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ERP MIGRATION TO SAP S/4HANA
A Tactical Roadmap for Success

ABSTRACT

In an effort to gain greater value and fresh insights from massive amounts of data, many organizations are migrating SAP ERP systems to SAP S/4HANA, a real-time enterprise resource management suite for the digital business. This white paper, developed by Dell EMC and Auritas, presents a high-level roadmap for this migration journey. The paper covers three common conversion paths for organizations transitioning to SAP S/4HANA — system conversion, landscape transformation and a new implementation — and summarizes infrastructure deployment options.

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EXECUTIVE SUMMARY

The digital economy offers exciting new opportunities for businesses, but it also brings unprecedented IT challenges. Many IT departments struggle to derive fresh insights from the data they store in disparate ERP systems. SAP S/4HANA addresses those concerns by replacing and transforming complex systems to help organizations reimagine business processes and deliver real-time insights from data that's always fresh.

SAP S/4HANA is a real-time enterprise resource management suite for the digital business. It is built on SAP's advanced in-memory platform, SAP HANA, and offers a personalized, consumer-grade user experience with SAP Fiori. Deployable in the cloud or on premises, SAP S/4HANA can help your organization drive instant value across all lines of business — no matter your industry or business size.

If your organization is considering or already on the path to the benefits of SAP S/4HANA, Dell EMC and Auritas are your ideal technology and integration partners. Dell EMC offers the experience gained in nearly 20 years of work with SAP, a track record for innovation with SAP and the choice of diverse deployment options — from appliances and converged systems to cloud-based options. Auritas, in turn, offers the reach and expertise of a global SAP services company, specializing in providing innovative solutions to enterprise clients across North America, Europe and Asia.

Working closely with your organization, Dell EMC and Auritas can help you chart a clear migration path to SAP S/4HANA. That's the idea driving this white paper. It presents a high-level roadmap for migrating your current SAP ERP system to an SAP S/4HANA system. The content is organized from an overview level to details, with self-explanatory schematic graphical information privileged over textual information.

COMMON IT OBJECTIVES FOR SAP S/4HANA

While every company's path to transforming IT for SAP S/4HANA is unique, most share some common objectives in sustaining SAP ERP deployments while migrating to SAP S/4HANA. These objectives include the need to:

- Consolidate, automate and simplify IT to lower infrastructure costs and increase the productivity of SAP administrators, database administrators (DBAs) and IT operations staff.
- Deploy SAP S/4HANA as part of the organization's standard data-infrastructure design and architecture.
- Run SAP with the "personality" of web 2.0 applications, bringing greater agility with higher-value features, including self-service, orchestration and application-lifecycle management.
- Enable new business processes and analytics-driven insights for success in the digital economy.

TRANSITIONING TO SAP S/4HANA: THREE CONVERSION PATHS

There are three common conversion paths for organizations transitioning to SAP S/4HANA: system conversion, landscape transformation and a new implementation. The following pages offer an overview of these three paths and a more detailed look at each.

System Conversion

ERP system

On Premises

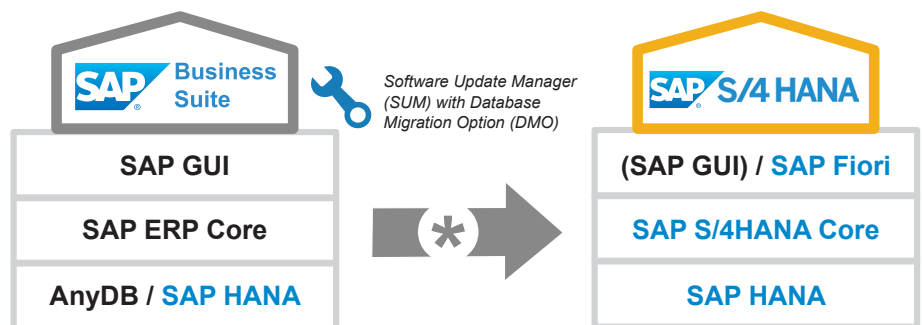Complete conversion of an existing SAP Business Suite software system to SAP S/4HANA

Landscape Transformation

ERP system
-Region A -

ERP system
-Region B -

ERP system
-Region C -

On Premises

Cloud

Consolidation of current regional SAP Business Suite software landscape or selective data transformation into one global SAP S/4HANA software system

New System Installation

ERP system

Third-party system

On Premises

Cloud

New or existing SAP customer implementing a new SAP S/4HANA software system with initial data load

SCENARIO 1 – SYSTEM CONVERSION

SCENARIO DESCRIPTION

Customers who want to change their current system into a SAP S/4HANA system. Database, SAP NetWeaver and Application transition in one step.

