Simplifying SAP

How to Make Migration to SAP HANA a Success

D&LL Technologies

SAP S/4HANA®: The Cloud Is a Path – But Not the Goal

Do you remember this old TV commercial from a major IT provider? Two men, ostensibly executives, are having a conversation: "We need to get on the Internet. I read it in the paper." – "Why?" – "It didn't say." Two decades later, it's even funnier than it was back then. But the message is serious – and is no less relevant today.

When people talk about the latest business suite from SAP – "S/4HANA" – the term "cloud" is usually never far behind. It is being heralded as the killer application that will propel the cloud operation model into the mainstream once and for all. Because if SAP is behind it, it's got to be right.

And it is. Software-as-a-service has many advantages. These range from a low-cost price to increased flexibility and reduced complexity. The impending migration to S/4HANA will prompt plenty of IT managers to explore or revisit the topic of the cloud.

But those who think that S/4HANA comes hand-in-hand with a predefined operating model are confusing the path with the goal. The new SAP software is cloud-ready, and that's a good thing. But it can also be operated on premises, in a private cloud or in a hybrid environment.

Before any of that, however, it needs a consolidated infrastructure without any artificial information barriers or excessive complexity. It has to stretch from the new applications at the edge, via the core applications, all the way to the as-a-service offerings. Its setup is more demanding than the outright decision to outsource everything. But it's worth it; it gives you back control of your information technology. And you need this to achieve your ultimate goal: to create an intelligent, data-driven company.

Joakim Zetterblad,
Global Head of SAP Business,
Dell Technologies

How to Reduce the Complexity of Your IT Landscape
From Edge to Cloud: SAP Done Easy

Eight out of ten companies say their SAP landscape is too complex. And this complexity costs money. The changeover to S/4HANA will make everything easier, promises SAP – especially if the software comes from the cloud going forward. But the road to the new platform is a rocky one. First, the decision has to be made in favor of installation, migration, or transformation. After that, the systems that are already in place need to be consolidated, existing processes and functions adapted and data cleansed. Special attention must be paid to a future-proof technical infrastructure that encompasses all IT areas – from the edge, via the core, to the private, public, or hybrid cloud.

"SAP isn't complicated, just complex"

However, the SAP software isn't as easy to roll out or as easy to use as the provider leads us to believe. Indeed, over the past few decades the software suite "Realtime 3" (or R/3, for short) has earned itself the reputation as somewhat a complexity monster – and created a booming market for consultancy and system integration services in the process. SAP has a different take on this, of course: The software might be complex, the company says, but it is not complicated. Indeed, the complexity of many SAP landscapes is because the software has been adapted to highly specialized business processed and repeatedly linked up to new functions.

SAP, for its part, has responded to the criticism leveled by its clientele – at least on the marketing side. Since the 1990s at the latest, the word "Simple" – or simply the letter "S" – have regularly appeared as part of product names and strategic launches. Take, for example, the "Run Simple" campaign started in 2015, or the most recent version of the S/4HANA Business Suite featuring integrated solutions such as "SAP Simple Finance" and "SAP Simple Logistics". The core message of the rollout is that SAP S/4HANA makes

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everything a lot simpler: from the database model, through implementation, to operation; from user-riendliness all the way to support.

Never change a running system?

It's not as though SAP's customers are charging the doors to switch over to S/4HANA. According to statistics portal www.statista.com, only 16,000 customers had made the move by the end of the first quarter of 2021. As determined by infrastructure specialist Dell Technologies, around 90,000 companies still have the migration on their to-do list. There are multiple reasons for this.

On the one hand, there is a common view that you never touch a running system. On the other, S/4HANA is, at the end of the day, a new software architecture – starting with the underlying in-memory database management system ("HANA"), right through to the supply model ("cloud"). If you really want to benefit from the reduced complexity, you have to avoid repeating the mistakes of the past.

