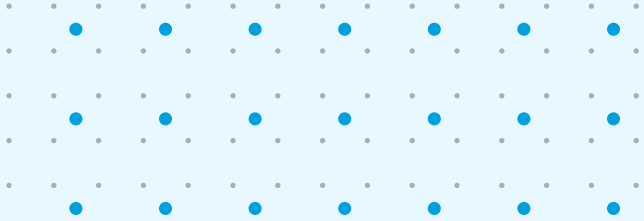


SAP S/4HANA[®] Transformation using API-led connectivity

The pragmatist's approach to transformation



Table of contents



01 Executive summary

- 1A S/4HANA Migration: The largest integration project many organizations will undertake 4
- 1B First step: Establish the appropriate goals 5
- 1C Leveraging an API-led approach 6
 - Flexible migration 6
 - Example: Migrate by geography 7
 - A future-proof architecture 8
- 1D Conclusion 9

02 Roadmap: How to Accelerate Architecture Modernization and Migration to S/4HANA

- 2A The rise of new best-of-breed applications 11
- 2B Migration challenges and considerations 12
- 2C Legacy approaches increase risks, costs, and time 14
- 2D An opportunity to reimagine the business 16
- 2E Build a future-proof, microservices architecture 18
- 2F MuleSoft’s API-based approach to S/4HANA migration 19
- 2G Benefits of MuleSoft’s API-led approach 23
- 2H Accelerating the modernization and migration process 24
- 2I Summary 26
- About Capgemini 27

01 Executive summary

- 1A S/4HANA Migration: The largest integration project many organizations will undertake
- 1B First step: Establish the appropriate goals
- 1C Leveraging an API-led approach
 - Flexible migration
 - Example: Migrate by geography
 - A future-proof architecture
- 1D Conclusion

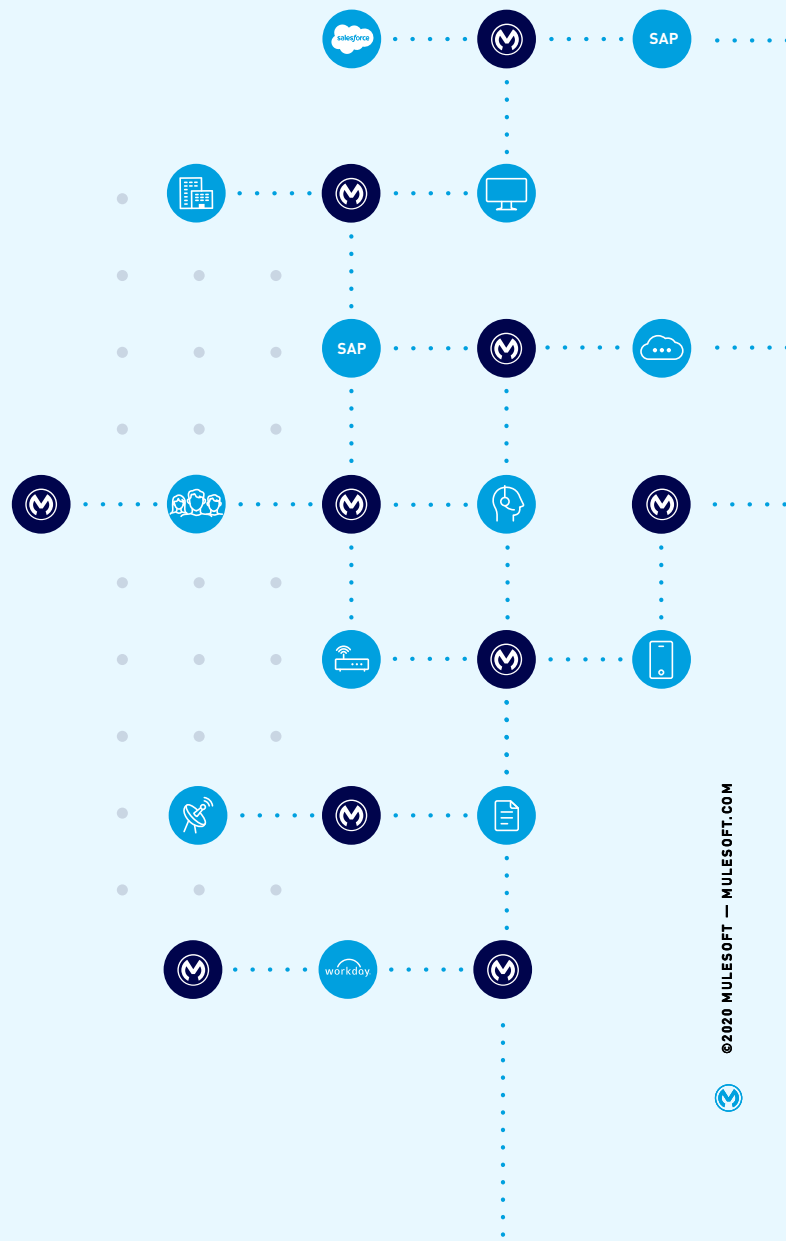


1A S/4HANA Migration: The largest integration project many organizations will undertake

Launched in 2015, SAP S/4HANA represents a major step forward in Enterprise Resource Planning (ERP) software and is likely to become the de-facto digital core for many organizations. Given the complexities of modern IT landscapes, migrating to S/4HANA represents the largest transformation project many organizations will undertake.

At the heart of this transformation is data; but today, it's very likely an enterprise's data and processes are highly fragmented, residing in hundreds of different systems and apps. The upshot: that data is hard to integrate; in fact, 85% of digital transformations are slowed down or derailed by integration challenges. Given this reality, some organizations are preferring to re-implement S/4HANA and "do it right" this time around, rather than tackle the mountain of technical debt that has accumulated.

Instead of starting from scratch, MuleSoft and Capgemini propose a pragmatic new path forward: a model predicated on **Capgemini's Digital Core with S/4 HANA®**, powered by an API-led connectivity approach to integration. With this, businesses create an IT architecture with SAP S/4HANA at its core, while leveraging the power of APIs to be sufficiently agile to adapt to constant technical and business transformations taking place. This approach enables the enterprise to create a flexible, scalable, and modern microservices architecture for future growth.



1B First step: Establish the appropriate goals

To ensure success with S/4HANA migration, establishing the appropriate approach – and corresponding goals – is critical. There are three key objectives common to most modern S/4HANA migration strategies:

OBJECTIVE ONE

Provide value quickly

Break down the migration and go-lives into manageable pieces to reduce business impact and risk, while realizing benefits sooner.

OBJECTIVE TWO

Execute painless data migration

Leverage the power of APIs to integrate the new S/4HANA system into the application landscape. The APIs designed and developed to work for both SAP ECC and SAP S/4HANA will make it possible to understand any data model changes and help identify any data quality problems much earlier. The switch over to SAP S/4 then becomes transparent to users who will not see any difference in the Fiori apps that they are used to using.

