

S4H01

Introduction to SAP S/4HANA



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Unit 1 SAP S/4HANA a new product

Lesson: Why do we need a new business suite?

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Unit 1 SAP S/4HANA a new product

Lesson: Why do we need a new business suite?

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About This Handbook

This handbook is intended to complement the instructor-led presentation of this course, and serve as a source of reference. American English is the standard used in this handbook. The following typographic conventions are also used:

Use	Example/Visualization
<p>Demonstration by Instructor A hint or advanced detail is shown or clarified by the instructor – please indicate reaching any of these points to the instructor</p>	
<p>Warning or Caution A word of caution – generally used to point out limitations or actions with potential negative impact that need to be considered consciously</p>	
<p>Hint A hint, tip or additional detail that helps increase performance of the solution or help improve understanding of the solution</p>	
<p>Additional information An indicator for pointing to additional information or technique beyond the scope of the exercise but of potential interest to the participant</p>	
<p>Discussion/Group Exercise Used to indicate that collaboration is required to conclude a given exercise. Collaboration can be a discussion or a virtual collaboration.</p>	
<p>User Interface Text</p>	<p>Find the Flavor Gallery button</p>
<p>Solution or SAP Specific term</p>	<p>E.g. Flavors are transaction specific screen personalization created and rendered using SAP Screen Personas.</p>



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Lesson: Why do we need a new business suite?

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Lesson: Why do we need a new business suite?

Lesson: Why do we need a new business suite?

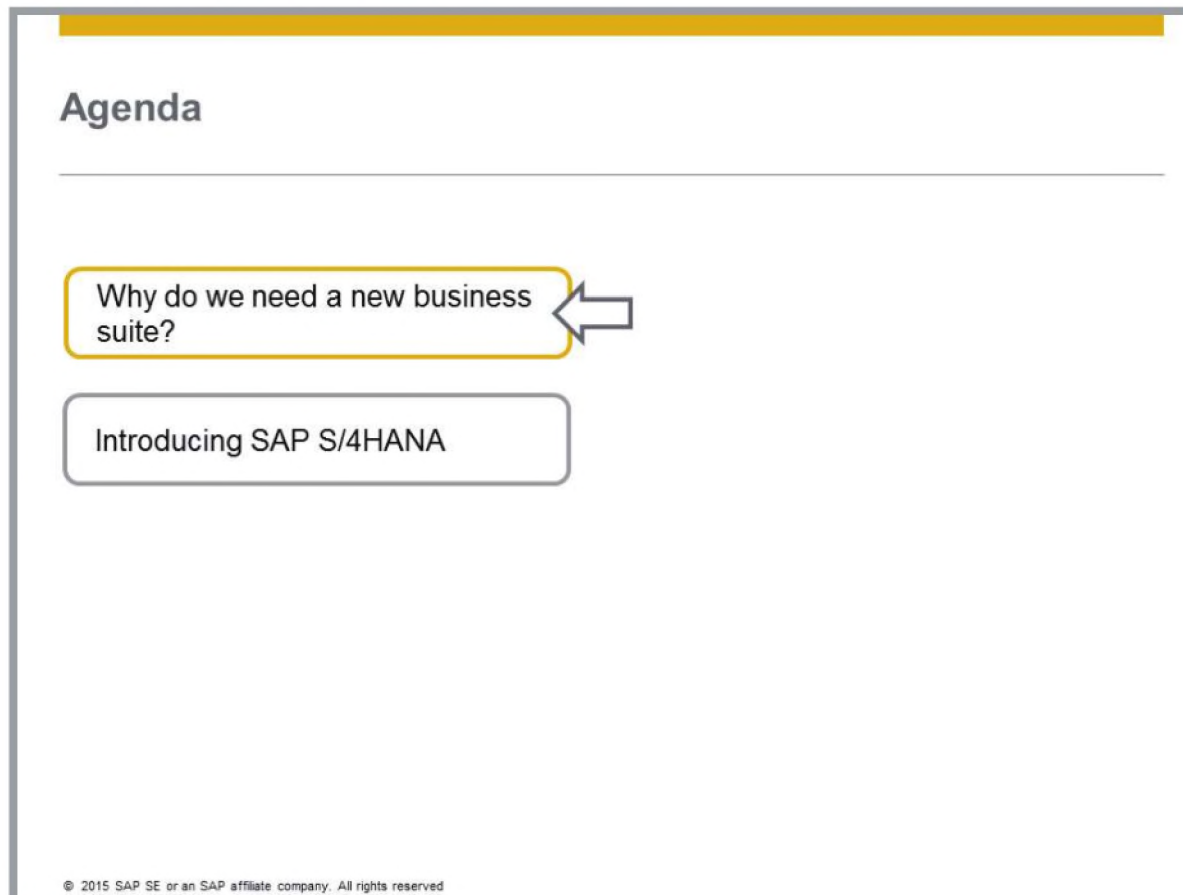


Figure 1: Agenda



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Lesson: Why do we need a new business suite?

Learning Objective



After completing this lesson, you will be able to:

- Describe the need for a new business suite

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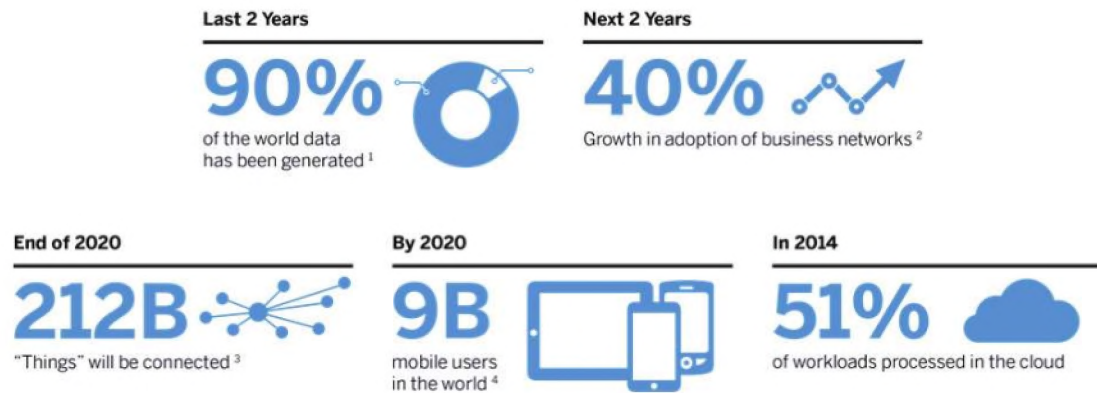
Figure 2: Learning Objective



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Lesson: Why do we need a new business suite?

The World Is Now Digital



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Figure 3: Digital world

If you look at the numbers here on the slide it becomes obvious that the world around us is not getting simpler, it's getting more complex:

- Exponential growth of digital information – social, mobile, big data
- Globalization and spread of business networks
- Internet of Things or you could also say – Internet of everything

The response so far was – add more complex business processes, more complex organizations and more complex software solutions.

At the end of 2009, 5% of the world's population owned smartphones. Four years later, that figure jumped to 22%. Currently, 1.7 billion people are on social networks. Over the next three years, that audience will surpass 2.55 billion. By 2020, 5 billion people will enter the middle class and come online, while 50 billion devices will be connected to the "Internet of Things," creating a digital network of virtually everything. And cloud computing – a \$41 billion business in 2011 – will grow to a \$241 billion business in that same time frame.

The exponential proliferation of mobile devices, social media, cloud technologies and the staggering amounts of data they generate have transformed the way we live and work. In fact, 61% of companies report that the majority of their people use smart devices for everything from email to project management to content creation.

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While all of these advancements have improved our lives and provided us with greater opportunities for innovation than ever before, they have also accelerated the rise of an entirely new problem to contend with: unprecedented and crippling complexity.

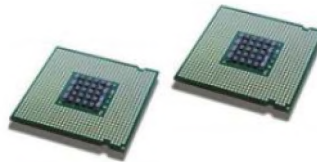
The world may be getting smarter, but it hasn't gotten any easier.

Massive consumerization of IT means online purchasing, banking, completing online applications becomes commonplace. Think about it, how much digital data did you create today? Maybe some of it was of interest to some organisations?

Data is the new oil.

Advances in technology

Powerful multi core processors



Huge / affordable memory



Optimised cache



Cloud

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Figure 4: Advances in technology

In the last few years there have been significant advances in technology that application developers are able to take advantage of in order to build smarter and more powerful applications

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For example:

Multi-core processors enable parallelism of tasks – this means more throughput of data and faster processing to give us real-time responses.

Big memory – enables us to fit an entire organisation's database in memory – this means we lose the mechanical spinning disk and the latency it brings

Advanced in the design of on-board cache means that data can pass between memory and CPU cores rapidly. In the past, even with large memory, this was a bottleneck as the hungry CPUs were demanding more data and the journey from memory to CPU was no optimal.

We can now add easily slot in more servers into our landscape to add more processing power or memory in order to scale to any size.

SAP re-wrote their business application software to fully exploit the new hardware. SAP worked intimately with leading hardware partners who shared their designs of their new CPU architectures so that SAP knew how to write the very best software to extract every drop of power.

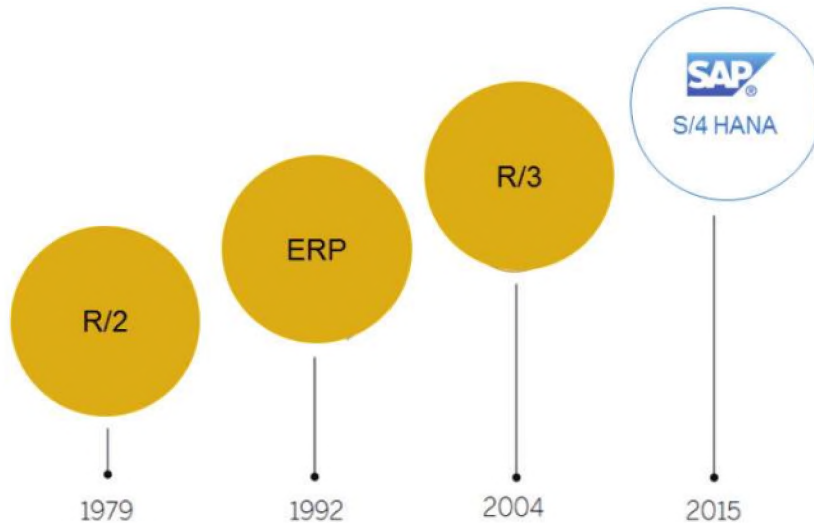
Cloud computing technology has matured in the last few years and is now a compelling deployment option for our customers who do not want to take on the complexity and cost of the installation and maintenance of IT landscapes. Virtualising machines means lower costs of running enterprise wide applications where public cloud service based on subscription models reduce the costs and simplify for all.



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Time to re-build the Business Suite for the digital world



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Figure 5: Time to re-build the Business Suite for the digital world

Since the beginning of enterprise computing, SAP have been rebuilding the business applications whenever major technology shifts have occurred.

Here are some key moments in SAP's application development history:

1979 – SAP invents ERP. SAP builds standard business software based on mainframe technology. The name, SAP R/2 supports and integrates major business functions in real-time and handles multi- country and multi-currency implementations.

1992 – With the rise of the personal computer, the introduction of client server architecture means another re-write of the applications so that we exploit the power of a layered three tier architecture approach where processing is split across three layers of processing. A new graphical interface improves end user productivity. This is the birth of SAP R/3.

2004 – Now the web is firmly established as the common business network and customers demand better integration with their business applications and the web. SAP develops a new integration application platform called SAP Net Weaver in order to enable this. Now all SAP applications run on a common platform but also customers and partners can build and integrate

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Lesson: *Why do we need a new business suite?*

existing application easily using widely adopted web standards such as Service Oriented Architecture (SOA). The SAP R/3 name was changed to SAP ERP.

2015 – A new wave of advances in hardware architecture brings massive computing power at decreasing costs. Huge memory, and multi core processors arrive. The underlying design of existing SAP applications is not optimal for the new hardware. A re-write of the complete suite is required. The new business suite is called SAP S/4HANA.

Agenda

Why do we need a next generation business suite?

Introducing SAP S/4HANA



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Figure 6: Lesson

Let's get to know SAP S/4HANA.



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Lesson: Introducing SAP S/4HANA

Lesson: Introducing SAP S/4HANA

Learning Objective



After completing this lesson, you will be able to:

- Describe SAP S/4HANA and its key features

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Figure 7: Learning Objective



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Lesson: Introducing SAP S/4HANA

SAP S/4HANA

Next Generation Core and Lines of Business Solutions for the Digital World



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Figure 8: S/4HANA as a core of next generation of SAP offers

SAP S/4HANA is not a single product.

Customers can start with the basics components and add to them later. S/4HANA Enterprise Management is a great place to start. This is known as the “simplified core”. Perhaps it might help to think of S/4HANA Enterprise Management as the replacement for SAP ERP. Here we find support for all core business processes, such as order to cash, procure to pay etc. For many customers this is where their S/4HANA adoption begins.

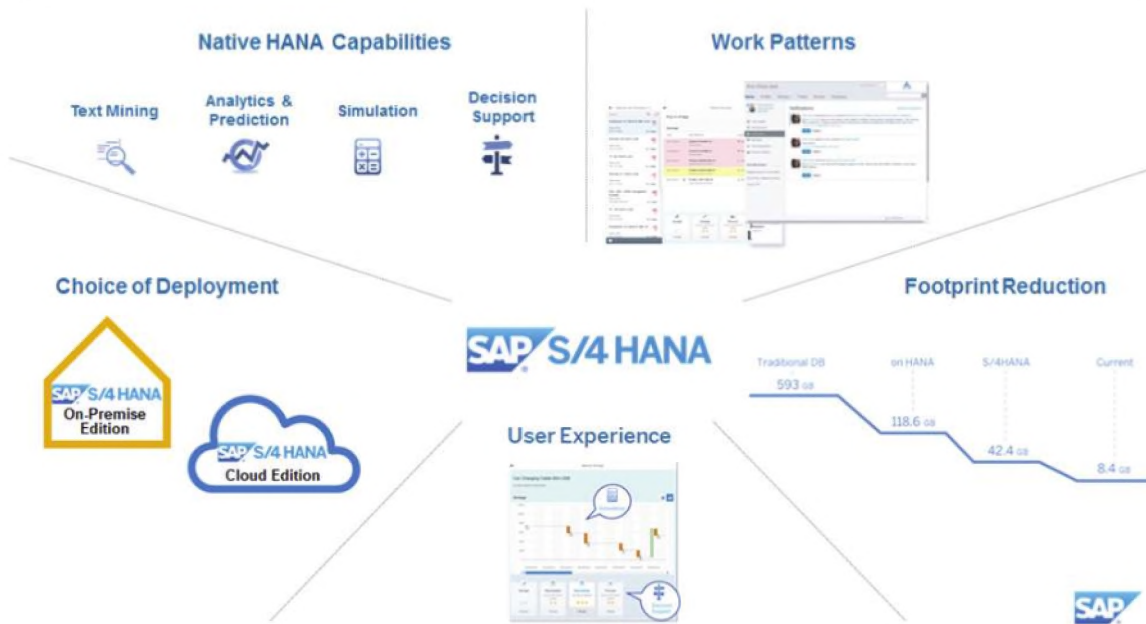
Seamlessly integrated with the core we find SAP S/4HANA Lines of Business (LoB) solutions. These are options that can be added at any time and provide best-in-class lines of business solutions and connections to SAP Business Networks.

In the past we had multiple add-on applications surrounding a core (for example SAP ERP, SAP CRM and SAP SRM), but with overlapping models and much redundancy. Now overlaps and redundancy have been completely removed from SAP S/4HANA.

And don’t forget that SAP S/4HANA is built natively and optimally to run only on the SAP HANA platform.

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Lesson: Introducing SAP S/4HANA

Key aspects of SAP S/4HANA



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Figure 9: Key aspects of S/4HANA

Let's highlight the most important aspects of SAP S/4HANA and what makes it very different from what we had before. We will then drill down on individual topics in later slides.

First of all SAP S/4HANA is built on SAP HANA and so we inherit all the capabilities of this powerful data management and application platform. This includes advanced text mining, predictive analysis, simulations and powerful real time decision support.

A brand new user experience is delivered to improve the productivity and satisfaction of business users and brings the interface up to a consumer-grade experience on any devices.

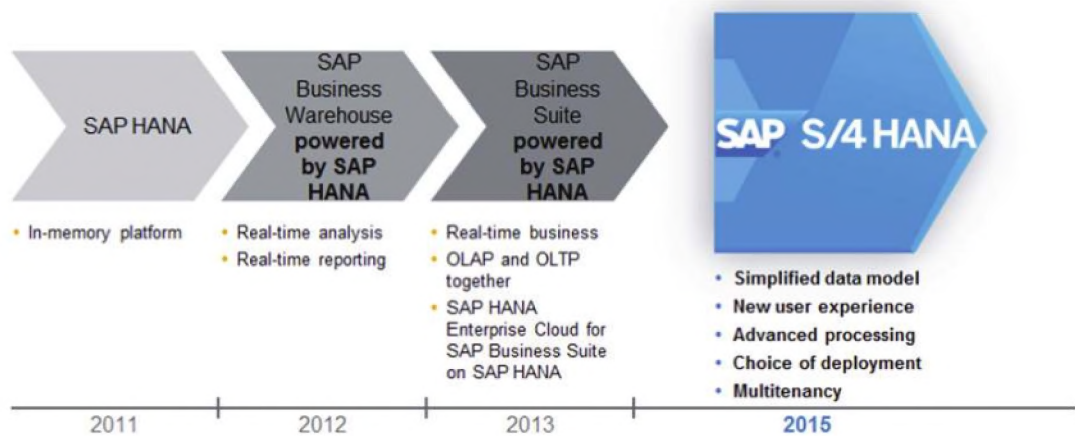
SAP S/4HANA can be deployed on premise or in the cloud or a combination of both to provide flexible options to customers.

The data model has been massively simplified. This means we lost unnecessary tables and of course the data in those tables in order to shrink the footprint dramatically and simplify the application design and extensibility.

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Lesson: Introducing SAP S/4HANA

SAP HANA – the great simplifier



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Figure 10: SAP HANA – the great simplifier

We should recognise the key enabler of SAP S/4HANA from the software side. It is called SAP HANA and it is the platform on which S/4HANA is natively built.

Back in 2005, SAP started researching the possibility to develop their applications built on an in-memory database. When SAP realized that no traditional database vendor had what they needed on the database side, SAP began their own in-memory database development. They worked with leading chip manufacturers to identify to optimal design of a database that could exploit the full power of the new generation of powerful processors.

The first release of SAP HANA was in 2011. It was positioned as a standalone data mart solution, where customers could capture data from any sources in real-time, load the data to the in memory database and build BI reports and applications on top.

Then, SAP began offering SAP HANA based Accelerators which were deployed as side-car engines to run alongside traditional SAP ERP functions that were critical to businesses, yet were performing slowly.

Around the same time, SAP developed new applications that were completely powered by SAP HANA (e.g. Smart Meter Analytics).

Around 2012 SAP successfully ported the first already-existing major application, SAP BW, to run completely on SAP HANA. This was quickly followed up with the porting of SAP Business Suite. We call this Suite on HANA (SoH) and should not be confused with SAP S/4HANA.

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And then, in 2015, SAP started from scratch and rewrote the complete business suite natively to run only on SAP HANA. Unlike Suite on HANA, SAP S/4HANA is a brand new code-line that works only on SAP HANA. And unlike, Suite on HANA, the applications do not have to work on any other vendors' database. This means we were not restricted by the limitation of those databases and could code freely to exploit 100% of the power of SAP HANA.

SAP HANA – the platform for S/4HANA



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Figure 11: SAP HANA – the platform for S/4HANA

S/4HANA inherits the built in capabilities of SAP HANA. This is evident throughout the new S/4HANA applications.

Let's take a look at some of the key capabilities and describe what they mean to S/4HANA.

Application Services:

As well as a database, SAP HANA can also provide many application services. This means many applications can be built in a 2 tier model, rather than a 3 tier model. For an example, imagine an application that allows a project manager to quickly check all team members have completed their timesheets. This could easily be developed as a web application where only a web browser and SAP HANA is required. No application server is needed. This is because SAP HANA can handle the business logic as well as the database services. SAP HANA provides a full development environment with productivity tool supplied in the box. Everything the developer needs at design time is there, and also what is needed at run time is also there.

Processing Services:

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SAP HANA can handle many new types of data. This includes text, spatial, graph and more. But is not enough to simple store these new data types we need to be able to build applications that can process and integrate this data with traditional data types, such as business transactions. SAP HANA provides native in-memory engines that process any types of data in real time.

Integration Services:

SAP HANA has multiple data consumption options built in. We can analyse continual streaming data, read data remotely in any data source, read Big Data stores such as Hadoop, synchronise in both directions with remote databases and devices that collect data (IoT). SAP HANA has built in Extraction, Transformation and Loading (ETL) capabilities so that separate software is no longer needed to clean, enrich and profile data from any sources.

Database Services:

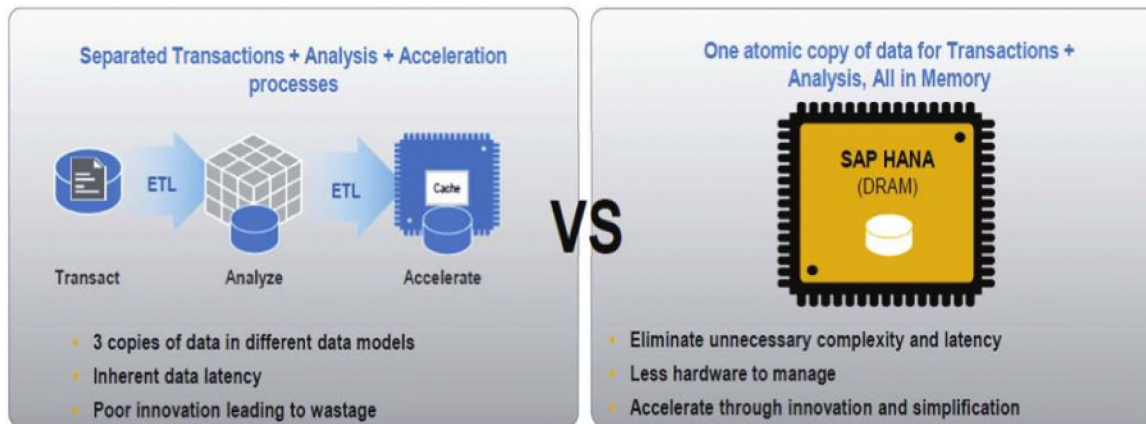
SAP HANA is a full in-memory column and row store database that can support both OLTP and OLAP requirements and is built to run on high end hardware. It stores data optimally using automatic compression and is able to manage data on different storage tiers to support data ageing strategies. It has built in high availability functions that keep the database running and ensure mission critical applications are never down.



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Bringing OLTP and OLAP back together



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Figure 12: Bringing OLTP and OLAP back together

For more than 20 years, organisations have been using specialist software – usually with additional hardware - to extract transform and load (ETL) data from transactional systems to dedicated reporting systems. Based on the technology available at the time, this was the optimal way to provide a holistic view of business data with good response times (especially when you add accelerator software/hardware).

Online transactional processing (OLTP) was separated from online analytic processing (OLAP). The reason for this lies in the database design of OLTP and OLAP. Quite simply, a database model was either built for OLTP optimisation or OLAP optimisation, but not both.

However, this also bought with it complexity, redundancy and of course latency. It was usual for today's business figures to only be available tomorrow for analysis once the data was extracted and loaded to a reporting system.

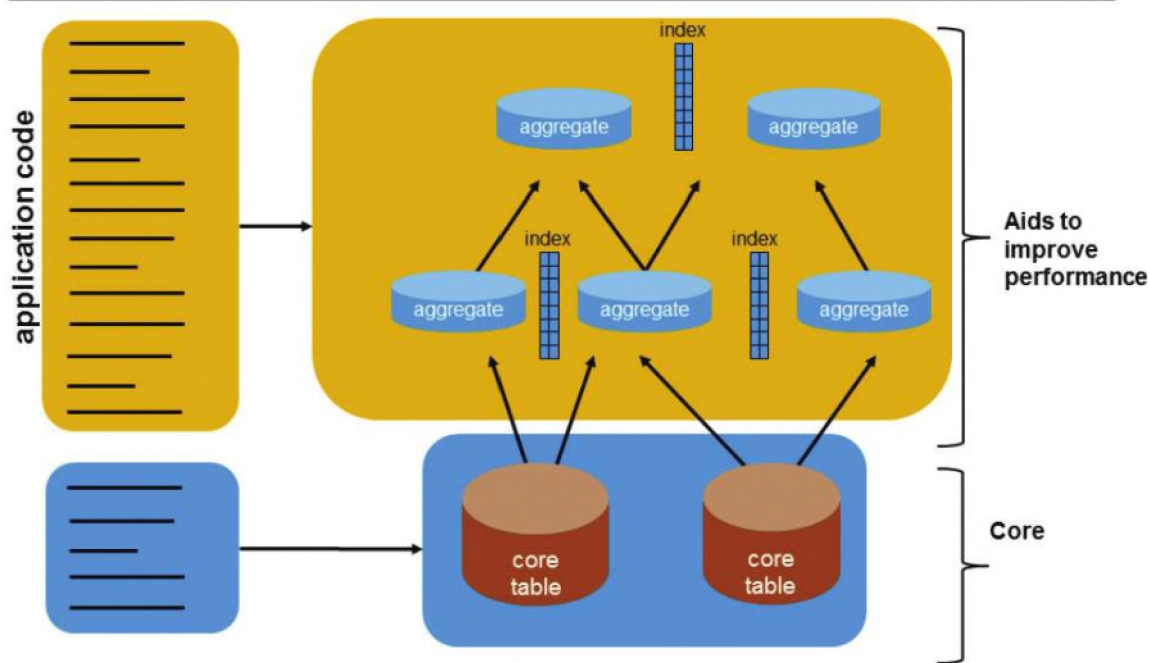
The database which support S/4HANA (SAP HANA) can handle both OLTP and OLAP processing from a single data model and therefore we do not need to move transactional data to a separate system.

This means transactional and analytical applications run off the same tables and therefore data is available in real-time at every level of detail.

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Traditional approach to data model and application code



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Figure 13: Traditional approach to data model and application code

Traditional application were built on a hierarchical data model. Detailed data was summarised into higher level layers of aggregates to help system performance. On top of aggregates we built more aggregates and special versions of the database tables to support special applications. So as well as storing the extra copies of data, we also had to build application code to maintain extra tables and keep them up to date. And don't forget to backup these extra tables too, so even the IT operations were impacted.

In addition to aggregates, we have another inefficiency that we need can remove. Database indexes improve access speed because they are based on common access paths to data. But they need to be constantly dropped and rebuilt each time the tables are updated. So again, more code is needed to manage this process.

So the traditional data model is complex and a complex data model causes the application code to be complex. It has been found that up to **70%** of application code is built specifically for performance of an application and adds no value to the core business function.

With a complex data model and complex code, integration with other applications and also enhancements are difficult, and simply not agile enough for today's fast moving environment.

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Remove complexity with SAP S/4HANA

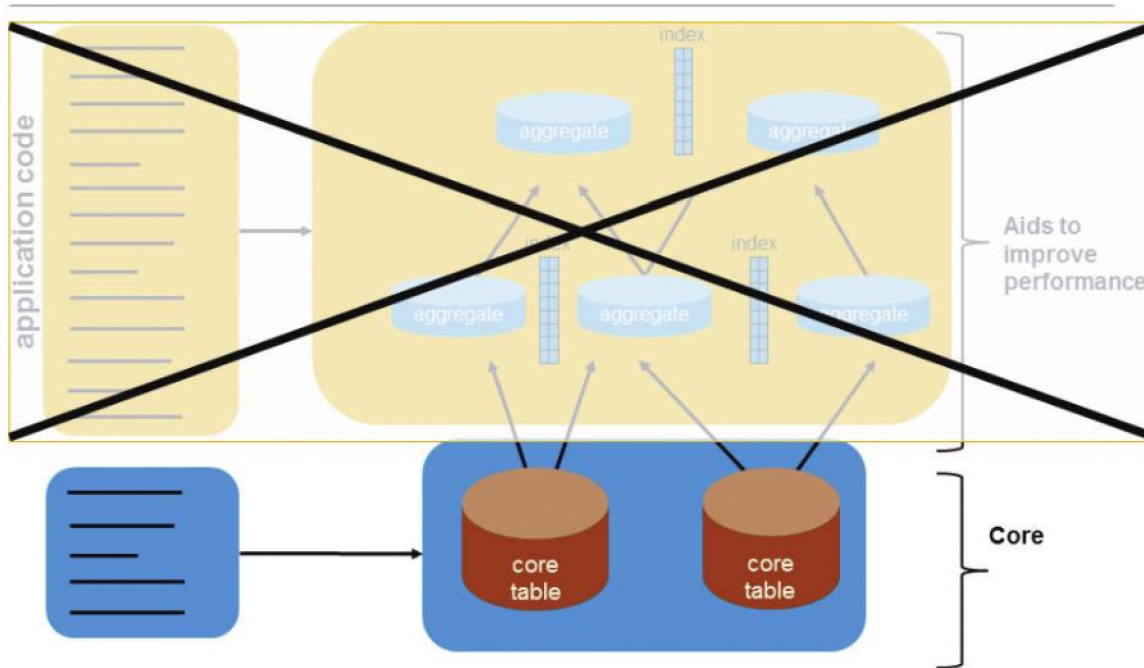


Figure 14: Remove complexity with SAP S/4HANA

Using the raw power of SAP HANA we can aggregate on the fly in sub seconds from any line item table. We don't need pre-built aggregates. SAP HANA can generate any view of the data at run time, all from the same source tables.

SAP HANA organises data using a column stores which means indexes are usually not needed - they can still be created but usually offer little improvement.

So as well as losing the aggregates and indexes from the database, we can also lose huge amounts of application code that deals with aggregates and indexes.

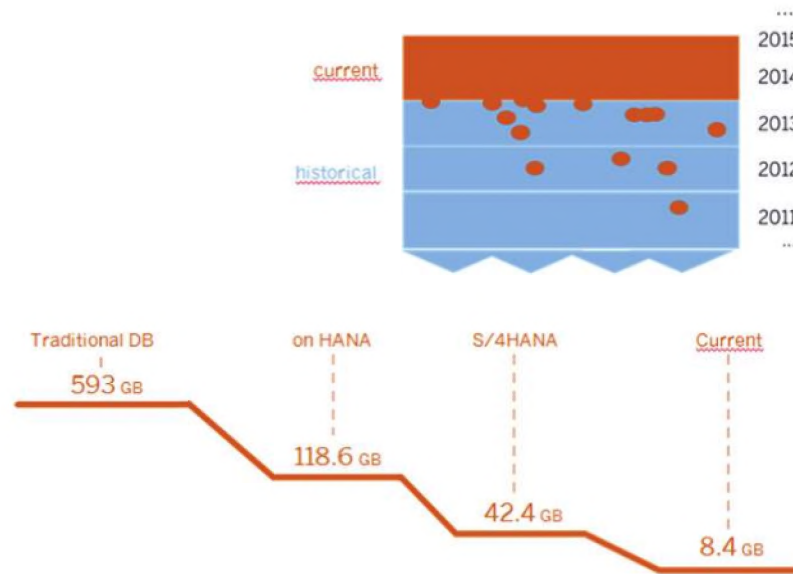
We are left with a simplified core data model and also simplified application code.

Now it is much easier to enhance the applications and integrate additional functions.

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Massively reduce data footprint



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Figure 15: Massively reduce data footprint

Tables in SAP HANA are automatically compressed so that we can store huge amounts of data in very little space.

Further data footprint reductions are achieved because, as we know, we removed huge numbers of tables that are not needed, plus unnecessary indexes.

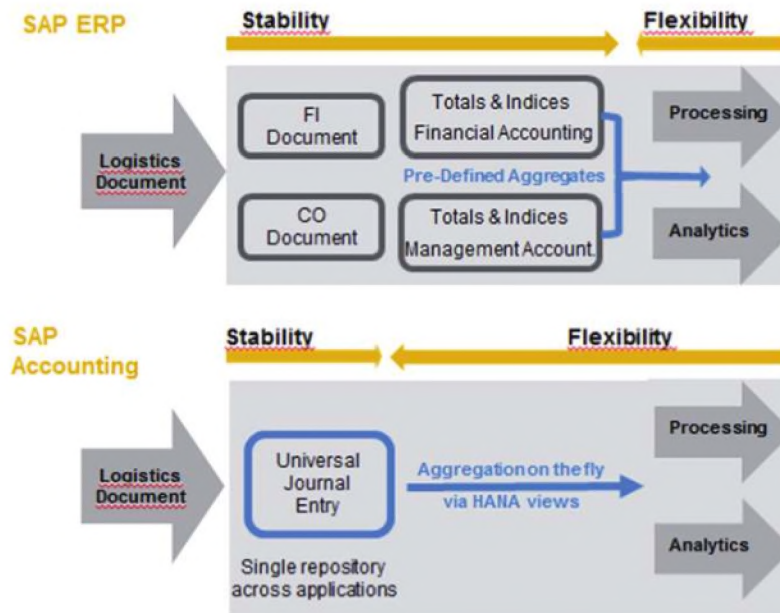
And we can go further and reduce the in-memory data footprint by implementing data ageing strategies.

SAP HANA can split data across an in-memory tier (we call this HOT storage) and a disk based tier (we call this WARM storage).

All processing and database services are common, so this means a developer does not need to know where the data is physically located, this is handled internally by SAP HANA. The benefit of this is that data that is used less frequently can be moved automatically from HOT to WARM store so we are not filling memory with data that is less useful. But this data is still available whenever it is needed.

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Simplified applications



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Figure 16: Simplified applications

So we already covered the simplification of applications from the technical side, so let's now look at how simplification also applies to the business side.

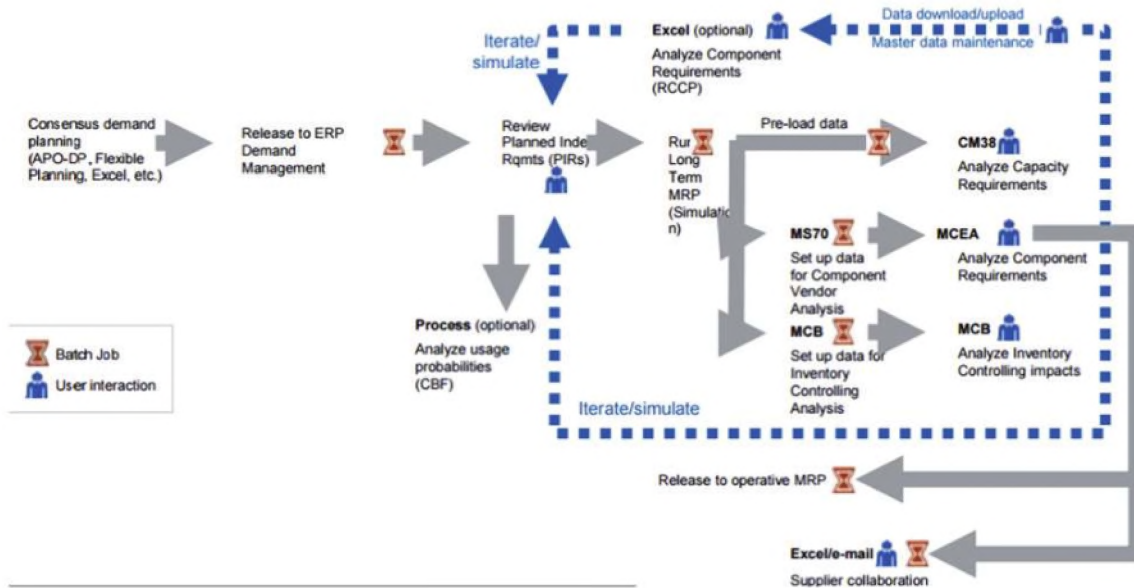
In traditional SAP ERP finance, financial postings were supported by two key documents, the Finance (FI) document and the Controlling (CO) document. These documents provide the required views of the finance data from a legal perspective (FI) and also an internal management accounting perspective (CO). But there is a lot of overlap between these documents. Application code had to deal with these two types of postings whenever a business event occurred that triggered a financial outcome, for example a material receipt.

With S/4HANA Finance we now have only one document. This is called the **Universal Journal Entry**. A single financial posting is made to one table which holds all information that is needed by both legal and management accounting. The application code is simplified and any views of the data that are required, are created on the fly by SAP HANA. So we don't lose any business meaning, we just lose the underlying complexity of the application.

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From this complexity ...



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Figure 17: From this complexity...

Another example of application simplification relates to Material Requirements Planning (MRP)

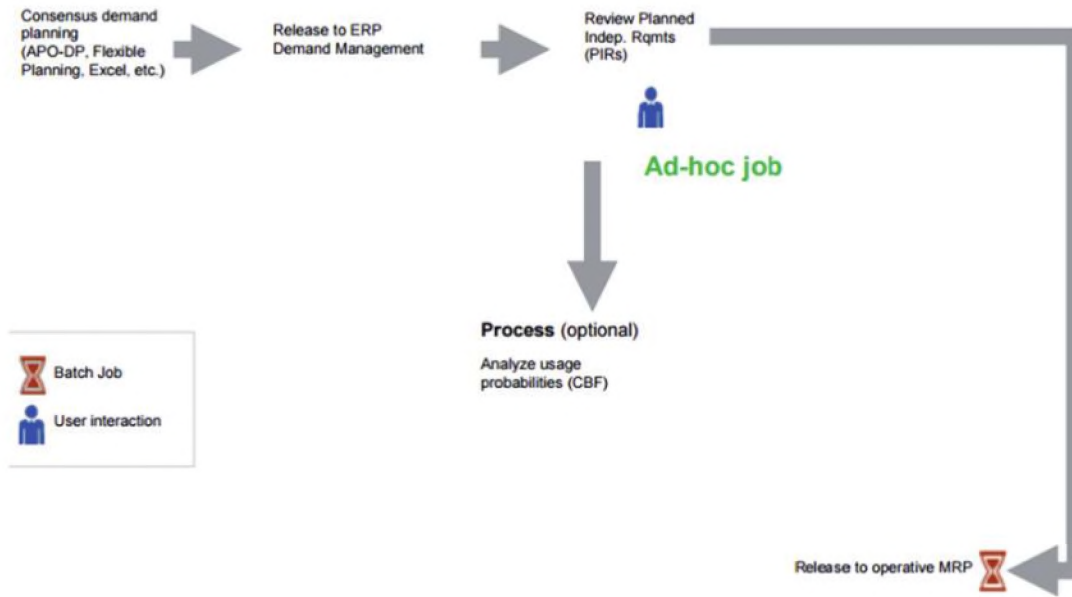
Usually this key business process is very complex with many steps and as a result can run for a very long time before results are produced.

MRP is an iterative process – identify the components needed to satisfy demand and then check resource capacity to procure those components then readjust the plan. This can take a lot of time and this means by the time the processes have completed the data is already out of date. For example, you collected the demand data an hour ago, ran MRP to calculate the raw materials. But as the demand picture has already changed whilst we waited for these results, the information we have is already out of date.

So real-time MRP is impossible and we are always operating and making decisions on out of date results. In a fast moving business where agility is essential, this is not acceptable.

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To this simplicity



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Figure 18: To this simplicity

With SAP S/4HANA, MRP is a real-time process.

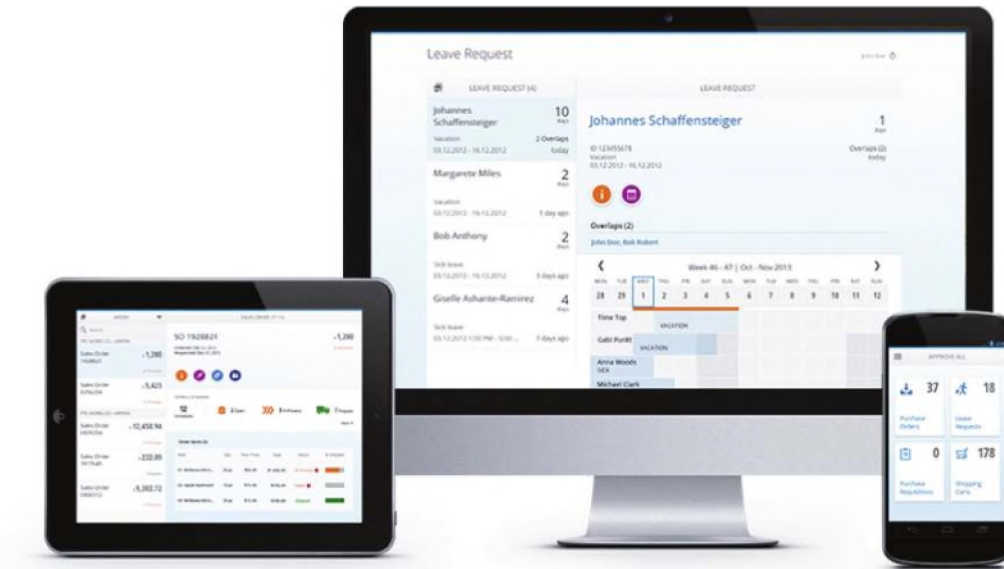
This is achieved because of the raw power we have available with SAP HANA, and also the dramatically simplified data model and application code that runs faster.

MRP is no longer a painful batch process and it means we can run MRP whenever an individual change occurs in the inventory position. MRP traditionally calculated inventory procurement plans at a group level, e.g. we planned all the different flavor juices together for a group of customers' orders. We then rounded up the procurement numbers to create large lots sizes. Often over compensating was the result as we usually round up when planning at a group level and we buy more than we need.

With S/4HANA we can now plan right down to a lot size of one. Imagine a customer order is taken and we immediately determine the effect on the underlying components requirements, but only for that single order.

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Next generation user experience with SAP Fiori



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Figure 19: Next generation user experience with SAP Fiori

With SAP S/4HANA comes a brand new user experience. This is called SAP Fiori.

SAP Fiori is not a software product, it is the name of a design approach that was created especially for S/4HANA.

Key aspects of the design are:

SAP Fiori applications must run comfortably on any device and should present a modern consumer-grade quality.

SAP Fiori applications should focus on specific job functions (as opposed to an overcomplicated screen filled with functions for different users).

They should offer only the absolute essential information that a user needs to get their job done with no clutter.

They should be intuitive to use with little or no training.

They should include embedded analytics to support in process decision making.

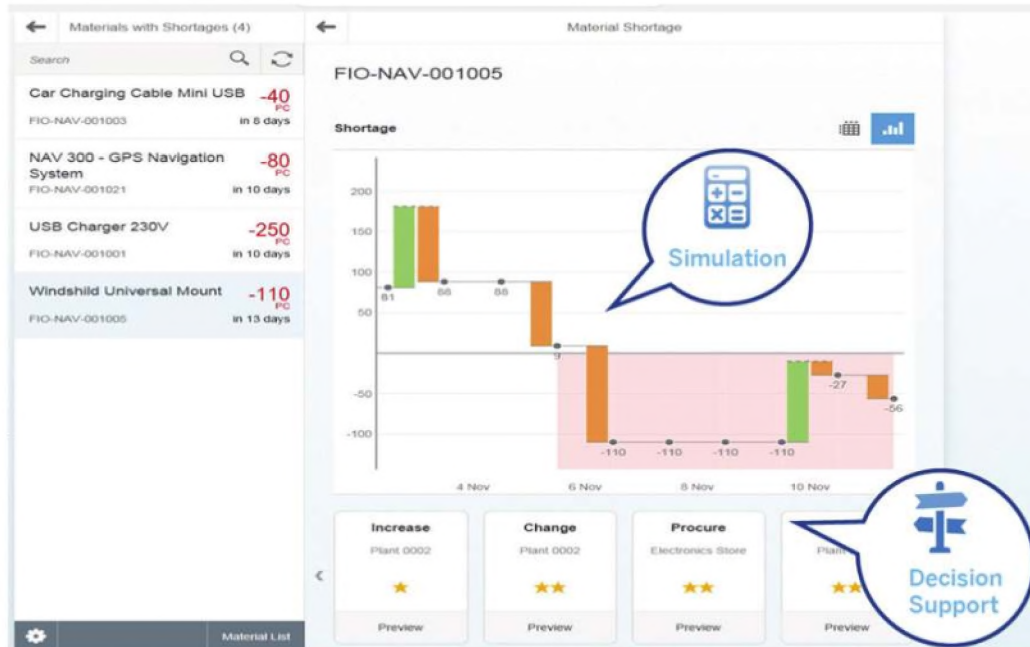
The look and feel should be consistent across all applications.

SAPGUI is still supported and can be used alongside SAP Fiori applications to provide for an easy transition for existing SAP customers who are familiar with the classic interface.

Unit 1 SAP S/4HANA a new product

Lesson: Introducing SAP S/4HANA

Embedded analytics and decision support



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Figure 20: Embedded analytics and decision support

We just mentioned embedded analytics but what does that really look like to a business user?

Let's take a look at this example of a material planner's new S/4HANA application.

On the left we see only the critical missing parts that need to be procured. They parts are presented only because they need some action. As the planner clicks on each part the main screen presents the shortfall situation in an easy to interpret graph for their analysis. They can drill down on any part of the graph to break down the aggregated demand or supply columns to find out why the parts are being consumed too quickly or why the supply is falling short.

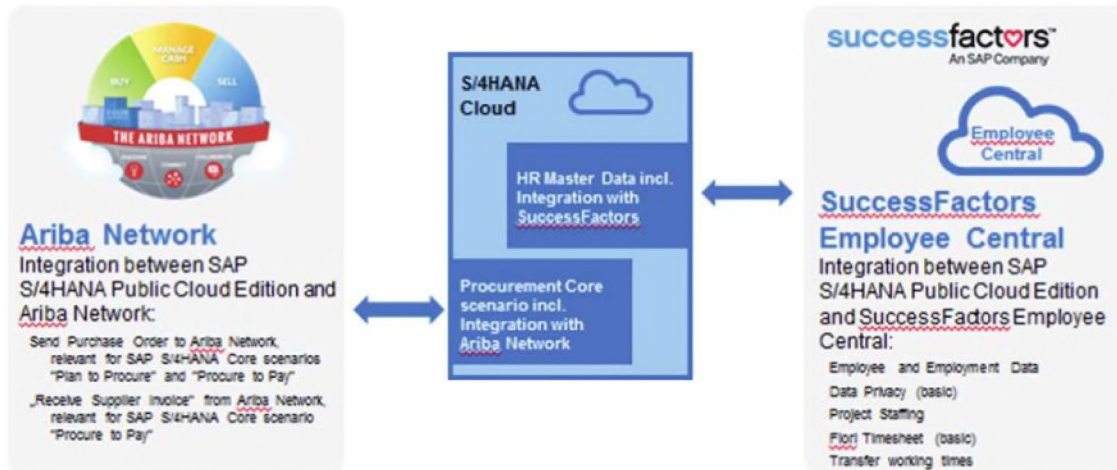
The planner is able to choose an action and then simulate the effect before committing.

This is an example of how online transactional processing (OLTP) and online analytical processing (OLAP) are now combined.

Unit 1 SAP S/4HANA a new product

Lesson: Introducing SAP S/4HANA

Ready-to-go integration with existing cloud solutions



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Figure 21: Ready-to-go integration with existing cloud solutions

SAP S/4HANA can be natively integrated with the existing SAP Cloud solutions such as Ariba, Concur, Hybris, Success factors, SAP Cloud Analytics, SAP Cloud for Customer (C4C).

Let's consider an example to help illustrate what this might look like:

A customer deploys S/4HANA in order to implement core procurements process such as purchase to pay. Employees are now happy that they can place requests for equipment that they need.

But employees would really like to be able to read reviews from other purchasers of the same items, just as they do when they at home using consumer applications such as Amazon.

The employees would also like to be able to ask vendors detailed questions about an item.

By integrating S/4HANA with Ariba Network this is possible. SAP provides best practices and tools to rapidly integrate S/4HANA with all SAP cloud solutions including SAP Business Networks.

Unit 1 SAP S/4HANA a new product

Lesson: Introducing SAP S/4HANA

SAP S/4HANA deployment options



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Figure 22: SAP S/4HANA deployment options

SAP S/4HANA is available as a traditional on premise deployment but also in the cloud.

The cloud solutions can be deployed either as a public cloud option or a private cloud option

A public cloud deployment means that customers share the applications and platform with other customers. Of course each customer's data is strictly isolated. Light customisations are possible, for example to add additional fields, new reports etc.

A private cloud deployment means the customer does not share the applications and platform with other customers. Deeper customisations are possible and the customer is able to decide when updates are to be applied.

All cloud deployments offer a yearly subscription based pricing model so customers pay for what they need and can add to this later.

For on premise deployments, there is no limit to customisation as the customer manages the entire software and hardware themselves.

It is also possible to combine on premise with cloud. This can be useful when customers would like to consume standard process via the cloud but keep the application that need deeper customisation, on premise. We call this a hybrid deployment.

Customers can move step by step to the cloud. Many customers will begin with a migration from Suite on HANA to S/4HANA on premise. Then they will move to S/4HANA cloud.

Unit 1 SAP S/4HANA a new product
Lesson: Introducing SAP S/4HANA

Summary

You should now able to:

- Describe SAP S/4HANA and its key features

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Figure 23: Summary

So we have now covered the key aspect of SAP S.4HANA.