Before opting for S/4HANA, it would therefore be prudent to weigh up a few basic considerations with regard to a future-proof infrastructure that comprises edge computing applications such as the Internet of Things (IoT) or blockchains as much as it does classic core applications. Each company must decide for itself which workloads should be run on premises, which it would be more sensible to outsource to a cloud service provider, and which it would be best to procure from a private cloud. However, a modern infrastructure should encompass all possibilities without the company having to settle on a single model or a single provider.

On the mission to create an intelligent company

SAP customers will most probably not be able to avoid migrating eventually. As the provider has communicated, support for the Business Suite 7/3, the last of the R/3 releases, 2027, will be discontinued in 2027. This support period can be extended until 2030 subject to a charge. Waiting until the last minute is a dangerous strategy, however; and the much-cited digital transformation will in any case require monolithic infrastructures to be disbanded and replaced. So, why not seize the opportunity now to set the course for the future and take off the pressure?

A transformation initiative toward an "intelligent company" is, after all, often right at the top of IT managers' agendas. Many of them perceive SAP S/4HANA as a "strategic platform" in this regard. Most SAP customers would probably never even contemplate parting ways with their business solutions. When they choose their >>

The SAP success story

Despite increasing competition: According to business magazine *Forbes*, 92 percent of the world's 2,000 largest companies – and in the meantime also a lot of mid-sized firms – entrust their business-critical applications to SAP standard software.

In 1972, inspired by the idea of off-the-shelf software that could integrate all operating processes and link a wide variety of business divisions with one another, five IBM defectors founded Systemanalyse und Programmentwicklung GbR (lit. System Analysis and Program Development). They turned their vision into tangible products, and within the space of five years their private partnership became SAP GmbH Systeme, Anwendungen und Produkte in der Datenverarbeitung (lit. Systems, Applications, and Products in Data Processing).

Today, the company serves over 400,000 customers in more than 180 countries around the globe. The software packages cover twelve essential business functions and come in ready-to-install versions for 25 industries.

business software, this is a commitment for life – just like a marriage. The costs of divorce would simply be too great: The process of migrating the data alone is a painstaking and time-consuming undertaking.

According to the SAP definition, an "intelligent" company is above-all a data-driven company. Quick access to data that is as up-to-date and complete as possible is crucial in order to deploy innovative technologies such as machine learning (ML) and IoT. The classic automation of core processes likewise benefits from agile data analysis. It is only logical, therefore, that the new SAP Business Suite is built around a lightening-fast data analysis system: the "High Performance Analytic Appliance" (HANA).

Even if HANA, as the term "appliance" suggests, is in part "hard-coded," SAP remains a software provider through and through. However, the extensive modernization of an IT system must encompass, in particular, the underlying infrastructure. The hardware architecture plays a major role here. That is why SAP fosters close collaboration with infrastructure experts like Dell Technologies. At its Center of Excellence on the SAP Campus in Walldorf, SAP customers who are interested in migrating can learn how they can modernize their IT systems from the ground up. Dell Technologies, in turn, maintains a trusted partnership with Intel. Customers can, if they want, procure virtually the entire infrastructure from a single source.

Obstacle race to IT transformation

The infrastructure underlying an SAP infrastructure has generally evolved over several years and is comprised of a multitude of heterogeneous solutions. Productive and non-productive SAP systems are often operated separately from one another. Another complicating factor is that many companies run more than one SAP application. Isolated data silos are therefore not uncommon. This results in expansive and highly complex IT landscapes that are difficult to manage and generate high operating and maintenance costs.

With that in mind, consolidation is the order of the day. It must be ensured during the migration phase in particular that the environment supports the manufacturer's classical applications as well as SAP HANA. The new infrastructure must naturally also be conceived for the SAP S/4HANA migration and offer a scalable service for executing mixed workloads – from OLTP and OLAP to big data and analytics.

