Business Performance Management for the Post-Modern ERP
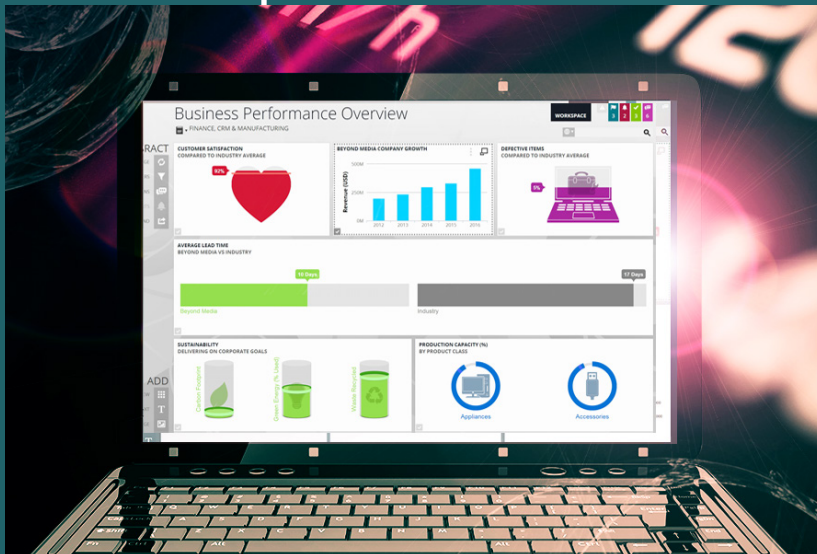
Issue 1

Gartner

Business Performance Management for the Post-Modern ERP

Without a doubt, what Gartner is calling post-modern ERP is the next big thing in enterprise computing. It is one of those transformational shifts that come along every decade or so. Moving a corporation's ERP system – the crown jewels, if you will – to the cloud opens huge opportunities, lowers maintenance costs and ensures ease of use with software that is always up to date.

Most importantly, it frees companies while still allowing them to maintain control. Corporations and business units can choose best-of-breed applications, rather than always being tied to existing platforms: when software is based in the cloud, the major responsibility for migrations and upgrades rests with the vendor. Corporations no longer have to bear the costs – both literal and figurative – of upgrades and implementations to the massive ERP that will evolve to serve as the system of record.

That allows organizations to focus on what they should be doing. Financial departments can use programs to really plan. That was the point of the "P" in ERP and now it can really be accomplished due to the empowerment of organizations. What's more, IT can spend its energies on applications and programs that drive business rather than on maintenance and upgrade tasks.

What are the Risks?

There is one major note of caution, however. The process of moving ERP systems to the cloud will be arduous, to say the least. It will take much longer than many now predict. Most enterprises will have hybrid ERP systems – systems that will be partially based in the cloud and partially located on premises – for years. Business cannot help but suffer since this migration is much like the old saw of switching out a plane's engine while flying.

The migration means splitting apart closely coupled ERP. Thus, even those IT organizations who envision making only temporary compromises while a migration occurs need to create a detailed roadmap that includes solutions that can ease the challenge.

Think about it: at the moment, obtaining knowledge from ERP systems in order to plan and model financial forecasts is difficult at best. That's because ERP systems have become the system of record but rarely offer the elusive single source of truth – a complete view of what is occurring at a large company at any given moment. To do that, systems must synchronize and integrate other information – much of which resides in spreadsheets and non-ERP applications.
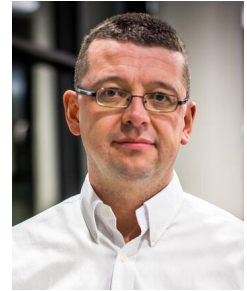
Paul Yarwood, CEO

Once business processes become more dispersed, decision-making is sure to suffer to an even greater degree. In order to migrate systems to the cloud, modules within a tightly coupled ERP system will be broken apart. However carefully the migration occurs, companies will have data silos. So now you have a major data integration problem.

That's one problem our product, Hubble, can go a long way to address. Hubble is already integrating data from the cloud with the premises in order to provide a single, integrated, and timely view of information.

But before explaining that, let's first look at what Gartner is recommending in the accompanying white paper.

Transitioning to the Future

Gartner envisions that more than 80 percent of multinationals will begin adopting a post-modern ERP strategy by 2020. And Gartner goes so far as to say that those companies who move quickly to begin that adoption will start achieving a 75 percent improvement in IT response and agility by 2018.

That's pretty aggressive. But regardless of any hesitancy on the part of IT organizations, it is inevitable that most large enterprises will start the process of shifting ERP modules to the cloud in the foreseeable future.

There are a number of reasons for this. First, the ERP vendors are moving quickly to expand cloud services and Gartner does "not expect much future investment being directed to non-cloud ERP-only services."

So that means the vast majority of ERP customers, who do not have a cloud component currently, will see their investment wither. If they don't migrate their platform, they will see their return on investment dissolve. That's unlikely to happen with most large corporations, though. These companies will surely realize where the future lies and plan accordingly.

Venture capital investment will continue to pour into the cloud in such volume that is difficult to imagine any new software programs not having a cloud offering. That means not only program updates, but also new technologies and features will be developed for the cloud at least as early as the premises system.

Capabilities such as mobile, in-memory computing, and enhanced embedded analytics – features that the vendors are now touting as existing or on the horizon – will be offered in cloud platforms first. For instance, companies that have been struggling with the full use of mobile capabilities will find that the new cloud versions were developed with mobile in mind, often with the idea of working with off-the-shelf devices. That's a much improved solution over the mobile gateways that now exist for ERP systems.

But again, just because these programs will be developed in the cloud natively, it doesn't mean that all data integration issues will magically disappear.

Data Silos Still Exist

Take enhanced analytics, another feature being touted by ERP vendors. They might be nice features to have, but each ERP module will most likely be carrying its own analytics capabilities. And they certainly won't be tightly integrated with other non-ERP software analytics. So once again, you have silos. Silos of data that must be integrated in order to be useful.

And as businesses and markets evolve, so will the necessity of integrating the next big thing – whether it's the current data residing in social-media applications or the sensors and alerts of the future's Internet of Things.

Business units will continue to look for ways to empower themselves through technology – and purchasing software as a service (SaaS) gives them that ability, just as personal computing offered a similar ability to businesses a generation ago. Even now, most large corporations find that business units often use non-ERP programs to conduct business, and then reenter the necessary data into the corporate ERP system, which has, as its chief use, the system of record.

At this point, there is little expectation that the ERP system can fulfill all of its original promise, which is to be the single source of information throughout corporate organizations. Hybrid environments will become the norm, if they haven't already.

