THE PATHWAY TO CLOUD-POWERED INNOVATION

Migrating SAP to the Cloud Gives Companies a Competitive Edge

COVID-19 has created public health and economic crises of epic proportions, and it has rocked companies around the globe, forcing them to rethink business priorities and strategies as we all cope with unprecedented adjustments and challenges to our day-to-day lives.

For this research report, chief information officers (CIOs) and industry experts were interviewed about migrating SAP to the cloud shortly before the pandemic became the foremost topic on everyone's mind. Now, in the wake of this global crisis, most companies have understandably turned their focus toward business continuity. As a result, SAP S/4HANA projects have generally been placed on hold. Many other digital transformation initiatives have been put on the back burner as well.

But what has become clear for many companies is whether they have—or they lack—an agile infrastructure able to respond to new conditions and bursts of activity. While the current situation did not shape the comments in this report, the findings and insights about the need for, and best approaches to, digital transformation through the cloud still hold true. And, if anything, the crisis has reinforced the need for digital transformation and use of the cloud.

Historically, the companies that come out of a crisis most successfully balance short term and long term even during the most challenging moments. Leaders who appreciate this balance are the ones who, in the words of one CIO interviewed for this paper, "clean out their closet." They realize the importance of organizing their data and taking other steps to prepare for a future that is arriving faster than we might have anticipated.

This crisis, like all crises, will eventually pass. However, the pandemic reminds us that uncertainty is the new normal. Being prepared for disruption is not simply about fending off new market entrants. It's about having the flexibility, resilience, and agility to respond to situations that have not been imagined—and may seem unimaginable.

For leading organizations, it's about being ready for anything. The insights in this report will guide companies in their development of that readiness, both today and in the future, when the pandemic is contained and controlled.

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While innovation remains a top priority across all industries, many companies are not achieving the results they want from their innovation efforts. As companies migrate their SAP enterprise resource planning (ERP) systems to the cloud, technology leaders see this as an opportunity to reimagine business processes and propel their innovation strategies.

For this report, Harvard Business Review Analytic Services conducted interviews with industry experts and five CIOs who have migrated their on-premises SAP solutions to the cloud. The research indicates the greatest success is going to companies that look beyond cutting costs and improving efficiencies and focus on bolstering their innovation and digital transformation strategies by moving SAP to the cloud.

"The people who 'get it' see having their ERP solution in the cloud as a force multiplier," explains David Linthicum, chief cloud strategy officer at Deloitte Consulting LLP. "They are looking to innovate with information, automate a lot of processes, and delight their customers."

At the same time, CIOs and experts counsel that ERP migration projects are complex and must be approached carefully to overcome the inherent resistance that such projects often encounter, such as objections based on outdated concepts of cloud technology or resistance to change.

This paper will explore the benefits that companies have reaped from their SAP cloud migration, such as using IT resources more effectively, gaining deeper insights from data, and improving innovation. It will also examine the approach organizations are taking to gain buy-in from other stakeholders in their operations, positioning the SAP migration for a successful outcome.

The Innovation Struggle

For all the importance placed on innovation, companies are frustrated by their inability to succeed with these initiatives. In a recent Boston Consulting Group survey of innovation executives, 80% said innovation was a top-three priority at their companies, but only 30% said their organizations were good at it. Experts argue these projects don't succeed because of lack of commitment to and underinvestment in technology, and failure to develop a clear strategy.

80% OF COMPANIES SAID INNOVATION WAS A TOP-THREE PRIORITY AT THEIR COMPANIES, BUT ONLY 30% SAID THEIR ORGANIZATIONS WERE GOOD AT IT.

As CIOs look to further digital transformation and innovation at their organizations, SAP S/4HANA, an intelligent ERP platform that supports advanced data and analytics capabilities, has for some companies become a key element in fulfilling their strategy. The technology acts as an intelligent hub, allowing sophisticated analytics tools to be applied to petabyte-size data volumes while connecting departments across the enterprise using structured end-to-end processes.

Companies that have migrated SAP S/4HANA to the cloud have reported significant benefits that aid their digital transformation and innovation efforts. Nonetheless, adoption has been slower than expected. A survey conducted by SAP Insider identified some of the key reasons for the hesitation, including competing priorities, lack of knowledge about the technology, lack of talent and resources, and an inability to develop a sound business case. FIGURE 1

In addition to the S/4HANA upgrade, business leaders are also considering the right timing for moving these systems to the cloud. Migrating an SAP solution to the cloud is a major undertaking that should not be minimized. However, the CIOs interviewed who migrated their solutions to the cloud dismissed many of those concerns, suggesting they stemmed from a lack of knowledge and narrow vision about the benefits that upgrading an ERP solution and migrating it to the cloud could bring.

