

# **SAP S/4HANA® : What the new generation of ERP brings to businesses**

Migrate quickly or wait and see? Five factors to keep in mind.

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# 1. Management summary

Rollout of the SAP S/4HANA suite of applications generated quite a buzz in the IT industry – and in IT departments across all industries. SAP launched S/4HANA with a veritable marketing blitz, hailing it as the crux and potential centerpiece of its customers' digitization strategy. Now, 16 months later, some 3,200 businesses have signed on to SAP S/4HANA, according to Prof. Hasso Plattner, SAP's co-founder and Supervisory Board Chairman. That's an impressive start, even if the deployment is certainly still work in progress at the overwhelming majority of these companies.

## Some obvious advantages:

- The overall system architecture, program structure, and data model have been simplified. Compared with SAP ERP (ECC 6.0, Enhancement Package 8), S/4HANA has over 50% fewer lines of code, tables, and data elements. That means less maintenance, shorter cycles of innovation, quicker system response times – all of which translate into better performance.
- While earlier systems still relied on relational databases, S/4HANA is based on the in-memory platform SAP HANA. Data is not copied from a hard disk to the main memory for analysis and processing as is the case with most databases. Instead, the data is kept entirely in the main memory. This makes it possible to run transactional and analytical processes in the same system. Large volumes of data can be processed and analyzed in near real time.

- The new SAP Fiori user interface is much more user-friendly and ensures greater productivity. It enables mobile applications and gives developers a foundation for programming apps, modifications, and extensions.

Criticisms include the scarcity of use cases: There are not enough applications to actually justify the expense of a migration, complain sceptics. Another point of resistance is that S/4HANA only runs on the SAP HANA database. Before, SAP users could choose from among five different databases. Other criticisms include uncertainty as to the future viability of current modifications and customizations. There is also little information to date on how S/4HANA interacts with the solutions of other providers.

The scenarios for migrating current SAP systems to S/4HANA, on the other hand, are relatively clear. But experts point out that the migration is not strictly technical. Businesses may also need to redefine their processes before they can tap into the full innovative potential.

SAP SE has stated that it will continue supporting earlier versions of its Business Suite solution until 2025. This allows SAP customers to decide at leisure whether they want to switch to S/4HANA quickly, gather more information and make the move closer to the end of their current solution's lifecycle – or do without official SAP support. Another option is to fundamentally rethink the ERP strategy.

## — 2. Introduction: SAP S/4HANA® – a revolution?

Maybe it's just a nice story that SAP co-founder and Supervisory Board Chairman Hasso Plattner told in mid-May 2016 to thousands of attendees at the international SAP SAPHIRE® NOW Americas' SAP Users' Group (ASUG) Annual Conference in Orlando. Many years ago, Plattner said, he was listening to the presentation of a competitor, who predicted that sooner or later, the complexity of SAP's solutions would be the software giant's undoing. The man was right, Plattner acknowledged with a smile. But Plattner and the SAP management are not worried about the future. SAP regards this problem as solved thanks to its new product generation centered around the SAP HANA platform and SAP S/4HANA suite of applications.

And there's much more: SAP promises its customers a breakthrough in digitization thanks to major simplifications and performance enhancements and the more user-friendly SAP Fiori interface. SAP has designed S/4HANA as a digital core to support its customers' digitization strategies and sees this new generation of products as the key to big data, the internet of things, and other IT innovations.

But the marketing fanfares of the software giant cannot drown out the critical voices.

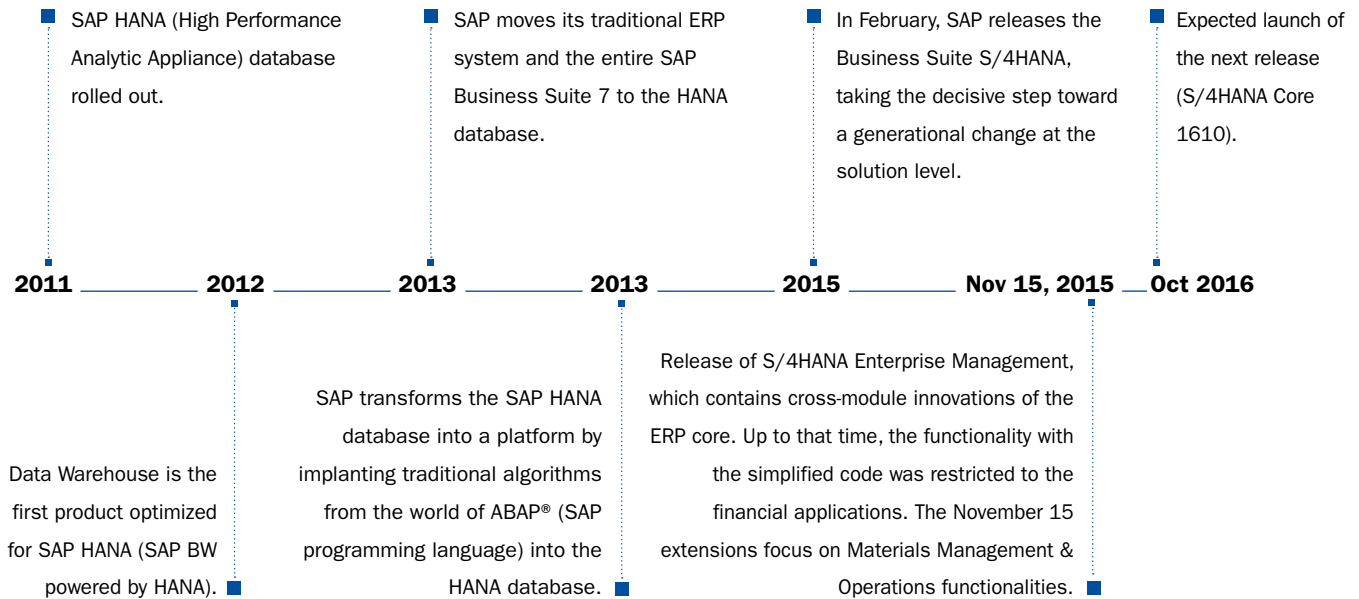
Analyst Steve Janata (Crisp Research) simply rejects that there is anything revolutionary about SAP S/4HANA. He sees no progress in reducing complexity or lowering costs, only improved performance and user experience. The press release for the 2016 investment survey conducted by the German-language SAP user group bore the headline "Few early adopters for SAP S/4HANA." In a survey commissioned by Arvato and conducted by Pierre Audoin Consultants (PAC), on the other hand, two-thirds (66%) of those polled – 100 SAP managers in German companies with 1,000 or more employees – cited S/4HANA projects as an issue. According to the latest figures from SAP, some 3,200 customers worldwide have already chosen SAP S/4HANA, and 10,000 companies are currently using the SAP HANA platform.

