

Hype Cycle for ERP, 2023

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Initiatives: [ERP](#); [Enterprise Applications Evaluation and Selection](#); [Enterprise Applications Strategy](#)

A composable ERP strategy creates opportunities for a business to improve its agility, be more innovative and deliver extra value. Application leaders can use this Hype Cycle to understand which technologies and frameworks can be utilized to underpin this composable approach.

Additional Perspectives

- [ERPのハイブ・サイクル：2023年](#)
(02 November 2023)

Analysis

What You Need to Know

Requirements for agility and composable business strategies are forcing CIOs to review their approaches to ERP. Composable ERP strategies — ERP application strategies that combine various technologies to deliver adaptive, resilient and value-enabling business capabilities — are therefore of increasing interest to ERP application leaders. This development highlights the importance of a focus on enabling the creation of business value by using technology that helps a business achieve its differentiation or innovation goals.

This year's Hype Cycle for ERP features innovations such as generative AI in ERP, sustainability in ERP and extended planning and analysis (xP&A) for ERP. Application leaders must distinguish reality from hype when planning for when and how to incorporate these into their ERP strategy. They should also take account of significant differences in the maturation times of technologies on this Hype Cycle. Some will not reach the Plateau of Productivity until five to 10 years from now. But most will take only two to five years (and some even less), and will be essential to support composable ERP strategies.

The Hype Cycle

This year's Hype Cycle reflects how ERP is affected by the need to embrace a more complex multivendor technology landscape and strategies that deliver business value while keeping pace with changing customer demands.

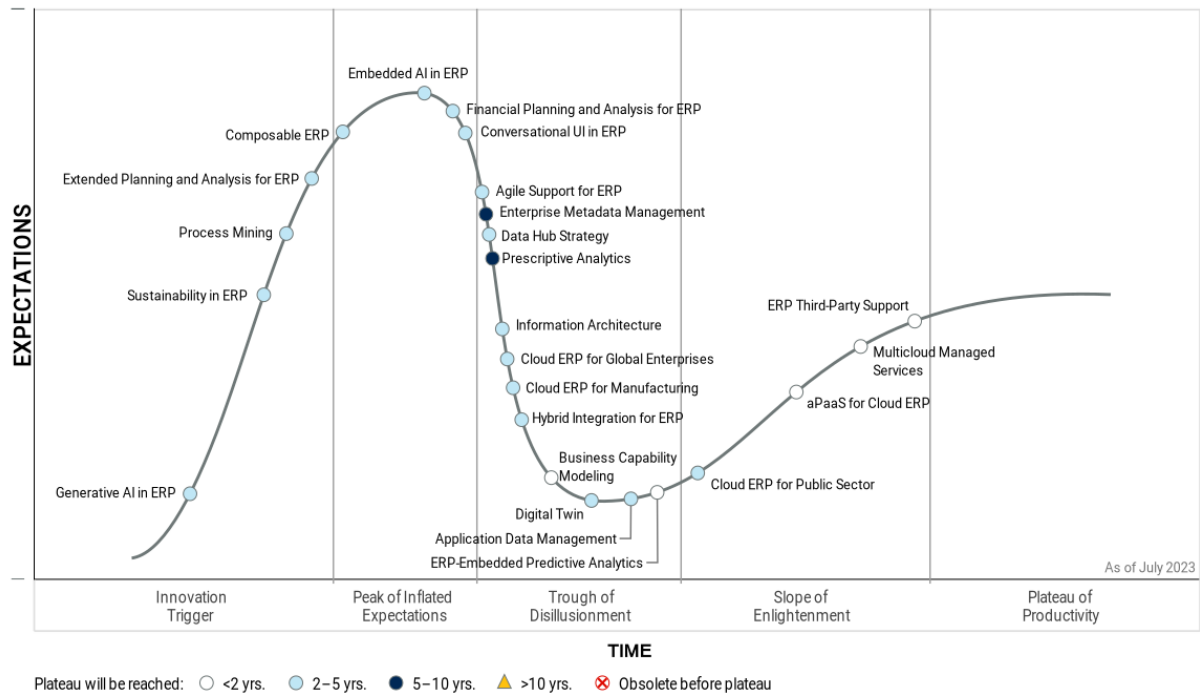
In 2023, innovation in ERP is being triggered by developments such as generative AI, sustainability in ERP and xP&A for ERP. For their part, composable ERP, embedded AI in ERP, financial planning and analysis (FP&A) for ERP, and conversational UI have reached the Peak of Inflated Expectations. The maturation of these technologies and approaches will underpin the transformation of modern ERP platforms and support the evolution of composable ERP architectures well into the future.

Other technologies, such as agile support for ERP, enterprise metadata management, data hub strategy and prescriptive analytics have descended into the Trough of Disillusionment as their practical limitations have started to sink in. Other technologies in the trough include information architecture, cloud ERP for global enterprises, hybrid integration for ERP, cloud ERP for manufacturing and ERP-embedded predictive analytics.

A smaller number of technologies, including cloud ERP for the public sector, application platform as a service (aPaaS) for cloud ERP, multicloud managed services and ERP third-party support, are on the Slope of Enlightenment. They have entered mainstream adoption thanks to their maturing capabilities and the need to manage current ERP environments and control costs.

Figure 1: Hype Cycle for ERP, 2023

Hype Cycle for ERP, 2023



Gartner

The Priority Matrix

This Hype Cycle includes a variety of solutions that differ in terms of adoption, maturity and benefit. Organizations looking for operational advantages need to balance investments that offer short-term incremental improvements with those that offer high and even transformational benefits in the longer term. This edition of the Hype Cycle includes many technologies that will have a profound impact over the next two to five years. Application leaders must plan for their adoption now, because the changes associated with them will be significant.

With regard to technologies of transformational benefit that are likely to achieve mainstream adoption in the next two to five years, application leaders pursuing ERP should:

- If they are in the public sector, evaluate adoption of cloud ERP as part of their digital government efforts. They should focus on administrative back-office capabilities, which will likely deliver the greatest return on investment.
- Create a roadmap to adopt conversational UI capabilities in ERP to simplify the future user experience.

- Assess with business leaders how digital-twin technology may fit into their long-term business strategy, as it enables digital modeling of virtually everything. The potential impacts of adoption must be reflected in their ERP strategy.
- Investigate how their ERP vendor is embedding AI into application use cases, such as those involving finance, procurement, time and attendance, and customer orders. Such use cases should be within the scope of the overall ERP strategy.
- Use ERP-embedded predictive analytics to identify future operational problems. This can, for example, help evaluate the impact of interrupted supply chains on corporate profitability and anticipate environmental, social and governance (ESG) issues before they impact business operations.

In addition, a substantial number of technologies on this Hype Cycle should deliver high business benefits in the next two to five years. For these, we recommend that application leaders:

- Consider putting their ERP vendor's FP&A solution on their roadmap when their strategy is to move to a cloud ERP solution. If they already use their ERP vendor's FP&A solution, they should consider using xP&A to integrate and align it with operational planning capabilities.
- Assess ERP vendors' roadmaps to understand how they plan to incorporate generative AI use cases into their solutions. As part of a broader AI adoption strategy, it is worth evaluating how generative AI capabilities will mature and where they could be used to achieve real business benefits. It is important to disregard the hype and focus on practical use cases that can achieve well-defined outcomes.
- Evaluate how adoption of cloud ERP for global enterprises could fuel digital transformation and achieve composable business goals.
- Deploy a hybrid integration model that is extensible to support federated ERP application approaches.

Table 1: Priority Matrix for ERP, 2023

(Enlarged table in Appendix)

Benefit ↓	Years to Mainstream Adoption			
	Less Than 2 Years ↓	2 - 5 Years ↓	5 - 10 Years ↓	More Than 10 Years ↓
Transformational	ERP-Embedded Predictive Analytics	Cloud ERP for Public Sector Composable ERP Conversational UI in ERP Digital Twin Embedded AI in ERP		
High	aPaaS for Cloud ERP Business Capability Modeling ERP Third-Party Support Multicloud Managed Services	Agile Support for ERP Cloud ERP for Global Enterprises Data Hub Strategy Extended Planning and Analysis for ERP Financial Planning and Analysis for ERP Generative AI in ERP Hybrid Integration for ERP Information Architecture Process Mining Sustainability in ERP	Enterprise Metadata Management Prescriptive Analytics	
Moderate		Application Data Management Cloud ERP for Manufacturing		
Low				

Source: Gartner (July 2023)

Off the Hype Cycle

The following entry has been removed from the Hype Cycle:

- **Cloud management platforms:** As the market evolves, these platforms account for an increasingly small part of the cloud management tool sector. Many vendors are incorporating these platforms' functionality into other products.

On the Rise

Generative AI in ERP

Analysis By: Greg Leiter

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Emerging

Definition:

Generative AI (GenAI) technologies can generate new derived versions of content, strategies, designs and methods by learning from large repositories of original source content. GenAI has profound business impacts, including on content discovery, creation, authenticity and regulations; automation of human work; and customer and employee experiences. Given the operational nature of ERP, GenAI has the potential to enhance and automate business processes and analytics.

Why This Is Important

Exploration of generative AI (GenAI) methods is quickly growing in interest among organizations and proving itself in a variety of vertical industries and applications. ERP vendors are responding by identifying potential use cases and establishing strategic partnerships to deliver GenAI capabilities with their latest cloud ERP solutions.

Business Impact

GenAI will progress rapidly in technology commercialization for a potentially wide range of applications. For ERP solutions, the promise of GenAI is another capability, along with existing AI technologies, that automate processes more dynamically and in real time to provide productivity efficiencies and data insights. With GenAI, the ability to derive business value from novel combinations of content and data — from ERP solutions and other sources — will become easier.

Drivers

Key drivers for GenAI in ERP include:

- Hype around generative AI — Vendors are responding to this hype by investigating a variety of use cases for GenAI in ERP solutions. All vendors covered by Gartner in our Magic Quadrants for Cloud ERP (both Product-Centric and Service-Centric) have indicated future roadmap releases with only a handful of vendors that have actually released actual GenAI ERP capabilities.
- Automation potential — ERP use cases will be driven by combining existing AI/ML capabilities that can use generative AI to enhance the automation opportunities of a business process. For example, enterprises can use predictive analytics to identify a potential issue and use generative AI to produce step-by-step natural-language instructions to resolve the issue.
- Enhanced services and operations — ERP vendors have an opportunity to use generative AI to enhance their service offerings and operations. For example, generative AI will disrupt software coding. Combined with development automation techniques, it can automate up to 40% of the programmers' coding work. This could allow ERP vendors to rapidly improve the cadence at which they release new functionality in cloud ERP solutions, and in return, provide faster time to value for customers.

Obstacles

- ERP vendors are only developing use cases for their latest generation of cloud ERP solutions and will not retrofit these to legacy on-premises solutions. There are a vast number of enterprises yet to adopt cloud ERP that will not be able to take advantage of these new technologies.
- Data in ERP solutions needs to be fact-based and auditable. Reproducibility and accuracy of generative AI results will be challenging in the near term, due to the exponential number of parameters being assessed during any generative AI action. Any recommendations or content generated by GenAI will need to be accurate for users to have trust using the artifacts.
- Compute resources for training large models are high and not affordable for most enterprises. Larger ERP vendors will most likely have the resources to harness generative AI, but Tier 2 vendors may not have internal development resources and will need to rely on other third-party partnerships to deliver GenAI capabilities.

User Recommendations

- Assess ERP vendor roadmaps to understand how they are using existing AI technologies and how they plan to incorporate generative AI use cases into their solutions. Use these roadmaps to inform your own ERP strategy, ensuring that these AI technologies, including generative AI, can help your organization meet overall enterprise goals and objectives.
- Develop a range of business outcomes by investigating how generative AI techniques benefit your industry or sector. Cross-reference these with your ERP vendors' capabilities and roadmaps, and identify initial use cases where you can rely on the ERP vendor's capabilities.
- Formulate an explicit change management strategy to effectively drive AI adoption as ERP vendors deliver generative AI capabilities.

Sample Vendors

Microsoft; Oracle; SAP; Workday

Gartner Recommended Reading

[Video: How to Actually Get Started With Generative AI in Your Business](#)

[Innovation Insight for Generative AI](#)

[Emerging Tech: Generative AI Needs Focus on Accuracy and Veracity to Ensure Widespread B2B Adoption](#)

Sustainability in ERP

Analysis By: Greg Leiter, Denis Torii, Neha Ralhan

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Definition:

As stakeholders and regulators increasingly demand that organizations transparently report their progress against sustainability goals, ERP vendors are responding to these demands by incorporating sustainability capabilities into their solutions. Embedding of sustainability and environmental, social and governance (ESG) data within core ERP enables improved optimizations and decision making.