Some of these obstacles are similar to the issues that have hampered overall innovation. The CIOs agree that companies sometimes create artificial barriers, like concerns about security, when considering moving their SAP solution to the cloud. This can have negative effects on a company's ability to innovate.

"The majority of obstacles that people cite are not valid," says the CIO of a large consumer-goods company. "This is not our grandfather's cloud where it was completely vulnerable from a security standpoint, didn't have the right controls or right safeguards from a regulatory compliance standpoint. These systems have gotten extremely, extremely robust."
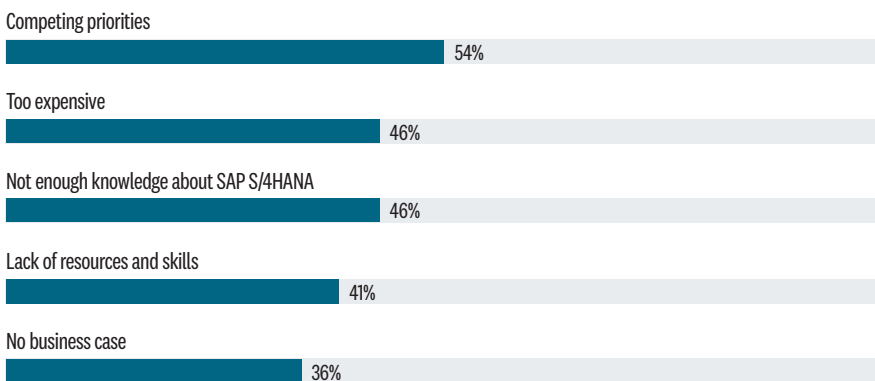
Some of the challenges are more nuanced. One CIO at a global technology company says the standard financial models used to evaluate innovation projects often devalue the most important benefits of a cloud migration as "soft benefits." As a result, he says, this gives companies cover to resist change, even if such change is clearly needed. "A lot of the hindrances to innovation are around organizational mindset shift," he says. "People aren't used to it, and so, therefore, their first response is to push back and really create barriers because it's so far away from what they've done in the past that they're just uncomfortable." As a result, he says, it's easy to diminish the innovation benefits that come from migrating an SAP solution to the cloud.

When innovation is not measured correctly, companies can more easily dismiss ideas and allocate funds insufficiently for innovation projects. Even when confronted with the need to manage and use data more effectively, the CIO of the technology company says his colleagues often suggest Band-Aids. "If we said, 'We'll invest six or nine months to do process optimization for finance, operations, or our sales team,' the response would have been,

FIGURE 1

REASONS FOR HESITATION
Top reasons that companies hesitate to adopt SAP S/4HANA

Competing priorities
54%

Too expensive
46%

Not enough knowledge about SAP S/4HANA
46%

Lack of resources and skills
41%

No business case
36%

SOURCE: SAP INSIDER, 2019

The **key benefits of migrating to the cloud** and improving innovation can be categorized into four areas—avoiding outdated technology, using IT resources better, gaining deeper insights, and preparing for future opportunities.

'We're not going to waste two or three of our most competent people on that. Just throw a few more CPUs [central processing units] into it or throw more storage at it. Storage is cheap.'"

Experts say this attitude puts companies at risk from upstarts and forward-looking competitors that can tap into the benefits the cloud approach can bring today and in the future. Subsequently, those advanced companies develop an innovation edge that creates an ever-widening divide between them and others in their industry.

Benefits of Upgrading and Migrating to the Cloud

Upgrading an ERP solution provides benefits that can be enhanced by migrating to the cloud.

SAP S/4HANA provides efficiency and performance through a combination of automation and simplification. Unlike traditional relational databases, S/4HANA leverages in-memory processing, which allows for near-real-time analytics and computer capabilities.

The user interface allows people to view information in easier, more personalized ways, too. They can execute and generate reports and analytics based on live data, improving speed and performance.

