FAST-TRACK DIGITAL TRANSFORMATION WITH ERP IN THE CLOUD

How to Unlock New Business Opportunities While Upgrading to SAP S/4HANA
Infrastructure deployments are a fact of life for CIOs. But with the advent of machine learning and artificial intelligence, businesses can no longer afford to settle for run-of-the-mill upgrades. These are technologies with the potential to create cost savings as well as new revenue. They can revolutionize businesses. To manage a technical transformation on that scale, CIOs need to build strong internal partnerships.

I’ve witnessed what a difference these partnerships can make. When Google recently decided to implement a new cloud-based enterprise resource planning (ERP) system, we wanted a platform to transform every inch of our financial operations—from payroll to procurement. Finance and IT partnered to lead the way. A real partnership means more than touching base a few times a year; it means working together toward a set of common measurable goals. As you delve into this Harvard Business Review Analytic Services study about transforming ERP, keep in mind these five ways to build internal partnerships.

1. **Use your business knowledge to become a credible partner.** CIOs interact every day with heads of other divisions and have a deep understanding of how their company works. To get others to work together productively, CIOs need to draw on that vast knowledge. They also need to hire IT professionals who are deep experts in the areas of the departments they provide technology for.

2. **Work with your partners to decide when it’s time for a change.** By engaging in ongoing conversations, you can determine together how and when technology will propel your business. For example, finance recognized the need for technology transformation to empower growth and efficiency. We saw mutual advantages to taking on a project of this complexity, so we moved it forward together.

3. **Build a case for how each partner will benefit.** Start by working with partners to identify short-term victories, such as more efficient workflows. Then, show them how a cloud-based ERP system could help meet long-term goals. For instance, this report outlines how cloud-based tools can fast-track innovations for a competitive edge.

4. **Hold your most senior partners accountable.** Create a strategy where business leaders have clearly defined responsibilities throughout the project. At Google, the CFO and IT presented the ERP transformation strategy to the CEO and the board of directors because technology is a shared responsibility. Leaders have to show alignment and close partnership while engaging throughout the project.

5. **Set your partners up for future success.** To get people on board for major change, they have to see a future upside. Strategically migrating to the cloud today builds an infrastructure capable of taking advantage of ML/AI and advanced analytics—technologies that will allow businesses to transform large volumes of data into unexpected growth opportunities. Better yet, the cloud’s ease of use allows CIOs and their teams to focus on new ways to add value.

As you prepare for your ERP transformation, this Harvard Business Review Analytic Services study will help you build a business case and a strategy to get there.
Enterprise resource planning (ERP) platforms are arguably the most important applications in a company’s data center. The core modules range from financial and order management systems to supply chain planning and human resource management. In short, if the ERP platform goes down, orders can’t be booked, invoices can’t be paid, and business grinds to a halt. This high-risk proposition helps explain why enterprises need a compelling reason and an airtight business case before upgrading their ERP system and incorporating the project in a digital transformation strategy.

The cloud is providing just such a justification by turning an ERP upgrade into a business opportunity. A move to the cloud can fast-track digital transformation and unlock business benefits like faster time to market for new products and services and reassigning internal information technology (IT) staff to high-value business initiatives. “The cloud is clearly the right architecture because it helps you disrupt IT infrastructure costs,” says a former chief information officer (CIO) of the worldwide supply chain and R&D organizations at a consumer packaged goods (CPG) company. “Saving millions of dollars in IT costs can help fund other transformation projects.” The cloud can also drive transformation with actionable insights to quickly identify opportunities and new revenue streams. In addition, the cloud offers resources for increasing IT uptime, which results in better customer service and the loyalty of high-value clients.
The cloud can preempt disruption caused by competitors and help companies become disruptors themselves,” says David Linthicum, chief cloud strategy officer at Deloitte Consulting.

