



Inside Track Research Note

In association with



Moving to HANA

Key migration
considerations for SAP
HANA and S/4HANA

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About this Inside Track

The insights presented in this document are derived from independent research conducted by Freeform Dynamics. Inputs into this include in-depth discussions with IT vendors and service providers on the latest technology developments, along with intelligence gathered from mainstream enterprises during broader market studies.

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In a nutshell

SAP is keeping up the pace of innovation for both its SAP HANA in-memory database, as well as the latest iteration of its enterprise resource planning (ERP) suite, S/4HANA. But SAP HANA is very different to more traditional relational databases. So what are the key considerations, and what are the options, when your organization is thinking about adoption?

Introduction

SAP's HANA database is garnering a huge amount of attention, and for several good reasons. One is that the research leading to the development of HANA was spearheaded by Prof. Hasso Plattner, one of the founders of SAP and Chairman of the Supervisory Board. Another is that it is an in-memory database with a columnar store, so data processing and analytics can both be carried out on the same platform. That makes it able to run transactional and analytical operations an order of magnitude faster than on a traditional disk-based, relational database.

Just as importantly, the latest iterations of SAP's enterprise resource planning (ERP) software – SAP S/4HANA – won't run on any other platforms because SAP wanted to utilize the in-memory capability of its own. If you are an SAP customer, it is wise to consider your migration options. SAP has said that it will end support for older versions of its enterprise software by 2020 (those applications that are not already on SAP HANA) or 2025 (for those applications that already run on SAP HANA, such as SAP Business Suite for HANA).

But despite the fact SAP HANA might seem a daunting prospect since it has a different architecture to more traditional databases, it's actually more of an opportunity to rethink some business processes and take advantage of the latest technologies. Not only has SAP, its partners and third parties developed tools and best practices to help to ease a migration, but you do not need to move all of your data – or all of your business processes – in one big leap. Phased migrations are possible, indeed recommended.

Context: Right solution, right time

Against this backdrop, SAP has made SAP HANA the centerpiece of its strategy, not just because of its blistering pace, but its potential to act as a unifying platform in support of digital transformations and 'Business 4.0'.

Key to this is the ability to run transactional as well as analytical workloads in the same environment – arguably the Holy Grail of database management systems for the last 25 years.

This matters because it can dramatically reduce the 'time to business insight' – information and analyses that previously had to wait for daily, monthly or weekly reports suddenly become available on demand. This provides significant business advantage against the backdrop of a fast-moving and increasingly hard-to-predict digital business environment. And when you want to go mining for further insights, the columnar approach makes it far faster and much more versatile when looking for relevant patterns in the data.

SAP HANA migration considerations

Such projects require consensus and commitment among company leaders. To get everyone on the same page, before any specifics on how the migration will take place, there needs to be an understanding of why the migration makes sense in the first place: the formulation of a business case.

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The transformation of data from one database to another, and moving it across, can take as little as a few days. However due to the need to get numerous stakeholders on board and to carefully plan the migration, a typical project, from start to finish, usually takes around six months to a year. That’s partly because rather than just being a technical migration, most companies use the opportunity to take a fresh look at their existing business processes, with an eye to harmonize them, reduce unnecessary customization of systems and take advantage of the latest technological advances.

After developing the business case, the next stage might be to identify the required skills inside the organization and see if there are any gaps. Existing database and data warehouse experts may need additional training, and/or third parties recruited to help, at least initially.

Then, gain an understanding of the data requirements and define the technical elements, including key indicators that will be used to assess data quality once SAP HANA is up and running. Look at applications, network requirements and dependencies. But perhaps most importantly, ensure that there is a fresh look at business processes – it doesn’t make sense to merely port an old, inefficient system to a new platform.

Because HANA runs primarily in-memory, consideration should be given to the hardware platform on which it runs.

Platform and integration options

Because HANA runs primarily in-memory (some data can be tiered to disk or Hadoop if desired), it’s wise to give some consideration to the hardware platform on which it runs. It is not advisable to simply run it on some legacy hardware that happens to be available: that hardware was not designed with HANA in mind.

