hire to retire, assess to acquire, financial plan to report, and project initiation to project closure.

Figure 4. ERP Differentiation by Type and Regulation



Source: Constellation Research

Figure 5. Deployment Options Span Many Flavors of On-Premises and Cloud

VENDOR	ON-PREMISES	HOSTED SOLUTION	MULTI-INSTANCE CLOUD	MULTITENANT CLOUD
Epicor	X	X	X	X
FinancialForce				X
Infor	X	X	X	X
Microsoft Dynamics 365	X	X	X	X
Oracle Cloud ERP		X	X	X
Oracle NetSuite				X
Sage X3	X	X	X	
SAP S/4HANA	X	X	X	X
Unit4 ERP	X	X	X	
Workday				X

Source: Constellation Research

RECOMMENDATIONS

Start Optimization and Innovation With the Cloud; Then Build for AI

The road to postdigital ERP comes with many approaches. Evaluations should consider on-premises versus cloud and legacy ERP versus postdigital ERP (see Figure 6). Constellation recommends that customers do the following:

- **Surround legacy systems with cloud innovation and hybrid integration.** Organizations seeking to dip their toe in the water with cloud ERP can start with adjacent cloud solutions such as pricing, forecasting, demand planning, recruiting, and talent management. The goal is to understand the ease of use while accessing innovation

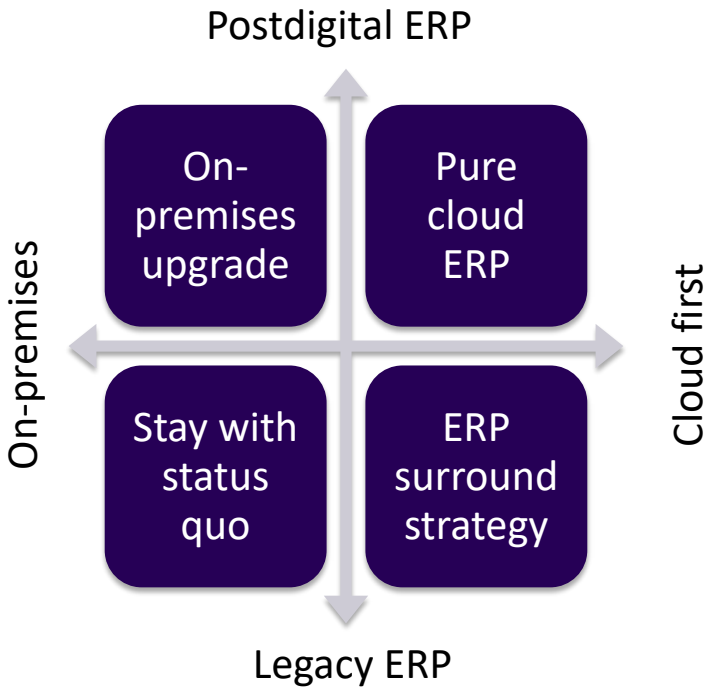
at the edge. Teams should select integration tools that will enable hybrid models and long-term cloud-to-cloud orchestration.

- **Consider a two-tier approach to cloud ERP.** Start an upgrade or replacement project inside a division, geography, or separate business unit. Take the time to redesign processes for both efficiency and automation. Apply lessons learned from the upgrade or replacement experience to drive future adoption across the enterprise.

- **Make the shift to pure cloud ERP.** Explore the requirements to move to a pure cloud ERP solution. Map previous customizations to new or promised functionality on the road map. Consider the impact of integrations. Design the system to address key business questions. Assess processes for automation capabilities. Design for digital feedback loops.

- **Incorporate digital feedback loops.** Use each choice to create digital feedback loops that deliver insights. Insights power next-best actions along the data-to-decision

Figure 6. A Postdigital View of ERP Modernization



Source: Constellation Research

continuum. The creation of feedback loops mitigates risk, ensures compliance, optimizes operations, grows revenue, improves experience, informs product offerings, and enables brand promise.

- **Democratize decisions in the front office and the back office.** Employees throughout the enterprise can take action to improve customer experiences, but only if they have the right information presented in context at the right moment. Renew existing transactional systems from ERP, customer relationship management, and supply chain management by abstracting the transactions and enabling orchestration of new experiences. Taking these new journeys to the front lines will enable the ability to democratize decisions across all stakeholders.

- **Deliver mass personalization at scale with automation and AI.** As organizations light up their data-driven digital networks, they can finally deliver mass personalization at scale. Intelligent enterprises will use AI and ML tools to automate this personalization and build autonomous and self-learning systems over time.