Why This Is Important

Sustainability cannot be managed as a discrete area of performance. Enterprises must include sustainability goals and data, alongside other business objectives and data, to enable integrated optimizations of enterprise operations. Execution of sustainability and ESG goals requires integration of data into core business processes (planning, execution and feedback) to inform sound decision making, balancing trade-offs between cost, cash flow, service, and environmental or social impacts.

Business Impact

ESG and sustainability data visibility, integrated with existing core business processes, aligned to appropriate roles and functions, creates accountability and informed optimized action, and enables better automated process execution. It enables putting decision-making frameworks in place that include sustainability-related factors in addition to traditional business levers, and enables roles to understand how their actions directly impact a broader set of enterprise goals and activities.

Drivers

- Enterprises with ambitious ESG and sustainability goals have a sense of urgency to substantially improve the sustainability-related capabilities of their core business applications.
- Effective analytics and insights require the integration of ESG and sustainability data, processes and metrics into the business to enable new points of optimization, and to link with financial and other operational data.
- CIOs are reluctant to add new application vendors and software, preferring to extend capabilities supported in the existing applications portfolio.
- The need to improve data quality and reduce gaps in data collection and usage across a variety of business activities and processes. Foundational data needed for ESG reporting is often sourced from ERP solutions.
- Empowering employees and automating process execution and decision making will ensure that sustainability objectives are achieved in more scenarios, rather than being an afterthought or an exceptional isolated initiative.

Obstacles

- Sustainability and ESG data has historically been highly fragmented and suffered from significant gaps, with any consolidated view held only by a few specialist roles, or in niche applications and/or spreadsheets.
- Best-of-breed or niche application vendors will move much more quickly than many of the established ERP and enterprise business application vendors, but integrating their specialized solutions into major core applications is not well supported by their legacy architectures.
- Best practices, standards and regulations in relation to ESG and sustainability data and processes are immature and change quickly, making it tempting for incumbent application vendors to delay investment.
- Lack of data, not just within the enterprise, but examples where the data simply does not exist — such as reliable, accurate Scope 3 emissions data.

User Recommendations

- Embed sustainability and ESG into your enterprise, application and data architectures, and technology roadmaps. Ensure there is a feedback loop between planning, execution and reporting.
- Work with ERP vendors to integrate ESG and sustainability. Apply a more tactical and innovation-led approach to meet needs with narrower point solutions, but be aware of necessary integration and data management efforts
- Assess current core business application portfolio to understand the sustainability and ESG data and capabilities that are supported and assess vendor roadmaps to understand and influence ESG capabilities
- Leverage the enterprise materiality assessment to decide which sustainability and ESG issues and associated capabilities and data points should be implemented or made available.
- Put in place frameworks that codify the integration of sustainability and ESG data as part of decision making.

Sample Vendors

Epicor; IFS; Infor; Microsoft; Oracle; QAD; SAP

Process Mining

Analysis By: Marc Kerremans

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Process mining tools are designed to discover, monitor and improve business operations and processes by extracting knowledge from events captured from systems, applications and devices, in order to deliver visibility, understanding and insights. Process mining includes automated process discovery, conformance checking, social network/organizational mining; automated construction of simulation models, model extension, model repair, case prediction, and history-based recommendations.

Why This Is Important

Process mining provides visibility, analysis and understanding about business operations by providing near-real-time information to all end users about how they are currently performing, whether their processes are compliant, and what could be improved. If process mining tracks clients and their interactions, and their touchpoints with the organization as the main object rather than an order, invoice or request, then this can be seen as customer journey mining. These customer interactions are subsequently connected to internal operations.

Business Impact

Process mining provides a deeper understanding of previous customer contacts and underlying processes in order to enhance current and future interactions by understanding and aligning the customer's intent and the objective of the business. Showing which process improvements are necessary to meet and exceed customer expectations, process mining helps organizations in addressing how they can actively impact customer experience and customer retention through internal operational improvements.

Drivers

- **Digital business:** In this era of digital business, business and sales leaders need a way to reflect on how new technological capabilities can provide value to the business and, ultimately, to the customer. Process mining can show how and where to activate these capabilities to create business value. Aligning and adapting these processes with client interactions is imperative to achieve targeted business outcomes.
- **Artificial intelligence (AI):** With the use of AI and advanced machine learning algorithms, data acquires meaning, and new and powerful insights can be derived from it. A powerful example of this data science in action, process mining shows how algorithms can be used as a mechanism to capture knowledge and insight in a packaged form that can be simply reused in a consistent fashion.
- **Task automation (RPA):** Process mining can complement RPA perfectly by assessing the processes to which tasks belong, and identifying “hot areas” in the organization, where a lot of effort is wasted in repetitive tasks. This results in long-term sustainable business value and averts the shortcomings of a short-term perspective focused on large, one-off cost savings.
- **Hyperautomation:** Not only is process mining a fundamental part in creating visibility and understanding before you automate. It also visualizes how different islands of automation are connected, and how continuously implemented and connected automation can be improved through its monitoring capabilities.
- **Business operations resilience:** Business operations resilience is the ability to alter operations in the face of changing business conditions based on a seek-model-adapt model. The techniques underlying process mining provide a new and enhanced way to encompass the sense and model capabilities. Based on available day-to-day operational data, the advanced process mining algorithms provide an accurate model of the ways of work in a format that can be understood by anyone in the organization.

Obstacles

Obstacles that have kept process mining from a faster adoption can be classified into two main categories: Lack of awareness and misunderstandings.

Lack of awareness:

- After being considered for years as a purely academic technique, the collaboration of emerging process mining vendors with well-known enterprise applications, such as SAP, have heavily promoted process mining and shaped the process mining market.
- Recently process mining has moved into areas other than process discovery, such as customer interactions and social networks. It has even spread into areas such as Internet of Things (IoT), manufacturing and logistics distribution networks, supply chains, which have demonstrated sustainable value-creating capabilities of process mining.

Misunderstandings:

- Process mining needs application log files.
- Our organization is not mature enough.
- It is all about IT.
- Process mining itself improves processes
- Employees are monitored.
- Our organization has many manual activities.
- Our organization doesn't have the data.
- Our organization already has process maps.
- It is hard to justify the investment.

User Recommendations

- Improve visibility and understanding of the actual performance of business operations, by investing in process mining. Actual quantitative data is delivered in a context that not only reveals information about a process, but connects this data to other constituents in a value chain, such as data about clients.
- Create awareness and inspire business and operational colleagues by introducing small, short-term pilots. Start a pilot on activities where the data is easily available. This starter project will already deliver value and will provide insights in where the next iteration needs more detailed data.
- Explore use cases that go beyond traditional mining use cases by targeting business operations and interactions with external parties such as customers. This can be seen as customer journey mining.

Sample Vendors

ABBYY; Appian; Apromore; BusinessOptix; Celonis; IBM; Microsoft; QPR Software; SAP Signavio; Software AG

Gartner Recommended Reading

[Magic Quadrant for Process Mining Tools](#)

[Critical Capabilities for Process Mining Tools](#)

[Business Case for Implementing Process Mining](#)

Extended Planning and Analysis for ERP

Analysis By: David Penny, Greg Leiter

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Extended planning and analysis (xP&A) is a platform-centric enterprise planning strategy that extends financial planning and analysis (FP&A) use cases beyond finance. xP&A platforms extend multidiscipline planning capabilities to all types of users to collaboratively work on shared models as an integral part of their operations enabled by a cohesive, composable and data-harmonized vendor platform.

Why This Is Important

Organizations adopting an xP&A approach can leverage the same composite architecture platform for multiple planning use cases beyond finance, such as, but not limited to, workforce planning, sales and operations planning (S&OP) and market campaign planning. The initial base of xP&A platforms has evolved by improving performance, collaboration, workflow management, analytics, governance and ease of use.

Business Impact

Planning and forecasting is an elemental process in any organization and historically has been focused mostly on financial planning. xP&A offers an approach to allow planning activities across nearly all functions in an enterprise using a single platform that provides for rapid changes to forecasts and plans, not only for financial planning but also for operational plans. This allows enterprise decision makers to have a comprehensive view of plans and forecasts to facilitate decision making.

Drivers

- Economic disruption, uncertainty and fast-changing market conditions increase the need for more continuous planning. The recent pandemic exposed many enterprises' lack of strong planning and forecasting processes.
- Migration to cloud-based ERP solutions is now accelerating as the overall market for cloud ERP last year now surpasses on-premises solutions. Customers are more likely to choose a “better together” approach with xP&A solutions from the same ERP vendor due to tight integration with ERP solutions and the ability to move data bidirectionally between the planning solutions and core ERP.
- Best-of-breed xP&A vendors have more recently dominated the market. With their newer cloud-based solutions, ERP vendors are now able to rapidly release new functionality which has allowed them to rival best-of-breed vendors and provide a compelling argument to operate within the same vendor ecosystem.
- Use of artificial intelligence (AI) and machine learning (ML) as enabling technologies allows for predictive forecasting opportunities that improve the cadence at which forecasts are performed as well as their accuracy.

Obstacles

- xP&A is an approach to consolidating enterprise planning solutions that may not be a good substitute for all planning processes versus best-of-breed solutions.
- Business culture and data integration pose significant challenges for xP&A. xP&A requires a higher maturity of planning governance and processes that many organizations may not have.
- Today's xP&A solutions work best with ERP from the same vendor with varying degrees of seamless operation.
- Some organizations in a multi-ERP environment may want a third-party solution that is disconnected from a specific ERP, to meet the xP&A needs of several ERP instances.

User Recommendations

- Exploit xP&A capabilities within an ERP vendor's product portfolio where these could provide superior integration for data and user interface.

- Consider the ERP vendor's xP&A solution as part of the future roadmap — if an enterprise ERP strategy is to move to a cloud ERP solution in the future — despite already having an xP&A tool from another vendor.
- Favor a best-of-breed xP&A approach if you have a multivendor/multi-ERP environment, because you are likely to be unable to use the integration features found in a single core financials and FP&A approach.

Sample Vendors

Oracle; SAP; Workday

Gartner Recommended Reading

[Quick Answer: Differentiating xP&A From IBP When Aligning Enterprise Plans](#)

[Quick Answer: 5 Steps to Ensure Readiness for Integrating Financial and Sales Planning With xP&A](#)

[How Can Application Leaders Prepare for xP&A?](#)

[Future of Finance Extends FP&A to Include Operational Planning](#)

[Market Guide for Cloud Extended Planning and Analysis Solutions](#)

At the Peak

Composable ERP

Analysis By: Robert Anderson, Neha Ralhan

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Composable ERP is an adaptive technology strategy that supports the foundational administrative and operational digital capabilities that enable an enterprise to keep up with the pace of business change. It is not a single, off-the-shelf product; rather, it defines a strategic technology framework in which application and platform capabilities support dynamic and user-centric enterprise business capabilities via a networked solution.

Why This Is Important

ERP strategies are evolving from more than just loosely coupled applications into a mesh of ERP applications, platforms and non-ERP vendors. Composable ERP strategies fuel growth, flexibility and profitability while minimizing risks, costs and disruption of business operations. They enable CIOs to take a future-proof approach to ERP that can support changing business needs without compromising application stability.

Business Impact

The ability to deliver value is changing radically, due to the influx of new technologies, mindsets and practices. The main changes are:

- **Business outcomes** — A shift of focus away from “how” to invest to “why” to invest and what can be achieved.
- **Complexity** — It is a must to accept complexity and work toward managing ERP. Trying to address the challenge through a single-vendor approach may be a mistake.
- **Customer value creation** — How to understand and keep pace with customers’ demands.

Drivers

Organizations need to rapidly assess and create an ERP strategy that is capable of enabling composability. The key drivers for this journey are:

- **Application flexibility.** Organizations require ERP application strategies to be more flexible than the traditional monolithic application capabilities. They demand highly configurable business applications complemented by business technology platforms that enable them to compose, recompose and extend applications as business strategies change.
- **Hybrid integration.** In order to address changing business requirements, organizations seek hybrid integration approaches that more easily enable business value beyond the borders of monolithic ERP.
- **Faster achievement of business outcomes.** The days of five-year waterfall ERP implementations are over. Organizations are demanding more agile approaches to ERP implementation that can address the demands of a rapidly changing digital world, while minimizing risks, costs and disruption of business operations.

Obstacles

- Software vendors are still discovering the impacts and directions of this customer-led future state. Tactical roadblocks, such as licensing models and out-of-the-box integration capabilities, remain barriers to a more-open ecosystem. Many still treat composable ERP as a product story, rather than a strategic approach led by customers.
- Systems integrators (SIs) continue to grapple with how to position and align themselves in support of frameworks in which application and platform capabilities can be fused to deliver business value. Most continue to focus on vendor-led technology modernization, as opposed to a customer-driven, composable enterprise approach.
- Articulating business value hasn't always been a priority for IT initiatives. Therefore, the engagement between IT and the business to discuss an enterprise IT-enabled vision focused on delivering value is not a trivial exercise for most and is a notable barrier.