The result is data integration becomes the greatest challenge and biggest focus of the IT department, as more systems are deployed in the cloud. Decoupling the ERP system – whether its module by module, such as a Human Resources system in the cloud with the rest of the ERP system on premise, or whether it's a CRM system in the cloud and the ERP system on premises – means that the business-process system is being delinked. It isn't just planning and reporting that will become harder in the cloud, but also the simple act of executing a business process.

Post-modern ERP a Dream?

Any organization that dreams that the post-modern ERP world will fix all of this fragmentation is doing just that – dreaming. It can fix a lot of things – as noted, it will be more cost-effective in the long run, easier to deploy, make organizations more productive and agile. But in the short term it will make it harder for ERP to do what it was meant to do, execute business processes to allow companies to better manage their business.

As the accompanying Gartner paper notes, ERP systems are optimized for high-volume transaction processing. Because of that, most organizations use Business Intelligence (BI) and corporate performance management (CPM) applications to extract and manipulate the data. That undermines the benefits of ERP because now data is held in external warehouses.

That's where a business performance management system, like Hubble, can solve a lot of issues. At insightsoftware.com, we really understand ERP. We have ERP intelligence built into the platform. We know how to connect other critical business

system data, such as CRM, to the ERP data in real-time. By doing so, it allows for holistic views of business data within a single environment and diminishes data-integrity issues.

How Hubble Helps

At insightsoftware.com, we understand both the problem and the solution. We rely on salesforce.com, a cloud-based application, for customer resource management. But our on-premise ERP handles all of our key business operations. Hubble allows us to integrate all the CRM data with data from our ERP. So when its time for a month-end close, financial analysts can see directly into sales data and combine the ERP's inventory management and accounts receivables to create a real-time picture of what's happening.

One of our customers, Zuffa, the parent company of Ultimate Fighting Championship has a very complex – but to them essential – data integration challenge. Hubble pulls data for every event from a variety of platforms that contain information on marketing, specific venues, ticket sales. It's combined with financial data in the ERP. Thus, Hubble allows Zuffa to easily see the information they collect from their fights and run analysis to see which ones were most profitable and why. This real-time information drives business decisions.

These are just some of the ways Hubble is working today. We will continue to perform the same function whether a corporation is dealing with a post-modern ERP with a hybrid of cloud and on-premises modules, or whether they want to integrate real-time data in a heterogeneous environment.

This post-modern ERP world will be a federation of systems that will provide more choice and agility but will need to be synchronized with departmental business needs. It offers companies the opportunity to finally choose the best-of-breed programs they want to operate their business.

A system federation, however, does require data integration. It's necessary to find a tool that can be the point of entry to discovering what all that data represents in terms of business operations.

Hubble can answer the challenge today. It provides a solution that doesn't break the common ERP model. Instead, it understands it and can integrate all of the critical business processes together in real time to create a single, consistent view of business. As you read the accompanying Gartner paper, recognize that to our mind, Hubble is exactly the type of investment that's needed to make the post-modern ERP world work.

Source: insightsoftware.com

2015 Strategic Road Map for Postmodern ERP

This research updates the previous postmodern ERP strategic road map research to take account of market trends and new technologies. Postmodern ERP is a reality today. CIOs and ERP leaders should ensure they are planning and executing their ERP strategy in line with this road map.

Key Findings

- Planning for a single megasuite encompassing all business applications is no longer the starting point for building a postmodern ERP strategy.

- Gartner's postmodern ERP model continues to gain acceptance by both users and vendors. This model realigns ERP strategy to provide more business value and agility.

- Hybrid ERP environments comprising coexisting cloud and on-premises applications and domain suites are the norm. People-centric applications, such as HR self-service, and multienterprise applications, such as supplier networks, have dominated the move to cloud computing.

- Organizations continue to seek innovative, differentiating and user-friendly business functionality incorporating more embedded analytics and mobile working. These needs are dominating over architectural coherence or one-vendor simplicity.

- Digital business requires support for in-memory computing (IMC), the Internet of Things (IoT) and the management of big data. All will impact postmodern ERP architectures.

- Organizations will struggle to master multivendor, multidelivery and multienterprise customizations and integration of the postmodern ERP environment.

Recommendations

- Use Gartner's Pace-Layered Application Strategy to synchronize business needs with the technical response categorized by systems of innovation, differentiation and record. Ensure that you discover and incorporate shadow IT projects into your strategy.

- Ensure you align your postmodern ERP road map with your organization's digital business strategy and underpinning technologies, such as IMC, IoT, big data and cloud integration technologies, as well as development strategies, such as bimodal IT.

- Define the postmodern ERP skills gap in your organization, with a focus on integration technologies, cloud technologies, IMC, and negotiating and managing cloud services.

Strategic Planning Assumptions

By 2020, less than 20% of multinational organizations will continue to plan and adopt an ERP strategy based on a single-instance megasuite.

By 2018, organizations that have successfully renovated their core ERP will achieve a 75% improvement in IT response agility and cost-to-value outcomes.

Through 2018, 20% of large enterprises will deliver real-time visibility into financial performance, using IMC with their finance systems.

Analysis

The evolution of ERP systems over the past 10 years means they are no longer lean, efficient business application backbones. Instead, they have lost business relevance and agility, and have become bloated, fed by the objective of achieving an all-encompassing megasuite. The reality is that these environments have become too large to change at the pace of business needs, or to reflect the flexibility and innovation needed by the business.

The advent of cloud computing, which brings with it a new delivery model, new vendors, enhanced user interfaces and a faster updating of functionality has changed this market fundamentally. Where once architectural coherence and full integration was favored, now it is domain relevance, functional innovation, ease of use and agility that dominates the strategy.

This postmodern ERP environment, as defined by Gartner in 2013, continues to take hold, and today, old-model ERP strategies are becoming marginalized and will ultimately be circumvented, as they are too complex with too many interdependencies to cope with business demands. In addition, these demands for agility will increase significantly as digital business requirements place new pressures on organizations — forcing business applications and processes to change with greater speed while maintaining their integrity — and allow for the reimagining of business models.

Why Is Postmodern ERP Important?

ERP continues to be the single largest category of enterprise software license spend — a forecast spend at the end of 2014 of $26.7 billion, growing at over 6.2% per annum to 2018. Of this, the public cloud SaaS portion is estimated at $4.23 billion, with HR functionality being the largest category. SaaS spend across all human capital management (HCM) technologies is growing faster than spend on non-SaaS, and will represent 50% or more of HCM technology spend by 2017.