THE BOTTOM LINE: USERS SEEK PRAGMATIC STRATEGIES FOR CLOUD MIGRATION

The inevitable shift to cloud from on-premises ERP will continue over the next decade. Cloud migration will provide an opportunity to re-examine business processes as well as opportunities for optimizing existing approaches. Constellation recommends the following in cloud migration:

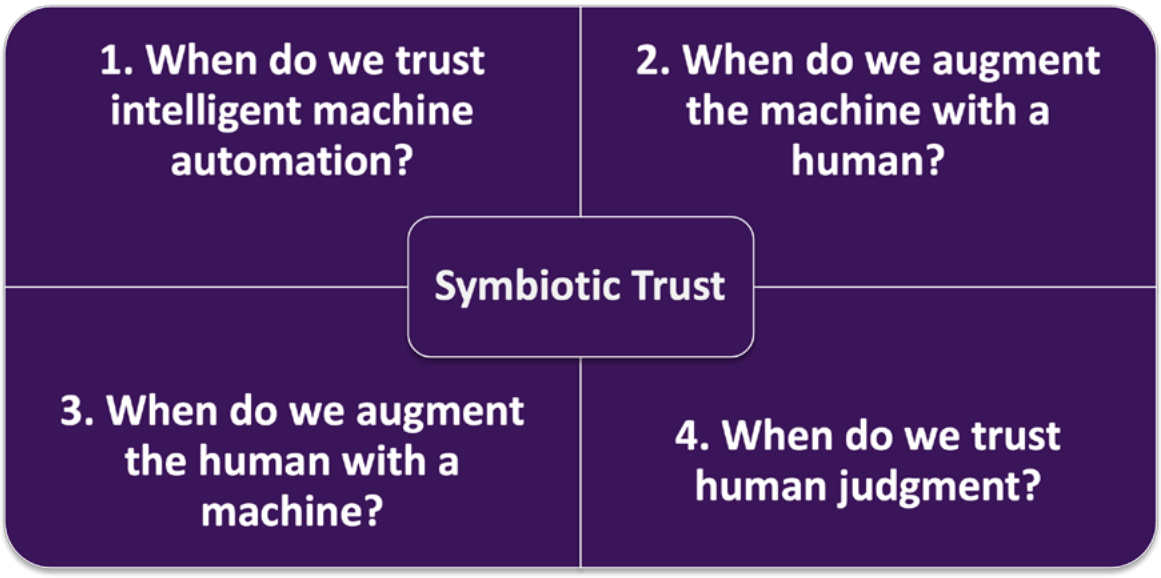
- Map current functionality and future functionality requirements. Modules from legacy ERP systems often do not map directly with cloud ERP options. Take the time to model existing business process flows with potential solutions to understand what features are provided out of the box, require configuration, or may require customization. If migrating to an existing vendor's product, identify areas where functional parity may be delivered in a renamed or rebadged solution.

- Determine whether this is a migration, refresh, or full replacement. Conduct an assessment on costs of migration, refresh, or full replacement. Understand what

percentage of capabilities, including legacy ERP customizations, can be delivered out of the box in the new solution. In many cases, expect a full replacement that includes a more modern ERP platform that enables flexibility in configuration and the inclusion of the latest disruptive technology. Compare costs and benefits along with flexibility and alignment with business objectives.

- Identify opportunities for process redesign, optimization, and automation. Migration to a new ERP system presents an opportunity to improve and even redefine existing processes. Do not slam in existing legacy approaches. Take the time to understand which processes should be reimagined. More importantly, enterprises have the technology to automate business processes at an unimaginable scale. Thus, every organizational leader must determine when to trust the judgment of a machine, augment a machine with a human, augment a human with a machine, or trust human ingenuity (see Figure 7). In this autonomous future, machines will deliver services that are continuous, auto-compliant, self-driving, self-healing, self-learning, and self-aware. Access to larger datasets and more engagements to refine algorithms will be needed to ensure precision decisions and ever-higher confidence levels.

Figure 7. The Four Most Important Questions in the Autonomous Decade



Source: Constellation Research

R "Ray" Wang

Founder and Principal Analyst

R "Ray" Wang is founder, chairman, and principal analyst of Constellation Research Inc. and the author of the popular enterprise software blog, A Software Insider's Point of View. He previously was a founding partner and research analyst for enterprise strategy at Altimeter Group.

A background in emerging business and technology trends, enterprise apps strategy, technology selection, and contract negotiations enables Wang to provide clients and readers with the bridge between business leadership and technology adoption. Wang has been recognized by the prestigious Institute of Industry Analyst Relations (IIAR) as Analyst of the Year, and in 2009 he was recognized as one of the most important analysts for enterprise, SMB, and software. In 2010, Wang was recognized on the ARInsights Power 100 List of Industry Analysts and named one of the top influential leaders in the CRM Magazine Market Awards.

Wang graduated from Johns Hopkins University with a B.A. in natural sciences and public health. His graduate training includes a master's degree from Johns Hopkins University in health policy and management and health finance and management.

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ABOUT CONSTELLATION RESEARCH

Constellation Research is an award-winning, Silicon Valley–based research and advisory firm that helps organizations navigate the challenges of digital disruption through business model transformation and the judicious application of disruptive technologies. Unlike the legacy analyst firms, Constellation Research is disrupting how research is accessed, what topics are covered, and how clients can partner with a research firm to achieve success. Over 350 clients have joined from an ecosystem of buyers, partners, solution providers, C-suite, boards of directors, and vendor clients. Our mission is to identify, validate, and share insights with our clients.

Organizational Highlights

- Named Institute of Industry Analyst Relations (IIAR) New Analyst Firm of the Year in 2011 and #1 Independent Analyst Firm for 2014 and 2015.
- Experienced research team with an average of 25 years of practitioner, management, and industry experience.
- Organizers of the Constellation Connected Enterprise—an innovation summit and best practices knowledge-sharing retreat for business leaders.
- Founders of Constellation Executive Network, a membership organization for digital leaders seeking to learn from market leaders and fast followers.

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