SAPinsider

A Wellesley Information Services Company

SAPinsider Benchmark Report

Preparing Infrastructure for SAP S/4HANA

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Research Partner

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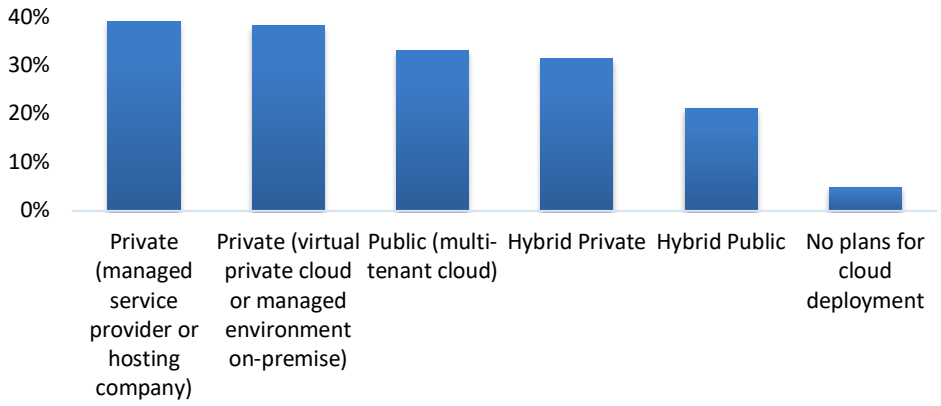
Executive Summary

Planning for the transition to SAP S/4HANA continues to be one of the biggest challenges facing enterprise ERP customers today. And although SAP's extension of mainstream maintenance to 2027 has provided a longer runway for companies to complete that move, the business challenges of the past year have caused many organizations to either delay or postpone their plans. Regardless of where they start, one of the biggest decisions they will make in an SAP S/4HANA project is that of infrastructure. Will they deploy SAP S/4HANA on-premise and make new infrastructure investments? Or will they go with some form of cloud-based deployment—private, public, or a hybrid approach?

To understand the decisions organizations are making around infrastructure for SAP S/4HANA, SAPinsider surveyed 143 members of our community in Q4 of 2020. The purpose of the survey was to determine what is critical to their infrastructure planning, what infrastructure choices they are making, and how they are planning for their deployment. Continuing a trend that SAPinsider has seen across 2020, most respondents indicated that they were planning to use some form of cloud infrastructure to host SAP S/4HANA (see **Figure 1**).

Figure 1: What infrastructure do you plan to use?



Source: SAPinsider, December 2020

SAPinsider PERSPECTIVE

"We have pushed the majority of our systems to the cloud. SAP in particular is on a private cloud – with this, we are able to quickly add resources as needed to meet business demand, or reduce them to save dollars."

~ Vice President, IT, Agriculture Cooperative

With just 5% of respondents indicating that they had no plans for a cloud deployment of SAP S/4HANA, cloud-based deployments are the future for the majority of the SAPinsider community. However, 39% of respondents indicated that they planned to use either a managed service provider or hosting company, and 38% stated that they were planning on a virtual private cloud or managed environment on-premise—both private cloud options. Adding to this focus on the private cloud, nearly a third (32%) said that they were planning on using hybrid private cloud infrastructure. While the question permitted respondents to select all the options that applied to them, 74% of all respondents selected one of the three private cloud options.

A proportion of those who indicated that they planned on using private cloud infrastructure for their SAP S/4HANA deployment also said they planned on using some public cloud or hyperscaler infrastructure options, though this was nearly twice as likely for those using a managed service provider or hosting company (26%) than those using a virtual private cloud or managed environment on-premise (15%). And nearly one third (32%) of those who indicated that they were planning to use public multi-tenant cloud infrastructure also planned to use the private cloud as part of their deployment.