A large percentage of the complex business functionality of an organization is retained in the ERP systems, and, without them, those complex business processes could not be provided. Due to this complexity, many organizations planned their ERP strategy based on what a vendor could provide, and when the vendor failed to deliver the ne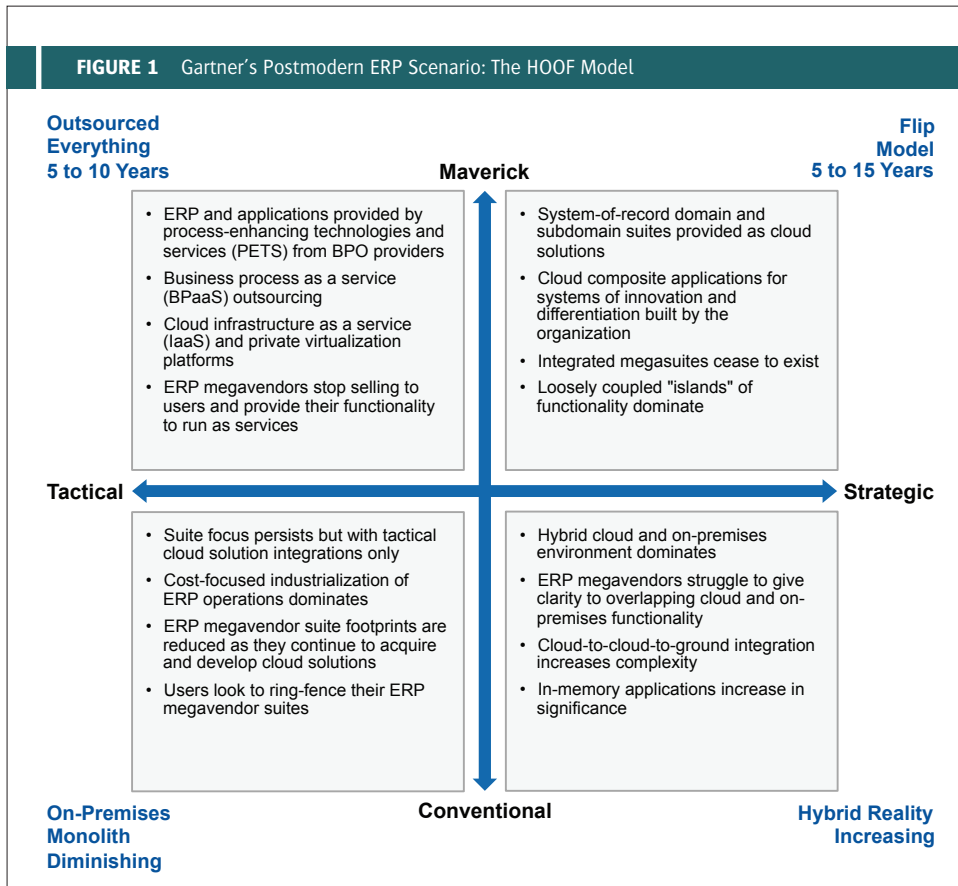eded functionality, the IT organization lost the ability to meet business needs. In reality, much of the enterprise's time and budget were consumed by managing the ERP environment and wishing for stability; while at the same time, seeing an ever-increasing set of business-needed changes piling up in the schedules, which lead to further pressure from shadow IT projects and the marginalization of ERP strategy and systems. The continuation of this marginalizing trend will be highly damaging to organizations, because they risk losing the considerable business process investments made as they look to integrate point solutions in the absence of a strategy, which can lead to potentially large integration costs.

Use this postmodern ERP road map research to identify the right application backbone for your evolving environment, and look to renovate your ERP core. In addition, the trends toward digital business mean that any postmodern ERP strategy needs to align to those drivers and technologies. The actions and recommendations of this road map focus on the hybrid scenario from the hybrid, on-premises, outsourced and flip (HOOF) model.

Leveraging Postmodern ERP

Postmodern ERP is the deconstruction of suite-centric ERP into loosely coupled applications, some of which can be domain suites or smaller footprint applications that are integrated as needed, but prioritized by functional need and agility over architectural rigor, single-vendor strategies, single codebase, ease of IT management or other IT-centric needs. The analysis draws from our HOOF model (see Figure 1).

- **Hybrid reality**: In this environment, many components of functionality will be delivered as cloud services, whereas others will be maintained on-premises. Cloud services become at least an equal partner with on-premises delivery. This environment creates significant new integration challenges, because it relies on a more varied and loosely coupled architecture.

- **On-premises monolith**: This reflects the recent situation, where ERP systems are megasuite-focused, with a desire to reduce the number of instances and a quest for a "single version of the truth" for all business processes. The ERP strategy is equated with a single, dominant ERP vendor.

FIGURE 1 Gartner's Postmodern ERP Scenario: The HOOF Model

Outsourced Everything 5 to 10 Years — Maverick — **Flip Model 5 to 15 Years**

Tactical ← → Strategic

On-Premises Monolith Diminishing — Conventional — **Hybrid Reality Increasing**

Upper-left quadrant (Maverick / Tactical):
- ERP and applications provided by process-enhancing technologies and services (PETS) from BPO providers
- Business process as a service (BPaaS) outsourcing
- Cloud infrastructure as a service (IaaS) and private virtualization platforms
- ERP megavendors stop selling to users and provide their functionality to run as services

Upper-right quadrant (Maverick / Strategic):
- System-of-record domain and subdomain suites provided as cloud solutions
- Cloud composite applications for systems of innovation and differentiation built by the organization
- Integrated megasuites cease to exist
- Loosely coupled "islands" of functionality dominate

Lower-left quadrant (Conventional / Tactical):
- Suite focus persists but with tactical cloud solution integrations only
- Cost-focused industrialization of ERP operations dominates
- ERP megavendor suite footprints are reduced as they continue to acquire and develop cloud solutions
- Users look to ring-fence their ERP megavendor suites

Lower-right quadrant (Conventional / Strategic):
- Hybrid cloud and on-premises environment dominates
- ERP megavendors struggle to give clarity to overlapping cloud and on-premises functionality
- Cloud-to-cloud-to-ground integration increases complexity
- In-memory applications increase in significance

Source: Gartner (February 2015)

- **Outsourced everything**: Many organizations have elected to outsource their business process needs, and there will be increased adoption of business process outsourcing (BPO) for ERP processes. This is driven by newer process-enhancing technologies and services (PETS) and cloud-based business processes (business process as a service [BPaaS]).

- **Flip model**: This is where the market "flips" to the cloud. Instead of having on-premises core solutions that are complemented by innovative or differentiating processes being supported outside of ERP, now all commodity best-practice business processes will be delivered as cloud services, often as smaller-footprint-domain or specialized suites. This will leave a much reduced IT organization free to focus on building the innovative and differentiating business processes required.