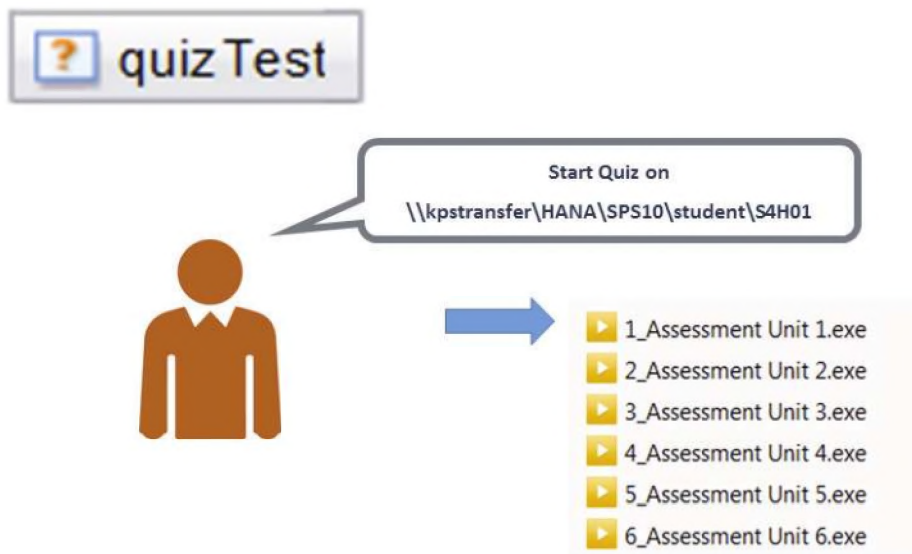


Figure 24: Quiz1

Unit 1 SAP S/4HANA a new product
Lesson: Introducing SAP S/4HANA



Unit 2: USER Experience

Lesson: Introducing SAP S/4HANA

Unit 2: USER Experience

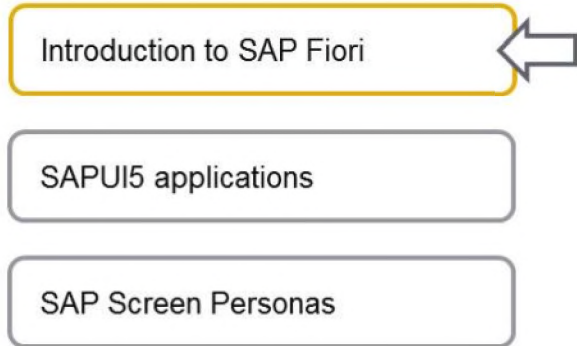


Unit 2: USER Experience

Lesson: SAP FIORI

Lesson: SAP FIORI

Agenda



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Figure 25: Agenda

Unit 2: USER Experience

Lesson: SAP FIORI

Learning Objective



After completing this lesson, you will be able to:

- Describe the next generation user experience

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Figure 26: Learning Objective



Unit 2: USER Experience

Lesson: SAP FIORI

Traditional user interface

Standard Order 2 Net value 250,00 EUR

Sold-To Party 10100001 Inlandskunde DE 1 / Lindenstraße 2 / 74214 Schöntal

Ship-To Party 10100001 Inlandskunde DE 1 / Lindenstraße 2 / 74214 Schöntal

PO Number mh1 PO date

Sales Item overview Item detail Ordering party Procurement Shipping Fast data entry Reason for rejection

Req. deliv.date D 19.11.2015 Deliver.Plant

Complete div. Total Weight 5 KG

Delivery block Volume 0,000

Billing block Pricing date 19.11.2015

Payment card Exp.date

Card Verif.Code

Payment terms 0004 as of end of month Incoterms EXW Waldorf

Order Reason

Item	Material	Order Quantity	Un S	Description	Customer Material Numb	ItCa	DGP	HL	Item
10	000011		SPC	Handelsware 0011, PD, Reguläre...		TAN			0

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Figure 27: Traditional user interface
it doesn't matter how good the application is if the user experience is poor.

In the past user interfaces all suffered from the same problem – too complicated.

The main reason for this is that interfaces were often designed around the business function and not around the person.

The results is a cluttered screen that tries to provide many features to many different job roles.

Take for example a sales order screen. Ask yourself, how many job roles does this screen support? You might say, one - the sales order entry clerk. But the reality is that the same screen is used by a large number of people who need to either check information or make adjustments to an existing order.

For example:

- Quality assurance worker in the delivery department needs to release a blocked item in the order
- Finance person needs to adjust tax assignments
- Sales person needs to adjust discounts
- Marketing person need to apply promotion codes
- Project manager needs to check costs have been assigned to the correct project phases

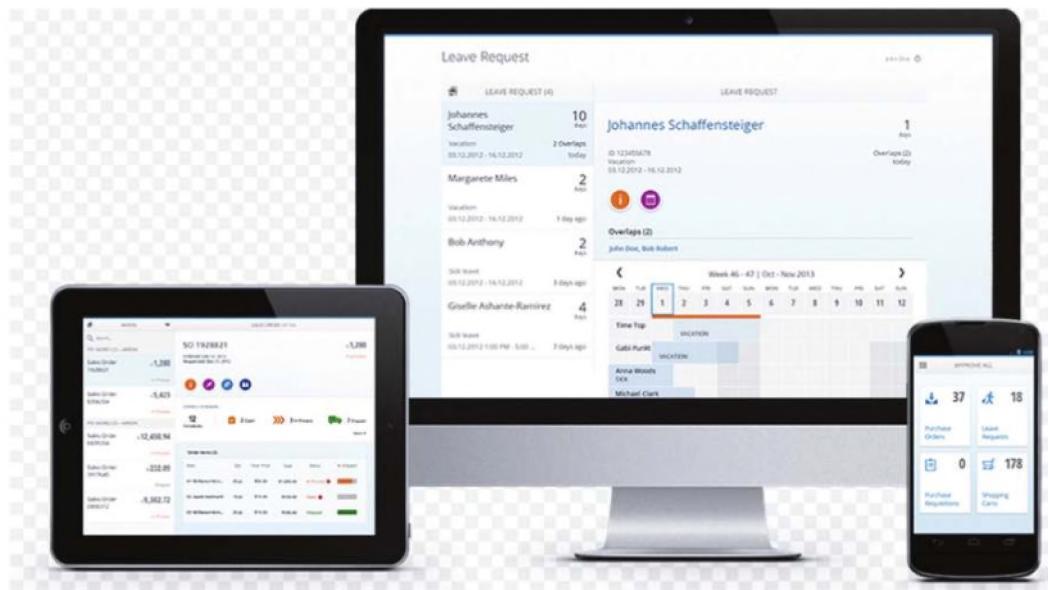
Each one of these people could find themselves using the same screen but only a very small part of this screen.

Unit 2: USER Experience

Lesson: SAP FIORI

The screen makes them all work hard to navigate to the specific area they need, ignoring the options they do not need. Many clicks are required for very little high value interaction.

SAP Fiori - next generation user experience



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Figure 28: SAP FIORI

A key theme of S/4HANA is simplification and this certainly applies to the user experience.

Notice we say user experience and not user interface? We need to consider the overall experience of the user not just how nice the screen looks.

A good analogy – you go to dinner, the interface is the dinner plate. How nice the dinner looks, but what if the service was poor, you would say the experience was not a good one and probably would not be keen to revisit.

So we need to provide not just a great looking user interface but also provide features that help the user become more productive resulting in a good experience.

This is what **SAP Fiori** delivers.

SAP Fiori is a completely new user experience.

It is not an upgrade to any existing interface, such as SAPGUI, SAP Portal or Business Client.

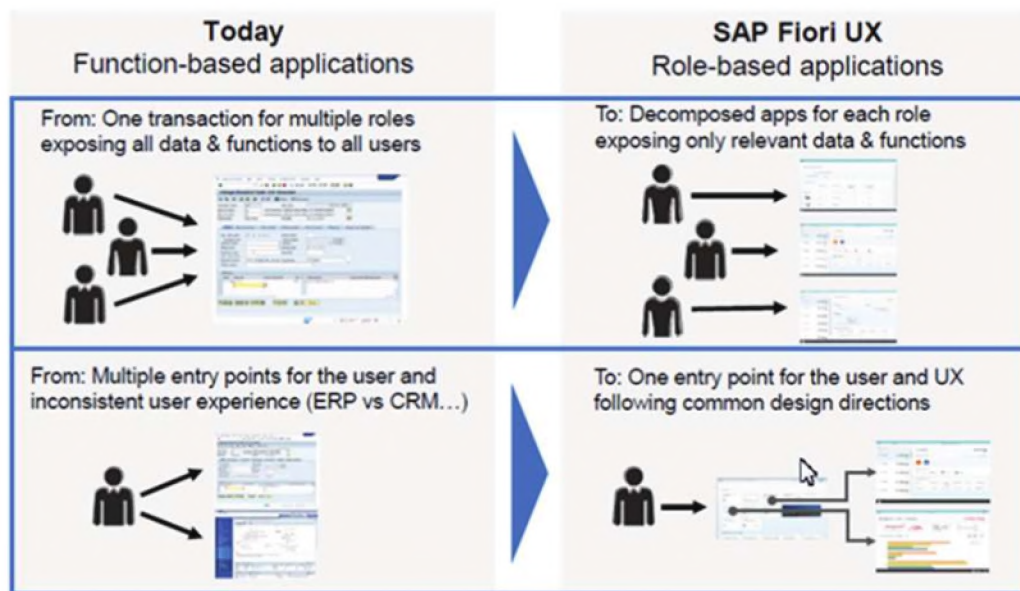
Unit 2: USER Experience

Lesson: SAP FIORI

SAP Fiori works on any device allowing users to have the same experience whatever device they choose to use. They can setup a basic sales order in the office using their desktop, then visit the customer to complete the configuration and agree pricing using a tablet. SAP Fiori provides the same look and feel and productivity features on all devices.

SAP Fiori applications are designed using a methodology called Design Thinking which is a more user-centric and solution based approach to software and user interface design.

Focus on the person not the function



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Figure 29: Focus on the person not the function

A big switch in the design approach with SAP Fiori versus traditional interface design is that we now focus on the job role and not the function.

SAP Fiori applications are always roles based. There are many applications to choose from and they are organised in easy to use catalogs supplied with SAP S/4HANA. You simply need to assign the roles to the users.

Each SAP Fiori application is built around the user and not the function. As a result the screens are very simple and uncluttered.

A key goal of any SAP Fiori application is to ensure a user can complete a task with as few clicks as possible.

Very little training is required as the screens are incredibly simple and intuitive with only the essential information and options available that make sense for the user.

Unit 2: USER Experience

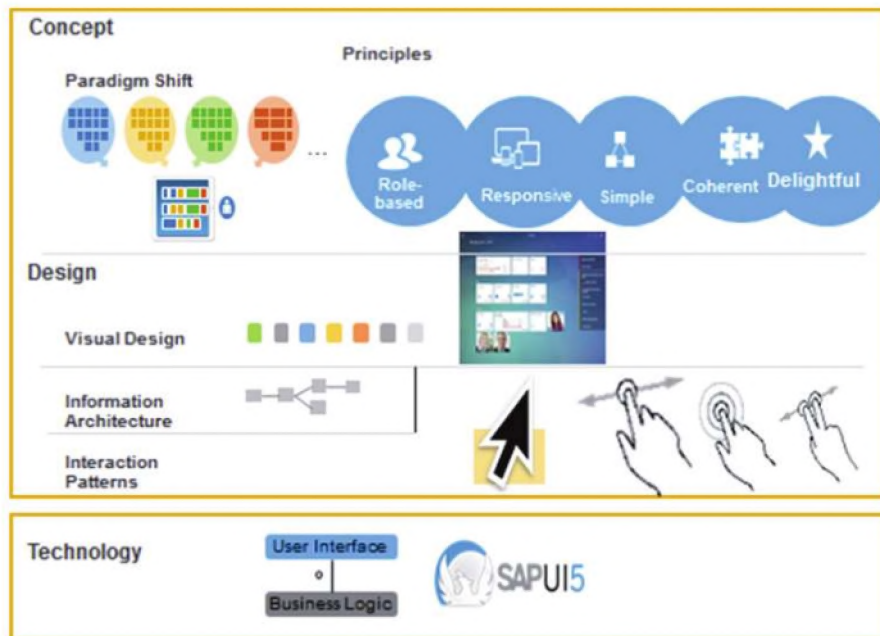
Lesson: SAP FIORI

In the past a user could find themselves working with many different interfaces with a completely different look and feel, in order to complete a task.

Imagine checking a customer enquiry from SAP CRM using the SAP Portal interface, and then moving to SAPGUI to check the stock availability in ERP. Completely different interfaces are used with their own style and features. Different buttons, menus, tools etc. With SAP Fiori, users will work with just one design.

By the way - SAPGUI is still available and can be used alongside SAP Fiori but it is recommended to use SAP Fiori in order to take full advantage of the features of S/4HANA.

SAP Fiori – an approach, not just software



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Figure 30: SAP Fiori – an approach, not just software

SAP Fiori is not a software product, it is the name of a design approach that has been applied to the use of our next generation interface development software which is called SAPUI5. SAP Fiori is based on SAPUI5.

Or to put in a simple way, a developer uses the SAPUI5 technology components (ODATA, NetWeaver Gateway, HTML5 etc.) but strictly follows the SAP Fiori design approach. This means the developers is guided towards a simple and consistent design.

An easy way to understand SAP Fiori is to break it down along three dimensions: Fiori Concept, Fiori Design, and Fiori Technology.

SAP Fiori Concept is a simplification of the user experience. It reflects a shift for delivering a consistent user experience that is centered only on the tasks and activities that matter to the personal needs of the end user.

Unit 2: USER Experience

Lesson: SAP FIORI

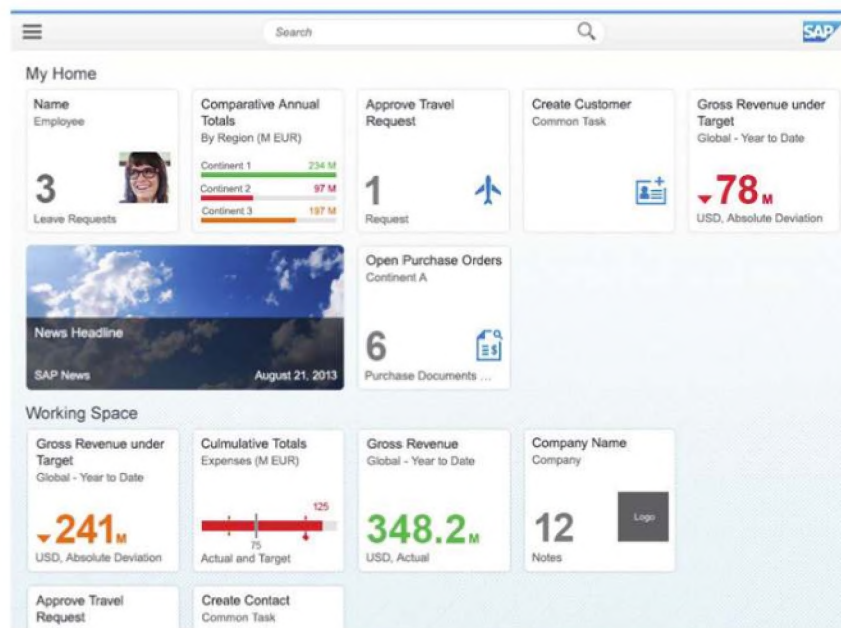
Anyone designing an SAP Fiori application needs to carefully adhere to the principles within the concept. Think of it as a check list.

SAP Fiori Design – reflects the visual design, information architecture, colors, or interaction patterns. Design guidelines are very well documented by SAP and are available online at <http://experience.sap.com/wp-content/fiori-guidelines>. SAP Fiori demands the consistent use of a subset of all the possible design items found in the SAPUI5 libraries, such as buttons, drop down lists, etc.

Many examples of SAP Fiori designs are available online at <http://experience.sap.com/fiori/>.

Fiori Technology comprises all architecture, technology, infrastructure and programming model components required to build, provision and run SAP Fiori applications.

SAP Fiori Launchpad



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Figure 31: SAP Fiori Launchpad

But what does the user see when they logon to S/4HANA?

The SAP Fiori Launchpad presents a role based starting point for users. It presents only job relevant content organised by tiles.

The tiles are more than just buttons to launch an application, they are able to expose key information right on the tile surface.

Unit 2: USER Experience

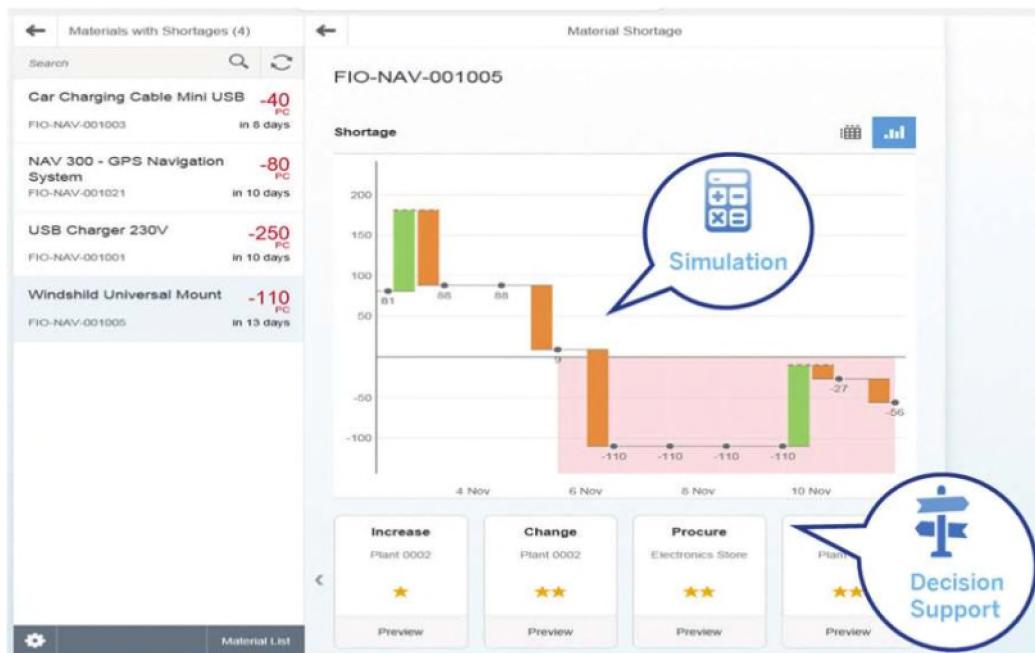
Lesson: SAP FIORI

Therefore the Launchpad is a collection of tiles that provide a readymade cockpit of key information to a user with the ability to click on any tile to either launch an application or to drill down for deeper analysis.

SAP Fiori Launchpad provides a great search feature. A user can search for an application or even a business object such as an employee or sales order.

Users can select applications from catalogs and customise their Launchpad to organise their own tiles into groups to improve their productivity.

SAP Fiori application



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Figure 32: SAP Fiori application

Let's highlight some of the key features of an SAP Fiori application.

Embedded analytics – a transaction should include all relevant analytics to support in-line decision making.

Next actions – context relevant next action buttons offer the user possible choices to make progress

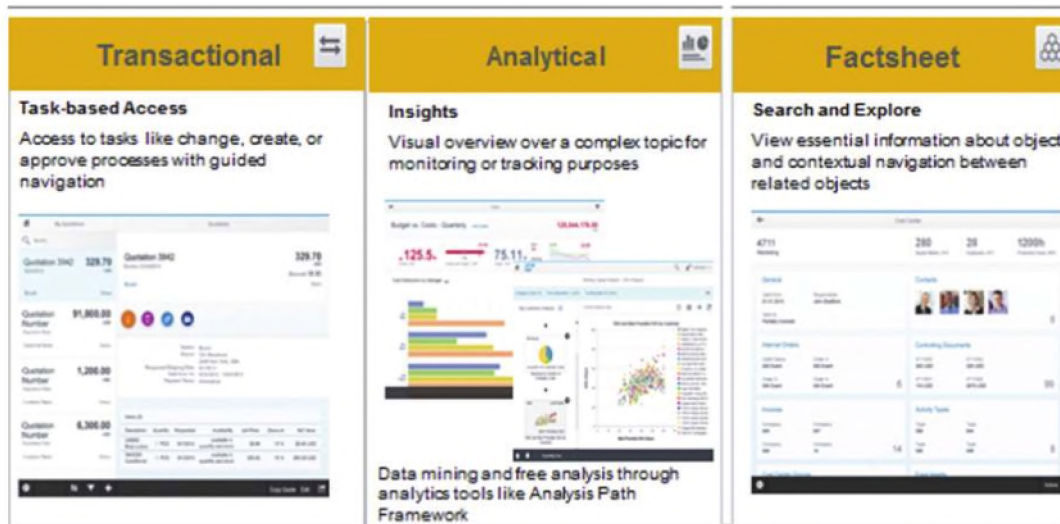
Fuzzy search – user begins to enter the first few letters of an employee name and SAP Fiori immediately shows the possible choices for completion.

Unit 2: USER Experience

Lesson: SAP FIORI

Provide continual feedback on user's progress – users can see a reducing list of outstanding items as they work through them.

SAP Fiori application types



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Figure 33: SAP Fiori application types

SAP Fiori applications can be classified into different types. Examples include:

Transactional: These follow an optimal design for fast transaction processing, such as purchase receipt entry.

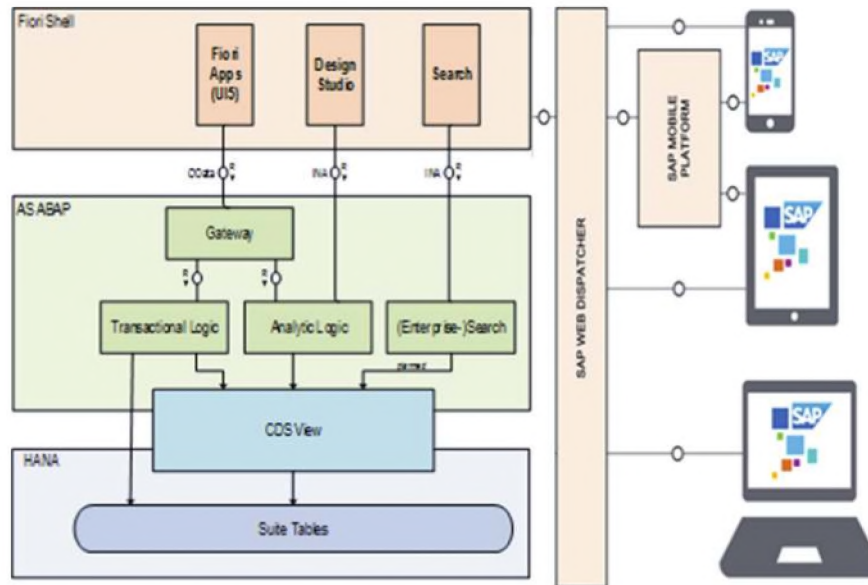
Analytical – Provides tools required for analysis, graphs, charts, exploration, data mining, and drill down.

Factsheet: 360 degree view of all key information related to a business subject. For example, enter an employee name and all information about that employee appears, such as working hours, vacation, pay. Performance, manager, awards.

Unit 2: USER Experience

Lesson: SAP FIORI

SAP Fiori architecture



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Figure 34: SAP Fiori architecture

For the technical audience who like to know a little about what goes on under the hood, here a quick view of the underlying SAP Fiori architecture.

Front end components identify the calling device and the template to use to present the application optimally to the device.

The Gateway communicates with the application layer (ABAP).

The data is exposed to the ABAP S/4HANA application either directly from SAP HANA tables but more likely it will be exposed through CDS views. CDS views provide a business-ready view of the data ready for consumption and is a new approach to re-useable data entities (more on this later).

Key skills needed for end to end development of an SAP Fiori application:

ABAP – to create the application logic (or at least to understand the flow)

SAPUI5 – consists of HTML/5, ODATA, Netweaver Gateway – Design Thinking methodology

ABAP managed CDS views - to expose the data in business views

SAP HANA core – database and modelling

Unit 2: USER Experience

Lesson: SAP FIORI

Learning Objective



You should now be able to:

- Describe the next generation user experience

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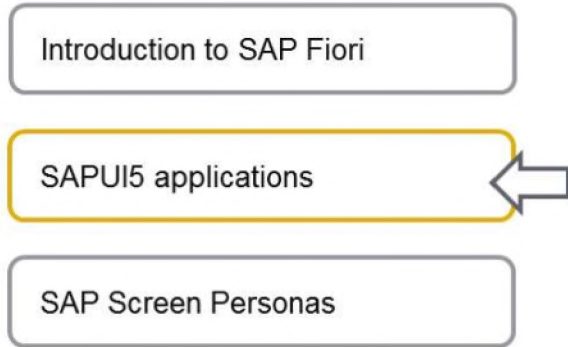
Figure 35: Learning Objective



Unit 2: USER Experience

Lesson: SAP FIORI

Agenda



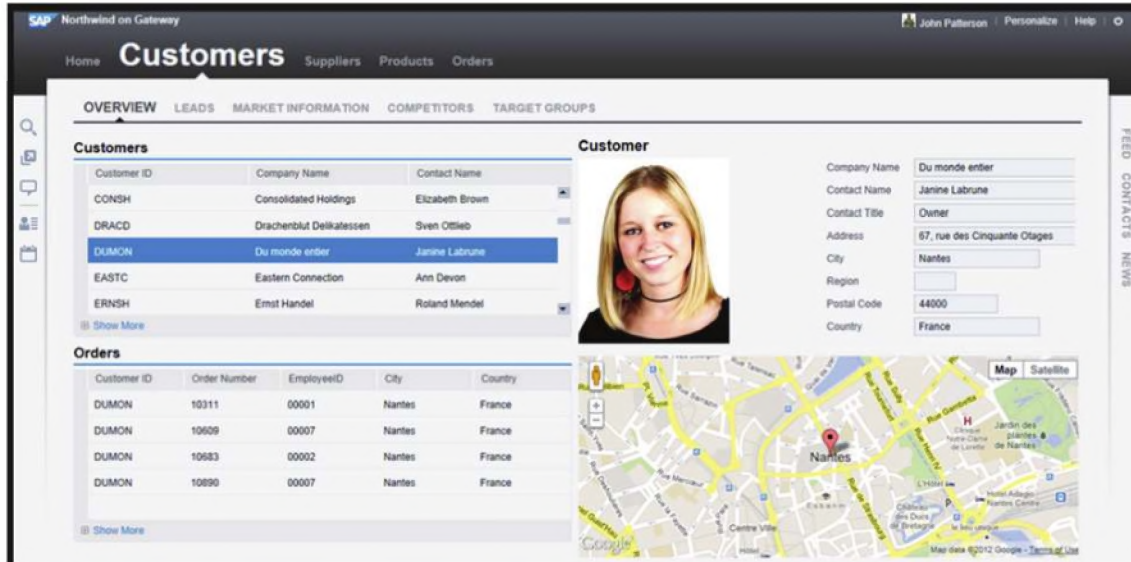
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Figure 36: Agenda

Unit 2: USER Experience

Lesson: SAP FIORI

SAPUI5 application



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Figure 37: SAPUI5 applications

As well as SAP Fiori applications, S/4HANA also contains many new SAPUI5 applications. But what are these and how do they differ from SAP Fiori applications?

SAPUI5 is the name of the tools and technologies that we use to develop S/4HANA user experiences. Remember, SAP Fiori uses SAPUI5 as the technology but with strict design and development guidelines to ensure a consistent user experience. Only a subset of all design items in the SAPUI5 library is allowed for SAP Fiori.

But not all S/4HANA applications are built using SAP Fiori. Some applications have a different design approach that doesn't need to follow the SAP Fiori design principles and might need more library design items than is allowed for SAP Fiori.

For example there are many cockpits in S/4HANA. You can see one in the slide, provide a central place for a worker to react to a variety of customer questions (think of a call center), or an HR cockpit where a helpdesk can provide support to employees who have payroll questions. Look at the various tabs hiding many features that could be needed.

Whilst the aim of a SAPUI5 application is still to create a great user experience, this type of application would be more suited to a key decision maker rather than a task worker, where more flexibility is needed in an ad-hoc environment.

Unit 2: USER Experience

Lesson: SAP FIORI

SAPUI5 application - SAP Medical Research Insights



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Figure 38: SAP Medical Research Insights

Healthcare is one of the aspects of our lives that will be impacted most by information technology in the coming years. Trends such as personalized medicine, based on in-depth analysis of the human genome, proteome and other biological data will change the way diseases are diagnosed and treated.

This is where the software developed by SAP partner Molecular Health comes into play, as it creates an individual tumor data analysis for each patient. Thanks to SAP HANA, it is now possible for physicians to compare genome data across multiple patients in order to propose the most promising therapy for each individual.

Unit 2: USER Experience

Lesson: SAP FIORI

Different kind of interfaces

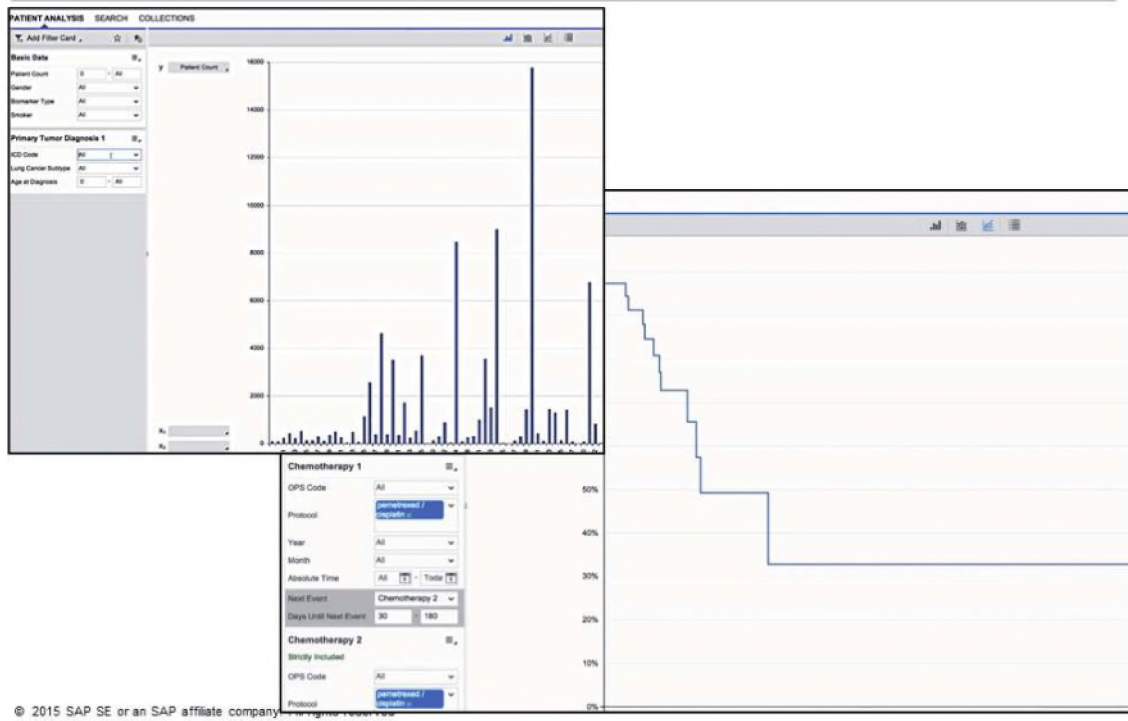


Figure 39: Different interfaces

It is a real time analysis of clinic data based on structured and unstructured data. For this reason you need totally different user interfaces. For example for:

- Patient analysis
- Searching for promising treatment
- Inclusion of external information into internal analysis

Unit 2: USER Experience

Lesson: SAP FIORI

Targeted search

The screenshot shows a search interface with a search bar containing 'lung cancer pemetrexed'. Below the search bar, there are filters for 'All Items (344)', 'Clinical Trial (340)', 'Doctor Letter (1)', and 'SOP (3)'. The results are displayed in a table with columns for 'T...' and 'Title'. The table lists several clinical trial titles related to pemetrexed in lung cancer treatment.

T...	Title
	Pemetrexed in Advanced Non-small Cell Lung Cancer Pemetrexed in Advanced Non-small Cell Lung Cancer Pemetrexed in Advanced Non-small Cell Lung Cancer NCT ID: NCT01193959 Medical...
	Safety of Everolimus and Pemetrexed in Lung Cancer Patients Safety of Everolimus and Pemetrexed in Lung Cancer Patients Safety of Everolimus and Pemetrexed in Lung Cancer Patients NCT ID: NCT...
	Pemetrexed Plus Bevacizumab in Non Small Cell Lung Cancer Pemetrexed Plus Bevacizumab in Non Small Cell Lung Cancer Pemetrexed Plus Bevacizumab in Non Small Cell Lung Cancer NCT ID: NCT...
	Pemetrexed/Carboplatin Non-Small Cell Lung Cancer (NSCLC) Elderly Patients Pemetrexed/Carboplatin Non-Small Cell Lung Cancer (NSCLC) Elderly Patients Pemetrexed/Carboplatin Non-Small Cell Lung Cancer (NSCLC) Elderly Patients NCT ID: NCT...
	Pemetrexed and Cisplatin as Treatment in Small Cell Lung Cancer Pemetrexed and Cisplatin as Treatment in Small Cell Lung Cancer Pemetrexed and Cisplatin as Treatment in Small Cell Lung Cancer NCT I...
	Sirolimus and Pemetrexed to Treat Non-Small Cell Lung Cancer Sirolimus and Pemetrexed to Treat Non-Small Cell Lung Cancer Sirolimus and Pemetrexed to Treat Non-Small Cell Lung Cancer NCT ID: N...

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Figure 40: Keyword search

If you want to see more about this trendsetting concept, you can find it here.

<https://www.youtube.com/watch?v=2BMxF9iVtv8>

Unit 2: USER Experience

Lesson: SAP FIORI

Learning Objective



You should now be able to:

- Describe an SAPUI5 application

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Figure 41: Learning Objective

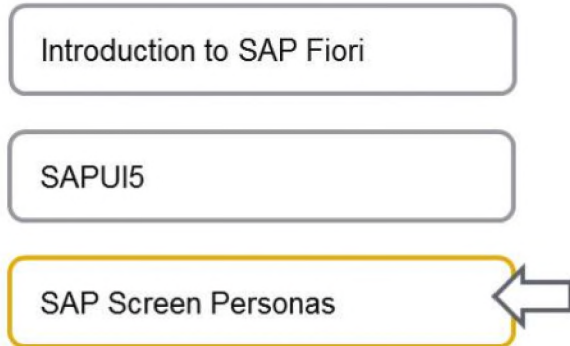


Unit 2: USER Experience

Lesson: SAP Screen Personas

Lesson: SAP Screen Personas

Agenda



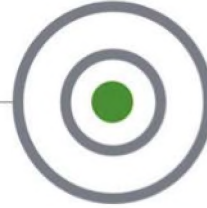
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Figure 42: Agenda

Unit 2: USER Experience

Lesson: SAP Screen Personas

Learning Objective



After completing this lesson, you will be able to:

- Describe SAP Screen Personas

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Figure 43: Learning Objective

Usability is always a major issue

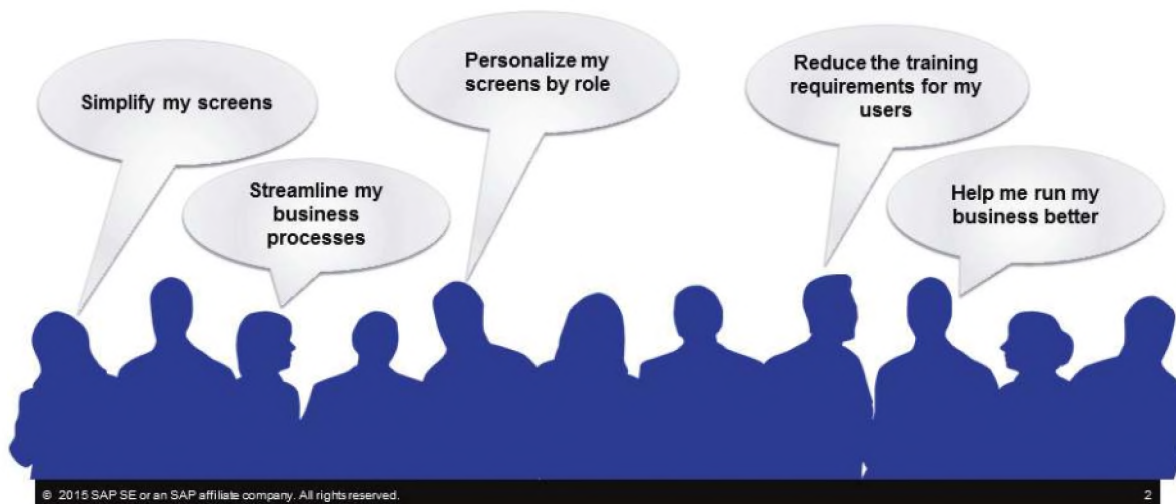


Figure 44: Usability is always a major issue and wish

Unit 2: USER Experience

Lesson: SAP Screen Personas

The expressed wishes each users are:

- To find the right place for the completion of its tasks fast,
- That not so much clicks are necessary to the job and for sure
- That the application/transaction looks nice

SAP Screen Personas 3.0 & S/4HANA

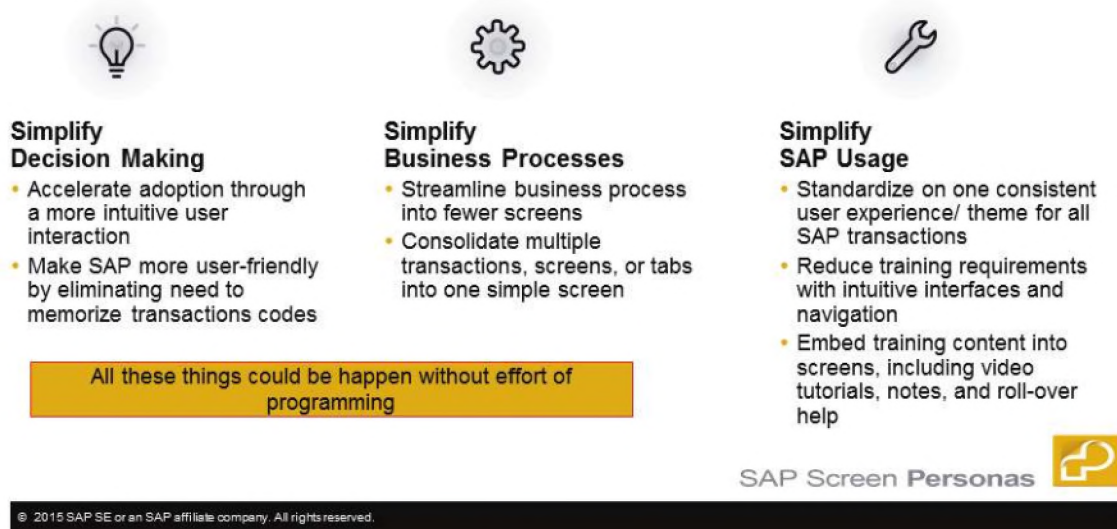


Figure 45: SAP Screen Personas 3.0 & S/4HANA

Simplify Decision Making:

- Accelerate adoption through a more intuitive user interaction
- Make SAP more user-friendly by eliminating need to memorize transactions codes
- Simplify Business Processes
- Streamline business process into fewer screens
- Consolidate multiple transactions, screens, or tabs into one simple screen
- Automate repetitive actions or navigation into a single keystroke
- Simplify SAP Usage
- Standardize on one consistent user experience / theme for all SAP transactions
- Reduce training requirements with intuitive interfaces and navigation
- Embed training content into screens, including video tutorials, notes, and roll-over help

Unit 2: USER Experience

Lesson: SAP Screen Personas

Before: HR transaction: 19 screens for full employee view

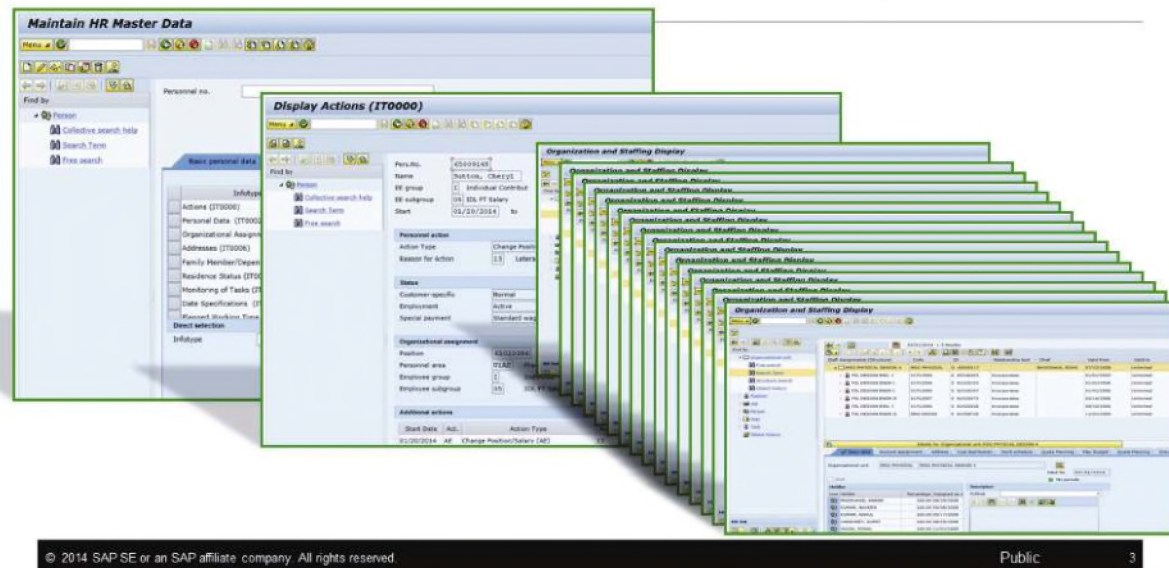


Figure 46: Before: HR transaction: 19 screens for full employee view

A semiconductor company wanted to simplify the notoriously complex HR transaction, PA30. The employee record information is all contained in this transaction, but it takes a bunch of clicks to get the complete set of HR master data, including employment history, salary information, organizational data.

After: SAP Screen Personas consolidates PA30 (Maintain HR MASTER DATA) into 1 screen

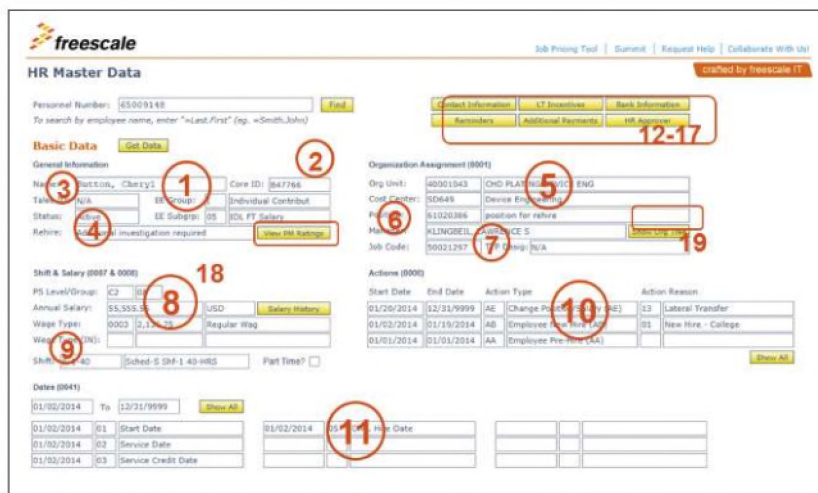


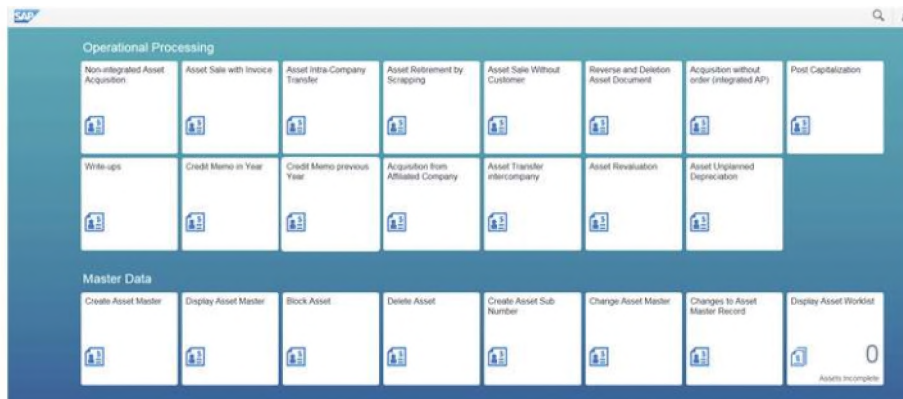
Figure 47: After: SAP Screen Personas consolidates PA30 (Maintain HR MASTER DATA) into 1 screen

Unit 2: USER Experience

Lesson: SAP Screen Personas

This company was able to greatly simplify the screen, using Personas' scripting capabilities to go to different areas of the transaction and consolidate the HR record onto a single screen. What used to take 3-4 minutes to see all the employee's information now takes a single click which populates the screen in about six seconds?

Is SAP Screen Personas helpful for S/4HANA too?



- Yes , because often SAP Fiori Apps are calling transaction using WEB-Dynpros .
- And these you can modify with SAP Screen Personas as well.

SAP Screen Personas 

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Figure 48: Is SAP Screen Personas helpful for S/4HANA too?

Simple Design

One look and feel for all SAP applications.

Use SAP Screen Personas to modify any Dynpro screen into the Fiori design or create your own design template for SAP enterprise applications using SAP Screen Personas

One access point for all SAP applications

Launch SAP Screen Personas transactions from the browser, Fiori Launchpad, NWBC, or SAP Portal.

Unit 2: USER Experience

Lesson: SAP Screen Personas

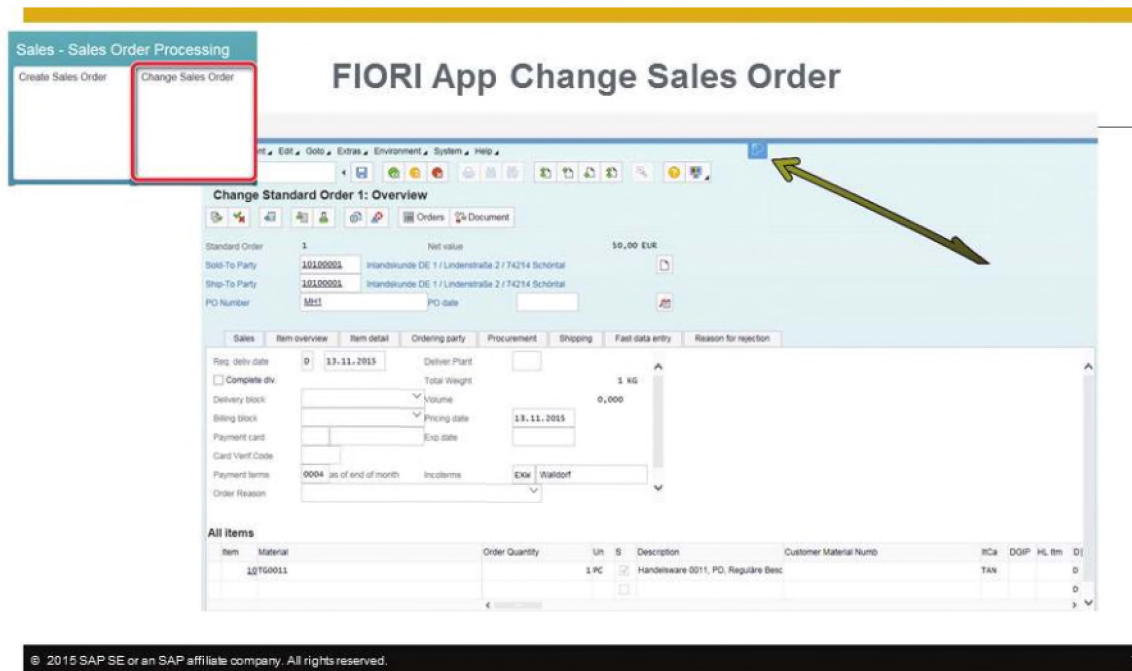


Figure 49: Fiori App Change Sales Order

On this figure you see how you can use SAP Screen Personas as embedded functionality inside a Fiori – Application which is using a WEB-Dynpro inside.

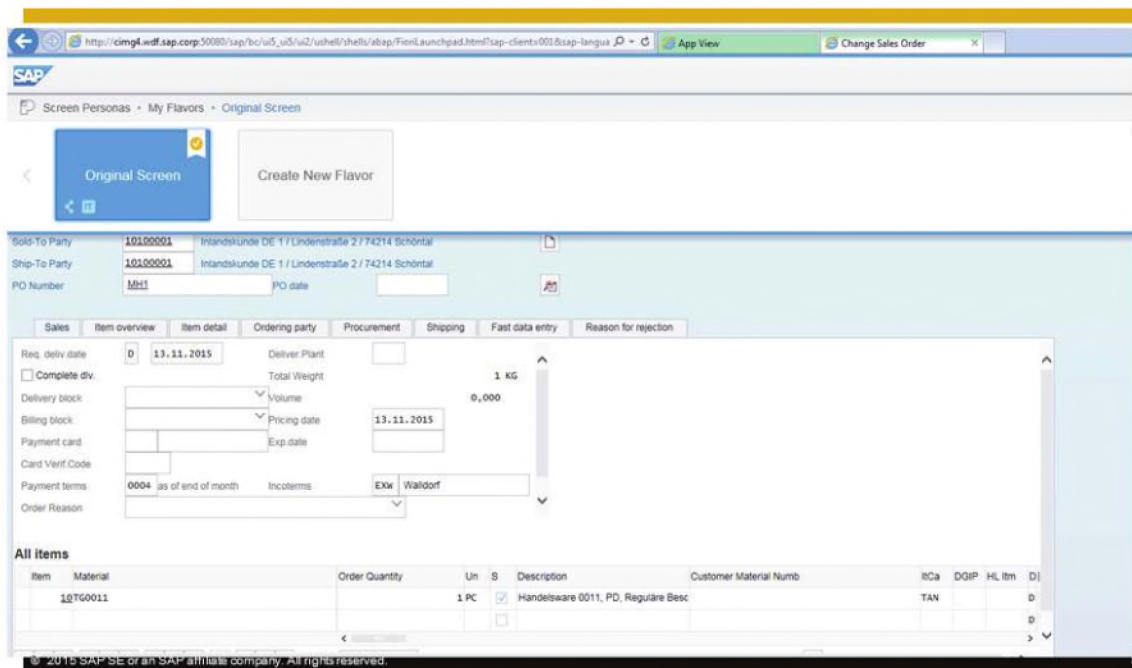


Figure 50: embedded Fiori

And so there is no problem to change the interface by a new arrangement of fields. And if it done you can set your new flavor as default! That's all!

Unit 2: USER Experience

Lesson: SAP Screen Personas

Productivity through Personalization
Change/Display Sales Order + map enhancement address

6 screens
18 clicks
2 mins

1 screen
1 click
3 secs

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Figure 51: Productivity through Personalization Change/Display Sales Order + map enhancement address

Here is a quick example of looking up a sales order and then creating a map for the ship-to location.

Usually this takes 6 screens and 18 clicks, including going outside to Google to create the map. The entire process will take a skilled user more than two minutes.

With SAP Screen Personas, you can simplify everything down to a single click on a single screen that takes a few seconds to render. This is the type of productivity savings that customers see using SAP Screen Personas.

Visual enhancements improve usability

This could be an example for an user interface of an employee, who is responsible for sales order .

Unit 2: USER Experience

Lesson: SAP Screen Personas

Figure 52: Visual enhancements improve usability

Or you can add it on your enterprise portal!


Additional Information

SAP Public Web

SAP Screen Personas Product Page
<http://www.sapscreenpersonas.com>

Getting Started Guide
<http://scn.sap.com/docs/DOC-54574>

SAP Screen Personas
Productivity through Personalization.
SAP Screen Personas provides a simple, drag and drop approach to modify many common SAP GUI screens to make them more usable as well as more visually appealing.



