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Optimizing your SAP S/4HANA® integration strategy

How managed services drive success in a cloud-first world

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Delivered as fully Managed Services, SAP® integration solutions by OpenText help manage integration complexity and support customers' business goals. Companies can build and grow highly efficient integration operations without making additional investments in hardware, software or human resources.

SAP® S/4HANA is SAP's biggest update in the ERP market in more than two decades, delivering many benefits to organizations. However, recognizing its full potential requires a unified integration strategy. Managed services can play a key part in building the optimal integration capabilities.

Executive summary

SAP S/4HANA® is the next-generation ERP of choice for many organizations, but most SAP customers have not yet made the shift. Whether driven by new capabilities or the looming deadline[1], S/4HANA migration is one of the most important IT projects that many organizations will face in the near future.

Transitioning to S/4HANA is not only a major evolution in ERP capabilities[2], it also significantly affects an organization's integration strategy. One of the main benefits of S/4HANA is that it supports realtime business processes, which in the increasingly diverse and open business application landscape would not be viable without robust web API capabilities alongside traditional connection methods like IDocs. These additional connectivity options enable more flexible integration design and timely integration flows, but they also increase the diversity of skills needed. Organizations must efficiently adapt the way they handle different kinds of integration scenarios.

Based on their general characteristics and relative complexity, these integration requirements can be broadly grouped into three categories: SAP applications, third-party applications and external systems.

The native integration capabilities provided by SAP make connecting S/4HANA with other SAP applications and some common third-party applications relatively straightforward. But integrations requiring advanced data transformation or complex data processing as part of the workflow require not only capable technology, but also the right skills and well-governed processes for integration development and support. External systems add yet another layer of complexity to the mix.

S/4HANA migration can be a major challenge for organizations. The final cost and business impact depend on the deployment approach. This also affects the amount of work involved in migrating existing integrations from the legacy ERP environment.

Revamping the organization's integration strategy can deliver benefits far beyond the ERP project, improving efficiency and enabling future digital transformation initiatives. Systematically leveraging an optimal approach for each integration project based on its complexity relies on availability and efficient utilization of the right skills, technologies and processes.

Managed services can play a significant role in extending an organization's IT team with effective, well-coordinated and cost-efficient on-demand access to integration experts following best practices and leveraging unified integration technology.

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1 SAP Extends Its Innovation Commitment for SAP S/4HANA, Provides Clarity and Choice on SAP Business Suite 7. (2020)

2 Scalefocus/Myashkova N, SAP Customers: Why Should You Migrate to S/4HANA? (2019)

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Introduction—Moving to S/4HANA requires rethinking your integration strategy

Cloud computing has become a default option in the enterprise system landscape, and its share of IT budgets continues to grow rapidly. Organizations embracing cloud-based operating models benefit from cost optimization and increased competitiveness.[3]

In addition to finding ways to optimize costs, cloud adopting organizations also actively manage vendor lock-in by leveraging a multicloud approach, secure availability of the right skills and leverage expanded service availability.[4]

For many organizations, one of the biggest projects in their journey towards the cloud is moving from their legacy ERP environment(s) to SAP S/4HANA, SAP's next-generation ERP solution. While S/4HANA enables the customer to choose between on-premises, cloud or hybrid deployment options, SAP generally encourages full cloud deployment, particularly for new implementations.[5]

There are many changes at the technical layer of S/4HANA compared to its predecessors. Many consider this migration to be a great opportunity to reconsider existing enterprise architecture choices and reduce complexity by giving up on customizations built in legacy SAP environments[6]. Organizations seizing this opportunity will be able to take full advantage of everything that S/4HANA has to offer, but building everything from scratch will have a major impact on costs.

Whether a complete re-engineering of the ERP or a more incremental performance upgrade, the S/4HANA migration forces enterprises to rethink their integration strategy. The key benefit of S/4HANA over SAP's previous generation ERP systems is its support for realtime processes. However, S/4HANA requires connectivity to a large variety of both internal and external systems, which means that the main advantage it provides remains limited if the organization's integration capabilities do not optimally support varied and timely data exchange requirements.

The way integrations are designed, managed and monitored can have a big impact on cost-efficiency, customer satisfaction and overall operations. As the "heart" of an organization's business operations, S/4HANA and the way it is integrated play a key role in achieving operational efficiency and other business goals.

This position paper examines key topics that should be considered when planning an S/4HANA migration and the accompanying integration strategy.