Hosting SAP S/4HANA in the cloud extends those benefits and allows for greater agility. The cloud permits faster upgrades, provides the ability to add computing resources as needed, and eliminates the need for on-premises hardware, databases, or IT staff.

A survey by Forrester Research asked respondents to rate on a scale of 1 to 5 the results they've seen from upgrading to SAP S/4HANA. More than 80% of respondents indicated the migration had improved their data stores, given them new ways to engage with customers, and provided them with a competitive advantage. FIGURE 2
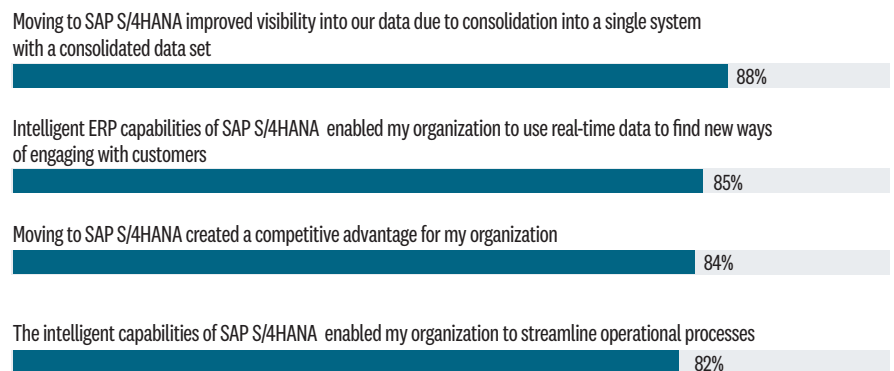
The key benefits of migrating to the cloud and improving innovation can be categorized into four areas—avoiding outdated technology, using IT resources better, gaining deeper insights, and preparing for future opportunities.

Avoiding obsolescence. On-premises hardware can become obsolete quickly, which could become a more pressing issue as artificial intelligence (AI), machine learning, and other advanced technologies in the cloud continue

FIGURE 2

OPERATING SMARTER

Percentage of respondents who agreed with the following statements

Moving to SAP S/4HANA improved visibility into our data due to consolidation into a single system with a consolidated data set

88%

Intelligent ERP capabilities of SAP S/4HANA enabled my organization to use real-time data to find new ways of engaging with customers

85%

Moving to SAP S/4HANA created a competitive advantage for my organization

84%

The intelligent capabilities of SAP S/4HANA enabled my organization to streamline operational processes

82%

SOURCE: FORRESTER RESEARCH, 2019

"Rather than use the phrase 'fail fast,' our internal phrasing was **'learn fast, move forward.'** We have the ability to take snapshots of the environment and spin them up for tests or development-type things or have something to go throw darts at," says the CIO at a large retailer.

to develop. The relentless demands for innovation could put a greater premium on the latest and greatest technology as intelligent ERP becomes the preferred method going forward.

"You can buy the iPhone 11 and, literally six months later, it's obsolete because there's something that's better or faster," one CIO says. "The same applies here with these appliances. It's extremely difficult, if not impossible, to keep up with the releases for machine learning, for true neural networks, for natural language processing."

As Linthicum notes, "Major innovation has been occurring in the cloud. Having a high-performance computing environment in the cloud to crunch numbers offers a more tolerable model than spending millions of dollars on hardware upgrades, software upgrades, and data center space."

Unleashing IT resources. Offloading management of SAP infrastructure to a cloud provider allows CIOs to better allocate internal resources for more strategic purposes. As one CIO puts it, "Instead of saying, 'Hey, give me five more people who are going to become the HANA administrators,' I said, 'Give me five more business relationship managers who can face off between IT and the business so that we can better do business requirements and design and things like that, and take some of the onus off the business.'"

Moving to the cloud has allowed the CIO of a large retailer to let his IT teams be more innovative. "Rather than use the phrase 'fail fast,' our internal phrasing was 'learn fast, move forward.' We have the ability to take snapshots of the environment and spin them up for tests or development-type

things or have something to go throw darts at," he says. "That changed the mindset of the IT team on how risk-averse they were. It gave them a higher degree of psychological safety. If we did something that was bad, it's easier to revert back to a version in a cloud-based environment than with a premises-based solution."

Gain deeper insights. A high-performance computing environment provides the insights to allow companies to make better decisions and reinvent business processes through better, faster access to data.