Client discussions show that many are already in the hybrid reality, and this will continue to 2020. While, for the majority, the hybrid scenario will dominate, some organizations will adopt the flip model, and others will seek aggressive outsourcing to focus on core competencies that do not include IT. Although, at present, these are the minority. There will not be a single winning scenario, but it is clear for the next five years at least, the hybrid reality will be the dominant scenario.

Each organization will need to assess which combination meets its business objectives. Figure 2 highlights the key factors of the hybrid scenario.

FIGURE 2 Strategic Road Map Overview for Postmodern ERP

Future State

- Postmodern ERP strategy and user functionality defined by Gartner's Pace-Layered Application Strategy
- Hybrid of loosely coupled cloud and on-premises ERP applications
- Cloud applications for all business capabilities are available
- PaaS adopted for integration and development needs
- Multienterprise and intraenterprise integration achieved equally easily
- Advanced analytics embedded in ERP applications
- Technologies for digital business, such as IMC, IoT, mobile and big data are supported natively by the ERP architecture

Current State

- Declining focus on single-vendor, fewer-instance suite deployments
- Tactical adoption of cloud SaaS, sometimes as unwanted "shadow IT" initiatives
- ERP focused on cost savings or marginalized as unrenovated core "old technology"
- Commodity "best practices" prioritized over differentiation and innovation
- Mobile still seen as tactical gateway extensions
- Analytics driven from BI platforms with "hot spot" IMC projects

Gap
- CIO and C-level executive expectations and engagement
- Ease of integrating, customizing and implementing applications across all delivery modes
- Being able to support IMC, IoT, big data and mobile enabling technologies
- Reimagining business processes to unlock new opportunities

Migration Plan
- Use Gartner's Pace-Layered Applications Strategy to update your ERP strategy
- Identify applications and services suitable for cloud provision
- Focus on mobile and in-memory application needs
- Extend integration and customization capability
- Renovate your ERP core to support IMC, IoT and big data — support digital business

Source: Gartner (February 2015)

Future State
Postmodern ERP Strategy and User Functionality Defined by Gartner's Pace-Layered Application Strategy

In our 2013 road map, we stated that by "2018, the notion of an ERP suite will have become redundant." We still hold that view and, if anything, would make the case that many organizations have already stopped attempting to implement an ERP megasuite. The future state for ERP will be to seek suite-like attributes for collections of functionality, while accepting that the environment will comprise part suite (for example, business-domain or subdomain suites) and best-in-class solutions. These will be configured, customized and sourced from a mix of cloud and on-premises offerings depending on the organization strategy. In this approach, the need to include shadow IT initiatives in your strategy is vital, and pace layers are an effective way to discover such initiatives.

The objective should be to have a renovated core ERP set of functions focused on delivering standardized processes and creating a data and process foundation for other business activities. This core will have the attributes of a system of record (SOR) and be expected to be slow-changing and commoditized, with a robust set of attributes aggressively managed to cost. However, it is now complemented by other ERP functions that are either cloud-based, configured or customized to provide differentiating business processes to support a system of differentiation. In addition, while some cloud components will begin as offering innovating or differentiating functionality, over time, much of this functionality will gain SOR attributes, albeit modified by the dynamics of cloud services (for example, having functional updates two or three times a year). HR cloud services are a case of increasing ubiquity (any customer can purchase them), yet with a faster vendor-driven functional update cycle.

Using Gartner's Pace-Layered Application Strategy will help users define and synchronize their business needs with their application strategies, and also help define the connective tissue needed to manage the interdependencies of process and data across the hybrid ERP application portfolio.

Hybrid of Loosely Coupled Cloud and On-Premises ERP Applications

By 2020, most organizations will have adopted a hybrid ERP architecture with a loosely coupled mix of cloud and on-premises applications. While some ERP functionality will remain on-premises, the balance will increasingly shift toward deployment of cloud services across a range of functional domains. These will be loosely coupled with other applications.

ERP on-premises "core" will be reduced in scope so that it focuses on commoditized systems-of-record processes where tight integration is still important. Although cloud applications will be available in all ERP domains by 2020, these will not be mature enough in all areas for every organization to consider "flipping" their entire ERP portfolio to the cloud. Also, many organizations want to "sweat" their ERP assets and maximize the return on the often significant investments they have made, so they are in no hurry to replace these with cloud services.

Cloud services will continue to be adopted rapidly for people-centric functions, and where agility and differentiation are more important than integration with the on-premises ERP capabilities. Today, cloud services are mainly deployed as "point" solutions (for example, recruitment or travel expense management), but, by 2020, broader domain suites, such as human capital management and procure-to-pay, will frequently be deployed as cloud services. For example, by 2017 Gartner predicts that SaaS spend will represent 50% or more of total HCM technology spend.

Cloud Applications for All Business Capabilities Are Available

Today, cloud applications from specialist vendors are being adopted rapidly in departments where the users are not always the transactional "power" users of an ERP system. These "casual" users with ad hoc access needs (for example, talent management or travel expense management processing) have been the early cloud adopters. As cloud services mature, we are also seeing more power users accepting cloud-based functionality (for example, for strategic sourcing or treasury management). Cloud solutions are now capable of supporting all user types, and this will further accelerate the adoption of cloud-based application solutions.

As we have witnessed over the past two years, these more complex SaaS solutions have matured, and, in some cases (for example, core HCM) they have not only provided deeper functionality, but (in one case), have extended into financials. As this functionality deepens and the footprint expands, we are seeing domain suites and multidomain suites appear as cloud services. However, we do not forecast that those footprints will equal existing on-premises megasuites; instead, they will lead to more and more functionality that will be cloud-services-based and integrated to form these smaller suites, which will loosely couple with other parts of the postmodern ERP portfolio of applications.

The move by major on-premises ERP vendors (Oracle, SAP and Infor) to expand their cloud services, and to offer ERP as cloud-hosted services (for example, from Infor), combined with the large number of cloud-only vendors, all fuel this market. We do not expect much future investment being directed to noncloud ERP-only functionality. This trend is also being driven by venture capital flows into cloud service and cloud company acquisitions, which, in turn, adds to the momentum. By 2020, cloud applications supporting all types of business applications will be available for users to select — only significantly complex and/or very niche applications will not have a cloud application option.

Platform as a Service Adopted for Integration and Development Needs

The adoption of hybrid ERP through 2020 means organizations will need to manage a portfolio of cloud and on-premises applications. On-premises ERP suites will need to adopt loosely coupled integration with cloud services. There will also be a need for integration across cloud services, so the integration landscape of hybrid ERP will be more complex than in an on-premises monolithic scenario. However, preserving the on-premises monolithic ERP suite attributes, such as process integrity, common data and analytics processes, end-to-end process integrity and economies of scale, is still important. Consequently, the roles

of integration platforms, potential cloud service brokerage vendors, service-oriented architecture (SOA), business process management (BPM) and model-driven applications are all crucial to integration strategies in order to manage the cost and complexity of integration that monolithic ERP suites were designed to handle.