A host of questions presents itself, at least for those already using SAP: Should we migrate to SAP S/4HANA? If so, when is the right time? How exactly will the new SAP software benefit us? And what do we need to do to migrate successfully?

Given the lively discussions taking place in conference rooms, this fact sheet tries to bring light to the darkness and offer objective information so that you can feel confident in whatever decision you make.

## 3. SAP S/4HANA®, SAP HANA®, SAP Fiori®

### 3.1 Timeline



### 3.2 SAP HANA: From database to platform

SAP HANA was rolled out in 2011 as a database and expanded into a platform in 2013 (see timeline in section 3.1). One of the hallmarks of SAP HANA is its design as an in-memory platform. This means that data is kept entirely in the main memory, not copied from a hard disk to the main memory for analysis and processing as is the case with most databases. SAP recommends storing only “historical data” in a business warehouse. This in-memory feature makes it possible to run transactional (OLTP) and analytical processes (OLAP) in the same system. The applications can process and

analyze large volumes of data in near real time. SAP HANA's software is a hybrid of the column-oriented database technology common in in-memory databases and the conventional row-oriented technology more common in relational databases. This, according to SAP and several analysts, enables significantly better performance and lets you create business processes that were not possible with earlier database technologies. Since 2014, SAP has also offered the SAP HANA platform through the SAP cloud. Hybrid licensing models are also available.

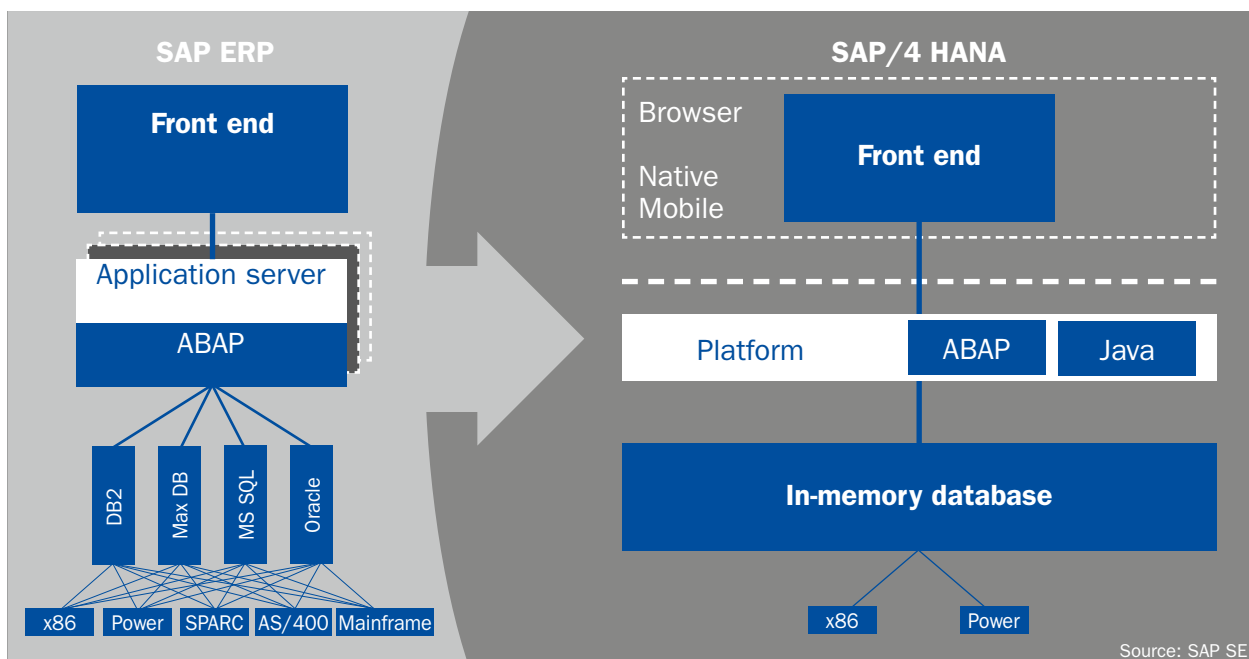
**SAP HANA not yet a major player**

There is also a strategic component to SAP’s rollout of SAP HANA. Currently, nearly all SAP users run their applications on relational databases. PAC found that 59% of those surveyed use Oracle as a base for their SAP applications. This is followed by IBM DB2 at 25%, Microsoft SQL at 15%, and SAP® Max DB™ at 8% (multiple responses allowed). SAP HANA, at just 5%, is not yet a major player. But SAP HANA is required for those who wish to deploy S/4HANA. So most companies that migrate to S/4HANA will have to change their database, in most cases moving away from the databases of other IT providers. A glance at the PAC survey shows that this scenario is realistic. Among the 66 surveyed SAP managers who plan to switch to S/4HANA sooner or later, 70% are looking into deploying SAP HANA as their database.