ERP + CLOUD: THE FORMULA FOR AGILITY AND INNOVATION

Opportunity
Support for SAP’s older ERP applications is set to expire by the end of 2025, leaving customers with an important choice. They can upgrade to SAP S/4HANA and stop there or, better yet, combine it with a move to the cloud to fast-track digital transformation and unlock valuable business outcomes benefits, such as faster time to market for new products and optimization of internal resources for strategic business initiatives.

Challenge
ERP upgrades in the cloud require careful planning and comprehensive implementation strategies in order for users to reap the anticipated rewards. Leaders who don’t successfully address the complexities of cloud ERP projects expose critical business systems to downtime and excessive costs.

Solution
Joining forces, CIOs and business managers can develop a phased transition strategy that capitalizes on advanced analytics and processing power available in the cloud along with the benefits of a modern ERP platform.

Users of SAP’s ERP applications feel an especially strong sense of urgency to develop an ERP upgrade strategy. SAP announced its intention to end support for the SAP ERP Central Component version 6 (ECC 6) application by the end of 2025, which would make the latest version, SAP S/4HANA, the only one fully supported by the company.

Given the importance of ERP to business operations, how can CIOs and other C-suite executives transition to the cloud without modernization missteps while quickly reaping business and technology rewards like greater business data insights, agility, and better use of internal IT resources? To help answer that question, Harvard Business Review Analytic Services gathered insights and detailed planning guidelines from executives and veterans of S/4HANA transformation projects at global enterprises. One of the first and most fundamental decisions leaders will face is where to run SAP S/4HANA—on premises, in a public cloud, or with a hybrid approach that combines the first two options. The experts interviewed for this study shared the lessons they learned for making long-term cloud-deployment choices without disrupting critical business operations. In addition, veterans of ERP upgrades also pointed the way to finding the best cloud provider to run business-critical resources.

The Case for Cloud
Simultaneously moving to the cloud during an ERP upgrade represents a fundamental change to enterprise operations as well as an opportunity to unlock new business value. CIOs have a unique role to play in helping business managers and their IT staff choose innovations that address overarching business goals. “Everybody is in danger of being disrupted today, and executives need to understand how the cloud can help them use digitalization to do business in new ways,” says David Linthicum, chief cloud strategy officer at Deloitte Consulting. “The cloud can preempt disruption caused by competitors and help companies become disruptors themselves.”

If cloud and ERP modernization “aren’t part of a larger digital transformation strategy, it will be very difficult for organizations to reap the full value of the upgrade,” Linthicum adds. “There needs to be a holistic vision that considers the additional business agility, the strategic use of data and analytics, and opportunities for removing a lot of the manual processing that is still part of so many enterprises today. These capabilities can ultimately help companies better defend themselves against competitors and changes in the marketplace.”

Forward-looking executives are showing how a modern ERP platform can unlock business value in three important areas for large enterprises.

1. Real-time insights replace canned reports to optimize ROI. “S/4HANA is a fundamental part of a digital transformation strategy,” says a CIO at a manufacturing and logistics company. Four years ago, the company began upgrading from SAP ECC 6 to SAP S/4HANA for its finance, human relations, warehouse management, and materials management modules. The company is scheduled to move exclusively to SAP S/4HANA in a public cloud by the first quarter of 2020. “The HANA platform lends itself to managing real-time data and analytics in ways that will move us away from traditional, canned reports and give us far richer insights,” the CIO says.
He adds that older ERP platforms, such as SAP ECC 6, have become cumbersome for data management, analytics, and incorporating third-party data in the ERP system. With the legacy system, creating custom reports often requires hours or even days, which means the results may be out of date by the time they’re available. “We’re moving toward the goal of real-time insights,” the manufacturing and logistics CIO says.

As that happens, manufacturing teams are tapping into new demand-planning tools within SAP S/4HANA and incorporating continuously updated market data, helping the procurement staff find the best deals for raw materials and use automation to trigger purchase orders to optimize returns on investments. Similarly, logistics organizations can analyze seasonal factors, such as weather, to anticipate delays at ports and airports and preemptively adjust shipping schedules.