User Recommendations

- Ensure that business and IT work as a single unit to create a composable ERP strategy to ensure it delivers business value and creates possibilities for enabling agility for the longer run.

- Establish the scope of what ERP means — and should mean — for your organization by synchronizing capabilities with business values, plans, desired outcomes and experiences. Reimagine ERP to align it with the emerging generation of applications, architectures and technologies. Avoid the temptation to revert to an old, monolithic ERP mindset.
- Exploit the emerging technologies across all pace layers, based on your organization's growth, transformation or optimization goals.
- Invest in enabling technologies along the core ERP journey. AI, low-code/no-code, integration capabilities, master data management (MDM) and security discussions must all be part of a new composable ERP strategy.

Gartner Recommended Reading

[ERP Primer for 2023](#)

[Predicts 2023: In a Period of Global Upheaval, Will ERP Come to the Rescue?](#)

[Two-Tier ERP: A Useful, Composable ERP Strategy for Complex Organizations](#)

[2022 Strategic Roadmap for ERP](#)

[What CIOs Must Do to Avoid Disappointing ERP Initiatives](#)

Embedded AI in ERP

Analysis By: Tim Faith

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Gartner defines artificial intelligence (AI) as technologies that adapt behavior based on pattern analysis. This includes functions that do not depend on user input (i.e., the technologies learn on their own), and can produce unanticipated results. AI is increasingly embedded into enterprise application suites, with varying degrees of utility. This technology enables organizations to decide on actions proposed from the analysis of data and actions in ERP solutions and other data sources.

Why This Is Important

Organizations are just beginning to see the business benefits of embedded AI in ERP applications. However, advances in new AI technologies, such as large language models, generative AI and deep learning are drawing the attention of the general public. Application leaders observe that vendors are embedding these newer technologies into ERP applications, leading to intelligent decision making, self-mapping integrations and hyperautomated processes.

Business Impact

- AI embedded in ERP will bring systems that “teach” users their role in starting or continuing business processes.
- The ability for AI to write code allowing business users to fulfill complex business requirements for reports or business functions.
- Accelerated implementation and update cycles by automatically testing and identifying mismatches or anomalies.
- Self-mapping and self-correcting integrations.
- Automatic generation and correction of data and documents.

Drivers

- The current market disruption of generative AI, with ChatGPT as flagship, has drawn additional attention and increased pressure on applying AI in the ERP solution landscape.
- Enterprises are increasingly looking for technology that will allow their workers to do more efficient work with fewer resources, particularly as the workforce ages, and they face economic headwinds. Other market events are leading to reductions in the number of subject matter experts and, consequently, growing interest in automation technologies.
- Vendors have firmly established the basic capabilities of ERP application suites, and are now looking to AI technology to provide differentiation in product features, platform capabilities and competitive advantage. There will be increased embedding of AI into cloud applications, with mainstream adoption occurring during the next two to five years.
- In composable ERP strategies, AI-powered applications can disrupt traditional business operations. Examples include enterprise asset management paired with digital twins, the creation of organizational “personas,” continuous extended planning and analysis, and R&D for new business models and services. Other examples include self-correcting supply chains, autonomous integration platforms, and unbreakable data security and governance.

Obstacles

- The staggering rate of progress in AI will regularly introduce a new “flavor of the month” for AI, making it difficult for application leaders to know which technologies are actually relevant to their business.
- Generative AI is moving into the center of attention of the market. Vendors’ pre-established innovation roadmaps are being challenged by the current disruption, which could lead to a short period of confusion and delay of pre-established AI deliverables.
- Vendors often fail to explain what data their models are built on, and whether customers can expect their own data to inform the outcomes they pursue.
- AI used in the general public internet does not have the same secured data sources, role access and behavior, as will be expected in specific ERP AI applications. This could lead to difficulties in adoption and much disillusionment.

User Recommendations

- Investigate how your ERP vendor is embedding AI into application use cases, such as financial planning and management, supply chain control towers or staffing/scheduling, and whether those use cases align with your expected business outcomes.
- Assess ERP data as a foundation for AI deployment in the organization. Embark on journeys to implement data governance, data maturity models identity management, master data management (MDM), and the identification of sensitive or differentiating data elements.
- Engage with ERP vendors in user groups, product advisory boards, early adopter initiatives or product design groups (or any other applicable entity) to guide vendors to identify use cases to apply AI to solve problems industry-specific or particular organizational challenges. Ensure that there's enough diligence on the outcomes and the associated impacts — additional or reduction of costs should all be weighed in.

Sample Vendors

Epicor; Infor; Microsoft; NetSuite; Oracle; Priority Software; SAP; Workday

Gartner Recommended Reading

[Innovation Insight for Generative AI](#)

[Uncovering Artificial Intelligence Business Opportunities in Over 20 Industries and Business Domains](#)

[Build Your Own AI-Driven Use Cases in Finance](#)

[Case Study: Realizing Smart Operations Through Supply Chain Intelligence](#)

[Applying AI — A Framework for the Enterprise](#)

[Use-Case Prism: Artificial Intelligence for ERP for Product-Centric Enterprises](#)

Financial Planning and Analysis for ERP

Analysis By: Greg Leiter, David Penny

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Early mainstream

Definition:

Financial planning and analysis (FP&A) provides capabilities for budgeting, planning, modeling, forecasting, management reporting, strategy, costing and profitability. Historically, it has been available from third-party solutions as a preferred sourcing approach. We are now seeing cloud FP&A tools from ERP vendors that rival best-of-breed counterparts, offering deeper integration at the data and end-user layers. This provides for deeper drill-down and serves as a “lens” into ERP data.

Why This Is Important

The market for FP&A has recently been dominated by best-of-breed vendors with a cloud go-to market strategy. These solutions provide flexible capabilities that allow an enterprise to model any planning activity in their organization. Until recently, the best-of-breed vendors were well ahead of solutions from ERP suite vendors; however, that has changed since ERP suite vendors are able to innovate much faster with their own cloud-based applications.

Business Impact

ERP vendors have a strategy for finance to post financial and operational data into core finance modules on a real-time basis and consume that data for financial planning and forecasting. The ERP vendor FP&A offerings are tightly integrated with core financials which allow for drillback to transaction line items from the FP&A solution. This can improve cadence at which organizations plan and forecast their business while providing a mechanism for faster and more accurate financial analysis.

Drivers

- Migration to cloud-based ERP solutions is now accelerating as the overall market for cloud ERP has surpassed on-premises solutions. Customers are more likely to choose a “better together” approach with FP&A solutions from the same ERP vendor.
- Historically, ERP vendor FP&A solutions have lagged in functionality versus best-of-breed FP&A vendors. With their newer cloud-based solutions, ERP vendors are now able to rapidly release new functionality, which has allowed them to rival best-of-breed solutions.
- The recent pandemic exposed many enterprises’ lack of strong planning and forecasting processes and has led to a substantial investment in FP&A solutions.

Obstacles

- While the market for cloud ERP suites is growing, there are still substantial legacy on-premises ERP solutions where an ERP vendor’s cloud FP&A may not provide as substantial benefits as a best-of-breed FP&A vendor does.
- Many organizations are still using legacy FP&A solutions and/or spreadsheets to perform planning and forecasting processes, and may find the change management needed for migrating to a cloud FP&A solution daunting.
- Some organizations in a multiERP environment may want a third-party solution that is disconnected from a specific ERP, to meet the FP&A needs of several ERP instances.

User Recommendations

- Exploit FP&A capabilities within an ERP vendor’s product portfolio because these capabilities could provide superior integration for data and user interface.
- If an enterprise ERP strategy is to move to a cloud ERP solution in the future, consider the ERP vendor FP&A solution as part of the future roadmap, even if you already have an FP&A tool from another vendor.
- Favor a best-of-breed FP&A approach if you have a multivendor/multiERP environment, because you are likely to be unable to use the integration features found in a single ERP vendor FP&A approach.

Sample Vendors

Infor; Oracle; Sage Intacct; SAP; Workday

Agile Support for ERP

Analysis By: Denis Torii

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Adolescent

Definition:

Agile support for ERP focuses on delivering new business capabilities in a rapid and iterative fashion, after implementing core ERP applications. The use of agile enables faster improvements to ERP systems through internal development or the activation of new features provided by a vendor. Agile support is made up of small, dedicated product teams (from IT and the business) closely collaborating to ensure velocity and quality.

Why This Is Important

Agile support for ERP is past the Peak of Inflated Expectations. Many enterprises have deployed pockets of agile practice in their ERP support models, but realizing benefits is harder than they imagined. It is now time for organizations to take advantage of the lessons learned so far, to optimize their strategies and scale it up in the near future.

Business Impact

- Agile practices have been shown to produce better alignment of business requirements and IT delivery, improving time to value.
- Applying agile practices to support ERP applications enhances the ability to deliver business value within the cadence of vendor product updates.
- By focusing on the early testing and show-and-tell of working configurations and extensions in sprints, application leaders can quickly respond to ensure quality and value.

Drivers

- The pace at which cloud ERP application vendors deliver updates/enhancements stresses frequent cycles of evaluation, configuration, testing and adoption in shorter time periods.
- Businesses adopting cloud ERP applications are seeking enhanced capabilities and accelerated business value, as highlighted in their cloud adoption business cases.
- Organizations are leveraging automated testing options to execute as often as possible, based on vendors' release schedules or major integration changes to external systems.
- Product management techniques are crossing into packaged application support, requiring more focus on end-to-end business processes for delivering value.

Obstacles

- Current ERP support teams still focus less on value enhancement and more on "run-the-engine."
- Cutting costs intuitively leads organizations to use application management services (AMS) for ERP support more extensively. Alongside traditional sourcing models that haven't been adapted, it may be a big challenge to move into an agile delivery practice.
- ERP strategies that consider ERP applications only as systems of record for standardization may limit the investment on innovation, which is typically where agile tends to deliver more value.
- Growth in adoption is hampered by continuous difficulties finding skilled resources in the profiles required to enable agile teams to adopt these models.
- Agile teams may require a higher volume of individual skills, compared with more-traditional support models, especially when it is scaled throughout the entire functional footprint. As a consequence, in times when economic headwinds force cost optimization, scaling up such structures may be challenging.

User Recommendations

Application leaders focused on ERP must:

- Enhance collaboration with business partners by establishing fusion teams of business and IT talent aligned to deliver value in business processes.

- Develop versatile support staff and grow their agile competencies through coaching and mentoring from internal or external resources in agile practices.
- Ensure that a high-quality, compliant application is provided that identifies and mitigates risks quickly.
- Apply agile governance practices on an ongoing basis to support and monitor the product teams and align their efforts organizationwide.
- Start their journeys where there is more clearly defined business value and support from the business side to be more agile with the trade-off to shift mindsets. Starting small and delivering actual results is better than trying to move fast and deliver too little incremental outcomes.

Gartner Recommended Reading

[How to Model Your Cloud ERP Support Organization](#)

[The Collective Governance for Composable ERP Deployment](#)

[13 Ways Your Agile Adoption Will Fail](#)

[Quick Answer: How to Use Agile Product Delivery for ERP](#)

Enterprise Metadata Management

Analysis By: Guido De Simoni

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Definition:

Enterprise metadata management (EMM) is a business discipline for governing shared metadata assets (active and passive) between and across analytics and operational projects and programs, such as master data management (MDM), business intelligence (BI) and records management. The aim is to achieve the benefits of enterprise information management (EIM). EMM differs from project-specific metadata management, which manages metadata for specific uses within that single project.

Why This Is Important

The need to align semantics across data and analytics silos is driving demand for modern data management. Without metadata management, organizations struggle to identify data that delivers value and to manage new data sources.

Active metadata, a core part of data fabric, promises to expose metadata in more scalable ways. While patterns like data fabric may use all (active and passive) metadata to develop inference engines and insight, the most important metadata must still be stewarded by business roles. Without this link, “person and machine” can’t connect.

Business Impact

EMM can offer the following advantages:

- EMM enables coordinated efforts in data and analytics use cases of all kinds. As a result, it provides an immediate benefit to business teams by allowing them to search, request and reuse governed metadata across siloed projects for their self-service use.
- EMM extends the benefits of individual programs — such as those for analytics, MDM, data quality, data integration, business process management and service-oriented architecture — by supporting reconciled semantics in and across the information sources they use.