SAP Screen Personas 3.0 Is Generally Available, including Service Pack 1
Posted by Peter Spielvogel in SAP GUI on Jul 6, 2015 4:23:35 PM
[Share](#) [Share](#) [Tweet](#) [Share](#)

On behalf of the entire SAP Screen Personas product team, I am very excited to announce that we have completed our ramp-up process and SAP Screen Personas 3.0 is now generally available. In addition, we have introduced SAP Screen Personas 3.0, Service Pack 1 (SP1), which includes all the SAP Notes we released during the ramp-up period, along with a few improvements that customers requested during ramp-up.

[Download SAP Screen Personas 3.0 SP1 \(requires valid NetWeaver License\)](#)

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Figure 53: Additional Information

Unit 2: USER Experience

Lesson: SAP Screen Personas

Learning Objective



You should now be able to:

- Describe SAP Screen Personas

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Figure 54: Learning Objective



Unit 2: USER Experience

Exercise 1: Which SAP FIORI Apps are available

Exercise 1: Which SAP FIORI Apps are available



Figure 55:



Unit 2: USER Experience

Exercise 1: Which SAP FIORI Apps are available

Description

Suppose you are responsible in the area of finance and you want inform yourself which FIOR APPS are available currently .

TASK 1 : How can you achieve that? Please surf to the SAP FIORI app reference library .

TASK 2 : Please look for all FIORI applications focusing on „ACCOUNT“.

TASK 3 : In further course we will use the FIORI application „Post General Journal Entries“. Please find this APP.

TASK 4 : Please check which Front-End Authorization Role (PFCG) is a prerequisite for using this FIORI APP.

Figure 56: Description



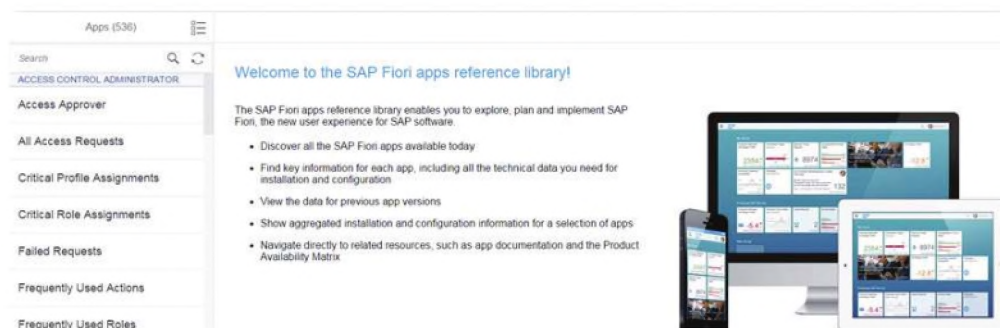
Unit 2: USER Experience

Exercise 1: Which SAP FIORI Apps are available

Solution

1. Please start your Internet Explorer and call the following address:

<https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer>



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Figure 57: Task

Unit 2: USER Experience

Exercise 1: Which SAP FIORI Apps are available

Solution

2. Please insert „Account“ into the search field of this page.

The image illustrates a search process in the SAP Fiori interface. On the left, a search bar labeled 'Apps (536)' contains the text 'Account'. A red box highlights the search input field. A yellow arrow points from this search bar to a smaller box on the right labeled 'Apps (14)', which contains the text 'Account'. To the right of this box is a vertical list of search results, including:

- Account
- ACCESS CONTROL ADMINISTRATOR
- User Accounts Available
- ACCOUNTS PAYABLE ACCOUNTANT
- Vendor Accounting Document
- ACCOUNTS RECEIVABLE ACCOUNTANT
- Customer Accounting Document
- BANK MID OFFICE EMPLOYEE
- Close Deposit Accounts
- CASH MANAGER
- House Bank Account
- Manage Bank Accounts
- My Bank Account Worklist
- G/L ACCOUNTANT
- Display Chart of Accounts
- Display G/L Account Balances
- Display G/L Account Line Items
- G/L Account

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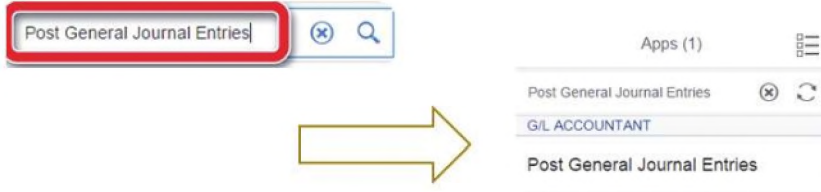
Figure 58: Task

Unit 2: USER Experience

Exercise 1: Which SAP FIORI Apps are available

Solution

3.



Post General Journal Entries

SAP Fiori apps – accounting and financial close for G/L accountant - record and report

Line of Business Finance

Required Back-End Product SAP Simple Finance Add-On

Application Type Transactional

Database HANA DB exclusive

[PRODUCT FEATURES](#) [IMPLEMENTATION INFORMATION](#)

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Figure 59: Task

Unit 2: USER Experience

Exercise 1: Which SAP FIORI Apps are available

Solution

4.

Post General Journal Entries

SAP Fiori apps – accounting and financial close for G/L accountant - record and report

Line of Business: Finance
Required Back-End Product: SAP Simple Finance Add-On
Application Type: Transactional
Database: HANA DB exclusive

PRODUCT FEATURES **IMPLEMENTATION INFORMATION**

Please select a delivery date for the app version that applies for the app versions delivered on this date.
Read more about app versions in App History

- Please open „Configuration“
- Scroll down to „ODATA Service“

Installation

Configuration

OData Services

The following OData services must be activated on the front-end server.
Users require PFCG authorization for the front-end and back-end systems.

OData Service	Version	Back-End Authorization Role (PFCG)
FAC_FINANCIALS_POSTING_SRV	001	SAP_FIN_GLD0CPOST_APP

Figure 60: Task

Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Exercise 2: FIORI Launchpad



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Figure 61: Exercise 2: Fiori Launchpad



Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Description

TASK 1.

Please create your own FIORI Launchpad group with Name

S4H01-## ## = your group number

Please add the following FIORI Application to your group:

- ✦ Costcenter Plan /Actual
- ✦ Costcenter Plan /Actual YTD
- ✦ Profit Analysis
- ✦ Profit center actuals

Task 2.

Please change the order beginning from the left side the first application should be the Profit Analysis App.

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Figure 62: Task Description



Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Description

Home – FIORI Launchpad

(1) Click on the configuration icon.



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Figure 63: Task

Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Description

Home – FIORI Launchpad

(1) Click on the Tile Catalog.



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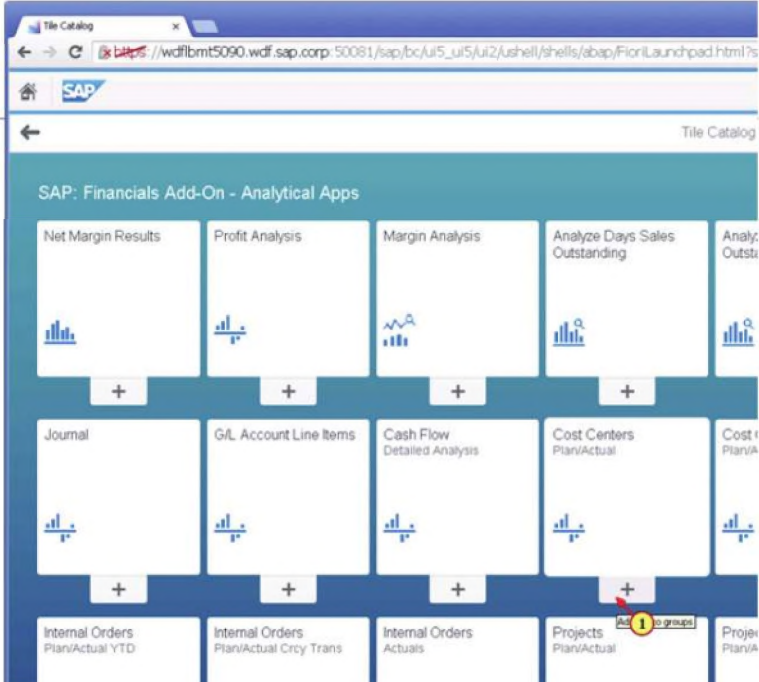
Figure 64: Task

Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Tile Catalog -

(1) Now choose the FIORI Application "Cost Center – Plan/Actual" by clicking on the **+** icon .



The screenshot displays the SAP Fiori Tile Catalog interface. The browser address bar shows the URL: [https://wdflbmt5090.wdf.sap.corp:50081/sap/bc/ui5_ui2/ushell/shells/abap/FioriLaunchpad.html? The page title is "Tile Catalog". The main content area is titled "SAP: Financials Add-On - Analytical Apps" and contains a grid of application tiles. Each tile has a small icon and a plus sign \(+\) at the bottom. The tiles include: "Net Margin Results", "Profit Analysis", "Margin Analysis", "Analyze Days Sales Outstanding", "Analyze Outstanding", "Journal", "G/L Account Line Items", "Cash Flow Detailed Analysis", "Cost Centers Plan/Actual", "Cost Plan/A", "Internal Orders Plan/Actual YTD", "Internal Orders Plan/Actual Crncy Trans", "Internal Orders Actuals", "Projects Plan/Actual", and "Project Plan/A". A red circle highlights the plus sign on the "Cost Centers Plan/Actual" tile, and a yellow callout box with the number "1" points to it.](https://wdflbmt5090.wdf.sap.corp:50081/sap/bc/ui5_ui2/ushell/shells/abap/FioriLaunchpad.html?)

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Figure 65: Task

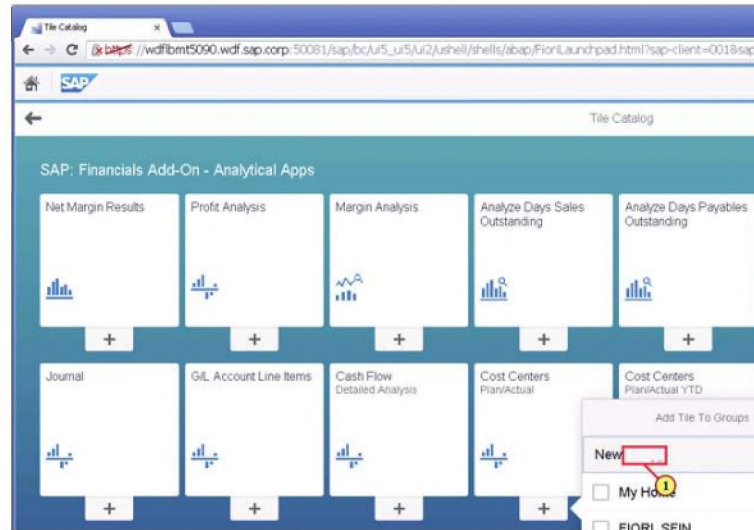
Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Description

Tile Catalog

(1) choose "New".



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Figure 66: Task

Unit 2: USER Experience

Exercise 2: FIORI Launchpad

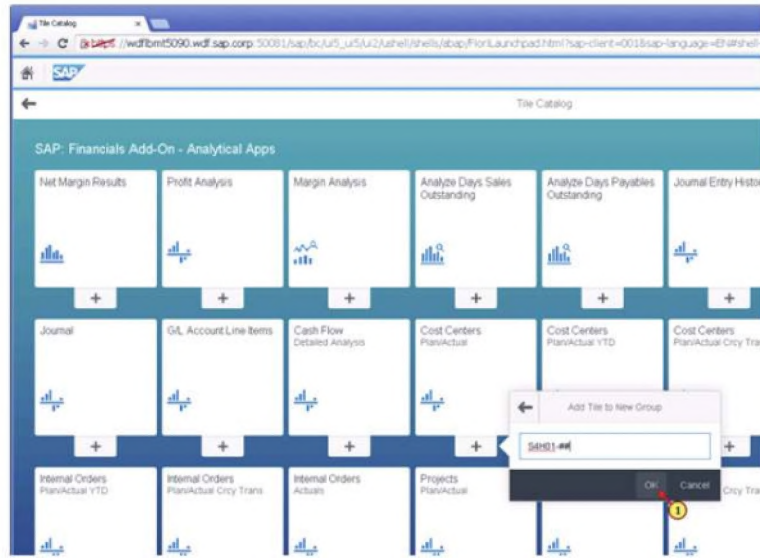


Tile Catalog

(1) Enter the Title of your Launchpad group

“S4H01-##”

- ## your Group number .



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Figure 67: Task



Unit 2: USER Experience

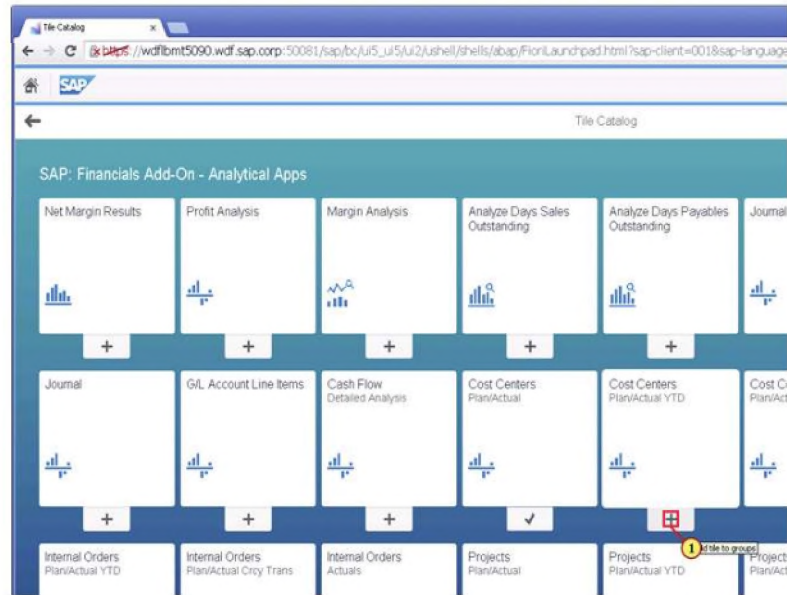
Exercise 2: FIORI Launchpad

Description

Tile Catalog

(1) Click – Choose the next Application .

Cost Center – Plan/Actual YTD



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Figure 68: Task

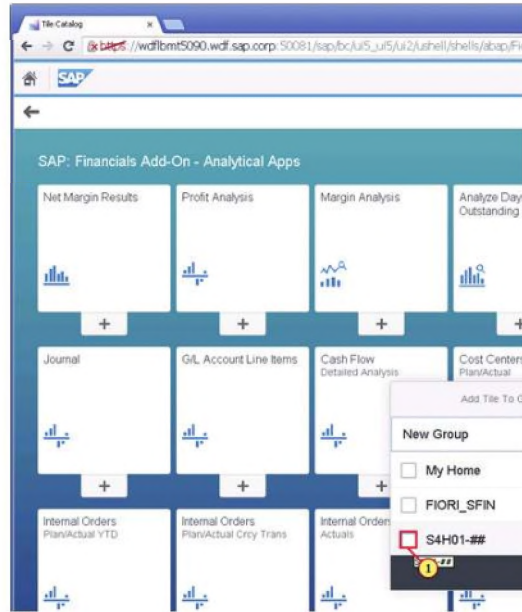
Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Description

Tile Catalog -

(1) Click . Choose your Group as target.



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Figure 69: Task

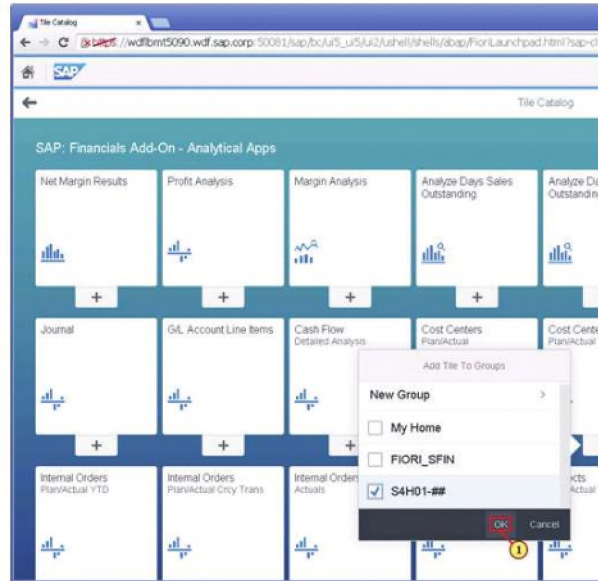
Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Description

Tile Catalog

(1) Click .



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Figure 70: Task

Unit 2: USER Experience

Exercise 2: FIORI Launchpad

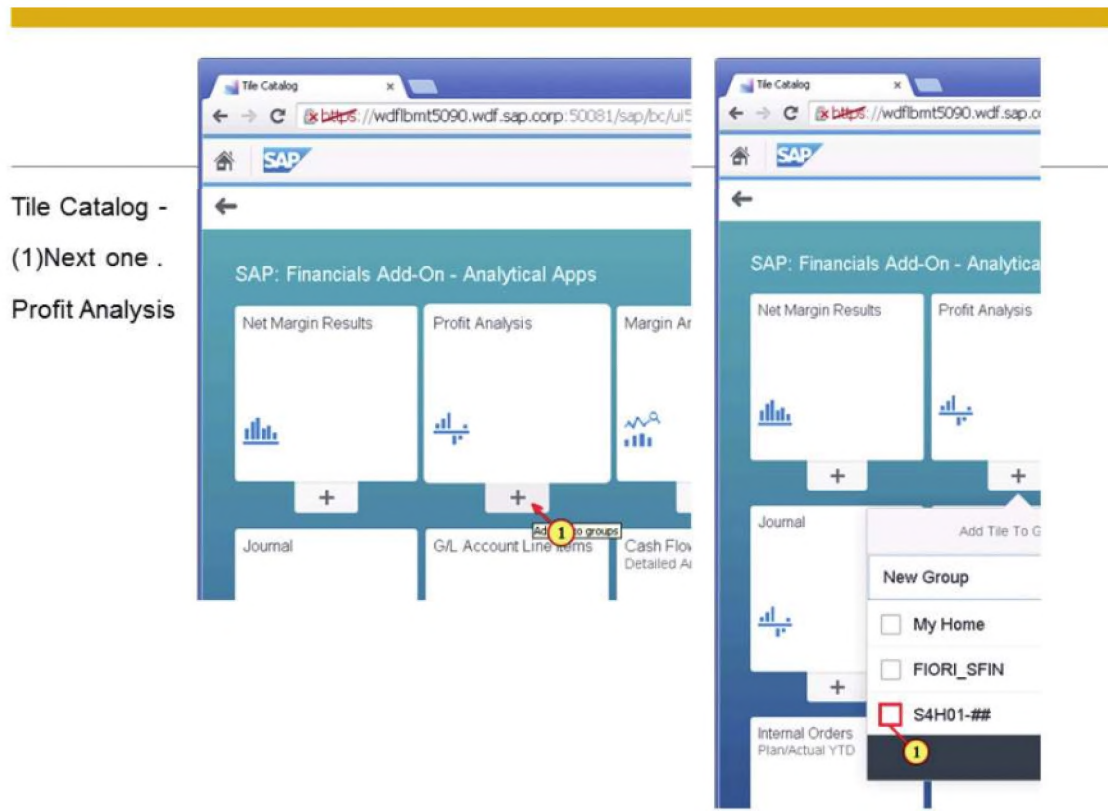


Figure 71: Task

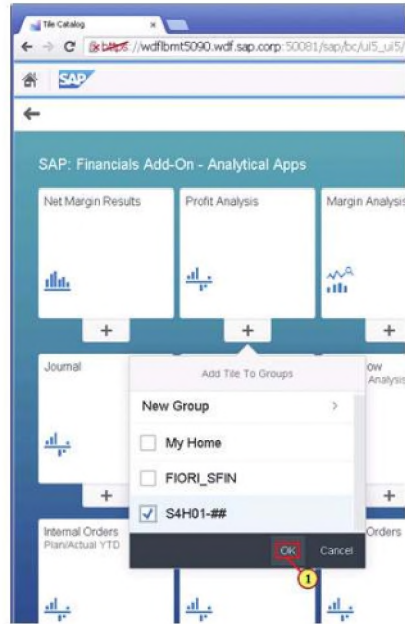
Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Description

Tile Catalog -

(1) Click .



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Figure 72: Task

Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Tile Catalog

(1) 1) The last is "Profit Center – Actuals" and assign it to your group

The screenshot shows the SAP Fiori Tile Catalog interface. The main window displays a grid of tiles for various SAP reports. The tiles are organized into three rows and four columns. The first row contains tiles for 'Internal Orders' (Plan/Actual YTD, Plan/Actual Cry Trans, Actuals) and 'Project' (Plan/A). The second row contains tiles for 'Profit Centers' (Plan/Actual YTD, Plan/Actual Cry Trans, Actuals) and 'P&L' (Plan/A). The third row contains tiles for 'Market Segments' (Plan/Actual YTD, Plan/Actual Cry Trans, Actuals). A 'New Group' dialog box is open on the left side of the screen, showing a list of groups: 'My Home', 'FIORI_SF1N', and 'S4H01-##'. The 'S4H01-##' group is selected, and a red circle with the number '1' highlights the 'Add to group' button in the bottom right tile of the main window.

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Figure 73: Task

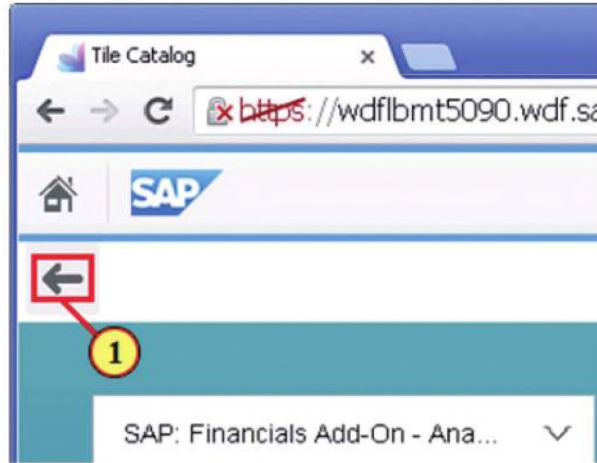
Unit 2: USER Experience

Exercise 2: FIORI Launchpad



Tile Catalog -

(1) Click – to go back and see what you have done .



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Figure 74: Task



Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Description

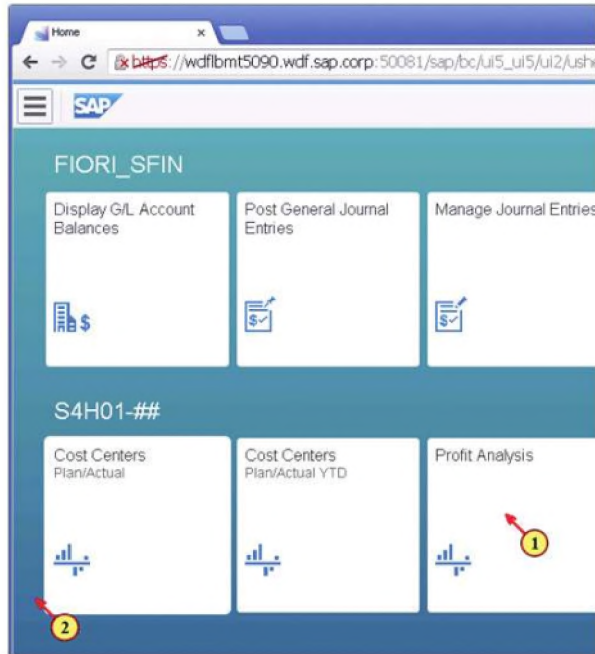
Home – Launchpad

Move tile “Profit Analysis”

To the first one on the left hand side.

(1) Drag .

(2) Drop on .



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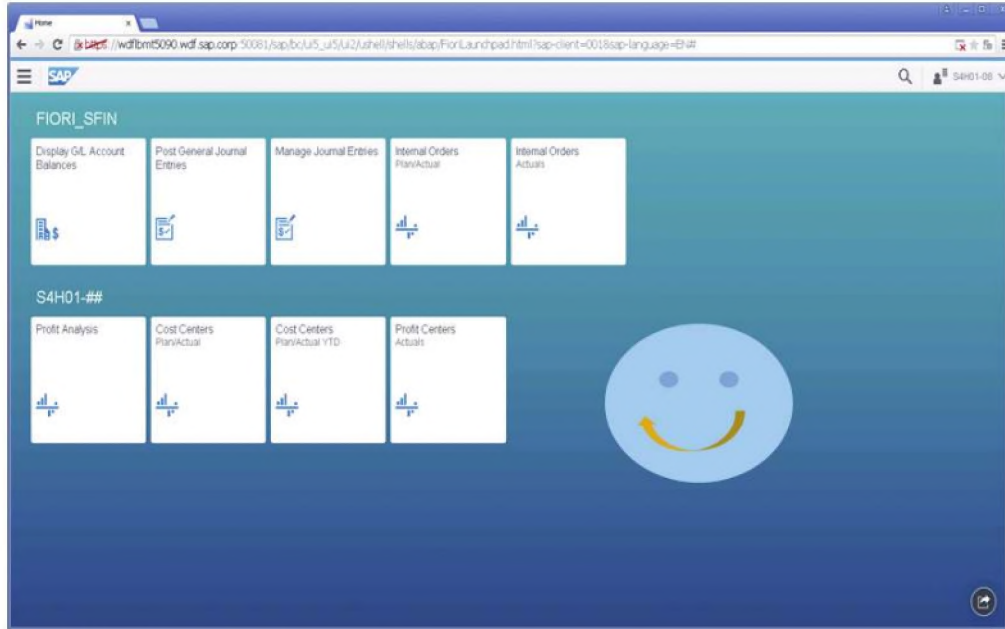
Figure 75: Task

Unit 2: USER Experience

Exercise 2: FIORI Launchpad

Description

Home – Launchpad



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Figure 76: Task

Unit 3: SAP HANA powering SAP S/4HANA

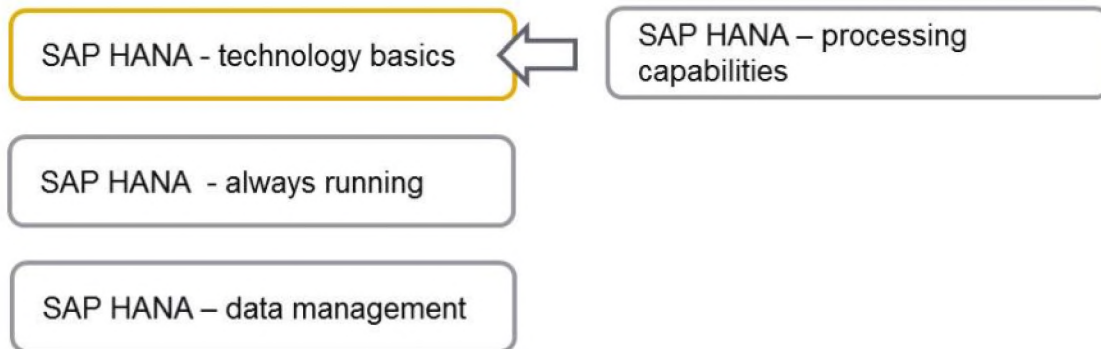
Exercise 2: FIORI Launchpad

Unit 3: SAP HANA powering SAP S/4HANA



Lesson: What does SAP HANA allow?

Agenda



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Figure 77: Agenda



Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Learning Objective



After completing this lesson, you will be able to:

- Describe the key technologies of SAP HANA

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Figure 78: Learning Objective



Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

There's a lot going on in SAP HANA



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Figure 79: There's a lot going on in SAP HANA

SAP HANA is the foundation to SAP S/4HANA and provides many of its critical services, so we should take time to learn a little about it.

Firstly, let's remember S/4HANA is a business suite that has its own application server. The application server on which S/4HANA is based is NetWeaver AS ABAP. This is the same application server as Business Suite but is upgraded to suit S/4HANA.

The application server sits on top of the database, in this case, SAP HANA provides all the database services that S/4HANA requires.

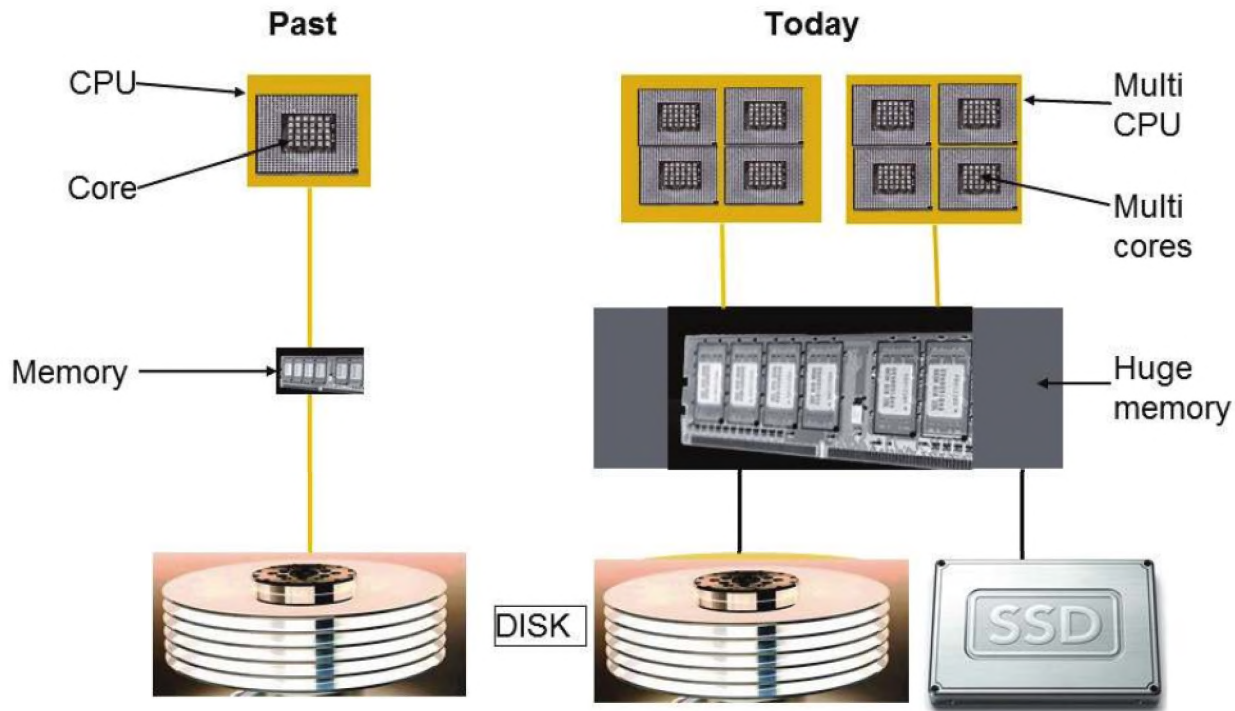
But SAP HANA is far more than just a database. It is an application and data management platform with a very large portfolio of capabilities that power the new applications that requires real-time, instance responses on a variety of different data types.

The slide nicely organises the services provides by SAP HANA, as you can see there are quite a few.

Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Hardware architecture trends



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Figure 80: Hardware architecture trends

SAP HANA takes full advantage of the recent trends in hardware evolution.

Historically, the high cost of memory meant that only small amounts were available. This caused a serious bottleneck in the flow of data from disk to CPU. (See diagram) Imagine the CPU waiting idle for data to arrive through the tiny gateway?

Now with memory prices falling we have access to huge amounts. SAP HANA runs on hardware with many terabytes of memory. In fact with so much memory available we can store the entire database of even large organisations completely inside memory so we have instant access to all data and we eliminate wait times. Memory is no longer the bottleneck it once was.

In addition to huge memory, the processors continue to improve at a phenomenal rate. We have high speed multi-core processors that can take on complex tasks and process them in parallel. This means response times for even the most complex analytical tasks, such as predictive analysis can be carried out in real time.

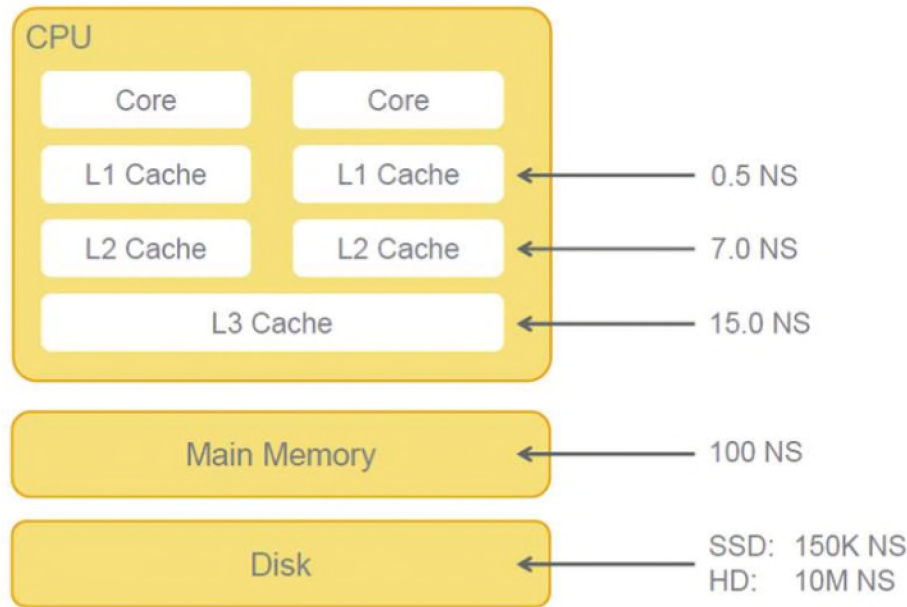
SAP could have just kept same business applications we wrote 20 years ago along with the traditional databases that supported them and installed all this on the new hardware. There would be some gains but traditional databases and applications were designed around old, restricted hardware architecture. This means they would not be able to fully exploit the power of the new hardware.

Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Put simply, the business software needed to catch up with advances in hardware technology, and so a complete rewrite of the business suite was required.

Hardware rethink



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Figure 81: Hardware rethink

We talked just now about how we shifted the data from disk to memory in order to bring the data closer to the CPU, and specifically to the core within the CPU where the processing takes place.

You can see the measure of time taken to get data to the core for processing gets longer the further away from the core. So disk is the worst performer by a very significant amount. We have pushed disk access to the limit and have now become restricted by the basic physics of the spinning disks.

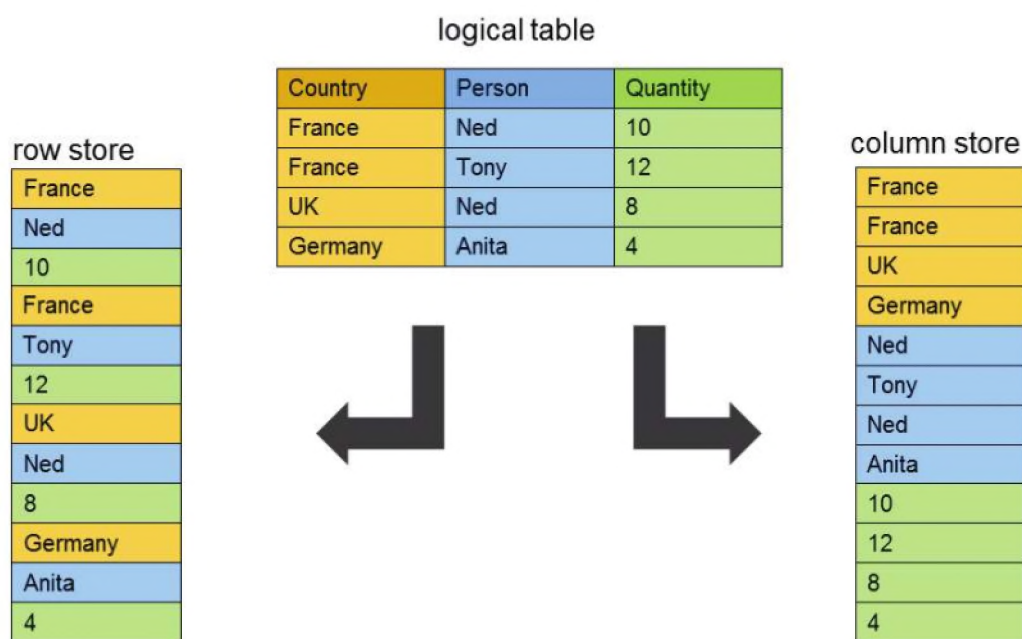
Also, modern processors have the ability to manage on-board memory – this is called CPU cache. The new generation of CPU manage on board cache very cleverly in layers as you can see in the diagram.

But what is a nanosecond? It is one billionth of a second. Just to give you some idea of how fast a nano second is, one nanosecond is to one second, as one second is to 31.71 years. So a nano-second is fast, very fast and it is how processor speeds need to perform for modern application in a digital economy.

SAP worked closely with the CPU manufacturers in co-development projects in order to understand how to exploit all the power from their processors. We especially needed to understand how data moves from memory to core so we could code exactly to get the most out of processors.

By the way, traditional disk still is needed for now but only for logging and backups but eventually even that will go away in favor of other technologies such as SSD (solid state device = flash memory).

Column store and row store tables



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Figure 82: Column store and row store tables

Let's turn our attention to the heart of SAP HANA, the database.

SAP HANA is fully ACID compliant. This means (Atomicity, Consistency, Isolation, and Durability). This is the mark of a database that is built to be 100% reliable for mission critical applications.

Most traditional business databases are row based.

SAP HANA can handle tables based on row storage but also column storage. Both storage types are needed in a system that handles both transactional and analytical applications in one database.

Column store tables are incredibly efficient especially for analytical applications where access to data sets is not predictable. We scan columns of data so fast that indexes are usually not required.

With column store processing, dynamic views of the data are computed on the fly and we process only the columns we need. It is easy to extend column store tables without dropping data. Column store tables are optimal for parallel processing. The downside to column store is the cost of

Unit 3: SAP HANA powering SAP S/4HANA

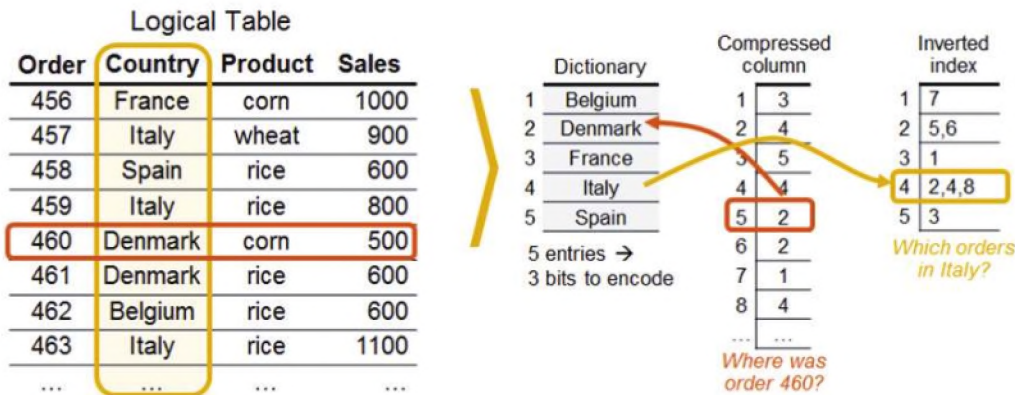
Lesson: What does SAP HANA allow?

reconstructing complete records from the columns if all data is required by the application. This is the case when the application is transactional and so all fields are needed for an update, insert, delete.

So row storage is still needed to support transaction processing or for master data.

SAP S/4HANA combines transactional and analytical applications and so does utilize column and also row store tables.

Reducing the data footprint



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Figure 83: Reducing the data footprint

The data in the SAP HANA column store tables is automatically compressed in order to reduce the data footprint.

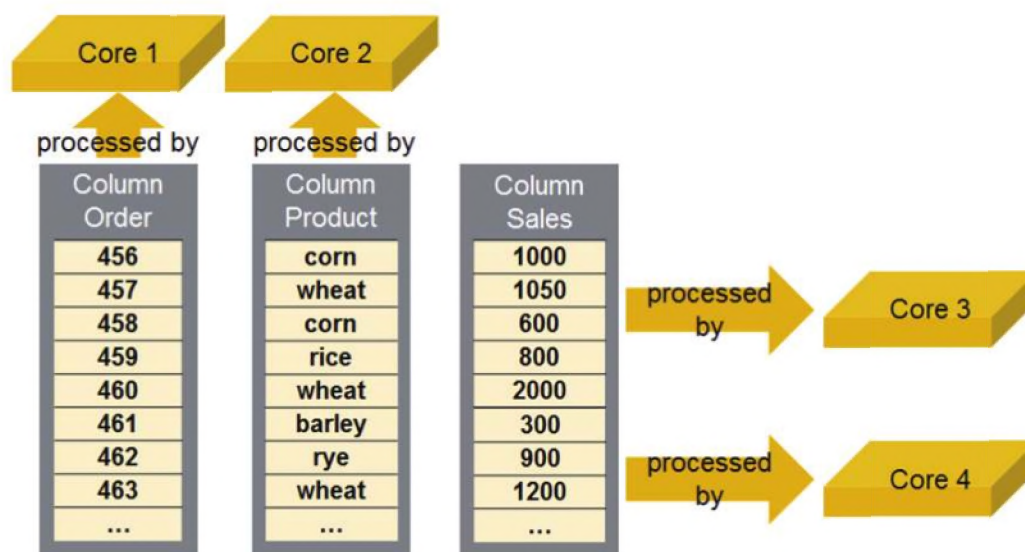
There are a number of benefits to a reduced data footprint:

- It means we can get more data into CPU cache and therefore reduce main memory access in order to maintain high performance.
- It means we can fit entire enterprise databases into memory and avoid disk access.
- Operations such as backup and restore are speeded up as we deal with a smaller data size.

The amount by which data reduction can take place is driven by the shape of the business data. Compression is most impressive when there is a lot of data repetition in the tables. For example a huge sales order table where the customer type is stored on each customer order but we only have 3 customer types. We would repeat the customer type many times across the table.

Compression strips out the repetition and uses integers to represent the business values. Then it uses special dictionary tables to hold the distinct list of business value and the corresponding integers. This all happens in the background and is not visible to the business user. It is also not something the developer needs to be concerned with.

Enabling parallel processing



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Figure 84: Enabling parallel processing

A key theme of SAP HANA is parallel processing. With the new hardware architecture, especially utilizing the new multi-core processors we can ensure instant responses by spreading out the processing task across the cores.

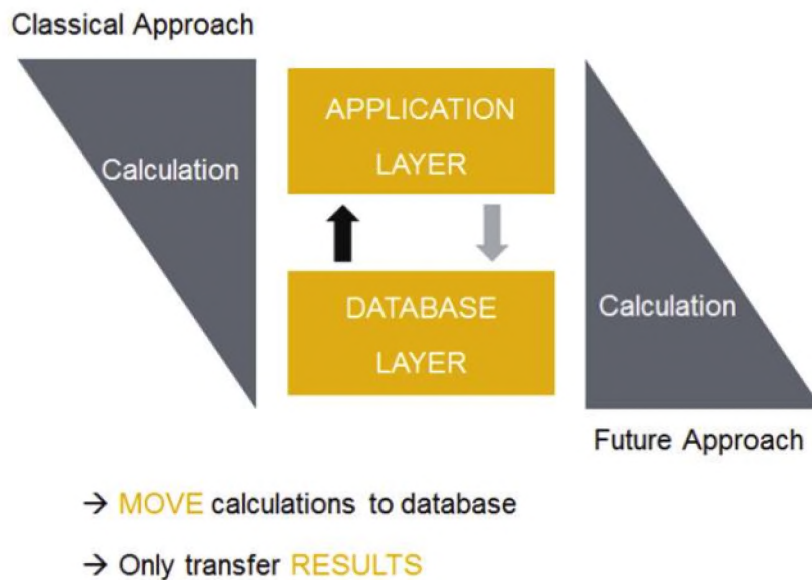
SAP HANA automatically spreads the workload across all processors and ensures all parts of the hardware are contributing to the throughput.

SAP HANA is scalable, which means you can add more processors as required to increase the parallelisation and therefore speed of processing.

In addition when you manually partition column tables to influence the parallelisation based on common business values that are access frequently.

Parallel processing is a key enabler for real time processing on which many new S/4HANA applications are based.

Push down processing to SAP HANA



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Figure 85: Push down processing to SAP HANA

In the past, the key job of the database layer was to listen out for request for data from the application server and then send that data to the application server for processing. Once the data had been processed the results would be sent back down to the database layer for storage.

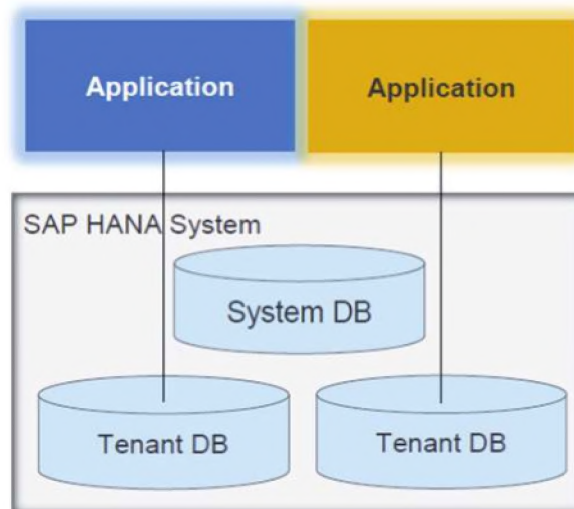
SAP HANA is capable of taking over many of the processing tasks from the application server. Basically, and data related task such as aggregation, filters, sort, calculate can be handled by SAP HANA.

So now the application layer simply needs to tell SAP HANA what it needs to be done, SAP HANA will process the data and send only the results. Remember this is done in memory so speeds can be impressive.

The application layer is still needed with S/4HANA to handle the complex business logic that must be programmed in a business programming language. In the case of S/4HANA this is ABAP.



Multi-tenancy



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Figure 86: Multi-tenancy

SAP HANA can run multiple isolated applications within the same hardware and software infrastructure.

There is a strong separation of business data and users that must be kept apart. Each tenant has its own database and business users would have no idea that they are sharing a system with others.

The system layer is used to manage the system wide settings and cross-tenant operations such as backups.

The benefit of a multi-tenancy platform is that we can host multiple applications on one single infrastructure and share common resources.

This is the basis for cost-efficient cloud computing.



Learning Objective



You should now be able to:

- Describe the key technologies of SAP HANA

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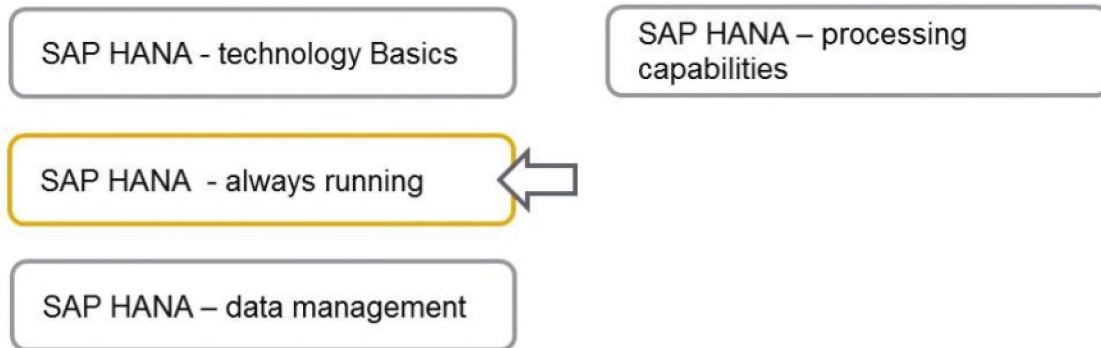
Figure 87: Learning Objective



Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

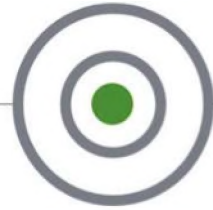
Agenda



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Figure 88: Agenda

Learning Objective



After completing this lesson, you will be able to:

- Describe how SAP HANA ensures 100% uptime

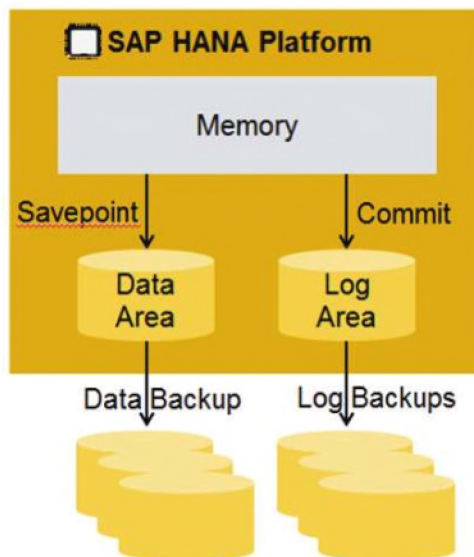
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Figure 89: Learning Objective



SAP HANA – always running

Auto-recovery when power is interrupted



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Figure 90: SAP HANA – always running

SAP HANA utilises memory for storage and as we know, once the power is gone we lose the data in memory.

So how does SAP HANA ensure we don't lose data when the power goes and also how does it get back up and running quickly?

SAP HANA's solution for zero-downtime is based on a two phase approach.

Every few minutes SAP HANA automatically takes a snapshot of the entire memory and stores this on a disk layer. This is called a save point.

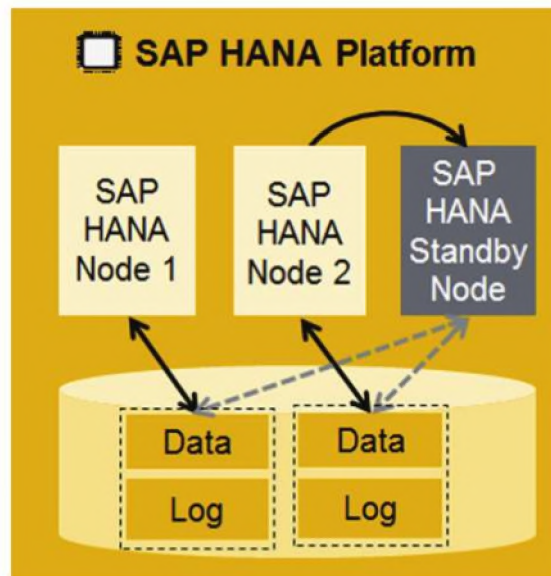
But what happens if the power goes off between save points? Do we lose this data?

No we don't lose data because between save points every committed transaction is also saved to a log area. This log area is often based on flash memory (SSD) to ensure lightning speed. So we capture every update to the database.

When power is restored SAP HANA automatically reads the last save point and also re-applies the transactions from the log since the save point to ensure the system is exactly where it was when we lost the power. This all happens invisibly in the background.

SAP HANA – always running

Auto-recovery when a server fails



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Figure 91: SAP HANA – always running

If a server fails SAP HANA can automatically swap out to a standby server.