2. Optimized inventories reduce costs and improve efficiency. A U.S. remanufacturer of auto parts launched an SAP S/4HANA upgrade as part of a larger transformation effort aimed at reducing costs and improving efficiency. The company’s mainframe-based ERP system had become too old and inflexible to meet the company’s demands for better financial management, optimized raw materials purchases, and closer tracking of customer orders. But the most significant business driver for ERP modernization was the promise of more intelligent inventory management. “We recognized that the inability to manage inventory precisely left us with large volumes of excess materials and unnecessary expenses,” says James Worth, a consultant and the former CIO who guided the remanufacturer’s SAP S/4HANA upgrade. “We were carrying between $300 million and $350 million worth of inventory but felt we could get that down to $200 million or less through better management.”

Reducing inventory that significantly would help cover the cost of the ERP implementation, he adds.

3. Faster innovation can gain a competitive edge. A third transformation example comes from a global CPG company that is evaluating a shift to SAP S/4HANA as part of a broader transformation vision. The goal: respond quickly to stay competitive during volatile times for businesses. “Everything today is going digital, so if a CIO isn’t leading business transformation, the organization is going to be burned at some point in time,” says the former CPG-industry CIO who was part of the change. “I created a partnership with business leaders to create a digital culture and a transformative mindset throughout the organization. When you have the right underlying culture, especially with non-IT people, an S/4HANA project is more apt to succeed.”

Key Cloud Elements for Digital Transformation
Innovative executives see significant business and technical value in linking ERP upgrades with moves to the cloud. While the potential is great, ERP modernization has traditionally been complex, time-consuming, and resource-hungry. These projects still require comprehensive planning, but IT and business staff can smooth the way with the right cloud platform.

IT leaders say the business benefits of the cloud fall into two distinct categories today—advantages that have been traditionally associated with cloud and newer capabilities that are available from a select group of cloud providers. Enterprises should look for a mix of the two categories to find the right cloud service for their needs.

FOUNDATIONAL CLOUD CAPABILITIES
Reduced capital expenditures. The cloud creates potential financial savings by avoiding investments in on-premises computing, storage, and networking equipment. “Reducing capital expenditures for hardware frees up funds for investments that are more strategic for the business,” says a former group CIO and IT director who helped lead an ERP upgrade after two large chemicals companies merged. The...
post-merger plan was to implement SAP S/4HANA in a public cloud to digitize core business processes, such as accounts payable. “Rather than spending money for servers in the data center, companies may be better off investing capital in projects like a plant expansion that can increase their production capacity and improve service for customers.”

**Optimized resource allocation.**
In addition, by contracting with cloud providers for infrastructure services, enterprises reduce the strain on internal IT staff associated with managing complex ERP applications. “With cloud, we aren’t responsible for maintenance contracts, patching servers, capacity planning, and storage elasticity,” says the CIO from the manufacturing and logistics company. “This has freed about 10 technically bright staff members to focus on more strategic projects for the business.”

**Flexible scalability and on-demand IT services.** IT resources can quickly grow or shrink to handle large or unpredictable spikes in business requirements while giving business users the performance levels they need to stay productive. “The cloud offers a much more dynamic model for managing our costs,” the manufacturing and logistics CIO says. “With the cloud, we can switch resources on and off, so if we’re running a project only from 9 to 5, we don’t have to pay for it during the other 16 hours of idle time.”

IT executives also note that the cloud’s on-demand capability provides new resources in a fraction of the time it may take to purchase, implement, and test additional capacity in an on-premises data center or at a managed service provider, which could consume weeks. The cloud’s on-demand capabilities provide new resources in a fraction of that time. The bottom line: business units stay productive, optimize costs, and can quickly react to new market opportunities.