Alongside its functionality as a database, SAP HANA offers a range of additional features that include text analysis, predictive analysis, data mining, and a geospatial engine for locational services. SAP describes SAP HANA as an open platform and points to a long list of available apps for specific functions. One example is SAP Fraud Management, which identifies patterns outside the normal spectrum of usage and warns users in real time.

The SAP HANA Cloud Platform (HCP) makes it possible to add additional apps from SAP S/4HANA to the largely standardized core. Customers can also expand the range of applications and develop their own independent applications based on SAP HANA. SAP runs the SAP HANA Cloud Platform for customers in its own data center.

**EVOLUTION OF THE SYSTEM ENVIRONMENT**



Source: SAP SE

Rather than five hardware options and four databases, just two hardware options and one database: This simplifies update testing and support.

### 3.3 SAP S/4HANA: Next-generation SAP application suite

SAP S/4HANA stands for “SAP Business Suite 4 SAP HANA” and is being marketed as the next-generation SAP application suite. SAP is careful to emphasize that this is a new product with a new codebase, not an update or upgrade to SAP ERP. S/4HANA is based on the in-memory platform SAP HANA and has been optimized for its use. SAP HANA is a system requirement for S/4HANA – without SAP HANA as the platform, it is not possible to run S/4HANA.

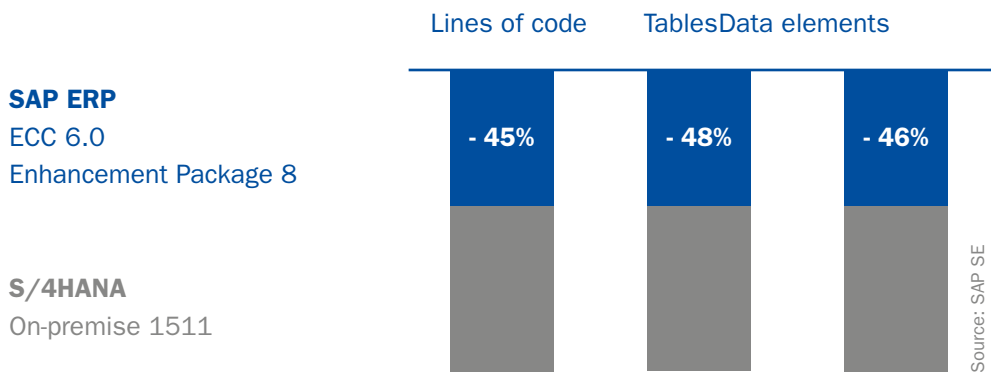
The software can be run on-premise in the user’s data center or in the cloud. Hybrid solutions are also possible. The on-premise

edition of SAP S/4HANA is available to customers in all industries and regions. The public cloud edition has also been available since May 2015.

SAP developers are pursuing various objectives:

- Simplify the overall system architecture, program structure, and data model
- Support its customers’ digitization initiatives (big data, Industry 4.0, collaboration, mobile apps)
- Improve user-friendliness / user experience (see SAP Fiori, section 3.4)

#### SIMPLIFY USING S/4HANA



S/4HANA has fewer lines of code, fewer tables, and fewer data elements than its predecessor: This should deliver clear performance benefits and shorten innovation cycles.

SAP quantifies the simplification relative to SAP ERP (ECC 6.0 Enhancement Package 8) with impressive numbers: S/4HANA has 45% fewer lines of code, 48% fewer tables, and 46% fewer data elements (see graphic above). That means less maintenance, shorter innovation cycles, and quicker system response times, said Supervisory Board

Chairman Plattner at the ASUG conference in Orlando. SAP programmers created a data model free from aggregates, replications, and indexes, greatly reducing memory requirements. SAP ERP needed 7.1 TB of storage space with conventional relational databases, for example, but requires only 1.8 TB when running on HANA. And S/4HANA

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running on HANA requires a mere 0.8 TB thanks to the absence of indexes, aggregates, and redundancies. From a customer perspective, this represents cost savings that are not insignificant.

The simplified code of S/4HANA does not yet cover all the functionalities. SAP began with Financial Accounting and has since overhauled other functional areas. An overview can be found in the Simplification List 1511 on the SAP website. The on-premise edition will

reportedly offer annual innovation cycles featuring innovation packs.

SAP promises that its S/4HANA on-premise edition will eventually include all the same features and serve all the same industries and languages as the current Business Suite. An overview of current S/4 functionalities can be found on the SAP website. SAP removed some of the global trade management functionalities from the core system of S/4HANA and recommends customers use SAP GTS® for this purpose.

SAP S/4HANA	Industry solution available	Industry solution with limitations	Not fully included in core system
Chemical industry	✘		
High-tech	✘		
Mechanical engineering	✘		
Insurance	✘		
Life sciences	✘		
Steel products	✘		
Extractive industries	✘		
Sports and entertainment	✘		
Telecommunications	✘		
Wholesale	✘		
Public utilities	✘		
Aerospace and defense		✘	
Automotive		✘	
Banks		✘	
Consumer goods		✘	
Construction and engineering		✘	
Services		✘	
Civil service		✘	
Global trade			✘

Source: SAP SE  
SAP reports that specific solutions are already available for many customer industries.