Hardware check is indispensable

HANA allows large data volumes to be processed and analyzed in real time. It goes without saying that the InMemory database requires high-performance servers offering extensive memory and processing capacity. For users, this means they will have to upgrade or phase out hardware solutions that have been pushed to the limits of their capabilities and replace them with systems that are based on modern

processor technology, offer high storage density and are scalable in every respect.

Finding the right storage and backup strategy is also a challenge. What sizing is needed? Which functions are indispensable to keep data volumes small and operating costs low – snapshots, deduplication, data tiering, etc.? What are the backup arrangements? What can be done to ensure permanent system availability or, in other words, high resilience? What is the plan for disaster recovery? And what should be done with the applications that still work with memory-based databases?

Last but not least, there is the question: Where should the SAP applications ultimately be run: on premises, in the private cloud, in public cloud environments, or in a hybrid infrastructure? Which operating model is suited for what, and how can the different versions be combined with one another in a meaningful way?

What Is the Right Migration Path?

Insufficient Planning in Advance, Limited Flexibility in the Future

S/4HANA is, in fact, the first SAP software that was expressly designed to be operated "as a service". Nevertheless, in anticipation of the scheduled changeover, many companies are asking themselves where they are going to run the applications. Does it make sense to completely overhaul the on-premises environment? Or would it be better to switch to a private cloud, or possibly even to a public cloud service? What if the answer is "both"? What are the steps involved in setting up and running a hybrid architecture? One thing is clear: SAP applications should be run where they are most organizationally, technically and financially appropriate. But this only becomes clear after a deep dive into the baseline situation.

From where we stand today, 2027 or even 2030 may still seem a long way off. There's still plenty of time to phase out the database solutions currently used as a basis for SAP and to migrate to S/4HANA. But the grace period granted by the manufacturer is in reality shorter than it might appear. The to-do list is extensive, and checking off the items will be neither simple nor straightforward. The manufacturer gives a rough estimate of 12

to 18 months for implementation. In practice, however, the reality is a lot different: As reported by SAP customers in a study conducted by Gartner, the time and resources required are often much greater. It takes from six months up to a whole year just to make the necessary preparations for the changeover, users say from experience.

However, many companies are showing themselves to be reluctant to embark on the migration journey. The 2021 issue of the Investment Report published annually by the German-speaking SAP User Group (DSAG) would seem to support this supposition. According to this report, around ten percent of the approximately 16,000 SAP customers in Germany, Austria, and Switzerland intend to start the changeover to S/4HANA by the end of 2021. Factoring in the available installations, the new SAP Business Suite would soon be deployed at one-in-four customers in the German-speaking DACH region. That still leaves a long way to go.

On the green meadow or in the plowed field?

A few fundamental decisions need to be made before embarking on any change like this. One of the most important of these is which conceptual approach to follow: full-scale new installation, step-by-step conversion of individual systems, or selective migration. A new start "on the green meadow" (greenfield approach) is the dream of every IT manager – but one that can soon become a nightmare if the new system is not up and running by the deadline.

Gartner Research

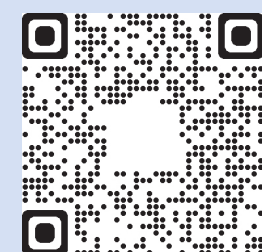What Customers Need to Know When Considering a Move to S/4HANA - 2018 Update OCTOBER 2018

DSAG – German-speaking SAP User Group

Investment Report 2021 January 2021

SAP

Rise with SAP

It might seem like a convenient compromise to remodel the "tilled field" (brownfield), although this will almost certainly introduce more complexity into the equation. Another possibility is to combine both options (bluefield).

Numerous variables come into play when deciding on the best solution for a specific case: What is the setup of the existing IT landscape? Do customized systems need to be replaced? What is the best way to avoid having to make changes in the future? Are different ERP solutions consolidated here? Do outdated business processes need to be overhauled? Should complementary cloud offerings be sourced in addition? Those are just some of the questions a company will need to ask itself. Depending on the answers, the pendulum will then swing to the left (greenfield) or right (brownfield), or hover somewhere in the middle (bluefield).