3 Gartner, Cloud Shift Impacts All IT Markets. (2019)

4 Gartner, 4 Trends Impacting Cloud Adoption in 2020. (2020)

5 SAP Community/Hoque A, SAP S/4HANA Cloud and On-Premise Deployment Options. (2022)

6 TechBeacon/Mello JP, SAP S/4HANA app migration: Lessons from the trenches. (2020)

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Key integration requirements for S/4HANA

S/4HANA needs to connect with several applications and systems for efficient and timely data synchronization and business process automation. To identify the optimal integration strategy, it helps to categorize applications and systems into groups with similar characteristics. The basic categorization below looks at three key groups of integration endpoints: SAP applications, third-party applications and the external ecosystem.

Grouping integration requirements based on connected applications' characteristics: SAP applications, third-party applications and external systems.

SAP applications and SAP Cloud Platform

SAP has a long history of striving for interoperability between its ERP suite and the other business applications it provides. The goal is to maximize SAP's share of the customer's application portfolio, so it is important that they make it as easy as possible. This drive for interoperability has made integration tools like SAP PI/PO very familiar for most SAP clients.

With S/4HANA, the focus around interoperability shifts to the cloud, and with it to SAP Integration Suite, offering native integration between S/4HANA and the various SAP cloud applications like SAP® Concur®, SAP Fieldglass®, SAP® Ariba® and others.

Due to differing system setups and customizations, specialist integration work is still needed, but the native "integration packages" offered by SAP Integration Suite make it the logical choice for SAP-to-SAP application integration. The same applies for connecting older, on-premises SAP systems like SAP® Central Finance or SAP® BPC with S/4HANA, although things can get a bit more complex.

However, SAP Integration Suite is not the only integration option. Thanks to the well-documented web APIs that are available via the SAP API Business Hub[7], SAP cloud applications can be connected using any technology that supports API integrations.

7   SAP API Business Hub

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Third-party applications

When moving beyond the SAP application portfolio, things start to become more complex. S/4HANA provides web APIs and other connectivity options for different kinds of integration use cases, but it is the other integration endpoint that may prove challenging. Two key dimensions affect the integration design: 1) type of integration endpoint (cloud or on-premises), and 2) complexity of data processing.

These two dimensions are often interrelated, since integrating S/4HANA with on-premises applications is likely to involve more complexity due to firewall configuration requirements and limited connectivity options, etc. Older on-premises applications may have particularly limited capabilities for extracting data from them. For example, they may require extracting a large batch of data from the on-premises application, processing it to identify relevant values and converting the results into individual API calls to S/4HANA.

Cloud integrations may also involve complex data processing. Transforming integration payload data from one format to another requires specialist skills, which are particularly important when the data model of the non-SAP application differs greatly from the data model used in S/4HANA. Pre-configured integration packages are available in SAP Integration Suite and many other integration platforms for common integration scenarios, but coverage is limited. Dealing with the diversity of third-party applications efficiently often requires advanced expertise.

Integration flows may also require, or benefit from, data processing that goes beyond performing data transformations. Validating, standardizing or even enriching the integration payload data can add tremendous value in forms of increased process automation and better data quality. However, these orchestrations do not usually come pre-packaged and are not easy to deploy and maintain without careful design and robust development and support processes.

When deciding on the right strategy for integrating S/4HANA with third-party applications, organizations should consider the required skills, technical capabilities, project lead time expectations and best practices for integration operations, including support.

Ecosystem integration

The integration challenge grows significantly when the other endpoint is not under your direct control. The most important external ecosystem integrations for S/4HANA are those with suppliers, customers and banks. On average, 44 percent of data processed in ERP systems comes from these external sources[8], making ecosystem integration vital for many businesses.

Integrating suppliers and customers to S/4HANA can follow the traditional B2B integration design using SAP IDoc messages, but the system also offers ODATA and SOAP APIs for interacting with business transactions such as purchase orders, order confirmations, invoices and so on. Choosing the best connectivity option for each use case depends on the integration requirements and having the expertise to identify and understand them.

8 IDG Communications, ERP Modernization and Growing Data Challenges Drive 91% of Enterprises to Modernize Integration Solutions. (2021)

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29%
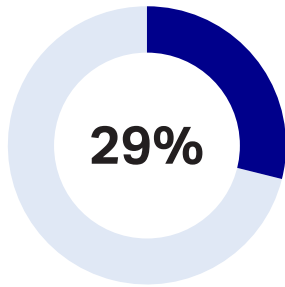
Only 29 percent of SAP customers had deployed S/4HANA by early 2022 [9]

In the case of existing connections migrated from the legacy SAP environment, it may make sense to continue leveraging IDocs and the existing data mappings. This is likely to save a lot of time and effort, particularly if the IDoc layout does not change drastically in connection with the migration. However, this should not distract organizations from choosing a deployment strategy for S/4HANA that is most suitable for their situation and optimally leverages its capabilities.