The cloud edition of S/4HANA already covers certain business scenarios in marketing and professional services.

SAP S/4HANA Cloud Enterprise Edition also supports the basic scenarios for digital control of business processes such as finance, financial accounting,

management accounting, procurement, sales, manufacturing, maintenance, project and product lifecycle management, Ariba® Network, SAP® Hybris Marketing, Field Glass, and SAP®Jam™. SAP aims to offer quarterly innovation cycles for the cloud edition.

### 3.4 The SAP Fiori user interface

This is how SAP defines SAP Fiori and what it hopes to achieve with it: “SAP Fiori is the new enterprise-wide interface for SAP software. It improves productivity, enhances acceptance, and lowers training costs. The intuitive user interface of SAP Fiori simplifies business processes and lets your employees work more effectively and efficiently.”

The SAP user interfaces were never regarded as particularly innovative. At best, they were viewed as functional. With the rise of apps, the differences in the user experience between SAP solutions and other software products had become unmistakable. At the same time, customers began demanding support for mobile devices and a more efficient interface. The response from SAP is SAP Fiori – offering a new user experience (UX) and user interface (UI) and a new concept for modifications and extensions. SAP Fiori uses new technological breakthroughs to bring what people have become accustomed to in personal software to the business world.

The philosophy behind SAP Fiori can be divided into three parts:

#### Concept

The principles at this level define the requirements and rules that are the basis of all new applications. Here it is stipulated that applications must be mobile and device-neutral. Another principle is that of 1-1-3, which means that the user in one role should be able to perform one specific task with a maximum of three clicks.

Finally, there is the “mobile first” principle, which states that the smartphone layout is always designed first – even if the desktop application is subsequently used in 80% or more of cases. Why? Because this automatically forces the developers to reduce the user interface design to the bare essentials and clearly define which actions need to be largely automated and performed in the background by a smart, learning system.

### **Design**

To ensure that the principles and rules are applied uniformly and consistently, SAP supplies a complete design template toolbox from the outset. This means that applications are standardized based on the above principles and divided into interface layouts, app types (for different use cases), and floor plans (certain constellations of UI controls). These building blocks make it relatively simple to construct apps using prototyping tools tailored to the intended purpose and use case.

### **Technology**

To ensure that the benefits of this “toolbox” approach are available beyond the conceptual phase, SAP UI5 comes with a corresponding framework that lets developers efficiently generate a wide range of standardized apps. As a result, most of the developers can focus on the actual specialized logic in the back end without worrying about complex GUI implementations. This framework is also available in an open-source version called Open UI5. Currently, however, Open UI5 only includes a rather small number of templates and ready-to-use patterns compared to SAP UI5.

## 4. Market response to S/4HANA®

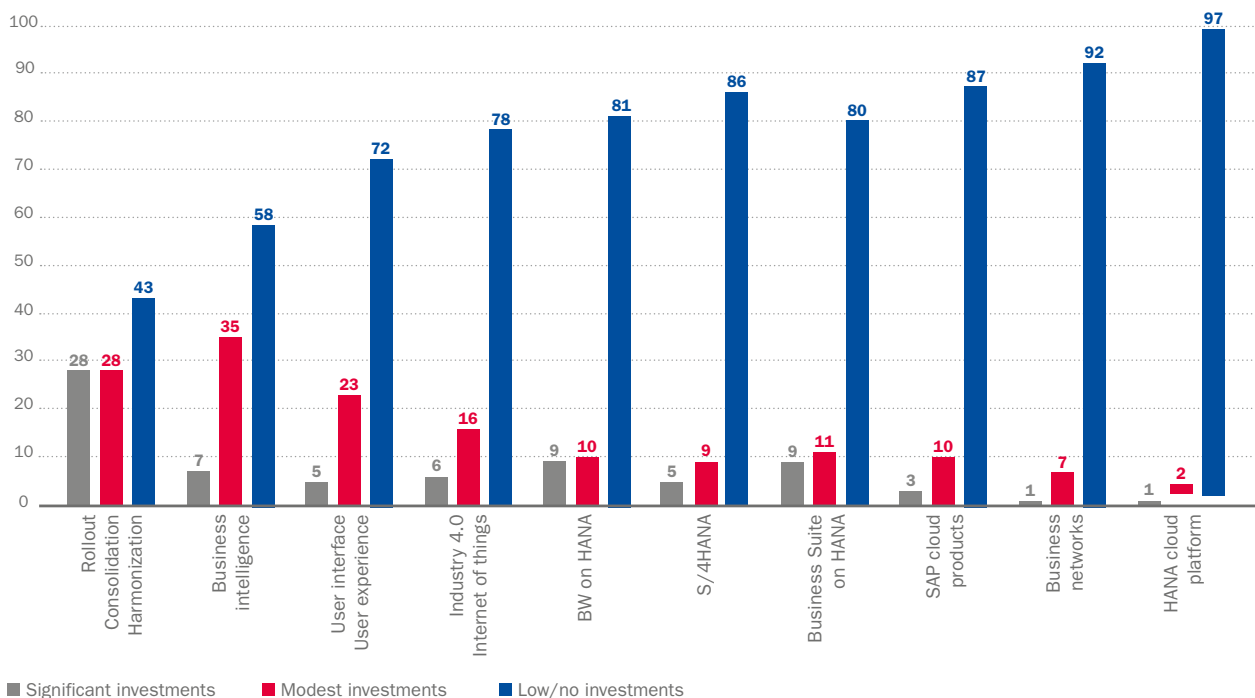
What are other companies doing? Potential users of SAP HANA and S/4HANA are watching with interest to see how user numbers develop and what the experience of the early adopters is.