**ADVANCED CLOUD CAPABILITIES FOR DIGITAL TRANSFORMATION**

**Table stakes.** “The cloud’s elasticity, scalability, and cost advantages are essentially table stakes now,” Deloitte’s Linthicum says. “Clients are coming for these reasons and staying for the advanced features and functions that are available in public clouds today.”

Many ongoing innovations are directly impacting ERP modernization, he adds, including the following:

**Actionable insights.** Artificial intelligence and machine learning are helping executives make sense of large volumes of data to drive their business. They enable predictive analytics for better-managed finances, supply chains, and other important business functions. Similarly, companies can use expandable cloud storage to handle multi-petabyte databases. Together, these factors can translate into insights that help companies improve customer service, identify opportunities for new products and services, and reduce costs.

**Ongoing improvements in cybersecurity.** Virtual private networks, default data encryption, advanced authentication and access technology, and other factors in cloud services are strengthening security. “The cloud model becomes particularly attractive given today’s cyber threats. Software automatically gets patched and fully tested as new threats arise,” the manufacturing and logistics CIO says. Bolstered security, thanks to the cloud, results in less downtime and reduces the risk that sensitive data will be compromised, which can enhance customer trust and corporate reputations.

**Enhanced business continuity and disaster recovery capabilities.** Leading cloud providers offer service level agreements with availability levels higher than 99% plus capabilities for...
Public clouds stand out as **long-term choices for ERP** because of their traditional and advanced capabilities as well as the pressures on cloud providers to keep **innovating** so they can compete.

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live upgrades and rapid recoveries. “The combination of more modern technology, such as SAP S/4HANA, and a leading public cloud enhances disaster recovery with far simpler data replication processes than were in the hosted data center,” says the manufacturing and logistics CIO. “We used to invest a huge amount of money in maintaining and testing the standby infrastructure, which had a return-to-operations time frame of two to four hours after a disruption. The cloud offers continuous, real-time replication, so we can instantly run the production environment off one of three data centers at a cost that is lower than it was with the hosted model.”

**Technical expertise.** Cloud providers adept at running large-scale, global IT environments have in-house expertise to help customers optimize the cloud IT environment and tailor it to the needs of large enterprise applications, such as ERP platforms, CIOs interviewed for this report say. This third-party technical expertise also frees up internal IT staff to focus on strategic initiatives that can help the business increase revenue and serve customers more effectively.

**Continuous technology innovation.** Fast access to digital innovation with the potential to give cloud users competitive advantages is now a reality. “Artificial intelligence, the internet of things, virtual reality, edge computing—you name it and leading public clouds have it,” Linthicum says.

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**Five Steps to Boosting Business Value through Upgrades**

There are many potential benefits of running modern ERP systems in the cloud, but the complexity and critical nature of ERP upgrades require careful planning and comprehensive implementation strategies to reap the rewards. Leaders who don’t successfully address the complexities of cloud ERP projects expose their organizations to significant risks, including costly disruptions of business services. Working closely together, IT and business leaders should develop a multiyear transition strategy that covers key stages of the upgrade planning and deployment journey.

**STEP 1: PUBLIC OR HYBRID: CHOOSE THE RIGHT CLOUD FOR YOUR ERP.**

After committing to an upgrade to SAP S/4HANA, the next fundamental decision is where to run it. Given the powerful combination of traditional and advanced cloud benefits, many enterprises will avoid running their upgrade in an on-premises data center. But they still must decide whether to run it totally in a public cloud or in a hybrid cloud that combines public and private cloud models. To help answer that question, cloud veterans advise companies to consider not only their immediate needs but also their long-term vision of the digital infrastructure. “When CIOs look out over three to five years, they often decide that the public cloud is the preferred platform,” Linthicum says. “After going through the upgrade to a new ERP platform, they want to stay put for a long period of time. They don’t want to change delivery models a short way down the road. Enterprises are opting for either a single public cloud or a multicloud approach with two or more public clouds in the mix.”