As with supply chain transactions, both APIs and IDoc messages can be used for bank integrations to exchange, for example, payment instructions and bank statements. Bank integrations also require specialist integration skills for efficiently dealing with the diversity involved, whether this includes using standards like SWIFT or EBICS, or a more customized approach.

One of the key challenges with integrations involving external systems is that they involve communication with external system owners to understand data models and semantics, then adapting to any changes over time. This can mean studying a well-documented API via a developer portal, but in complicated cases may require reaching out to an unresponsive third-party system provider used by the trading partner in order to resolve repeated data errors.

S/4HANA system migration

According to a 2022 survey, only 29 percent of SAP customers were live with S/4HANA, whereas 55 percent were either in the process of migrating or planning for a migration. The remaining 16 percent did not yet have a plan.[10]

Approach	Suitable for		Purpose
System conversion	SAP ECC system	S/4HANA • On-premises	**Bringing existing business processes to the new platform** • Complete technical in-place conversion of an existing SAP ECC system to S/4HANA • Adoption of new innovations mostly after migration
New implementation	SAP ECC or 3rd party system(s)	S/4HANA • On-premises • Cloud	**New implementation with updated processes** • Re-engineering and simplification of processes • Model company and best practices to support process design • Selective data migration from the old system(s)
Hybrid deployment	SAP ECC or 3rd party system(s)	S/4HANA • On-premises • Cloud, extended edition	**Value-driven migration to the new platform** • Merging and/or splitting existing ECC instances • Selective migration of configurations • Selective data migration from the old system(s)

Companies have three alternative approaches they can take when migrating to S/4HANA: system conversion, new implementation or hybrid deployment.

On top of questions around process design, best practices and data migration, the diverse integration requirements involved mean that moving to S/4HANA from an old ERP system requires rebuilding or migrating many existing integration flows. Organizations have three alternative deployment approaches that they can choose from: 1) new implementation, 2) system conversion or 3) hybrid deployment, each with pros and cons.

9   SAPinsider, SAP S/4HANA Migration Benchmark Report. (2022)

10 Ibid.

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In the new implementation approach, the organization chooses to build its new S/4HANA environment from scratch. This is particularly a great option if existing processes are no longer serving the business in an optimal way and a major overhaul is needed. It may also be easier than trying to replicate a complex legacy system setup with custom coding and configurations. The downside is that the initial cost will likely be significantly higher than in the other approaches since all processes and integrations need to be redesigned and rebuilt from the ground up.

The system conversion approach takes existing processes and data from the legacy ERP environment and migrates them into S/4HANA. The cost of the migration is likely to be significantly lower than with new implementation, while some incremental improvements can be made if processes need updating. The performance benefits of S/4HANA will still be realized, and new user experiences can be built with SAP Fiori® going forward.

In terms of integrations, while some integration flows may need to be rebuilt completely, many existing data mappings can likely be leveraged to reduce integration development costs.

The downsides of the system conversion approach are that the legacy ERP processes may not take full advantage of all the capabilities that S/4HANA offers and that development work continues after the migration. The migration effort is also likely to require a coordinated enterprise-wide push instead of a more phased approach.

The hybrid deployment approach, as the name suggests, takes elements from both new implementation and system conversion to perform a selective data transition. Existing process configurations are replicated in S/4HANA, but that configuration is initially kept separate from the data. Existing processes act as a template that is reviewed and modified as needed to better meet business requirements going forward. Once configuration of the new S/4HANA environment is done, relevant data is transformed and migrated from the legacy ERP and the new environment is tested and deployed to production. The amount of work involved in the hybrid deployment depends on the number of alterations, but ideally it results in optimized processes with maximal reuse of existing configurations and minimal transformation requirements for the existing data.

One key element in deploying S/4HANA that requires special consideration is data migration. The volume of migrated data has a significant impact on costs. According to some estimates, companies can save about $500,000 over three years by archiving a terabyte of data instead of migrating it to S/4HANA[12]. This means that identifying and migrating only data that is really needed is key for cost-efficiency. Continued access and potential compliance requirements for historical data should be managed by an archiving solution.

The best approach to migrating from a legacy ERP environment to S/4HANA depends on each organization's circumstances. Considerations can include what ERP(s) the organization is using; how well it supports their current business requirements; what other systems are integrated with it; how much of the existing data needs to be migrated; and how much functionality and integration requirements are likely to change in the foreseeable future.

11 OpenText/SAP, Digital isn't optional anymore: Accelerate your move to SAP S/4HANA and rapidly digitize processes with Extended ECM. (2020)

12 Ibid.

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"One in five organizations say they use 10 or more integration tools across their operations, and only 52 percent of integration projects are completed successfully."[13]

There are plenty of materials—such as SAP best practices and SAP model company examples[14]—available from SAP and other sources to help organizations find their optimal S/4HANA deployment option.