The CIO of the large retailer, who runs SAP in the cloud, explains that employees in stores use handheld devices to receive sub-second inventory information about items. However, during the critical year-end closing, on-premises systems would see up to an 80% spike in CPU consumption during peak reporting times—the handheld devices would then time out for 30 seconds. "When the system became overburdened," he says, "I call it the toilet bowl effect. The worse it gets, the worse it gets. S/4HANA in the cloud never times out."

Another CIO says his company was working off data that was one to two weeks old, and users lacked the ability to examine the core data. He says his company moved from being "spreadsheet driven" to "data driven" when people realized SAP S/4HANA in the cloud provided auditable, real-time data they could drill down into using a live dashboard.

One CIO says the company was deterred from using SAP in-memory solutions to analyze large amounts of data because of the high upfront

costs, such as those for hardware and storage. Paying on an as-needed basis for computational resources in the cloud freed the company to do deeper exploration of the data. "There's technically nothing stopping us from getting the same results on-premises, but cost-wise, it just was not going to work," he says. This CIO notes that the resources to do what-if modeling in the cloud has saved the company many millions of dollars in inventory costs.

The CIO was able to combine weather-projection data with ERP data to improve the supply chain, such as by making product decisions for January in October. "We've become more proactive and do a lot more of what-if modeling," he says. "We mine the data using AI and machine learning to really get insights that we didn't have before. In the past, our actions were heavily driven on gut feel."

Improving such business processes provided numerous tangible benefits. A CIO for a large retailer notes that, previously, the company's stores were sorted into five tiers ("A" through "E") to determine how inventory was allocated and replenished. A store at the "A" level would have every product replenished immediately, but this unnuanced approach didn't account for how quickly products actually sold. As a result, "A" level stores would sometimes have three times the amount of inventory they needed for a given product, while "E" level stores were completely out of that product.

By using SAP S/4HANA in the cloud to gain a better understanding of inventory, the retailer was able to improve its omnichannel performance. Previously, when an online customer bought a shirt, the retailer would simply ship the item from the nearest warehouse. It didn't consider whether this would cause shortages elsewhere. With a deeper understanding of its inventory, the retailer realized it is sometimes better to ship a product from a location further away that has excess inventory.

"Those types of things were huge, huge wins," the CIO says. "We're talking millions and millions of dollars in savings for inventory. We used to air freight from China because we were automatically just ordering more stuff in the past as opposed to moving it around between markets."

Be better prepared for tomorrow.
CIOs say cloud-based S/4HANA—coupled with the internet of things (IoT), artificial intelligence, analytics, and other advanced technology—can innovate how they interact with partners and customers.

The CIO for a telecommunications company originally saw the migration as a chance to trim costs. As a global organization operating in the United States, Europe, and Asia, the company saw an improvement in system response time delighted users. "It just works faster, which is a great business value," the CIO says. "The sooner you get the data, the sooner you can make better commercial decisions." The telecommunications company was able to optimize capacity, more efficiently route traffic, and change rates more quickly.

The CIO adds that future benefits could be even more important to business success. Today, the company works with 2,000 different partners, and many of them use different protocols. "Some of them still require paper contracts and invoices," he says. "You may not believe that, because I wouldn't believe it unless I saw it. If you want to do business with them, you have to build in all these exceptions."

He explains that building a new ecosystem allows the stronger players to lift the weaker ones, finding new synergies in working together. "All the players can benefit if the ecosystem evolves in terms of data sharing, transparency, and the ability of different customers and partners to share information," he says.

The CIO says he can see "the sprouts" of that ecosystem developing now, which could improve the company's customer service, reduce the number of disputes, and improve billing processes. "You can open SAP to your supply chain, vendors, and customers so they can do some self-service using

OFFLOADING MANAGEMENT OF SAP INFRASTRUCTURE TO A CLOUD PROVIDER ALLOWS CIOS TO BETTER ALLOCATE INTERNAL RESOURCES FOR MORE STRATEGIC PURPOSES.

THE CLOUD PROVIDES THE AGILITY AND SCALE TO APPLY AI AND MACHINE LEARNING TO VAST DATA STORES TO IMPROVE DECISION MAKING AND PROPEL INNOVATION.

real-time interfaces," he says. "The fact that it's a new product in the cloud definitely opens up opportunities to advance your digital journey. Having this automated platform can certainly help with scaling, but it could also turn into new products and business opportunities we can't even imagine right now."