SAP Business Suite

| SAP GUI |
| SAP ERP Core |
| AnyDB / SAP HANA |

Software Update Manager (SUM) with Database Migration Option (DMO)

(*)

SAP S/4 HANA

| (SAP GUI) / SAP Fiori |
| SAP S/4HANA Core |
| SAP HANA |

	What	How
(*)	Installation *and* migration	Rapid Database Migration of SAP Business Suite to SAP S/4HANA (all in a one-step migration, including SAP S/4HANA Finance / SAP S/4HANA "logistics components" conversion) using SUM with DMO

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SCENARIO 2 – LANDSCAPE TRANSFORMATION

SCENARIO DESCRIPTION

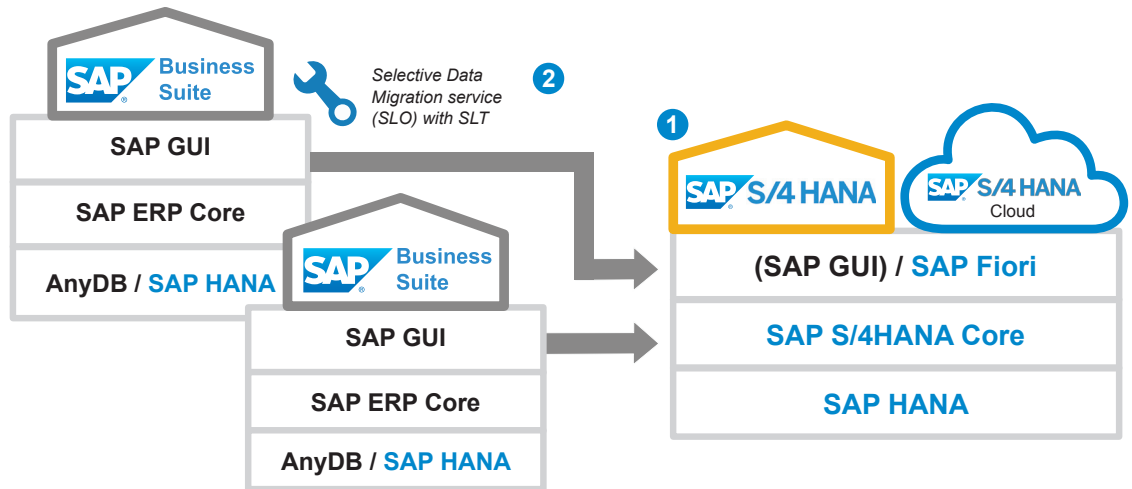Customers who want to consolidate their landscapes or carve out selected entities or processes into an existing SAP S/4HANA system.

	What	How
1	Install (and configure) SAP S/4HANA	SWPM (Software Provisioning Manager)
2	"Carve Out"	Selective Data Migration service SLO (System Landscape Optimization) with SLT (SAP Landscape Transformation) ➡ Individual harmonization project required

SCENARIO 3 – NEW IMPLEMENTATION

SCENARIO DESCRIPTION

New implementation of SAP S/4HANA e.g. for customers migrating a legacy system.
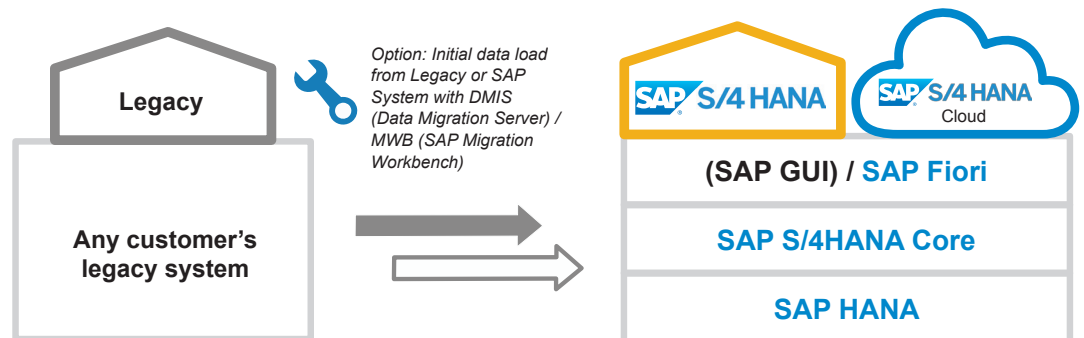
	What	How
1	Install SAP S/4HANA	SWPM (Software Provisioning Manager)
2	Initial data load from source system	Data Migration Server/Migration Work Bench • SAP source: system connection • Legacy system file upload