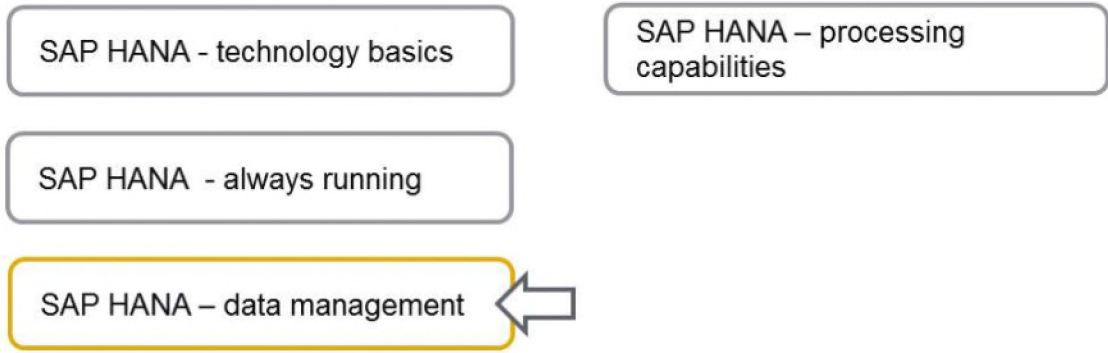
Standby server can be on warm standby which means they are ready to go immediately and do not need to be started.

SAP HANA simply uses the save points and log as mentioned previously to bring the standby server up to date with the data.

For mission critical applications and where SLAs are implemented we can ensure customers' systems are always running.

This auto-recovery approach is referred to as 'failover'.

Agenda



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Figure 92: Agenda



Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Learning Objective



After completing this lesson, you will be able to:

- Describe SAP HANA data management capabilities

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Figure 93: Learning Objective

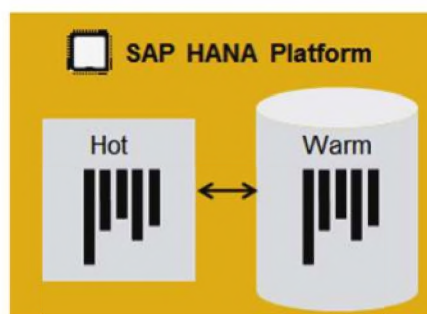


Ready for Big Data

Classify temperatures of data active and passive

Dynamic movement of data across tiers

Scaleability



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Figure 94: Ready for Big Data

We know the digital world is creating huge amounts of data. So shall we just keep loading this data to SAP HANA?

Well, technically we could do that, but it would not be efficient. Most business applications refer to only a small subset of data, and that is usually the most recent data. We should not be filling SAP HANA's in-memory database with data that is old and hardly used.

SAP HANA allows us to classify our data as active and passive. We also use temperatures as a reference to how hot (useful) the data is.

Active or hot data is data that is recent or perhaps data that is the focus of a current analysis (even if it is old).

Passive data or warm or even cold is data that is older, less used.

Only active / hot data should occupy SAP HANA memory and the passive / warm / cold data should be on cheaper storage options such as Big Data commodity server solutions (Hadoop) and data archive systems.

A key point is that regardless where the data physically resides, all data is still available seamlessly to an SAP HANA application. Application developers don't need to know where data is, HANA manages this.

SAP HANA moves data across the storage tiers automatically based on usage patterns and other programmable business conditions.

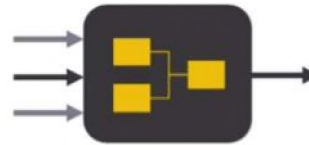


This ensure a customer's SAP S/4HANA will always run optimally with no older data clogging up the database.

Real time data streaming

Real-time event stream processing

1. **Capture** data arriving continuously from devices and applications
2. **Act** on new information as soon as it arrives: alerts, notifications and immediate response to changing conditions
3. **Stream** information to live operational dashboards



Highly scalable – process hundreds of thousands or even millions of events per second

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Figure 95: Real time data streaming

SAP HANA can consume data in many different ways.

Real time data can be consumed to power real-time S/4HANA applications. The IoT means we will connect large numbers of devices that transmit information continually.

It is important to remember that real-time data streaming is not the same as real-time data loading. Often once the data is consumed and processed it may be of no further interest and SAP HANA can ignore it.

Examples of devices that could stream real-time data to S/4HANA applications:

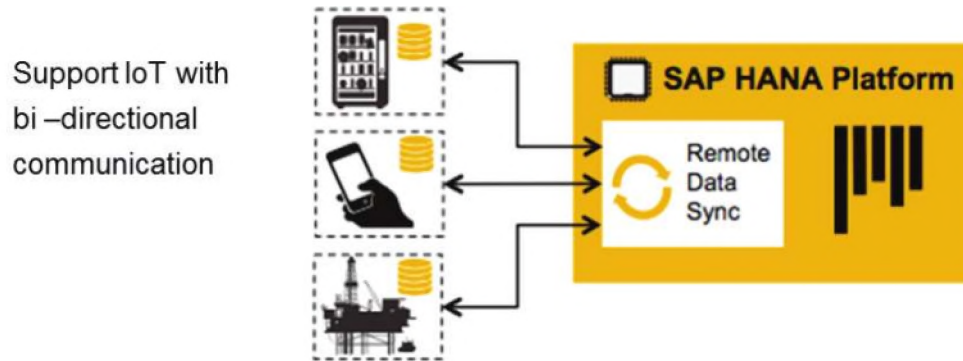
- Sensors - machines
- Clickstreams from web activity
- Social media – respond to consumer sentiments (Twitter etc.)
- Market stock prices
- Energy consumption
- Game sports analysis



Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Synchronise IoT data collection with SAP HANA



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Figure 96: Synchronise IoT data collection with SAP HANA

SAP HANA is able to communicate with devices (IoT) using Remote Data Sync.

Devices can collect data locally, with their built in data stores, and SAP HANA can periodically collect this data. For example a vending machine could trigger a refill order but only when it is low on a series of key items. It could then describe the items that are running low.

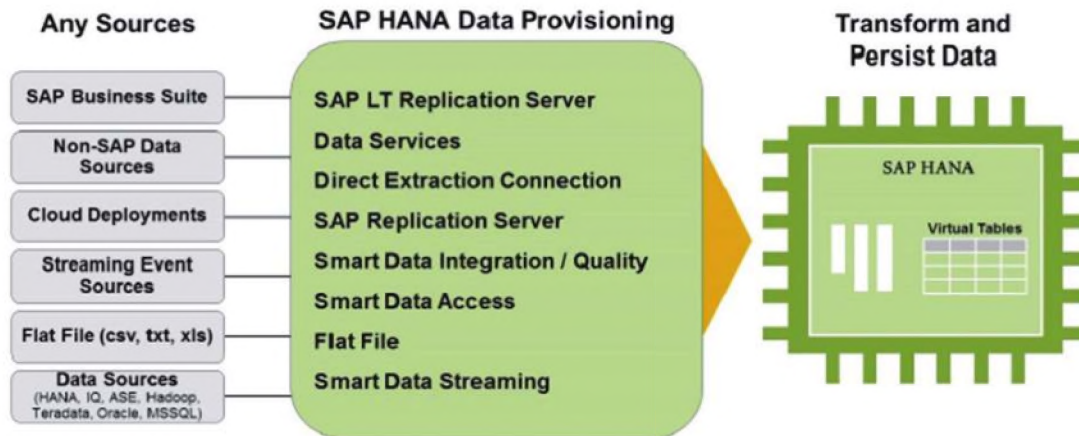
But Remote Data Sync can also push back data to the remote device. For example an acknowledgement can be sent to an empty vending machine to confirm a refill order has been placed so an engineer who is working on the machine is aware items are arriving later than day.

S/4HANA applications can communicate with IoT devices. Think of all the innovative enterprise applications that would benefit from communication with devices in the IoT.

Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Data access from anywhere, anytime



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Figure 97: Data access from anywhere, anytime

As well as real-time streaming and remote data sync SAP HANA has many other options for data provisioning.

Smart Data Access (SDA) allows SAP HANA to access remote database tables and files from any source as if the data was loaded to SAP HANA.

A great use case for this would be the integration of Hadoop or data archives where occasional access to data is required.

Smart Data Integration (SDI) and Smart Data Quality (SDQ) provides real time data replication from any source, with the option to enhance the data quality during the loading process.

SAP HANA is fully integrated with existing, and well known data loading tools such as LT Replication Server and Data Services for real time and batch data loading.



Learning Objective



You should now be able to:

- Describe SAP HANA data management capabilities

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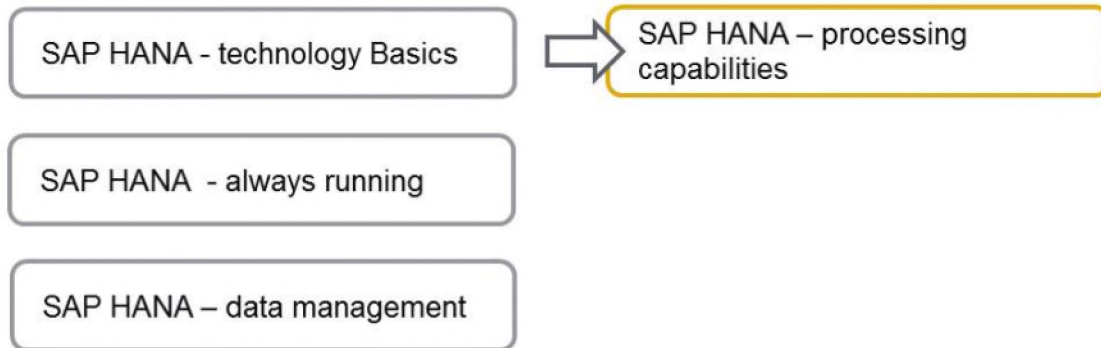
Figure 98: Learning Objective



Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Agenda



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Figure 99: Agenda

Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Learning Objective



After completing this lesson, you will be able to:

- Describe SAP HANA processing capabilities

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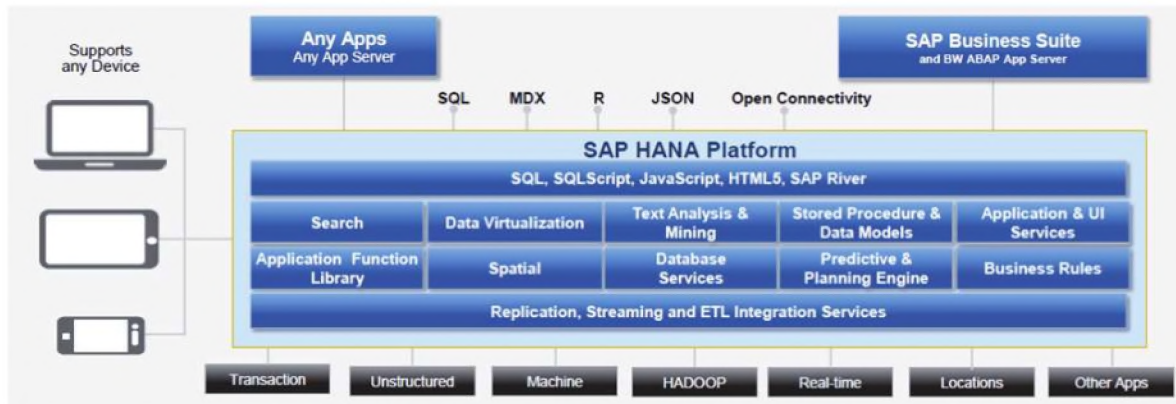
Figure 100: Learning Objective



Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

More than just a database for SAP S/4HANA



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Figure 101: More than just a database for SAP S/4HANA

If all we asked of SAP HANA was to support the database requests for S/4HANA, then we would be using only a fraction of SAP HANA's capabilities.

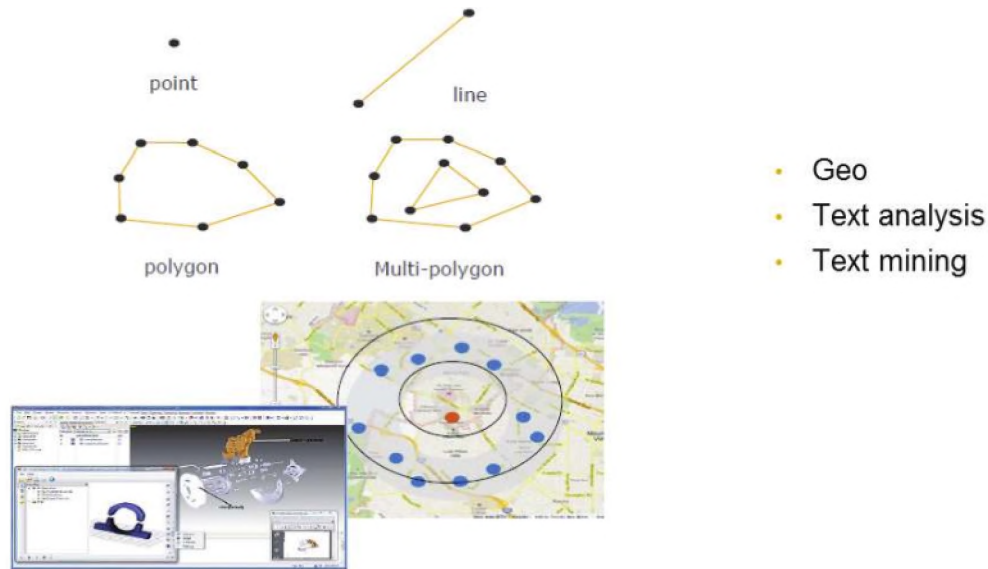
SAP HANA is not just a database, it is also a powerful processing engine with many built in capabilities that can enable organisations to develop innovative applications integrating S/4HANA.

We call this 'extending the core'. The core being S/4HANA.

Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Spatial analysis with SAP HANA



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Figure 103: Spatial analysis with SAP HANA

SAP HANA can store and process spatial data. For example, we can identify the exact location of each customer and when the customer is browsing our online catalog we can suggest the nearest pickup location.

SAP HANA is fully integrated with industry leading partners who specialise in spatial processing. These include Google, ESRI, Pitney Bowes and Tom Tom.

There are many use cases for spatial data, these include:

Live Traffic information → communicate to emergency services driver

Sport → In-game football analysis – add geo sensor to ball and players and track movements, distances, contacts etc.

Energy companies → map their pipes, cables, identify closest engineer, or identify nearby assets that could also be cleaned / maintained to save on separate call out.

Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Predictive Analysis with SAP HANA



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Figure 104: Predictive Analysis with SAP HANA

A key theme running through SAP S/4HANA is embedded analytics. In many cases this means adding in predictive capabilities to a transaction flow. Customers can continue to build their own application that embed predictive capabilities.

For example, an administrator is providing security clearance to sensitive data for a new employee. But during the clearance process SAP HANA has identified and alerts the administrator of a suspicious pattern of system access by the employee that does not fit the profile of this type of worker.

SAP HANA has an extensive built-in library of powerful predictive algorithms and business functions to suit different analysis scenarios. (See slide)

In addition to the built in algorithm SAP HANA is integrated with the 'R' public libraries where thousands of additional algorithms can be found.

With SAP HANA's ability to manage huge data volumes and also at speed real time predictive analysis is possible and can add huge value to business transactional processing to offer decision support in-line. What is the suggested next action? What if we don't offer this?

You will find many examples of embedded predictive analysis in S/4HANA applications.

Unit 3: SAP HANA powering SAP S/4HANA

Lesson: What does SAP HANA allow?

Learning Objective



You should now be able to:

- Describe SAP HANA processing capabilities

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Figure 105: Learning Objective



Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Exercise 3: First view in the SAP HANA Database

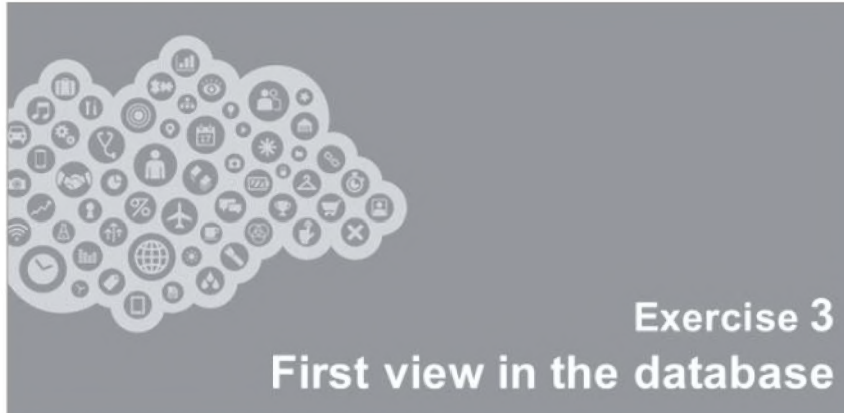


Figure 106:



Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

Lets have a look into the inside of the SAP Database.

TASK 1: Login in the SAP HANA Database

Please use the following Login data .

Parameter	Value
Host name the	WDFLBMT2072.wdf.sap.corp
instance number	50
Discription	HANA
USER	STUDENT## <i>##-your group number</i>
Password	

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Figure 107: Description



Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

TASK 2: Determine the size of memory.

Please open SAP HANA Administration Console . On right upper plane you find the following symbol



Now choose Tab „Overview“ and check the difference between Used Memory and peak used memory

TASK 3: Evaluation of controlling data on the basis of line item table COEP via attribute view "AT_COEP_MAIN_P".

Please expanding

Content → sap → erp → sfin → co → om → Attribute Views

Double-click the view "AT_COEP_MAIN_P"

In the upper right plane you find the following symbol means „Data preview“. Please Click on it .



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Figure 108: Description

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

Double-click the view "AT_COEP_MAIN_P". Please move attribute "KOKRS" (means controlling area) to the "Labels axis" and attribute "WKGBTR" (means value in controlling area currency) to the "Value axis".

- Please keep in mind there are 552.823 records in table COEP



Figure 109: Description

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Solution for Exercise 3



Figure 110: Solution



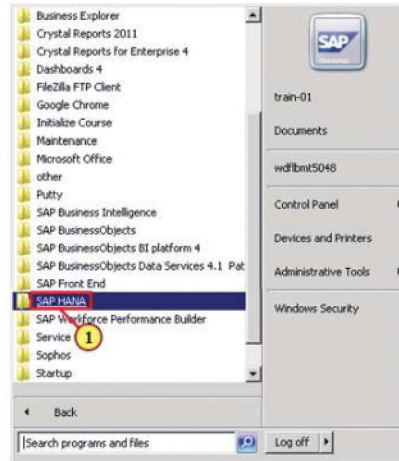
Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

Start menu

(1) Click .



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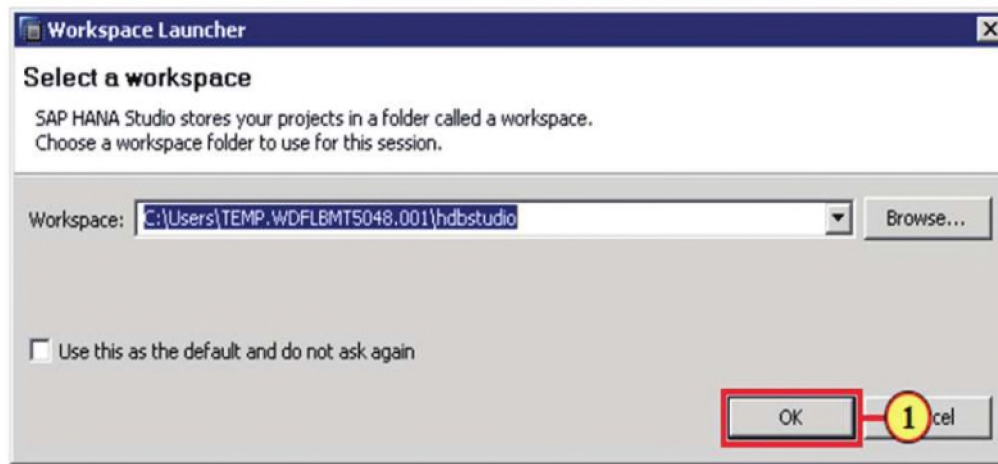
Figure 111: Solution Task 1

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Workspace Launcher

(1) Click **OK** .



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Figure 112: Solution

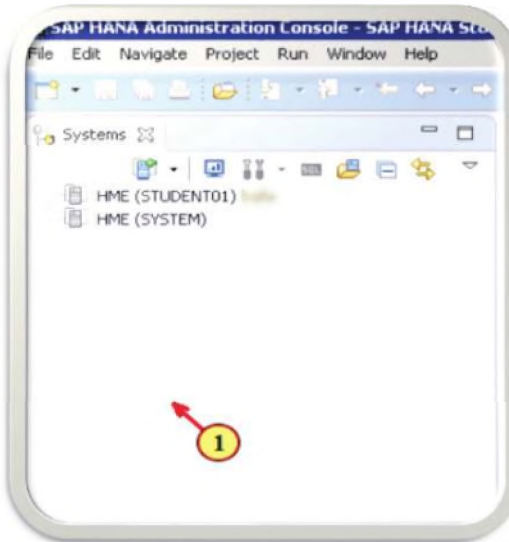
Please choose the default Workspace.

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

SAP HANA Administration
Console - SAP HANA
Studio

(1) Right-clicking on with
the mouse opens a
shortcut menu.



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Figure 113: Solution

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database



SAP HANA Administration
Console - SAP HANA Studio

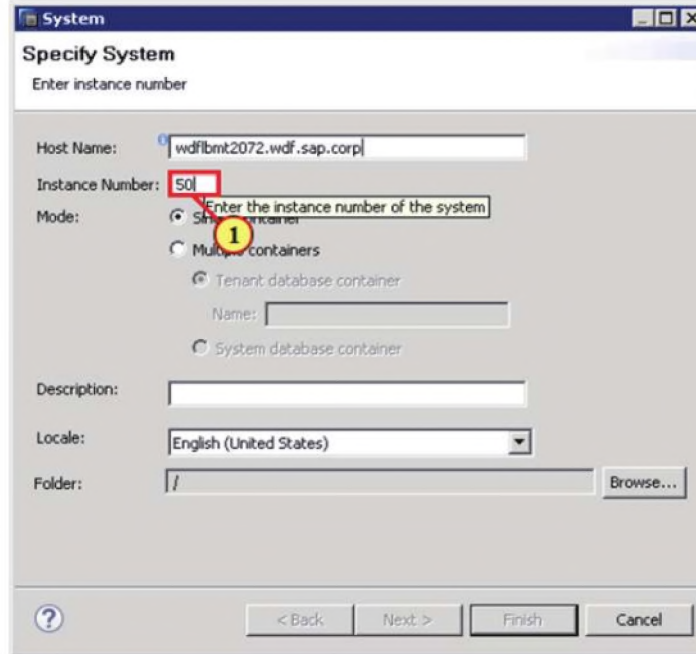
(1) Please Enter the

host Name

wdfibmt2072.wdf.sap.corp

and

Instance number 50



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Figure 114: Solution



Unit 3: SAP HANA powering SAP S/4HANA

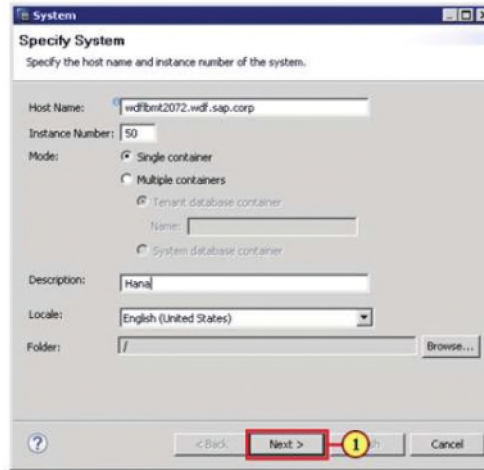
Exercise 3: First view in the SAP HANA Database



System

(1) Please fill out the Description and press

“Next”



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Figure 115: Solution



Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

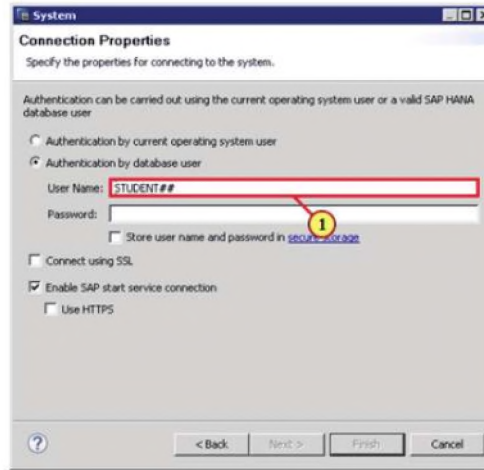


System

(1) The fill out the **User Name**

With your **STUDENT## ##-** group number .

After it press "Finish"



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Figure 116: Solution



Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

SAP HANA Administration
Console - SAP HANA
Studio

Now you are login yourself
successfully



(1) Click .To open the
"Perspective Selection"

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Figure 117: Solution

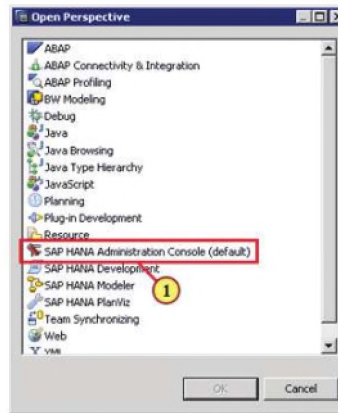
Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

Open Perspective

(1) The entry **SAP HANA Administration Console (default)** is selected by double clicking on it.



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Figure 118: Solution Task 2

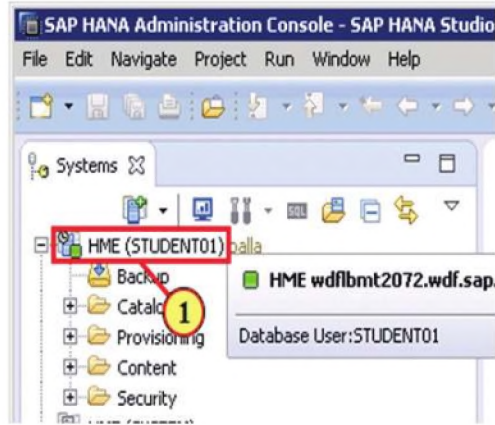
Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

SAP HANA Administration Console - SAP HANA Studio

(1) HME (STUDENT##) is double-clicked.



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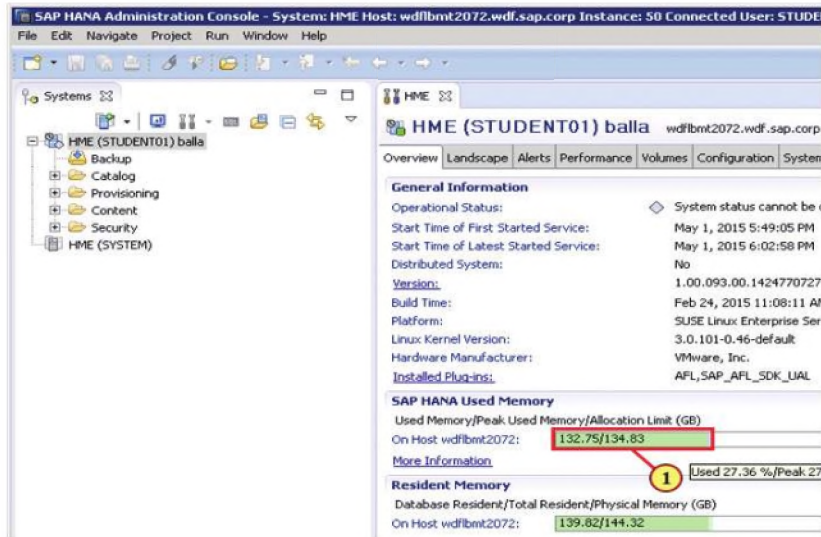
Figure 119: Solution

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

(1) Here you find the value of used and allocated memory



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Figure 120: Solution

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

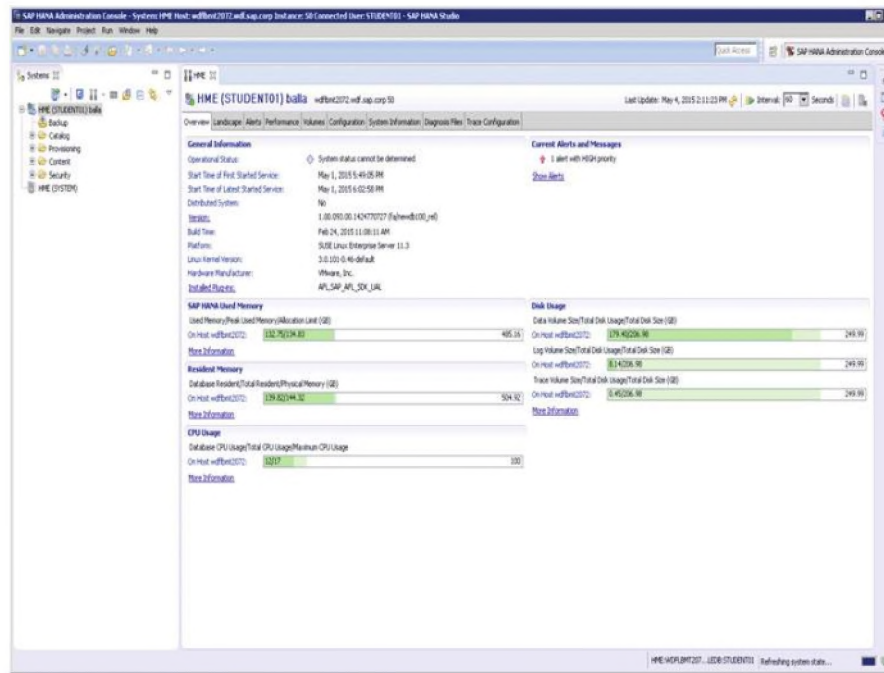


Figure 121: Solution

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Solution Task 3

Description

SAP HANA Administration Console - SAP HANA Studio

(1) Clicking the **Open folder** icon opens the folder **Content**.



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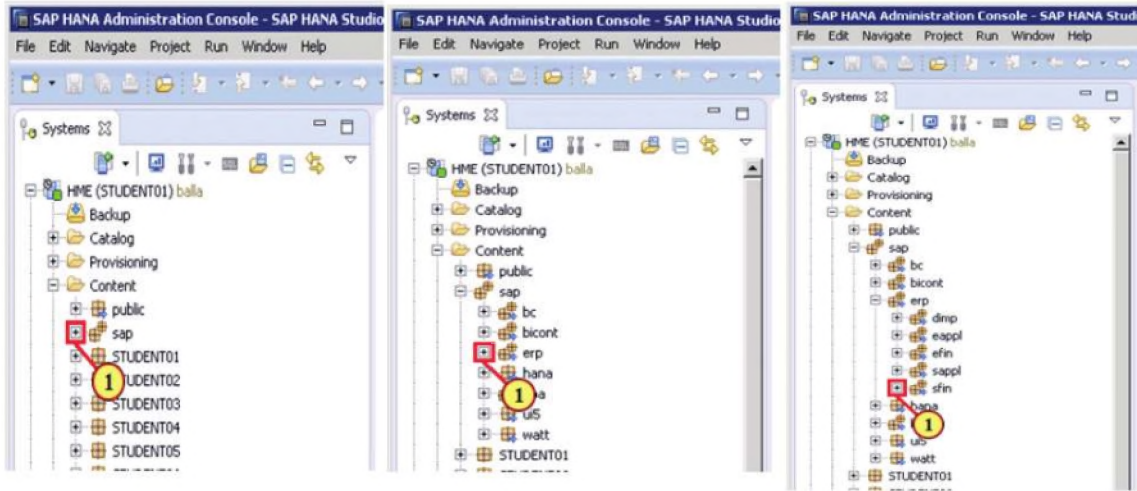
Figure 122: Solution Task 3

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

SAP HANA Administration Console - SAP HANA Studio

(1) Clicking the **Open folder** icon opens the folder **sap** → **erp** → **sfin**.



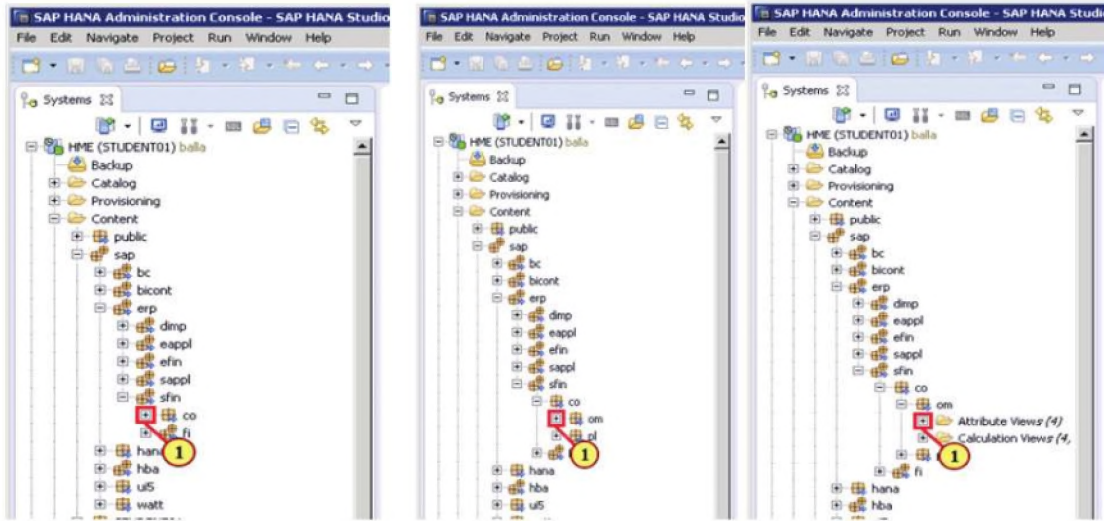
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Figure 123: Task

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

(1) Clicking the **Open folder** icon opens the folder **co** → **om** → **Attribute views** .



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Figure 124: Task

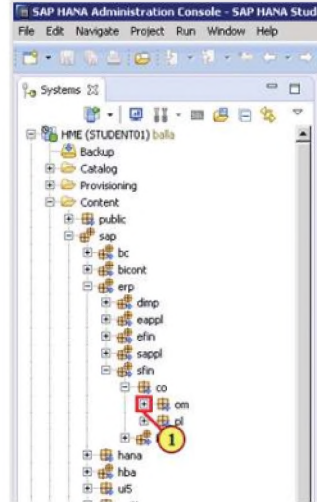
Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

SAP HANA Administration Console - SAP HANA Studio

(1) Clicking the **Open folder** icon opens the folder **om**.



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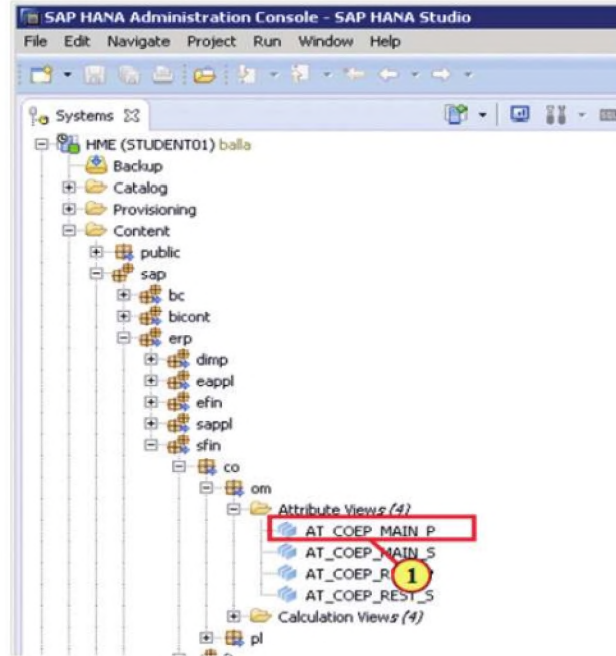
Figure 125: Task

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

SAP HANA Administration
Console - SAP HANA
Studio

(1) is double-clicked.



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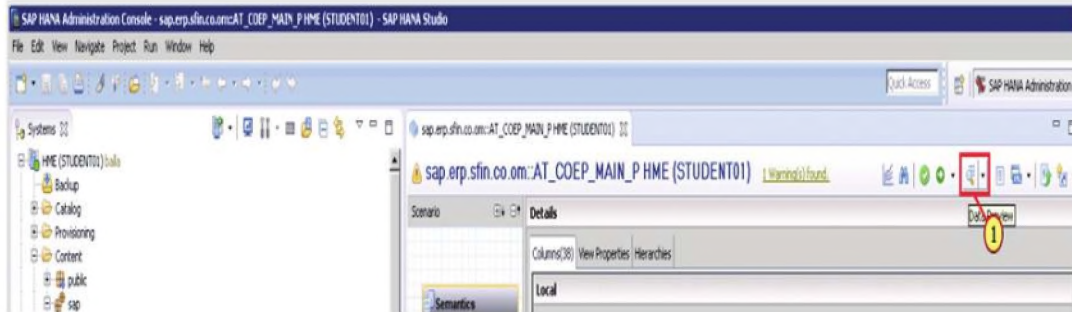
Figure 126: Task

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

(1) Click on the ICON Data Preview.



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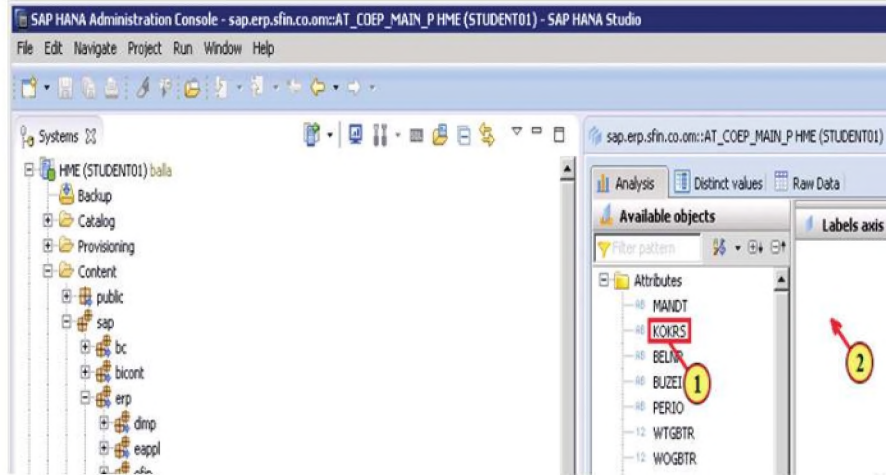
Figure 127: Task

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

- (1) Drag .
- (2) Drop on .



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Figure 128: Task

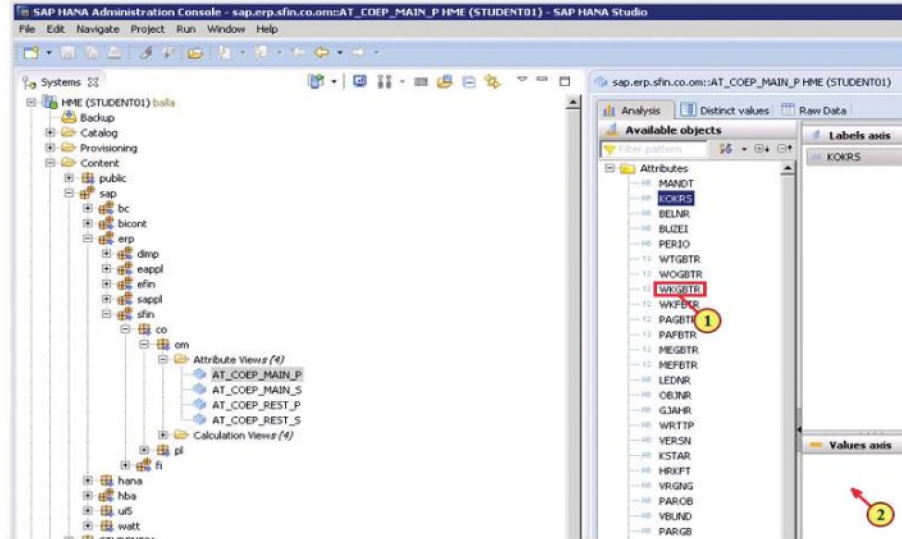
Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

(1) Drag .

(2) Drop on .



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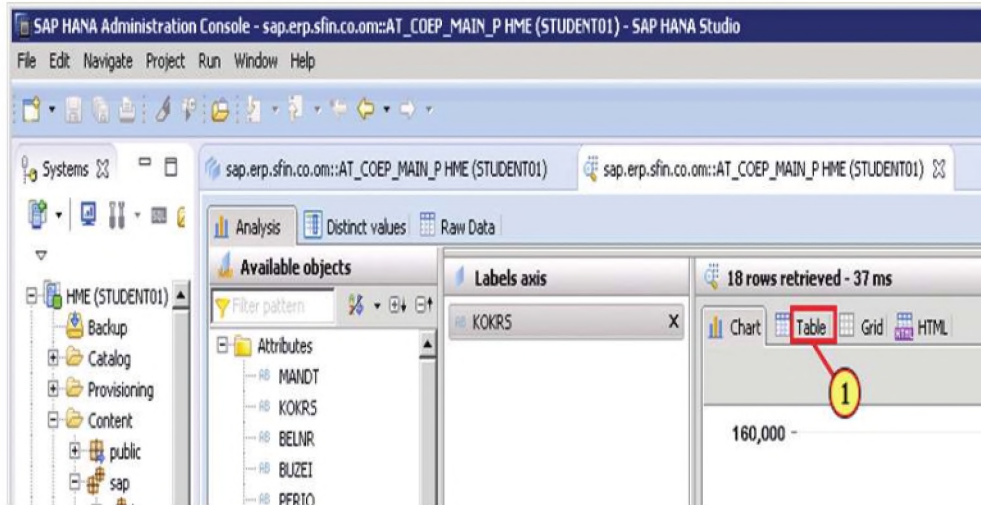
Figure 129: Task

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description

(1) Click .



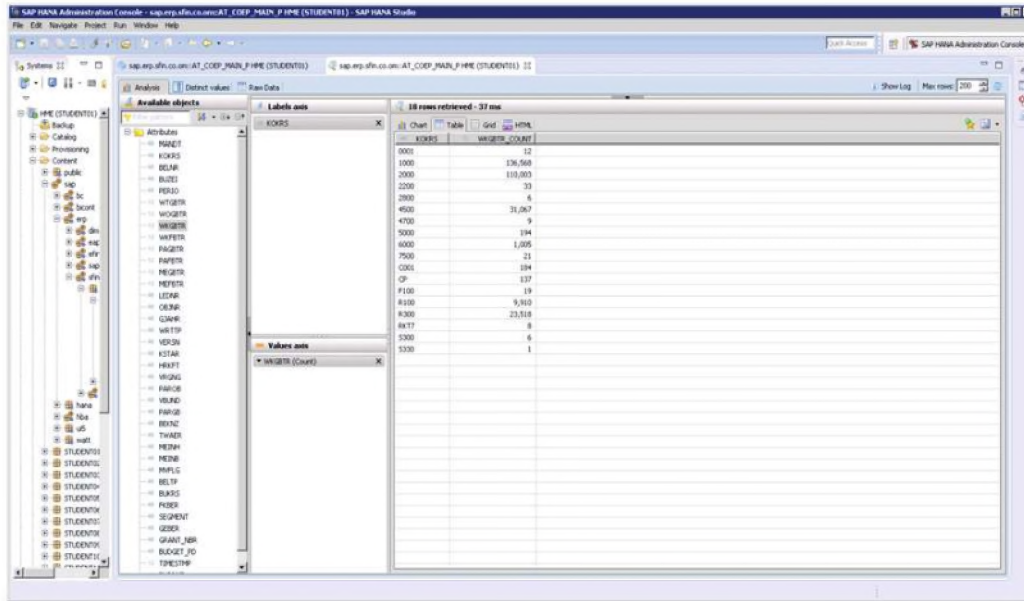
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Figure 130: Task

Unit 3: SAP HANA powering SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

Description



The screenshot displays the SAP HANA Administration Console interface. The main window shows a table view of the 'Labels.ans' table. The table has two columns: 'KOKRS' and 'WERTER_COUNT'. The data is as follows:

KOKRS	WERTER_COUNT
0000	12
1000	136,568
2000	110,000
2200	23
2300	6
4500	31,067
4700	9
5000	194
6000	1,005
7500	21
COOL	184
OP	137
F100	19
8100	9,910
8300	23,718
8X17	8
9300	6
9300	1

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Figure 131: Task

UNIT 4 Adoption of SAP S/4HANA

Exercise 3: First view in the SAP HANA Database

UNIT 4 Adoption of SAP S/4HANA

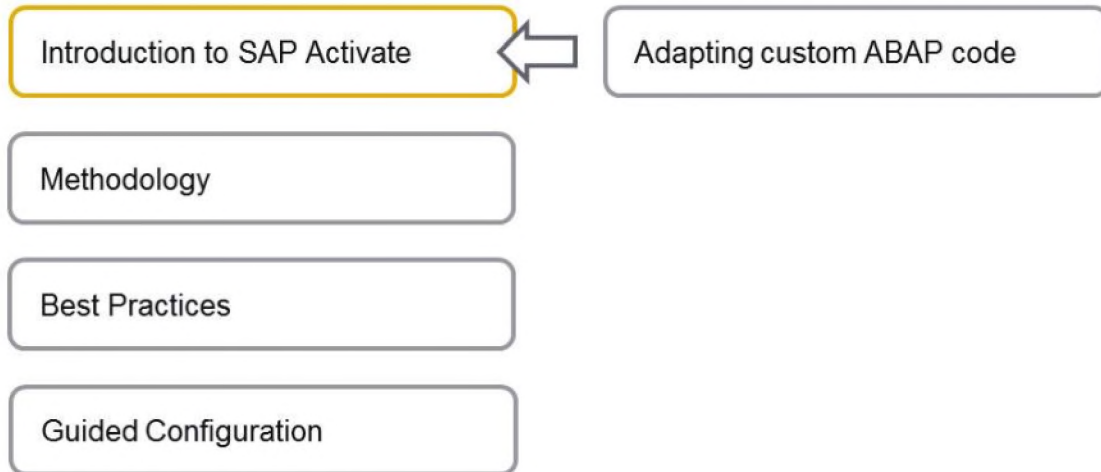


UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

Lesson: SAP Activate

Agenda



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Figure 132: Agenda

UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

Learning Objective



After completing this lesson, you will be able to:

- Describe the overall aim of SAP Activate

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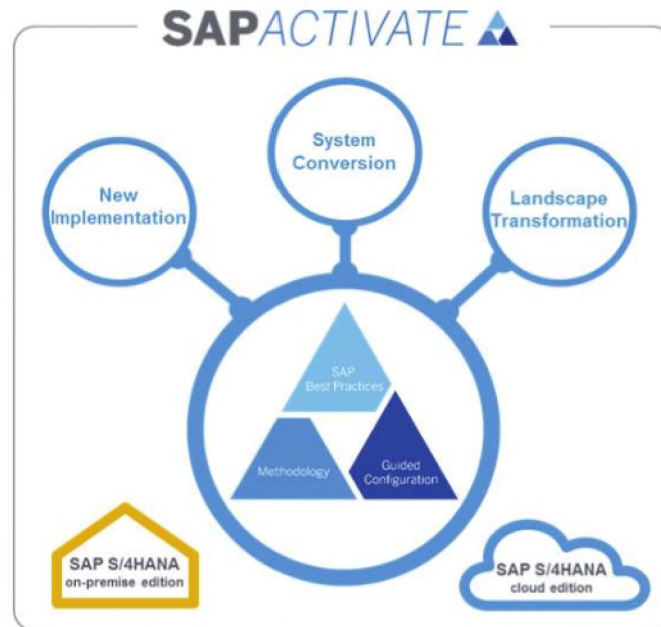
Figure 133: Learning Objective



UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

Introducing SAP Activate



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Figure 134: Introducing SAP Activate

SAP Activate is the combination of SAP Best Practices and tools to help customers simplify and accelerate the adoption of SAP S/4HANA.

There are three main components to SAP Activate:

SAP Best Practices: Ready configured business processes optimized and following industry best practices

Methodology: SAP guidance to ensure a well-managed and accelerated implementation and continuous optimisation

Guided Configuration: tools to help activate best practices content and make customised adjustments

SAP Activate is available for on premise and cloud editions of S/4HANA.

SAP Activate supports 3 deployment scenarios:

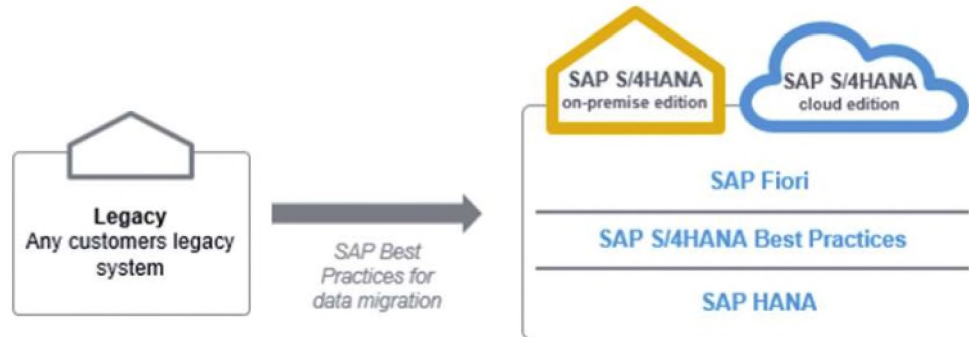
- New implementations
- System conversion
- Landscape Transformation

Let's take a closer look at those 3 scenarios.

UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

1 – New implementation



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Figure 135: 1 – New implementation

In scenario 1 we are focusing on customers coming from any legacy system or SAP Business Suite customers who want to start again with a new installation. This includes the following technical installation steps for an S/4HANA on premise implementation:

- The installation SAP NetWeaver Application Server ABAP 7.5 based on SAP HANA
- The installation of SAP S/4HANA, on-premise edition
- The installation SAP Fiori for SAP S/4HANA, on-premise edition

In this scenario, the SAP S/4HANA system is implemented, and master and transactional data are migrated from the legacy system using data migration best practices. Depending on customer requirements and deployment type either SAP Landscape Transformation (SAP SLT) or SAP Data Services is used for migration. Moreover integration into cloud solutions can easily be achieved with cloud integration best practices. We'll have a closer look into the various integration options later on.

Your implementation project does not start from scratch. The initial configuration of SAP S/4HANA is based on a pre-configured system providing ready-to run business processes with sample data and marks the starting point for process reengineering and simplification.

Also, you can take advantage of SAP Activate Methodology for on premise or cloud edition to steer the implementation project.

UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

2 – Existing SAP system conversion



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Figure 136: 2 – Existing SAP system conversion

The second scenario – referred to as system conversion - is focused on existing SAP Business Suite customers who want to change their current system into a SAP S/4HANA on premise system. This includes technically the following main steps:

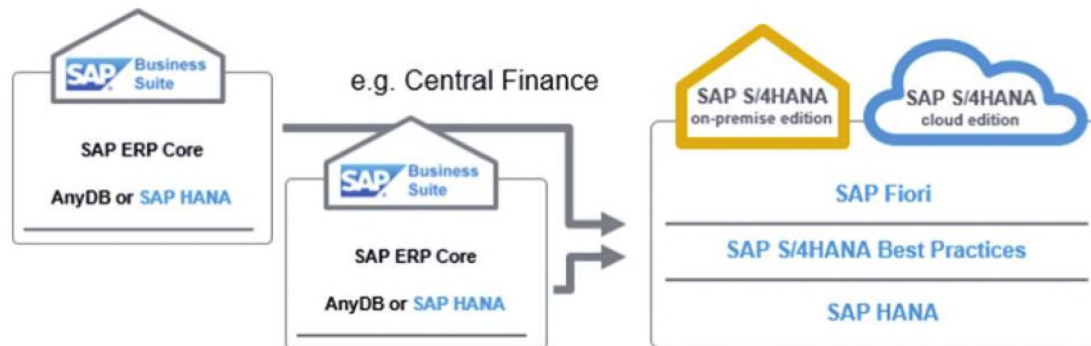
- You update your system to SAP Net Weaver Application Server ABAP 7.5
- Next you migrate the database to SAP HANA in case, the SAP Business Suite system is not yet on SAP HANA
- Followed by the installation of SAP S/4HANA, on premise edition and installation of SAP Fiori for SAP S/4HANA, on premise edition
- Finally you migrate data from the old data structures to the new simplified data structures

Obviously, the biggest advantage for customers choosing this option is the migration without reimplementation, meaning a non-disruptive approach for existing business processes while still being able to transition over time.

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Lesson: SAP Activate

3 – Landscape transformation



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Figure 137: 3 – Landscape transformation

The third scenario targets supports SAP Business Suite customers who want to re-organize the shape of their current system landscape and S/4HANA is playing a key role in the target landscape.

For example, where multiple systems will be merged into one target S/4HANA. Or one system is being split up into multiple target S/4HANA systems perhaps to separate individual companies. In the example of a transformation to SAP S/4HANA on-premise edition the following main technical steps are required:

- Possibly a new installation of a SAP S/4HANA, on-premise edition or a conversion to SAP S/4HANA, on-premise edition
- Additional migration steps that are based on SAP Landscape Transformation combined with SAP Landscape Optimization services
- Examples for more complex scenarios might be the set-up of a central finance instance so individual source systems (SAP or Legacy) can post their finance data to a central S/4HANA.

UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

Learning Objective



You should now be able to:

- Describe the overall aim of SAP Activate

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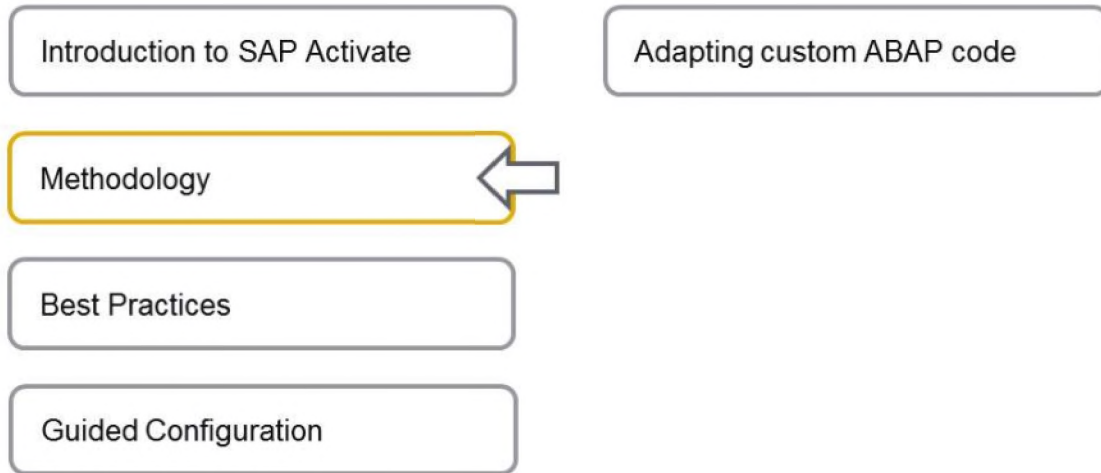
Figure 138: Learning Objective



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Lesson: SAP Activate

Agenda



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Figure 139: Agenda

UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

Learning Objective



After completing this lesson, you will be able to:

- Describe SAP Activate Methodology

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Figure 140: Learning Objective



UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

SAP Activate - Methodology



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Figure 141: SAP Activate - Methodology

SAP Activate methodology provides one simple, modular and agile methodology that supports all S/4HANA transition scenarios.

SAP Activate provides full support for initial deployments but also provides support after go-live for continuous business innovation.

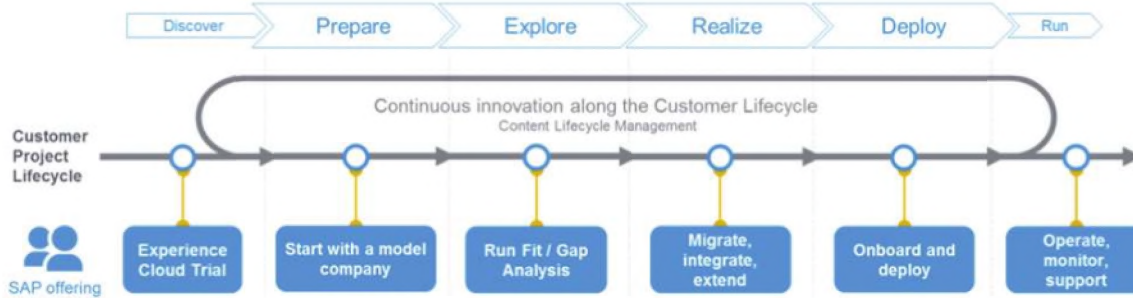
SAP Activate methodology enables co-innovation with customers and is accessible for partners who can add their own content, perhaps to support specific industry or country requirements.

SAP Activate methodology is the successor of the ASAP and SAP Launch methodologies.

UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

Roadmap



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Figure 142: Roadmap

SAP Activate methodology provides a detailed road map for a simplified deployment for S/4HANA.

The roadmap starts by guiding customers to an exploration phase for S/4HANA using a trial version. Customers can try out the SAP Fiori user experience across many pre-configured business scenarios.

Next, customers are guided in the setup of their own private model company so they can fully explore the functions and processes. The setup of the model company is very fast as we already populate it with example master data and transactions and it is already configured for best practices.

In the next phase, using the model company, we guide customers through a fit / gap analysis to identify what needs to be done to adapt the system to the exact requirements of the customer.

In the next phase, customers are guided through best practice integration with business networks such as Ariba and cloud based applications such as Successfactors. This phase also guides customers through data migration, customization and extensions all following SAP Best Practices.

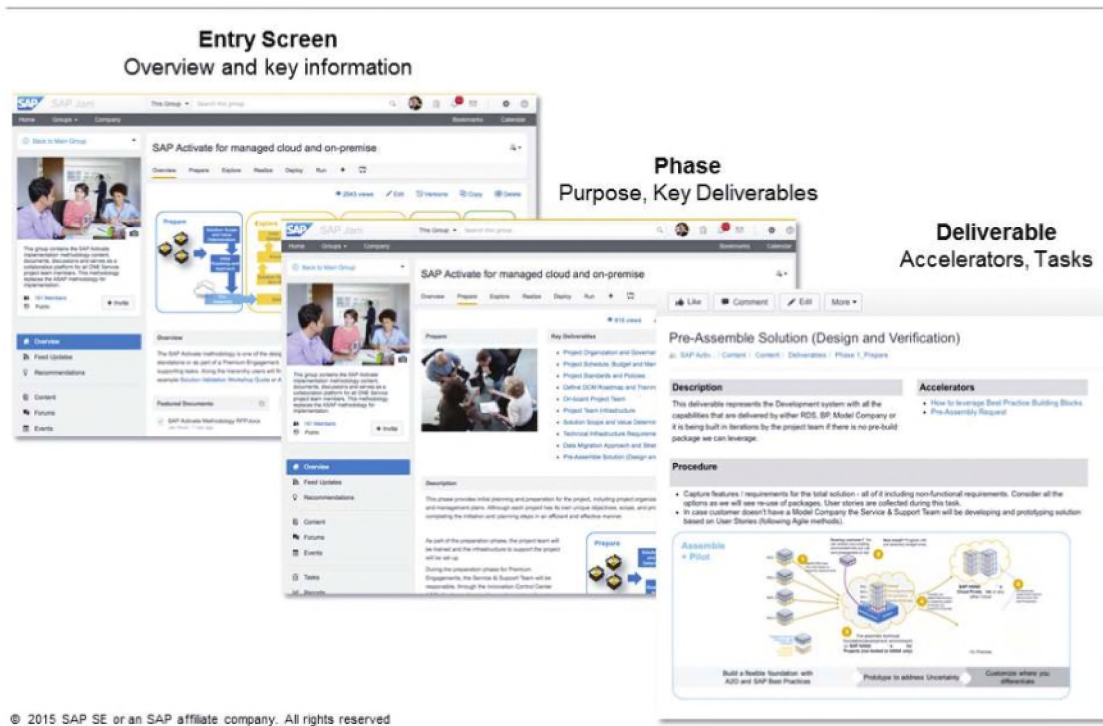
The onboarding phase ensure customers cover all the key areas of preparation for go-live including user readiness facilitated by SAP Learning Hub - SAP's education in the cloud solution.

Finally, we ensure customers are fully ready for the continuous operation and optimization of their solution using best practices for monitoring and support

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SAP Activate Methodology on SAP JAM



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Figure 143: SAP Activate Methodology on SAP JAM

SAP Activate methodology is available to end users through the Methodology Jam community that is open to customers and partners as well as SAP internal users. Let's take a look at how the SAP Activate Methodology is structured in the JAM community

The landing page contains overview information, latest updates and key links

From landing page users can navigate to specific methodology phase and explore the key project management deliverables in the phase

In case users want to dive deeper they can access the deliverable details that provides description of the deliverable and appropriate accelerators.

In addition to this structure the Jam space contains collaboration areas. Users can comment and provide feedback on each item in this group start discussions and engage with SAP experts or share examples with community.

To request access to SAP Activate methodology use this link:

<http://scn.sap.com/community/asap-methodology/blog/2015/07/09/sap-activate-methodology-jam-space--we-are-open-come-in>

UNIT 4 Adoption of SAP S/4HANA

Lesson: SAP Activate

Learning Objective



You should now be able to :

- Describe SAP Activate Methodology

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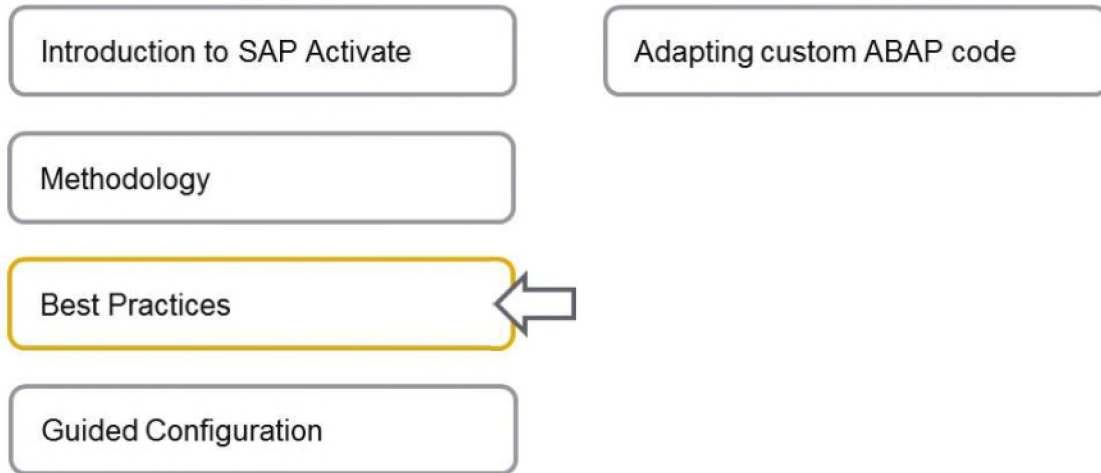
Figure 144: Learning Objective



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Figure 145: Agenda

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Learning Objective



After completing this lesson, you will be able to:

- Describe SAP Activate Best Practices

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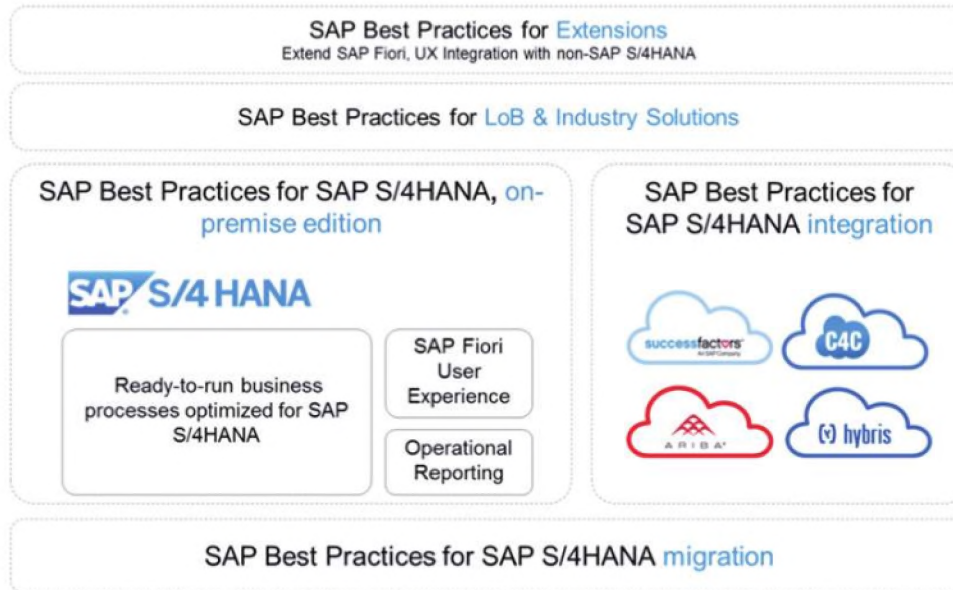
Figure 146: Learning Objective



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Lesson: SAP Activate

Best Practices for SAP S4HANA, on premise edition



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Figure 147: Best Practices for SAP S4HANA, on premise edition

SAP Best Practices for SAP S/4HANA provide ready-to-run digitized analytical and operational business processes that cover the fundamental business processes of an enterprise, often referred to as the baseline.

No matter if you want to streamline your procure to pay processes, optimize your order to cash flow or take advantage of simple finance, we provide a pre-configuration for many of your business priorities.

Let's take a look at an example of a new financial implementation.

- You can leverage parallel accounting to address multi national reporting requirements. Don't create a standard chart of accounts – it's there.
- Best practice for closing books, remaining IFRS compliant, tracking debits and credits, calculating taxes – all preconfigured in your solution. These business processes are easily integrated with other cloud solutions, such as SuccessFactors Employee Central or the Ariba Network.

SAP best practices also guide customers through the migration process to SAP S/4HANA, whether they migrate existing SAP ERP solutions from a non-SAP database or legacy systems. SAP Best Practices cover integration and migration fundamentals. In summary, whether you're doing a new implementation, a conversion or landscape transformation, you never start from a blank slate. Instead, SAP Activate gives you sample data, clear guidelines, and step-by-step directions on how to move from your current landscape to your goal.

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With the next releases of SAP S/4HANA in 2016 we also plan to deliver first SAP Best Practices for Line-of-Business and Industry extensions on top of the baseline, plus additional knowledge and information on integration and extensibility for User Experience, Business Analytics and also for enhancing SAP processes to fit your needs.

Best Practices for SAP S4HANA, cloud edition



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Figure 148: Best Practices for SAP S4HANA, cloud edition

SAP Best Practices for SAP S/4HANA, cloud edition allow you to rest easy when it comes to system requirements or maintenance scenarios. SAP provides the system and is responsible for all maintenance and upgrade operations. You benefit from the latest innovations by automatically getting quarterly updates provisioned in your solution. This option may appeal to you if you prefer standardized business processes and if you want take advantage of fully deployed business scenarios in the cloud for a quick time to value.

Currently SAP offers best practices for all deployment options of SAP S/4HANA,

- Cloud edition
- Enterprise edition
- Project Services edition
- Marketing edition

Let's take a look at another example – image you're looking for better insights into your customers. With customer analytics in SAP S/4HANA cloud marketing edition you can identify interests and create a 360° view of people in your ecosystem. Segmentation of contact data and the preparation

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and execution of campaigns then support to transform the gained insight to action. Based on that, you develop people from anonymous contacts to high-value customers and brand advocates.

Or if you're a service provider and you want to manage customer projects, SAP Best Practices for SAP S/4HANA cloud project services edition provides an end-to-end process of selling services, managing staffing, and recording of working times up to the creation of customer invoices with all necessary details.

Please notice, that the available scope of pre-configured processes for SAP S/4HANA, enterprise edition equals the scope of the on premise baseline. Moreover, the solution scope of SAP S/4HANA, marketing edition and project services edition is fully determined by the available SAP Best Practices.

Just like with the on premise version of SAP S/4HANA, the SAP Best Practices included with SAP Activate walk you through the migration, integration and fine tuning of SAP S/4HANA.

Base scope for Best Practices

SAP Best Practices base scope for SAP S/4HANA

Business Priority	On-premise / Enterprise edition	Project services edition	Marketing edition
Core Finance	x	x	
Procure to Pay	x	x	
Order to Cash	x	x	
Plan to Product	x		
Project Services	x	x	
Strategic Marketing			x
OPTIONAL	Integration with Ariba	x	
	Integration with C4C	x	
	Integration with SFSF	x	

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Figure 149: Base scope for Best Practices

Ready-to-run business processes delivered with SAP Activate support core industry requirements and cross enterprise priorities, for on premise as well as for the cloud. This table provides an overview for which business priorities we provide coverage with preconfigured processes.

SAP Best Practices baseline as of today supports requirements of 11 core industries, not including industry extensions. These industries are:

- Consumer Products,



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- Wholesale Distribution,
- Life Sciences,
- Chemicals,
- Mill Products & Mining,
- Automotive,
- High Tech,
- Industrial Machinery & Components,
- Aerospace & Defense,
- Engineering,
- Construction & Operations and Professional Services.

The detailed breakdown of available preconfigured processes by line-of-business or by end-to-end solutions is available through the SAP Activate JAM community or in the business scenario recommendation tool.

Learning Objective



You should now be able to :

- Describe SAP Activate Best Practices

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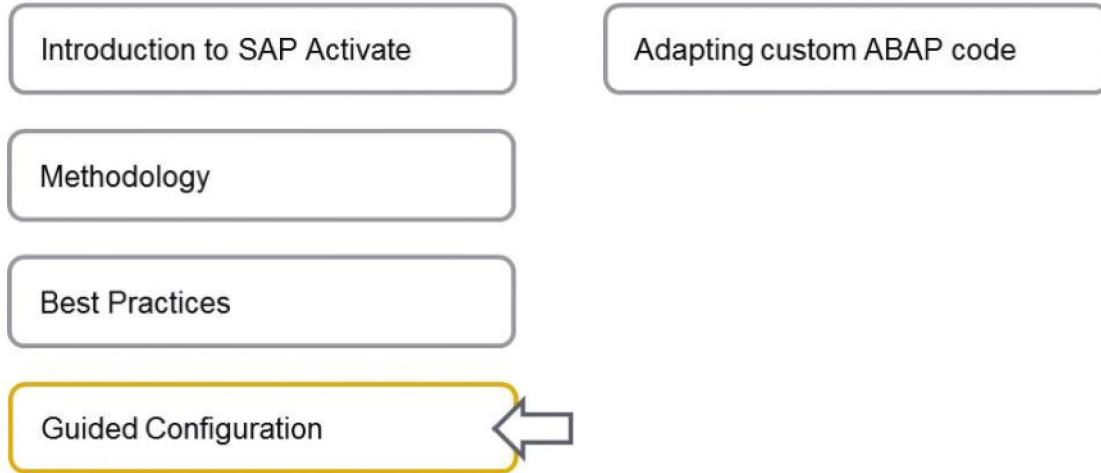
Figure 150: Learning Objective



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Figure 151: Agenda

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Learning Objective



After completing this lesson, you will be able to:

- Describe SAP Activate Guided Configuration

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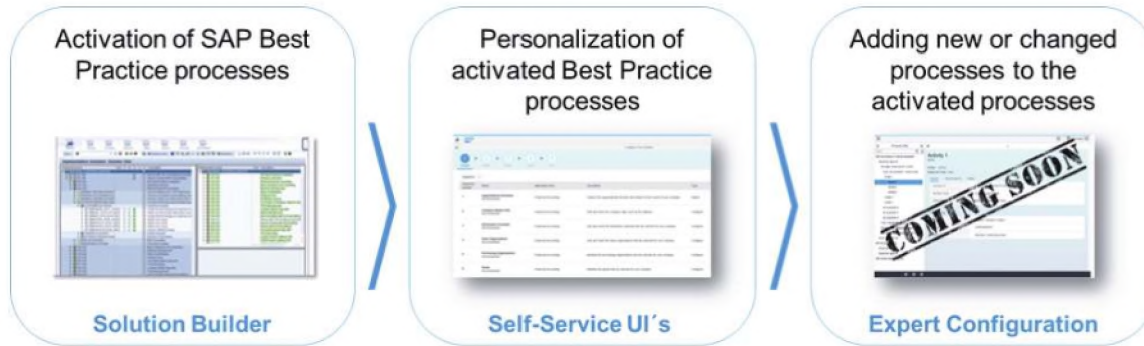
Figure 152: Learning Objective



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Guided Configuration



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Figure 153: Guided Configuration

SAP Activate Guided configuration is a new environment and approach for an assisted way to implement SAP Best Practices and facilitates the lifecycle management of the pre-configured business processes from SAP and any additional customizing added by the customer. SAP is providing various tools to support these efforts.

Solution Builder

This tool is used to develop and structure configuration content according to the domain model of SAP.

All processes are modelled as scope items, scope items are implemented through building blocks. Content is not an option, but an integral part of the product. Solution Builder is used to activate this SAP Best Practices content in the customer system.

Self Service Configuration UIs

Next to the activation of ready-to-run business processes delivered by SAP Best Practices, customers typically want to personalize processes.

Personalization typically does not change a business process but adjusts settings to the customer needs.

SAP provides easy-to-use Fiori applications for self-service configurations to support personalization.

Expert Configuration

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Our experience has thought us that almost no customer project can be implemented without adjustments

Customers typically want to add new processes or adjust pre-configured business processes delivered by SAP Activate

SAP will make Expert Configuration available to support these needs

With expert configuration you can create your own scope items and (delta) building block(s) for any complementary content development at your side

Manage your solution

-  **Configure Your Solution**
for initial implementation & continuous innovation adoption
-  **Test Your Processes**
Business process driven, pre-defined automated test
-  **View Solution Scope**
Evaluate activated business processes and country versions
-  **Migrate Your Data**
Embedded migration engine for simple data migration
-  **User training & onboarding**
Guided Product tours included into the product



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Figure 154: Manage your solution

SAP Activate Guided configuration is available through the “Manage Your Solution” Fiori-application. Its business process oriented. A user is taking advantage of the following features:

- Initial configuration of the solution and recording of updates for continuous innovation
- A process driven approach for testing your configured business processes
- A simple possibility to evaluate activated business processes and country versions
- An embedded migration engine for simple data migration
- And user training and onboarding.

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Let's go into the details of the different features.

Learning Objective



You should now be able to :

- Describe SAP Activate Guided Configuration

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Figure 155: Learning Objective



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How SAP Activate supports customer adoption scenarios

	New Implementation	System Conversion	Landscape Transformation
Scenario Characteristics	Migration of transactional & master data to S/4HANA	Technical upgrade and migration of complete SAP ERP to S/4HANA	IT consolidation or carve out specific parts of a SAP Business Suite. Re-Implement these parts on S/4HANA
Target Group	Installed Base & Net New	Installed Base	Installed Base
Deployment type S/4H			
SAPACTIVATE	• SAP Best Practices	✓	Migration & cloud integration Ready-to-run business processes as they apply to the scenario
	• SAP Activate Methodology	✓	✓
	• SAP Guided Configuration	✓	Limited applicability Applicable as far as ready-to-run business processes are used

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Figure 156: How SAP Activate supports customer adoption scenarios

First we introduced the 3 different customer migration scenarios, new implementation, system conversion and landscape transformation.

After that, we've been looking in the to 3 pillars of SAP Activate. SAP Best Practices, methodology and tools for an assisted implementation.

Now, in summary, how does SAP Activate support the implementation scenarios?

New Implementations are fully supported by all elements of SAP Activate. System conversions still take advantage of migration and cloud integration best practices. However, as we migrate an existing customer system in this case with existing business configuration the pre-configured processes might not apply. Moreover, as these existing customer configurations typically have not been modeled according to content lifecycle management standards, SAP Guided Configuration does not support this scenario.

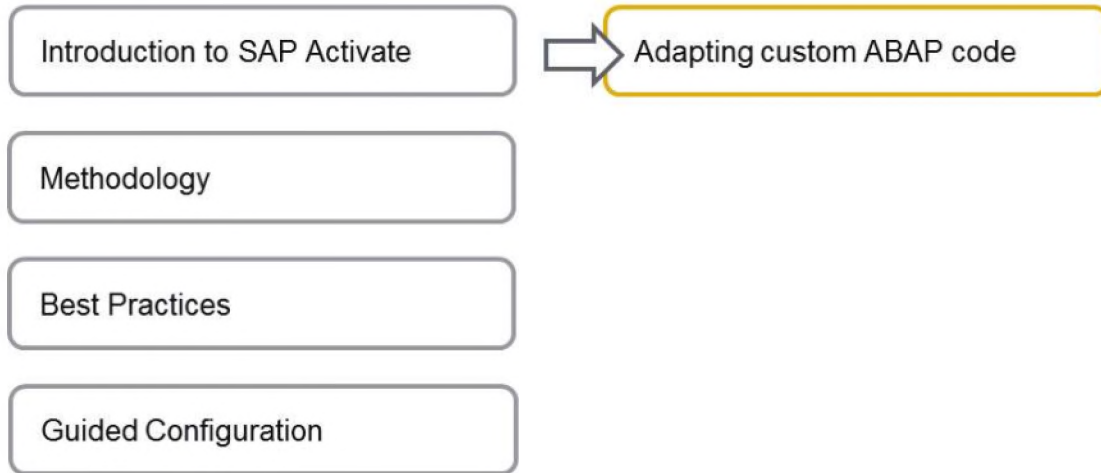
Finally for landscape transformations SAP Activate Methodology fully supports the management of the project, SAP Best Practices and Guided Configuration only apply as far as the preconfigured processes are used for the re-implementation on SAP S/4HANA.



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Figure 157: Agenda

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Learning Objective



After completing this lesson, you will be able to:

- Understand the importance of a custom code review

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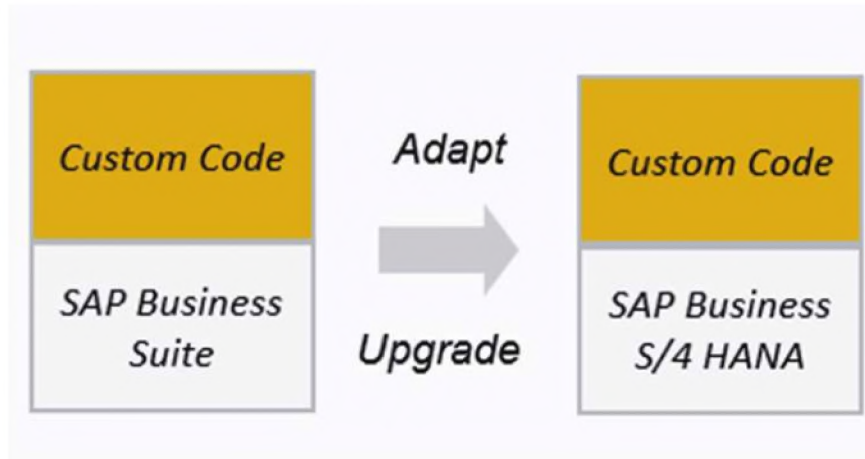
Figure 158: Learning Objective



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Review custom ABAP code during migration phase



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Figure 159: Review custom ABAP code during migration phase

SAP have always made it possible for customers and partners to adapt the processes and add new functionality to all applications. Whether it is to add new fields to the screens, add new columns to tables, or add new functions and interfaces we can expect that all implementations of legacy SAP systems have some kind of customisation.

When a customer migrates their existing SAP system to S/4HANA, the standard ABAP code will be migrated, and if necessary, adjusted automatically by the migration tools in order to run optimally on SAP HANA.

Let's remember that S/4HANA runs on SAP HANA's in-memory database and although the database compares conceptually to a traditional disk based database, there are some features that are not the same. When custom code was written, the developer would have applied coding techniques that were optimal for traditional databases. These techniques are often not optimal for SAP HANA and will need to be reviewed and perhaps adjusted.

However, although the migration tools will move custom code to the new S/4HANA target system, there will be no automatic adjustment of the code.

The good news is that in most cases the code will run as expected. But an important task in a migration to S/4HANA project should be the detailed review of custom ABAP code in order to ensure two things:

- That the custom code still functions as expected – there are a few coding techniques and database objects that simply do not work in S/4HANA and must be replaced

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- That the custom code runs optimally with SAP HANA. Although the code may run, there are easy adjustments to the code that can make a huge impact on performance

Let's take a look at some specific examples of what we should look out for on the next slides.

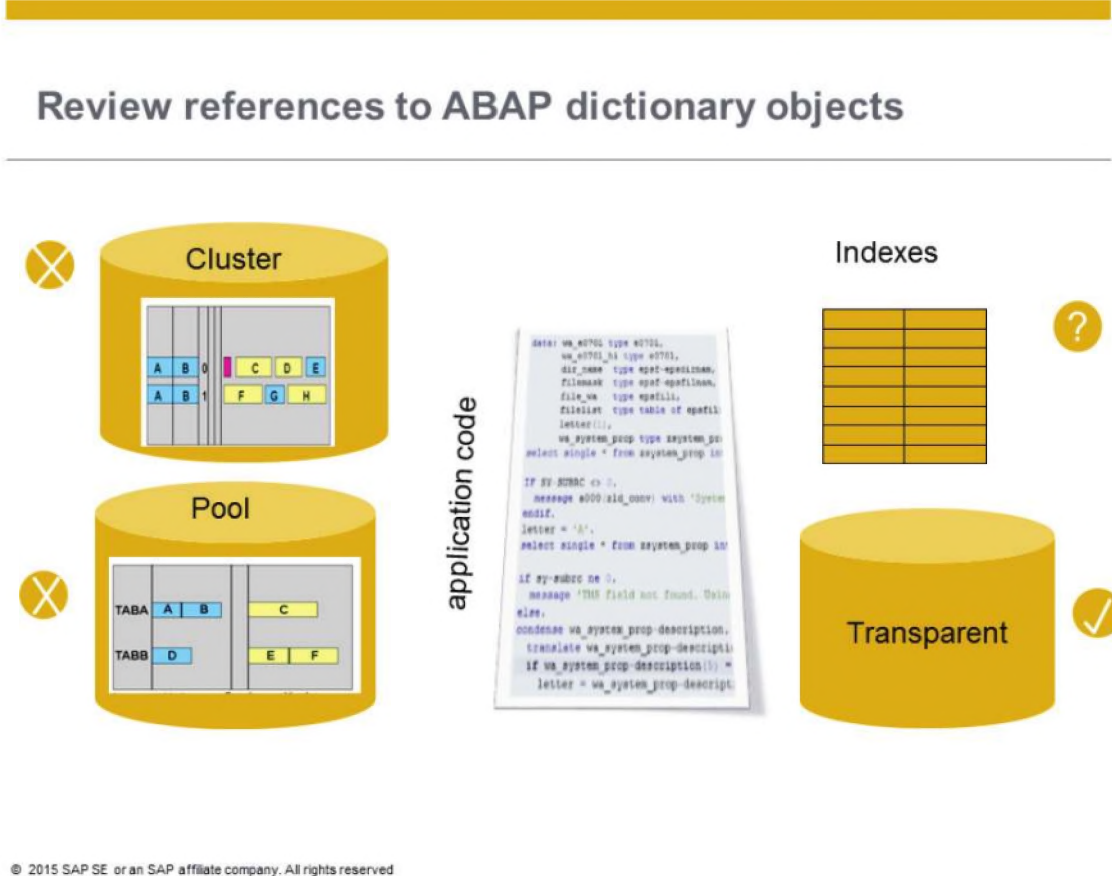


Figure 160: Review references to ABAP dictionary objects

In the past, special types of ABAP tables were used in order to overcome limitations of the underlying databases that powered SAP applications.

These tables were called pool and cluster tables and are found in many standard and custom ABAP code. One of the key reasons for using special tables was to overcome design limitations of tables in certain databases. The special tables sit in the ABAP layer on top of the physical database and act as a logical layer to the ABAP code.

SAP S/4HANA does not need these special types of tables and uses only one type of table called a transparent table, with no loss in performance or function at all. A transparent table has a one-to-one relationship with a physical table.

During migration, the special tables are converted to transparent tables. SAP standard code is automatically adjusted to switch from calling the special tables to transparent tables.

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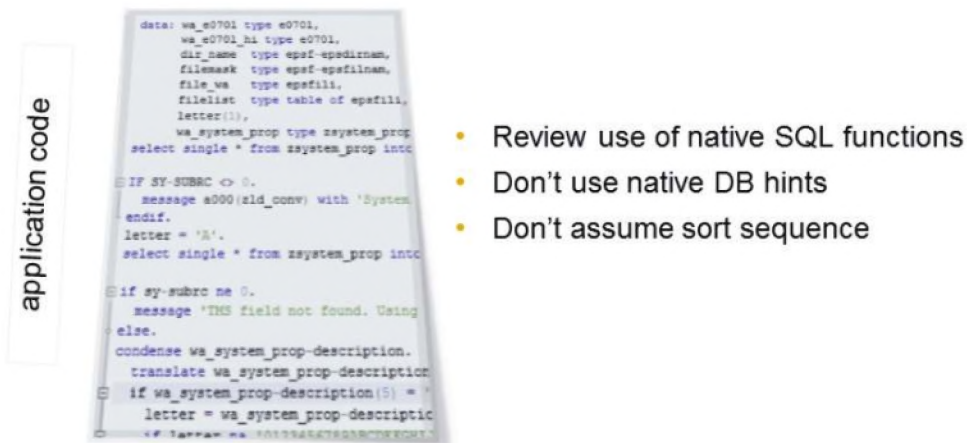
Lesson: SAP Activate

Also be aware that secondary indexes are dropped during migration. Indexes are usually not required by SAP HANA. If your code refers to these you must make adjustments.

Customers and partners need to make their own checks and adjust their code where necessary.

Some good news – if your custom code referred to a standard table that has now been removed, SAP provide views for all removed tables. This means your code still works and just uses the view

Other essential ABAP code checks



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Figure 161: Other essential ABAP code checks

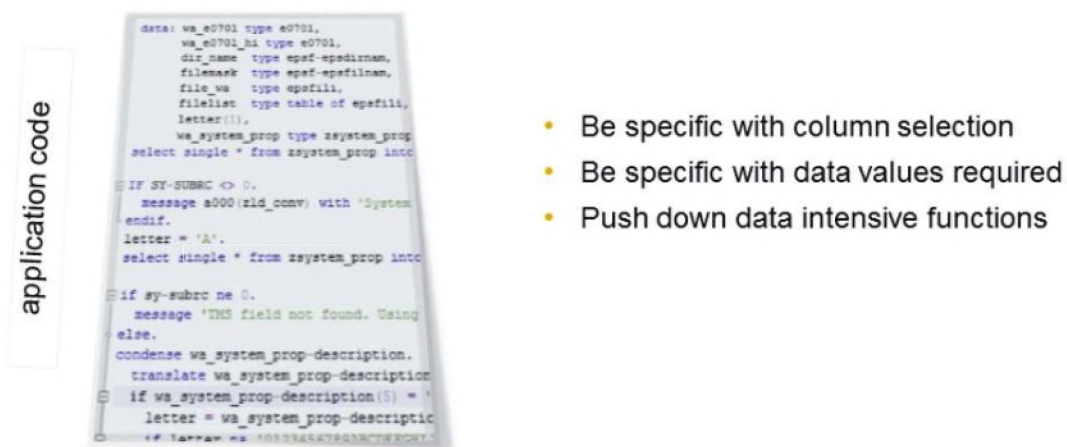
Things to watch out for with the ABAP code that means the application may not function as expected:

- Review of native SQL – e.g. functions that only works with MS SQL Server, database hints to override the SQL execution plan (eg use this aggregate if it exists).
- Avoid SELECT * - this is another way of asking for all columns in a record, SAP HANA's column based DB works better when you ask for only columns you need.
- Don't assume a sort sequence of the results – sort sequences were usually implied by the primary key, SAP HANA does not pre-sort the data, you must explicitly code this sort request if needed

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Recommended ABAP code review



application code

```
data: wa_e0701 type e0701,
      wa_e0701_hi type e0701,
      dir_name type epcf-epedirnam,
      filemask type epcf-epafilnam,
      file_wa type epcfll,
      filelist type table of epcfll,
      letter(1),
      wa_system_prop type zsystem_prop
select single * from zsystem_prop into
wa_e0701.

IF SY-SUBRC <> 0.
  message s000(zld_conv) with 'System
  endif.
  letter = 'A'.
  select single * from zsystem_prop into
  wa_e0701_hi.

if sy-subrc ne 0.
  message 'IMS field not found. Using
  else.
  condense wa_system_prop-description.
  translate wa_system_prop-description
  if wa_system_prop-description(5) = '
    letter = wa_system_prop-descriptio
  if letter wa
```

- Be specific with column selection
- Be specific with data values required
- Push down data intensive functions

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Figure 162: Recommended ABAP code review

Things to watch out for with the ABAP code to improve the performance:

Avoid SELECT * - this is another way of asking for all columns in a record, SAP HANA's column based DB works better when you ask for only columns you need and prevent filling memory with unwanted columns.

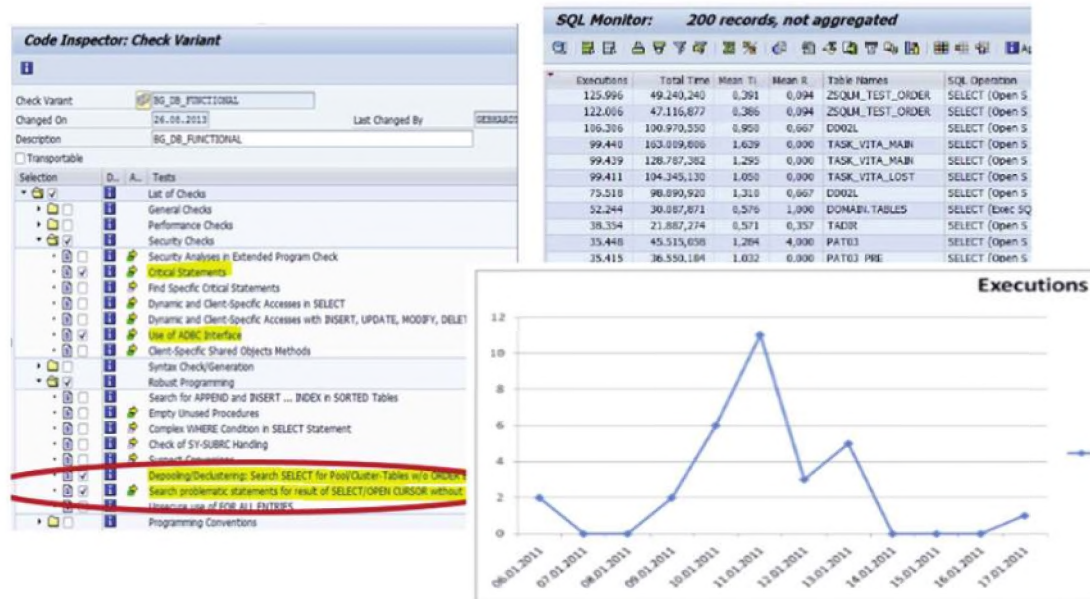
Send a WHERE clause to the SAP HANA database, often developers request all data (no WHERE) then filter in the application code.

Push down all data intensive functions to the SAP HANA database, e.g. aggregation, filters, sorts, do this by calling native SAP HANA database functions

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Tools for code review



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Figure 163: Tools for code review

SAP provide tools to speed up and automate the code review phase and ensures nothing is missed.

ABAP Code Inspector allows developers to choose the type of checks they want to make.

For example:

Show me where I refer to pool and cluster tables

*Show me where I use SELECT **

SQL Monitor to identify bottlenecks so developers can focus on improving the worst offending code

Takes a long time to read a table, maybe table partitioning could help?

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Usage Procedure Logging (UPL) to identify dead code, or code that is rarely used. Don't waste time improving this is no-one uses it

Learning Objective



You should now be able to:

- Understand the importance of a custom code review

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Figure 164: Learning Objective



UNIT 5 SAP S/4HANA Applications

Lesson: SAP Activate

UNIT 5 SAP S/4HANA Applications



UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Finance

Lesson: SAP S/4HANA Finance

Agenda



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Figure 165: Agenda

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UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Finance

Learning Objective



After completing this lesson, you will be able to:

- Describe the benefits of SAP HANA Finance

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5

Figure 167: Learning Objective



UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Finance

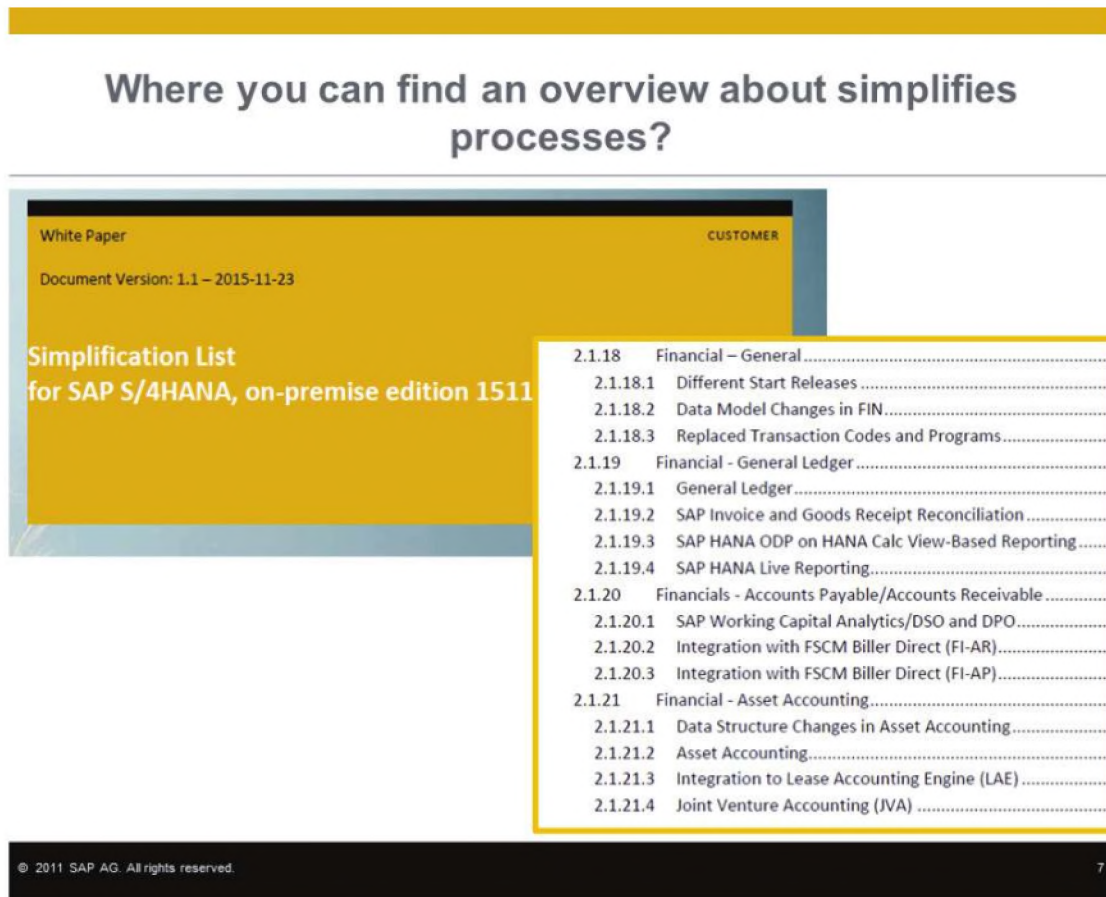


Figure 168: Where you can find an overview about simplifies processes?

There are a lot of simplified processes inside the newest version of S/4HANA 1511.

All these information you find in this white paper in detail.

A big part of this progress based on a redesign of the data model inside S/4HANA Finance.

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Finance

Weaknesses of the old architecture

Why “P&L (/Balance Sheet) Insight” Doesn’t Work In The Old Business Architecture

All components needed for full insight and detail

Join of *huge* line item tables in itself is a challenge in “sub second”

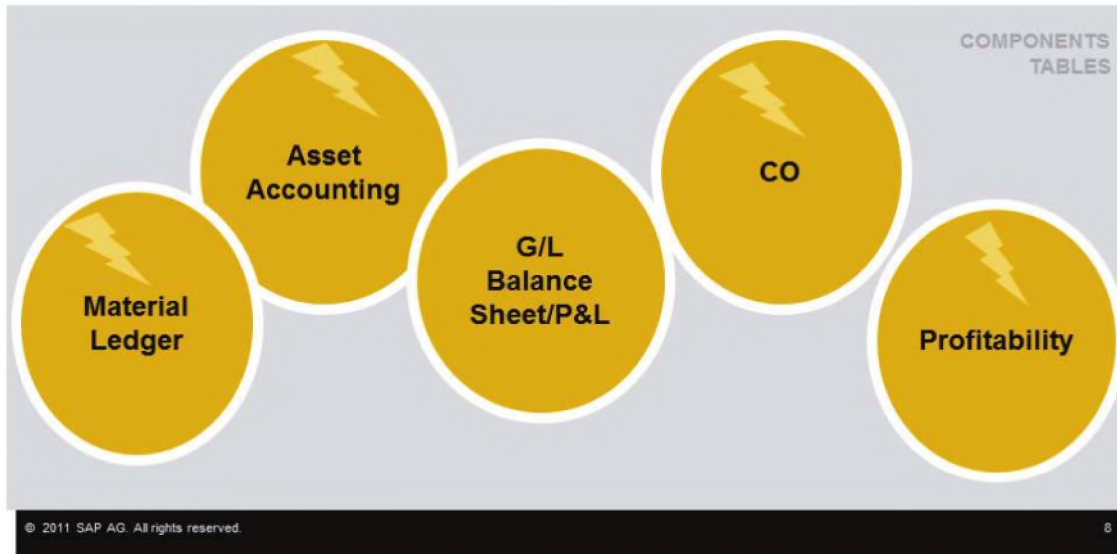


Figure 169: Weaknesses of the old architecture Why “P&L (/Balance Sheet) Insight” Doesn’t Work in the Old Business Architecture

And there were some gaps inside the old architecture too.

Material Ledger: Material Ledger does not store G/L account and Profit Center

Asset Accounting: No profit center & no G/L account in Asset Accounting Totals

Controlling: Different level of detail due to the ‘999’ document lines limit1: n documents FI/CO n: m document lines FI/CO

Profitability: G/L and Profitability updated at different business events on different entities (e.g. account)

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Finance

Multiple Sources of Truth Challenges of the Architecture before Simple Finance

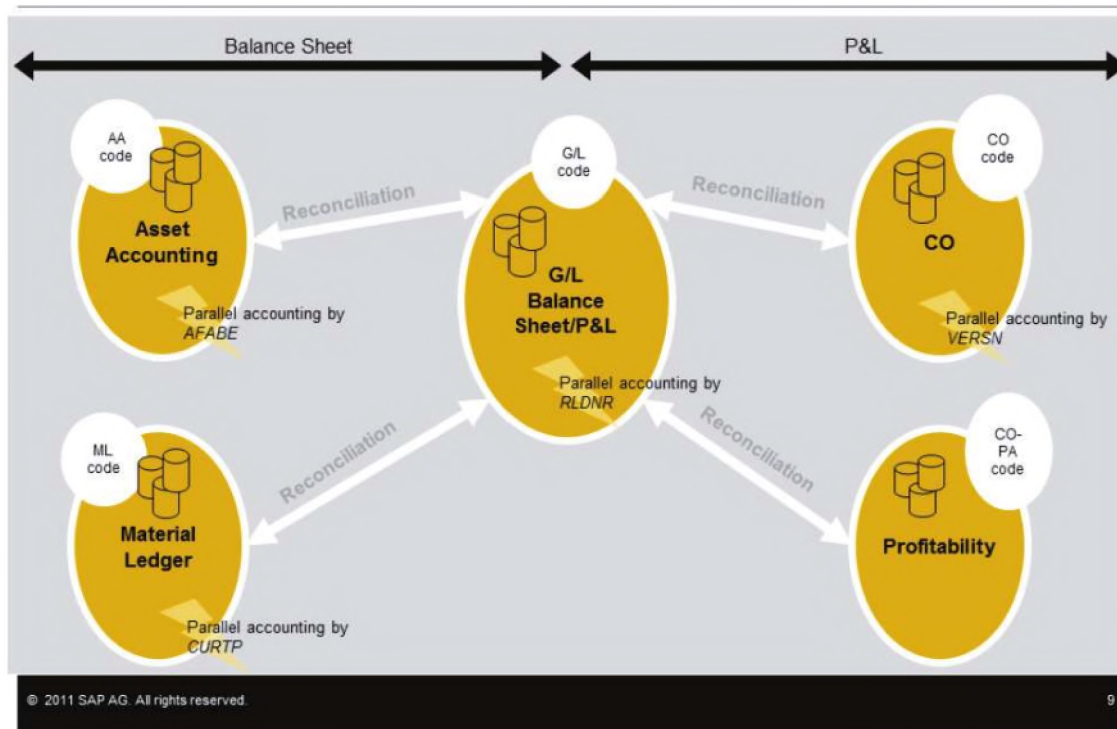


Figure 170: Multiple Sources of Truth Challenges of the Architecture before Simple Finance

Challenges:

The combined content of several tables represents “the truth”. Reconciliation efforts are needed by architecture.

Design enforced due to technical limitations without HANA. What are the topics for that?