At the ASUG conference in Orlando, SAP reported that 3,200 businesses had made the move to S/4HANA in the first twelve months after its launch. That figure includes businesses that have completed their migration, businesses currently migrating, and even businesses that will only be migrating in the coming months. The predecessor product SAP ERP had only signed on 2,800 customers in its first twelve months.

“The S/4HANA figures are remarkable. The product is still quite new,” said Marco Lenck, Chairman of the German-speaking SAP user group (DSAG), commenting on the results of the Business Suite’s successor. About 5% of the 344 German-speaking SAP users surveyed by DSAG are already investing large sums in S/4HANA, and another 9% are investing modest sums – that is, making potentially preparatory investments (see graphic below).

But the survey results also caution against too much S/4 hype, given that 86% have not yet made any investments in S/4HANA. The main focus of investments by German-speaking SAP users is on the rollout, consolidation, and harmonization of the deployed SAP products.

### FOCUS OF SAP INVESTMENTS (OVERALL, IN PERCENT)



Source: DSAG 2016

S/4HANA does not yet factor heavily into the investment plans of SAP users. The optimization of existing solutions is currently a priority.

**Most users toying with the idea of SAP S/4HANA**

What might the trend of migration to S/4HANA look like going forward? This question was examined in the aforementioned survey by Pierre Audoin Consultants (PAC). The SAP analysts asked businesses whether they planned to migrate to S/4HANA. Two-thirds of SAP managers cited S/4HANA as an issue, while one-third said the product was not relevant to their company. Only 2% of all respondents already have a migration project in place, 17% plan to begin migrating in one to two years, another 4% plan to migrate in the next two to three years, and 15% in the next three to five years. Finally, 29% could not name a timeline but said that the issue was under discussion.

It's interesting to look at motivations: Most of the SAP managers surveyed by PAC (62%) are convinced that every SAP customer will have to migrate to S/4HANA sooner or later: First, because SAP has said it will end support for the predecessor products in 2025. And second, because the customers feel it is a good idea to follow the SAP product strategy and benefit from the ongoing development of the software.

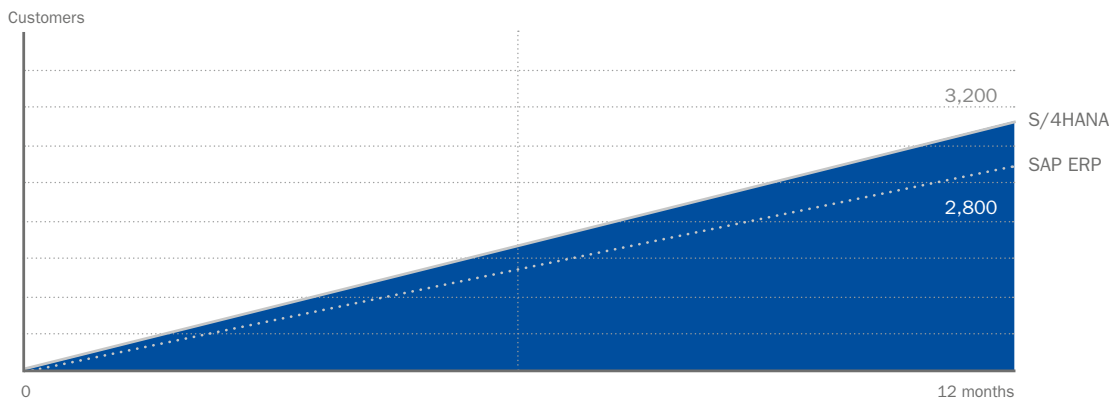
Only one in three (35%) feels that S/4HANA offers the foundation for innovative business models. SAP does not seem to have succeeded

yet in communicating one of its primary marketing messages. More than 40% of those surveyed see clear advantages in S/4HANA compared to earlier SAP applications. The primary benefit that SAP managers see in S/4HANA is increased performance (90%). Other benefits cited include greater user-friendliness (55%) and more efficient back-end processes (50%). Rounding off the list of anticipated benefits is the shift in operation of the SAP systems to the cloud (25%). Only 17% of respondents believe that S/4HANA will lower the costs of running SAP.

When breaking down the PAC survey responses by function, we see the greatest anticipated benefits of an S/4HANA deployment in finance & management accounting, logistics, and sales.

PAC also asked about risks and impediments in the migration to S/4HANA. Some 78% of SAP managers cite the unforeseeable cost of migration, while 77% see no business case to justify the investment and 76% find the cost of the new software licenses too high. Doubts unrelated to business considerations are much less pronounced, with 63% expressing concerns about the software's sophistication and 54% fearing the migration would be too complex. One-quarter of those surveyed refuse to give up their current database platform. This is required for migration, however.

**MARKET ACCEPTANCE ALREADY CONSIDERABLE**



Source: SAP SE

One year after its product launch, S/4HANA gained more new customers than SAP R/3 did during its first twelve months. That's impressive.

## 5. Criticisms of S/4HANA®

S/4HANA divides the SAP community: SAP is naturally celebrating its new product as an innovation and citing the experience of early adopters as proof. The feedback from SAP partners and consultants is also largely positive, of course. Lorenz Beckmann and Günter Knorr from Itelligence, an SAP partner, refer in an article published in E-3 Magazin to the increased speed and higher quality that the combination of transactions and analysis will bring to many corporate functions. They also see a potential for lower costs thanks to the more streamlined IT architecture and consider S/4HANA entirely appropriate for small and medium-sized businesses.