Data as hostages for the "lock-in"

When a company thinks about using cloud services, the "Big Three" immediately come to mind: AWS, Microsoft, and Google. These companies collaborate with most software providers and offer access to their products via their own platforms. AWS's offering in particular includes almost everything a company needs to run its business. That makes it an easy decision for customers. But beware! If you opt for software-as-a-service (SaaS), you need to have optimized your systems for the cloud beforehand. Moreover, a company transfers its data to the provider. If a few years later it decides to go with another provider and wants to have its data back, it usually has to buy itself out with a hefty fee.

A cheaper alternative – at least in this respect – is offered by "as-a-service" contracts, such as PaaS (platform-as-a-service) or IaaS

(infrastructure-as-a-service). In the case of the PaaS model, customers use the provider's network, storage media and server, as well as its virtualization, operating system, middleware and runtime environment. Its data, by contrast, are retained in house. In the case of the IaaS model, not only the data but also the runtime, middleware and operating system remain with the customer. The provider operates just the network, storage, server, and virtualization.

Internal economies of scale with no pressure on profits

Alongside this are the company's existing in-house operations – even if many business consultants no longer consider these to be up-to-date. Larger companies often have business-critical systems in place that are heavily customized to their respective business processes. Only in very rare cases have these been designed with a view to the cloud, so they are not readily transferable. A CIO who oversees a large company with an extremely well-trained team of staff can even save money with the do-it-yourself model by leveraging internal economies of scale; and unlike external service providers, they do not have to make a profit.

In addition, there are companies – for example in the field of critical infrastructures – that are prohibited by law from outsourcing any IT components. However, this does not mean they have to forgo the flexibility of a virtualized

environment. Rather, they can create a "private cloud" for themselves (in other words, an internal service provider) that supplies the data and applications to the divisions.

A wide range of hybrid architectures are conceivable and practicable alongside the models described. SAP insists that the intention is not to force customers into a specific operating model, despite cultivating a certain preference for the cloud. IT divisions that take time to undertake the migration will in any case have to live with different worlds for quite some time. At the end of the day, managing a hybrid architecture is a tremendous challenge. So, it would be prudent to seek out professional support.

In-house operation, hosting, or the cloud?

Once you have chosen a migration strategy, you then need to evaluate the deployment options to identify the most suitable model for your particular situation. Common types are on-premises,
the public, or the private cloud,
software-as-a-service (SaaS), infrastructure-as-a-service (IaaS), or platform-as-a-service (PaaS).

SAP has been pushing things in the clear direction of the cloud for some time now. That became obvious with the launch of the "RISE with SAP" initiative, at the latest. It was using this buzzword that the provider recently announced a new package of products and services which it hopes will smooth the path to the cloud for interested customers. Alongside its internally developed cloud solutions, this also contains offerings from hosting partners and hyperscalers.

A Modern Infrastructure Solves the Complexity Issue

Using SAP S/4HANA to Make Your Company Smarter

For many IT divisions, S/4HANA and the associated outsourcing of software operations to the cloud is the hot topic. But not all of them are so sure why they need the new software and an operating model that so far has seen only sporadic use. The public cloud is, after all, not the only method of setting up a modern infrastructure. Indeed, what companies need the most are flexible workloads that can be localized and a consistent data fabric universe without information silos. The prerequisite for an "intelligent" or data-driven company, so to speak, is first and foremost less complexity. How this is achieved is of secondary importance.