- All components have individual line items and aggregates
- Overall n documents and m aggregates
- Components are structured differently (e.g. fields/entities differ)
- Different level of detail stored in the respective components/tables
- Need “to move” data to the appropriate table for reporting (e.g. “settlement”)
- Different capabilities in the components (customer fields, currencies, multi-GAAP etc.)
- No uniform extensibility concept due to focus on totals!
- Multiple BI extractors needed to cover the complete truth in BI

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Finance

The Concept of Universal Journal

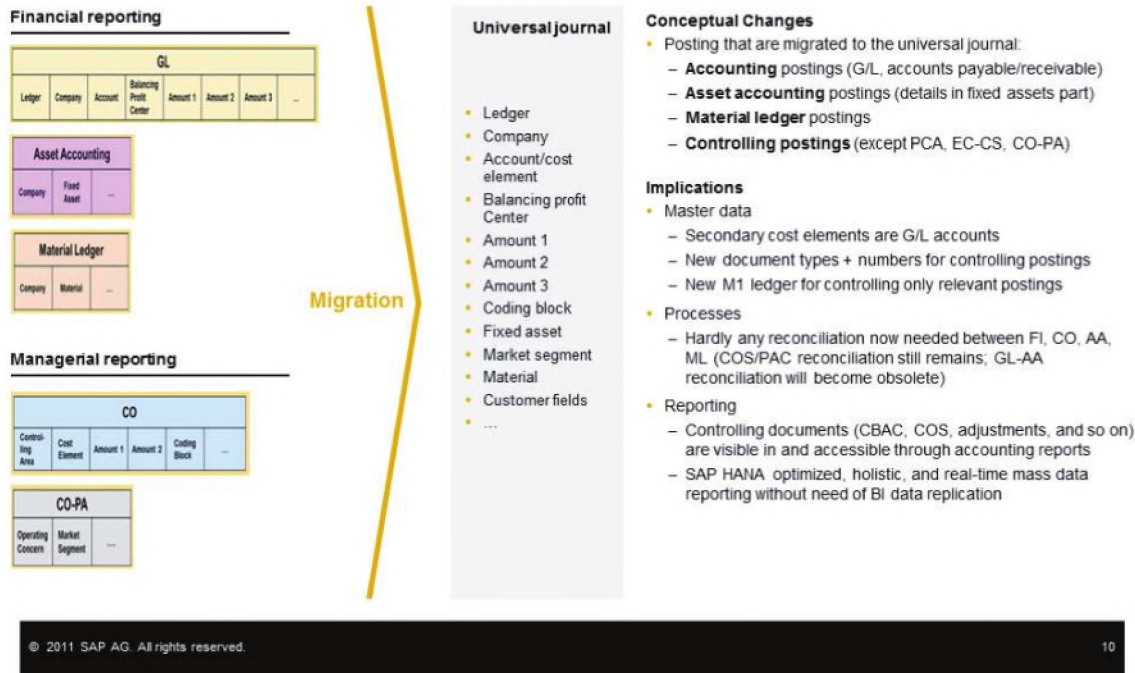


Figure 171: The Concept of Universal Journal

Big architectural simplification: No reconciliation any longer needed between FI, CO, AA, and ML - Data stored only once.

One line item table with full detail for all components- for instant insight & easy extensibility.

Harmonization of Account and Cost Element: Secondary cost elements are GL accounts

Profitability attributes real time written to every P&L item. Reuse of CO-PA technology

HANA optimized fast multi-dimensional reporting on the Universal Journal possible without replicating data to BI.

If BI is in place anyway, only one single BI extractor needed (instead of many today)

Simplified extensibility concept: Only one table has to be enhanced. More fields possible.

Technical preparation done to enhance important structural capabilities of the Financials solution (e.g. multi-GAAP, additional currencies)

Reduction of memory footprint through elimination of redundancy.

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Lesson: SAP S/4HANA Finance

ACDOCA Universal Journal

Dictionary: Display Table

Transparent Table: ACDOCA Active

Short Description: Universal Journal Entry Line Items

Attributes | Delivery and Maintenance | **Fields** | Entry help/check | Currency/Quantity Fields

Field	Key	Incl...	Data element	Data Type	Length	Deci...	Short Description
RCLNT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MANDT	CLNT	3		Client
RLDNR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	FINS_LEDGER	CHAR	2		Ledger in General Ledger Accounting
RBUKRS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	BUKRS	CHAR	4		Company Code
GJAHR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	GJAHR	NUMC	4		Fiscal Year
BELNR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	BELNR_D	CHAR	10		Accounting Document Number
DOCLN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	DOCLN6	CHAR	6		Six-Character Posting Item for Ledger
RYEAR	<input type="checkbox"/>	<input type="checkbox"/>	GJAHR_POS	NUMC	4		General Ledger Fiscal Year
RRCTY	<input type="checkbox"/>	<input checked="" type="checkbox"/>	RRCTY	CHAR	1		Record Type
.INCLUDE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ACDOC_SI_00	SIRU	0		Universal Journal Entry: Transaction, Currencies, Units
RMVCT	<input type="checkbox"/>	<input type="checkbox"/>	RMVCT	CHAR	3		Transaction Type
VORGN	<input type="checkbox"/>	<input type="checkbox"/>	VORGN	CHAR	4		Transaction Type for General Ledger
VRGNG	<input type="checkbox"/>	<input type="checkbox"/>	CO_VORGANG	CHAR	4		CO Business Transaction
BTIYPE	<input type="checkbox"/>	<input type="checkbox"/>	FINS_BTIYPE	CHAR	4		Business Transaction Type
AWTYP	<input type="checkbox"/>	<input type="checkbox"/>	AWTYP	CHAR	5		Reference Transaction
AWSYS	<input type="checkbox"/>	<input type="checkbox"/>	AWSYS	CHAR	10		Logical system of source document

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Figure 172: ACDOCA Universal Journal

Fast multi-dimensional Hana based reporting on the Universal Journal possible without replicating data to BI

If BI is in place anyway, only one single BI extractor needed because secondary cost elements are now G/L accounts too.

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ACDOCA Universal Journal

Dictionary: Display Technical Settings

Revised<->Active i

Name	ACDOCA	Transparent Table
Short Descript.	Universal Journal Entry Line Items	
Last Changed	SAP	03.08.2015
Status	Actv.	Saved

General Properties | **DB-Specific Properties**

Storage Type

Column Store Row Store Undefined

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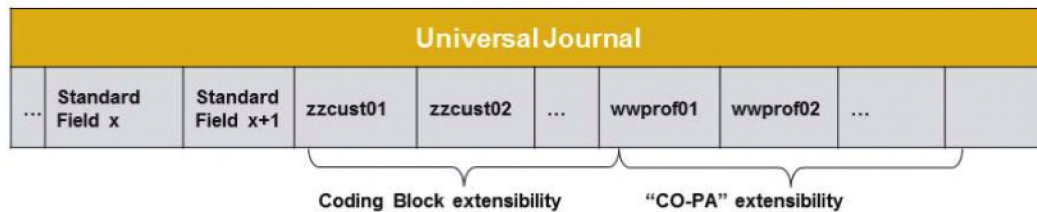
Figure 173: ACDOCA is a column store table

And for sure ACDOCA is a Column store table.

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Simple and Powerful Extensibility with Customer Fields
 The Universal Journal removes the Limitations of the Totals Era



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Figure 174: Simple and Powerful Extensibility with Customer Fields the Universal Journal removes the Limitations of the Totals Era

Capabilities

The Universal Journal can be easily extended with customer fields in a uniform manner.

P&L line extension using "CO-PA capabilities" is provided, i.e. field definition including the rich derivation tools from CO-PA.

Standard Coding Block extensibility can be used and the respective customer fields are added automatically to the Universal Journal

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Lesson: SAP S/4HANA Finance

SAP S/4HANA Finance Non Functional Value Proposition

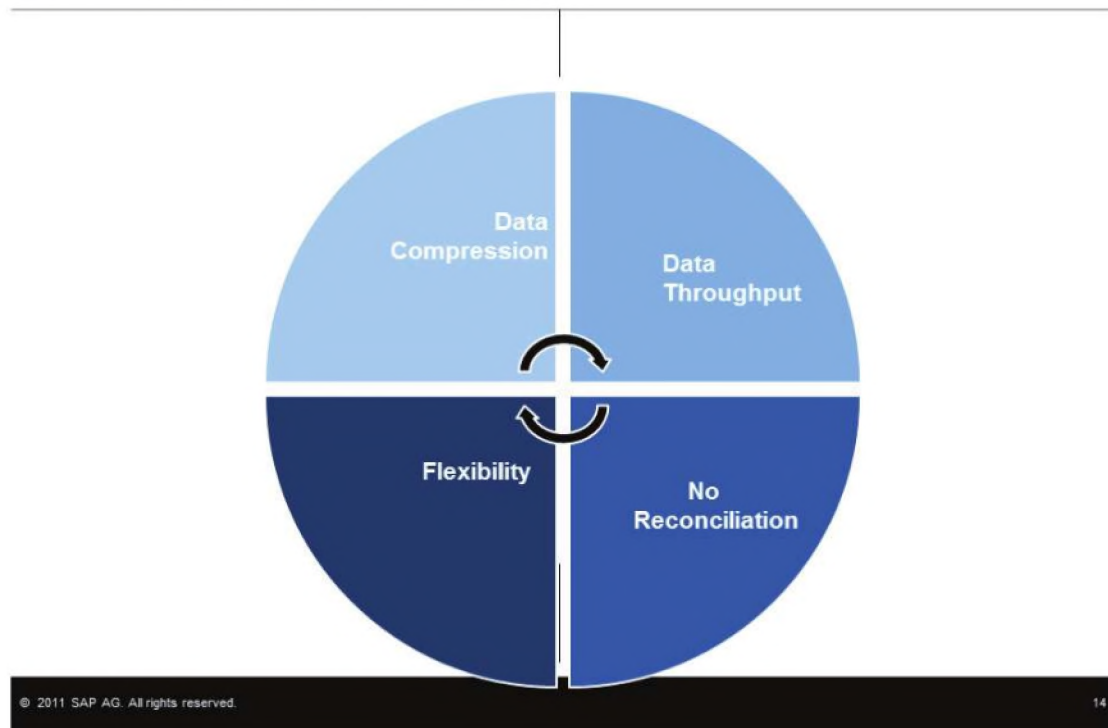


Figure 175: SAP S/4HANA Finance Non Functional Value Proposition

What are the benefits of this redesign?

Data Compression:

Data are only stored once (no totals and indices)

No replicated data □ volume restricted to a minimum.

Data Throughput

Only one database table to be updated => fast data throughput

Full Parallelization applied as no data dependencies (table locks)

Flexibility

Data only stored physically once as consequence, adoptions or extensions done only at only place.

No additional persistence – no data migration or reconciliation

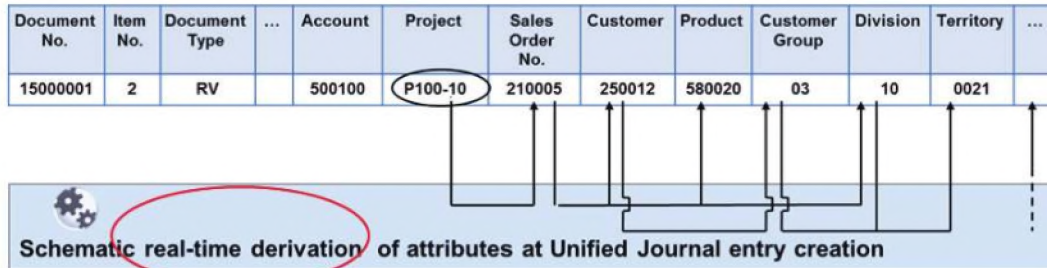
No Reconciliation

You know reconciliation was a big part of period closing in the area of financials but now it is obsolete because there is only one table for all these bookings.

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Lesson: SAP S/4HANA Finance

Meaningful and Richer Data at Any Point in Time
The Universal Journal as Lever



Example: Posting of salaries and immediate assignment of the respective market segment

G/L Account	Cost Center	Market Segment	Credit	Debit
Salaries and wages	1000 (Development Financials)	HANA	20000 €	

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Figure 176: Meaningful and Richer Data at Any Point in Time the Universal Journal as Lever

Profitability characteristics are immediately derived at the point in time of each “primary” document.

Approach: Take all information that is available and known at this time. Post to a “CO-object” and fill market segment attributes in one step. Therefore no settlement run needed to show relevant market segment information in profitability.

We write a market segment information to each P&L line immediately.

Example in the figure: Immediate assignment of a market segment to salary costs

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Lesson: SAP S/4HANA Finance

Meaningful and Richer Data at Any Point in Time
 The Universal Journal as Lever

G/L Account	Fixed Asset	Cost Center	Profit Center	Credit	Debit
Accumulated Depreciation (Vehicles)	A-100		Car Fleet	750 €	
Accumulated Depreciation (Vehicles)	A-200		Car-Fleet	850 €	
Depreciation costs (tangibles)	A-100	4711	Car-Fleet		750 €
Depreciation costs (tangibles)	A-200	4711	Car-Fleet		850 €

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Figure 177: Almost unlimited possibilities of reporting

We Get Richer Data Faster

Full level of detail stored for use in all components. Example: Causing Fixed Asset stored in in cost center reporting.



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Lesson: SAP S/4HANA Finance

**What we achieved: Multi-Dimensional P&L
Seamless Analysis on every Dimension: The Dream is coming true!**

The screenshot displays a SAP S/4HANA Finance Multi-Dimensional P&L report. The interface includes a left-hand navigation pane with 'Available Fields' such as Activity Type, Business Area, Company Code, Cost Center, Customer Group, Debit/Credit Ind CO, Functional Area, Material Group, Order, Partner Activity Type, Partner Profit Center, Partner Cost Center, Partner Funct. Area, Partner Order Number, Partner Project Def., Partner WBS Element, Posting period, and Profit Center. The main table shows financial data for various GL Accounts, including Sales revenue, Gross revenue, Domestic, Foreign, Sales deductions, Changes in inventory, Other work capitalized, Other operating gain, and Material expenses. The table columns are: GL Account, Actual Amount, Plan Amount, Difference, % Difference, and Actual. A yellow arrow points to the 'Posting period' field in the left pane, which is followed by the text '... and many more'.

GL Account	Actual Amount	Plan Amount	Difference	% Difference	Actual
☐ Sales revenue INT 3010000	-69.593,85 EUR	0,00 EUR	-69.593,85 EUR		D/0
☐ Gross revenue INT 3011000	-69.858,58 EUR	0,00 EUR	-69.858,58 EUR		D/0
☐ Domestic INT 3011010	-53.358,58 EUR	0,00 EUR	-53.358,58 EUR		D/0
☐ Foreign INT 3011020	-16.500,00 EUR		-16.500,00 EUR		D/0
☐ Sales deductions INT 3012000	264,73 EUR	0,00 EUR	264,73 EUR		D/0
Customer discounts 600000	64,73 EUR		64,73 EUR		D/0
Discounts 603000		0,00 EUR	0,00 EUR		D/0
Other sales deduc. 606000	200,00 EUR		200,00 EUR		D/0
☐ Changes in inventory INT 3020000	-5.208.795,34 EUR	125.594,70 EUR	-5.334.390,04 EUR	-4.247,30565 %	
☐ Other work capitaliz INT 3030000	-316.211,00 EUR		-316.211,00 EUR		D/0
Own work capitaliz 610000	-316.211,00 EUR		-316.211,00 EUR		D/0
☐ Other operating gain INT 3040000		0,00 EUR	0,00 EUR		D/0
☐ Other operating gain INT 3042000		0,00 EUR	0,00 EUR		D/0
Cig vcy op.cst adv.p 470750		0,00 EUR	0,00 EUR		D/0
Adj. rental mgt exp. 470550		0,00 EUR	0,00 EUR		D/0
☐ Material expenses INT 3050000	2.612.790,10 EUR	9.833.415,85 EUR	-7.220.625,75 EUR	-73,42948 %	
☐ Cost of raw material INT 3051000	2.612.790,10 EUR	9.833.415,85 EUR	-7.220.625,75 EUR	-73,42948 %	

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Figure 178: What we achieved: Multi-Dimensional P&L Seamless Analysis on every Dimension

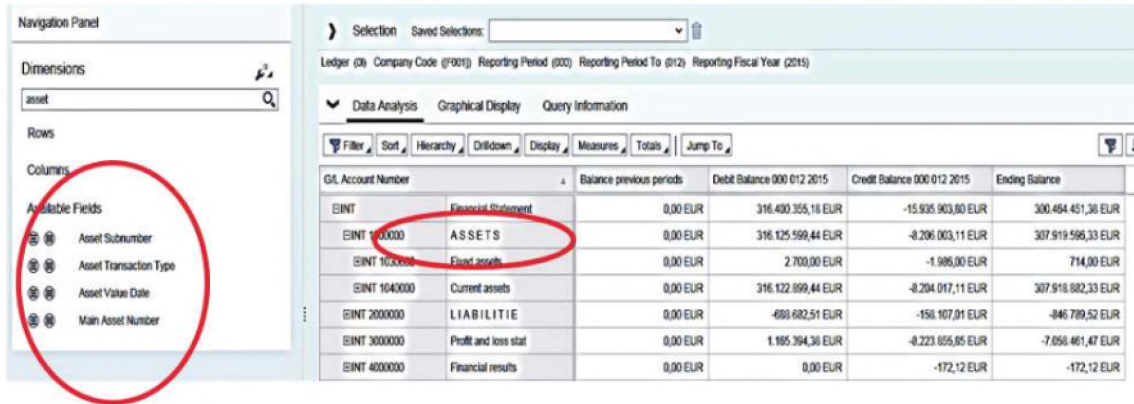
Another advantage comes into effect when it's time for reporting.

Now you can make drill downs at will.

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What we achieved: Balance Sheet Drill Down (1)



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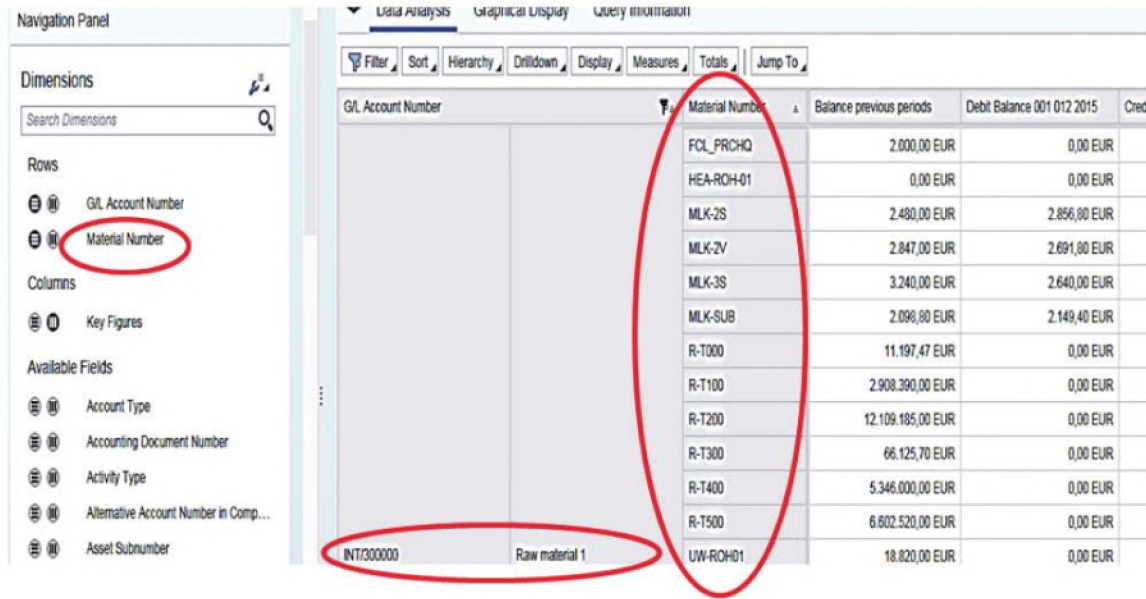
Figure 179: What we achieved: Balance Sheet Drill Down (1)

Here you see an analysis of fixed Assets

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What we achieved: Balance Sheet Drill Down (2)



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Figure 180: What we achieved: Balance Sheet Drill Down (2)

And with the same report you can seamlessly analyze inventories

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Data Migration (for Simple Finance)

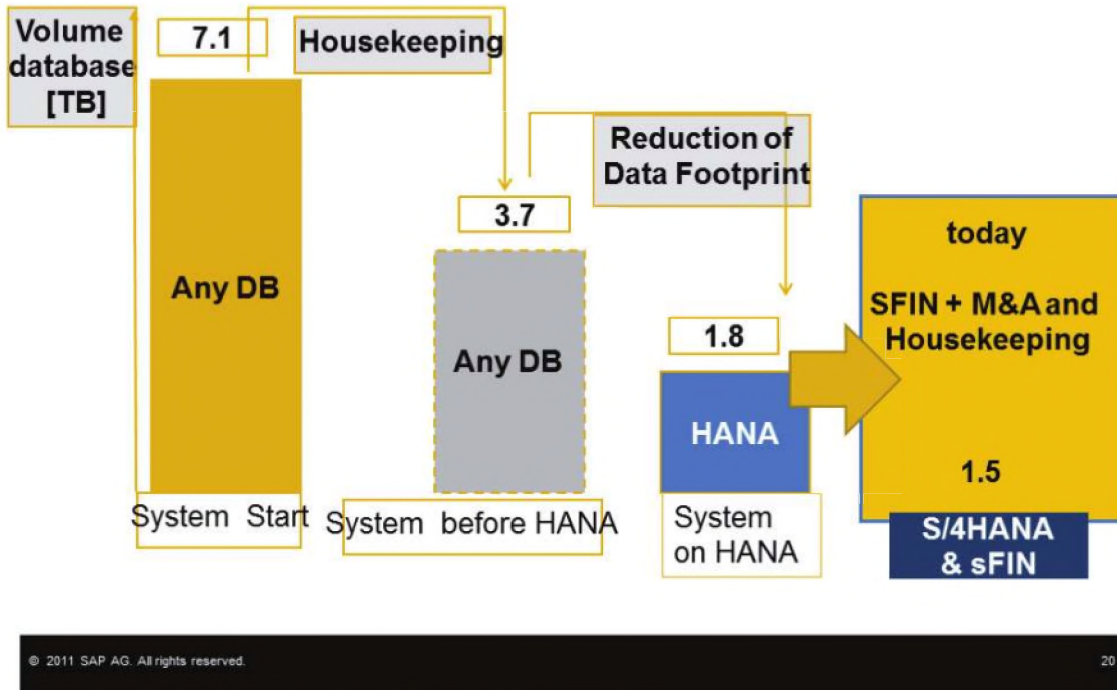


Figure 181: Data Migration (for Simple Finance)

This figure above shows an example of a real data migration from a business suite system to an S/4HANA system.

But what are steps to S/4 HANA?

Preparation

Data Avoidance & Data Deletion

Deleting out-of-date records from the online database that are no longer used by the business nor required for legal compliance (e.g. spool data)

Data Archiving

Transferring data with a long retention period (e.g. legal compliance, product liability data, etc...) from the online database to an alternative storage medium, which provides display access to the transferred data

Year-end closing has to be completed

All year-end closing activities for the previous fiscal year (incl. balance carry forward) have to be completed – if not yet done.

Migration

Asset Accounting Closing and Final Data Check

Directly before the installation (i.e. already in the business downtime) the Periodic Asset Postings has to be carried out.

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Then final check of data consistency, in particular the consistency check between General Ledger Accounting and Asset Accounting

Application Configuration

Mandatory application delta configuration (In production imported by transports):

Delta configuration for G/L, currencies and integration of CO-postings to G/L

Delta configuration for new asset accounting

Preparation of account-based CO-PA

Data migration

The migration of secondary cost elements into chart of accounts

Enriching FI and CO line items with additional attributes, e.g. from header tables

Migration and merging of line items from G/L, AA, CO into Universal Journal table ACDOCA

Migration of balances from G/L, AA, CO, ML into Universal Journal (delta to line items)

Post-installation steps (according to IMG)

Cut Over Details

SAP downtime of 46 hours* (without any optimization)

Early adoption experience without any optimization



1	Ramp-down	3 hours
2	Close periods	3 Hours
3	Upgrade SAP Simple Finance incl. SPAU	6 Hours
4	Spot check	2 Hours
5	Integration test	2 Hours

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Figure 182: Cut over Details

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Optimization and near-zero downtime is already in development and is fine-tuned based on early adoption experience.

Major benefits for customers are:

- Simplification of upgrade and migration process
- Performance improvements for upgrade and migration identified and realized.

The benefits of SAP S/4HANA as whole:

- Radical simplification of the technology stack □ 28% TCO reduction over 3 years
- Simplification of system and elimination of aggregates and indices
- Huge simplification of code Materialized aggregates all replaced by SQL statements for aggregation on the fly, database indices dropped
- Breaking up the silos one single source of data for all finance applications with the unified journal entry
- Non-disruptive path to transformation and innovation platform
- Additional monitoring and analysis features with SAP HANA studio toolset, including effective “housekeeping”
- Consolidation of landscapes and co-deployment – one enterprise analytics platform; business rules directly on SAP HANA
- New concepts for data archiving Management of actual/historical data implemented in the application
- Dramatic data footprint reduction Final SAP HANA database size target ~200 GB (>10x) – actual/historical proof of concept ongoing



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Agenda

Central Finance 

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Figure 183: Central Finance



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Deployment Scenarios for S/4 HANA Financials

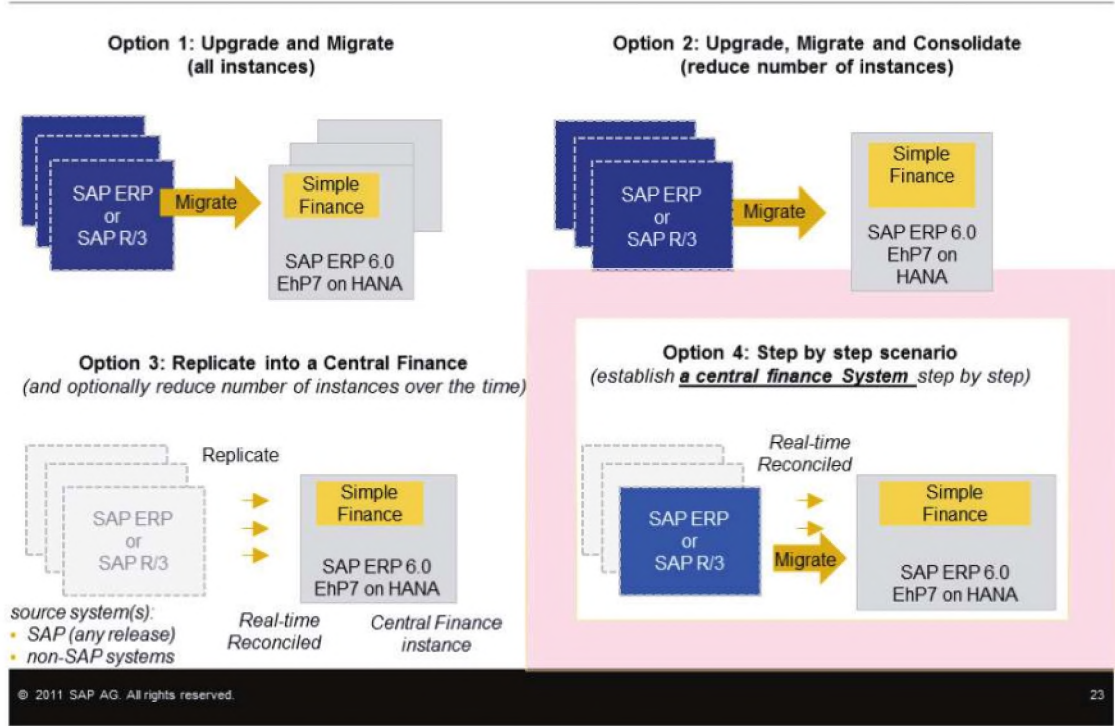


Figure 184: Deployment Scenarios for S/4HANA Financials

There are different ways to use the new function inside SAP S/4HANA Financials. In the case it exist different ERP-Systems. You have the choice:

1. To make a 1:1 migration ; so you would have the number of SAP S/4HANA systems like you had in the past.
2. To consolidate all systems via migration in one single SAP S/4HANA System
3. To connect you systems via a real-time replication tool (for example SAP LT (SAP Landscape Transformation Replication Server or SAP Data Services)) with your SAP S/4HANA System.
4. You proceed step by step. That means e.g. you migrate one system and the others are connect with S/4HANA via embedded SAP-LT.

The benefit of these approach is that you can navigate back from your central SAP S/4HANA System to the source system.

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SAP S/4HANA Finance is the Future

BUT How To Get There...Given My Legacy System Landscape?

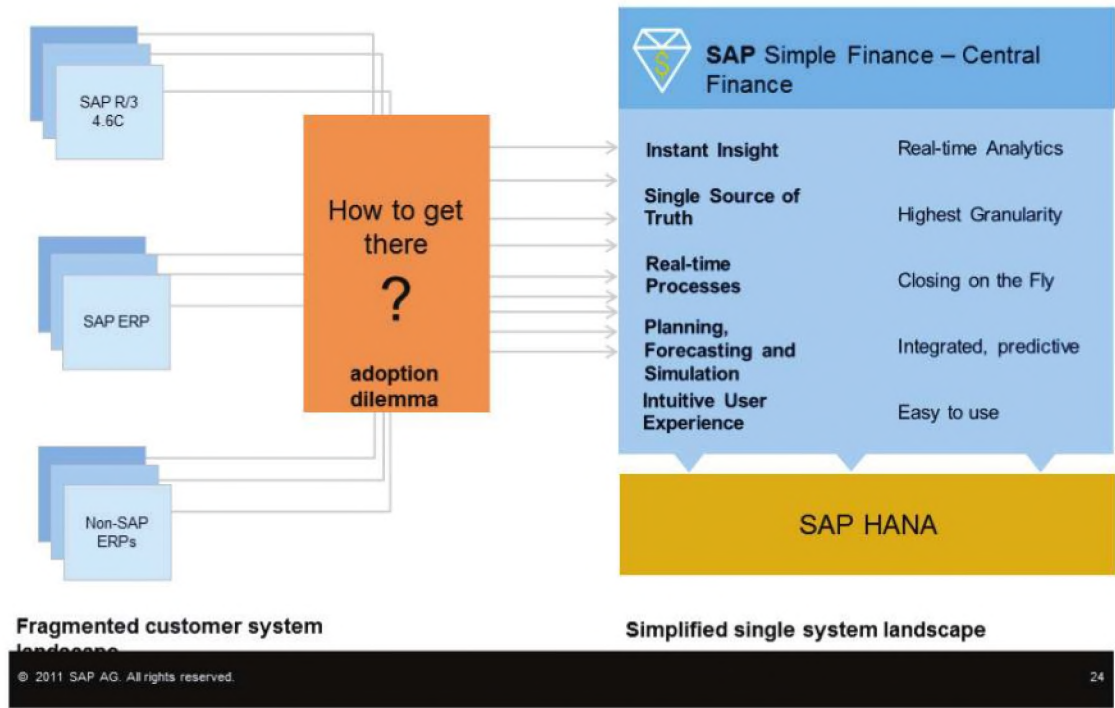


Figure 185: SAP S/4HANA Finance is the Future BUT How To get there...Given My Legacy System Landscape?

The benefits of SAP Simple Finance are clear – but how do I get there?

In our company, we have a legacy of ERP systems – SAP and non-SAP systems. They have different release levels, different customizing – some even may have different charts of accounts.

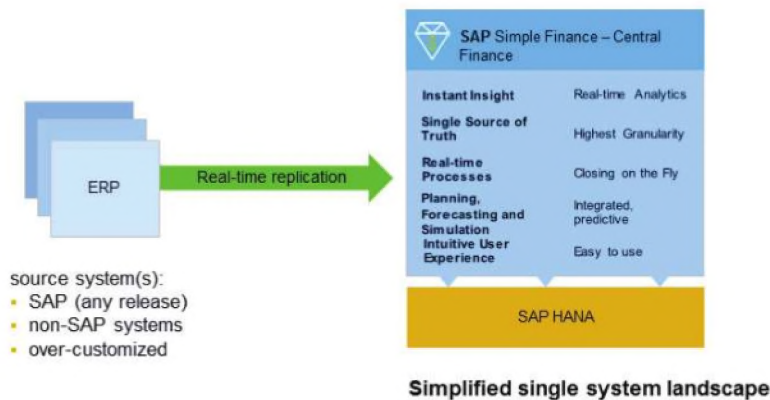
The big-bang project it would take to adopt SAP’s latest innovations would be too big and expensive to get through our budget committee.

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**THE Non-Disruptive Step Towards System Consolidation
Real-Time Repost Financial Transactions Into Central Finance Instance**

- **Transaction-level data** replicated into instance with latest SAP innovations, HANA optimizations and cutting edge UI
- **Existing systems** remain **untouched**
- **Benefit from harmonized master data** for processing, planning, consolidating, and reporting



source system(s):

- SAP (any release)
- non-SAP systems
- over-customized

* requires respective SAP products and licenses (e.g. SAP Accounting powered by SAP HANA, SAP Business Planning and Consolidation)

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Figure 186: THE Non-Disruptive Step towards System Consolidation Real-Time Repost Financial Transactions into Central Finance Instance

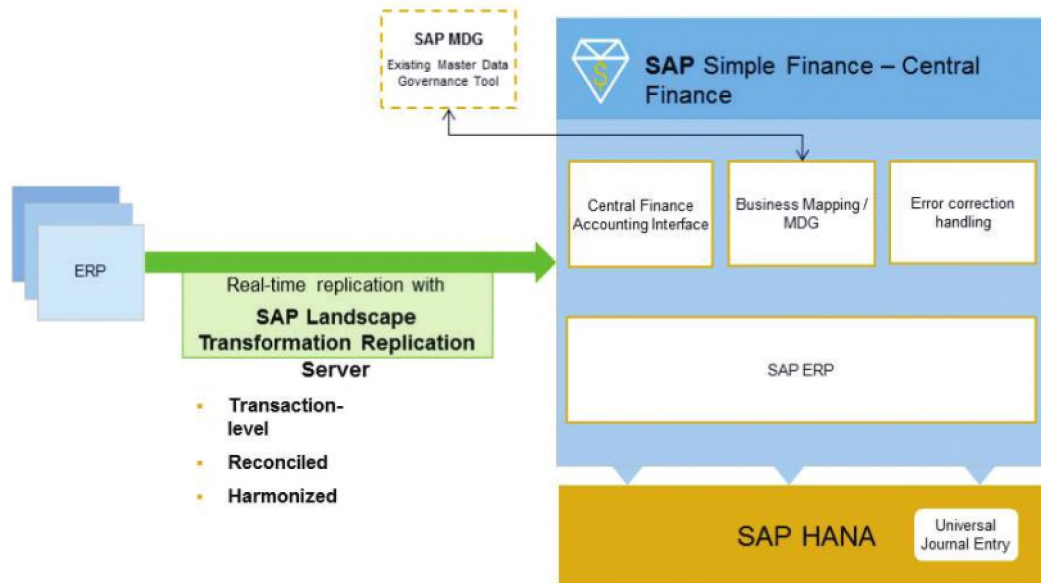
You can provide or replicate finance transactions real-time without any disruption. You can harmonize underlying source data “on the fly”

- Get (consolidated) reporting with better performance, better service levels
- Get transaction processing, and planning and reporting off the same shared data set (single source of truth) – leverage centrally-staged data for consolidation activities
- Get process optimizations and productivity improvements (UI) through the likes of Fiori, Lumia, and Smart Business Cockpits
- And a new Finance architecture, HANA optimized transactions, and unified FI/CO with the Universal Journal

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Functionalities Supporting Central Finance



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Figure 187: Functionalities Supporting Central Finance

At the left, we see the source systems – these are the ERP systems that we do not want to change. They can be any release of SAP (out-of-the-box functionality supports systems down to ERP6.0 – older releases have to be integrated in a services project), or a non-SAP system. Often they have been over-customized, making it too expensive to migrate or upgrade the system to take advantage of new innovation.

Data is replicated using the SAP LT Replication Server (SAP SLT). The SLT can be located on premise or in the HANA Enterprise Cloud. SLT can replicate data from SAP systems as well as non-SAP systems. It will pull the data directly from the database without having to adapt the programs in the non-SAP applications.

There are specific functionalities that have been developed to help our customers use this Central Finance deployment option.

There is a Central Finance Accounting Interface which reposts:

- FI/CO postings
- CO secondary postings (where the CO document is the leading document – example: secondary cost elements)
- Certain cost objects (e.g. production orders, internal orders, QM orders)

Next, master data is mapped, either using SAP Master Data Governance or another MDG solution (which can be in the same system or somewhere else in the landscape, or in the case of SAP

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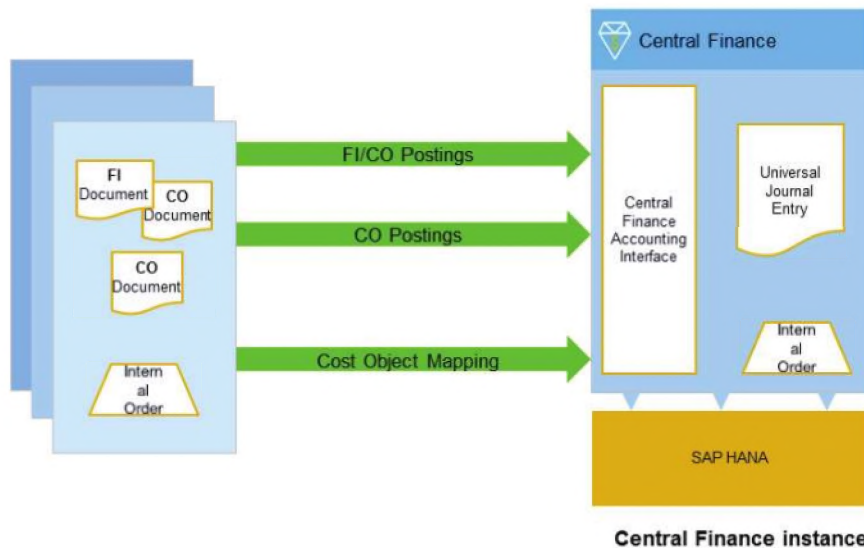
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MGD, deployed in SAP HANA Enterprise Cloud); for customers that do not have an existing Master Data Governance solution, there are basic mapping tables in the solution for key master data (chart of accounts, customers, suppliers, etc.). There is also a Business Add-In (BAI) which can be used for customer-specific mapping logic.

Error correction capabilities for FI documents is provided by the Error Correction Suspense Accounting functionality; this provides a work list-based approach for correcting replication errors or mapping errors.

Once the mapping and checks have been completed, all postings go through the standard internal Accounting Interface into FI/CO (in the SAP HANA database).

Central Finance Accounting Interface
Reposting Harmonizes Data But Retains Line Item-Based Detail



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Figure 188: Central Finance Accounting Interface Reposting Harmonizes Data But Retains Line Item-Based Detail

Central Finance helps companies report on financial figures sourced from different systems. These systems might be running Classic G/L or the New G/L. They probably have different customizing settings and harmonized master data:

- Chart of accounts
- Controlling areas, operating concerns
- Material Numbers, Product hierarchies

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- Customer / Vendor Numbers
- Cost Centers / Cost Center Hierarchies.

There are three interfaces that feed data from the source systems into the target system's Accounting Interface.

An interface for reposting FI/CO postings: Financial documents that are posted in the source system get reposted as new FI documents in the central finance system. If these postings are relevant to CO (expenses on cost elements), CO will be updated, too.

An interface for reposting CO postings: This interface reposts CO postings where the CO document is the loading document. In contrast to the interface for FI/CO postings, these are postings that are not necessarily reflected in Financials in the source system (sometimes only for reconciliation purposes). For example, postings on secondary cost elements.

An interface for replicating certain cost objects (such as production orders, internal orders, QM orders etc.).

The posted documents are stored in the universal journal entry of the SAP Simple Finance add-on system. It is possible to take advantage of NewGL features within SAP Simple Finance add-on as well as the ability of a flexible reporting based on line-items instead of pre-aggregated totals. Furthermore beautiful Fiori User Interfaces and reporting tools can be used in the Central Finance. Reporting with the speed of HANA is available on line-item levels.

The new postings transactions replace use of existing BAPI_ACC_DOCUMENT_POST

Addresses limitations in older BAPI (better extensibility, industry solution inserts, custom fields etc.)

Not limited to 999 line item limit anymore (utilized new ACDOCA in Simple Finance 2.0)

Are only available for Central Finance use.

The master data harmonization in existing distributed landscapes is a real challenge. Documents have to be "forced to fit" and stocks have to be reposted or transferred.

One major benefit of Central Finance is that before the reposting is performed in the central system, master data mappings can be performed. This allows harmonizing the different master data of the various source systems on the fly. As a consequence a harmonized financial reporting can be achieved across the entire group. The new system will be "clean".



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Lesson: SAP S/4HANA Finance

From Central Finance, Double-Click Navigation Back to FI Document in Source ERP System via SAPGUI

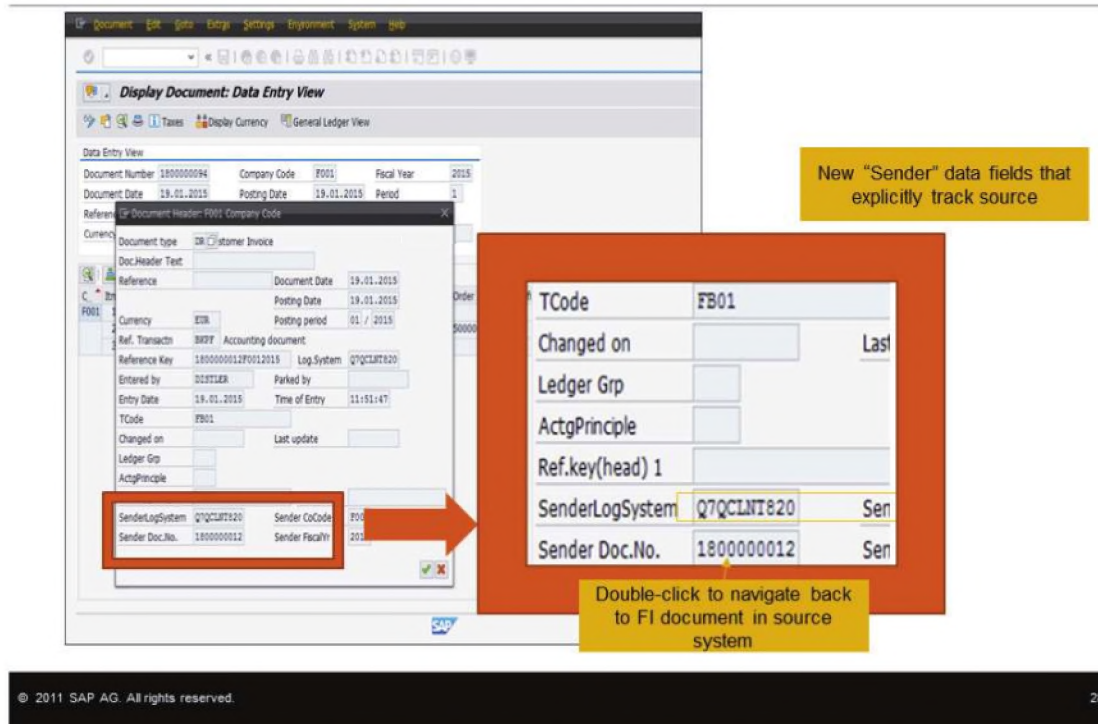


Figure 189: From Central Finance, Double-Click Navigation Back to FI Document in Source ERP System via SAPGUI

In the document header of the newly posted FI document in the Central Finance / target system, new fields have been added to reference back to the original FI document.

By double-clicking on the reference document number, it is possible to navigate back to the source ERP system to view the original FI document.

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From Central Finance, Reference Back to FI Document in Source ERP System via Fiori

Reference key to identify document in source system

Journal Entry (90000008) - Entry View

0 0 10
HEADER ATTACHMENTS NOTES RELATED DOCUMENTS

Document	Object Type	Company	Fiscal Year	Logical System
90000010	Accounting document	F001	2015	Q7QCLNT820
0090000010	CustIndivBillingDoc			Q7QCLNT820
C001 0000002002	Controlling Document			Q7QCLNT820

Journal Entry view in Central Finance system

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Figure 190: From Central Finance, Reference Back to FI Document in Source ERP System via Fiori

In the related documents view of the newly posted FI document in the Central Finance / target system, you can see information back to the original FI document.

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Once your Data is Centralized, there are no Limits to Reporting

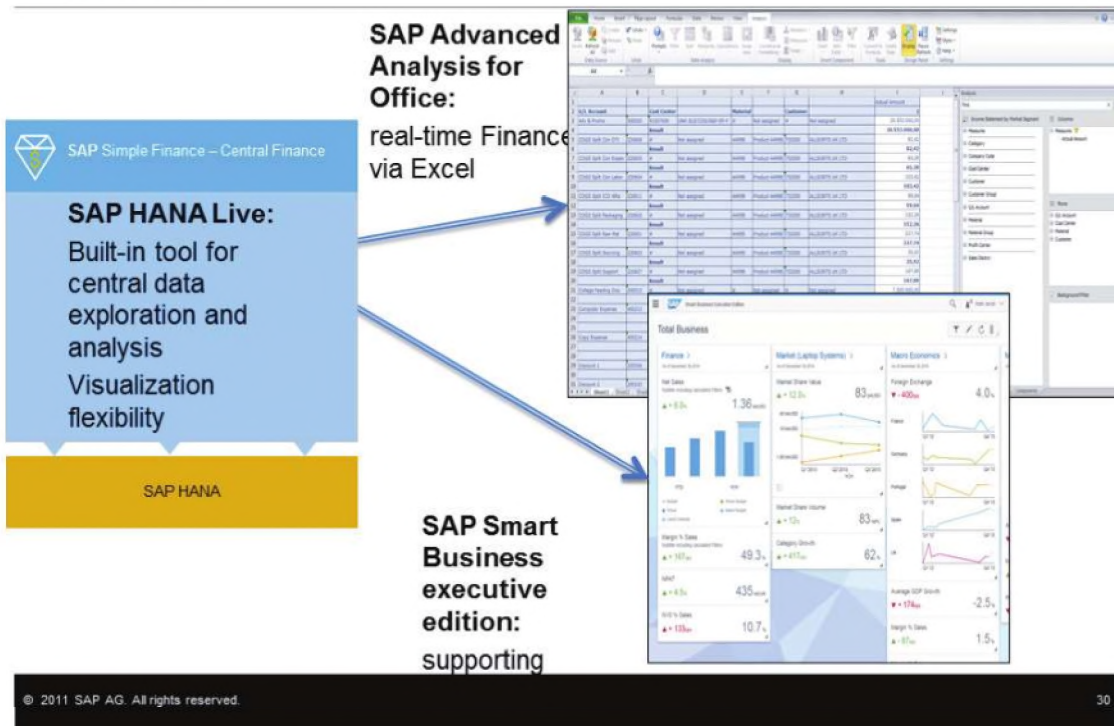


Figure 191: Once your Data is centralized, there are no Limits to Reporting

Once the data is in the system, you can do great things with it – without latency issues or limitations due to aggregation or batch processes.

You can of course use some classic ERP reports such as:

- Financial Statement: Actual/Actual Comparison
- G/L Account Balances
- Cash Flow (Direct Method)
- Profitability Reports

But you also have additional reporting options:

SAP Advanced Analysis for Office lets business analyst’s work in an environment where they feel comfortable.

SAP HANA Live provides a foundation for new class of analysis and analytical applications.

SAP Smart Business executive edition focuses on the fast creation of board-room type of dashboards

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It is not Fiori-based but is UI5-based

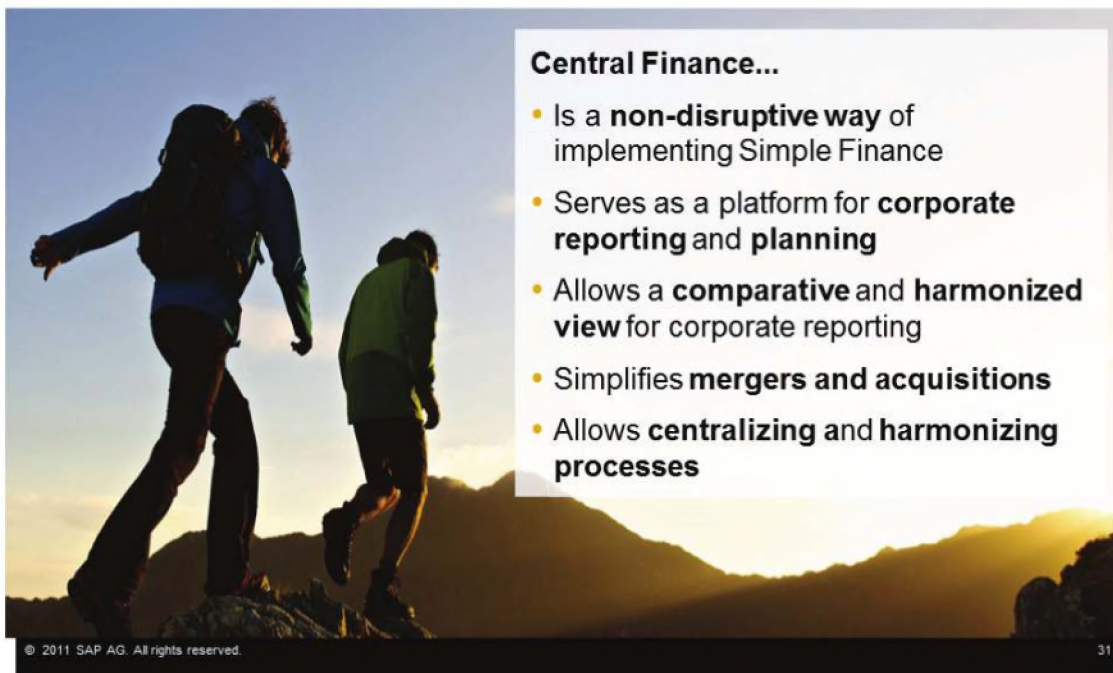
It is the entry page for corporate decision management in the “corporate information design” (morning briefing / board meeting / react on incident or opportunity)

It is meant to put executives, managers and business experts into the driver’s seat – not IT

Uses the language of “business”, not “IT department” or “Analytics”

Insight from a corporate KPI repository, to action – with collaboration features

Management Summary



Central Finance...