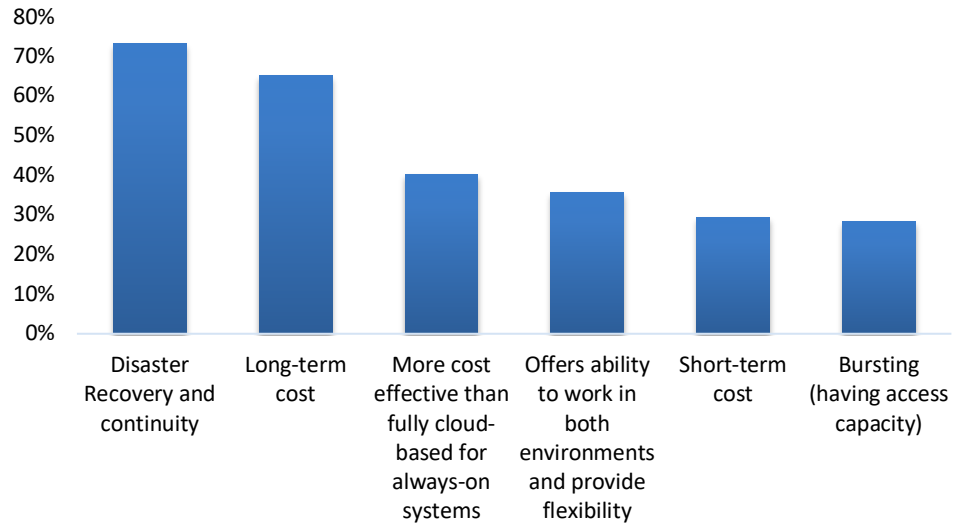
The concept of a virtual private cloud environment is not new, but that of a managed environment on-premise as part of an IT-as-a-Service (ITaaS) environment, or as part of the newly announced SAP HANA Enterprise Cloud, Customer Edition, are relatively new innovations in the private cloud marketplace. Multiple infrastructure vendors are currently ramping up their managed on-premise offerings with solutions particularly targeted to SAP customers in conjunction with the SAP HANA Enterprise Cloud. With the number of respondents interested in this infrastructure, the option of having flexible, on-premise choices available as an operational expense seems to be of significant interest to the SAPinsider community.

SAPEXPERTS PERSPECTIVE

> Infrastructure is the starting point of digital transformation. It is the most important component of your enterprise digital journey.
>
> **~ AJ Attavar, Global Program Director, Neptune Products & Services**

In terms of which benefits respondents expect to see from moving to these environments, the top benefit (73%) is disaster recovery and continuity (see **Figure 2**). This is followed by long-term cost (65%), with a deployment model being more cost effective than fully cloud-based for always-on systems (40%) being a goal that fewer respondents expect to see. The concept of disaster recovery and continuity is something that correlates with data from our Deployment Approaches for SAP S/4HANA report, where 65% of respondents stated that the global pandemic caused an increased need to implement high availability and disaster recovery options.

Figure 2: What benefits do you expect from your deployment model?



Source: SAPinsider, December 2020

This year's survey revealed several other trends regarding respondents' infrastructure plans for their SAP S/4HANA deployments:

- Despite the focus on cloud-based infrastructure, 52% of respondents reported that they planned on investing in new on-premise infrastructure as part of their SAP S/4HANA deployment.

- On average, respondents reported that they planned to run 59% of their SAP S/4HANA systems in the cloud, suggesting that many will run one or two of the systems from their three-system landscape in the cloud while the other is on-premise.
- Data preparation and clean-up is an important step for those moving to SAP S/4HANA. Nearly two thirds of respondents (63%) plan on running SAP Readiness Check, making it nearly twice as likely to be used as the next most common choice of implementing master data management (37%).

Required Actions

Based on the survey responses, organizations should make the following plans around their enterprise cloud deployments:

- **Investigate whether other infrastructure options may offer benefits beyond your planned deployment model.** While infrastructure choices may already have been made for SAP S/4HANA deployment when building the business case, organizations should explore options they may not have initially considered if that will help them achieve the benefits of improved continuity and reduced long-term cost.
- **Include cloud-based scenarios in your evaluations.** Only 5% of respondents to this research indicated that they had no plans for cloud deployment of their SAP S/4HANA systems. Combined with the fact that respondents planned to run more than half their SAP S/4HANA systems in the cloud, and a focus on disaster recovery and continuity with long-term cost, organizations should thoroughly evaluate cloud-based infrastructure for their SAP S/4HANA deployments as these may offer benefits that on-premise infrastructure cannot provide.

- **Examine the options for all private cloud scenarios.** In conjunction with evaluating cloud infrastructure offerings, organizations are encouraged to specifically examine options for private cloud infrastructure. With 73% of respondents planning to use private cloud infrastructure for their SAP S/4HANA deployment the possibilities that these deployment options offer should be examined.
- **Determine whether existing infrastructure investments impact long-term goals for SAP S/4HANA performance.** One of the biggest reasons why organizations don't look at cloud infrastructure options is because they recently invested in new hardware. Whether they have recently invested in new hardware or plan to invest in new on-premise infrastructure, organizations should determine whether these investments will support long-term goals for flexibility, scalability, and the performance of SAP S/4HANA systems.

Chapter One: SAP S/4HANA Infrastructure Overview

During the past year, much has changed for organizations planning and executing SAP S/4HANA transitions. The sudden transition to a remote workforce, the need to support a significantly disrupted supply chain, and the need for insight and rapid decision making to address the rapidly changing business environment were among the challenges that organizations had to address in 2020. Up to 20% of organizations delayed their deployments or put them on hold, while some were accelerated to provide functionality that was critical to the organization. But the need to deploy in the cloud, especially when IT teams were not on-premise, became a major factor in many organization's plans as they looked to modernize infrastructure, add flexibility, and support rapidly changing needs in an unpredictable market.