SAP integration strategy and managed services

Regardless of the approach taken, S/4HANA migration is likely to be one of the largest IT projects that an organization undertakes. It often involves extensive use of consultants, as well as acquiring new solutions for integration, data transformation and information archiving and may even spark broader application modernization initiatives.

Many organizations operate a mix of aging integration platforms and point-to-point connections that are difficult and expensive to maintain. They may even pose risks for business continuity. One in five organizations say they use 10 or more integration tools across their operations, and only 52 percent of integration projects are completed successfully.[15]

The business case for replacing these integrations and modernizing legacy solutions under normal circumstances may be difficult to argue, since most of the time they still eventually get the job done. However, the sheer scale of the integration rebuilds and redeployments required for S/4HANA migration can change the equation, creating an opportunity for modernization that benefits the organization far beyond the scope of the ERP project.

Due to the native SAP-to-SAP integration capabilities it provides, SAP Integration Suite is likely to be a key part of the go-forward solution landscape used for integrating S/4HANA. The toolset provides capabilities for various other kinds of integration use cases as well, so it makes sense to focus the integration team's efforts on this platform wherever possible. That said, there may still be a need to operate an on-premises ESB platform for years to come to manage critical integrations behind the firewall.

While modernizing and consolidating integration technologies is important, it is only a part of the solution. Efficient integration operations also require skilled integration experts and well-defined integration development, monitoring and support processes to be successful. The more complex and time-consuming integration flow development is, the more benefits a systematic approach delivers. Building these capabilities takes significant amounts of time, effort and investment, so organizations need to choose where their priorities and core competencies lie.

An efficient way to secure availability of skilled integration experts that adhere to standardized processes and best practices is to use a managed services provider for some integration operations. In addition to providing the required talent and structure as needed, managed services also provide high cost-efficiency, often leading to significantly lower total cost of ownership.[16]

13 IDG, Leveraging Data Integration for Strategic Advantage Survey. (2019)

14 SAP Community/Hoque A, What is the difference between SAP Best Practices and an SAP Model Company? (2019)

15 IDG, Leveraging Data Integration for Strategic Advantage Survey. (2019)

16 Hobson/OpenText, Understanding the Total Cost of Ownership of Enterprise Integration Solutions. (2020)

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Leveraging a managed services provider for integrations requires close collaboration and a well-defined governance model that clarifies the roles and responsibilities. Ideally, the service provider acts as an extension of the organization's IT team and helps manage requirements and prioritize projects.

In the case of S/4HANA, plenty of simple and complex integrations need to be developed and supported. Embedding a managed service partner can help manage these in an efficient and flexible way.

Conclusion

Enterprise integration as a discipline is undergoing a drastic change driven by several competing vectors. Enterprise business processes are getting more complex and the need for dynamic process automation is increasing. Integration endpoints and data types that organizations need to connect are also becoming increasingly diverse.

Integration needs are also moving to the cloud and becoming API-driven, with integration technologies evolving and providing features such as API connectors and integration packages that greatly simplify the more common integration scenarios. Cloud-based platforms remove many traditional IT operations tasks from the equation, letting IT teams focus on other priorities.

Due to its central role, the ERP system sits at the very center of these developments. Transitioning from a legacy ERP environment to S/4HANA is not only an opportunity to modernize the organization's ERP capabilities, but also acts as a catalyst for modernizing its entire integration strategy. It is key to respond to the changing requirements by efficiently enabling both low skill integration tasks and the more complex integration use cases that require expertise and a highly structured approach.

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With SAP applications, the native integration capabilities of the SAP Integration Suite make integration development relatively straightforward. The same applies to some more commonly used third-party applications where the integration flows only involve simple data processing.

However, the diversity of third-party applications and increased need for complex data processing often require specialist integration skills and robust processes for integration development and support. Diversity is an even greater challenge when integrating external systems that are not under the organization's own control, but instead configured and updated by external system owners.

Efficiently managing these integration requirements calls for consolidating and modernizing the enterprise integration solution portfolio and allocating integration projects based on their complexity and other defining characteristics. This ensures availability and optimal utilization of skills, technologies and processes that are the best fit for each situation. Extending the organization's own IT team with Managed Services can play a significant part in achieving this goal.

OpenText™ Managed Services can help organizations shield their business from SAP, third-party and extended ecosystem complexity. Managed Services delivers a repeatable, proven people-process-technology solution to extend the capabilities of internal business functions and optimize integration solution performance for business growth. OpenText™ Trading Grid™, a powerful cloud integration platform, supports any integration workflows while providing visibility and intelligence across the connected business processes. With the combination of a large team of integration experts and a modern integration platform, OpenText offers a scalable and future-proof solution for integrating S/4HANA.

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