- Is a **non-disruptive way** of implementing Simple Finance
- Serves as a platform for **corporate reporting and planning**
- Allows a **comparative and harmonized view** for corporate reporting
- Simplifies **mergers and acquisitions**
- Allows **centralizing and harmonizing processes**

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Figure 192: Management Summary

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Lesson: SAP S/4HANA Finance

Learning Objective



After completing this lesson, you will be able to:

- Describe the benefits of central finance approach

Figure 193: Learning Objective



UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Exercise 4: Inside Universal Journal



Figure 194: Slide1



UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Lets have a look into the inside of the Universal Journal.

But as first step you should create a account posting.

For that you will use the old SAPGUI Frontent .And in the next Exercise we will do the same but via SAP FIORI.

TASK 1: Login in the S/4 HANA System

Please use the following Login data . Please specify a new password

Parameter	Value
System	ZME
User	S4H01-##
Password	initial

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Figure 195: Description



UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

TASK 2: Create a account posting

Please call transaction FB01 by entering this transaction in the OK-Code field in the left upper screen corner



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Figure 196: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Please insert the following values:

Field	Description	Value
1	Document date	The date of today
2	Document type	SA
3	Posting key (for debit posting)	40
4	Account	400000

The screenshot shows the 'Post Document: Header Data' form in SAP. The form includes fields for Document Date, Posting Date, Document Number, Reference, Doc. Header Text, Trading Part. BA, Type, Period, Company Code, Currency/Rate, Translatn Date, and Cross-CC no. Annotations include red circles 1-4 and red boxes highlighting the Document Date and Account input fields.

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Figure 197: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Please insert the following values:

Field	Description	Value
1	Amount	120
2	Tax code	V0
3	Posting key (for credit posting)	50
4	Account	399999

The screenshot shows the SAP 'Enter G/L account document' form. The following fields are annotated with red circles and boxes:

- 1**: Amount field, containing '120'.
- 2**: Tax code field, containing 'V0'.
- 3**: Posting key field, containing '50'.
- 4**: G/L Account field, containing '399999'.

Other visible fields include: G/L Account (400000), Company Code (1000), Item (40), Cost Center (9030), and WBS Element.

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Figure 198: Description

UNIT 5 SAP S/4HANA Applications

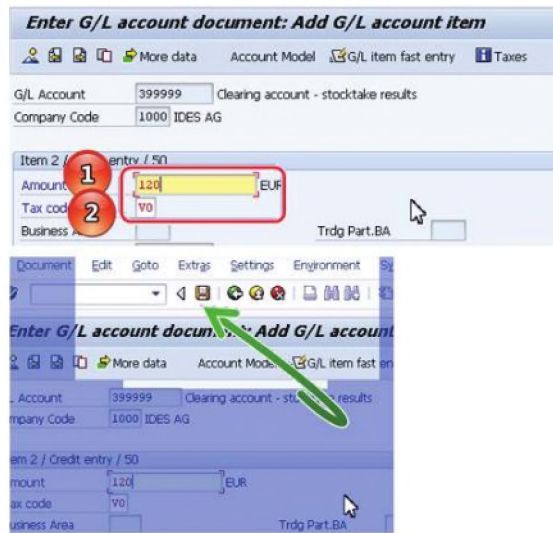
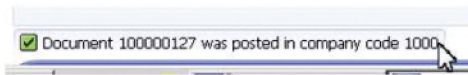
Exercise 4: Inside Universal Journal

Description

Please insert the following values:

Field	Description	Value
1	Amount	120
2	Tax code	V0

And now please post this document by pressing the diskette key and notice the document number



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Figure 199: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Task 2

Please check your posting via transaction FB03.

Please enter this transaction in the OK-code field.

Because you will terminate the FB01 transaction and start a new one you have prefixing "/n" = "/nfb03"

Now you can see your posting in their full beauty

The screenshot displays the SAP S/4HANA interface for transaction FB03. At the top, a menu bar includes 'Document', 'Edit', 'Goto', 'Extras', and 'Settings'. Below the menu, a search field contains '/nfb03'. The main window is titled 'Post Document: Header Data' and 'Display Document: Initial Screen'. It features a 'Keys for Entry View' section with fields for Document Number (100000127), Company Code (1000), and Fiscal Year (2015). The 'Data Entry View' section shows document details: Document Number (100000127), Company Code (1000), Fiscal Year (2015), Document Date (06.05.2015), Posting Date (06.05.2015), and Period (5). Below this is a table of items:

Co...	Itm	PK	S	Account	Description	Amount	Curr.	Tx
1000	1	40		400000	Consumptn, raw mat.1	120,00	EUR	VO
	2	50		399999	Inventory taking	120,00-	EUR	VO

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Figure 200: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Task 3

Now lets have a look in the Universal Journal table → ACDOCA

For that you can use the transaction SE16

Please insert your posting document number

Please start the selection



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Figure 201: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Please select the first row by double-click

And scroll down to get a feeling about the concentrated Information in this table

Data Browser: Table ACDOCA Select Entries 6

Table: ACDOCA
Displayed Fields: 29 of 343 Fixed Columns:

RCLMT	RLDMR	REUKRS	GJAHR	BELNR	DOCLN	RYEAR	RRCTY	RMVCT	V.
800	0L	1000	2015	0100000127	000001	2015	0		K.
800	0L	1000	2015	0100000127	000002	2015	0		F.
800	L5	1000	2015	0100000127	000001	2015	0		P.
800	L5	1000	2015	0100000127	000002	2015	0		K.
800	L6	1000	2015	0100000127	000001	2015	0		P.
800	L6	1000	2015	0100000127	000002	2015	0		R.

Table ACDOCA Display

Check Table... Next Screen

RCLNT: 800
 RLDNR: 0L
 REUKRS: 1000
 GJAHR: 2015
 BELNR: 100000127
 DOCLN: 000001

RYEAR: 2015
 RRCTY: 0
 RMVCT:
 VORGN: RFBU
 VRGNG: COIN
 BTTYPE: RFBU
 AWVTP: BKPF
 AWSYS:
 AWORG: 10002015
 AWREF: 100000127
 AWITEM: 1
 AWITGRP: 0
 SUBTA: 1
 XREVERSING:
 XREVERSING

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Figure 202: Description

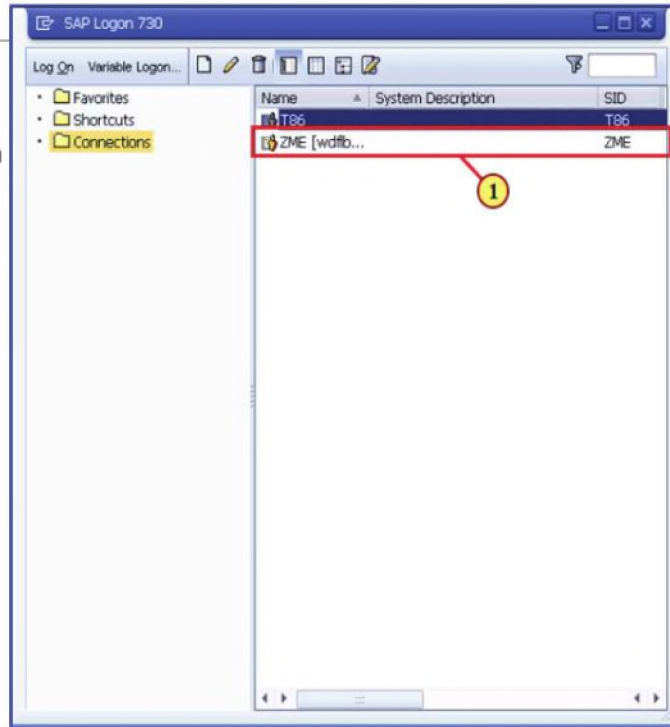
UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Solution Exercise 3

SAP Logon 730

(1) The entry **ZME**
[wdfibmt2291] HANA is
selected by double clicking on



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Figure 203: Description

UNIT 5 SAP S/4HANA Applications

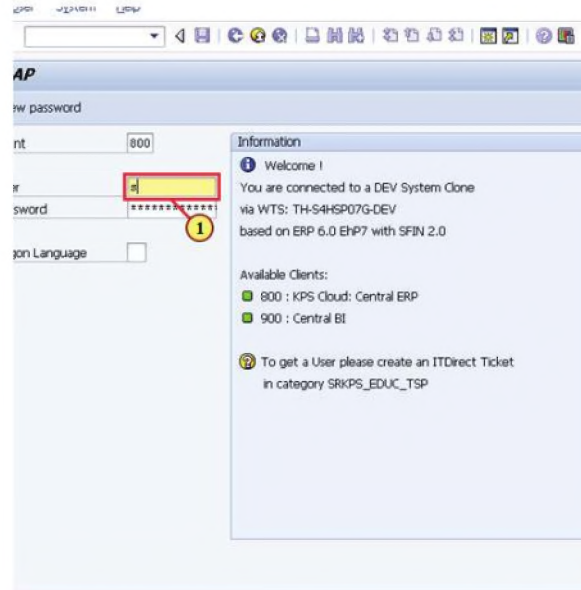
Exercise 4: Inside Universal Journal

Description

SAP Logon 730

(1) The **User** field is filled out with your User

S4H01-## ## - your group number
Password = initial .
Language = EN



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Figure 204: Description

UNIT 5 SAP S/4HANA Applications

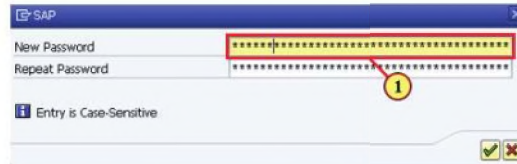
Exercise 4: Inside Universal Journal

Description

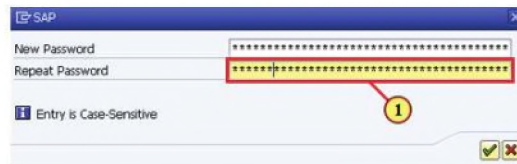
SAP

(1) Please assign a

New Password



(1) The **Repeat Password** field is filled out.



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Figure 205: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

SAP

SAP Easy Access



(1) Fb01 is now entered in the **Transaction box**.

Post Document: Header Data



(1) The **Document Date** field is filled out.

Please use the date of today

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Figure 206: Description

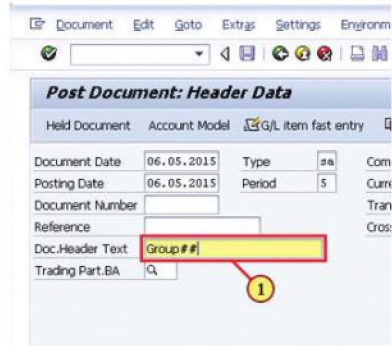
UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Post Document: Header Data

- (1) The **Doc.Header Text** field is filled out.
You can use what you want e.g. your Group



The screenshot shows the 'Post Document: Header Data' screen in SAP S/4HANA. The 'Doc.Header Text' field is highlighted in yellow and contains the text 'Group #'. A red circle with the number '1' points to this field. The screen also displays other fields such as 'Document Date', 'Posting Date', 'Document Number', 'Reference', and 'Trading Part.BA'.

Field	Value	Field	Value	Field	Value
Document Date	06.05.2015	Type	sa	Com	
Posting Date	06.05.2015	Period	5	Curr	
Document Number				Tran	
Reference				Cros	
Doc.Header Text	Group #				
Trading Part.BA					

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Figure 207: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Post Document: Header Data

(1) The **PstKy** field is filled out.

The screenshot shows the SAP 'Post Document: Header Data' interface. The 'First line item' section at the bottom contains the following fields:

First line item	
PstKy	40 count

A red box highlights the '40' value in the 'PstKy' field, and a yellow circle with the number '1' points to it.

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Figure 208: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Enter G/L account document: Add G/L account item

(1) The **Amount** field is filled out with 120.

The screenshot shows the SAP S/4HANA interface for entering a G/L account document. The title bar reads "Enter G/L account document: Add G/L account item". The main area contains the following fields:

G/L Account	400000	Consumption, raw materi
Company Code	1000	IDES AG
Item 1 / Debit entry / 40		
Amount	120	EUR
Tax code		<input type="checkbox"/> Calcu
Cost Center	9030	<input type="checkbox"/> Order
WBS Element	Q	<input type="checkbox"/> Profit. S
Network		<input type="checkbox"/> Real Est

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Figure 209: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Enter G/L account document: Add G/L account item

(1) The **Tax code** field is filled out with 'V0' (means without tax).

The screenshot shows the SAP S/4HANA interface for entering a G/L account document. The title bar reads "Enter G/L account document: Add G/L account item". The main area contains the following fields:

G/L Account	400000	Consumption, raw
Company Code	1000	IDES AG
Item 1 / Debit entry / 40		
Amount	120	EUR
Tax code	V0	
Cost Center	9000	
WBS Element		
Network		
Functional Area		

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Figure 210: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Enter G/L account document: Add G/L account item

(1) The **PstKy** field is filled out with 50 .

The screenshot shows the SAP S/4HANA interface for entering a G/L account document. The title bar reads "Enter G/L account document: Add G/L account item". The main area contains several input fields and sections:

- Document Header:** G/L Account (400000), Consumption, raw; Company Code (1000) IDES AG.
- Item 1 / Debit entry / 40:** Amount (120) EUR, Tax code (w0), Cost Center (9030), WBS Element, Network, Functional Area, Purchasing Doc.
- Assignment:** Text field.
- Next Line Item:** PstKy (50), Account, SGL I.

A red box highlights the "50" in the PstKy field, with a yellow circle containing the number "1" pointing to it.

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Figure 211: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Enter G/L account document: Add G/L account item

(1) The **Amount** field is filled out again with 120 .

The screenshot shows the SAP S/4HANA interface for entering a G/L account document. The title bar reads "Enter G/L account document: Add G/L account item". The main area displays the following data:

G/L Account	399999	Clearing account - stocks
Company Code	1000	IDES AG
Item 2 / Credit entry / 50		
Amount	120	EUR
Tax code	90	
Business Area	Q	Trdg Pa
Cost Center	Q	
Material	Q	Plant

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Figure 212: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Enter G/L account document: Add G/L account item

(1) Click **Post**.

You can also press **Ctrl+S**.



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Figure 213: Description

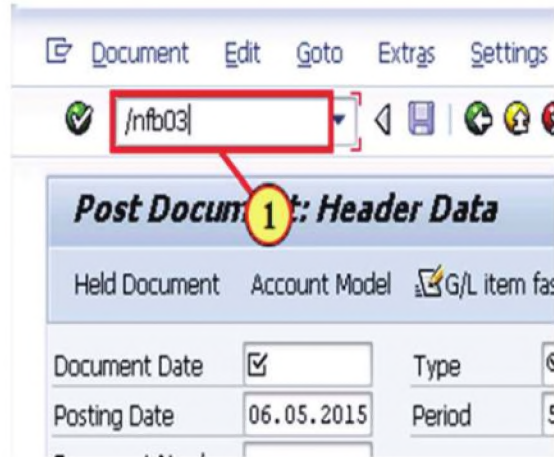
UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal



Post Document: Header Data

(1) /nfb03. With this transaction code you start you start the transaction to Display "Post Document"



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Figure 214: Description



UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Please enter the number of your posting document.

Usually the system should still know your document.

Display Document: Data Entry View

Display Currency General Ledger View

Data Entry View

Document Number: 100000126 Company Code: 1000 Fiscal Year: 2015
 Document Date: 06.05.2015 Posting Date: 06.05.2015 Period: 5
 Reference: Cross-Comp.No.:
 Currency: EUR Texts exist: Ledger Group:

Co..	Itm	PK	S	Account	Description	Amount	Curr.	Tx
1000	1	40		400000	Consumptn, raw mat.1	120,00	EUR	VO
	2	50		399999	Inventory taking	120,00-	EUR	VO

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Figure 215: Description

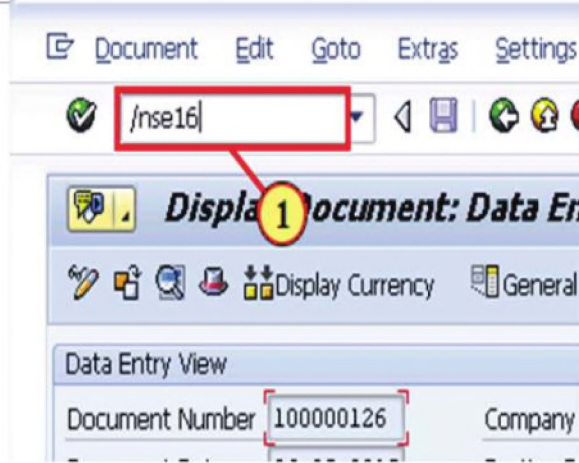
UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Display Document: Data
Entry View

(1) Now we want see our posting in the "Universal Journal" . Means we want to see what is inside of table **ACDOCA**

/nse16 (Table Data Browser) is now entered in the **Transaction box**.



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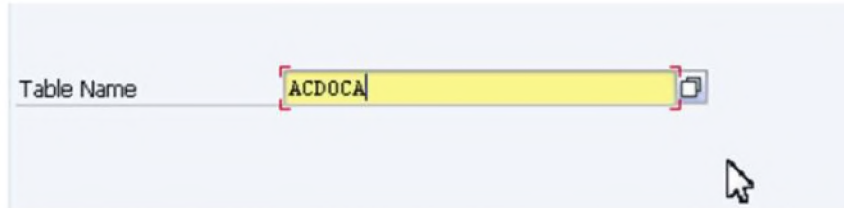
Figure 216: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Data Browser: Initial
Screen

(1) The **Table Name** field is
filled out with ACDOCA .



The image shows a screenshot of a SAP Data Browser interface. A text input field labeled 'Table Name' is highlighted in yellow and contains the text 'ACDOCA'. A mouse cursor is visible at the bottom right of the field. The field is part of a larger form with a light blue background.

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Figure 217: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Data Browser: Table
ACDOCA: Selection
Screen

The **RBUKRS** field is filled
out with 1000 and

(1) The **BELNR** field is
filled out

with **your** document
number !

The screenshot shows the SAP Data Browser interface for the ACDOCA table. The fields are as follows:

Field	Value	to
RLDNR		
RBUKRS	1000	
GJAHR		
BELNR	100000126	
DOCLN		
ANLN1		

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Figure 218: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Description

Data Browser: Table ACDOCA: Selection Screen

(1) Click **Execute** .

You can also press **F8**.



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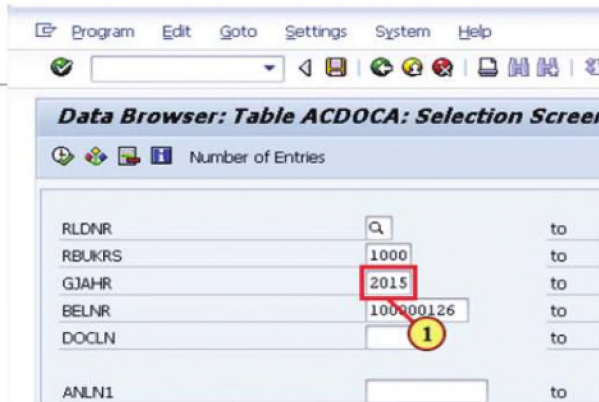
Figure 219: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Data Browser: Table
ACDOCA: Selection
Screen

(1) The **GJAHR** field is filled out.



1) Click **Execute** .

You can also press **F8**.



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Figure 220: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

Data Browser: Table ACDOCA Select
Entries 6

(1) In the first row please select the check box..

	RCLNT	RLDMR	RBUKRS	GJAHR	BELNR	DOC
<input checked="" type="checkbox"/>	800	0L	1000	2015	0100000126	000
<input type="checkbox"/>	800	0L	1000	2015	0100000126	000
<input type="checkbox"/>	800	L5	1000	2015	0100000126	000
<input type="checkbox"/>	800	L5	1000	2015	0100000126	000
<input type="checkbox"/>	800	L6	1000	2015	0100000126	000
<input type="checkbox"/>	800	L6	1000	2015	0100000126	000

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Figure 221: Description

UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal

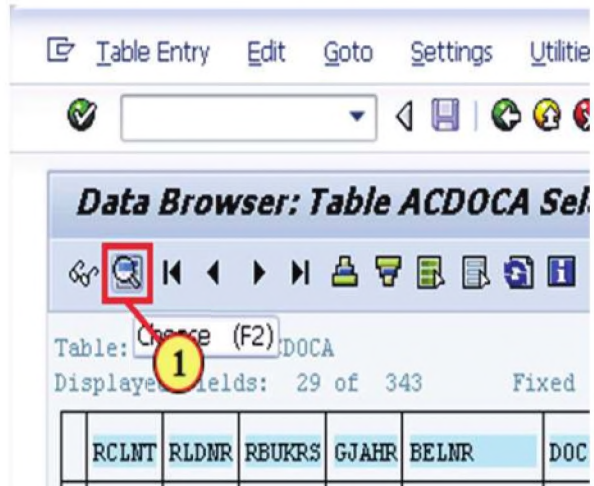
Description

Data Browser: Table ACDOCA

Select Entries 6

(1) Click **Choose**.

You can also press F2.



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Figure 222: Description

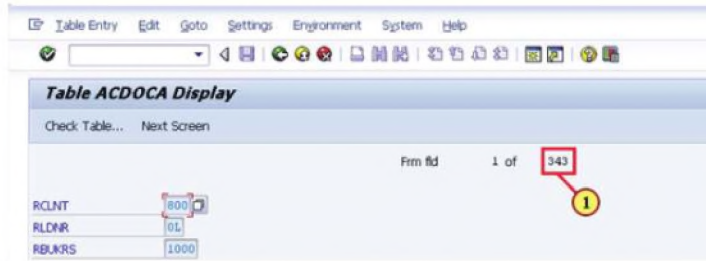
UNIT 5 SAP S/4HANA Applications

Exercise 4: Inside Universal Journal



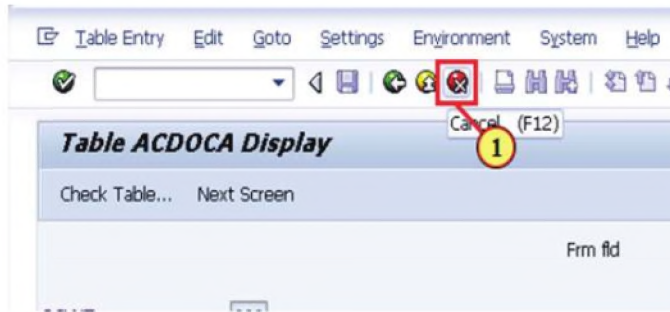
Table ACDOCA Display

(1) 343 is the current number of fields of table ACDOCA.



1) Click **Cancel** .

You can also press **F12**.



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Figure 223: Description



UNIT 5 SAP S/4HANA Applications

Exercise 5: Posting with SAP Fiori

Exercise 5: Posting with SAP Fiori



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Figure 224: Slide21



UNIT 5 SAP S/4HANA Applications

Exercise 5: Posting with SAP Fiori

Description

Now we want create an from business side identically posting but now with SAP FIORI.

Here comes the information for the necessary inputs ; for the header and the two posting lines

Header and first line

Field	Description	Value
1	Document date	The date of today
2	Document type	SA
3	Account	400000
4	Amount	120

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Figure 225: Description



UNIT 5 SAP S/4HANA Applications

Exercise 5: Posting with SAP Fiori

Description

Second line

Field	Description	Value
1	Account	399999
2	Amount	120

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Figure 226: Description



UNIT 5 SAP S/4HANA Applications

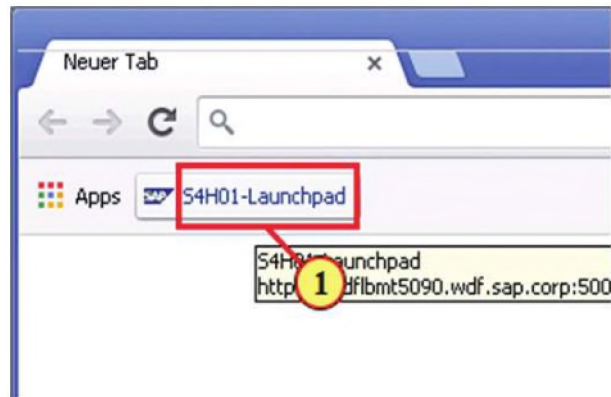
Exercise 5: Posting with SAP Fiori

Description

1. Please start your Chrome Browser . Here you find a bookmark

S4H01 Lauchpad –

(1) Click **S4H01-Launchpad** .



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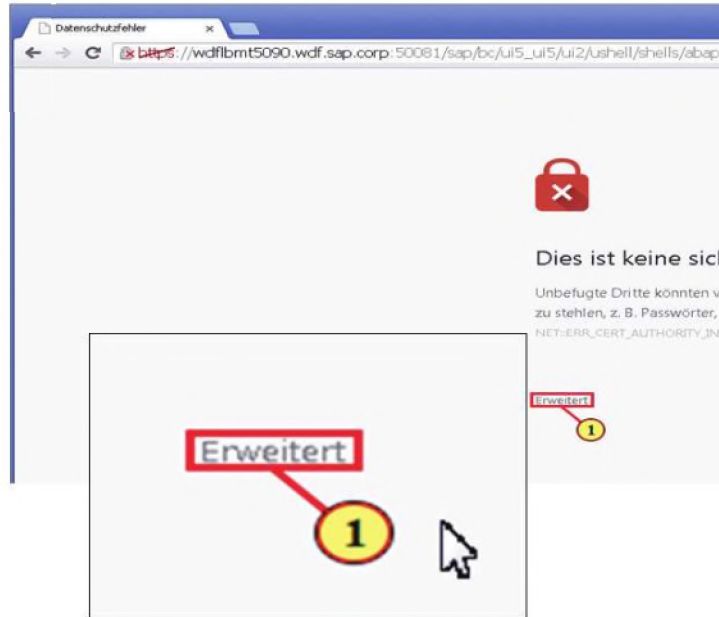
Figure 227: Solution

UNIT 5 SAP S/4HANA Applications

Exercise 5: Posting with SAP Fiori

Description

(1) Click extend.



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Figure 228: Solution

In our education environment we have to go a long way.

This long way is because our FIORI Launchpad is not authenticated by a national or regional CA org. So it is just a kind private certificate, so it is not official trusted.

Examples for CA (certificate authority) are:

- COMODO
- SYMANTEC

In Germany

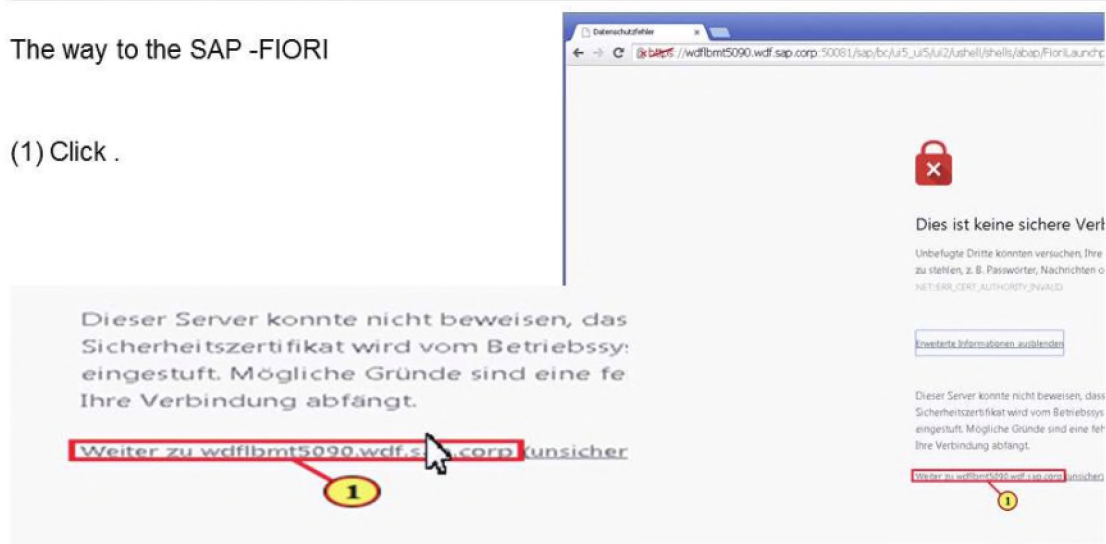
- TÜV
- DEKRA

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Description

The way to the SAP -FIORI

(1) Click .



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Figure 229: Solution

UNIT 5 SAP S/4HANA Applications

Exercise 5: Posting with SAP Fiori

Description

Logon - SAP Web Application Server -
Google Chrome

(1) Please login in the FIORI
enviroment



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Figure 230: Solution

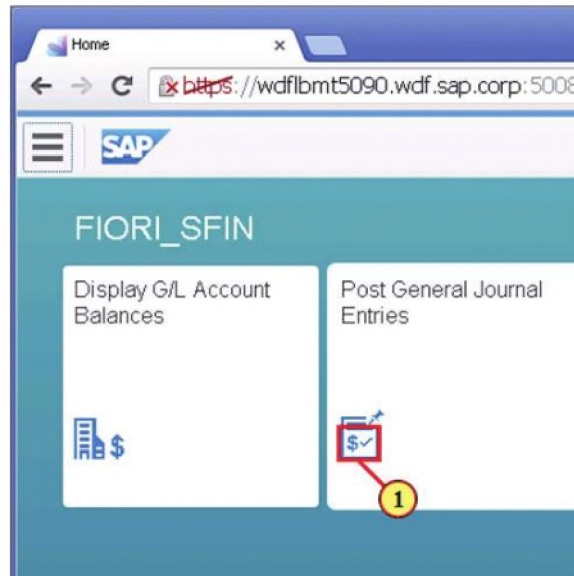
UNIT 5 SAP S/4HANA Applications

Exercise 5: Posting with SAP Fiori

Description

FIORI Launchpad

(1) Please start the FIORI applications "Post General Journal Entries" by clicking



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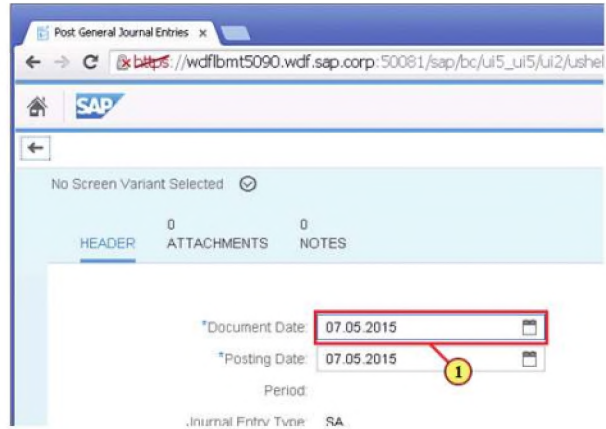
Figure 231: Solution

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Description

Post General Journal Entries -
Google Chrome

(1) The Documentation Date field
is filled out.



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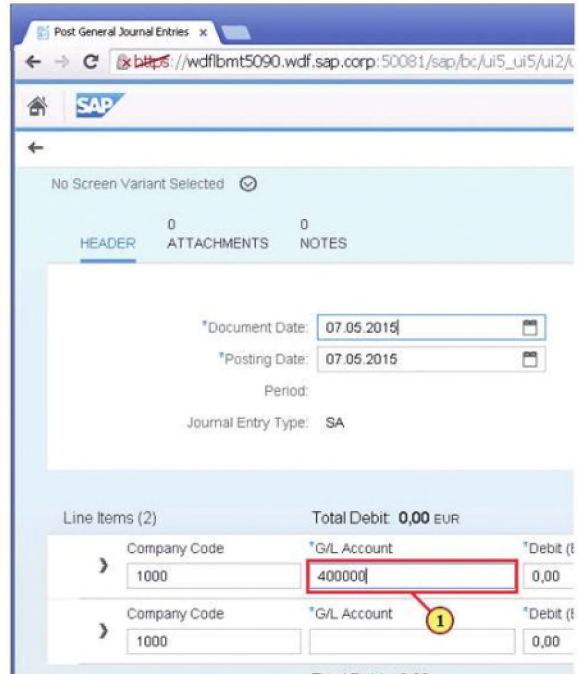
Figure 232: Solution

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Description

Post General Journal Entries - Google Chrome

(1) The GL Account field is filled out.



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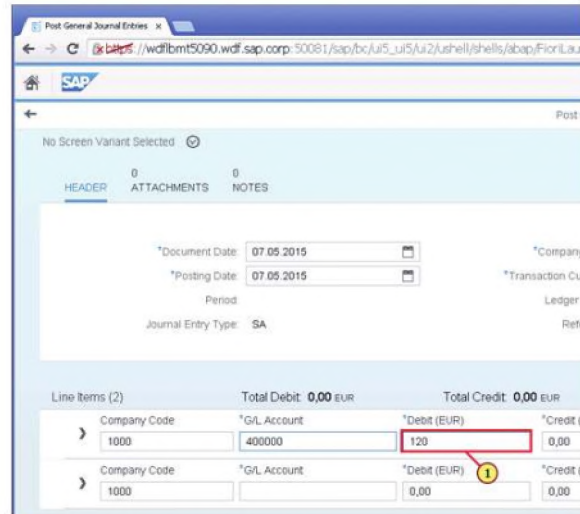
Figure 233: Solution

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Description

Post General Journal Entries - Google Chrome

(1) The Debit-value field is filled out.



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Figure 234: Solution

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Description

Post General Journal Entries - Google Chrome

(1) The second line G/L Account field is filled out.

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Line Items (2)		Total Debit
Company Code	*G/L Account	*Debit (€)
1000	400000	120
1000	399999	0,00
		Total Debit: 0,00

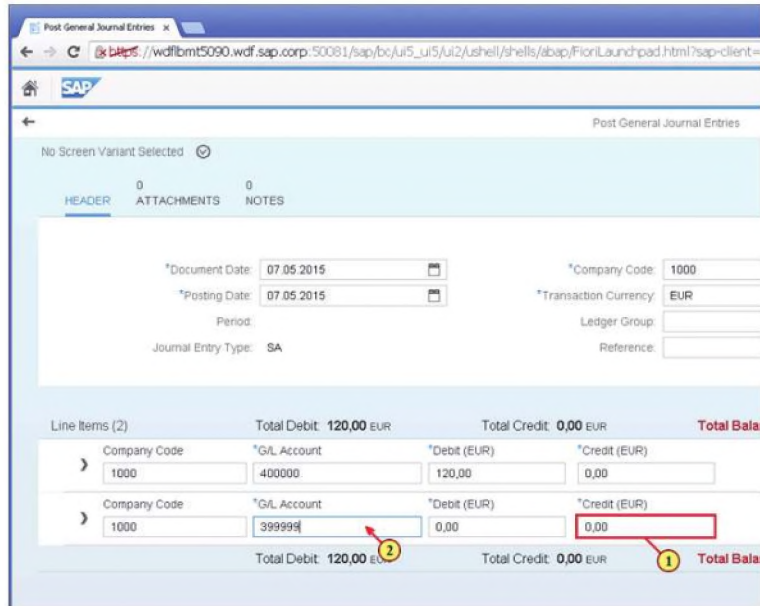
Figure 235: Solution

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Description

Post General Journal Entries - Google Chrome

(1) The credit value field is filled out .



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Figure 236: Solution

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Description

Post General Journal Entries - Google Chrome

(1) The field is filled out.

The screenshot shows the SAP Fiori 'Post General Journal Entries' interface. The header section includes fields for Document Date (07.05.2015), Posting Date (07.05.2015), Company Code (1000), Transaction Currency (EUR), and Journal Entry Type (SA). Below the header is a table with 2 line items. The first line item has a debit of 120,00 EUR and a credit of 0,00 EUR. The second line item has a debit of 0,00 EUR and a credit of 120,00 EUR. The total debit is 120,00 EUR and the total credit is 0,00 EUR. A red box highlights the credit value '120,00' in the second line item, with a circled '1' pointing to it.

Line Items (2)	Total Debit: 120,00 EUR	Total Credit: 0,00 EUR	Total Balance
> Company Code: 1000, *G/L Account: 400000	*Debit (EUR): 120,00	*Credit (EUR): 0,00	
> Company Code: 1000, *G/L Account: 399999	*Debit (EUR): 0,00	*Credit (EUR): 120,00	
	Total Debit: 120,00 EUR	Total Credit: 0,00 EUR	1 Total Balance

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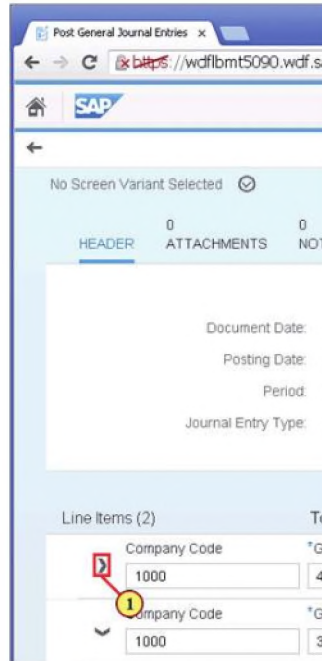
Figure 237: Solution

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Description

Post General Journal
Entries - Google Chrome

(1) Please open the detail
view for the first line by
clicking on this arrow..



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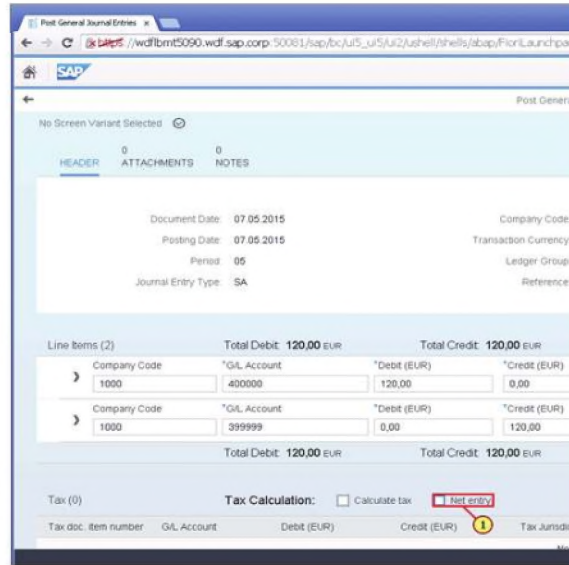
Figure 238: Solution

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Description

Post General Journal Entries -
 Google Chrome

(1) For this booking is a post without tax calculation. That's why we mark the checkbox "Net entry".



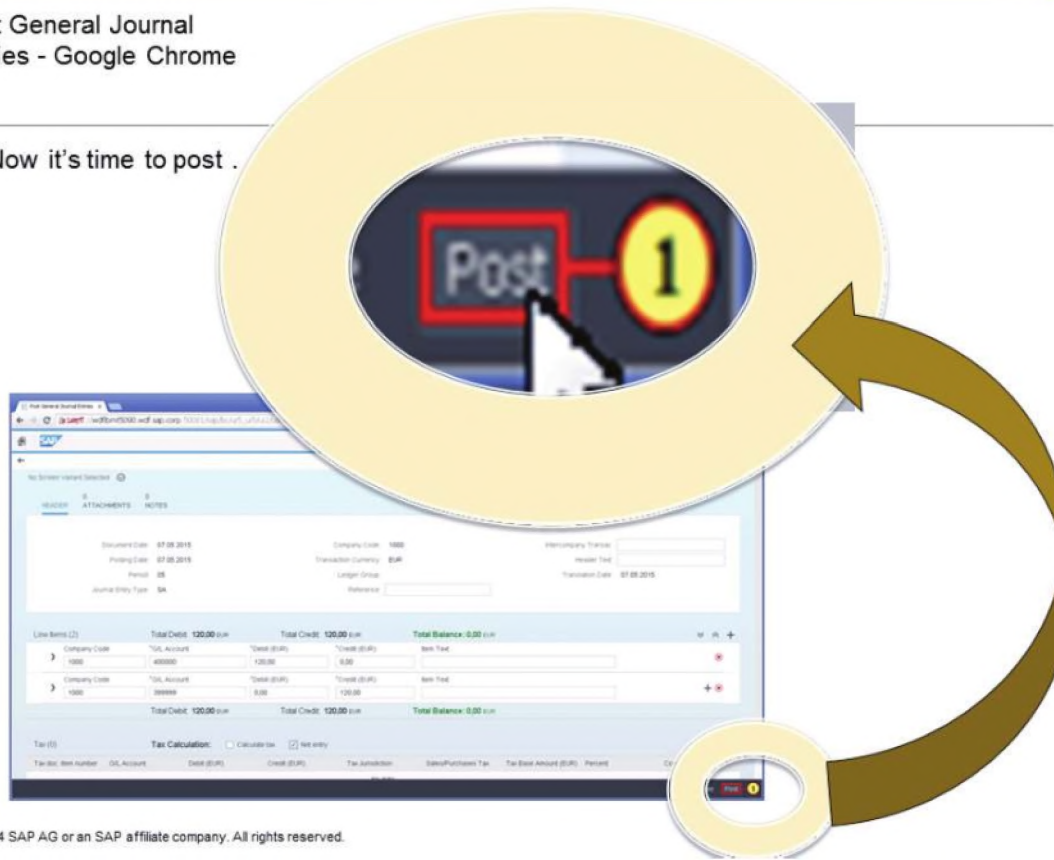
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Figure 239: Solution

UNIT 5 SAP S/4HANA Applications
Exercise 5: Posting with SAP Fiori

Post General Journal
Entries - Google Chrome

(1) Now it's time to post .



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Figure 240: Solution

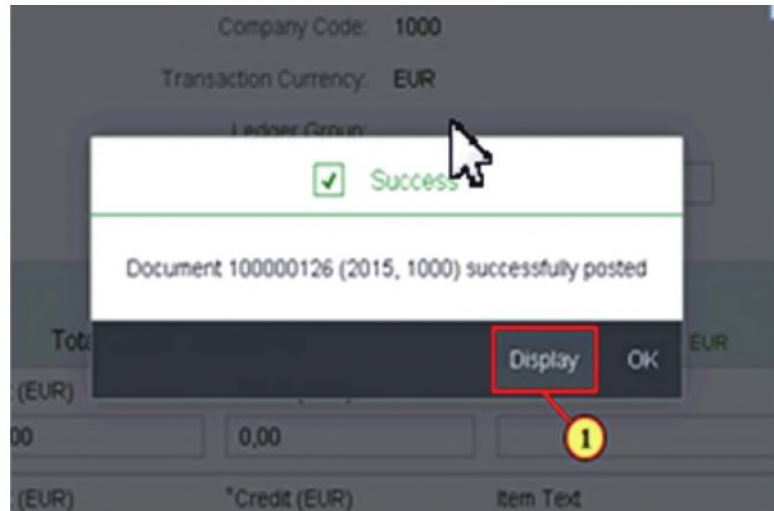
UNIT 5 SAP S/4HANA Applications

Exercise 5: Posting with SAP Fiori

Description

Post General Journal Entries - Google Chrome

Success. You got a document number. Please press for displaying your document the display button (1).



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Figure 241: Solution

UNIT 5 SAP S/4HANA Applications

Exercise 5: Posting with SAP Fiori

Description

Manage Journal Entries - Google Chrome

The screenshot displays the SAP Fiori 'Manage Journal Entries' interface. The main title is 'Journal Entry (100000126) - Entry View'. Below the title, there are tabs for 'HEADER', 'ATTACHMENTS', 'NOTES', and 'RELATED DOCUMENTS'. The 'HEADER' tab is active, showing the following details:

- Document Date: 07.08.2015
- Posting Date: 07.08.2015
- Period: 5/2015
- Journal Entry Type: GL account document (SA)
- Company Code: EES AG (1000)
- Transaction Currency: EUR
- Reference: Adp doc direct exp (B4999)
- Header Text: Created by Trainer Student User on 07.08.2015

Below the header, there are two tables: 'Line Items (2)' and 'Tax (0)'. The 'Line Items' table shows two entries:

Item	GL Account	Profit Center	Debit	Credit
00001	40000 Consumption (raw mat.)	Subing Postings (9990)	120.00 EUR	0.00 EUR
00002	39999 Inventory (hang)		0.00 EUR	120.00 EUR

The 'Tax' table shows 'Sales/Purchases Tax' with a 'Tax Base Amount' of 'No data'.

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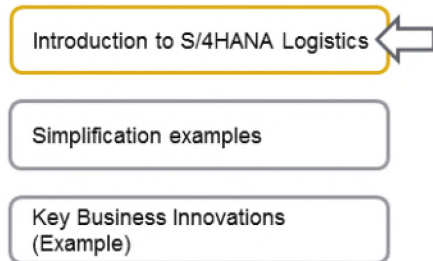
Figure 242: Solution

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

Lesson: SAP S/4HANA Logistics

Agenda



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Figure 243: Agenda

The World is Digital and Networked

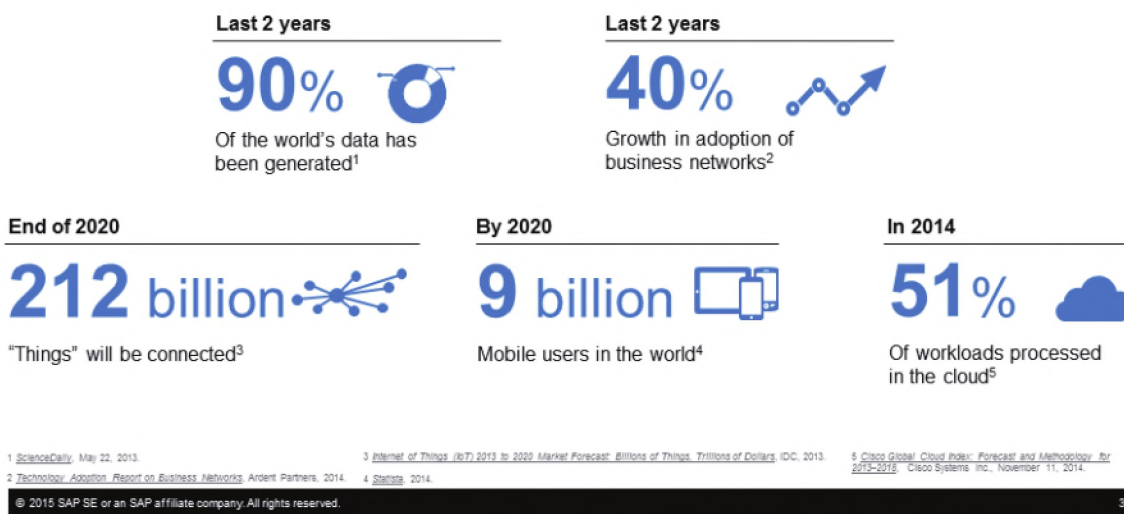


Figure 244: The World is Digital and Networked

We have already seen this slide at the beginning of our course, but let's remind ourselves of these important numbers. They illustrate very well why we need a new generation of applications to cope with the digital world.

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

Core ERP processes are unchanged – but there are new trends

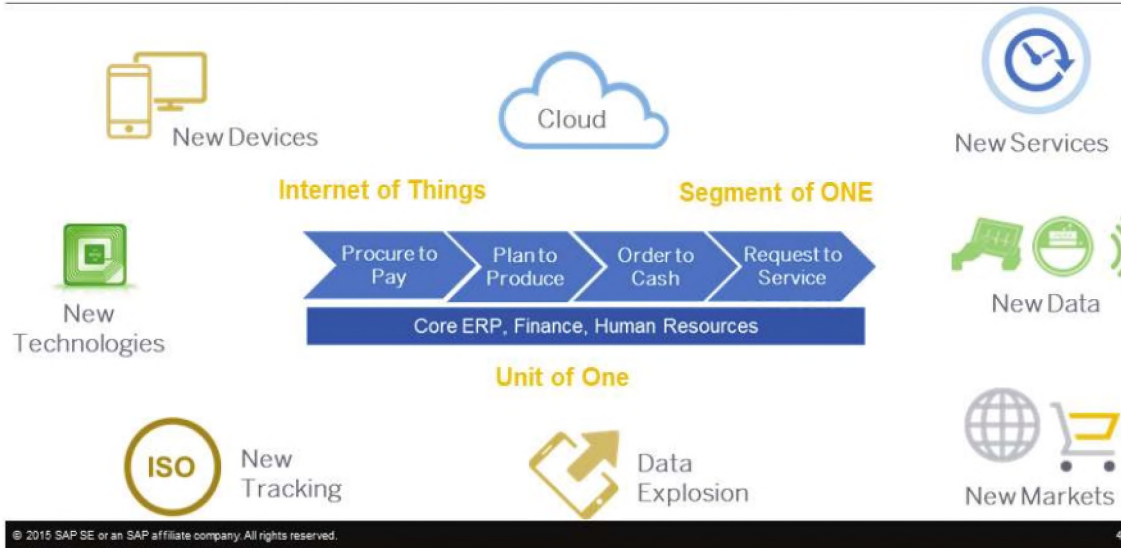


Figure 245: new trends

Core ERP processes have remained unchanged, but there are new market trends due to the digital transformation.

Although the processes have not changed, the way they are executed has. For example - the way the consumers want and the speed at which they expect their orders to be fulfilled has changed.

Trends like sensors which enable internet of things scenarios, big data which fundamentally changes how we interact with information, consumer grade user experience on any device, easy to consume cloud services, entering new markets which are not just global, but also hyper-connected. To stay relevant in these times of massive disruptions, enterprises are forced to see if their internal systems are supporting the new business realities. Consequently, enterprise management has to adapt to this changing digital world (digital transformation).

It's clear to see that technology is disruptive. This is precisely why we need to talk about digital transformation.

Driven by the combination of ever-growing digitization and evolving consumer demands, digital transformation is the use of new technologies to drive significant business improvements.

This includes capitalizing on new opportunities as well as effectively transforming existing business.

In this new world, the CIO's (Chief Information Officer) focus is fundamentally changing – because the business are changing. Managing the traditional IT scope is no longer sufficient. Instead, new priorities need to be tackled.

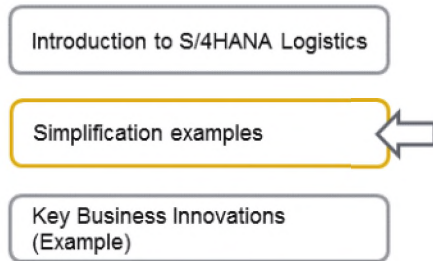
For the CIO to stay relevant, he or she needs to embrace these changes and talk business - or become relegated to a pure non-strategic operations role.

CIO's need to re-think their strategic purpose in the organization and start a journey to achieve the strategic purpose.

UNIT 5 SAP S/4HANA Applications
Lesson: SAP S/4HANA Logistics

This strategic purpose has to be well aligned with all the business stakeholders.