Best Practices Model – DART

SAPinsider grounds all its research insights in our proprietary DART model. This research model provides practical insights that connect business **D**rivers and **A**ctions to supporting **R**equirements and **T**echnologies. Drivers represent internal and external pressures that shape organizational direction. Organizations take Actions to address those Drivers. They need certain people, processes, and capabilities as Requirements for those strategies to succeed. Finally, they need enabling Technologies to fulfill their Requirements.

In this report, the pressure to modernize infrastructure to lower costs and simplify IT, the need for more flexibility and scalability in enterprise ERP infrastructure, and the need for SAP S/4HANA infrastructure to be flexible enough to support unpredictable market conditions emerged as the top drivers. To satisfy these drivers, respondents indicated that they are taking actions to redesign IT platforms and architectures to lower costs and increase flexibility, are building an IT strategy to support future cloud-based workloads, are utilizing cloud-based systems for new deployments, and are improving

SAPinsider PERSPECTIVE

> We have multiple systems at the moment and it's difficult to get visibility across them all. We cannot give any insight to the user as the systems are distributed. We need to build a real-time system, and want to move everything to SAP HANA and the cloud so what users can access and see will be much easier.
>
> **~ Process Manager, Clothing Manufacturer**

infrastructure usage and efficiency by using virtualization or hyper-converged infrastructure.

In order to make their cloud deployments successful, there are several requirements our survey respondents indicated they need, including the flexibility to scale systems to meet increased demands, an option of entirely cloud-based systems, hybrid environments with some SAP S/4HANA systems on-premise and others in the cloud, high performing and secure infrastructure, and operating system configurations that reduce downtime. Respondents use or plan to use a wide range of SAP and partner tools and technologies to support these requirements for their cloud deployments.

Respondents' answers to our survey and interview questions revealed clear trends, which are summarized in **Table 1** and will be examined throughout this report.

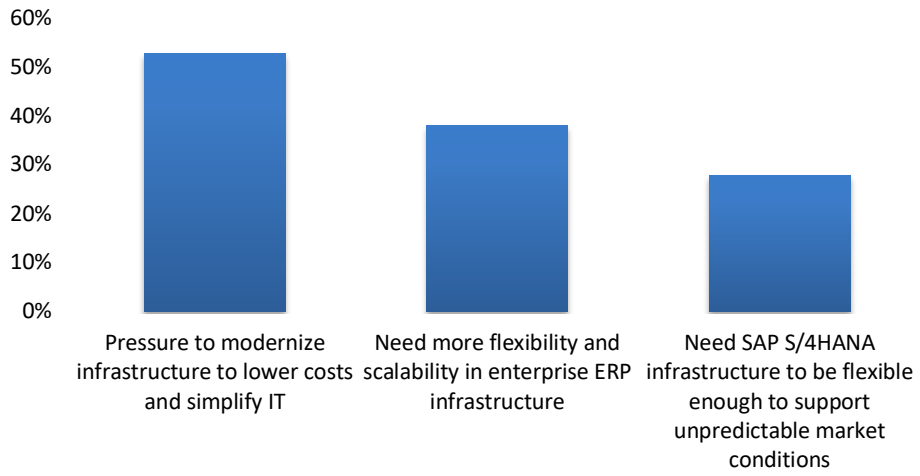
Table 1: DART model framework for SAP S/4HANA infrastructure

Drivers	Actions	Requirements	Technologies
• Pressure to modernize infrastructure to lower costs and simplify IT (53%) • Need more flexibility and scalability in enterprise ERP infrastructure (38%) • Need SAP S/4HANA infrastructure to be flexible enough to support unpredictable market conditions (28%)	• Redesign IT platform and architectures to lower costs and increase flexibility (67%) • Build an integrated IT strategy to support future cloud-based developments (67%) • Utilize cloud-based systems for new deployments (55%) • Improving infrastructure usage and efficiency by using virtualization or hyper-converged infrastructure (50%)	• Flexibility to scale systems to meet increased demands (83%) • Entirely cloud-based deployments (72%) • Hybrid environments with some SAP S/4HANA systems on-premise and others in the cloud (64%) • High performing and secure infrastructure and operating system (58%) • Operating system configurations that reduce downtime (58%)	• High availability tools or add-ons (90%) • Hardware that optimizes SAP HANA performance (88%) • Infrastructure-as-a-Service (88%) • Platform-as-a-Service (88%) • Automated system deployment and configuration tools (87.5%) • Virtualization software (85%) • Software-as-a-Service) (79.5%) • SAP HANA Enterprise Cloud (78%) • Hyper-converged infrastructure (76%)

What Drives SAP S/4HANA Infrastructure?

Over half (53%) of the survey respondents said that the pressure to modernize infrastructure to lower costs and simplify IT was the main factor behind their infrastructure choices for SAP S/4HANA. A smaller number (38%) said that they need more flexibility and scalability in enterprise ERP infrastructure, while just over one quarter said that they needed SAP S/4HANA infrastructure to be flexible enough to support unpredictable market conditions (see **Figure 3**).