Public clouds stand out as long-term choices for ERP because of their traditional and advanced capabilities as well as the pressures on cloud providers to keep innovating so they can compete. “This is leaving private and hybrid
“We didn’t want ERP in a hybrid environment, because we thought the complexity of running in two places meant more risk and more opportunity for errors or failures,” says a former chemical industry CIO.
company, asserts that if you decide to hire a consultant, you should look for firms that offer guidelines and checklists of potential problems and have proven methods for overcoming those problems. Some cloud providers also offer useful resources, such as implementation templates and best practices for ensuring security and integrating the platform with relevant third-party applications.

**STEP 4: EVALUATE PUBLIC CLOUD PROVIDERS AND THEIR CAPABILITIES FOR DIGITAL TRANSFORMATION AND ERP SUPPORT.**

Many cloud providers offer table-stakes features, such as on-demand computing and storage resources, but clear differences emerge in advanced features. “The bake-off comes down to enterprise executives identifying their critical requirements and then assessing how well an individual cloud provider matches up to those needs,” Linthicum says.

A previous section, “Key Cloud Elements for Digital Transformation,” provides details, but in summary, the evaluation checklist should include each cloud vendor’s ability to:

- Reduce capital expenditures
- Offer scalability and on-demand IT resources
- Provide sophisticated analytics
- Continuously strengthen cybersecurity
- Enhance disaster recovery capabilities
- Provide cloud and digital transformation expertise
- Support ongoing technology innovation

For SAP S/4HANA, organizations should also evaluate the provider’s track record for supporting the platform, advanced analytics capabilities, ability to deliver leading cybersecurity services, and other must-have features from the enterprise’s point of view. “Then weigh each one in terms of their importance to the organization, and score each provider to see which ones rise to the top,” Linthicum explains. “After developing a short list of top candidates, conduct proofs of concept by running components of the ERP application in the various cloud options.”

Consider costs as well, which, unfortunately, requires more work than simply comparing the price sheets of different service providers. Prices may differ according to what types of virtual machines are spun up in the cloud, how many minutes or hours they run, the gigabytes being specified, and other variables. Compute pricing takes on greater importance because of SAP S/4HANA’s in-memory architecture, which requires high volumes of processing power. “People have to go in with their eyes wide open with respect to the difference between ECC 6 and HANA in terms of the size of the servers they require,” the manufacturing and logistics CIO says.

Finding consultants who can help sort out these types of considerations may become more difficult as SAP’s legacy applications approach end-of-support dates and enterprises rush to adopt cloud services. Referring to reports from market research organizations, the manufacturing and logistics CIO notes that a “tsunami” of upgrades to SAP S/4HANA may arrive within two or three years. “The availability of resources and skilled people to help with upgrades will be in short supply, particularly for those upgrading their SAP applications,” he says.

Cloud veterans also advise executives to look closely at the costs not only for moving data into the cloud but also for transporting it to another platform. For help in sorting out all the cost variables, consider using third-party cloud modeling tools that can aggregate pricing from multiple providers and

CLOUD VETERANS ALSO ADVISE EXECUTIVES TO LOOK CLOSELY AT THE COSTS NOT ONLY FOR MOVING DATA INTO THE CLOUD BUT ALSO FOR TRANSPORTING IT TO ANOTHER PLATFORM.
help executives make accurate total-cost-of-ownership comparisons. “Organizations can also leverage these tools for ongoing cost governance to help them understand everything they’re being billed for and predict usage and future costs,” Linthicum says. When making cost evaluations, tap expertise beyond the IT department and include key people from the finance and procurement organizations in the decision-making process, CIOs say.

Some harder-to-quantify factors also enter into choosing the right cloud provider to support ERP systems. “We look at them not just as technology providers but also as innovators who will work with us to get the most out of the services we’re receiving from them,” says the former chemical industry CIO, who suggests that organizations should work closely with cloud providers to get an understanding of the latter’s ongoing development strategies. “We saw numerous presentations about their road maps and the timing of when new features would be coming out,” Worth says. “As they planned to roll out more software and modules for the HANA space, we knew what was coming, and when. That helped us adjust our project plan to fit with those schedules.”