Drivers

- Most organizations manage metadata within individual initiatives — that is, within the confines and needs of each data and analytics program, business initiative or system. For example, an MDM program, a BI initiative and a data warehouse implementation will include a specific metadata management focus. EMM supports the discipline of aligning and governing shared and common metadata among all such programs.
- Technological innovations, such as active metadata management and data fabric, are generating significant hype. This hype is sparking new interest in linking information silos to discover data relationships. These innovations enable faster governance of information assets across multiple information management investments, which, in turn, creates fresh demand for EMM and EMM-enabled processes.

Obstacles

- Poorly planned EMM makes it prohibitively costly to implement technologies that can manage the enterprisewide variety, volume, velocity and complexity of metadata about vital information assets.
- EMM is often poorly planned because organizations assume EMM is a wall-to-wall program, which it is not meant to be. As with other informed and modern EIM efforts, not all metadata is equal. Failure to adopt this view leads to bloated and costly programs that don't add business value.
- Hype about automated technologies powering data fabric with active metadata will appeal to those clients who assume that acquisition of technology solves the problem for which EMM is needed. This mindset will just slow down the success and adoption of EMM.
- As a result of the previous obstacles, EMM is past the Peak of Inflated Expectations, but most organizations' adoption remains at an early phase. Concurrently, various technology innovations, while trying to fill EMM gaps, are disrupting the discipline's maturation. Thus, EMM movement is not noticeable on the Hype Cycle.

User Recommendations

- Explore EMM when you have common corporate goals yet disparate information management programs (each with its own metadata) that are neither aligned nor sharing consistent information.
- Use EMM to govern the most important metadata and information assets between these discrete programs. EMM is valuable when your organization needs to incorporate its information management programs into a more mature EIM framework.
- Grow the "connections" between the programs and datasets as needed, over time, if your goal is to align information across these metadata elements and use EMM to govern the shared metadata.
- Adopt an EMM strategy to improve the situation by drawing on other planned initiatives, which may involve the participation of individuals from different organizational units.
- Account for people and process issues, as well as technological issues and choices, to create and sustain an EMM program.

Gartner Recommended Reading

[Leverage Semantics to Drive Business Value From Data](#)

[Data and Analytics Essentials: Metadata Management](#)

Sliding into the Trough

Conversational UI in ERP

Analysis By: Dixie John

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

The conversational user interface (CUI) is redefining human interaction with devices and applications. Natural language processing (NLP), speech recognition, virtual assistants and chatbots powered by artificial intelligence (AI) are advancing the adoption of this emerging technology. This profile addresses the use of CUI in ERP applications.

Why This Is Important

The CUI is a design model in which end users and machines interact in the users' spoken or natural written languages. Sophistication can vary from simple commands to complex interactions. CUI solutions such as chatbots, virtual agents and other conversational UIs are quickly becoming the face of AI. ERP users increasingly have an expectation to hold conversations and interact in natural language, versus the former instructional graphical UI (GUI) approach to interaction.

Business Impact

As AI-enabled products and services experience increasing adoption, the CUI, which acts as an interface to the AI, will also accelerate in product capabilities. Future advances in conversational AI and NLP will use deep neural networks and machine learning (ML):

- To improve user satisfaction and productivity
- For training, onboarding, escalations, productivity and empowerment; responsibility will also experience this new way of interacting
- To drive organizational change

Drivers

- CUIs, chatbots and virtual assistants in ERP applications will become a significant part of conversational UI portfolios.
- Some use cases will adopt CUI as the front end to business processes and applications or as an interface employed by chatbots and advanced virtual agents. For instance, adoption use cases on the shop floor saw an overlaying of digital content (e.g., the digital twin of a factory) with physical things in a production setup. In this setup, employees can execute physical tasks, such as product scheduling and managing robots for logistics, as well as provide floor work guidance from a virtual environment.
- CUI use cases will be popular for organizations with high-touch, communicative fields of customer service and high-volume, Q&A-type interactions. CUI use cases will also be driven by opportunities to support cost containment, remote work, business continuity (BC) and training initiatives.
- CUI will be attractive as it helps to reduce dependence on user-specific transactional knowledge. CUI will enable interactions with ERP applications more intuitively. The technical capabilities take over the responsibility to determine the user's intention.
- CUI is evolving through advances in natural language understanding (NLU) and NLP in more-advanced dialogue management. It is the evolution from existing technologies (e.g., voice warehouse picking), and from scripted preset instructions, to self-learning, natural language interactions.
- There is a desire for multimodal or mixed reality interactions. This is where speech, text, video and/or point-and-click are used to determine intention or aid the user in achieving a specific objective.

Obstacles

- Challenges remain for conversational UIs in languages other than English.
- Companies may have several ERP applications with different vendors, requiring investment in multiple conversational UIs, rather than just one, or they could limit usage of CUI to a specific vendor.
- Some CUI projects cannot scale beyond the pilot phase, due to lack of commitment and technology investment from the enterprise. Defining business value from the onset is important to encourage future commitment.

- To support an audit trail for sensitive transactions, conversations need a means to be stored and be translatable. Most enterprises do not have enough data, sophistication in transcription capabilities, or conversations in their databases or systems to identify a trend.
- Many conversational UI bots follow scripts with binary decision patterns, leaving users frustrated during the pilot trial.

User Recommendations

- Treat CUI as transformative and continue to track its progression. Adopt it as maturity of the product matches with your organizational business use cases.
- Track the ERP vendor roadmap to understand when the capability may be ready for mainstream adoption enterprisewide.
- Investigate ERP CUI security capabilities to test whether they are in line with enterprise security compliance from the perspective of administering users, role access and handling back-end integrations.
- Evaluate whether additional costs are necessary to enable this UI (e.g., additional licensing, new hardware, data management of conversations and higher bandwidth) and define where to initially deploy conversational UI, based on a cost-benefit analysis.
- Assess how the ERP software vendors are thinking in terms of the business value of conversational AI and advanced virtual assistants. Begin to anticipate and quantify the enterprise value stories.

Sample Vendors

Microsoft; Infor; Oracle; SAP; Workday

Gartner Recommended Reading

[Emerging Tech Impact Radar: Conversational Artificial Intelligence](#)

[Emerging Tech Roundup: ChatGPT Hype Fuels Urgency for Advancing Conversational AI and Generative AI](#)

[Accelerate Digital Transformation With an API-Centric \(Headless\) Architecture for Enterprise Applications](#)

Quick Answer: What Are the 5 Essential Attributes of an Emerging Metaverse in Manufacturing?

Data Hub Strategy

Analysis By: Andrew White, Thornton Craig

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

A data hub strategy effectively determines where, when and how data needs to be mediated, governed and shared in an enterprise. It layers data and analytics governance requirements atop sharing demands to establish the patterns for data flow. The strategy drives the implementation of one or more data hubs — architectures that enable data sharing and access by connecting data producers (applications, processes and teams) with data consumers (other applications, processes and teams).

Why This Is Important

Digital business cannot scale by continuing to piecemeal all the programs and practices that have evolved in the last 10 years. A connected, aligned approach is needed. A data hub strategy provides that connected approach to streamline and simplify how all programs related to D&A governance operate: data quality, MDM, ADM, metadata management, data catalogs and so on. You end up getting more from less effort and investment.

Business Impact

- Increased operational efficiency by aligning and integrating previously siloed governance programs such as data quality, MDM, ADM, metadata management, data catalogs and so on.
- Increased return on all D&A investments through more effective and targeted efforts on implementing governance of D&A information assets such as data, analytics, models, etc.
- Reduced complexity and cost across overall information infrastructure and data fabric or mesh.

Drivers

- Demands for seamless data flow across teams, processes and systems in the enterprise, which have increased dramatically in complexity and mission-criticality.
- New demands for consistent and reliable sharing of critical data between the organizations and things that comprise the extended enterprise — for example, in support of Internet of Things (IoT) solutions and new digital products.
- Better collaboration across business-oriented (governance) and IT-centric (integration) roles concerned with delivering data to points of need across the enterprise.
- Longtime and continued frustration of business stakeholders over the lack of consistency and trust of data driving strategic business outcomes — a data hub strategy enables more-focused application of governance controls, as compared with trying to align governance approaches inside many endpoint systems.
- Emerging data fabric design patterns that both need and leverage trusted sources of data and can inform what data should be governed more importantly.
- Growing need for a flexible and governable architecture that complements centralized data stores such as data lakes and data warehouses.
- Desire of many organizations to leverage the concepts and successes of MDM programs toward governance and sharing of other types of critical data. Includes coupling MDM and ADM across the enterprise.

Obstacles

- Inability to modernize D&A governance programs and shift away from legacy domain and data-centric or IT focused efforts to an outcome-based program.
- Resistance from teams or business units that prefer to retain control over their choices regarding how data is shared and governed.
- Inability to enable collaboration and agreement of critical stakeholders on data sharing and governance requirements across boundaries in the enterprise.
- Overreliance on technology and viewing governance and sharing of data as purely an implementation issue.

User Recommendations

- Identify the data that is most frequently used or is most important with most business value, and that requires effective governance and sharing. This might be a lean MDM or ADM/ERP program.
- Design a data hub strategy to understand data and analytics governance and sharing requirements, and to drive integration efforts across multiple use cases.
- Include any master data, application data, reference data, analytics data hubs or other intermediaries (e.g., customer data platforms) in your overall data hub strategy.
- Iterate changes to your data hub strategy as requirements for governance, sharing and integration change.

Sample Vendors

IBM; Informatica; MarkLogic; Profisee

Gartner Recommended Reading

[Data and Analytics Essentials: Data Hubs](#)

[Data Sharing Is a Business Necessity to Accelerate Digital Business](#)

[Use a Data Hub Strategy to Meet Your Data and Analytics Governance and Sharing Requirements](#)

[Data Hubs: Understanding the Types, Characteristics and Use Cases](#)

[Data Hubs, Data Lakes and Data Warehouses: How They Are Different and Why They Are Better Together](#)

Prescriptive Analytics

Analysis By: Robert Anderson

Benefit Rating: High

Market Penetration: More than 50% of target audience

Maturity: Early mainstream

Definition:

Prescriptive analytics is a set of capabilities that specify a preferred course of action and, at times, take automated actions to meet a predefined objective. The most common types of prescriptive analytics are optimization methods, a combination of predictive analytics and rules, heuristics, and decision analysis methods. Prescriptive analytics differs from descriptive, diagnostic and predictive analytics in that the technology explores multiple outcomes and provides a recommended action.

Why This Is Important

Prescriptive analytics is critical to making data-driven, fact-based decisions. It generates recommendations using statistical and mathematical techniques that consider ERP data, constraints and conditions. Through prescriptive analytics, an organization can develop strategies to meet its objectives by balancing trade-offs among conflicting goals that include suggested next best actions in ERP-related capabilities related to accounts receivable collections, HR staffing and shop floor scheduling.

Business Impact

Prescriptive techniques support:

- Strategic, tactical and operational decisions to forecast, reduce risk, maximize profits, minimize costs or more efficiently allocate scarce or competing resources.
- Recommendations for a course of action that best manages the trade-offs among conflicting constraints and goals.
- Simulation of multiple scenarios, patterns and comparison of recommended courses of action.
- Strategic and tactical time horizons, as well as real-time or near-real-time decision making.

Drivers

- Maturing and expanding data science initiatives, easier-to-use tools, better algorithms, more cost-effective, cloud-based computing power and a substantial increase in available data.
- Improvement in analytics solutions, data quality, skills and broader use of predictive analytics.
- The post-COVID-19 reset, with a focus on optimization and other advanced techniques with an emphasis on prioritizing actionable, proactive insight — as opposed to the more traditional reactive reporting.
- Generative AI, such as ChatGPT, is gaining substantial market momentum and provides an additional avenue of growth for prescriptive analytics via the enablement of intelligible natural communications, such as images or verbiage, when interacting with prescribed or recommended courses of action.

Obstacles

- Availability of quality data across multiple systems that can be brought together to produce more meaningful insights.
- Lack of expertise in how and where to apply prescriptive techniques.
- Lack of formal operationalization methods and best practices.
- Lack of analytics maturity is hindering the adoption of prescriptive analytics. Many organizations have still not moved beyond asking: “What has happened?” They lack a forward-looking view focused on “What might happen?” and “What can we do about it?”
- Even established use cases can fall victim to common data science challenges such as data quality, bias and talent shortages.
- Although it is one of the necessary competencies, prescriptive analytics does not automatically result in better decision making. Process change is also required to incorporate new analytics approaches.

User Recommendations

- Identify a business problem where there are complicated trade-offs to be made, multiple considerations, constraints and objectives.
- Consolidate, cleanse and enrich data by building relations with external data sources.
- Identify successful examples of where prescriptive analytics is being used today and look to expand/extend those initiatives.
- Analyze your ERP application capabilities and roadmap to determine if they are already offering or plan to offer prescriptive analytics solutions meeting identified business problems. Understand the broader implications of adopting such capabilities, for example, from a licensing perspective.
- Gain buy-in and willingness from stakeholders that will rely on analytics recommendations.
- Pilot applications introducing prescriptive analytics running in parallel with existing production systems to test and refine the efficacy of recommended actions.