Figure 3: Top drivers for SAP S/4HANA infrastructure



Source: SAPinsider, December 2020

The pressure to modernize infrastructure was also a factor earlier this year in our research on the Business Case for SAP S/4HANA, where organizations looked to reduce much of the legacy debt associated with their existing on-premise systems. Taking steps to reduce costs and simplify IT is critical for many organizations whose revenues have been impacted by the constantly shifting business environment this year, and with the SAP S/4HANA transition being such an expansive and expensive project, this is often an opportunity to eliminate older systems and reduce costs while preparing for an SAP S/4HANA deployment either in the cloud or on-premise.

SAPEXPERTS PERSPECTIVE

"Organizations worry about losing control when they modernize infrastructure by moving to the cloud, but lets you focus on your customer, your data, etc. Once you do that move you have better functionality for the end user. From an IT perspective they can see the reduced TCO, and from the business side you get the advantages too. Infrastructure is such an important factor in the digital journey."

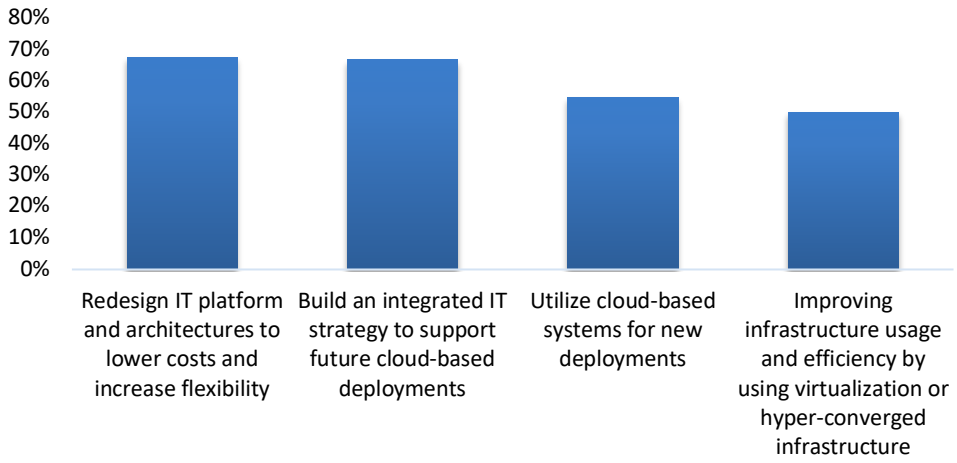
~ AJ Attavar, Global Program Director, Neptune Products & Services

Beyond modernizing infrastructure, SAPinsiders are looking for more flexibility and scalability in their enterprise ERP infrastructure. Traditional infrastructure didn't allow organizations to scale if needed and deploying SAP S/4HANA in an environment that provides flexibility is a key requirement. This is directly related to the need for SAP S/4HANA infrastructure to be flexible enough to support unpredictable market conditions. With today's rapidly changing markets, it is critical for organizations implementing SAP S/4HANA to have the flexibility to react to new demands. Both of these drivers often tie to cloud-based deployments and the use of scalable architecture, which drives the actions respondents take.

How Do Customers Meet Their Business Drivers?

Two thirds of the survey respondents (67%) said that they were redesigning IT platforms and architectures to lower costs and increase flexibility (as seen in **Figure 4**). This directly supports the driver of modernizing infrastructure to lower costs, as well as the need for increased flexibility and scalability in order to support flexible market conditions.

Figure 4: Top strategies prioritized to address the top drivers of change



Source: SAPinsider, December 2020

Nearly the same number of respondents (67%) also say that they plan to build an integrated IT strategy to support future cloud-based deployments. This closely aligns with to the cloud-focused approach that respondents are taking, and supports all three of the main drivers. Modernizing infrastructure is part of a forward-looking IT strategy, as are the need for flexibility and scalability in the enterprise ERP structure and the ability to support unpredictable market conditions.

More than half of the survey respondents (55%) said they planned on utilizing cloud-based systems for new deployments, again demonstrating a shift to some form of cloud-based infrastructure for SAP S/4HANA. Even though 52% of survey respondents indicated that they planned on investing in new on-premise infrastructure as part of their SAP S/4HANA deployments, a greater proportion see cloud-based systems as the future of new SAP S/4HANA deployments.

The final top strategy — selected by half the respondents (50%) — is improving infrastructure usage and efficiency by using virtualization or hyper-converged infrastructure. This correlates with the fact that virtualization software is the most used technology among respondents today, with nearly half (44%) stating that they are currently using it, and an additional 43% evaluating or aware of the need for hyper-converged infrastructure. Both of these technologies see significant use in cloud-based environments, and allow organizations to more efficiently use existing infrastructure as well as provide flexibility should the need arise.