INFRASTRUCTURE DEPLOYMENT OPTIONS

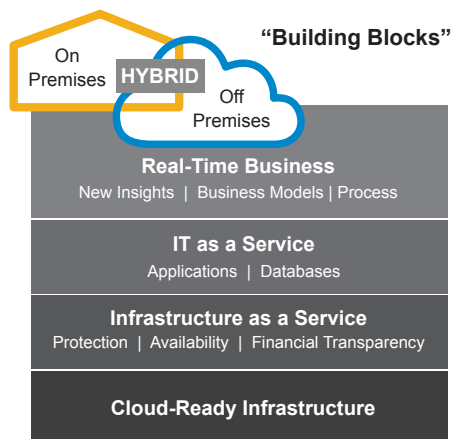When it comes to deployment, Dell EMC provides a wide range of choices for running SAP, including options for on-premises, off-premises cloud and hybrid environments. The Dell EMC portfolio covers the entire build-to-buy continuum, from flexible validated solutions to engineered systems and hybrid cloud platforms.

"Building Blocks"

On Premises — HYBRID — Off Premises

Real-Time Business
New Insights | Business Models | Process

IT as a Service
Applications | Databases

Infrastructure as a Service
Protection | Availability | Financial Transparency

Cloud-Ready Infrastructure

Build — Maximum Flexibility

Buy — Turnkey Outcomes

Converged continuum

Validated Solutions	Engineered Systems	Hybrid Cloud Platforms
Ready Systems **Ready** Bundles **Ready** Nodes		Enterprise Hybrid Cloud — Native Hybrid Cloud & Analytics Insight Module

ON-PREMISES OPTIONS

Dell EMC infrastructure options for on-premises deployment of the SAP HANA platform are shown in the table below. Which option you choose depends on your starting point and your ultimate destination. Dell EMC offers you the ability to choose any one or a combination of data-center ready options to achieve your goals. With each of these options, Dell EMC offers Data Protection and High Availability for protecting SAP HANA data and meeting recovery-time and recovery-point objectives, minimizing the potential damage from outages and disasters.

On-Premises Options	
Ready Nodes	A Ready Node dedicated to SAP HANA, pre-sized, pre-built and delivered with SAP HANA software pre-loaded, built on Dell EMC™ PowerEdge™ servers
Ready Bundles	Ready Bundles comprised of SAP-certified Dell EMC servers, storage, and networking, including support for SAP HANA Tailored Data Center Integration (TDI)
Ready Systems	Pre-built systems that deliver the convenience of an appliance and the flexibility of TDI, offering choices of Dell EMC V[x]Block, VxRail and VxRack

HYBRID AND CLOUD OPTIONS

In addition to on-premises deployments, Dell EMC gives you the choice of hybrid cloud and off-premises platforms for your SAP S/4HANA environment.

- **Hybrid cloud:** The Dell EMC Enterprise Hybrid Cloud solution combines hardware, software and services from Dell EMC and VMware into a platform built on converged systems to deliver the foundation for infrastructure-as-a-service. Dell EMC and VMware have spent thousands of hours of engineering time designing, testing and proving the platform in our labs, so you don't have to expend that effort yourself.

- **Off-premises managed cloud for SAP:** Virtustream is unparalleled in running SAP in the cloud. The platform was purpose-built for handling complex, mission-critical enterprise applications. Our experts have extensive experience working directly with SAP applications, so we can help you seamlessly migrate your SAP deployments to the cloud.

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SOLUTIONS TAILORED TO YOUR NEEDS

Migrating mission-critical applications to SAP S/4HANA requires careful consideration of your business specificities. Our experience shows that we can't use a one-size-fits-all approach. The decisions regarding what to migrate to cloud and what to keep on-premises depends on your industry (regulations), priorities (accessibility, latency) and comfort-level (security). Dell EMC and Auritas will carefully analyze your specifics and recommend the best approach that fits your organization, people and timelines.