OBJECTIVE THREE

Maintain a 'clean' core

A 'clean core' refers to an ERP that balances a 'fit to standard' not heavily bespoke approach, with architecture differentiation. Keeping the ERP core lean and free from heavy customizations means doing all the clever differentiations outside of it. The main benefit of this approach: it allows the enterprise to future-proof the company for technological and business transformations - or disruptions - because it is possible to manage unique business process and functional requirements using APIs and microservices like a plug and play switch.



1C Leveraging an API-led approach

MuleSoft's API-led approach to integration enables organizations to adopt two powerful strategies for transformation and migration:



Flexible migration by S/4HANA module, geography, line of business, time period, or any other combination, by using APIs to expose business functions from their underlying systems.



A future-proof architecture by evolving the IT landscape from a monolith into a modern business platform. By using extension platforms and decoupling ERP functionality into microservices, creating agility for future needs. Capgemini's Digital Core with S/4 HANA® fully supports this approach.

Flexible migration

Instead of a linear and fragile migration program, MuleSoft's API-led approach enables a decoupling of business functions from the underlying systems. This means that digital systems are not pulling data directly from a legacy ERP or from S/4HANA as they would be using a traditional point-to-point integration. Rather, the digital channels or enterprise systems pull data through an API which makes it possible to abstract data across multiple underlying systems.

With this approach, each migration process can happen iteratively and independently, utilizing an agile methodology, giving time to align and train the broader organization.



Example: Migrate by geography

As an example, let's look at a business with a geographical approach to this migration, with business requirements dictates that the first migration to S/4HANA will be in the UK, starting with the eCommerce system.

The program can prioritize by preparing the UK data, configuring and testing the Sales and Distribution (SD) module in S/4HANA, migrating cleansed UK data to the SD module, integrating with the eCommerce system, and conducting focused training with the UK team (Figure 1).

APIs are designed and developed to abstract the complexity of underlying systems. This results in creating reusable building blocks that scale to the rest of your organization over the course of the migration program. Taking a closer look at the UK eCommerce example, best practice is to follow a three-layered approach, creating APIs to orchestrate various business functions (Figure 2). For example, after configuring and testing S/4HANA, we are able to unlock the underlying system with

MuleSoft's connector for S/4HANA Cloud, subsequently building an S/4HANA Orders API to expose relevant order data, and two additional APIs—Order Status and Order History—that consume data from either the aforementioned S/4HANA Orders API or an SAP ERP Orders API, depending on if the sale occurs in the UK or another geography.

During the phased migration approach, both SAP ERP and S/4HANA will run in parallel. Data is iteratively cleansed and migrated, APIs and integrations to additional systems will continue to evolve, also the organization training will continue. Eventually, additional geographies or lines of business will migrate to S/4HANA and SAP ERP will be phased out. It's important to note that migrating by geography was just one potential approach. Alternatively, migrating by ERP module, line of business, time period, or any combination that best supports achieving an organization's goals is feasible.

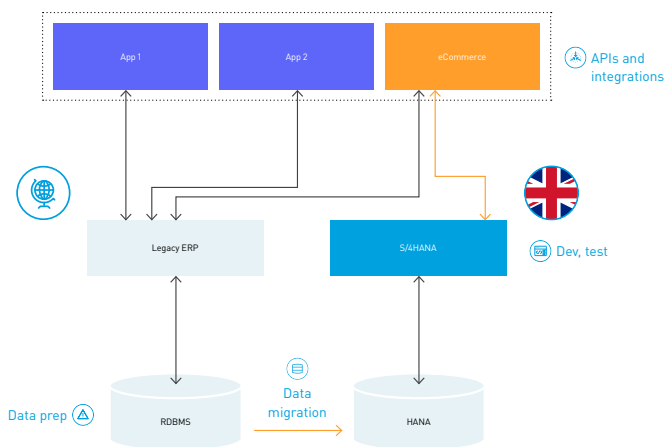


Figure 1: Migration by geography

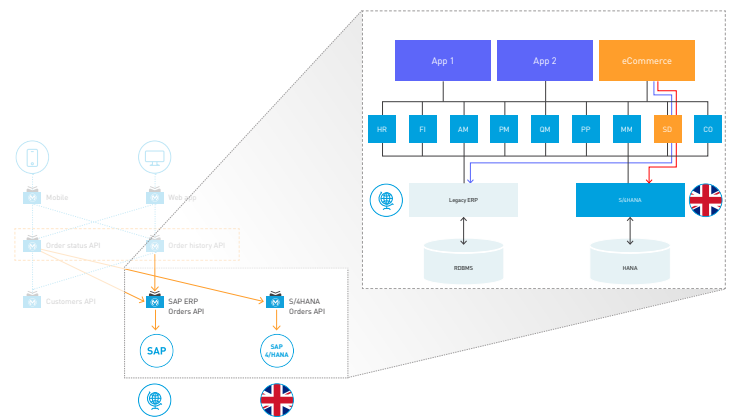


Figure 2: Migrate by geography using microservices



“MuleSoft’s API-led approach provides critical flexibility during S/4HANA migration, de-risking the entire migration program”

A future-proof architecture

Taken together, the strategies enabled by **Capgemini’s Digital Core with S/4 HANA** enables businesses to meet the objectives of providing value quickly, smoothing data migration, and creating an architecture

which keeps the core “standard” and “clean”. MuleSoft’s API-led approach provides critical flexibility during S/4HANA migration, de-risking the entire migration program. Crucially, MuleSoft’s approach enables a microservices architecture that supports your business agility for future growth.

BENEFITS OF API-LED CONNECTIVITY WITH S/4 HANA TRANSFORMATION

1. De-risk the migration

- Eliminate the risk of a “big bang” approach.
- Test and validate integrations earlier to avoid challenges at go-live.

2. Accelerate delivery

- Parallelize S/4HANA development while building integrations and APIs.
- Reduce S/4HANA customization and instead use standardized, out-of-the-box configuration.

3. Reduce spend

- Reduce environmental needs with simultaneous development, and thus, lower licensing costs for SAP.
- Rationalize legacy systems and applications while modernizing business processes.

4. Maximize business outcomes

- Align phased migrations with business needs.
- Build a modern, microservices-based infrastructure for future agility.



1D Conclusion

MuleSoft's Anypoint Platform is uniquely positioned to deliver on this API-led approach as a unified platform for designing, building, deploying, managing, and monitoring both APIs and integrations, whether on-premises, in the cloud, or in a hybrid environment.

Capgemini has invested in building accelerators on MuleSoft for common use cases which assist customers in taking a pragmatic approach to SAP S/4HANA migration. Every organization needs to approach SAP S/4 HANA migration differently, based on their current ECC footprint and digital transformation plans.