Key Takeaways

Based on our research with respect to enterprise cloud deployment, the following takeaways are clear:

- **Plan to modernize infrastructure and reduce technical debt.** More than half of the survey respondents are looking to modernize their infrastructure so that they can lower costs and simplify their IT systems. This is directly tied to

reducing technical debt that can significantly increase costs in running, maintaining, and trying to improve performance on older systems. Make sure that any plans for SAP S/4HANA infrastructure can be combined with other digital transformation initiatives to help reduce these ongoing costs and provide long-term scalability.

- **Ensure that SAP S/4HANA infrastructure will provide sufficient flexibility.** With respondents looking to increase the scalability and flexibility in their ERP infrastructure in order to support unpredictable market conditions, infrastructure flexibility for SAP S/4HANA must be an important goal for organizations who are preparing for their transition.

- **Evaluate the benefits of virtualization and hyper-converged infrastructure**. Half of the survey respondents are looking at improving their infrastructure usage by using virtualization or hyper-converged infrastructure. While virtualization has a higher usage today, both options allow organizations to potentially add flexibility in existing infrastructure, as well as provide cloud-based options that can offer scalability in that deployment model.

- **Plan your IT strategy around future cloud deployments.** Even if you run SAP S/4HANA entirely on-premise, planning for an integrated IT strategy that will support future cloud-based deployments is important. With 99% of SAPinsiders now running at least some systems in the cloud, and more moving enterprise systems there, planning for the integration of cloud-based and on-premise systems is critical as a long-term strategy.

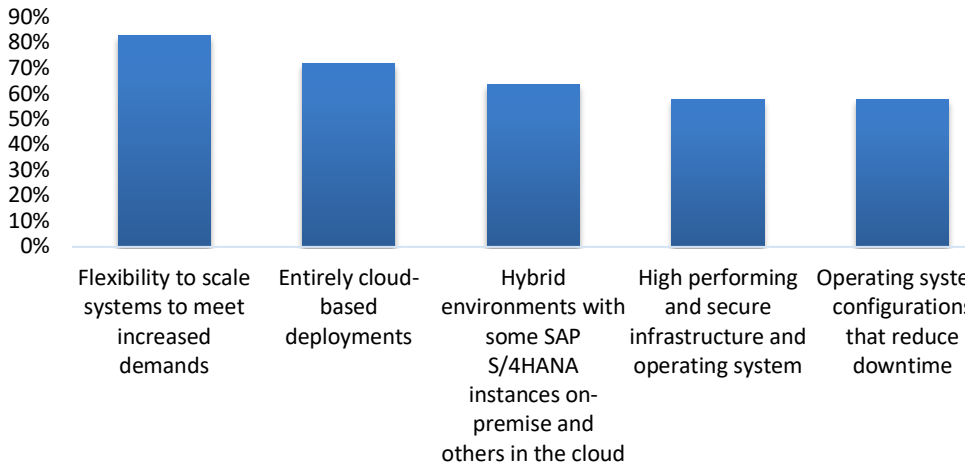
Chapter Two: How Do SAP Customers Approach SAP S/4HANA Infrastructure?

With many organizations moving forward with cloud-based infrastructure for their SAP S/4HANA deployments, organizations still need to understand how those systems will operate. While respondents see disaster recovery and overall business continuity as the most important expected benefits of their infrastructure choices, flexibility and scalability are both features that are critical to the future of their SAP S/4HANA deployments and were in the drivers and strategies discussed in the previous chapter. We will now examine what requirements are facing respondents, and the technologies they are using in the SAP S/4HANA infrastructure.

Top Infrastructure Requirements

Respondents selected flexibility to scale systems to meet increased demands (83%) as their top requirement, showing that the need to provide a platform that will scale as their SAP S/4HANA system grows is most important to survey respondents (see **Figure 5**).

Figure 5: Top SAP S/4HANA infrastructure requirements



Source: SAPinsider, December 2020

SAPinsider PERSPECTIVE

"Today we have problems when it comes to performance. The system is very slow at month end because a lot of processing happens during close, and we are unable to generate reports until after changes are pumped into our data lake each night. We need to be able to cater to the demand we have without slowing down the system and want to be able to do the analytics without waiting for a nightly data transfer."

~ Process Manager, Clothing Manufacturer

This requirement of flexibility to scale systems to meet increased demands is directly related to the drivers and actions that demonstrated a need for flexibility. As ERP systems grow, events like period close have a significant impact on performance and infrastructure is needed to ensure that they can scale to meet not only these regular demands for increased performance, but unscheduled events as well.

The need for an entirely cloud-based deployment (72%) was the second most selected requirement and presents the way forward for many organizations. While not every respondent's enterprise ERP systems may be running in the cloud today, this very much connects to the focus on having cloud-based systems and infrastructure that we have seen across the report.