SYSTEM CONVERSION – THREE KEY ELEMENTS

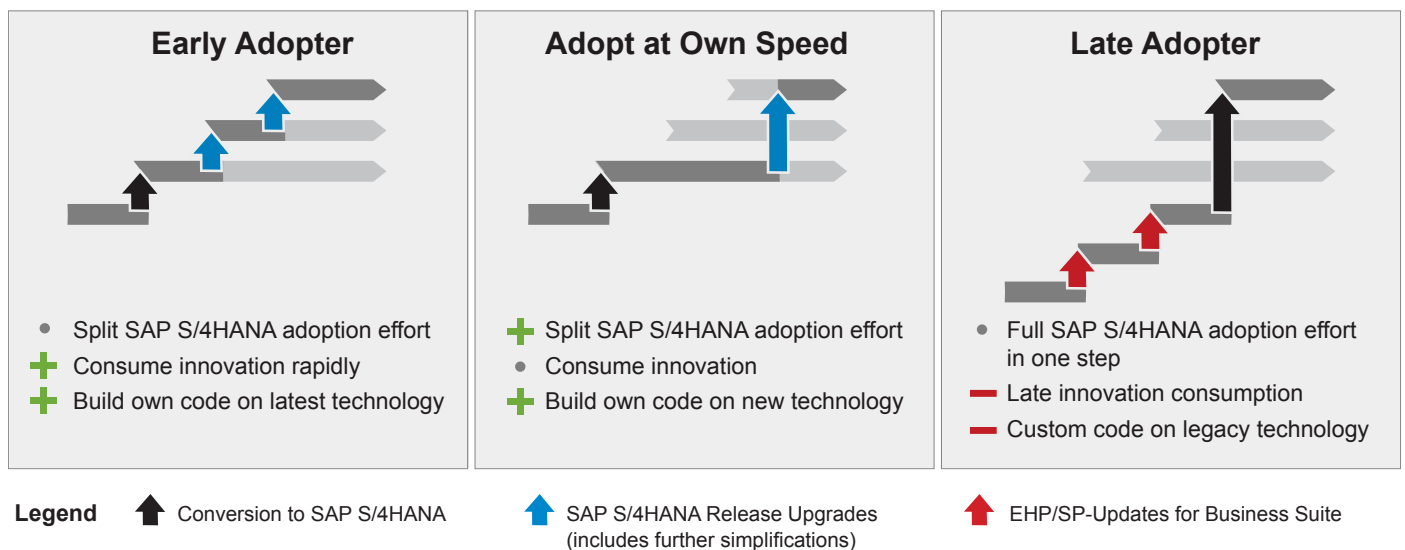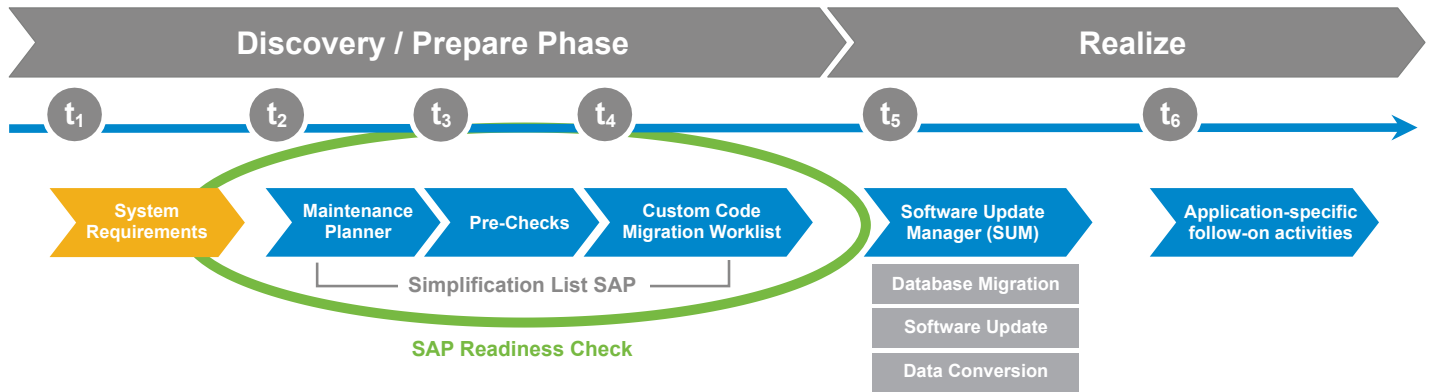|	
Database Migration	• Effort is similar to other database migrations that you may have undertaken. • Not required for Suite on HANA customers.
Functional Impact	• Functional impact of application simplification and Principle of One. • Many simplification list items can be done on the Start/Source system.
Custom Code Impact	• Upgrade-like tasks with SPAU, SPDD and S/4-specific custom code efforts. • Experience shows that SPAU and SPDD efforts often exceed S/4-specific custom code efforts. • SAP S/4HANA-specific custom code efforts are mainly due to data model changes. • Recommendation: Success depends on good housekeeping — get rid of unused code, delete unused data, archive aggressively.
Optional Consumption of Innovation	• Since the standard capabilities of the source ERP system are generally available in SAP S/4HANA, this makes the conversion largely a technical undertaking. • However, since there is a wealth of process innovation in SAP S/4HANA, it is up to the business to decide how much of this process change they deem immediately valuable. Hence the degree of process change is largely a business decision when planning the conversion project.