### Limitation to S/4HANA as the only database

DSAG brought up several points of criticism. “It is important to us that S/4HANA be quickly adapted to run on other databases,” says Achim Quitmann, DSAG Chairman for Technology. So far, the SAP HANA database is an essential requirement for running S/4HANA. According to DSAG, SAP is prepared in principle to allow the use of other databases, but only if these databases can reproduce all the functions of SAP HANA. So far, however, no other in-memory database satisfies this requirement.

### Licensing policy

DSAG also criticizes the licensing policy. Since SAP defines S/4HANA as a new product, not an update to an existing suite of solutions, businesses fear that they must purchase a costly new license when migrating to S/4HANA. After all, argued DSAG Chairman Lenck, SAP users have already helped fund the development of S/4 with their service contract fees. SAP seems to have taken this criticism to heart: According to E-3 Magazin, current SAP customers running ERP/ECC 6.0 and SAP

Business Suite 7 now have the option to obtain an S/4 license at a flat rate of €9,000.

### Lack of use cases

A criticism heard from many corners is the lack of use cases. Critics feel that, to put it bluntly, there are not enough applications to justify the cost of migrating. Here it is incumbent upon SAP to present credible scenarios from among the solutions of their early adopters. Up to now, the examples cited come primarily from the area of finance and management accounting.

### Future viability of adaptations and customizations

The source of much anxiety is the fate of the many adaptations and customizations that have been created in numerous industries to complement the SAP standard system. “SAP ECC is unique in how its functionalities are imprinted in some 100,000 tables that are combined with Y and Z tables with adaptations. This makes for a difficult adjustment when migrating to S/4HANA,” writes Volker Schnittler, Business Software Analyst at the German Engineering Federation (VDMA), in a column for E-3 Magazin. These tables will still exist, but they will be used completely differently in SAP HANA, so that an adaptation of a specific functionality would entail much more than a re-mapping. Schnittler demands that users be presented with realistic migration scenarios.

### More challenges for developers

Not everything gets easier with SAP HANA. Developers need to get used to the fact that HANA applications can no longer be written solely in the familiar ABAP programming environment. Knowledge of Java and HTML is required. That reduces the number of programmers in the market – even if only temporarily for training – and can slow down adoption.

## 6. Licensing models: on-premise, cloud, or hybrid

Can ERP systems in the traditional mold still keep up with the information needs of companies in a dynamic and volatile market environment? The consulting firm PricewaterhouseCoopers (PwC), in a report entitled “Beyond ERP,” casts doubt: “CIOs are rethinking their approach to ERP, thanks to modular, cloud-based business applications that offer viable alternatives to the unwieldy, inflexible, and expensive systems that have long dominated the sector.”

SAP perceives and promotes S/4HANA as the answer to the call for more flexible system environments. In addition to the on-premise version of S/4HANA, which is installed locally at the customer site, SAP also offers a cloud version: the SAP S/4HANA Cloud Enterprise Edition, which is hosted in a cloud managed by SAP.

The target audience for the cloud edition is companies that need a standardized solution for core operations or specialized solutions for specific departments – combined with a quarterly innovation cycle. The innovation cycle for the on-premise edition, by contrast, is one year.

SAP touts the option of combining on-premise solutions with cloud solutions to attain optimum flexibility in hybrid system environments.

SAP S/4HANA currently offers its cloud edition in three models:

- SAP S/4HANA, Cloud Marketing Edition – as a marketing solution
- SAP S/4HANA, Cloud Project Services Edition – as a solution for businesses in the service sector
- SAP S/4HANA, Cloud Enterprise Edition – as an ERP solution with functionalities for

finance, financial accounting, management accounting, purchasing, sales, production, maintenance, project management, and lifecycle management. Licensees can also integrate the SAP-acquired solutions SuccessFactors® Employee Central, Ariba Network, SAP Hybris Marketing, Field Glass, and SAP JAM.

### Little demand for strictly cloud-based ERP

So far, the market response to the cloud edition has been underwhelming. The DSAG investment survey in 2016 found that only 3% of the surveyed companies have made significant investments in SAP cloud-based products, which are not limited to the S/4HANA cloud edition. “Nearly 50% of companies cite the massive difficulties of shifting an entire ERP system to the cloud. Our survey finds that the threat of potential industrial espionage is hindering such investments. In other words, current concerns about the protection of data and intellectual property are making businesses lean toward investments in on-premise solutions,” says DSAG Chairman Marco Lenck, explaining the reluctance in an interview with IS Report. Still, 10% of businesses have made modest investments, which indicates that the idea of hybrid system environments is catching on to some extent. Not to be confused with the S/4HANA cloud edition, the SAP HANA Cloud Platform (HCP) serves as the development and extension platform for SAP S/4HANA. This platform is designed to let customers develop their own extensions and modifications or integrate non-SAP solutions into S/4HANA. Extensions developed using HCP should run with both the on-premise edition and cloud edition.

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The debate over whether an on-premise, cloud, or hybrid system environment is optimal for a company goes far beyond S/4HANA. The AEB fact sheet “Optimized SAP® Systems in Global Trade and Logistics” outlines five factors companies should consider before making a decision:

- Total cost of ownership
- Integration into the system environment
- Functionality and usability
- Service and expertise of provider
- Data privacy and security

## 7. Migrating to S/4HANA®

The PAC study found that for one-third of businesses with SAP systems, migrating to S/4HANA is not currently an issue. Of the remaining companies with more or less concrete plans for a migration, 38% plan a greenfield approach – a completely new deployment. And among these companies, 61% plan a greenfield deployment of all SAP systems, while 39% want this approach for only certain SAP systems.