Platform as a service (PaaS) will play a strategic role in hybrid ERP deployments by 2020, especially in the areas of integration and application development/extension around cloud services. There will still be a need for on-premises integration capabilities, but these will reduce in scope, and development of extensions for on-premises applications will also be limited (as these will be supporting nondifferentiating systems-of-record processes). PaaS will also be key to using bimodal development techniques needed to support agile projects.

Selecting the right PaaS solution will be challenging, as there will be many viable alternatives by 2020. Some cloud ERP vendors will offer PaaS capabilities (for example NetSuite and Workday) that are specific to their applications that allow users, partners and service providers to integrate, and where needed, extend and develop their applications. Vendors such as Oracle and SAP, that have an installed base of on-premises customers, are encouraging users to adopt cloud services in some domains, and will offer their PaaSs with existing middleware as a common platform across both delivery models. Finally, product-independent PaaS solutions will offer an increasing range of application extension, development, and integration capabilities. By 2020, organizations will need to make strategic choices about their approach to PaaS and implement the appropriate governance model. Failure to do so will result in an unmanageable mess of PaaS technologies.

Multienterprise and Intraenterprise Integration Will Be Achieved Equally Easily

The need to integrate external processes, data, customers, partners and suppliers to the ERP environment will not only continue, but will continue to expand and become more varied. This future state needs the capability to provide this integration with the same ease and fidelity as intraenterprise integrations, and both need to cater to the demands of agility, multiapplication integration, and significantly increased data

variety and volumes. While cloud service brokers may become a strong option over the next few years, current services are limited and most multienterprise integrations are supported by a composite set of technologies and solutions. Most organizations have seen limited business needs driving their multienterprise strategies to date, for example, sharing of product life cycle management (PLM) data, collaborative commerce processes, concurrent engineering needs and supplier/customer ordering/invoicing.

Over time, we expect that environment to continue to grow, but with the addition of increased digitalization, significantly increased data flows driven by the IoT and customer data, particularly in consumer markets, and an increasing number of entities to integrate with. This evolution will give rise not only to increasing needs for agile integration, but also more participation in data sharing, mining and analytics — all of which will cause major issues for unrenovated ERP core functionality. Many solutions available for these new multienterprise needs are currently provided by cloud solutions, and we expect that to continue due to the inherent nature of cloud connectivity being an easier option than hard-coding multiple links. Supporting multienterprise operations and integrations is a key competency of the postmodern ERP environment. Users need their integration and development capabilities able to support postmodern ERP, and they must ensure these capabilities leverage the middleware and PaaS technologies, technical standards, skills and processes available so that multienterprise and intraenterprise integration are handled equally well.

Advanced Analytics Embedded in ERP Applications

ERP architectures will leverage both hybrid transaction/analytical processing (HTAP) and IMC to enable more complex diagnostic, predictive and prescriptive analytics working against the live transaction database in real time. These will be embedded as part of the application architecture and will allow users to perform tasks like simulation, planning, modeling and forecasting without the need for stand-alone analytic applications.

This architecture will enable a new wave of process innovation in ERP, and transform the way some ERP processes are executed, as real-time

decision making becomes an integral part of the process itself, rather than a separate activity performed after the fact. This would support real-time feedback loops, dynamic allocation of business resources, and instant understanding of risks and opportunities associated with specific business transactions — for example, deciding the prioritization of customer order fulfillment based on profitability.

However, this approach will create tensions between existing investments in business analytics that operate agnostically of ERP applications and the ERP solution stack. ERP vendors will push users to adopt "their" embedded analytics, and this could create new analytic silos unless managed and governed as part of a wider business analytics strategy. This will be a difficult balancing act for many organizations.

Technologies for Digital Business, IMC, IoT, Mobile and Big Data Are Supported Natively by the ERP Architecture

There has been much written around digital business and digital business processes, some of which codifies and extends a series of trends that have been happening over a number of years. However, the future state for digital business looks very different from previous "part-digital" manifestations, such as e-commerce, m-commerce, social interactions, mobile interworking and predictive data analytics. Not all digital technologies will form part of postmodern ERP. However, many will, and the future state will require native support for those technologies supporting the significant digital business data flows running through organizations. This data will be generated by, and needed by, a range of real-time processes, multienterprise operations, IoT applications and social data feeds, to name a few key enabling technologies. We expect IMC to grow in importance, primarily driven by a few vendors (for example, by Workday and by SAP with its recently announced S/4Hana initiative). These technologies will be needed to support what Gartner terms a "fluidic" state. Other technologies, for example native-mobile working and integration with consumer-grade technology, will also be prerequisites.

Traditional ERP systems were never designed for this environment and, because of that, will force a redesign of the ERP architecture to support the postmodern ERP environment, which will need to support digital business. Organizations need to upgrade their ERP plans and create a postmodern ERP strategy and road map, in order to preserve existing ERP investments where it makes business sense, and to avoid unnecessarily marginalization by a newer set of business applications. Some of these newer business applications would need to be architected in a similar way to an ERP system, at significant extra cost, to gain the very advantages of marginalized ERP system. Ultimately, the core needs to be renovated and changed to support postmodern ERP for the digital environment.

Current State
Declining Focus on Single-Vendor, Fewer-Instance Suite Deployment

Most organizations continue to have a mix of ERP systems that have evolved as a result of tactical purchasing as well as organizational mergers and acquisitions, with no clear ERP strategy. The need to roll out global processes and have a single version of the truth led to an inevitable strategy of reducing the number of instances and trying to move to a single-instance environment. Today, that view has diminished, as many parts of the application functionality are now supported by cloud services, particularly for sales force automation, elements of HCM and for multienterprise supply chain needs. In many cases, these services have been identified and sourced by the business-relevant unit and not the IT organization — that is, "shadow IT."

Organizations are now redesigning their application architecture to handle this hybrid environment, as we forecast would happen over two years ago. In some cases, those cloud or best-in-class applications are integrated into the ERP solution. In other cases, those functions are replacing major parts of an ERP, for example HCM functionality. The major ERP vendors have responded to the needs of postmodern ERP by not only acquiring cloud functionality, but, increasingly, by developing new capabilities that are cloud-based, delivered as hosted, private or public solutions, and have a faster update cycle. They are also offering users the choice to move between these different delivery modes as a way of providing more flexibility to meet different organizational business strategies. This choice also

has the effect of moving ERP away from a single- or reduced-instance strategy to now support the postmodern ERP needs of federation, choice, synchronizing with departmental business needs and offering both on-premises and cloud delivery modes.