PATTERNS OF CONVERSION TO SAP S/4HANA

• SAP S/4HANA conversion effort is in essence equal for all of the different adoption paths.

• SAP S/4HANA provides new opportunities for process re-design and landscape consolidation.

• Customers should match process re-design with the released sequence of SAP S/4HANA simplifications.
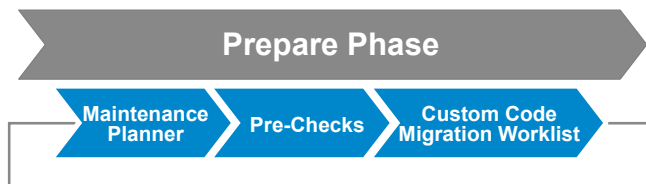

Early Adopter
- • Split SAP S/4HANA adoption effort
- + Consume innovation rapidly
- + Build own code on latest technology

Adopt at Own Speed
- + Split SAP S/4HANA adoption effort
- • Consume innovation
- + Build own code on new technology

Late Adopter
- • Full SAP S/4HANA adoption effort in one step
- – Late innovation consumption
- – Custom code on legacy technology

Legend ↑ Conversion to SAP S/4HANA | ↑ SAP S/4HANA Release Upgrades (includes further simplifications) | ↑ EHP/SP-Updates for Business Suite

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SAP S/4HANA SYSTEM CONVERSION

BASIC SEQUENCE

PREPARATION STEPS

Simplification List

Moving to SAP S/4HANA, for a typical ERP 6.x customer requires a database migration to SAP HANA (if the customer is not yet on SAP HANA) followed by the installation of the new simplified code, which also requires changes in adaptions on the customer's side.

In addition, the customer should be aware of the fact that only SAP S/4HANA packages (and no other software) shall be deployed on a SAP S/4HANA installation. Details are set forth in the Software Use Rights document.

Based on the Simplification List for SAP S/4HANA, SAP provides the information per application/functional area about the SAP S/4HANA-related simplifications. The Simplification List is a collection of single "Simplification Items" with the focus on what has to be considered during a specific Implementation/System Conversion project from SAP ERP 6.x Customers to SAP S/4HANA. Simplification List for SAP S/4HANA 1610 on-premises edition: Link. The XLS is included as an attachment in SAP Note 2313884.

Supporting Tooling

Maintenance Planner is a solution hosted by SAP that offers easy maintenance of systems in your landscape. The Maintenance Planner checks the system with regards to business functions, industry solutions and add-ons. If there is no valid path for the conversion (for example, the add-on is not released yet), the Maintenance Planner prevents the conversion. For more information regarding Maintenance Planner see SAP Help.

Pre-checks are shipped as SAP Notes to customers who want to convert to SAP S/4HANA. Customers can use these pre-checks to find out what mandatory steps they have to carry out before converting to SAP S/4HANA. The results list the instances that need to be addressed before attempting the conversion process. The checks are run again twice during the conversion process: both times in the Software Update Manager (SUM). The conversion is stopped if errors persist. Implement SAP Note 2182725, and all the related notes attached to it.

To convert your SAP system to SAP products based on SAP NetWeaver 7.5, such as SAP S/4HANA, any simplifications made to SAP objects need to be considered in your customer objects. The Custom Code Migration Worklist displays all customer objects that refer to simplified SAP objects and links to information about how to adopt these customer objects. For more information about the Custom Code Check tool, see SAP Help Portal: Link and the following SAP Community blog: Custom Code within SAP S/4HANA On-Premise. The related custom code check content on SAP Service Marketplace with the SAP S/4HANA 1610 content is also available (see SAP Note 2241080 how to access the content).