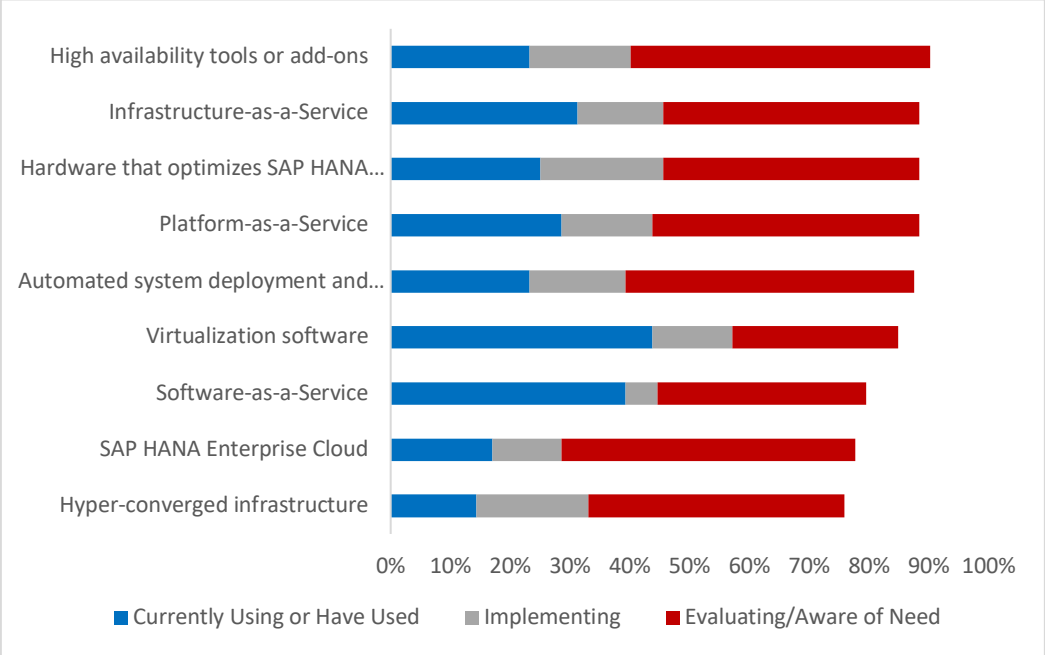
Respondents also see a need for hybrid environments with some SAP S/4HANA instances on-premise and others in the cloud (64%). This aligns with the hybrid deployment methodology that many SAPinsiders discuss with their development and test instances running on-premise, and QA and production systems running in the cloud. It also correlates with the fact that respondents stated that they planned to have an average of 59% of their SAP S/4HANA systems running in the cloud once they complete their deployments.

Other top requirements included high performing and secure infrastructure and operating systems (58%) and operating system configurations that reduce downtime (58%). All companies want high performing infrastructure but making them both secure and high performing is a necessary step for organizations focusing on cloud-based infrastructure for SAP S/4HANA. Downtime is also critical as it can cost organizations hundreds or thousands of dollars per minute, and doing anything to reduce both planned and unplanned downtime can offer significant savings. Reducing downtime also ties directly to the goal of business continuity that is the primary benefit that respondents hoped to achieve from their deployment model.

Which Technologies Do Respondents Use in Their SAP S/4HANA Infrastructure?

Survey results indicate that virtualization software (44%), Software-as-a-Service (39%), and Infrastructure-as-a-Service (31%) represent the most commonly used technologies today (**Figure 6**). Respondents are looking to make the most of their existing infrastructure and provide as much flexibility as possible by using virtualization software. The capabilities that this will offer when moving into the cloud will only increase that flexibility and scalability, which is why an additional 42% are either implementing or evaluating virtualization software.

Figure 6: Technologies used in SAP S/4HANA infrastructure



Source: SAPinsider, December 2020

SAPinsider's previous Enterprise Cloud Deployment research showed that Software-as-a-Service solutions are more frequently used than PaaS or IaaS, but this question measured deployment approaches across all enterprise workloads. It is also critical for those moving to SAP S/4HANA to understand the capabilities that the environment offers, even though SaaS

(40%) will require less investment than PaaS (60%) and IaaS (57%). Additionally, while IaaS is more used today (31%) than PaaS (29%), the two will be very close in usage after including those implementing and evaluating these infrastructure options.

The greatest investment will go into high availability tools or add-ons (50%), making this the number one technology on the list even though less than one quarter (23%) indicate that they are currently running these solutions today. This directly connects to the requirement to reduce downtime, which is becoming increasingly critical for organizations, as well as the fact that organizations are looking to their SAP S/4HANA infrastructure options to provide better disaster recovery and continuity.

Other technologies that see nearly half the respondents evaluating or aware of the need for the technology are SAP HANA Enterprise Cloud (49%) and Automated system deployment and configuration tools (48%). Nearly half (46%) of the respondents in our Enterprise Cloud Deployment research said that their cloud choices were influenced by SAP and new initiatives like SAP HANA Enterprise Cloud, Customer Edition, which runs in a managed private cloud on-premise, show that there is traction for this technology. While automating system deployment and configuration sees limited use today (23%), offerings that automatically turn systems and streamline deployments by both Red Hat and SUSE are increasingly drawing the interest of many IT organizations.