The other 62% of companies prefer a brownfield approach – an incremental migration of existing SAP systems. Large enterprises with more than 1,000 employees (74%) tend most strongly toward this approach. SAP outlines the following steps that a typical SAP ERP customer must take to migrate to SAP S/4HANA:

### ■ **Convert Unicode**

Unicode is an international standard for representing language that SAP has used in the SAP Business Suite for about eight years. Unicode is a requirement for using the SAP HANA database.

### ■ **Clean up customer codes and junk data**

Rudolf Hois, Assistant Director of SAP S/4HANA Development, recommends that businesses look at the code in their own systems and free it from unnecessary ballast. “Carrying along dead code creates work,” says Hois. The modifications needed for SAP HANA have to be made to the dead code as well, and the dead code also goes into testing. This effort required to transfer the customer code to SAP S/4HANA is unnecessary, notes Hois, who advises combing through legacy data as well. Typically, he says, up to 20% of the data is no longer needed. “Since SAP HANA always keeps all the data in the main memory, any memory that is filled with useless data is a cost driver,” explains the SAP manager.

### ■ **Upgrade to SAP ERP 6.0**

### ■ **Migrate database to SAP HANA**

### ■ **Install S/4HANA**

The last four steps can be performed one by one or all together. Users of the “SAP Business Suite powered by SAP HANA” only need to worry about the last step, since the database migration is already taken care of.

### **IT environments**

Another scenario is the transformation of the IT environment when, for example, multiple SAP solutions are consolidated in S/4HANA or functionalities from the earlier core SAP are moved to the cloud.

SAP points out that S/4HANA and the SAP Business Suite can be run together as parallel SAP environments. This means that businesses can begin by migrating individual components in their system environment to S/4HANA. They can work in a mixed IT environment and don't have to change over their entire system environment all at once. This is possible because S/4HANA and the SAP Business Suite use semantically compatible data structures. From a business perspective, that only makes sense for a transitional period or in special cases.

Before the actual implementation phase, SAP recommends planning a preparatory phase with a value-discovery workshop dedicated to identifying the potential that can be achieved with the migration.

This should be followed by an exploratory phase in which users define the strategy, roadmap, technical architecture, and migration planning based on the migration scenario. SAP supports businesses with “best practice” templates for each scenario and the necessary tools. “Customers are supported along the way by SAP and its partners – with a migration roadmap, a cloud-



based system migration, and implementation packages,” according to SAP’s FAQ manual. DSAG praises the services as very helpful. These services include an automated tool that checks the system’s code and data structures for compliance with S/4HANA requirements, making it possible to gauge the cost of the migration.

One critical aspect of a migration is dealing with user-specific modifications. The migration to SAP S/4HANA is a good opportunity to validate your existing modifications and simplify the solution, says SAP. The company points out that it is not unusual for customers to find out during a migration project that 50% of the modifications were no longer needed for their business workflows.

SAP advises using an extension when

migrating to SAP S/4HANA to transfer the remaining modifications to the SAP HANA cloud platform. Another option for plugging in extensions is to use the Extension Framework in S/4HANA (HANA Extensions), which offers additional options such as the integration of open-source solutions.

The benefit of the Extension Framework in SAP’s view is that it allows modifications to be insulated from the core. That way, the ERP core system can be updated quickly and easily when new features are added.

Industry experts warn against viewing the changeover to S/4HANA as a purely technical migration. Some functionalities will work differently than they do in current SAP ERP systems. This can require adjustments to business processes, but this can certainly yield potential benefits as well.

## 8. Non-SAP® software in the new SAP® software world

Despite their great strategic importance for businesses, ERP systems do not stand alone as monoliths in IT environments. Many businesses also use specialized software that can accommodate specific processes or industry requirements better than standardized ERP software. These non-SAP software solutions are connected to the ERP system through interfaces or plug-ins.

The changeover to S/4HANA will require adaptations to these specialized solutions, writes Volker Schnittler, Business Software Analyst at the German Engineering Federation (VDMA), in a column for E-3 Magazin. Schnittler fears that “an adjustment of specific functionalities will definitely entail more than a remapping” – meaning that complex programming is required. One reason he cites is that S/4HANA uses tables completely differently than its predecessors. The VDMA expert says that users need realistic migration scenarios – which have been hard to come by so far. The February 2016 edition of E-3 Magazin cites a research note from Crisp Analytics in which 28% of surveyed IT managers bemoan the current lack of migration strategies for non-SAP systems.

SAP’s public pronouncements on this front have indeed been vague. “The interfaces to other customer applications need to be

studied and in many cases optimized. SAP uses data tiering (...) to help minimize data volumes. The SAP S/4HANA standard system should be thoroughly tested before modifications are made,” wrote SAP Supervisory Board Chairman Plattner in a column for Computerwoche.

VDMA expert Schnittler advises companies that run non-SAP systems alongside an SAP ERP system to work closely with their system providers to coordinate any migration to S/4HANA. These providers know best about the special requirements that cannot be duplicated in the necessary granularity in standardized software. “What’s needed here are development tools that enable quick positioning of solutions in S/4HANA and adequately protect the unique selling propositions of these providers,” says Schnittler.