## SAP NETWEAVER 7.50 AND 7.51 – TRANSACTION SYCM AND CODE INSPECTOR CHECKS
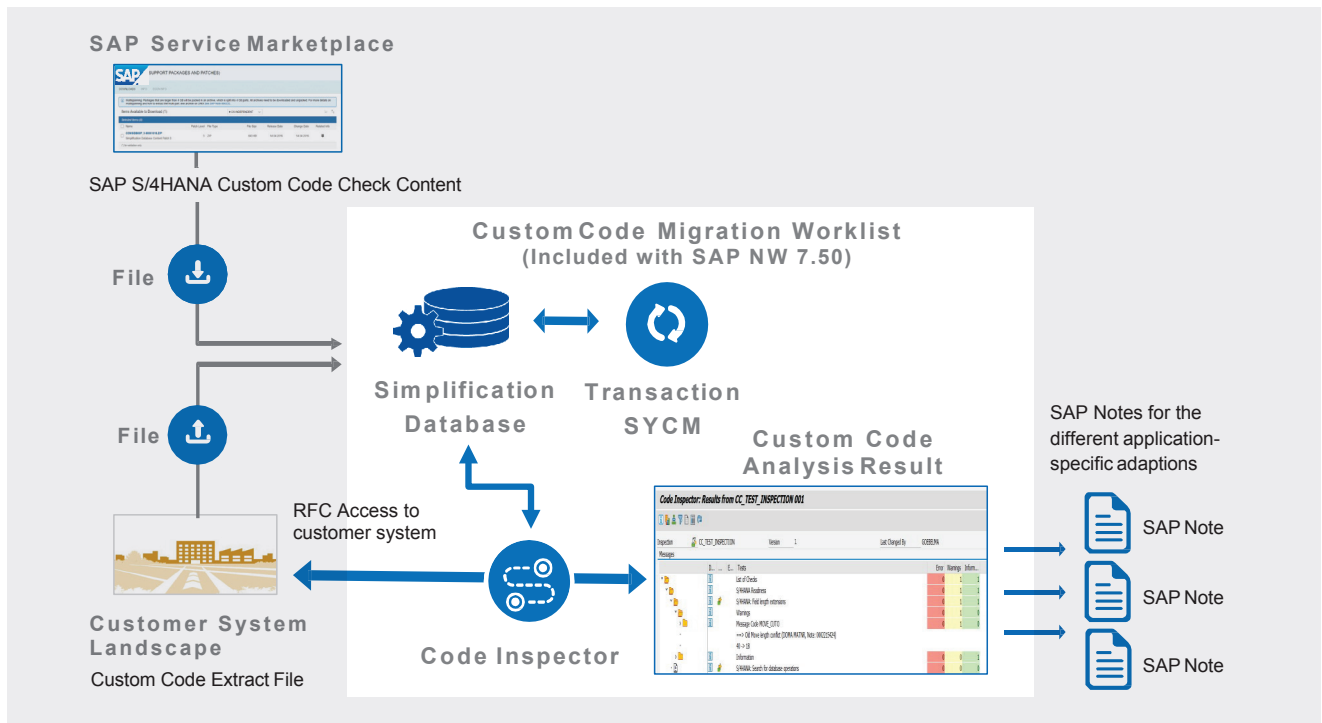
CUSTOM CODE MANAGEMENT TOOL

For the items with a technical impact on your own custom code, Auritas uses a "Factory Approach" and a customized toolkit. These items are stored in a dedicated "**Simplification Item Database**." This database is used by the Custom Code Check Tool. With this check we get a clear picture of where your custom code does not comply with the scope and data structure of SAP S/4HANA.

• The entities adapted in SAP S/4HANA are maintained as an itemized list in the development system and exported as a file.

• We then import the file with the relevant SAP entities into the Simplification Database Custom Code Management Tools.

• Following this import, we extract your custom code from the source system and create a similar file with additional information. This code extractor file is then imported in the custom code check tool.

• The information about the current custom code base is checked against the content of the Simplification Item Database. This code information includes modifications and enhancements to SAP code as well as your own main objects, respective where-used list information and any available usage information (UPL).

• This code analysis is then downloaded. Besides the pure listing of your own code entities, which do not comply with the SAP S/4HANA data structure and scope, additional information and recommendations are also included in the resulting list.

• Each custom code analysis result item provides corresponding information explaining the technical change and how the code needs to be adapted.