Key Takeaways

When it comes to equipping organizations with the capabilities and technologies required for an effective cloud deployment:

- **Compare the functionality of cloud-based and hybrid deployments.** 72% of respondents said that they had a requirement for entirely cloud-based deployments, but nearly two thirds (64%) are also looking at the advantages that hybrid deployments

can offer. Whether this is to save costs by having some instances on premise while others are in the cloud, or some other hybrid options are planned, identifying whether hybrid systems can provide needed flexibility may offer longer term cost benefits.

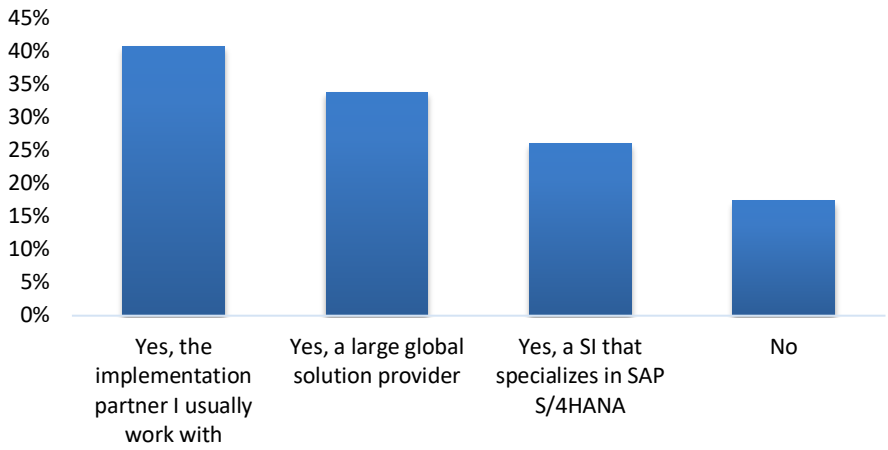
- **Focus on infrastructure security, particularly with cloud-based deployments.** On-premise systems were historically considered to be safe from hacking, but with social engineering on the rise, more and more organizations are finding that even local systems can be breached. Whether looking at on-premise deployments or moving to the cloud, all infrastructure choices should be evaluated from a security perspective.
- **Look for hardware that can optimize SAP HANA.** Multiple hardware manufacturers now offer infrastructure that can specifically accelerate SAP HANA performance. When combined with operating system features that facilitate those hardware options, these infrastructure choices should be seriously evaluated for the performance benefits that they can offer.
- **Explore infrastructure options that will increase availability.** Even planned downtime can be costly for organizations, so any infrastructure options that can increase availability and continuity can increase the ROI on infrastructure investments. Organizations should explore both deployment models and tools that will help in these areas.

Chapter Three: Required Actions

As we have seen across the report, most respondents to this survey are looking at cloud-based infrastructure for their SAP S/4HANA deployments. For many, this is a private cloud environment. A considerable proportion of respondents are also interested in hybrid environments where some of their SAP S/4HANA instances are running on premise, while others are running in the cloud. Their reasons for looking at these options are primarily the reduction of legacy debt, reduced cost, and a simplification of IT, but they also need more flexibility and scalability—particularly when it comes to processing intensive operations like period close. From an expectations standpoint, respondents want to implement SAP S/4HANA infrastructure that not only improves disaster recovery but also improves continuity in general.

While respondents are looking at a cloud-based infrastructure, there is also a question of how they will complete those deployments. Less than half (41%) plan on using the implementation partner with whom they typically work, while a third (34%) will work with a global solution provider. More than one quarter (26%) will work with a solutions integrator that specializes in SAP S/4HANA, while only 17% will not (see **Figure 7**).

Figure 7: Do you plan on using an implementation partner?



Source: SAPinsider, December 2020

SAPinsider PERSPECTIVE

"We need the application flexibility, as well as the infrastructure flexibility, to meet business requirements. That is why we have elected to use the on-prem licensing with the private cloud. On infrastructure, we need the ability to quickly setup additional servers, or increase memory or disk space. In addition, if we see we are not utilizing certain infrastructure, we want to be able to turn those down to decrease costs."

~ Vice President, IT, Agriculture Cooperative

Of those who plan on using an implementation partner with whom they usually work, 19% said that this was also a large global solution provider, and 17% indicated that this was an SI that specializes in SAP S/4HANA. Respondents planning on a private cloud deployment were slightly more likely to be using an SI that specializes in SAP S/4HANA than the survey respondents as a whole (30% vs. 26%), while those planning on doing a public cloud deployment were more likely to want to use a large global solution provider (40% vs. 34%). This suggests that those who are moving to the public cloud are probably doing so as part of a larger cloud deployment or digital transformation strategy, which explains why they are more likely to be looking at a global solution provider.