As such, MuleSoft and Capgemini are ready to assist you in understanding the value of a transformative migration approach and business case analysis. To discuss your company's S/4 HANA migration strategy, reach out to us on capgemini@mulesoft.com to book a workshop session with your MuleSoft and Capgemini teams.

From SAP ERP and S/4HANA to legacy systems to best-of-breed SaaS apps, Anypoint Platform eliminates the need to navigate multiple, disparate tools across your organization. As a result, MuleSoft's unified platform together with **Capgemini's methodology and Digital Core with S/4 HANA** offering de-risks and accelerates your S/4HANA program, and just as importantly, creates a flexible, scalable, and modern microservices architecture for future growth.

“MuleSoft's unified platform together with Capgemini's methodology and Digital Core with S/4 HANA creates a flexible, scalable, and modern microservices architecture for future growth”



02 Roadmap: How to Accelerate Architecture Modernization and Migration to S/4HANA

- 2A The rise of new best-of-breed applications
- 2B Migration challenges and considerations
- 2C Legacy approaches increase risks, costs, and time
- 2D An opportunity to reimagine the business
- 2E Build a future-proof, microservices architecture
- 2F MuleSoft's API-based approach to S/4HANA migration
- 2G Benefits of MuleSoft's API-led approach
- 2H Accelerating the modernization and migration process
- 2I Summary



2A The rise of new best-of-breed applications

Enterprise resource planning (ERP) software has formed the digital backbone of businesses across virtually every industry for more than three decades. ERP applications have helped enable organizations to optimize many of their most essential business functions in finance, human capital management, enterprise performance management, and supplier relationship management.

In order to meet increasing demands from customers and stay ahead of the competition, organizations are increasingly adopting best-of-breed applications and harnessing the power of cloud computing. These trends are visible across industries. IDG reports indicate that 73% of enterprises have at least one application or a portion of their enterprise computing infrastructure in the cloud, with almost half of cloud computing budgets allocated to SaaS applications (48%). Due to the fact that the organizations are adopting these new trends, the overall application landscape is becoming ever more complex. On average, today's enterprise has about 900+ applications and only a third of those are connected. It is crucial for enterprises to connect all of these systems together in order to provide personalized and connected experiences.

Today's business landscape is very dynamic. Behind these technological trends there's a backdrop of mergers and acquisitions and the emergence of both new business models and organizations who are designing innovative products and services. Enterprises are only able to meet these trends if they have a modern application landscape; therefore many

organizations are investigating and investing in ERP modernization because their legacy ERP systems are not designed for the scale and complexity required today. While these emerging business needs add complexity, they provide the opportunity, and perhaps the catalyst, to rethink an enterprise's IT landscape. SAP has been the undisputed market leader in the ERP space for decades. SAP has announced the new generation of ERP solutions which runs on the in-memory database technology, eliminating the risk of bottlenecks and offering groundbreaking performance. More importantly, the emergence of these new ERP solutions highlight the need for enterprises to examine the migration from SAP ECC to SAP S/4HANA.



2B Migration challenges and considerations

Moving from SAP ECC to S/4HANA is a complex undertaking, likely one of the most challenging projects any organization will undertake. There are some significant challenges which each organization will face:

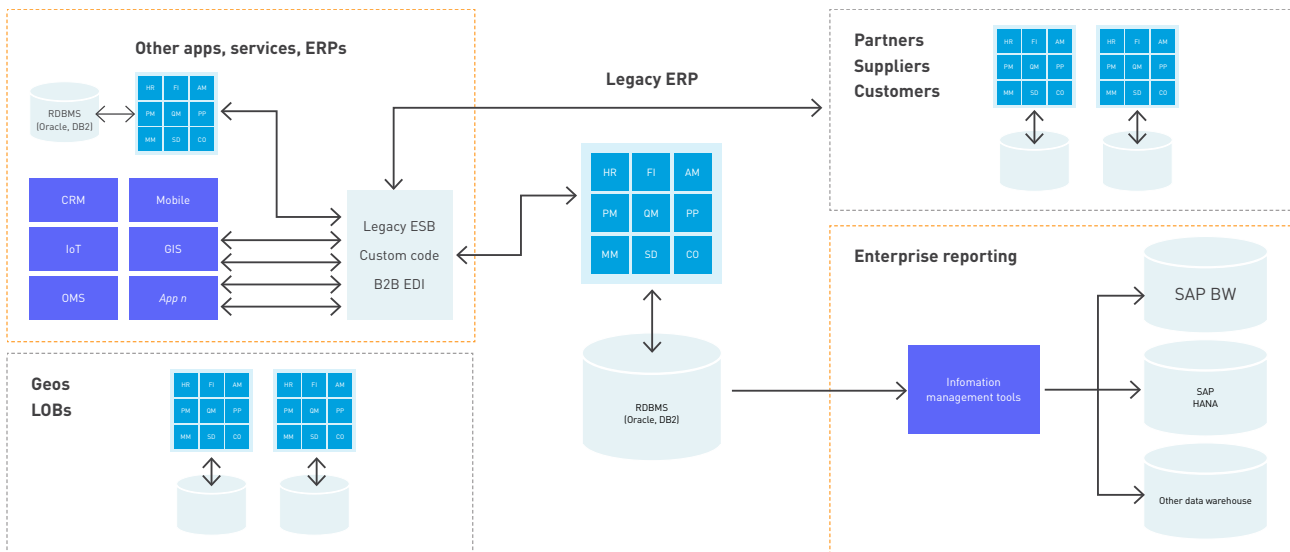


Figure 3: Illustrative enterprise landscape

Rebuilding integrations

In most organizations, the existing SAP ECC system(s) are already integrated with a number of internal and external systems through a combination of custom code and legacy ESBs. This alone poses significant challenges, because each of these systems requires rebuilding the respective integrations toward S/4HANA.

Ability to access legacy data

SAP designed S/4HANA to obviate the need for legacy reporting approaches. However, within each organization there are existing enterprise reporting structures through which the organization pushes its critical ERP data to data warehouses with information management tools. This data is critical for organizations to understand the key elements of their business.



Therefore, maintaining the ability to access legacy data with S/4HANA is required.

Multiple lines of businesses

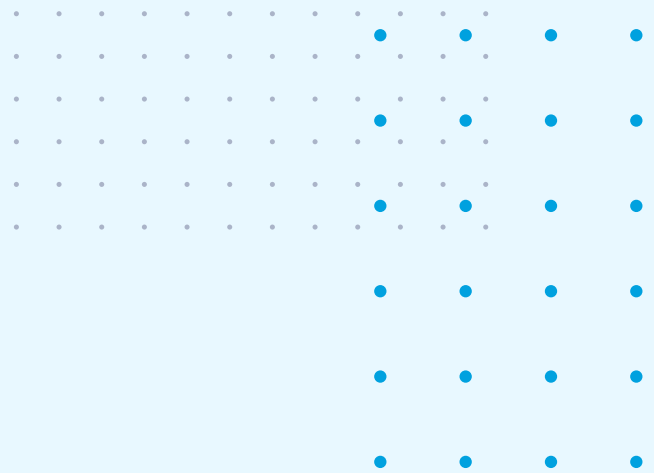
In an organization with multiple lines of businesses, possibly in separate geographies, each of these business units has its own ERP system(s). This adds complexity while migrating to the SAP S/4HANA platform.