Reputations also rank high with IT leaders. “Before you trust an outsider company with something as business-critical as your ERP system, you have to be confident it will be viable for the long term,” says the former CPG executive. “I’m willing to pay extra to a provider who gives me that sense of assurance.”

**STEP 5: CREATE A CHANGE MANAGEMENT PLAN THAT MINIMIZES DISRUPTION.**

IT executives say that the technical challenges associated with ERP upgrades and moves to the cloud are diminishing. “The journey to the cloud isn’t complex,” the manufacturing and logistics CIO explains. “The market is maturing quickly, and the technologies and utilities provided by the cloud owners make the journey relatively painless.”

To make migration even easier, work with the cloud provider to minimize one remaining technical rough spot, which involves the smooth flow of information between the public cloud and on-premises applications that work in conjunction with the cloud-based ERP platform. Examples of related modules include third-party warehouse or supply-chain management systems and proprietary research and development programs that share financial data with the ERP application. “Think holistically,” advises one CIO. “Look beyond the SAP platform to all the important and closely linked applications, such as planning, quality assurance, and banking systems that connect with the ERP application. They require an updated integration layer and a robust testing plan to confirm it works. That was an aha moment for us.”

But he and others warn that technical challenges like these may be easier to address than the issues that arise around managing change for business leaders and end users. “Transformation has less to do with technology and more to do with change management for business operations,” says Sanjay Choubey, a consultant who works as an interim leader of business transformation programs for large enterprises. Most recently, he led a migration from ECC 6 to SAP S/4HANA at a large manufacturer of engines for outdoor power equipment and related products. “When you start changing the business processes to eliminate obsolete or redundant workflows, you need someone to interpret that change and work with the organizational leaders to make sure that those changes are understood, communicated, sponsored. To gain this level of buy-in from business leaders, a senior person, such as a vice president of business transformation, must work closely with the vice presidents of marketing, manufacturing, supply chain, and other areas.”

Frontline staff members also need help adjusting to change. “People who have to move from being a programmer to an SAP configurator role require a new skill set,” Worth explains. “People need training and new skill sets well in advance of moving from the legacy system so they’re not suddenly transported to a new environment that they can’t tune or react to quickly if something goes wrong.”

Because cultural change can be so disruptive, enterprises should consider transitioning one department at a time to SAP S/4HANA and the cloud. Cloud consultants also advise maintaining a previous ERP version to roll back to until the full ERP upgrade is complete. “Not because of problems with the cloud, but because something usually gets missed—for example, a security issue that wasn’t understood beforehand or an incorrect security setup that keeps people from logging in to the system,” Linthicum says. “For reasons like these, companies should go slow at first and plan on making the full cutover in perhaps a year or two. Opt for being conservative rather than rolling out the upgrade all at once.”

**Act While There’s Still Time**

As digital disruption touches virtually all business sectors, forward-leaning executives feel new urgency to transform their organizations in order to remain viable in their markets and to gain competitive advantage. For many enterprises, that means modernizing their core ERP platform and moving it to the cloud to achieve better cost management, enhanced agility, and faster access to technology innovations.

But such a large-scale move requires a comprehensive planning and implementation strategy that covers a wide range of technical and change-management issues. Enterprise leaders can begin to address these issues with the help of best practices emerging from veterans of transformation projects.

With competitive pressures mounting, support for legacy ERP applications running out, and a tsunami of demand for technical expertise looming on the horizon, the manufacturing and logistics CIO warns that procrastination comes with consequences. CIOs must act now in order to build a strong foundation that sets them up for success. “From my point of view,” he says, “now is an exceptionally good time to make the move to S/4HANA in the cloud.”