Tactical Adoption of Cloud SaaS, Sometimes as "Unwanted Shadow IT" Initiatives

SaaS is becoming the preferred deployment model in many areas that used to fall within the scope of the on-premises monolithic ERP megasuite. The primary candidates for SaaS are people-centric processes that require strong employee engagement and acceptance to deliver business benefits. These often encounter the most resistance to user adoption during deployment of monolithic ERP suites because users find the system too complex and inflexible to perform self-service tasks or to meet their domain needs. Consequently, capabilities like talent management, travel expense management, recruiting and procurement are increasingly deployed at departmental or domain level with little or no IT involvement.

This is partly because SaaS vendors do a great job of selling directly to end users and bypassing corporate IT, because the common IT objection of "you can't have this system because it doesn't conform to our technology standards and we won't support the infrastructure" doesn't apply to SaaS. Moreover, the sourcing process followed by IT is often too slow and cumbersome to help stakeholders. Once implemented, users do their "real" work in the SaaS application and simply re-enter the necessary data required into the corporate ERP. While this may address users' short-term needs, the tactical deployment of SaaS creates new integration and analytics challenges that are not being addressed by most organizations.

ERP Focused on Cost Savings or Marginalized as Unrenovated Core "Old Technology"

ERP continues to be the subject of a "reduce costs, demonstrate value" need for ERP leaders. In some cases, this demand is marginalizing the ERP suite, as an aggressive focus on cost containment leaves little room for development, expansion or to support the move to postmodern ERP. This attitude is reinforced due to the considerable investments already made, and the complexity of an ERP suite, which now has become too large to remove,

too complex to change, yet not relevant to the business, and with a functional footprint reduced by predominantly cloud services. These services appeal not only to users' departments, but they are also receiving increased R&D funding from both the traditional vendors and the investment community. Coupled with the growth of shadow IT projects, the likelihood of the ERP suite being marginalized, seen as unrenovated and not fit for purpose, has increased dramatically over the past two years. Worse still is that while the ERP footprint decreases, costs will fall only slowly and, so, the business will see even less of a return on its investment than before. Users should be aware of the cost bubble generated in this transition.

ERP leaders need to realign their strategies to the postmodern ERP environment, and ensure that they are driven by business needs. It needs to be communicated to the business how the ERP system, in this case for postmodern ERP, will help the business while protecting the investments already made. Communicating this change from a centralizing strategy to a federated strategy that now favors business agility, ease of use and business unit relevance over technical harmony, cost efficiencies and easier vendor management, will be a key transformation need.

Commodity Best Practices Prioritized Over Differentiation and Innovation

ERP systems offer benefits of economies of scale and improved operating efficiency, because they help deliver a standardized way of working, and because they can ensure process integrity for business processes executed within the boundary of the ERP system. They deliver the greatest benefits when business processes are changed to suit the embedded best practices delivered with the ERP system. However, the best practices in an ERP system do not support differentiation or innovation, because, by their nature, they must be common across many businesses and industries, and generally they reflect the best practices as codified some years previously. ERP is mainly a system of record and a foundation for differentiation and innovation.

Organizations make the mistake of pushing these commodity processes too far into areas where the business needs to support differentiation and innovation, with the result that the ERP system becomes a constraint on business agility. This is because enhancement requests that

support business changes tend to be batched into infrequent release cycles, and take years to propagate. In this instance, requests for business differentiation and innovation are squashed by the bureaucracy and complexity associated with ERP change control. Moving to a postmodern ERP environment will not only regain agility, but also support more differentiation and innovation, albeit at the cost of the failed single-best-practices, one-size-fits-all paradigm.

Mobile Still Seen as Tactical Gateway Extensions

Mobile continues to be an important need for ERP, yet few organizations have mastered how to use the full capabilities of mobile devices or how to interface devices to the same extent as if they had been designed at the same time as the application. In this regard, many SaaS vendors have done a better job at designing "mobile" into the user experience and workflows, because it was part of the initial design parameters. High user expectations and the proliferation of mobile devices with different technology platforms means that, so far, most ERP vendors have not made that much progress since the 2013 version of this research. Mobile "gateways," rather than native development, dominate.

In addition, many organizations have not yet looked at consumer-grade mobile devices to replace more costly specialized mobile operations devices that they may have in their organizations. In addition, the advent of more IoT devices entering the picture will further complicate the environment. We have not seen many consumer mobile and operational mobile plans integrated into a mobile strategy and applied to the postmodern scenario.

Analytics Driven From BI Platforms by "Hot Spot" IMC Projects

ERP systems provide better visibility across enterprise operations because they have common master data and a common information model against which transactions can be analyzed. This can help ERP users improve operational processes, such as speeding up the financial close and providing better visibility into customer and supplier activity across the enterprise. However, although ERP systems can provide transactional analysis for experienced users, they struggle to provide advanced analytics that enable executives and casual users to make

better business decisions. This is because the underlying data structures of ERP systems are optimized for high-volume transaction processing and use highly normalized data structures held in relational tables. Consequently, most organizations use corporate performance management (CPM) applications and business intelligence (BI) platforms to extract, aggregate and manipulate data from ERP. This creates challenges for IT, and also undermines the benefits of the common ERP information model, because data has to be extracted and held in data marts and/or warehouses.

Although ERP vendors are delivering more analytic capabilities integrated with their applications, most IT teams still have to manage a complex portfolio of analytic and reporting capabilities from different vendors, which they often "mash up" with the native ERP reporting capabilities to make it appear to the user as a "single" system. They find it hard to deliver the range of analytics that users want, and are challenged to respond in a timely fashion to new requirements. This is evidenced by Gartner's 2014 CFO survey, which found the top business process area that CFOs feel needs technology investment is facilitating analysis and decision making (top priority for 62% surveyed, up from 59% in 2013), followed by the ongoing monitoring of business performance (57%).

Most of the focus is on running discrete analytic processes faster using new technologies such as IMC. Although these easy gains in performance are welcomed, we have yet to see many cases of real-time business processes aiding productivity and revenue-gaining opportunities. The needed redesign of business processes will take time to come to market, in part because of the reliance on the ERP vendors, in part due to the costs of process redesign, and in part due to business wariness of spending effort on redesign rather than on innovations. The lack of algorithm analysts or data scientists will hold the business back, because the market is currently fixated on solutions that return faster computational results and their visualization, but only for established processes.