Complexity costs money. According to a study by Harvard Business Review ("The Business Case for Managing Complexity"), 60 percent of the companies that took part attribute a double-digit percentage of their IT costs to the fact that their systems are no longer transparent and therefore difficult to manage. What is more, as noted by 50 percent of the 750 companies surveyed, the high degree of complexity of the IT systems has a negative impact on the company's capacity to innovate. In other words, the fundamental requirement for an intelligent company is a smart, efficient, unencumbered IT environment that is as seamless as possible – starting with the IoT or ML (machine learning) systems on the edge, through the business-critical core applications, all the way to the operating models in the background (private, public or hybrid cloud).

Does flexibility have to be at the expense of clarity?

In this light, the need for the greatest possible flexibility might seem disproportionate. The larger the choice and the freedom to make this choice, the higher the risk of an overly complex environment, people will tell you. But the right infrastructure lets you enhance individuality without increasing complexity.

A "one-stop" IT environment provides for the efficient use of resources as much as it does for effective workflows, visible data assets and the unrestricted usability of these assets – regardless of where they are stored and in which form they are available. Last but not least, the principle of everything-as-a-service should not be confused with the specification of a fixed operating model. The cloud is not the goal; at most, it is the path that will lead us there.

The three-pronged path to a smart company

This path can be divided into three aspects: internal IT operations, operating model and data management. It might seem that the loyal SAP customer base has already made a decision at least regarding the last two points. However, there is leeway to align the solution more closely to company-specific needs.

Operations is a field where IT managers no longer need to devote more time than absolutely necessary. The delivery and lifecycle of IT resources can today be managed on a largely automated basis. It is worthwhile in this context to consider a hyper-converged infrastructure (HCI). Such an infrastructure integrates computing power, disk storage and network connectivity in a single appliance. The

acquisition costs are generally higher than for a conventional data center; in exchange, however, the complexity costs are substantially lower. It pays off for the company, for example, if it has a heavily virtualized environment, runs a private cloud and/or uses container technology. SAP-HANA users will make sure that the
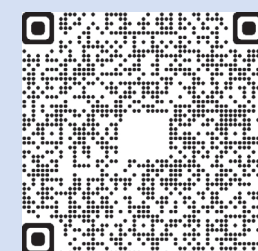
Harvard Business Review:

The Business Case for Managing Complexity
2015.
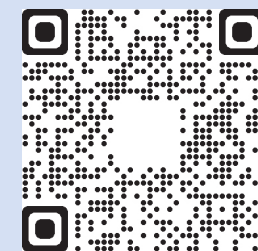
ESG Technical Review:

"Dell EMC VxRail with Intel Xeon Scalable Processors and Intel Optane SSDs." Business-critical Hyperconverged Workload Performance Testing

August 2019

hardware is TDI-certified ("SAP HANA Tailored Datacenter Integration").

Infrastructure is becoming an increasingly consumable commodity in light of the cloud. This poses the question of the best consumption model – switching between fixed costs (capex), pay as you go (a good option for sudden peaks in demand) and pay as you grow (for predictable peaks in demand).

Building landscapes to order and safeguarding their protection

The operating and deployment model should be geared towards what makes the most sense for the company in question, regardless of what is currently trending. If the infrastructure is "cloud-ready" – that is, dynamic in the sense of decoupled and virtualized – the workloads can be distributed to the various models with relative ease. It is thanks to these "virtualized landscapes" that using SAP software no longer necessarily leads to added complexity.

Service providers such as Dell Technologies can help to consolidate individual landscapes, set them up if required and safeguard their protection at the same time, with a service offering ranging from pure on-premises installations to various cloud alternatives. Close partnerships with the processor specialist Intel and with a large number of cloud service providers, including hyperscalers, leave a

multitude of options open here.

An "insightful" company is the goal

However, the simplified infrastructure and flexible operating model provide only the basis for the actual goal of the modernization process: the smart company. For decades, organizations have collected their data on a use case-by-use case basis, saved them separately and processed them on request. Ubiquitous data sources such as mobile phones or sensors, big data storage systems such as Hadoop and ultra-fast in-memory appliances like HANA make it possible today to process data en masse and practically in real time.