Sample Vendors

Microsoft; Oracle; SAP; Workday

Gartner Recommended Reading

[Use-Case Prism: Artificial Intelligence for ERP for Product-Centric Enterprises](#)

[2022 Strategic Roadmap for HCM Technology Investments](#)

[Use Advanced Analytics to Make Better Procurement Decisions](#)

[Combine Predictive and Prescriptive Analytics for Better Decision Making](#)

[When to Automate or Augment Decision Making](#)

Information Architecture

Analysis By: Kevin Gabbard, Andrew White

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Information architecture (IA) is the discipline that formalizes the capabilities needed to analyze and organize the data needed to deliver business value. IA employs design patterns and increasingly active metadata to design emergent state architecture and provide guidance for sharing data assets.

Why This Is Important

Mastery of information architecture practices can define business models and alter an enterprise's competitive landscape. Consistent delivery of business insight requires information capabilities for observation, pattern identification and data sharing. Information architectures must reconcile intentional, as-designed architecture with emergent metadata-driven architecture to enable or drive business value.

Business Impact

CDAOs should be looking to information architecture for:

- Creation of information-centric business models: Monetization of information services and products.
- Strategic decision making: Visibility across the enterprise to make important decisions, which requires investments in common data models and governance.
- Enabling innovation: Access to and use of data are invaluable for enterprises that want to explore data, capture insights and pursue growth opportunities.

Drivers

- Developing a coherent viewpoint across a large number of information silos addresses enterprisewide coordination challenges.
- Active metadata and data fabric design patterns are dramatically changing the economics and work of IA by discovering and exposing established implied taxonomies, useful information assets and as yet unimagined (re)use cases.
- IA practices support the continuous analysis of requirements and enable significant assessment for the evolution of data and analytics (D&A) capabilities maps.

Obstacles

- Although best practices like employing traditional IA design patterns, implementing master data management and delivering common reference artifacts (like information flows) are known, they require long-term commitments to program building, which slows adoption.
- CDAOs and other D&A leaders have not taken accountability for IA, and it is falling into the cracks between traditional IT/CIOs, best-of-breed enterprise architecture (EA) and D&A.
- Successful IA discipline requires the coordination of diverse business and technical domains that may not initially have a consensus view on the strategic importance of information.
- The penetration has remained low because traditional future-state architecture modeling techniques are incapable of accounting for the fast-paced business dynamics surrounding data use.
- Active metadata is underutilized in developing IA. Without active metadata practices, IA will not achieve practical enterprise-scale adoption.

User Recommendations

- Focus as much on reconciling metadata silos as reconciling data silos.
- Dive deep into active metadata and data fabric design patterns. It is the key to developing agile IA practices.
- Clarify what impact information has on the organization's critical business imperatives and set IA requirements. Successful implementation of information-centric initiatives requires collaboration between D&A, IT and EA, including use of business capability models to target investments, build roadmaps, communicate change and deliver projects.
- Use metadata to interpret data user behaviors and anticipate needed solutions.
- Develop data-asset-focused objectives and key results and track progress using quantifiable business key performance indicators (KPIs).
- Explore information-focused business transformation.
- Pilot data monetization efforts.
- Identify potential new information-driven business models.

Gartner Recommended Reading

[Tool: Information Architect Hiring Guide](#)

[Quick Answer: What Is Active Metadata?](#)

[5 Things a D&A Architecture Discipline Does for a CDAO](#)

[Assessing the Relevance of Data Virtualization in Modern Data Architectures](#)

Cloud ERP for Global Enterprises

Analysis By: Dixie John

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Cloud ERP for global enterprises is defined as the adoption of SaaS ERP suites by companies that operate across multiple regions with annual revenue above \$5 billion. These companies usually search for an ERP suite to operate globally with little latency and provide localization features. The solution must also offer access to a flexible application platform that will enable last-mile extensions to cover different geographical and local business execution priorities.

Why This Is Important

Interest in cloud ERP for global enterprises varies across different business domains. For example, most organizations are highly interested in cloud human capital management (HCM) adoption, while only a few are pursuing cloud ERP adoption for complex manufacturing or more individualized environments. Cloud ERP still represents an opportunity to adopt modern technology with lower initial investments. It persists as a component of strategic assessments as aging legacy applications reach their end of life.

Business Impact

As enterprises commit to a global culture of change, some capabilities in their portfolio shift to standard, enabling the creation of a leaner core ERP. There is a paradigm shift between vendor and customer, where in exchange for rents of the software, the customers get a continuous stream of improvements and ability to gain value quicker from innovation. Vendors have increased investment in AI, machine learning, UX customization and regional data center expansion to support global enterprises.

Drivers

- Lower cost of implementation, faster time to benefit, technological and business scalability, reduced cost of upgrades and lower capital expenditure, when best practices are followed.
- Global enterprises that are able to adopt cloud ERP through a standard set of application capabilities may benefit from quicker global rollout (compared with the traditional on-premises model) and advantages that come with advancement in localization offerings.
- Enterprises seeking to enable a tiered ERP approach may find that cloud ERP is an option that will minimize the need to set up a fully fledged support team for different applications. This will reduce the overall complexity and costs of application and infrastructure management.
- The standardized nature of the cloud approach provides a fit-to-standard approach in particular for system-of-record capabilities.
- Given the divergence of use cases for cloud and on-premises solutions (for example, SaaS for finance, with on-premises for manufacturing), cloud ERP solutions are considered to deliver a two-tier ERP strategy.
- If proper adjustments are made to the governance, support, business integration model and application platform integration (aPaaS), enterprises may benefit from the continuous improvement of the cloud ERP-scoped capabilities as a basis to deliver other unique solutions.

Obstacles

- Global enterprises need to build adequate support models for the adoption of new ERP features while enforcing global standards. This usually requires more sophisticated governance and additional investments in highly skilled personnel, automated testing and/or engagement with application managed services.
- Government policies and regulatory compliances create additional constraints on data residency, protection and sovereignty status where ERP vendors do not have access or qualify to operate. Additionally, mature localized cloud ERP offerings are not available in all countries, which leads to a slower adoption rate in certain regions.
- Lack of dependable telecom infrastructure is still a strong inhibitor in certain geographies.
- Many customers are still averse to lack of control over forced maintenance and updates from cloud ERP providers, which may arise during critical business moments.

User Recommendations

- Evaluate the adoption of cloud ERP as a strategic move to enable innovation and modernization of business operations, rather than upgrading or replacing legacy systems. For instance, deliver via cloud ERP a central supply chain control tower connected to legacy manufacturing instances.
- Examine potential issues that may arise from technological and legal constraints in certain regions (including internet access and reliability, and rules about data residency). Evaluate the architectural capabilities to overcome those challenges.
- When selecting global ERP, ensure the vendor is responsible for keeping the ERP compliant with local regulations as part of the release management procedures. Plan for the fact that ERP vendors do not guarantee the fulfillment of future release roadmaps.
- Evaluate whether a two-tier ERP strategy is the best fit to promote regional or particular business operation coverage, as opposed to a single solution that may be too complex to deploy globally.

Sample Vendors

Infor; Microsoft; Oracle; SAP; Workday

Gartner Recommended Reading

[Two-Tier ERP: A Useful, Composable ERP Strategy for Complex Organizations](#)

[2022 Strategic Roadmap for ERP](#)

[6 Steps to Choose the Best-Fit Cloud ERP Solution for Your Organization](#)

[Magic Quadrant for Cloud ERP for Product-Centric Enterprises](#)

[Magic Quadrant for Cloud ERP for Service-Centric Enterprises](#)

Cloud ERP for Manufacturing

Analysis By: Greg Leiter

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Cloud ERP for manufacturing comprises SaaS suites aimed at product-centric enterprises. This covers a wide range of enterprise processes from supply chain planning, procurement of product inputs, production control, warehousing, distribution, transportation logistics, customer order intake and invoicing, vendor invoice management and all elements of financial transaction processing and reporting.

Why This Is Important

Cloud ERP solutions for manufacturing are rapidly evolving with capabilities that match or exceed prior on-premises versions. However, specific industry depth and the overall change management is hampering a full cloud transition. Incumbent customized functionality in existing ERP environments creates additional challenges to that transition. As a result, the adoption of cloud ERP for product-centric enterprises is lagging service-centric enterprises.

Business Impact

- The potential advantages of cloud ERP include lower cost of implementation, faster time to benefits realization, continuous innovation and reduced capital cost.
- Increased business value is achievable, but total cost of operating SaaS cloud ERP solutions are not always lower, versus on-premises deployments.
- Cloud ERP captures the benefits of standardized processes, modern user experience, superior analytics and financial transparency — which are common concerns for profit-oriented companies.

Drivers

- Cloud ERP vendors are evolving in their ability to provide functionality adequate for certain manufacturing segments and industry verticals.
- Industry cloud platforms are starting to show up as alternatives to improving cloud ERP's ability to fulfill last-mile business needs for certain industries in the manufacturing space.
- Cloud ERP suites with integration capabilities appropriate for individual organizations' needs will help ensure the cloud ERP suite supports any ancillary application — either on-premises or cloud-based.
- Technology infrastructure can now be deployed in order to provide the speed needed for manufacturing microtransactions, particularly those in remote locations.

Obstacles

- Supporting complex manufacturing companies' requirements is still beyond the capabilities of most cloud ERP vendors, where customization is available only through extensions on the vendors' platforms.
- The change management required to migrate to a cloud product-centric ERP is significant, particularly for those enterprises with multiple plant locations. For those enterprises that are migrating from a highly customized application landscape, the ability to develop extensions may require new technical skills for development and quality control.
- Sensitive data security and the potential for system latencies issues with multiple manufacturing facilities may act as barriers to adoption.

User Recommendations

- Evaluate cloud ERP manufacturing offerings as part of the organization's broad ERP strategies. For global and complex environments, consider a tiered ERP strategy as a possibility to enable a more flexible landscape.
- Engage business stakeholders in the ERP application selection process to enable a good functional fit and standardization mindset that will persist throughout the entire life cycle of this application.
- Create proper governance mechanisms to avoid a proliferation of extensions to the application that will erode its overall delivered value.
- Evaluate the use of platform capabilities, including industry clouds associated with your industry and vendor approach, for configurability and less-disruptive extension of the suite provided by the vendor.

Sample Vendors

Epicor; IFS; Infor; Microsoft; Oracle; Plex; QAD; SAP

Gartner Recommended Reading

[Magic Quadrant for Cloud ERP for Product-Centric Enterprises](#)

[Critical Capabilities for Cloud ERP for Product-Centric Enterprises](#)

[Renovate or Replace: How to Decide Which Is Best for Your ERP](#)

[Two-Tier ERP: A Useful, Composable ERP Strategy for Complex Organizations](#)

Hybrid Integration for ERP

Analysis By: Tim Faith

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

Hybrid integration for enterprise resource planning applications is a framework of on-premises and cloud-based integration tools and governance methods supporting business-driven use cases. It enables integration specialists and business technologists to fulfill diverse integration requirements. It includes (but is not limited to) event-driven/API-enabled integration of applications, services and data; metadata glossaries; harmonized security architecture; and connectors to external endpoints.

Why This Is Important

- A hybrid integration framework allows users to focus on meeting business outcomes rather than the limits of vendor-led proprietary technology.
- This framework encourages the evolution of integration methods, from file-based or batch-based transfers to real-time event-driven architecture or synchronous API-based exchange of data.
- Application strategy requires a comprehensive integration strategy flexible enough to manage integration as the application architecture, technology and data models advance.

Business Impact

Impacts include:

- Hybrid integration frameworks enable businesses undergoing multiple enterprise application changes to manage the disruption to other parts of the business not affected by change applications.
- New personas within the business will emerge, specifically those who can work within hybrid integration frameworks and can deliver integration and prove value at a faster pace.
- A framework of hybrid integration will allow IT organizations to replace or augment integrations as required to fulfill specific business requirements.