Gap Analysis and Interdependencies

For many organizations, the hybrid ERP reality is leading to a number of significant cultural, technological and process issues for organizations. A key dependency for success is continued engagement in the process by business leaders,
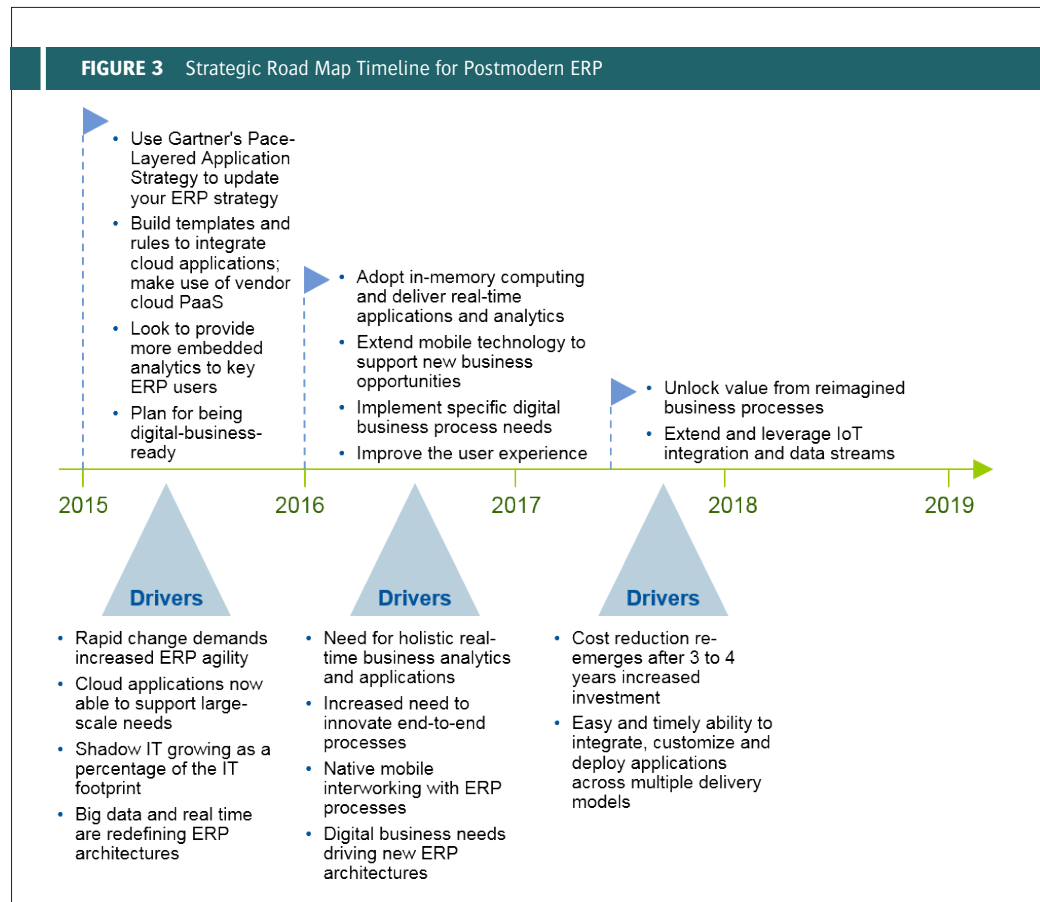
not only to ensure that IT returns the required value on investment, but also to prevent the growth of shadow IT. Improving the governance model and using models such as Gartner's Pace-Layered Application Strategy are key. Agreeing on and prioritizing which projects will be done is essential. In particular, there needs to be a consistent plan that supports the need for process integrity and IT efficiency balanced with the needs of business relevancy and agility. Focus on the decisions and issues associated with business-selected cloud solutions and the need for embedded analytics, particularly where new digital business processes are required.

Mastering new technologies, such as, IMC, cloud and integration (particularly around PaaS), are major gaps to overcome. Bringing agility and an external integration competency into the organization is key to supporting both the hybrid environment and the multienterprise process integration needs. This will involve bringing new skills and, possibly, new vendors into the existing environment.

The shift from looking for a single-instance ERP to a hybrid reality model is a major cultural and philosophical change for many organizations with large, complex ERP deployments. Managers will need to address the people change management issues of this transition and continue to accelerate service cultures into the project delivery, which now includes skills needed to source, negotiate and manage cloud services. The move toward addressing the needs of the digital organization is a further complication that now needs to be factored into the strategic road map for postmodern ERP.

Migration Plan

To support the hybrid model, which improves support for business agility, and to return more value from ERP investments, there are a number of steps that organizations should take (see Figure 3). The starting point is a reset of the ERP strategy driven by operational, as well as commercial, objectives.

FIGURE 3 Strategic Road Map Timeline for Postmodern ERP

- • Use Gartner's Pace-Layered Application Strategy to update your ERP strategy
- • Build templates and rules to integrate cloud applications; make use of vendor cloud PaaS
- • Look to provide more embedded analytics to key ERP users
- • Plan for being digital-business-ready

- • Adopt in-memory computing and deliver real-time applications and analytics
- • Extend mobile technology to support new business opportunities
- • Implement specific digital business process needs
- • Improve the user experience

- • Unlock value from reimagined business processes
- • Extend and leverage IoT integration and data streams

2015   2016   2017   2018   2019

Drivers

- • Rapid change demands increased ERP agility
- • Cloud applications now able to support large-scale needs
- • Shadow IT growing as a percentage of the IT footprint
- • Big data and real time are redefining ERP architectures

Drivers

- • Need for holistic real-time business analytics and applications
- • Increased need to innovate end-to-end processes
- • Native mobile interworking with ERP processes
- • Digital business needs driving new ERP architectures

Drivers

- • Cost reduction re-emerges after 3 to 4 years increased investment
- • Easy and timely ability to integrate, customize and deploy applications across multiple delivery models

Source: Gartner (February 2015)

In this section, we prioritize the actions needed. We advise organizations to use this as guidance only, and to create their own version of the most critical actions and priorities that meet their organizational needs.

Higher Priority

- **Review and update your ERP strategy**. Use Gartner's Pace-Layered Application Strategy to develop a clear and agreed-on definition among IT, ERP leaders and key business sponsors, and classify needs as systems of record, systems of differentiation or systems of innovation. Identify how digital business, cloud computing and mobile will impact the strategic goals of the ERP initiative, and how this might better support the overall business strategy.