Preparing for Transformation

On-premises SAP solutions, which have provided the backbone for many companies' data strategies for decades, were designed for production consistency. However, they were not intended to have the flexibility to respond to changing requirements at the pace demanded by today's digital models and need for innovation. Consequently, more than 80% of companies are currently extending their ERP with intelligent tech, or want to extend it, to address this inflexibility. FIGURE 3

The need to respond to the unexpected—and tap into stores of data that have grown by astonishing amounts—is causing many companies to rethink their old ways of operating. The cloud provides the agility and scale to apply AI and machine learning to vast data stores to improve decision making and propel innovation.

To overcome the obstacles to a migration and move forward in a way that will reap the full benefits from an

SAP cloud migration, CIOs and experts interviewed counsel a number of key steps. A migration is a complex process that requires forethought, planning, and evangelism.

Companies should carefully analyze their own needs and strategy when contemplating migrating from an on-premises SAP solution to the cloud. Giving enough thought to the migration can result in both expected and unanticipated benefits. Experts and CIOs noted that SAP migrations depend on forging alliances, building a strong team, focusing on business processes, and creating a foundation that will bring future success.

Forge alliances and build a strong team. A successful innovation strategy requires SAP CIOs to interface directly with others throughout their organization, often in ways they have never done before. "One of the problems all companies face, particularly in the SAP environment, is that people in the companies themselves are hampered by their own internal silos and their own myopia," says consultant Joshua Greenbaum, principal for Enterprise Application Consulting. "The SAP people don't talk to the supply chain people, who don't talk to customer-facing people, who don't talk to the people who do contingent labor planning. All these silos hamper your ability to do true digital transformation that allows you to create end-to-end processes. That is the ultimate inhibitor to innovation."
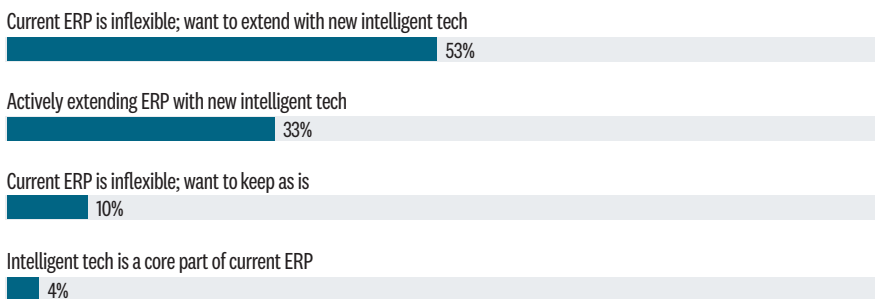
For this reason, Greenbaum believes that technology leaders who oversee the SAP environment need to take a strong position on innovation. "A lot of SAP CIOs realize if they don't get in front of the innovation, they will be marginalized by innovation," he says. "If you build a killer IoT, machine-learning app that needs SAP data but uses some other vendor's tool, the innovation profile of SAP just went down. The politics of innovation become complicated. If you let innovation get away from you, it's hard to get it back."

The CIOs interviewed recommend having in-depth discussions with

FIGURE 3

SEEKING INTELLIGENT ERP

What respondents think about how current ERP systems use intelligent technologies to improve processes and decision making

Current ERP is inflexible; want to extend with new intelligent tech
53%

Actively extending ERP with new intelligent tech
33%

Current ERP is inflexible; want to keep as is
10%

Intelligent tech is a core part of current ERP
4%

SOURCE: ACCENTURE, 2019

colleagues about such things as future data growth and usage, so everyone can gain a clearer understanding of the most effective ways to use data. The CIO of the consumer goods company who did this says, "It forced a lot of very important discussions to come to the forefront." He further explains: "This requires more than a broad-brush estimate of what you expect order volume to increase by or what you expect SKUs [stock-keeping units] to increase by. You need to be a lot more precise and rigorous with asking, 'How are we forecasting that so that we have very informed estimates?'"

That level of precision helps ensure the migration's future success, while supporting the business case for it, because the approach defines what the company will gain by having the SAP solution in the cloud.

A couple of CIOs recommend enlisting colleagues from other companies to make the case for an SAP cloud migration based on their experiences. "We had great luck when we had analysts, evangelists from cloud providers, and CIOs from other organizations make the case and demystify the process," notes the CIO of the manufacturer.