Drivers

- More enterprises are taking “step-by-step” strategies for application replacement, resulting in a mix of SaaS, cloud-hosted and on-premises applications. As part of that gradual journey, they need to be ready to address all forms of integration between their own systems and external systems.
- The constant change in applications brought about by customization, upgrades or SaaS updates disrupts integrations, thus likely to disrupt the business. This is a significant complication for application leaders, particularly in composable frameworks. Enterprises are looking for all available tools to manage the pace of change while delivering harmonized, standardized and data-enhanced business processes.
- Integration platforms enable replacing components of the ERP suite without having to adopt an “all or nothing” replacement strategy. This provides more flexibility while maintaining data, process and security integrity.
- Establishing a set of connecting technology and governance policies can provide the enterprise with the necessary data management, security, development and integration visibility.
- Enterprises encounter the difficulty of the “all or nothing” nature of point-to-point integration, particularly in merger and acquisition scenarios or when adopting SaaS to support new service models. They seek flexibility to provision, merge, decompose or retire applications with less disruption to the greater business user community.
- “Business technologists” are rising in importance in businesses, using the platform tools to create or activate simple integration connectors, thus delivering value faster and alleviating heavy loads on integration developers.

Obstacles

- Most vendors offering cloud-based applications are now embedding integration capabilities as part of the SaaS. However, many of these integration capabilities are built for point-to-point scenarios. It might not be an optimal approach from a broader and overarching integration strategy standpoint.
- If organizations with multiple SaaS providers focus on tactical, short-term benefits derived from SaaS-embedded capabilities, they risk technical and governance challenges from multiple moving pieces.
- Traditional approaches to integration are inadequate to support composable ERP and digital businesses that increasingly leverage APIs and event-driven architecture, particularly when technology proprietary to a particular vendor is in place.
- Collectively combining integration platform as a service (iPaaS), traditional integration extract-transform-load (ETL) software, API management and other capabilities is not yet as widely adopted as each of these technologies individually.

User Recommendations

- Determine your organization's ERP integration intended outcomes based on business value, evaluating speed, volume of data, validation requirements, security and the technical skills needed for each scenario. Then, deploy a hybrid integration capability framework to support the dynamic nature of your applications.
- Acquire the necessary integration components from only as many and as few vendors as necessary to fulfill the use cases. Some of the components you need are already part of your portfolio, or your incumbent integration vendors already provide them. Replace components that no longer apply.
- Do not assume that ERP vendor-provided integration tools will meet all integration, data management, security or automation needs. Evaluate the cloud integration platforms and options in the market, and utilize all applicable toolsets in accordance with your integration strategy.

Sample Vendors

Boomi; Informatica; Jitterbit; MuleSoft; Oracle; SnapLogic; Workato; SAP

Gartner Recommended Reading

[Choosing Application Integration Platform Technology](#)

[Choose the Best Integration Tool for Your Needs Based on the Three Basic Patterns of Integration](#)

[Solution Path for Modernizing Integration Platforms, Architecture and Delivery](#)

[How to Successfully Implement API-First Integration](#)

[Quick Answer: What Are the Most Common Integration Scenarios Between Procure-to-Pay and ERP Systems?](#)

Business Capability Modeling

Analysis By: Saul Brand, Marcus Blosch

Benefit Rating: High

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Definition:

Business capability modeling (BCM) is a technique that represents the ways in which enterprises combine resources, competencies, information, technology, processes and their environments to create unique competitive possibilities and deliver value to customers or citizens.

Why This Is Important

Business capabilities form the linchpin that connects business and operating models. BCM is a technique that business and IT leaders can use to organize and visualize which resources can be combined to execute and operationalize business strategy. BCM can be used to flesh out and operationalize an organization's business strategy, communicate that strategy, and demonstrate how people, processes, information and technology resources need to change to achieve desired business outcomes.

Business Impact

- BCM has the most impact when used to design and deliver business and operating models, identify and assess technology assets, find value creation opportunities, and make future business investment and/or change decisions.
- BCM can be used to help draw up a compelling, high-level list of capabilities and business trade-offs that will be immediately understood by business and IT leaders.
- BCM helps decision makers to avoid getting bogged down in political, organizational and technical quagmires.

Drivers

- Use of BCM is high, but the level of new interest in BCM as an essential business architecture activity and essential deliverable has diminished. Between April 2022 and April 2023, Gartner saw that BCM-related client inquiries declined 39% from those between April 2021 and April 2022. This marks a turning point. Over the past decade after BCM became mainstream we saw year-over-year increases in this kind of inquiry. But the growth slowed down over the past four years.
- BCM can bring high benefits because it enables business and IT leaders to engage in business strategy and execution planning, and to understand the impact of their decisions on business, operating, finance, service and information models and the underlying technologies that support them.
- Enterprise and business architects — and IT teams in general — are looking for tools and techniques, such as BCM, that can help them strategically engage with their business counterparts to drive value.
- As organizations progress further with their digital transformation and optimization initiatives, they tend to use BCM to create an anchor model to inform, operationalize and improve customer and employee experiences. This can be accomplished by combining BCM with other key business architecture deliverables such as value streams, customer and employee journey maps, and business process maps.

Obstacles

- Despite widespread interest in and use of BCM, many organizations fail to fully construct and ratify an enterprise BCM initiative. Also, many BCM initiatives fail because their developers fail to construct a value proposition, conduct roadshows, and get a mandate from business leaders.
- Although business executives mostly understand the value of business capability models, many fail to fully grasp the link between business capabilities and underlying IT assets.
- BCM initiatives often go awry because those undertaking them confuse business capabilities with technical capabilities or business processes, or start with generic reference models.
- BCM is best used in a top-down fashion. Agile teams sometimes construct and use business capability models from the bottom up, which only reflects the current state and limits the effectiveness. The bottom-up approach leads to a product/application perspective, which covers only a small part of the bigger enterprise operating model.

User Recommendations

- Engage and influence business leaders, product managers and product owners by discussing the benefits of business capability models — as part of business architecture — as early as possible.
- Maximize the value of BCM by basing it on the evolving business strategy and your organization's future business model.
- Use BCM to represent the intersection between business and operating models and as a platform for creating other diagnostic and action-oriented deliverables. More detailed business capability models can be used to illustrate specific decisions from information, business, solutions and technology architecture viewpoints.
- Combine business capability models with other key business architecture deliverables to identify opportunities, guide strategy, improve customer and employee experiences, and design composable applications and a composable enterprise.

Sample Vendors

Ardoq; Avolution; Bizzdesign; BOC Group; Capsifi; LeanIX; MEGA International; Orbus Software; QualiWare; Software AG

Gartner Recommended Reading

[Tool: Building a World Class Business Capability](#)

[8 Best Practices for Creating High-Impact Business Capability Models](#)

[Toolkit: Workshop for Constructing an Initial Business Capability Model](#)

[Ignition Guide to Creating a Business Capability Model](#)

[Case Study: Interconnected Business Capability Mapping \(Medtronic\)](#)

Digital Twin

Analysis By: Alfonso Velosa, Marc Halpern, Scot Kim

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Adolescent

Definition:

A digital twin is a software-enabled proxy that mirrors the state of a thing, such as an asset, person, organization or process to meet business outcomes. There are three types of digital twins: discrete, composite and organizational. Digital twin elements include a model, data, a one-to-one association and monitorability. Digital twins are built into a range of software: analytics, 3D models, CRM and IoT. Data on the state of the thing must be sourced via telemetry or application state changes.

Why This Is Important

Enterprises are using digital twins to create virtual representations of previously opaque or time-lagged things. Digital twins can help meet business outcomes such as process optimization, improved visibility or new business models. Specific examples include improving supply chain decisions via better supply and demand visibility, and reducing downtime by monitoring equipment state. Tech providers are increasing value by building domain-specific templates and integration to data sources.

Business Impact

Enterprises are implementing digital twins to:

- Gain visibility into things such as equipment or customer state that enable people to make better maintenance or marketing decisions.
- Assess, simulate and reduce the complexities of designing and developing innovative products and new service models.
- Improve patient outcomes, employee safety and customer transactions by using digital twins of people.
- Drive new data monetization models and contribute to product-as-a-service business approaches.

Drivers

- Enterprises are accelerating their adoption of digital twins to support a broad variety of business outcomes. These business outcomes include reducing the cost structure through improved monitoring of assets and optimizing equipment and processes by aligning asset digital twins into a range of solutions, such as predictive analytics and field service management. They also include product differentiation by engaging consumers and controlling assets, and integrating data silos into one central visualization.
- Asset-intensive sectors — for example, oil and gas, transportation, manufacturing and buildings — are leading in using digital twins to optimize business processes such as product development, supply chain and operations.
- Leading OEMs are exploring how digital twins can help add long-term annuity streams to their regular revenue.
- Leading-edge enterprises are implementing digital twins to model book-to-bill status, foreign exchange risk and supply chain processes. They do so to optimize costs and improve processes.
- Technology providers — from large cloud vendors to startups — are identifying potential ways to serve and charge customers using digital-twin-enabling product portfolios. In particular, they are developing template libraries to demonstrate domain knowledge and to shorten time to value for enterprise customers.
- Standards organizations such as IEEE, Eclipse, ITU and consortia (including the Digital Twin Consortium) contribute to establishing digital twin standards, architectures, ontologies and improving visibility.

Obstacles

- Few enterprises understand what they are trying to achieve, let alone the metrics for digital-twin-based projects. This lack of vision limits project scope and investment into new business processes that can take advantage of digital twins.
- Few enterprises have the cross-functional fusion teams — across business, finance, operations and IT — that are required to achieve business outcomes powered by digital twins.
- Digital twins present a technical challenge for most enterprises due to the blend of operational and information technologies required to develop and maintain them.
- Pricing remains an art, and most vendors focus on their technology differentiation, even though customer organizations are looking for business value outcomes when purchasing digital twin offerings.
- Standards bodies remain emergent. Most vendors use proprietary formats. There is a lack of standards for a broad range of digital twin technical areas such as data source and model integration and metadata management.

User Recommendations

- Co-create the digital twin strategy with the enterprise business unit to identify opportunities and challenges and establish clear success metrics. Further, the business must select sponsors and super users, create a budget and build a roadmap that starts small and scales up.
- Avoid digital twin projects that lack a business sponsor as this is key to success. Lack of internal sponsorship will waste IT resources.
- Identify IT organization technology, governance and skills gaps and build a plan to resolve them.
- Protect intellectual property by working with procurement to ensure that digital twin data and custom models belong to the enterprise.
- Develop an architectural, security and governance framework to manage large numbers of discrete digital twins, as well as composite and organizational digital twins.
- Select vendors not just for their technology portfolio, but more importantly, for the intellectual property (IP) they have in your vertical market. The IP should be demonstrated in libraries of prebuilt digital twin precursor models.

Sample Vendors

Akselos; Esri; GBTEC Group; Mavim; Nstream; Sight Machine; Toshiba; TwinThread; Vanti; visCo

Gartner Recommended Reading

[Quick Answer: What Is a Digital Twin?](#)

[Emerging Tech: Tool — Digital Twin Business Value Calculator](#)

[Life Cycle Management of Software-Defined Vehicles: Step 3 — Vehicle Digital Twin 2.0](#)

[Quick Answer: Privacy Basics for a Digital Twin of a Customer](#)

[Emerging Tech: Tech Innovators for Digital Twins — Digital Business Units](#)

Application Data Management

Analysis By: Andrew White, Tad Travis

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

Application data management (ADM) is a technology-enabled discipline where business and IT work together to ensure uniformity, accuracy, stewardship, governance, semantic consistency and accountability for data in an application or suite, such as ERP, customer data platform or custom-made app. Application data is the consistent and uniform set of identifiers and extended attributes used within an application or suite for items like customers, products or prices.

Why This Is Important

Clients continue to be shocked to find their cloud and application vendors offer modern SaaS and business applications that take scant care of governance of the data they use. The vast majority of business application implementations (including ERP, supply chain management [SCM] and even CRM) still lack holistic solutions for governance and stewardship of data. Whereas master data management (MDM) applies governance to shared data across all applications, ADM applies governance to data in a specific application.

Business Impact

ADM can offer the following benefits:

- Application data, once identified, ensures the correct governance effort is aligned to the right kind of business impact the application should have.
- Stewardship roles in the business, and in operational and analytical use cases, can be determined more effectively.
- Business goals for business applications are more likely assured with a more organized data and analytics governance approach that includes application data.
- MDM programs will help govern such application data that is shared with other applications.

Drivers

- The vast majority of “successful” go-lives of business applications, such as ERP, CRM or custom-built applications, do not include any qualification of data and analytics governance. The result, very often observed in client inquiry, is that, on average, seven months after the go-live, organizations spot the vast array of small but noticeable business issues held hostage to the lack of governed data. Business performance and process integrity fail, and business outcomes start to be negatively impacted.
- MDM was and still is misunderstood. An MDM program should have a laserlike focus on the minimal number of most widely shared attributes describing things like customer and product. Bloated MDM programs will continue to fail, leading to a greater need to split the effort up and create distinct ADM programs/requirements.
- Digital business success hinges not on the quality and governance of all data equally, but on a graduated, efficient means to classify data and apply only the needed level of governance. Such growing demand on scaling digital business will, of necessity, drive increased need to recognize and adopt ADM.