Integrating partners and suppliers

This is a challenge for enterprises which need to conduct business with affiliates, partners, and suppliers that require B2B integration. These business processes need to be considered and either preserved or modernized during S/4HANA migration. Conversely, if an organization is conducting these processes manually today, S/4HANA migration presents the opportunity to reimagine these business relationships and operating models.

Despite these complexities, companies that embrace the shift to S/4HANA as a strategic opportunity, enabled by modern integration approaches and tools, will come out ahead of their peers with a modern, microservices infrastructure.

“Companies that embrace the shift to S/4HANA as a strategic opportunity, enabled by modern integration approaches and tools, will come out ahead of their peers with a modern, microservices infrastructure”



2C Legacy approaches increase risks, costs, and time

The challenge with typical ERP migration approaches is that they increase the risk of realizing successful outcomes, driving up costs and missing expected target dates for completion.

Broadly speaking, these legacy S/4HANA migration approaches can be broken down into three categories, which run in parallel with each other (Figure 4):

1. Prepare your organization.
2. Prepare your legacy system for migration.
3. Configure S/4HANA and other applications.

Migration programs begin by gaining organizational alignment around a desired end state, data and design requirements, and the overall process. Next, the process

begins with preparing the legacy ERP system and data, along with configuring S/4HANA environments. Eventually, integrations will be built between S/4HANA and the rest of the landscape, enabling systems integration testing. Prior to moving to production, data will be migrated to S/4HANA, and training begins for User Acceptance Testing, followed by training the rest of the organization before the go-live. If everything goes according to plan, the migration will go live on-time and within-budget. All the steps mentioned above have very tight dependencies on

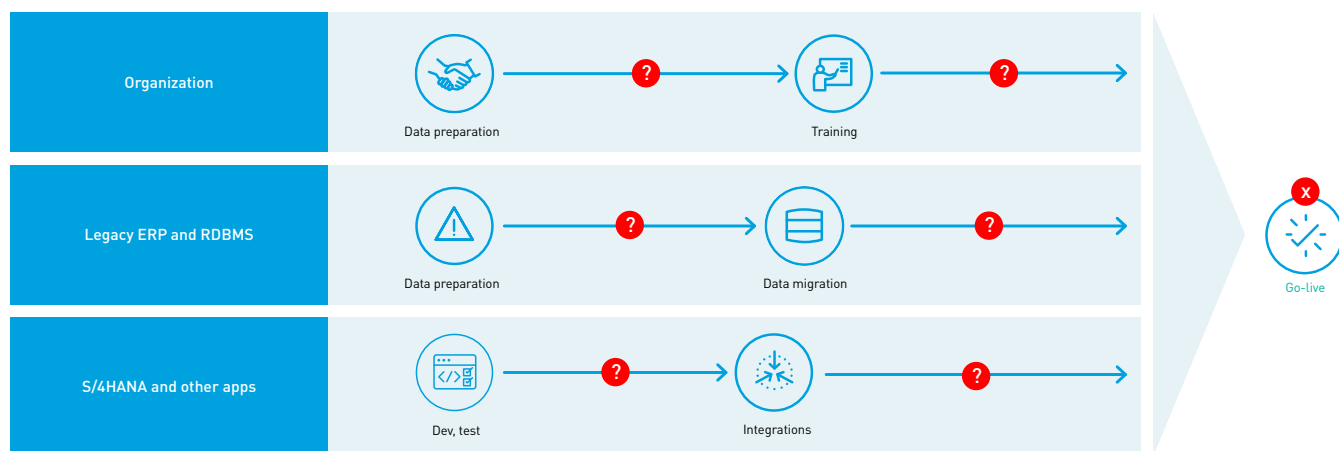


Figure 4: Legacy migration approach.

the previous steps, therefore any small breakdown or a delay in any of these steps will put the entire migration program at risk.

Legacy migration approaches rely on brittle dependencies

Let's take a look at why legacy migration approaches are not fit for purpose in today's complex and fast-moving world.

Data unavailable for design

As the integration of S/4HANA's development and test environments with third party apps typically happens late in a migration program, critical data is generally unavailable to guide the program. This lack of data causes teams to make mistakes during the design, development, and test phases. As a shortcut, random test data is often forced into S/4HANA to guide developers and testers, leading teams to design according to incorrect standards and definitions.

Third party apps not validated

Delayed integration in the migration program leads to the fact that the third party apps and services aren't validated until right before cutover to S/4HANA, greatly increasing the risk for a successful go-live. Mobile apps, SaaS applications, and other systems of record require rigorous testing, and traditional migration approaches delay these tests.

Lack of cutover flexibility

Finally, organizations require the flexibility to migrate according to business needs, whether by geography, ERP module, line of business, time period, or any other method. A big bang approach is generally not advisable, and as a result, there will be a requirement to operate both SAP ERP and S/4HANA in parallel. Unfortunately, a legacy migration approach does not provide that flexibility, instead requiring significant custom development, workarounds, and additional training and organizational alignment.

These are some of the major drawbacks with a legacy migration approach. As mentioned earlier SAP S/4HANA will be one of the most critical and important migrations which organizations are going to undertake in the near future, therefore it is highly recommended not to use the legacy migration approach to undertake the migration.



2D An opportunity to reimagine the business

The migration from SAP ECC to SAP S/4HANA could be – and should be considered as – a potential opportunity to reimagine the business. This is an opportunity for organizations to rethink their IT landscape and how best they can come up with a more modern, flexible and future proof architecture.

The IT landscape in most of the organization today, consists of big monolith applications and web services. The SAP migration could be a potential opportunity to move away from a monolith architecture to a modern business platform by using extension platforms and decoupling ERP functionality into microservices thus creating agility and scalability for future needs.