Businesses still have time to sort it out. As mentioned earlier, SAP announced it will continue supporting the Business Suite until 2025. This leaves an adequate window for a non-disruptive solution for third-party systems. But businesses that use SAP should not procrastinate too long before making a strategic decision on how to proceed. And maintaining a close dialog with trusted IT partners is a critical factor in making this succeed.

## 9. Migrate or stay put?

### Factors to consider

For most analysts and businesses, it's a clear choice: The question is not if but when to migrate from legacy SAP systems to S/4HANA. You don't need to be a fan of S/4 to see that. It's understandable that SAP needs to build its systems on a contemporary, sustainable technological foundation in order to defend or extend its position on the market. That is in the interests of SAP

customers as well. So it's mostly about the timing and the end goal.

But there are alternatives to S/4HANA. The market for ERP systems is a buyers' market, and competition is intense. So it's only natural that ruminations about migrating to S/4HANA can also lead to a reassessment of the overall ERP environment and thoughts of switching to a different provider.

#### 9.1 Following the SAP product strategy

The PAC study found that 65% of surveyed SAP customers feel it is important to follow the software company's product strategy. This thought process is understandable. SAP has promised to continue supporting the Business Suite as

the predecessor to S/4HANA until 2025, but S/4HANA will certainly be prioritized for the lion's share of product innovations. The later a company migrates, the later it can benefit from innovations and the performance gains they bring.

#### 9.2 Running a feasibility study and cost analysis

SAP boasts better performance and lower operating costs in making its arguments for a migration. The innovations that SAP has announced also promise streamlining effects, such as real-time analyses or faster optimization processes in logistics and factory planning from use of the SAP HANA in-memory platform. While it may be difficult to gauge the cumulative impact, it is certainly possible to quantify specific effects.

The cost reductions and streamlining effects – measured by an ROI assessment, for example – must be offset against the expenses for hardware and software investments, training, implementation, etc. The outcome of any feasibility study will depend in large part on whether the cost of the migration can be accurately assessed. For this, it is wise to turn to the support of experienced IT consultants.

### 9.3 Identifying use cases and potential for innovation

What can S/4HANA do that my old system can't? That is only the first important question to ask here. The second is: Do I even need this innovation for my day-to-day work – and how will it benefit me there? If you can identify clear benefits from the new

solution, that speaks for a quick migration. Another aspect: How does S/4HANA fit into my digitization strategy, and how might it potentially benefit me – for example, in implementing Industry 4.0 or big data projects?

### 9.4 Protecting investments

With its commitment to support the Business Suite until 2025, SAP has gone far to protect the investments that its current customers have already made – even if some are calling on SAP to extend support until 2030. This deadline certainly gives companies enough time to prepare for and carry out any possible migration within their investment cycles – or completely rethink their own ERP strategy. Businesses should include their entire system

environment in any such considerations. Many companies are running successful specialized solutions from other software providers that offer effective support for key, customized business processes. What's more, many have developed their own individualized solutions. That's why it is so important to sit down early on with IT partners to discuss S/4HANA planning and, ideally, hammer out a common strategy.

### 9.5 Choosing the right moment

Once the basic decision for S/4HANA has been made, the big question remains: When to migrate?

#### Arguments for an early migration:

- You have early access to performance gains, simplifications, and new functionalities – which may translate into a competitive advantage. Thanks to the in-memory platform, an early migration could particularly benefit companies capable of achieving efficiency gains and cost advantages through complex planning and analysis. Real-time warehouse planning, improved simulation of alternative supply

strategies in material planning, better opportunities for analyzing production and order fulfillment bottlenecks – these are all examples of cost-related improvements that SAP touts.

- SAP executives are still very attentive to the early adopters, and large, well-known companies stand to benefit most from this heightened attention.
- The legacy system environment is already in urgent need of investments anyway.
- The open questions about costs and benefits have already been answered, and both the company and SAP have a clear roadmap for the products and migration.

**Arguments for a delayed migration:**

- S/4HANA is still relatively young in its product lifecycle. Risk-averse companies could wait for further improvements to minimize their implementation and maintenance costs.
  - You do not yet have any references from your own industry.
  - The business case is vague, and the potential benefits are currently unclear or lacking entirely.
- The database switch to SAP HANA is viewed critically.
  - You do not yet have in-house experts to provide support, and experienced outside advisors are not yet available.
  - The size of the databases that you would need to migrate to SAP HANA are greater than 20 TB. The HANA hardware is not currently equipped to handle such large volumes of data.

## 10. Glossary

Abbreviation	Definition
<b>ABAP</b>	<b>Advanced Business Application Programming</b> Programming language that is the basis of the SAP systems
<b>HANA</b>	<b>High Performance Analytic Appliance</b> As a standalone term, generally refers just to the database technology
<b>SoH</b>	<b>Suite on HANA</b> Traditional ERP system or entire SAP Business Suite on a HANA database
<b>HCP</b>	<b>HANA Cloud Platform</b> "Platform as a service" based on HANA database and SAP Netweaver
<b>HCI</b>	<b>HANA Cloud Integration</b>
<b>HEC</b>	<b>HANA Enterprise Cloud</b> ERP system in the SAP cloud
<b>S/4HANA</b>	<b>SAP Business Suite 4 SAP HANA</b> "New" ERP system, including CRM, SRM, and updated modules (Finance, PPM)
<b>Ariba</b>	Solution acquired by SAP for supplier integration, procurement platform, B2B trading network
<b>Hybris</b>	Solution acquired by SAP for e-commerce shops, B2C
<b>SuccessFactors</b>	Solution acquired by SAP for human resources, strictly cloud-based
<b>Fiori</b>	New user interface, GUI framework based on SAP UI5 / HTML5

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