Based on the individual custom code analysis results and the provided adaption recommendations, we can plan and adapt your custom code to comply with the SAP S/4HANA data structures and scope.

SYSTEM CONVERSION APPROACH
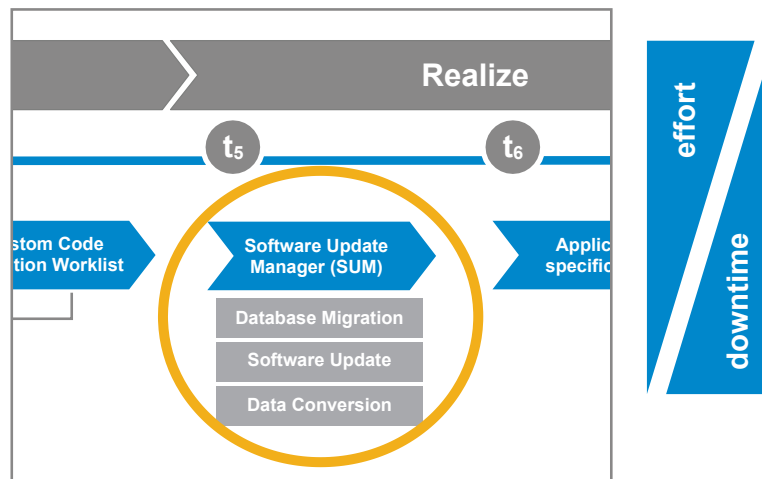
There are three approaches to system conversion:

1. **Standard approach**
   Using Software Update Manager (SUM) with several optimizations

2. **Downtime-optimized approach**
   Using SUM with downtime reduction strategies, especially moving data conversion partly to uptime

3. **Customer-specific approach**
   Premium engagement with SAP that allows further reduction of downtime based on a service project, known as Near Zero Downtime (nZDT)

NOTE: The decision regarding which of these three approaches are to be chosen depends on several factors and should be taken after a Readiness Check together with Dell EMC and Auritas.

SYSTEM CONVERSION VS NEW IMPLEMENTATION

QUESTIONS INFLUENCING THE CHOICE OF THE TRANSITION SCENARIO

- If a Business Suite System is on an older release you have to execute several steps to move to SAP S/4HANA. For example, you first have to move to SAP ERP 6.0 EHP7/ SAP HANA, adapt to this release and then move to SAP S/4HANA. In this case a new implementation might have advantages, because then this intermediate step is not required.

- Dedicated Add-Ons (e.g., ARM) and Business Functions are still on the roadmap to be adapted to SAP S/4HANA. For example, Business Functions related to industries that are on the SAP S/4HANA roadmap (Retail, Oil …). This might push the SAP S/4HANA project to a later point in time (once the currently non-HANA optimized functionalities become available with SAP S/4HANA), but these considerations are usually independent from the transition scenario.

Business Processes

- Do your business processes mainly fit to the current requirements?

- Is it more appropriate to redesign business processes?

New Implementation		System Conversion
Business Processes do not fit		Business Processes do fit
Yes		No
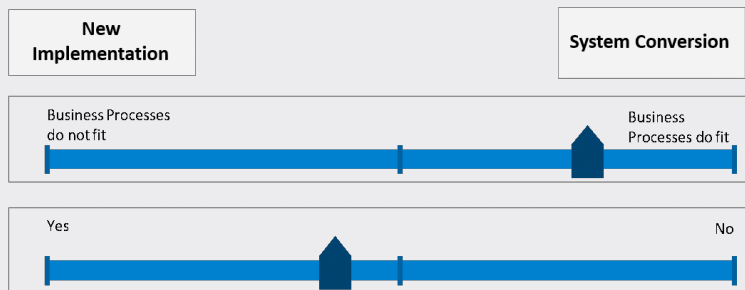
- In case the business processes currently implemented on your Business Suite start system do basically fit the requirements, the **System Conversion** might have advantages. The System Conversion scenario takes over the existing configuration and data. Based on the Simplification List approach, the conversion project is guided where things are different in SAP S/4HANA.

- In this case, when it is planned to combine the move to SAP S/4HANA with a complete re-design of the business processes, a **New Implementation** might have advantages. In the new implementation scenario you can implement your new business processes based on SAP Best Practices content and migrate your application data to these new processes.

Custom Code

- Are you planning to take over existing custom code?

- Are you planning to replace your existing custom code by standard SAP S/4HANA functionality?