Capgemini's Digital Core with S/4 HANA® is a comprehensive offer to help clients migrate their existing complex SAP landscapes to the latest modern, simplified, technology-charged SAP landscape. This move will allow clients to unleash the power of new digital technologies to evolve their businesses and processes. Capgemini's Digital Core with S/4 HANA® recommends API-led connectivity

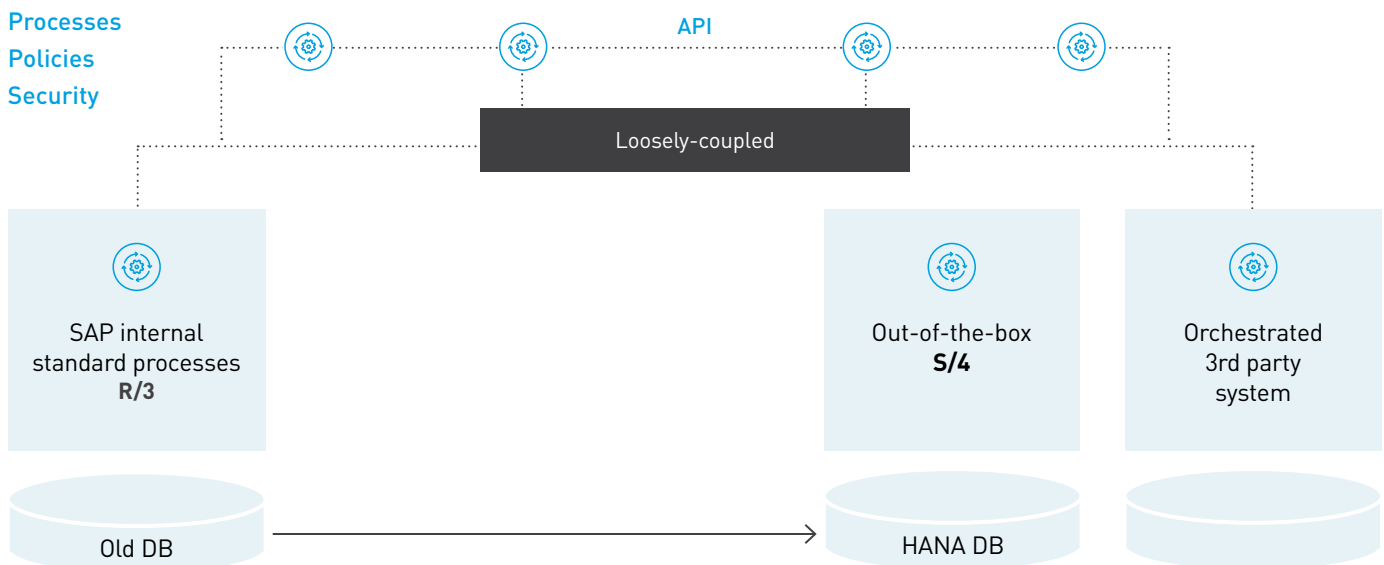


Figure 5: API-led connectivity – Decoupling business functions and applications.

wherein lean SAP core integrates with the best-of-breed SaaS solutions, giving organizations the agility and scalability to drive competitive advantage. Capgemini's Digital Core with S/4 HANA® along with MuleSoft API Led connectivity approach offers data driven, innovation led, intelligent technology and microservices architecture which is necessary for organizations to reimagine the business while undertaking the S/4HANA migration.

Organizations do not want a big bang migration approach as that is incredibly risky. This necessitates the need for co-existence of the legacy ERP and S/4HANA systems during the migration process. Instead of a linear and fragile migration program, MuleSoft's API-led approach enables a decoupling of business functions from the underlying systems. This means that digital systems are not pulling data directly from a legacy ERP or from S/4HANA as they would be in a traditional point-to-point integration, rather, with an API-led connectivity approach organizations are able to create an ecosystem of reusable APIs. These APIs can be used by the digital systems to connect with the systems of records through a loosely coupled architecture. This is a very important change which allows the enterprise to abstract data across multiple underlying systems.

With this approach, each migration process can happen iteratively and independently, utilizing an agile methodology, giving time to align and train the broader organization.

“Each migration process can happen iteratively and independently, utilizing an agile methodology”

API-led connectivity together with Capgemini's Digital Core with S/4 HANA® provides value in terms of smoothing data migration and creating an architecture which keeps the core 'standard' and 'clean'. MuleSoft's API-led approach provides critical flexibility during S/4HANA migration, de-risking the entire migration program. Crucially, this approach enables building a microservices platform that supports the business agility and future growth.



2E Build a future-proof, microservices architecture

An API-led connectivity approach enables organizations to move beyond a legacy, monolithic landscape, and instead, building a modern, future proof architecture based on microservices that enables the adoption of best-of-breed enterprise solutions.

Legacy technology is often an impediment to innovation; typically in an organization the lines of business are aware of what they want to do, they're aware of the capabilities that they're currently lacking, but too often their tools prevent them from realizing their full potential.

To overcome these obstacles, there is a need to decouple the core systems of an organization and their capabilities with modern APIs. Now given the fact that organizations are anyhow migrating from legacy ERP to S/4HANA, which requires building integrations to the rest of the IT landscape, now is the time to transform the legacy monolith into a microservices based architecture.

Organizations should take the opportunity to eliminate black boxes, custom code, and the point-to-point, brittle connections that hinders modernization. This will help transform S/4HANA from becoming an opaque system of record into a powerful enabler of business innovation. Exposing S/4HANA functionality with APIs, lines of business will be empowered to deliver on their own initiatives.

“Exposing S/4HANA functionality with APIs, lines of business will be empowered to deliver on their own initiatives”



2F MuleSoft's API-based approach to S/4HANA migration

An API-led connectivity approach allows organizations to meet two objectives: creating migration flexibility and building a future-proof architecture. Let's begin with an overview of the API-led approach to S/4HANA migration; it is a five step approach:

- **Step 1:** Define APIs
- **Step 2:** Configure SAP S/4 HANA
- **Step 3:** Migrate Data on-Demand and undertake SIT & UAT
- **Step 4:** Migrate data to production
- **Step 5:** Run ERPs in parallel with a phased cutover.

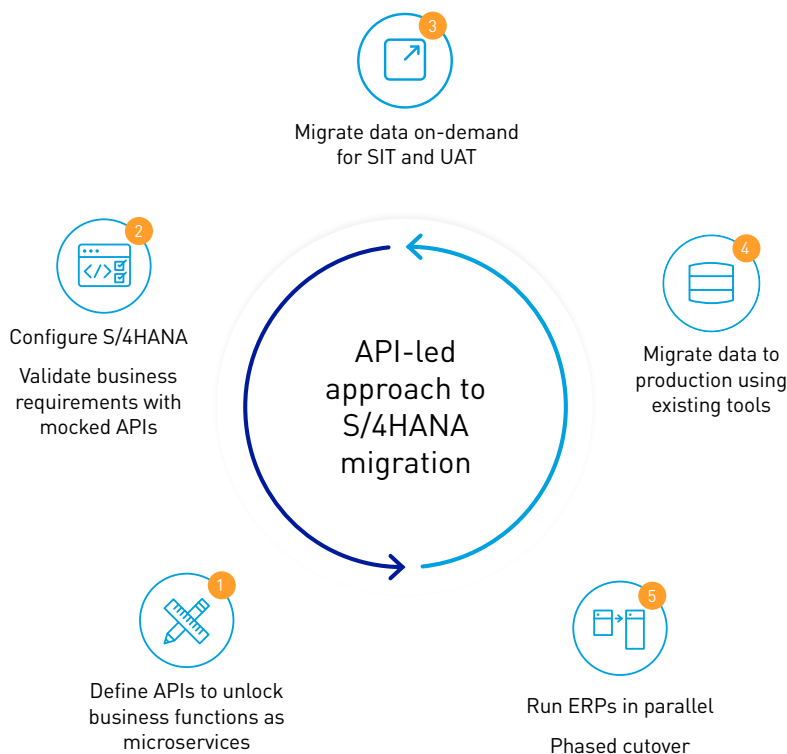


Figure 6: API-led approach to S/4HANA migration.