Obstacles

- Some MDM programs associated with large, global ERP, CRM and SCM implementations mistakenly centralize all the work related to governing application data. Others create a hybrid organization across business and IT, and call it all “MDM” (when it isn’t). Put another way, these programs conflate MDM and ADM, making both too slow, expensive and unwieldy. As a result, neither program is a success.
- The half-life of a successful business application go-live is, anecdotally, seven months. After that, clients tell Gartner, “We have lost control of our data.” This situation has become acceptable because, overall, most organizations don’t fail.
- The organization’s ability to change is held back, and consequently, budgets are set that even support mediocrity via poor governance practices. This is not an acceptable way to run an organization, but too few data and analytics leaders stand up and say so.
- Traditional top-down governance programs lead to the same misunderstandings and poorly scoped initiatives.

User Recommendations

Starting with a focus on business outcomes to identify what data matters most, organize, classify and govern data based on which data drives the most important business outcomes:

- Identify your application data to scope ADM. That is, identify the data that matters most to a specific set of use cases supported by one application or suite like ERP, e-commerce, product information management or customer data platform.
- Examine reusing MDM solutions to support your ADM implementation — even if in a distinct instance. The business requirements are very similar — but the value propositions are different.
- Demand from your business application provider (and those in the cloud) the necessary capability to set (that is, govern) and enforce (that is, steward) information policy pertaining to data used in the application or suite.
- Implement ADM alongside any MDM program so that they can operate at their own speeds and benefit. They do align and share metadata in support of a wider enterprise information management (EIM) program.

Sample Vendors

ChainSys; Epicor; Oracle; PiLog Group; Tealium; Utopia Global

Gartner Recommended Reading

[4 Master Data Best Practices for ERP](#)

[Why CIOs in Midsize Enterprises Must Emphasize ERP Data Management](#)

[Create a Master Data Roadmap With Gartner's MDM Maturity Model](#)

ERP-Embedded Predictive Analytics

Analysis By: Robert Anderson, Tomas Kienast

Benefit Rating: Transformational

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

Predictive analytics merges data analysis and machine learning capabilities to forecast use-case scenarios. Predictive analytics applied to ERP analyzes massive amounts of organizational and external data to identify “what is likely to happen” in distinct use cases. Example use cases include the impact of quality management on revenue margins, predictive maintenance on assets, cost modeling for introducing new products and identifying M&A outcomes.

Why This Is Important

The introduction of predictive analytics into ERP applications reduces business risk by allowing the applications to spot and suggest fixes to issues before they become big problems. Predictive analytics can also assist in other areas of ERP such as reducing stock, by analyzing not only existing lead times but also historical delivery times, increasing JIT delivery accuracy. These new predictive features present insight, leading to faster decision making and better business outcomes.

Business Impact

Impacts include:

- Predictive capabilities embedded in ERP workflows enable an analysis of current and historical data related to plans and processes being executed.
- Greater use of predictive analytics as ERP vendors incorporate the capabilities of machine learning into applications.
- Due to explosive data growth, in areas such as IoT-enabled supply chains, organizations can rely on predictive analytics, data warehousing and data visualization to keep up with the speed and volume of incoming data.

Drivers

- Businesses need analysis and decision direction within critical events of the business process in order to mitigate negative downstream impacts. Having support from data-driven and automated insights eases the burden of that process.
- Vendors are competing to refine analytics included in their products while incorporating artificial intelligence (AI) and machine learning (ML) toward more complex use cases, helping to push user sentiment from disillusionment to enlightenment. Gartner expects predictive analytics to progress steadily toward mainstream adoption within the next two years.
- Supply chain planners, production planners and financial planners are leveraging built-in capabilities and vendor-provided algorithms in areas where best practices are appropriate due to growing confidence in both predictive capabilities and associated advances in explainability. Consequently, predictive analytics has strong transformational potential, redefining the way businesses observe, evaluate and reconfigure processes.

Obstacles

- Product offerings within ERP application suites are evolving quickly and gaining momentum. Customer adoption is rapid with respect to basic use cases and there is growing confidence in relation to more sophisticated predictive capabilities impacting critical process elements.
- Tools for creating or enhancing predictive analytics that goes beyond vendor-embedded capabilities while improving, primarily remain targeted toward data scientists or technical professionals.
- Historically, ERP data governance was not a discipline, resulting in questionable data quality. Data quality issues could lead to skewed or incomplete results in some predictive analytics use cases.

User Recommendations

- Determine if analytics capabilities should be delivered by the ERP platform, an external analytics platform or a combination of both. Realize that other tools and services existing outside the ERP platform may better address considered use cases.
- Explore analytics capabilities available in your ERP applications and understand the vendor's product roadmap in this area.
- Target areas that can benefit from improved plan and forecast accuracy. For example, the optimization of the order-to-cash business process by improving projected order fulfillment accuracy for important customers, leading to inventory cost reduction.
- Use predictive analytics to identify future operational problems. For example, evaluating the impact of interrupted supply chains on corporate profitability or anticipating environmental, social and governance (ESG) issues before they impact future business operations and suggesting actions such as alternative sourcing of suppliers while maintaining profitability.

Sample Vendors

Infor; Microsoft; Oracle; SAP; Workday

Gartner Recommended Reading

[Predicts 2023: In a Period of Global Upheaval, Will ERP Come to the Rescue?](#)

[When to Choose a Line-of-Business Analytics Application](#)

[Predicts 2023: Analytics, BI and Data Science Composability and Consolidation](#)

Climbing the Slope

Cloud ERP for Public Sector

Analysis By: Denis Torii

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Early mainstream

Definition:

Cloud ERP for the public sector is typically limited to administrative ERP, which includes human capital management, financials, grants management and procurement. In addition to these horizontal functions, some of these solutions provide support to niche requirements, such as public-sector accounting frameworks, funds or contract management.

Why This Is Important

Digital government enablement is a target of many public-sector entities. Consequently, there is increased pressure to modernize ERP systems, which are foundational to the delivery of government services. In addition, outdated and end-of-life legacy applications are forcing ERP strategy reviews. Cloud ERP for the public sector has moved beyond the Trough into mainstream adoption, as vendors have improved functional scope and addressed previous inhibitors, such as data residency and security.

Business Impact

Cloud ERP may lead to economies of scale and continuous improvement enablement to which public-sector entities aspire. This frees up valuable IT resources for public-sector entities to focus on their core missions and differentiating capabilities, rather than worrying about how to upscale resources to support systems of record. By reducing reliance on customizations, organizations can enable a more-flexible and composable ERP strategy to accommodate diverse and evolving citizen needs.

Drivers

- Cloud ERP vendors are delivering functionality and preconfigured analytics reporting that is adequate for most public-sector entities. The functional scope and sophistication have improved to support all but the most complex entities (e.g., defense and intelligence).

- Assuming organizational readiness is in place, cloud ERP can bring lower cost of implementation, faster time to benefit, reduced cost of upgrades and lower capital expenditures (capex), compared with implementing a new on-premises ERP.
- Vendors are developing and improving machine learning (ML)/artificial intelligence (AI) in their own cloud ERP applications. These advanced technologies are beginning to be used to drive greater process efficiency and effectiveness, reshaping how users interact with complex applications, such as ERP.
- Recovery and stimulus funding is accelerating IT modernization globally, triggering new investments in cloud government applications, ERP being foundational to digital services delivery.
- Some of the cloud adoption is being driven by vendors eliminating on-premises support in the near term and/or no longer offering an on-premises option to net new customers.
- Platform-as-a-service (PaaS), which is growing in maturity and familiarity among application teams, is becoming an enabler of cloud ERP adoption.

Obstacles

- Public-sector adoption of cloud ERP suites has increased significantly, but trails private sector organizations, due to policy constraints, funding models and procurement methodologies.
- To fully realize the advantages of cloud ERP, organizations must embrace a culture of change and flexibility, which is not a fundamental strength of most public-sector entities.
- Apart from change resistance, specific regulations may drive customization that is too specific to be available across packaged solutions for certain organizations.
- Lack of a robust, composable ERP strategy might inhibit the adoption of specialist applications, leading to “silos” of applications and data.
- Although increased value may be achieved, there is no clear indication that the long-term TCO is lower, compared with on-premises deployments.
- Tighter data privacy and residency regulations by country, region or entity type may hamper public-sector entities to consider some of the available offerings.

User Recommendations

- Evaluate cloud ERP offerings as part of your ERP strategy. Focus on administrative back-office capabilities, which tend to have the greatest return on investment (ROI).
- Ensure a good functional fit and build an internal roadmap to adopt new features as the vendor rolls them out. Consider the fact that cloud ERP generally has a different update/upgrade cycle than that of the traditional on-premises ERP, and adjust your governance and planning processes accordingly.
- Be aware that the scope of a public offering may vary by geography (e.g., [the government cloud in the U.S.](#) and [the European Union Cloud Initiative](#)). Many vendors have a prime geography that they target first. Then, they look at localizing through a private cloud offering. Confirm that the offering meets your regulatory and compliance needs.
- Address the internal skills needed to move from your legacy systems to the cloud. Plan for skills changes in IT, as well as functional areas, such as procurement and finance.

Sample Vendors

CGI; Civica; OpenGov; Oracle; Sage Intacct; SAP; TechOne; Tyler Technologies; Unit4; Workday

Gartner Recommended Reading

[Critical Stakeholder Engagement Actions for Successful Public-Sector ERP Programs](#)

[Market Guide for Government ERP Solutions](#)

[What Should I Consider to Modernize My Public Sector ERP Strategy?](#)

[Select Applications That Further Your Digital Government Technology Platform Goals](#)

aPaaS for Cloud ERP

Analysis By: Tim Faith

Benefit Rating: High

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Definition:

Application platform as a service (aPaaS) for cloud ERP is a vendor-provided cloud platform service attached to ERP applications. It offers bundles of tools for ERP application functionality extension, professional application development and deployment by means of APIs and web or microservices. aPaaS enables customers to create functional extensions that inherit the data, security and/or user experience models of the cloud ERP application.

Why This Is Important

Integration platform as a service (iPaaS) merges application, integration and development tools in one bundle. In contrast, aPaaS adds low-code/no-code extension and analytics capabilities on top of that, so business technologists can contribute to business value creation. aPaaS also enables cloud ERP adoption by supporting partner-created industry-specific and customer-specific functional extension capabilities.

Business Impact

- ERP vendors' aPaaS can be a lower-cost alternative to develop unique functions, avoiding the purchase of third-party apps.
- aPaaS can provide a seamless experience for users by merging integration, reporting and analytics with functional extensions that do not inhibit adoption of vendor updates.
- When managed well, aPaaS allows business technologists to deliver valuable extension features in a shorter time frame. This allows high-cost professional developers to focus on complex development tasks.

Drivers

Organizations need to rapidly fulfill unique or "last-mile" ERP functionality with agility and proper governance. The key drivers for this journey are:

- Application leaders are looking for easily adoptable solutions to close the "last mile" of functionality for ERP. The use case for aPaaS is feature delivery through custom extensions built using either professional development environments or low-code/no-code development.

- Businesses are chasing solutions for integration or function building by any persona that can deliver value quickly, particularly in an environment supportable by the ERP vendor.
- Some ERP vendors position their aPaaS as a means of application development by the partner ecosystem (e.g., creating an application marketplace). A recent trend is to package these partner-developed applications into easily consumable prepackaged integration connectors or industry-focused offerings — the so-called industry clouds.

Obstacles

While aPaaS has proven to be beneficial, enterprises seeking to implement aPaaS in ERP suites must consider the following:

- One of the precepts of adopting cloud ERP is to accept vendor-delivered functionality and limit customizations. While less intrusive, aPaaS extensions must be managed within the customers' architectural guidelines.
- Many cloud ERP vendors deliver aPaaS through their own platforms; others leverage third-party commercially available platforms. Different tools and environments will dictate the required skills and training necessary to leverage aPaaS in your environment.
- While the aPaaS tools are often incorporated into the subscription, consumption pricing and licensing metrics are not always easy to predict and may negatively impact total cost of operation of the application.
- aPaaS utilization by nonprofessional developers will require business technologists to adopt new skills in creating integrations and extensions, and to learn the practices of good governance.

User Recommendations

- Identify the specific use cases and anticipated business outcomes required for enterprise resource planning. Then, evaluate how your cloud ERP vendor provides aPaaS and how you plan to leverage it, and document architectural principles and development guidelines to avoid overcustomization.
- For each extension your team creates, review your vendor's product roadmaps to determine whether using aPaaS will be a temporary or permanent workaround. Retire developed extensions and adopt vendor-delivered functionality if you consider this approach practical.
- Ensure ERP process governance, ERP support organization and life cycle management controls include aPaaS deployment needs. Manage governance well to avoid aPaaS as a way to reconstruct overcustomization.
- Avoid the "one-size-fit-all" approach to aPaaS. The anticipated business outcome should drive the decisions between extending with aPaaS, building with professional development tools, and buying low-cost third-party apps.