- A**dopt cloud integration technologies**. Hybrid ERP demands "cloud to ground" and "cloud to cloud" integration in addition to traditional on-premises integration between ERP systems and other applications. Organizations must adopt new integration technologies to support their postmodern ERP strategy. There are three options: point-to-point integration using vendor-provided cloudstreams, integration PaaS (iPaaS) capabilities provided by an ERP or cloud service provider (for example, SAP Hana Cloud Integration) or a third-party iPaaS (such as Dell Boomi Leveraging cloudstreams or ERP vendor iPaaS capabilities makes sense in the short term, but as the ERP environment becomes more hybrid, plan for strategic adoption of an iPaaS as the preferred integration capability. Involve users more in integration activities, particularly for cloud services, and ensure you have the right SLAs and operational support in place for these.

- **Be digital-business-ready**. Digital business continues to capture the attention of business executives, and the task for ERP leaders is to match business objectives with the needed postmodern ERP technologies, architecture and processes. The increase in data, the demand for better real-time analytics, the integration of mobile technologies, the externalization of multienterprise needs, and the support for increasing IoT-based applications (be they consumer- or commercial-based), will all stress the ERP environment. The reality that some of this functionality will be cloud-based as well as on-premises complicates the integration, configuration, customization and management of postmodern ERP. The task is to make this environment "digital ready," rather than attempting to make everything digital. In this, supporting early digital processes to learn and highlight the success of being "digital ready" will be key. Being consistent with the organization's overall plans for digital is also vital for success.

- **Provide more embedded analytics**. ERP vendors are increasing the range and capabilities of analytics that are embedded into their applications. All now deliver dashboards that surface key information and metrics from the ERP system (usually tailored to specific roles), and many are now adding more analytic capabilities specific to their ERP applications. Some are embedding search and CPM capabilities into their applications, and some are leveraging IMC to provide more advanced embedded analytics. Evaluate ERP vendor road maps to identify their plans to deliver embedded analytics, and use this information to help upgrade planning or in vendor selection. In some cases, new products from vendors (such as Oracle Fusion Applications and SAP's S/4Hana initiative) have more embedded analytic capabilities compared to existing products. Also, in a hybrid ERP environment, cloud services targeted at domain needs (such as talent management) may include more comprehensive embedded analytics than a broader ERP suite solution. Adoption of embedded analytics can create new silos of analytics and may conflict with an organization's broader business analytics strategy. ERP leaders must work with business analytics strategists to prevent this analytic fragmentation and coordinate deployment of analytic capabilities.

Medium Priority

- **Adopt in-memory computing**. Several ERP vendors are adopting IMC as part of their ERP architecture, either as an underlying platform capability (for example SAP and Workday) or in a hybrid mode, where IMC capabilities complement/extend existing capabilities (for example, Oracle and Ramco). However, there may be licensing and upgrade implications for adopting these capabilities. While IMC offers potentially significant benefits, the impact will vary, so do not be pressured into adopting

IMC by ERP vendors. Identify the impact of potential benefits of IMC to help evaluate ERP vendor offerings. Some ERP vendors do not yet leverage IMC capabilities. While this is not a major issue in the short term, it will put them at a disadvantage compared to ERP vendors that do leverage IMC, especially as IMC capabilities become part of most databases. It is important to understand ERP vendor road maps for adopting IMC technologies.

- **Implement specific digital business needs**. In high-priority initiatives, we make the case for organizations ensuring that their postmodern ERP environment supports the needs of the digital enterprise by being "digital ready." Over time, we will see organizations require more digital business processes, which will then have a cascading effect across the organization and across its value chain. Some existing digital processes are likely already supported, for example, m-commerce and digital marketing, and ERP leaders should use pace layers to identify new digital business innovation that the postmodern architecture needs to support. These early projects will test the readiness for going digital, and allow ERP leaders to modify their road maps.

- **Extend mobile technology**. Organizations should review their plans for supporting both consumer and operational mobile needs. Many organizations still separate mobile for people from mobile for machines in their planning, and this reinforces the tactical gateway integration that we see today. ERP leaders need to understand the opportunities for all mobile

working, and need to seek to support mobile as a native development of the ERP environment. Build the necessary business cases, with a focus on new business process enablement, rather than cosmetic mobile extensions. Many ERP vendors are building mobile capabilities, but it is an area in which innovation development is recommended. For people-centric applications, supporting mobile is a key capability that will be the norm, rather than the isolated use case gateways we see today.

- **Reimagine business processes**. One of the major concerns that we have is that many ERP projects that provide new functionality are iterations of existing business processes with some incremental new functionality. Seldom is there a holistic review of the business process itself, and rarely is the question asked, "Is this the right way to solve the need, or does the need actually exists?" The digital environment requires organizations to re-examine all business processes that may be impacted, yet doing this runs the risk of just digitizing existing processes. It is important that ERP leaders initiate the discussion around understanding the innovating and differentiating applications that postmodern will need to support — either directly or indirectly — and help the business reimagine what could be possible because of a renovated and far more agile ERP. Use the HOOF model, as well as pace layers, to aid in the discussion. For this conversation to take place, organizations need to have their postmodern ERP fully operational and "digital ready."

- **Improve the user experience**. Despite much work being undertaken by vendors, users still complain about poor user design and unacceptable interfaces when using ERP. Mobile device working has helped the situation, so have vendor initiatives, such as SAP's Fiori technology and Infor's Hook & Loop design team. Organizations should categorize their ERP users into informational users, casual users, transactional users and business users, and establish usability needs for each category. These needs should overlay with mobile, analytics, collaboration and other key user-centric improvement technologies. The skill of the organization will be manifest in the creation of a workable framework that manages the inherent diversity of solutions, yet appeals to both the user's "happiness" in using specific applications and the organizational demands for productivity.

Lower Priority

- **Plan to leverage IoT data streams**. The IoT as a concept reached the peak of Gartner's Hype Cycle for the Internet of Things in 2014, although a recent survey by Gartner of business executives showed that the majority do not think it will have a significant business impact for at least five years. However, all aspects of ERP will be impacted by the potential of the IoT, so ERP leaders need to plan how they will leverage the data yielded by networked things for business benefit. Operational ERP will be significantly impacted as low-cost sensor adoption and technologies mature, and as the boundaries between IT and operational technology (such manufacturing operations and smart meters) lessen. However, administrative functions will also be impacted, for example, the application of the IoT to the day-to-day work environment for most employees will impact HCM. By adopting a people-centered focus on how IoT can help employee performance, promote new ways of working and eventually take advantage of smart machines (such as virtual personal assistants and smart advisors), enterprises expect to raise employee productivity, which will need to be managed through HCM systems. Use Gartner's IoT Hype Cycle to identify potential IoT impact by domain and industry. Leveraging IoT data streams will require the use of different technologies, such as the cloud to connect assets through on-demand computing resources and storage. Big data data stores, such as Hadoop and Cassandra, can save time-series machine data at a much smaller cost per TB than traditional storage technologies. However, these will introduce new information management and security challenges.

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