With the API-led approach, organizations will continue deploying new capabilities by repeating steps one through four, running both legacy ERPs and S/4HANA in parallel, slowly shifting production requirements to S/4HANA over time (Figure 7).

To dive a bit deeper and understand the steps mentioned above in more detail, we'll identify specifically how MuleSoft Anypoint Platform is optimized to achieve success during each step (Figure 8).

Define APIs to unlock business processes and build microservices

MuleSoft provides SAP-certified connectors for SAP ERP, S/4HANA Cloud, and hundreds of other apps and systems, saving development time and effort by abstracting the complexity of underlying systems. This enables quickly building a scalable integration layer. This layer is enabled with APIs, thus eliminating one-off, non-reusable custom and

point-to-point code that would otherwise be thrown away after the migration.

Next to that, the accelerating the development and testing phases. API versioning, which is built into Anypoint Platform, the business owners of each ERP module maintain responsibility for the sign-off and acceptance of API versions, changes, data loads, and the overall progress and success within their respective domains.

Critical Success Factors

With MuleSoft's out of the box SAP-certified connectors and Capgemini's MuleSoft accelerators for SAP S/4HANA, it is easy to get started with your migration to S/4 HANA. Defining APIs is the important first step of the migration process and there are two critical factors that contribute to the successful execution of this step.

→ **Business process catalogue:** As a part of the preparations for the migration, it is

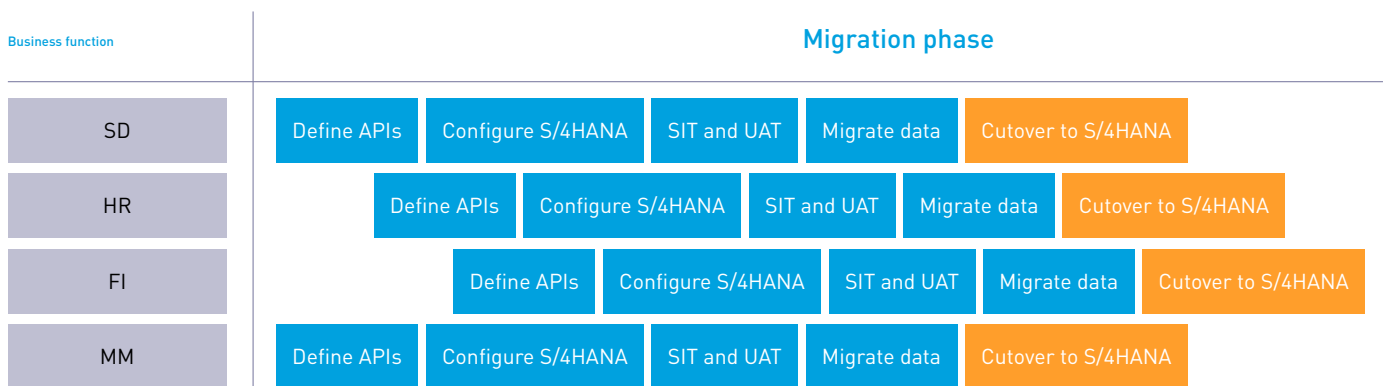


Figure 7: Parallel development and cutover.



important to ensure a catalogue of business processes categorized by the business functions/modules such as FI, HR, MM etc., are available. This catalogue feeds into all the important step of reviewing the business processes to identify and prioritize the reusable APIs. In this context, Capgemini has created an SAP API catalogue for these modules which is published and available on Anypoint Community Manager.

→ **Business owner engagement:** Business owners of the ERP modules play a critical role in ensuring the success of the migration program. This is all the more case in the API definition phase and it is important to engage the functional owners each step of the way and ensure they are bringing to bear their expertise in the

identification of reuse opportunities and also are prepared to accept, sign-off and own the APIs that belong to their function.



Configure S/4HANA and validate APIs in parallel with mocking service

While SAP developers are busy configuring S/4HANA, API developers no longer need to wait for integrations and the availability of data in order to build and test APIs. Anypoint Platform's mocking service allows developers to build in parallel, giving them visibility into the expected inputs, outputs and desired behaviors, based on the definitions built directly into the API specs. This greatly reduces bottlenecks and simplifies follow-on testing processes.

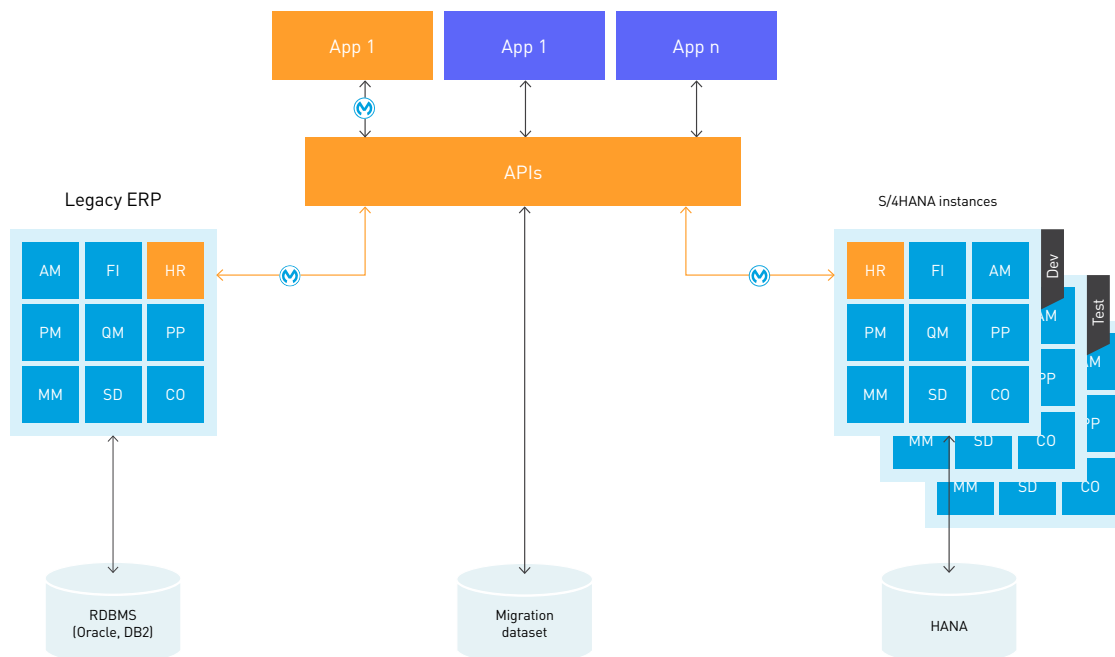


Figure 8: Define APIs to unlock business processes



Migrate data on-demand for systems integration testing and user acceptance testing

As APIs are built, deploying them to the development and testing environments is done with just a couple of clicks. This simplifies deployments for systems integration testing (SIT) and enables developers to gather feedback immediately. When ready, user acceptance testing (UAT) deployments follows similar process. MuleSoft's API-based approach gives teams the flexibility to begin with a small scope, deploying APIs for specific use cases, and then ramping up over time as resources allow.