Sample Vendors

Google; Microsoft; Oracle; Salesforce; SAP; Workday

Gartner Recommended Reading

[Innovation Insight for Composable HR Application Frameworks](#)

[8 Best Practices for Successful Low-Code Application Platform Adoption](#)

[Quick Answer: How Can I Help Citizen Developers Be Successful With a Low-Code Application Platform?](#)

Multicloud Managed Services

Analysis By: Sid Nag

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Mature mainstream

Definition:

Multicloud managed services (MCMS), previously cloud service brokerage (CSB), is defined as an IT role and business activity in which a company or internal entity adds value to one or more (public or private) cloud services. This is done on behalf of one or more consumers of that service by providing an aggregation, integration, customization and/or governance role. MCMS enablers provide technology to support cloud service brokering activities.

Why This Is Important

With cloud being mainstream, especially the adoption of multicloud, MCMS will continue to increase. This has MCMS moving steadily toward the Plateau of Productivity. As organizations formulate their multicloud strategies, the role of IT as an MCMS provider has become an important function for many IT organizations. According to Gartner's cloud survey, more than 76% of organizations have adopted or plan to adopt multicloud.

Business Impact

Due to increased adoption of multicloud, IT has now widely embraced the "multicloud managed services" term. However, some external providers have used the "brokerage" label while offering the same functionality, and prefer terms such as "multicloud managed service provider." Meanwhile value-added resellers (VARs), independent software vendors (ISVs) and OEMs are continuing to redefine their business models in context of the new cloud reality, but struggle to find the right business model for monetizing their value-added MCMS.

Drivers

- Third-party cloud managed service providers (MSPs) and global systems integrators (GSIs) are the fastest growing segment of multicloud managed services in the last few years.
- These MSPs offer value-added services for cloud migration and managed services on top of cloud infrastructure that are key to a successful multicloud adoption model.
- Providers come from a wide variety of backgrounds, including system integration, managed hosting and full-service outsourcing, which compete with pure-play startups.
- Providers of MCMS-enabling technologies include dedicated MCMS platforms, cloud management tooling (see [Market Guide for Cloud Management Tooling](#)) with embedded brokering capabilities and a wide variety of cloud management point solutions, which are part of the ecosystem of multicloud management.

Obstacles

- Providers tend to confuse combinations of siloed MSP practices for individual cloud providers as MCMS.
- There is also confusion around CMP platforms that have MCMS enablement being mistaken for MCMS.
- Many generic marketplace providers tend to cause confusion by calling themselves brokerage providers and by association tend to be perceived as MCMS players.
- Offering a truly integrated MCMS is very complex and expensive, and simplifying the problem through the use of CMP software limits flexibility.

User Recommendations

- Have a unified layer of consumption based on four pillars — aggregation, integration, customization and governance. In some cases, your organization can take on the role of an internal service broker to provide multicloud services to internal and external customers via an MCMS enablement platform. And for some other cases, your organization can turn to an external MCMS provider.
- Engage an external cloud MSP to perform the MCMS function if you lack the skills and capabilities or when an MSP can best meet your time-to-deployment or risk management requirements. Be sure to assess MCMS provider maturity at the commercial and technical level.
- Institute an internal MCMS role when brokering is perceived as a required internal core competency. Examples are when you want control over cloud consumption or you are responsible for delivering IT services across a hybrid cloud and multiclouds (public and private clouds). Colocate MCMS with your cloud center of excellence.

Sample Vendors

Accenture; Cognizant; Fujitsu; Kyndryl; NTT DATA

Gartner Recommended Reading

[6 Best Practices to Create a Cloud Management Services Offering in the World of Multicloud and Hybrid Cloud](#)

ERP Third-Party Support

Analysis By: Denis Torii

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Early mainstream

Definition:

Independent third-party support for ERP is provided by vendors, other than the ERP OEMs, who maintain, customize and provide technical support for applications using customized coding. These services do not include software product updates such as new versions, new functionality and other changes contained in proprietary code fixes. However, they bring elements such as cost savings and support to customization, which may fit well into highly customized, perpetually licensed, ERP environments.

Why This Is Important

Application leaders are being questioned about paying significant maintenance fees to ERP vendors for on-premises solutions that are no longer being significantly updated. The independent ERP third-party support market is rapidly maturing and in times of economic headwinds becomes even more relevant. Given its increasing adoption by application leaders year over year, we have positioned this profile close to the plateau.

Business Impact

Typical business impacts are:

- Third-party support is relevant for enterprises that choose to extend the life of existing ERP applications or wish to divert sustainment IT spending to innovation.
- It may be an interim solution for enterprises whose ERP strategies include retiring or replacing their existing on-premises ERP solutions in the short or medium term.
- It allows companies to reduce IT spending, while still providing similar-to-original ongoing support to the enterprise systems.

Drivers

- Economic headwinds are heavily affecting IT spending decisions for most organizations. This will likely contribute to continued growth of the third-party support market for on-premises ERP applications, accelerating plateau achievement in a range of less than two years.
- Customers' requirements to keep exploiting existing ERP assets until a clear business case for replacing them also plays an important role in that growth pattern.
- The number of references in multiple industries and regions reduces some of the concerns about capabilities of such vendors to support complex ERP landscapes.

Obstacles

- Organizations that heavily rely on support associated with the OEM maintenance contract may feel uneasy with an alternative support approach, especially within sensitive topics such as security patching. Because returning to the original vendor maintenance contract may require the payment of financial penalties could block some customers from seriously considering third-party support.
- As end-of-life support dates for on-premises ERP apps come closer to the deadline, and customers opt to stay with incumbent vendors, less customers adopt an interim third-party support approach.
- ERP vendors are pushing for commercial models that favor the migration of on-premises perpetual licensing into a subscription-based model. By doing that, those vendors limit the adoption of third-party support in its traditional form.
- Not all on-premises ERP solutions have associated third-party support options. Typically, SAP and Oracle ERP apps are the key vendors covered.

User Recommendations

- Evaluate whether current use of ERP vendor support services and the value extracted from those services justifies the spend on an ERP vendor's maintenance agreement.
- Evaluate the scenarios in which canceling the ERP vendor's maintenance agreement would be a good decision from both a business and IT perspective. For example, changes in business strategies may require an increase in the usage of the incumbent ERP solution, which could be limited by the adoption of third-party support.
- Assess how the decision to use third-party support services fits into the overall ERP strategy — short and long term. Avoid turning this into a decision based solely on immediate cost savings.
- Evaluate if the timeline for realizing savings matches the goals of short-term cost reduction, based on when ERP vendor contracts are canceled.
- Create an exit strategy for third-party support that aligns with your ERP strategy goals, and ensure that the third-party support contract clauses reflect this strategy's needs.

Sample Vendors

Rimini Street; Spinnaker Support; Support Revolution; US Cloud

Gartner Recommended Reading

[Market Guide for Independent Third-Party Support for IBM, Microsoft, Oracle and SAP Software](#)

Appendixes

See the previous Hype Cycle: [Hype Cycle for ERP, 2022](#)

Hype Cycle Phases, Benefit Ratings and Maturity Levels

Table 2: Hype Cycle Phases

(Enlarged table in Appendix)

<i>Phase</i> ↓	<i>Definition</i> ↓
<i>Innovation Trigger</i>	A breakthrough, public demonstration, product launch or other event generates significant media and industry interest.
<i>Peak of Inflated Expectations</i>	During this phase of overenthusiasm and unrealistic projections, a flurry of well-publicized activity by technology leaders results in some successes, but more failures, as the innovation is pushed to its limits. The only enterprises making money are conference organizers and content publishers.
<i>Trough of Disillusionment</i>	Because the innovation does not live up to its overinflated expectations, it rapidly becomes unfashionable. Media interest wanes, except for a few cautionary tales.
<i>Slope of Enlightenment</i>	Focused experimentation and solid hard work by an increasingly diverse range of organizations lead to a true understanding of the innovation's applicability, risks and benefits. Commercial off-the-shelf methodologies and tools ease the development process.
<i>Plateau of Productivity</i>	The real-world benefits of the innovation are demonstrated and accepted. Tools and methodologies are increasingly stable as they enter their second and third generations. Growing numbers of organizations feel comfortable with the reduced level of risk; the rapid growth phase of adoption begins. Approximately 20% of the technology's target audience has adopted or is adopting the technology as it enters this phase.
<i>Years to Mainstream Adoption</i>	The time required for the innovation to reach the Plateau of Productivity.

Source: Gartner (July 2023)

Table 3: Benefit Ratings

Benefit Rating ↓	Definition ↓
Transformational	Enables new ways of doing business across industries that will result in major shifts in industry dynamics
High	Enables new ways of performing horizontal or vertical processes that will result in significantly increased revenue or cost savings for an enterprise
Moderate	Provides incremental improvements to established processes that will result in increased revenue or cost savings for an enterprise
Low	Slightly improves processes (for example, improved user experience) that will be difficult to translate into increased revenue or cost savings

Source: Gartner (July 2023)

Table 4: Maturity Levels

(Enlarged table in Appendix)

<i>Maturity Levels</i> ↓	<i>Status</i> ↓	<i>Products/Vendors</i> ↓
<i>Embryonic</i>	In labs	None
<i>Emerging</i>	Commercialization by vendors Pilots and deployments by industry leaders	First generation High price Much customization
<i>Adolescent</i>	Maturing technology capabilities and process understanding Uptake beyond early adopters	Second generation Less customization
<i>Early mainstream</i>	Proven technology Vendors, technology and adoption rapidly evolving	Third generation More out-of-box methodologies
<i>Mature mainstream</i>	Robust technology Not much evolution in vendors or technology	Several dominant vendors
<i>Legacy</i>	Not appropriate for new developments Cost of migration constrains replacement	Maintenance revenue focus
<i>Obsolete</i>	Rarely used	Used/resale market only

Source: Gartner (July 2023)

Document Revision History[Hype Cycle for ERP, 2022 - 29 September 2022](#)[Hype Cycle for ERP, 2021 - 6 August 2021](#)[Hype Cycle for ERP, 2020 - 19 November 2020](#)[Hype Cycle for Postmodern ERP, 2019 - 30 July 2019](#)[Hype Cycle for Postmodern ERP, 2018 - 18 July 2018](#)[Hype Cycle for Postmodern ERP, 2017 - 20 July 2017](#)[Hype Cycle for Postmodern ERP, 2016 - 12 July 2016](#)[Hype Cycle for ERP, 2015 - 29 July 2015](#)[Hype Cycle for ERP, 2014 - 28 July 2014](#)[Hype Cycle for ERP, 2013 - 31 July 2013](#)[Hype Cycle for ERP, 2012 - 30 July 2012](#)[Hype Cycle for ERP, 2011 - 27 July 2011](#)

[Hype Cycle for ERP, 2010 - 3 December 2010](#)

[Hype Cycle for ERP, 2009 - 15 September 2009](#)

[Hype Cycle for ERP, 2007 - 5 October 2007](#)

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[Tool: Create Your Own Hype Cycle With Gartner's Hype Cycle Builder](#)

[Predicts 2023: In a Period of Global Upheaval, Will ERP Come to the Rescue?](#)

[Use-Case Prism: Artificial Intelligence for ERP for Product-Centric Enterprises](#)

[Quick Answer: How Do You Incorporate Generative AI Into Your Current ERP Strategy?](#)

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Table 1: Priority Matrix for ERP, 2023

Benefit ↓	Years to Mainstream Adoption			
	Less Than 2 Years ↓	2 - 5 Years ↓	5 - 10 Years ↓	More Than 10 Years ↓
Transformational	ERP-Embedded Predictive Analytics	Cloud ERP for Public Sector Composable ERP Conversational UI in ERP Digital Twin Embedded AI in ERP		
High	aPaaS for Cloud ERP Business Capability Modeling ERP Third-Party Support Multicloud Managed Services	Agile Support for ERP Cloud ERP for Global Enterprises Data Hub Strategy Extended Planning and Analysis for ERP Financial Planning and Analysis for ERP Generative AI in ERP Hybrid Integration for ERP Information Architecture Process Mining Sustainability in ERP	Enterprise Metadata Management Prescriptive Analytics	

Benefit	Years to Mainstream Adoption			
↓	Less Than 2 Years ↓	2 - 5 Years ↓	5 - 10 Years ↓	More Than 10 Years ↓
Moderate		Application Data Management Cloud ERP for Manufacturing		
Low				

Source: Gartner (July 2023)

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