No matter what plans SAPinsiders are making around their infrastructure for SAP S/4HANA, they must ensure that they do consider how they will do their deployment. With 83% of respondents planning on using an implementation partner, they will need to ensure that partner availability matches the timeline for their deployments.

Steps to Success

Our research reveals that SAP customers should apply the following key steps around enterprise cloud deployments:

- **Develop plans that reduce legacy debt and modernize infrastructure during the transition to SAP S/4HANA.** The biggest factor for those moving to SAP S/4HANA is the pressure to modernize infrastructure to lower costs and simplify IT. Those who are transitioning should ensure that they develop plans that help reduce the debt associated with their old infrastructure and put in place modernized systems that will provide flexibility and scalability for the long term.
- **Explore architecture options that support cloud-based deployments.** With only 5% of survey respondents having no plans for cloud infrastructure to be part of their SAP S/4HANA

deployment, organizations should explore architecture that will support a cloud-based deployment of SAP S/4HANA. This does not necessarily need to be public cloud since only 41% of respondents plan on using this option and a third of those will also be using private cloud infrastructure options. However, organizations should include some form of cloud options in their plans for SAP S/4HANA deployment.

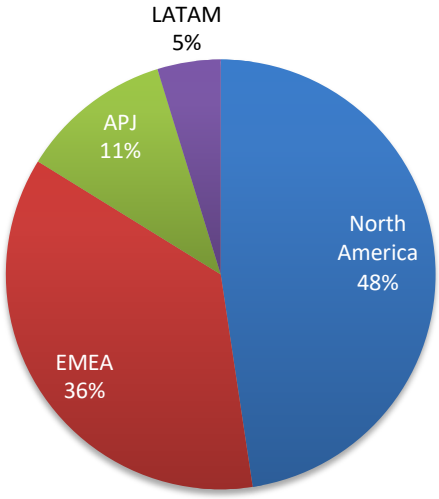
- **Ensure infrastructure choices will provide long-term scalability and flexibility.** Flexibility and scalability were identified as priorities for SAP S/4HANA infrastructure drivers, strategies, and requirements, as well as the in the technology choices that respondents are making. Organizations should ensure that the choices that they make today will continue to provide that flexibility and scalability in the long-term since, as ERP systems grow, the performance needs will grow alongside them.

- **Identify how business continuity will be impacted by your infrastructure choices.** Business continuity was the top expectation that respondents had for their infrastructure, and everyone planning infrastructure for SAP S/4HANA should ensure that they understand exactly how their choices will impact that continuity. Cloud-based options, which can have greater flexibility around high availability and disaster recovery, are obviously a priority for this reason, but all options should be considered to limit the costs involved with planned and unplanned downtime.

Methodology

In Q4 of 2020, SAPinsider examined the experiences of businesses and technology professionals related to their enterprise cloud deployments. Our survey was administered to 143 members of the SAPinsider Community and generated responses from across a wide range of geographies, industries, and company sizes. Respondents completed an online survey and provided feedback in customer interviews that questioned them on topics such as:

- What types of infrastructure do you plan to use SAP S/4HANA?
- What benefits do you expect to see from your deployment model?
- Which factors most impact your organization's infrastructure planning for SAP S/4HANA?



The demographics of the respondents included the following:

- **Job function:** Functional areas reported by respondents include: Information Technology (82%), Finance (4%), GRC (3%), Business Development (2%), HR (2%), Production (2%).
- **Market sector:** The survey respondents came from every major economic sector, including: Industrial (33%), Software and Technology (32%), Public Services & Health Care (12%), Retail & Distribution (8%), Media & Entertainment (6%), Financial Services (5%), and Hospitality, Transportation, and Travel (4%).
- **Geography:** Of our survey respondents, 48% were from North America, 36% were from Europe, the Middle East, and Africa, 11% were from Asia-Pacific, Japan, and Australia, and 5% were from Latin America.

Appendix A: The DART™ Methodology

SAPinsider has rewritten the rules of research to provide demonstrable deliverables from its fact-based approach. The DART methodology serves as the very foundation on which SAPinsider educates end users to act, creates market awareness, drives demand, empowers sales forces, and validates return on investments. It's no wonder that organizations worldwide turn to SAPinsider for research with results. The DART methodology provides actionable insights including:

- **Drivers:** These are macro level events that are impacting an organization. They can be both external and internal and require the implementation of strategic plans, people, processes and systems.
- **Actions:** These are strategies that companies can implement to address the drivers impact on the business. These are the integration of people, process and technology. These should be business first but fully leverage technology enabled solutions to be relevant for our focus.
- **Requirements:** These are business and process level requirements to support the strategies. These tend to be end-to-end for a business process.
- **Technology:** There are technology and systems related requirements that enable the business requirements and support the overall strategies that the company is taking, they must consider the current technology architecture and provide for the adoption of new and innovative technology enabled capabilities.

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