Combining various types of data from diverse business divisions allows companies not only to gain information, but also "insights." Self-learning systems (ML or artificial intelligence), in particular, open up new business perspectives. In order to benefit from this, companies have to tear down their classic silos or replace them with a data fabric that spans the entire breadth of the IT environment – starting with edge applications, through distributed core applications, to software-as-a-service from the cloud.

When all Components Are Correlated and Coordinated
The Right Computer Architecture Is Crucial to Success

The IT environment for an intelligent company is multi-faceted and complex, but needs to be versatile and easy to manage at the same time. Even if it consists of diverse models and components, it must feel like a homogeneous unit. No provider is capable of constructing this work of art alone. Close technology partnerships and ecosystems can help. A good example is the three-way relationship between SAP, Dell Technologies, and Intel. Together, the software provider, infrastructure specialist, and processor systems manufacturer develop solutions that help SAP customers get the most out of migration to the new S/4HANA Business Suite.

The future of IT is in the cloud – that's only partly true. Even if today software providers such as SAP are mainly pushing software-as-a-service, for various reasons companies continue to run parts of their IT environment, including software instances, on premises. Two aspects are important here: On the macro level, it is all about harmonizing the on-premises, private cloud, hybrid and as-a-service worlds. In detail, the goal is to reconcile the performance of the on-premises environment with the requirements of an intelligent company.

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Because the best software is not worth the money if it lacks the necessary processing and storage capacity. The environment should also be able to score points on the cost side.

TDI-certified stack from a single source

System providers such as Dell Technologies specialize in the management of heterogeneous infrastructures. Joakim Zetterblad, Global Head of SAP Business, Dell Technologies, looks forward to offering, in the company's capacity as provider, a technology stack certified in full according to SAP Tailored Data Center Integration (TDI) that covers all areas of business IT – from edge computing, through core applications, to the cloud.

When the core of the hardware is involved, however, Dell Technologies relies on the support of a specialized chip manufacturer – a remit that is filled by its long-standing partnership with Intel. As a supplier of state-of-the-art processors, Intel contributes to the scalable "Xeon" processors for the HCI appliance "VxRail" from Dell Technologies. This provides the foundation for hyper-convergent data center architectures that solve a large portion of the interface issues and thus significantly reduce the complexity of the environment.

Data tiering: It doesn't always have to be HANA

Even if SAP offers more competitive pricing models for HANA, the in-memory technology is only worthwhile for data that really need to be directly accessible all the time. To reduce the total cost of ownership (TCO), Dell Technologies and Intel therefore recommend a three-tier concept: HANA remains reserved for "hot" data; less frequently used "warm" data are housed on a more cost-effective solid state disk (SSD); and, finally, rarely used "cold" data are transferred to a persistent (non-volatile) memory. This could be a Hadoop lake, a distributed file system (HFS) or the SAP Big Data Service. A viable, high-performing alternative is intelligent data tiering with the help of the Intel products "Optane SSD" and "Optane DC Persistent Memory."

DELL EMC VxRAIL

Intel Optane SSD

Don't Wait Until the Pressure Becomes Unbearable
There's No Time Like the Present

Tens of thousands of companies will migrate to new SAP software over the next six years because the software giant from Walldorf has decided to discontinue support for R/3. Some are saying, about time. For many customers, however, the end is still coming much too soon.