New Implementation		System Conversion
No		Yes
Yes		No
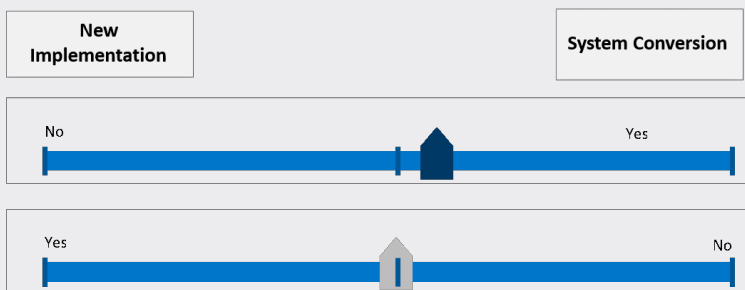
- In case you want and need to take over existing custom code (because the individual requirements are not covered within SAP S/4HANA standard), then System Conversion might have advantages. The System Conversion scenario takes over the existing custom code. Based on the custom code migration worklist, the customer is guided so that the custom code complies with the data structure and scope of SAP S/4HANA.

- The requirement to replace custom code with (new) SAP standard functionality might be independent from the choice of the transition scenario. Here the challenge is not the transition scenario — in both scenarios existing custom code needs to be identified and related to existing SAP standard functionality.

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Time to Value

- How fast do you want to move to SAP S/4HANA?

- Do you want to mitigate project risks and/or distribute your workload over a longer timeline?
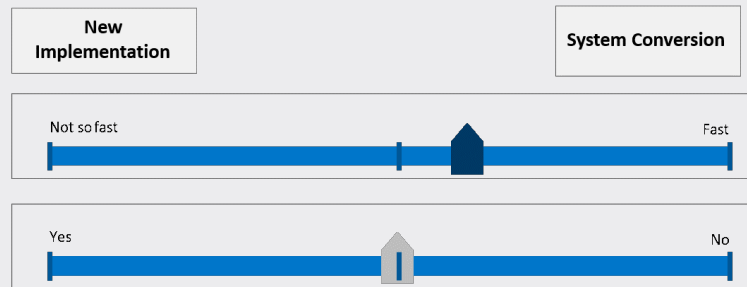
- The System Conversion scenario takes over the existing configuration and data. With that, all the implemented countries within your Business Suite System are taken over to SAP S/4HANA in one step. A complete re-design of the business processes cannot be undertaken in this case.

- There are different possibilities for risk-averse customers. This is more a question of the transition roadmap rather than the transition scenario. You may benefit from migrating company code by company code, using the Landscape transformation scenario, to SAP S/4HANA or go to SAP S/4HANA Finance and then to SAP S/4HANA 1610.

RECOMMENDATIONS FOR GETTING STARTED

» Check Simplification List to map existing business processes to SAP S/4HANA innovations.

» Start UPL now to have your statistics based on a long phase.

» Check custom code: which parts are obsolete? Look into new or overlooked SAP solutions that may obviate the need for specific or custom code.

» Reduce your Database Size, e.g. by archiving; partner with SAP Special Capabilities Partners like Auritas to reduce your database footprint prior to migration.

» Consider Unicode Conversion.

» Consider introducing automated tests.

» Read the System Conversion Guide.

» Use Maintenance Planner: get familiar, and use checks early.

» Run pre-check reports.

ACCELERATING YOUR JOURNEY WITH
DELL EMC AND AURITAS

Dell EMC and Auritas are ideally positioned to help your organization accelerate your transition to SAP S/4HANA. Not only does Dell EMC have a distinguished history in partnering with SAP on joint engineering projects, benchmarking and best practices, Dell IT runs SAP Business Suite and SAP HANA. This combination puts Dell EMC in a position to solve today's efficiency challenges and at the same time pave the ground for a safe future transformation to SAP S/4HANA and cloud.

Auritas, in turn, has developed a very successful "Factory Approach" for assessing your organization's migration readiness. This highly structured approach in checking and verifying your specific situation from both functional and technical perspectives uses a "service" approach. We deploy a set of tools that provide a clear identification of your readiness. Furthermore, we also identify what it will take to get you ready, and how to shorten this time. This assistance helps you achieve a rapid and successful migration to SAP S/4HANA.

Together, Dell EMC and Auritas are uniquely positioned to provide answers to the constant challenge of doing more with less, while at the same time helping you reduce risk on the path to digital transformation with SAP modernization.

To learn more, visit: DellEMC.com/sap or Auritas.com