Migrate data to production and expose legacy data via APIs

As data is cleansed, leverage the existing migration tools to push production data into S/4HANA. It's important to acknowledge at this point, that important choices have to be made for data storage. In most organizations, the best practice is to push only a subset of data to production. For example, an organization may decide to limit data migration to the current and previous fiscal years. Additionally, if the organization owns physical assets that depreciate over, for example, a ten-year period, organizations will likely want to include that data in S/4HANA as well. But the practice of moving the rest of the data to a separate database is advantageous, allows simplified approach to the migration, preventing the movement of dirty data into S/4HANA, and reduces storage costs. It is important to mention that "other" data can be accessed and governed via APIs.

“MuleSoft’s API-based approach gives teams the flexibility to begin with a small scope ... and then ramping up over time as resources allow.”

Run ERPs in parallel followed by phased cutover to S/4HANA

Organizations can continue building APIs and integrations to other systems, creating a best-of-breed IT landscape, while running both ERPs in parallel. In this model, because system access and business functions are controlled via APIs, the downstream consuming systems and business users are spared from the complexities of the migration. For them, it's business as usual. For the IT teams, APIs enable real-time reporting of system performance, all in a single pane of glass on Anypoint Platform. In the end, a phased cutover to S/4HANA provides maximum flexibility while minimizing the risk to your migration program.



2G Benefits of MuleSoft's API-led approach

In addition to enabling a flexible migration and building a future-proof architecture, MuleSoft's API-led approach to S/4HANA migration delivers a number of benefits.

De-risk the program

The API-led approach de-risks the migration programs by enabling an iterative incremental migration that avoids the traditional “big bang” approach. Additionally, the approach enables building integrations earlier, creating the ability to test and validate critical system interoperability earlier which allows organizations to discover and correct issues prior to go-live.

Faster development cycle

MuleSoft's unified platform for building APIs and integrations enables organizations to begin S/4HANA development while simultaneously building APIs that define and standardize integration and business requirements. This parallel design, development, testing, and deployment, including loading test data into S/4HANA, greatly accelerates cutover to production.

Reduced S/4HANA customization

By abstracting business logic into APIs, organizations dramatically reduce S/4HANA customization, and instead, use standardized, out-of-the-box configuration. By keeping S/4HANA more “vanilla”, organizations

benefit from a level of flexibility that pays huge dividends in the future.

Reduce program spend

The same ability to develop and migrate in parallel (as noted above) dramatically reduces environmental needs. These reductions minimize non-production licensing for SAP and other applications, which in turn reduces infrastructure and support spend. Ultimately, organizations are empowered to cycle through UAT and training faster, saving considerable time and money. Additionally, S/4HANA migration is the catalyst to rethink the entire IT landscape, providing the opportunity to rationalize systems and applications while streamlining business processes.

Maximize business outcomes

An API-led approach helps build a modern, future-proof architecture designed for innovation and growth, by decoupling ERP functionality into microservices. As an added benefit, this approach enables migration to S/4HANA by ERP module, geography, line of business, time period, or any other combination that suits the organization's needs.



2H Accelerating the modernization and migration process

Capgemini's Digital Core with S/4 HANA® help businesses create an IT architecture with SAP S/4HANA at its core, while leveraging the power of MuleSoft's API Led Connectivity approach to integrate with best of breed systems. This offers organizations the agility and scalability to deliver new business changes for its competitive edge.

MuleSoft has created “out-of-the-box” connectors and templates ([Figure 9](#)) for SAP ECC and SAP S/4HANA and other SAP and non-SAP applications.

MuleSoft offers out-of-the-box support for multiple integration patterns () thereby accelerating connectivity and improving the overall productivity.

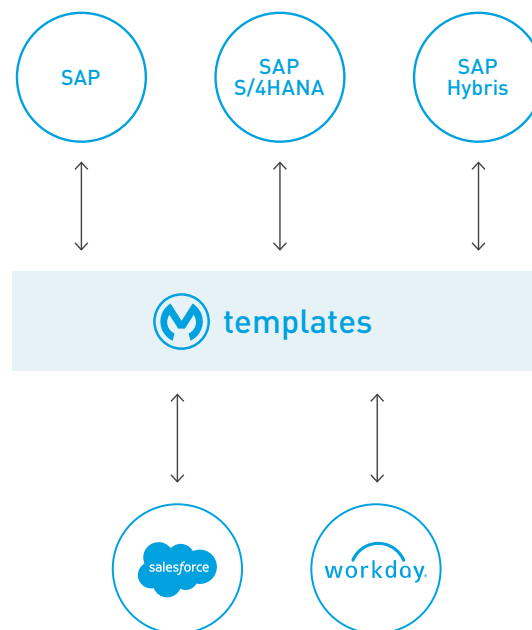


Figure 9: Mulesoft connectors and templates for SAP.

Capgemini, in joint collaboration with MuleSoft, has developed **MuleSoft SAP S/4HANA solution assets** that ensures faster time to market solution i.e. overall migration from SAP ECC to S/4HANA and a standardized approach in the software development process. Capgemini Solution assets include:

→ **Reference Architecture:** Capgemini has developed an API Reference Architecture for SAP S/4 HANA transformation that states common reusable APIs for the key functional modules, architecture principles, integration patterns, taxonomy, design-time governance reference models, best practices and guidelines to be followed for API-led microservices architecture implementation.

- **Workflow Templates:** Capgemini has developed the common templates for SAP S/4 HANA transformation that follow API-led connectivity approach and leverages MuleSoft’s SAP connectors and Capgemini’s Core integration framework.
- **Common SAP APIs:** Capgemini has developed generic reusable APIs for the key functional modules. These are available within Anypoint Exchange. These reusable APIs will reduce development time for any migration or reframing opportunity.
- These SAP assets also benefit from using **Capgemini’s Process automation assets** for CI/CD, test automation and telemetry.