It will no longer be enough for companies just to switch out their business software. The rapid pace of technological development in recent years has created a widespread digitalization deficit: hardware that has seen better days, software landscapes that have gone to seed and segregated data silos are increasingly proving to be an impediment to innovation. It's not that users do not want to take advantage of innovative technologies. The Internet of Things, machine-learning systems and advanced data analysis are at the top of the wish lists of many businesses and IT managers. But if you want to build a new house, you can't start with the roof. An "intelligent" company needs a solid foundation. And this is what is often lacking. Most decision-makers are well aware of this correlation. Which is why lots of them cite "IT modernization" as their overriding goal. SAP S/4HANA is the method of choice, especially for large enterprises. The new business suite from SAP is intended to serve as a blueprint for the data-driven company. It covers all core functions, offers support for IoT applications, is based on a new data storage concept and, according to the provider, has been developed specifically for as-a-service operations. However, the very thing that actually makes S/4HANA attractive scares the hell out of many IT managers. Because at first glance, it appears that they will need to tear down and rebuild

their entire IT universe, or transfer it completely to the cloud. To a certain extent, that may be true. Strictly speaking, however, the first thing that needs to be done is to remove emotions from the equation and take stock of the current situation: Where is the complexity, how can it be unraveled, which structure and operating models are best aligned with the company's purpose, and how can the existing infrastructure be transformed into the desired infrastructure? People who have asked themselves these questions already understand that modernizing their IT does not begin with introducing some new software. The migration to S/4HANA is much more the culmination of a journey from a transaction-based company to a data-driven company. It definitely won't be an all-inclusive trip, but nobody will have to undertake it on their own. SAP has recruited lots of partner companies as travel guides. Such as Dell Technologies, who runs its own Center of Excellence on the SAP Campus in Walldorf. Over the course of a half-day workshop, interested companies can learn where the journey is going and what initial steps they can take today. Because the right time to start isn't in five years. It's now.

The SAP S/4HANA Journey: Modernize Your IT from the Edge to the Core and to the Cloud

Consolidation & Optimization	Migration	Operation & Maintenance	Innovation

1 Consolidation and simplification with the help of cutting-edge infrastructure

- Identify obsolete SAP systems
- Identify obsolete SAP applications & databases
- Relocate obsolete SAP applications & databases
- Simplify SAP operations

2 More flexible operations thanks to cloud-based operating models

- Migrate obsolete SAP data to SAP HANA
- Set up additional IT services and place other workloads according to the new structures
- Enhance flexibility
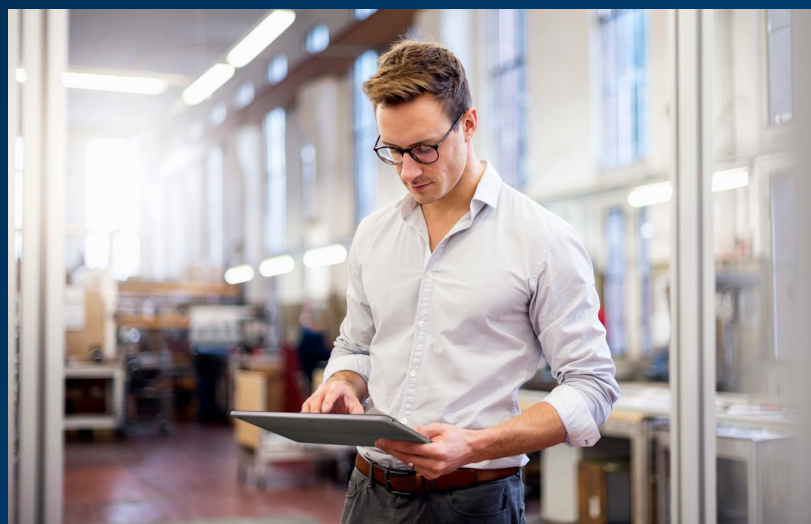- Exhaust (technical) implementation possibilities for operations:
- Boomi AtomSphere Unified Platform
- Virtustream Enterprise Cloud

3 Preparation for prospective, intelligent technologies

- Plan and implement new strategies for managing data
- Deploy data scientist platforms

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"We look forward to getting to know you personally and putting our experience and expertise to work for you. Together, we will find the best solutions for your organization."

Joakim Zetterblad, Global Head of SAP Business
Dell Technologies

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Innovation
Built-in **intel.**