The CIO of a telecommunications company recommends developing a strong functional team of stakeholders who devote 50% to 100% of their time to the SAP cloud migration. They can be change agents for individual departments, handling things like due diligence and process redesign. "Task them to be responsible for the success of their departments after the project," he says.

Do deep dives into business processes. Successful companies are coupling migration projects with transformation groups that focus on people, processes, and technology.

Inherently, innovation requires rethinking business processes. "At some companies, their data can be a mess," Linthicum says. "Migrating to the cloud is basically like cleaning house. When you move from one house to another, you get rid of all the unneeded items and organize things."

A successful innovation strategy requires SAP CIOs to **interface directly with others throughout their organization**, often in ways they have never done before.

The CIO with the technology firm says his company migrated to SAP S/4HANA in the cloud to save costs, but, he says, it produced "a fundamental change for our business analysts, programmers, and all the way to the business users of how we thought about data and workflows, and how we would regularly review processes."

He explains that workers needed to grasp that workflow is a business process rather than a toolset. "It's about who has to talk to whom for what, for what expected outcome," he says. After the process was understood and refined, it could be automated and made repeatable. "All those things suddenly had contextual meaning when we moved to the cloud," he says. "People would say, 'Wow, if we do this, look at the dashboards that just became available without going to an IT or business intelligence team to build a representation layer.'"

Create a foundation of success. A cloud-first vision, Linthicum says, is not simply a technology migration, but a different way of organizational thinking. A transformational migration can be coupled with new operational processes, centered around agile methodology and DevOps, and fine-tuned to act in a fast and flexible manner.

"A company might currently be building apps in six months, and they can change that to six days or even six hours after moving their ERP solution to the cloud because they can provision and deprovision resources so quickly with the cloud," he says. "But they have to change internally to take full advantage of these advanced features."

Linthicum says companies that migrate most successfully to the cloud are

FORGING ALLIANCES AND BUILDING TEAMS AND THE RIGHT FOUNDATION WILL SHOWCASE THE IMPORTANCE OF THE SAP S/4HANA CLOUD MIGRATION.

often planning a year in advance to develop the talent and capabilities they will need, such as data scientists and analytics experts. "These companies are splurging on talent," he says. "They realize if they are migrating their ecosystem to the cloud so they can leverage advanced analytics, they need people who understand how to do it."

In addition to talent and processes, one CIO says a foundation of success takes proselytizing new ways of evaluating innovation. "A lot of the financial modeling that people use for cloud and innovation projects fails the scrutiny of operations," the CIO explains. "The moment something gets adopted, it becomes standardized as part of the 'keep the lights on' budget. A healthy organization is continually innovating and adopting, continually adding to their 'keep the lights on' elements, and continually deleting things that are no longer needed."

Without taking this into account, he says, key innovation benefits from an SAP S/4HANA can become devalued once they are regarded as normal ways of working.

Thinking through these issues, forging alliances, and building teams and the right foundation will showcase the importance of the SAP S/4HANA cloud migration, creating an environment that can translate into success. "We treated this as project number one for our organization, and deprioritized other projects for a time," one CIO says. "The S/4HANA cloud migration should be positioned as one of the top projects for the company for the year, and this should be communicated throughout the organization."

Conclusion

Migrating SAP to the cloud can boost efficiencies and cut costs, but CIOs believe that companies can set themselves up for more impactful benefits, producing an even greater competitive advantage by targeting innovation benefits from the get-go. Organizations that have taken this approach say that the impact on business users exceeded what they had expected.

"We foresaw that we were going to optimize the data processes, get real-time information access, and gain greater algorithm intelligence," says one CIO. "What we didn't know was how it was going to change teams and change the idea of what ERP was. Even though we knew how important the workflows were, the degree to which the teams suddenly embraced robotic process automation and all this other advanced technology after the migration was staggering."

This CIO says the feedback from business users was also more positive than he expected. "I was surprised that the business championed the technology transformation and they recognized they got benefits they didn't plan for," he says. "The system looks better and performs better, so that's a lift up for the average user."

Given that most experts believe that cloud migration and intelligent ERP solutions will become widespread, it's critical for companies to think about this sooner rather than later since the pace of innovation will only quicken. "By leveraging their ERP data analytics and aggregating that with other information sources, companies see the potential to do wonderful things with their data," Linthicum says. "Companies that don't could be disrupted and die the death by a thousand cuts."