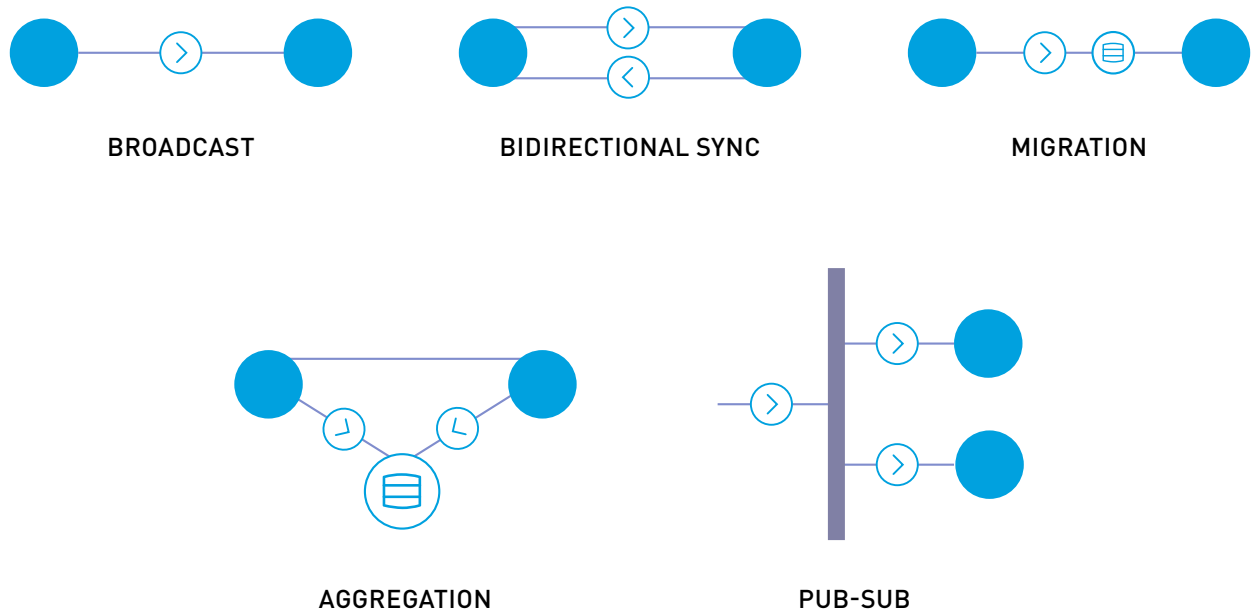


Figure 10: Supported integration patterns.



2 | Summary

Capgemini's Digital Core with S/4 HANA® powered by the MuleSoft's API led connectivity together with Capgemini's solution accelerators will enable organizations to accelerate the migration to S/4HANA and will help organizations to modernize and reimagine their architecture.

In addition, Capgemini and MuleSoft have built an overall migration approach for SAP S/4HANA. This approach not only mitigates the risk but it also speeds an overall migration to S/4HANA.

The API-led connectivity approach for SAP S/4HANA will deliver modern reusable APIs that can be leveraged for other transformations and also rationalization of an overall IT architecture thus allowing the organizations to create a agile, standardized and scalable microservices based architecture poised for future growth.

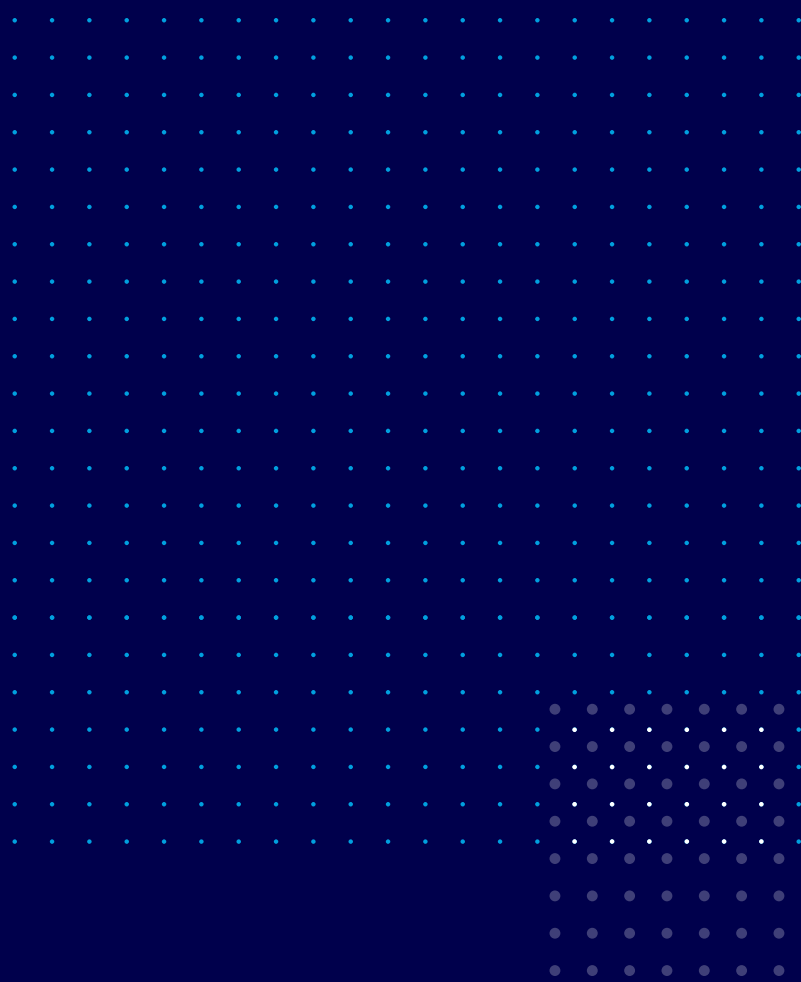


About Capgemini

Capgemini is a global leader in consulting, digital transformation, technology and engineering services. The Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year+ heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. Today, it is a multicultural company of 270,000 team members in almost 50 countries. With Altran, the Group reported 2019 combined revenues of €17 billion.

Visit us at [capgemini.com](https://www.capgemini.com)





MULESOFT, A SALESFORCE COMPANY

MuleSoft, the world's #1 integration and API platform, makes it easy to connect data from any system — no matter where it resides — to create connected experiences, faster. Thousands of organizations across industries rely on MuleSoft to realize speed, agility and innovation at scale. By integrating systems and unifying data with reusable APIs, businesses can easily compose connected experiences while maintaining security and control. Through API-led connectivity, customers unlock business capabilities to build application networks that deliver exponentially increasing value. MuleSoft is the only unified platform for enterprise iPaaS and full lifecycle API management, and can be deployed to any cloud or on-premises with a single runtime.

MULESOFT IS A TRADEMARK OF MULESOFT, LLC., A SALESFORCE COMPANY.