That said, you don’t need to design your systems environment from first principles. Converged appliances are available from SAP’s strategic technology partners. These have the advantage of being fully integrated, saving an organization from worrying about how servers, storage and networking can best be configured for an SAP HANA or S/4HANA deployment. Some SAP partners can also provide tooling to help you configure, optimize, monitor and manage hybrid environments so that from an operational perspective you can treat them as a single system. Through such value-add, key partners are able to speed up the timeframe of a migration.

Table 1
Converged appliances vs modular components for on-premise or hybrid deployments

Converged appliances	Modular servers, storage and networking
Certified by SAP to work as a unit	Some modules certified by SAP to work with HANA but not necessarily other kit in the stack
One vendor to deal with	Multiple vendors to deal with
Faster implementation	Must configure stack manually
Typically a lower data center footprint	Typically a larger footprint, with more cabling

S/4HANA can be deployed on-premise, in private or public clouds, as a service (in the SAP Cloud) or a hybrid of the above.

Given the scope of an S/4HANA migration, a phased approach is generally the most sensible way forward.

There are things that are possible in SAP HANA that were not possible in SAP BW, because of HANA's unique architecture.

Don't forget the cloud and hosting

Another option is to avoid the hardware question altogether and run SAP HANA in the cloud, for example on SAP Cloud, Microsoft Azure, Amazon Web Services or Google Cloud Platform.

As an aside, despite its name, S/4HANA can be deployed in your own data center, through a managed hosting partner or in a private or public cloud. SAP S/4HANA Cloud edition, however, is provided as software-as-a-service and fully managed by SAP on SAP Cloud.

S/4HANA Cloud provides standardized business process configurations based on best practices to significantly shorten implementation lead-times and enable quick, quarterly upgrades. In this way organizations achieve short time-to-value and continuous innovation of their business application.

Some possible HANA or S/4HANA migration strategies

There are many possibilities when it comes to how to best roll out SAP HANA or S/4HANA. It really does depend on your individual organization, its existing IT estate, business processes and indeed your internal skills and budget for external skills. But we'll look at a few options here. Again, it's unwise to try and do everything at once. Database or ERP migrations involve a great deal of complexity as well as a large number of stakeholders.

Given the scope of an SAP HANA or S/4HANA migration (no matter how many migration tools and external resources you can draw on), a phased approach is generally the most sensible way forward.

One approach is to start with the SAP Business Warehouse for data warehousing. Starting with BW (if your company is a BW user, of course) makes sense, because it's possible to offload the duties usually handled by BW into HANA. In that way your organization can build up its understanding of the nuances of HANA and how best to optimize a HANA environment, perhaps in advance of migrating from earlier versions of SAP's ERP to S/4HANA. In fact, most HANA adopters so far have been BW users (SAP says as many as 80%).

It's a 1-2 day job to swap out the existing third party database under BW and replace it with HANA. BW continues to work as usual, although a company can start to push more jobs down to the database engine.

There are things that are possible in SAP HANA that were not possible in SAP BW, because of SAP HANA's unique architecture (it can deliver reports in real-time, for example). What you are doing is shifting more of the processing from the BW application down into the database engine.

Starting with an analytics environment and using this as a stepping stone to migrating business critical core systems has obvious benefits in relation to skills and experience acquisition and the management of risks, but there's nothing to stop companies jumping right in if they do the necessary groundwork.

Either way, most will usually want to phase the migration of transactional workloads from third-party database platforms to SAP HANA. Companies tend to start with selected modules/business processes (for example finance and procurement), and often take one SAP instance at a time (such as division by division or country by country). All such scenarios (and more) are possible.

The bottom line

To reiterate: a phased or hybrid approach is likely to be best for all but greenfield sites.

SAP S/4HANA is SAP's future: older versions of the enterprise software will run out of maintenance by 2020 (non-SAP HANA database) or 2025 (SAP HANA database). Your organization would be wise to start assessing its options and developing a migration strategy sooner rather than later.

Current releases, technical prerequisites, edition options, and business cases all inform what the best SAP HANA or SAP S/4HANA options are. To reiterate: a phased or hybrid approach is likely to be best for all but greenfield sites.

Our overarching advice, however, is not to fall into the trap of focusing on an SAP HANA migration as a costly, risky and disruptive chore that is being forced upon your organization. Yes, there are investments to be made in time, effort and skills acquisition, but the truth is that embracing SAP HANA represents a great opportunity to boost your organization's overall digital readiness.

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