Agenda



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Figure 246: Agenda

Learning Objective



- After completing this lesson, you will be able to:**
- Describe some main simplification examples

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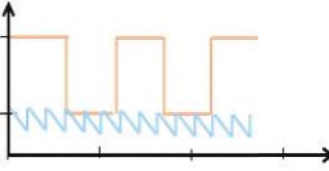
Figure 247: Learning Objective



UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

Innovations: Real Time Inventory Management

<p>Business Challenges</p> <ul style="list-style-type: none"> » Low throughput prevents real-time inventory » Missing embedded and real-time analytics » Missing comprehensive data model » Process & data redundancies increase effort 	<p>Business Benefits</p> <ul style="list-style-type: none"> » Improve on-time delivery » Increase inventory turnover » Reduce cost of inventory » Single source of truth of inventory in one system
<p>Capabilities</p> <ul style="list-style-type: none"> » Real-time processing of inventory postings and visibility of inventory values » Posting of finest granularity like handling unit, lot size 1, sensor data » Decreased stock levels (e.g. reduce buffers) due to increased transparency » Easy to consume data model supporting flexible analytics » Manage the changing demand for smaller lot sizes passing through the logistic operations 	

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Figure 248: Innovations: Real Time Inventory Management

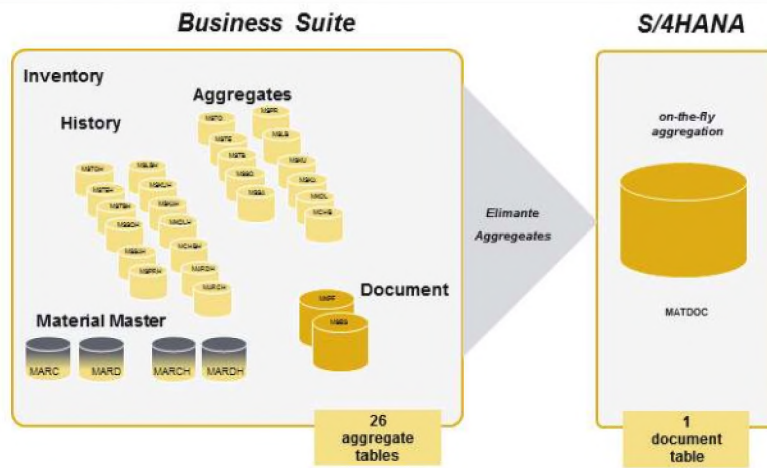
What inventory management aspects need to be considered these days with a promise to my customer?

The challenge of inventory management was ever since to have precisely the amount available for providing customers with the right products in the right time and thus reduce storage costs to an absolute minimum. These targets were, even with classical processes and IT landscapes, possible to achieve in the past.

With the rise of new technology triggers, expectations of customers rise accordingly. Excellent customer experience during a purchasing process is of utmost importance and service aspects are getting more important than the product itself. With the “Segment of One” approach, where every customer is seen as an individual, classical inventory planning cannot keep up with flexible accommodations, or custom configurations which customers expect these days. Slow update cycles lead to outdated information as new orders fly in constantly high speed. Limited inventory visibility increases error rate and supply shortages which will affect available-to-promise to the customers and can lead to customer churn.

This logistics challenge requires a synchronization of processes in the warehouse as well as in the entire value chain. Employees within a company’s value chain are tasked to do their daily work at high efficiency. Employees in sales, warehouse, production and purchasing therefore need to have the same source of truth to be able to rely on each other.

Inventory Management: Improve by elimination of aggregates



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Figure 249: Inventory Management: Improve by elimination of aggregates

Redesign led to 1 document table:

- Merging header and item level (avoiding joins)
- Basis for on-the-fly-aggregation
- Semantically corrected material master data table, supporting table buffering on application server level

Redirect:

Aggregate tables are not deleted physically. Redirect feature (transaction SE11) guides any table access to the new persistency.

Reason: Compatibility with legacy code (e.g., customer code, industries,)

UNIT 5 SAP S/4HANA Applications
Lesson: SAP S/4HANA Logistics

Material Valuation

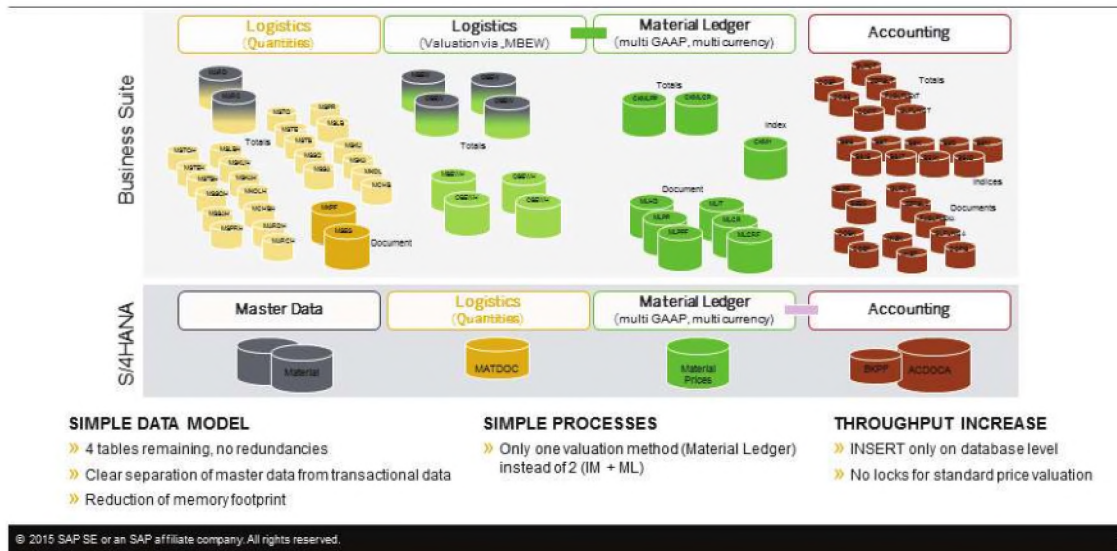


Figure 250: Material Valuation

Material Ledger will also be redesigned.

Innovations: Material Requirement Planning

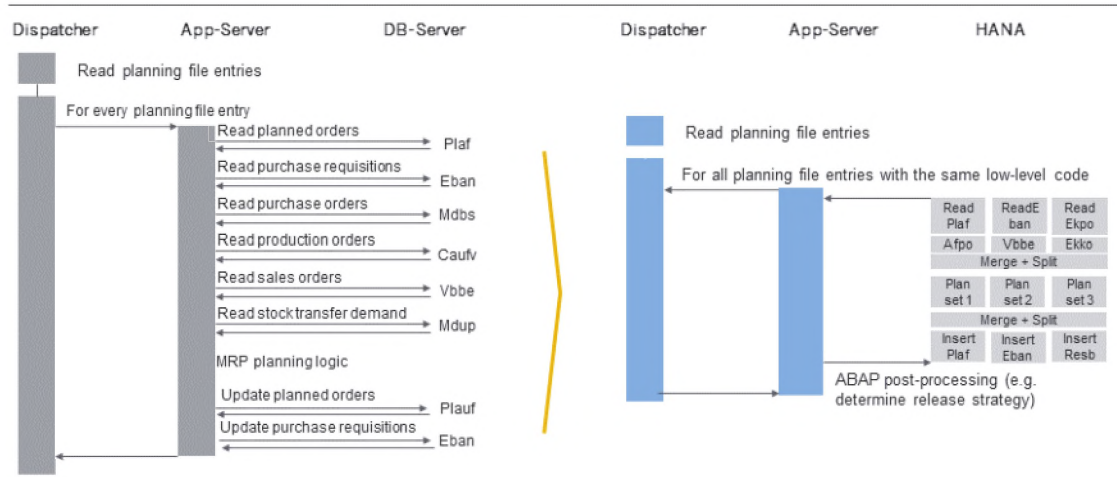


Figure 251: Innovations: Material Requirement Planning

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

Performance improvement through code push down in MRP



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Figure 252: Performance improvement through code push down in MRP

Use Case: Flexible process automation

Situation before S/4 Logistics:

Batch (job) chain for MRP, Rescheduling, triggering Warehouse runs once per day or once per shift

Potential with S/4 Logistics:

Increase frequency of batch chain to run it for example once per hour

Enabler: Performance improvement of up to factor 10 for MRP Live on HANA, Rescheduling on HANA

Business benefit:

Stock reduction, higher service level agreement

This slide explains how MRP performance is optimized.

There is a wide range of different kinds of inventory, material receipts, and material requirements that have to be considered by the MRP run. Examples of different material receipts include:

Planned orders, production orders, purchase requisitions, purchase orders, stock transfer reservations, and delivery schedule lines.

Examples of material requirements include:

Sales orders, forecast requirements, planned independent requirements, dependent requirements, stock transfer requirements, and subcontracting requirements. The information about material receipts and requirements is stored in 52 different tables.



UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

In any-DB implementation, the application server has to call the database server multiple times to read all this data. A lot of data is transferred from the database server to the application server. All tables are read sequentially one after another.

On SAP HANA, different tables are read in parallel using the parallelization capabilities of SAP HANA. Data from different tables is transformed into a common structure ignoring all columns that are not needed by MRP. MRP Live reads material receipts and requirements for many materials at once minimizing the fixed costs of a database query.

The data is not transferred back to the application server but used to compute material shortages directly in the database server. The MRP creates planned orders and purchase requisitions to cover the material shortages. These objects are again created and inserted into the database in parallel threads where every thread inserts large numbers of planned orders or purchase requisitions into the database at once.


This capability makes it possible to get rid of some earlier performance work-around. Details are explained on the next slide.

SAP S/4HANA Enterprise Management – Key Innovations Material Requirements Planning

MRP Run

Performance improvement:

- Scenario dependent **up to 10 times faster**
- New mode supports procurement and in-house production, delivery schedules and configurable materials
- Classic mode for capacity planning and discontinuation

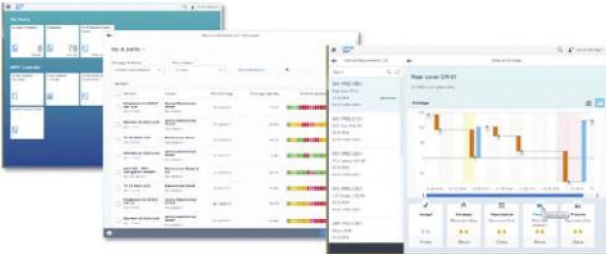


Step1:	Read
Step2:	Algorithm (Netting, Lotsizing,...)
Step3:	BOM Explosion/Configuration in-house production, subcontracting
Step4:	Write

MRP Analysis

System analyzes material flow of all materials in real time & identifies:

- Disruptions in the material flow
- The impact of these issues
- Solution proposals for decision support
- The remaining time-to-action
- Role based KPI driven entry
- Running on any device
- Adoptable and personalizable



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Figure 253: SAP S/4HANA Enterprise Management – Key Innovations Material Requirements Planning

“MRP Dispatcher”

Automatic determination and selection of planning mode per material, dependent on functional requirements of the material regarding planning; can be overruled manually.

The functionality of the new mode will be enhanced continuously – meaning that more and more materials can be planned in the new mode

Special functionality will remain in the classic mode.

Existing customer enhancements will also be supported in the classic mode.

UNIT 5 SAP S/4HANA Applications
Lesson: SAP S/4HANA Logistics

Result: The implementation of this planning run will not lead to loss of functionality, it can be used immediately in a compatible way.

Order Fulfillment Cockpit

<p>Business Challenges</p> <ul style="list-style-type: none"> » Maintaining customer satisfaction » Complexity of order management » Escalating supply chain and IT costs around order fulfillment » Inaccurate order promise dates » Quality of data in the collaboration process 	<p>Business Benefits</p> <ul style="list-style-type: none"> » Get full insights into all issues of the order fulfillment process » Focus onto most critical issues » Run actions directly and track the solution progress » Combines analytical insights with operational actions » Real-time visualization of KPI including thresholds and alerts » Enables the decision preparation via internal and external collaboration
<p>Capabilities</p> <ul style="list-style-type: none"> » The internal sales representative get an comprehensive overview of the current order fulfillment. » Ability to monitor, manage and collaborate on sales orders due for shipping and invoicing, thus enabling customer and company agreements to be easily fulfilled in time and quality 	

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Figure 254: Order Fulfillment Cockpit

Sales Order Fulfillment Cockpit

Row	Customer	Net Order	Requested Delivery Date	Sales Order	Order Status	Order Type
1	ABC	100,000.00	2015-12-31	100000	1	1
2	ABC	200,000.00	2016-01-31	200000	2	2
3	ABC	300,000.00	2016-02-28	300000	3	3
4	ABC	400,000.00	2016-03-31	400000	4	4
5	ABC	500,000.00	2016-04-30	500000	5	5
6	ABC	600,000.00	2016-05-31	600000	6	6
7	ABC	700,000.00	2016-06-30	700000	7	7
8	ABC	800,000.00	2016-07-31	800000	8	8
9	ABC	900,000.00	2016-08-31	900000	9	9
10	ABC	1,000,000.00	2016-09-30	1000000	10	10

Value Creation through:

- 1. Performance Value**
 - Real-time data integration
 - Single-query access to data
- 2. Process Innovation**
 - Provide internal sales representative a single source of holistic transparency on sales order fulfillment issues on desktop and tablet, driven by exceptions.
 - Enables effective clarification of issues offering comprehensive decision support, collaboration, and appropriate actions.
 - Exception driven working model, no touch order

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Figure 255: Sales Order Fulfillment Cockpit

Use Case 7: Order Fulfillment cockpit changing working mode for internal sales Rep.

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

Customers: Cross industries, like wholesale, high tech, CP....

Situation before S/4 Logistics:

Internal sales reps main task is order creation and management, no comprehensive view to overall order situation and exception handling.

Potential with S/4 Logistics:

Change to exception-based working mode, detect issues much earlier, and improve customer satisfaction

Enabler: Sales order fulfillment cockpit

Business benefit:

Reduce order to cash cycle, reduce outstanding payments, and increase service level

Learning Objective



You should now be able to:

- Describe some main simplification examples

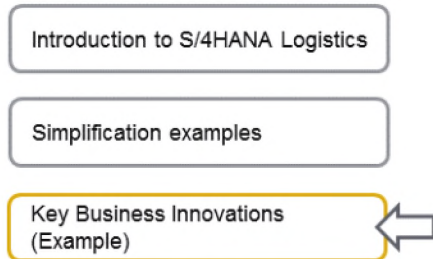
Figure 256: Learning Objective



UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

Agenda



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Figure 257: Agenda

Learning Objective



- After completing this lesson, you will be able to:**
- Understand some of the Key Business Innovations

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Figure 258: Learning Objective



UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

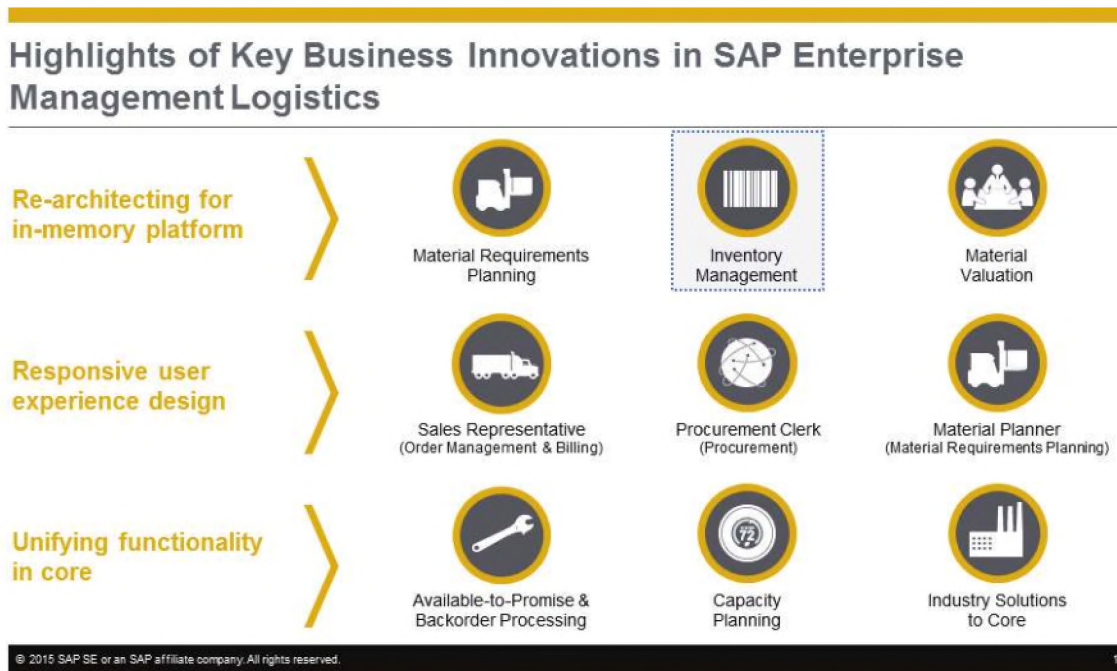


Figure 259: Highlights of Key Business Innovations in SAP Enterprise Management Logistics

Innovations in simple logistics fall into 3 different categories.

Let us start with redesigned, role-based user experience, with a new Responsive design. The UIs run on any Devices –desktop, tablets, smart phones, and even smart watches. For example Order Fulfillment Cockpit for Sales representatives which we saw in the demo, and Procurement Cockpit for purchasing clerk roles have been redesigned for exception-based issue handling.

Second set of innovations are in the SAP S/4HANA Core, which has been modernized by simplifying & optimizing the technology footprint, and by collapsing Online Transaction Processing & Online Analytical Processing to make the functionality more relevant and designed for data-driven businesses.

An example of such substantial advancement is Material Requirements Planning, which is now real-time and enhanced by a decision support cockpit.

Another example is Inventory Management where Inventory tables were reduced to eliminate aggregates and locking optimized for postings to increase the system throughput.

And the final example is of Material Valuation, where Inventory valuation is only posted once into the Unified Ledger, unlike in the past in 2 places - Material Ledger & Accounting tables. This creates a single source of truth for the user.

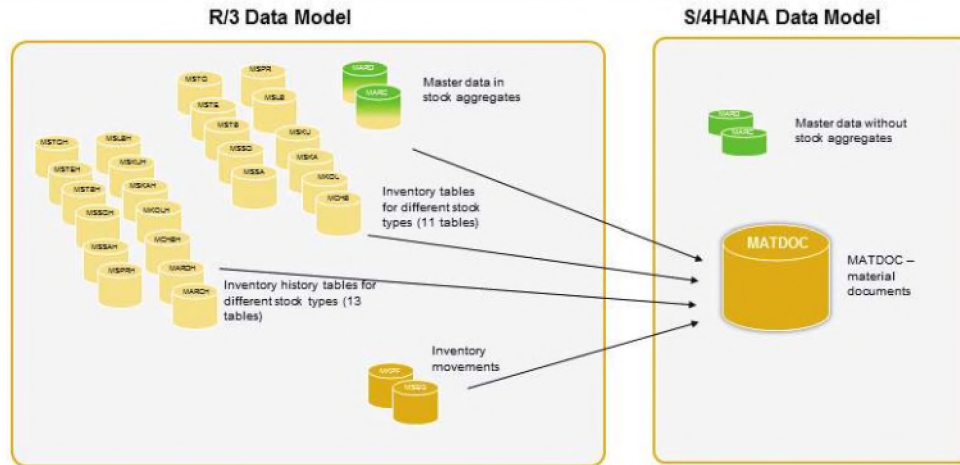
Thirdly, by eliminating functional redundancies which have been built into the Business Suite over the years. The user benefits from a superior solution. Example is Available-To-Promise or ATP, and Backorder processing. The ATP functionality will be brought into the SAP S/4HANA core, by converging advanced global ATP functionality in APO & basic ATP functionality R/3. With a multi-year roadmap, comprehensive ATP capabilities will be enabled in the Core.

And finally, SAP S/4HANA will provide one solution for one business problem. With a multi-year roadmap, by consolidating system landscape by co-deploying Production Planning & Detailed Scheduling in APO with SAP S/4HANA Core.

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

SAP S/4HANA: Data Model Redesign



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Figure 260: SAP S/4HANA: Data Model Redesign

Data Model simplification

- Merge material document header and item
- Aggregated values for aged data as starting points
- Only one quantity column for all stock types

KEY Benefits

- Drop all aggregate fields and history tables (in total 24 tables) in one new tables.
- No updates on aggregation tables required anymore
- High speed evaluations
- Open for new stock types

UNIT 5 SAP S/4HANA Applications
Lesson: SAP S/4HANA Logistics

SAP S/4HANA : Cloud Edition – On-Premise Edition

SAP S/4HANA Cloud Enterprise Edition (Release 1506)

(focus on MM-IM)

- Search and Fact Sheets
- Configuration UIs
- 15 HTML GUIs e. g. for Physical Inventory, Close Inventory Management Period, MIGO, etc.

Including the following apps: Post Goods Receipt for Purchase Order, Manage Stock, Transfer Stock, Stock Overview, Material Documents Overview

SAP S/4HANA On Premise Edition (Release 1511)

(focus on MM-IM)

- Search and Object Page
- SAP IMG customizing and configuration UIs
- 15 HTML GUIs e. g. for Physical Inventory, Close Inventory Management Period, MIGO, etc.
- SAP GUI

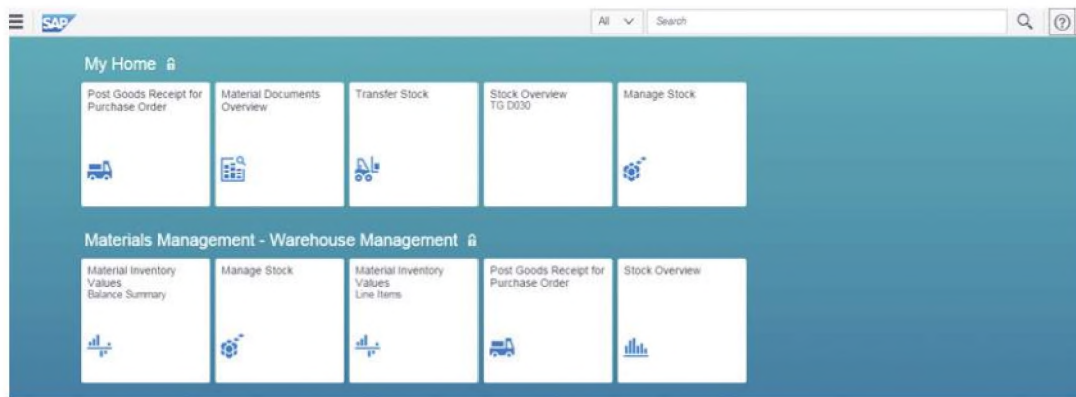
Including the following apps: Post Goods Receipt for Purchase Order, Manage Stock, Transfer Stock, Stock – Single Material, Material Documents Overview

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Figure 261: SAP S/4HANA: Cloud Edition – On-Premise Edition

SAP S/4HANA: Cloud Edition – Launch Pad



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Figure 262: SAP S/4HANA: Cloud Edition – Launch Pad

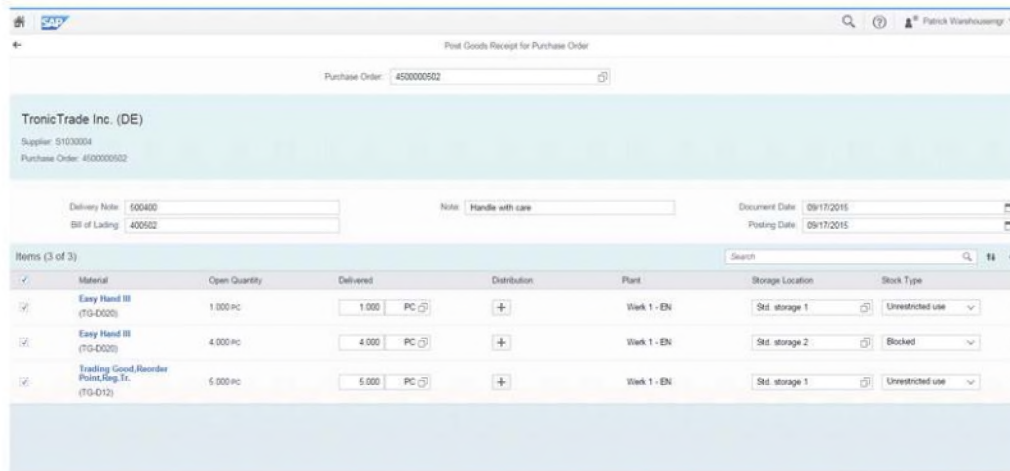
Launch pad as single point of entry for all user activities including personalization. The main topic in this area are:

- HANA search is now available via launch pad.
- New primary help (xRay) including guided tour and learning content

UNIT 5 SAP S/4HANA Applications
Lesson: SAP S/4HANA Logistics

- Possibility to cluster apps by areas (e.g. My Home, Materials Management,)
- Possibility to add tiles as variants to launch pad
- User management via fiori apps (user & access management)

SAP S/4HANA – Transactional Apps in Inventory Management



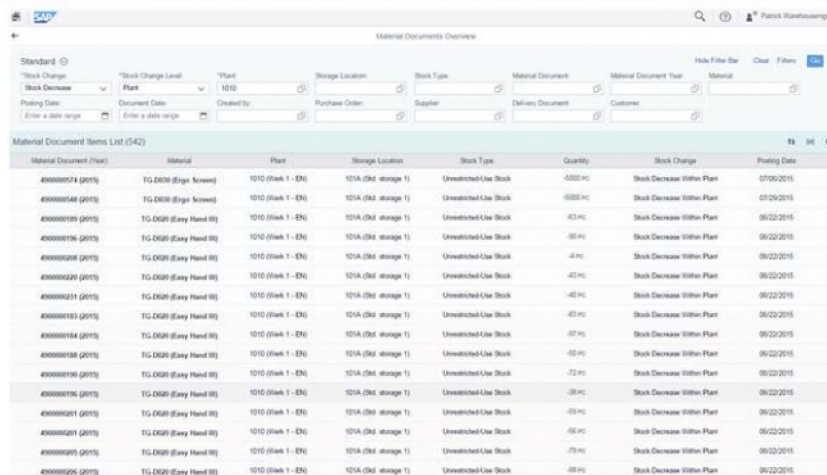
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Figure 263: SAP S/4HANA – Transactional Apps in Inventory Management

By using transactional apps, actions are triggered, postings are created and data can be changed

SAP S/4HANA – Analytical Apps in Inventory Management



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Figure 264: SAP S/4HANA – Analytical Apps in Inventory Management

Analytical Apps:

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

- Material Document Overview
- Stock Overview
- Process flow for material documents
- On the fly calculated aggregated stock information
- Smart filter bar for flexible filter criteria
- Responsive table for flexible display

SAP S/4HANA: Factsheet

The screenshot displays the SAP S/4HANA Factsheet for material 'Easy Hand III'. The interface includes a header with the material name and a navigation bar. Below the header, there are sections for 'General Information', 'Basic Data', 'Weights', 'Plant View (5)', and 'Suppliers (0)'. The 'Plant View' table lists plants with their respective purchasing groups and MRP controllers.

Plant	Purchasing Group	MRP Controller	ABC Indicator	Country of Origin
Plant 1 CA (2910)	Group 002 (002) 770 840 3421	MRP Controller 001 (001)		
Plant 1 UK (1110)	Group 002 (002) 770 840 3421	MRP Controller 001 (001)		
Plant 1 AU (3010)	Group 002 (002) 770 840 3421	MRP Controller 001 (001)		
Plant 1 US (1710)	Group 002 (002) 770 840 3421	MRP Controller 001 (001)		
Work 1 - EN (11010)	Group 002 (002) 770 840 3421	MRP Controller 001 (001)		

Figure 265: SAP S/4HANA: Factsheet

Factsheets for goods receipt, goods issue and material (up to release 1506)

Quick navigation to other related documents

Additional links to related follow on functions (e.g. access from material factsheet to stock overview app)

UNIT 5 SAP S/4HANA Applications
Lesson: SAP S/4HANA Logistics

Highlights of Key Business Innovations in SAP Enterprise Management Logistics

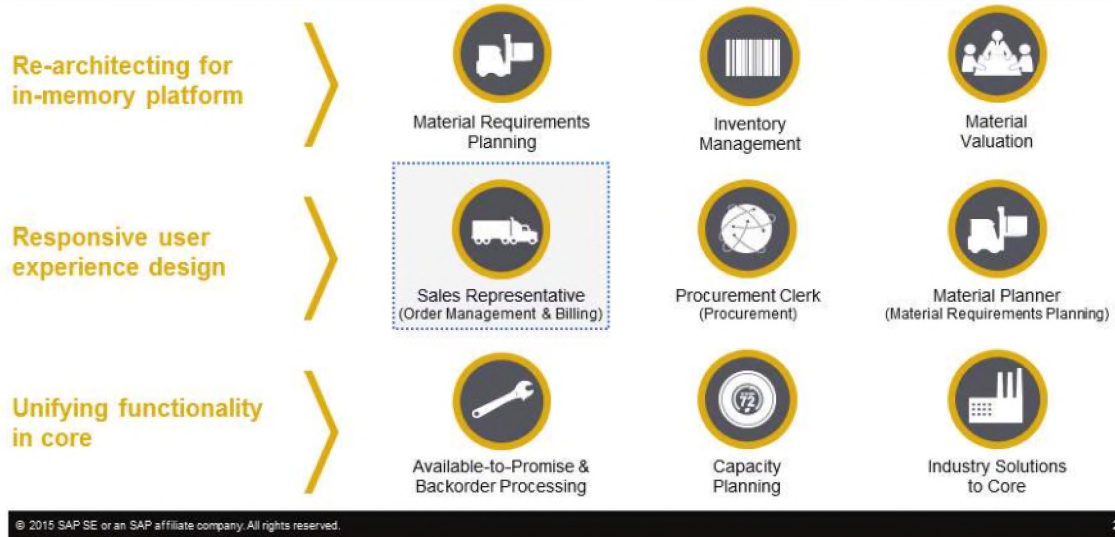


Figure 266: Highlights of Key Business Innovations in SAP Enterprise Management Logistics

Example: Ensure frictionless sales order fulfilment execution

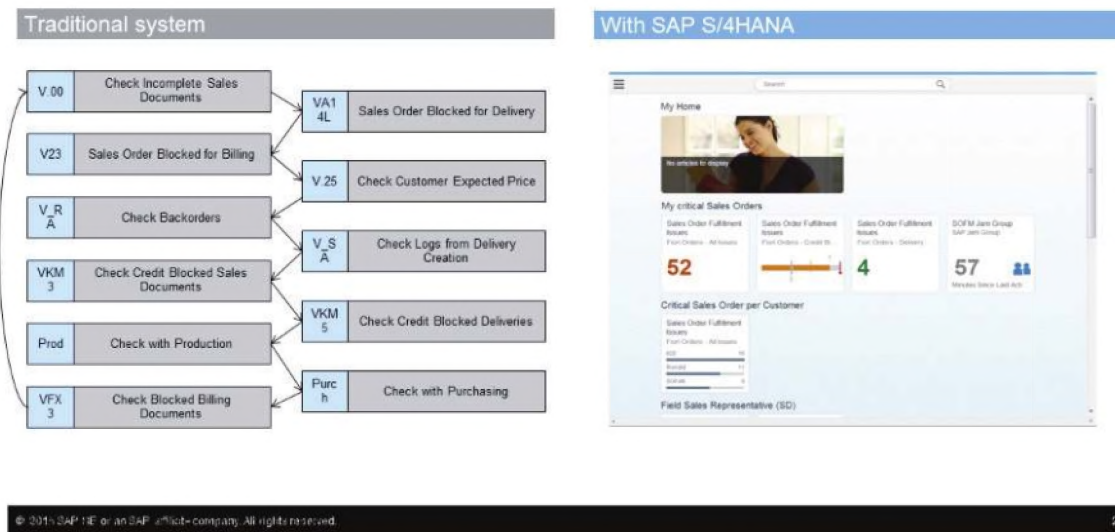


Figure 267: Example: Ensure frictionless sales order fulfilment execution

Use Case: Sales Order Fulfilment

Description: Monitor, manage and collaborate on sales orders due to shipping and invoicing so that agreements between customer and company can be easily fulfilled in time and quality.

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

Unique value of S/4HANA:

Offers the possibility to run actions directly in real-time and track the solution progress on the same screen

Combines analytical insights with operational actions

Visualizes key performance indicators including thresholds and alerts in real-time.

Business Innovation:

Real-time oversight of entire O2C process

Real-time insight into process issues, regardless of process step

With traditional system:

Responsible employee has to check multiple reports to get a holistic view of all process related issues

Multiple issues in one sales order cannot be detected in one step

Higher risk of undetected exceptional situations

Problem-related communication and decisions cannot be tracked in the system

Reports need to be run multiple times

With SAP S/4HANA:

Provides the internal sales representative a big picture on the current sales order fulfillment situation so that he or she can decide which area to focus on with the follow-up activities

Offers the internal sales representative a prioritized list with the key characteristics of the sales order with unfinished overdue fulfillment process, in order to focus on the most important first

Supports the internal sales representative with the relevant insights, contacts and collaboration features

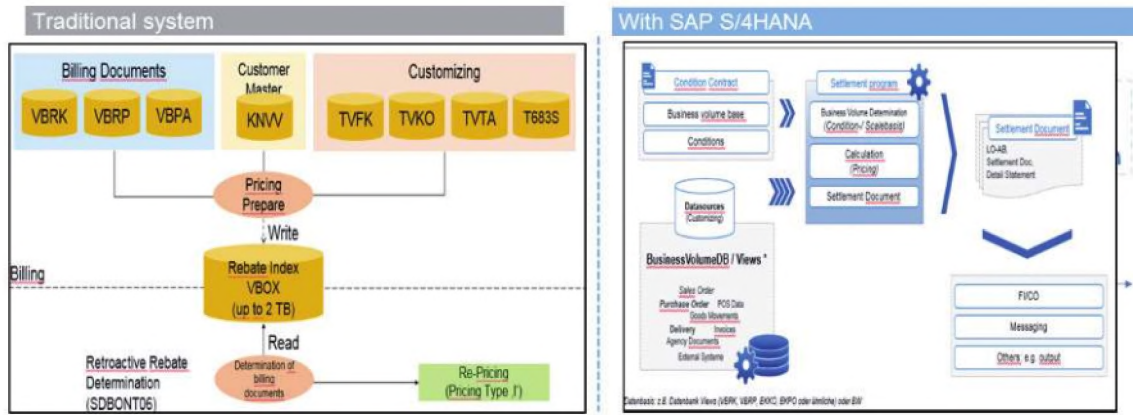
Enables the internal sales representative to run actions directly and document the solving progress via notes



UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

Example: Rebates



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Figure 268: Example: Rebates

Use Case:

Provides the internal sales representative a big picture on the current sales order fulfillment situation so that he or she can decide which area to focus on with the follow-up activities

Offers the internal sales representative a prioritized list with the key characteristics of the sales order with unfinished overdue fulfillment process, in order to focus on the most important first supports the internal sales representative with the relevant insights, contacts and collaboration features.

Enables the internal sales representative to run actions directly and document the solving progress via notes.

Unique value of S/4HANA:

More Flexibility -- rebate Index needs not to be rebuild

Lower TCO, because of significantly reduced data footprint and memory

Increased Business Continuity – no lock for important sales documents

Business Innovation

Increased flexibility for handling rebate agreements

Support for individually tailored rebate programs

Rebate programs supporting to change buying behavior of customers.

With traditional system:

Rebate indices are among the largest tables our customers have

If changes in one customers' conditions occur the table needs to rebuild; while this rebuild is going on all rebate data is locked throughout the organization

Rebate table (VBOX) has large system requirements.

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

With SAP S/4HANA:

Significantly Enhanced Functionality (SAP Settlement Management)

Common Functionality for SAP S/4HANA Sales and Procurement

More Flexibility as Rebate Index needs not to be rebuild when new customers become eligible for rebates and previous business SAP S/4HANA can be retroactively considered.

Significantly reduced data footprint and memory

Sales document are no longer reducing operations impairment in sales processes

Example: Frictionless O2C Process Performance Monitoring

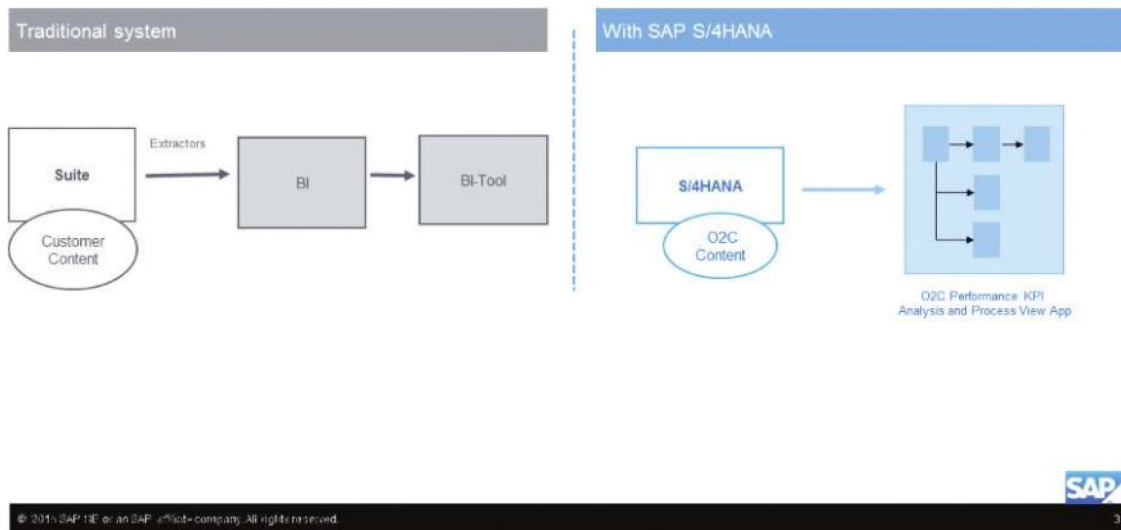


Figure 269: Example: Frictionless O2C Process Performance Monitoring

Use case

Description: Helps to assure and increase process efficiency and to efficiently align and communicate with process stakeholders. Reduces lead and processing times as well as error rates. Monitors the quality of the process as well as and allows benchmarking between sales organizations.

Unique value of S/4HANA

Combines analytical insights with navigation to operational applications

Offers the possibility to visualize the progress of process

Visualizes key performance indicators

Business innovations

Real-time oversight of entire O2C process

Real-time insight into process issues, regardless process step

With traditional system:

UNIT 5 SAP S/4HANA Applications

Lesson: SAP S/4HANA Logistics

SAP does not deliver out of the box content for O2C to track the performance of sales processes

Extraction and analysis of process performance with BI tools

Daily/weekly update (extraction)

With SAP S/4HANA:

SAP provides out of the box content to monitor and analyze O2C process performance

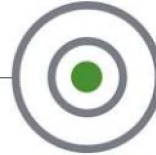
Instant/real-time analysis is possible on S/4HANA

Allows comparison between sales organizations and communicate issues with stakeholders

Provides the process manager a current view of the sales order processing performance and quality

Filter sales orders with issues and take insight into process execution

Learning Objective



You should now be able to:

- Understand some of the Key Business Innovations

Figure 270: Learning Objective



UNIT 5 SAP S/4HANA Applications

Exercise 6: Simplification List

Exercise 6: Simplification List



UNIT 5 SAP S/4HANA Applications

Exercise 6: Simplification List

Description

Because there are a lot of simplification inside S/4HANA. And it would be outgrow the timeframe of our course to discuss all these improvements . And each has different expectations. So please find your own topics by surfing the the document

- **Simplification List for SAP S/4HANA, on-premise edition 1511**



Figure 272: Description

UNIT 5 SAP S/4HANA Applications

Exercise 6: Simplification List

TASK

1. Please go to the following directory

<\\kpstransfer\HANA\SPS10\student\S4H01>

Here you will find the following slide !

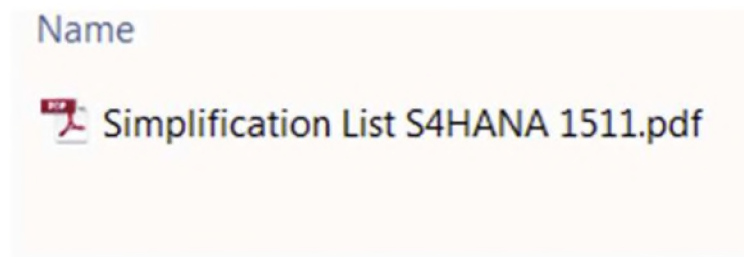


Figure 273: Task



UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

Lesson: Planning in S/4HANA

Agenda

S/4 HANA Financials

S/4 HANA Logistics

Planning



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3

Figure 274: Planning



UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

Learning Objective



After completing this lesson, you will be able to:

- Why is IBPF the planning tool for the future
- What are the benefits by using “Integrated Business planning”

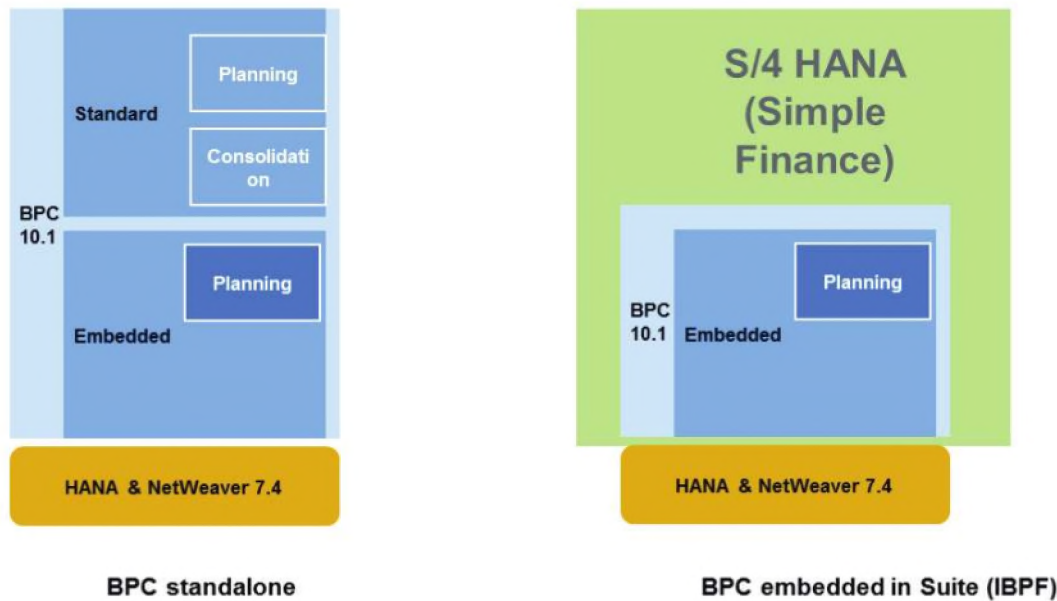
Figure 275: Learning Objective



UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

BPC vs Integrated Business Planning for Finance



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Figure 276: BPC vs Integrated Business Planning for Finance

The model in SAP S/4HANA Finance is based on the SAP Business Planning and Consolidation Embedded modeling type. The model in SAP S/4HANA Finance also delivers content

(Templates, queries and planning functions) not available with a traditional deployment.

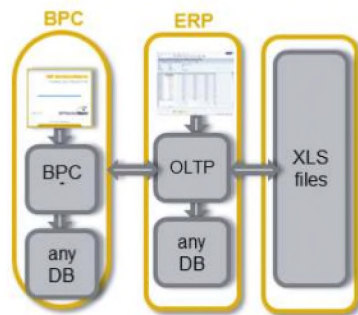
For more information please have a look at note 2243472 - How to prepare today's BPC stand-alone planning projects for a future migration to SAP Simple Finance in S/4 HANA

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

How does it work ?

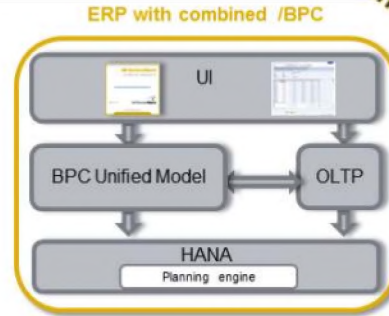
Conceptual Overview (Architecture)



Pain Points

- Separate Systems for ERP-based planning and standalone planning tools
- Planning silos with separate data stores
- Peer-to-peer transfer programs and ELT between different planning applications
- Long running batch jobs / Simulation impossible
- Many manual steps / Long planning cycles

*Simple Finance
New Architecture*



Common Architecture Across BPC, BW, HANA and ERP

- No replication, direct access to ERP master data and actual data
- Leverage HANA In-Memory Planning Engine
- Flexible features from BPC / Mature features from PAK
- Planning functions, e.g. Disaggregation
- Central interface to the UI (BW Query)
- Common Excel and Web UI
- Integration into ERP UI and processes

Figure 277: How does it work? Conceptual Overview (Architecture)

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

How does it work ?

Conceptual Overview (Architecture)

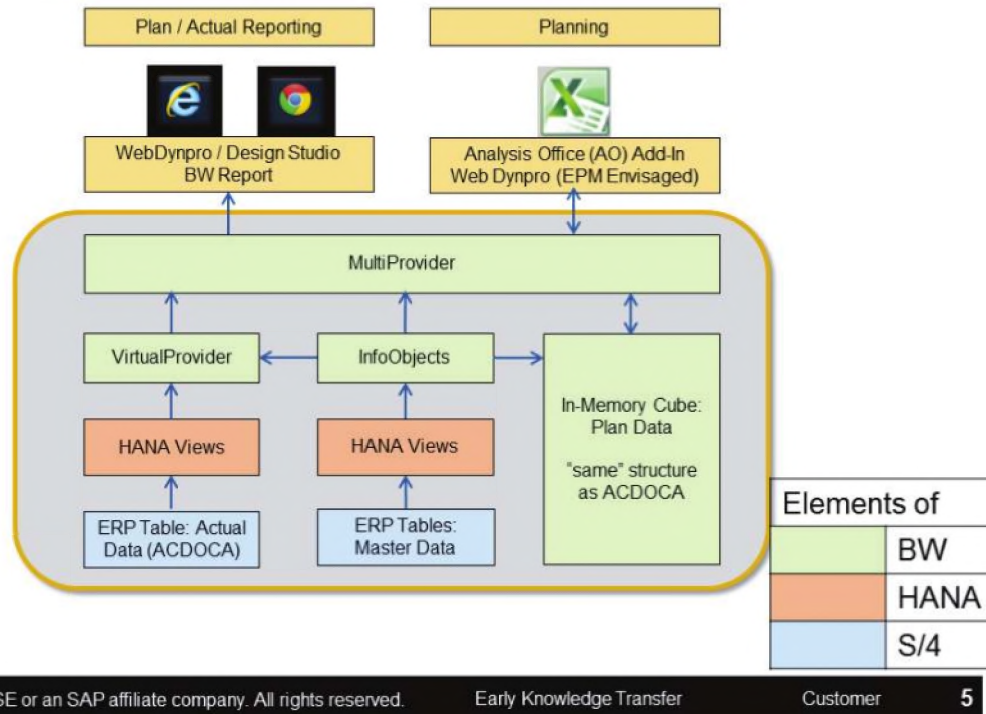


Figure 278: How does it work? Conceptual Overview (Architecture)

How does it work?

The actuals are in the tables of S/4 HANA.

Inside SAP S/4HANA exist a separate BW- client. It is connect with the client of S/4HANA. In the BW client there are the cubes (virtual provider) for planning. These cubes are the data structure for planning. The data itself will be stored direct in SAP HANA database.

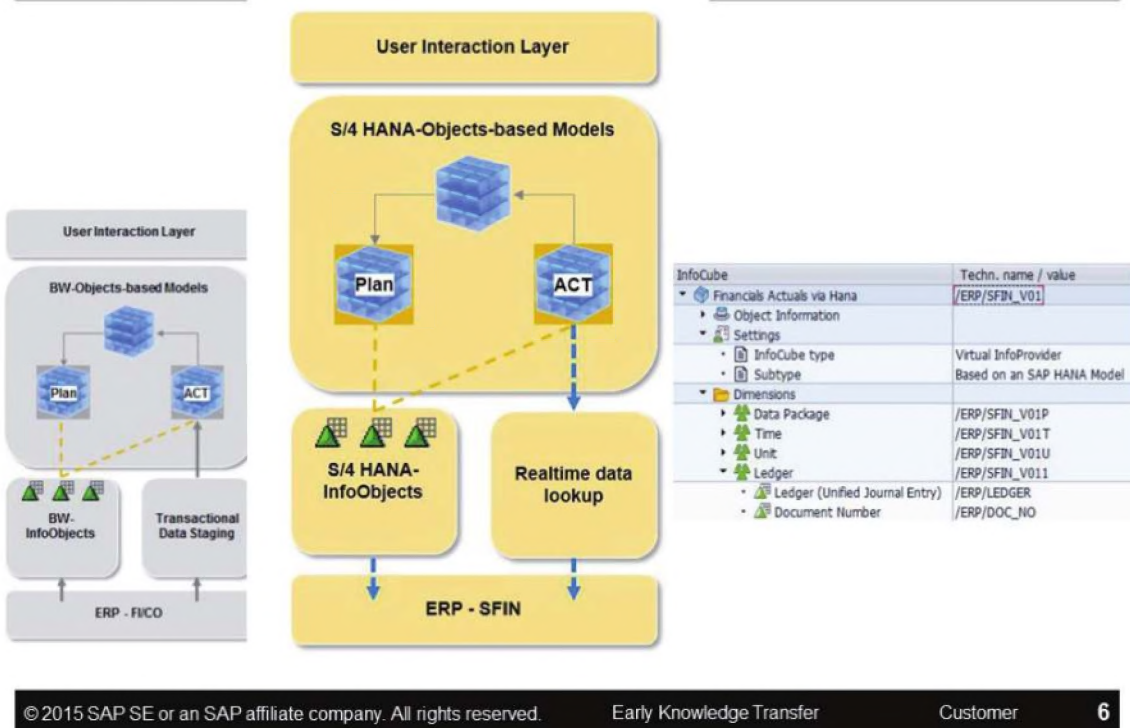
It is possible to lookup the actual data from SAP S/4HANA in real-time. Via SAP HANA Views So it is possible to use this actual data as reference for the new planning cycle.

Definition of a virtual provider: It is an Info Provider with transaction data that is not stored in the object itself, but which is read directly for analysis and reporting purposes. The relevant data can be from the BI system or from other SAP or non-SAP systems.

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

Differences between BPC standalone and embedded BPC in S/4 HANA



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Figure 279: Two different BPC implementations

The key differences between a standard BPC planning projects in a stand-alone BW system (“BPC standalone”)

And the embedded BPC in SAP S/4HANA (“S/4 HANA”) are:

Info Objects

- BPC stand-alone: 0-namespace and/or customer namespace,

Master data filled by replication and stored redundantly

- S/4 HANA: /ERP/-namespace,

Master data read from SAP HANA Views during runtime

Acquisition of transactional data

- BPC stand-alone: Objects in 0-namespace and/or customer namespace,

Transactional data replicated and stored redundantly

- S/4 HANA:

/ERP/-namespace, transactional data read from a virtual provider connected to a SAP HANA View

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

New Data Model --> New planning process

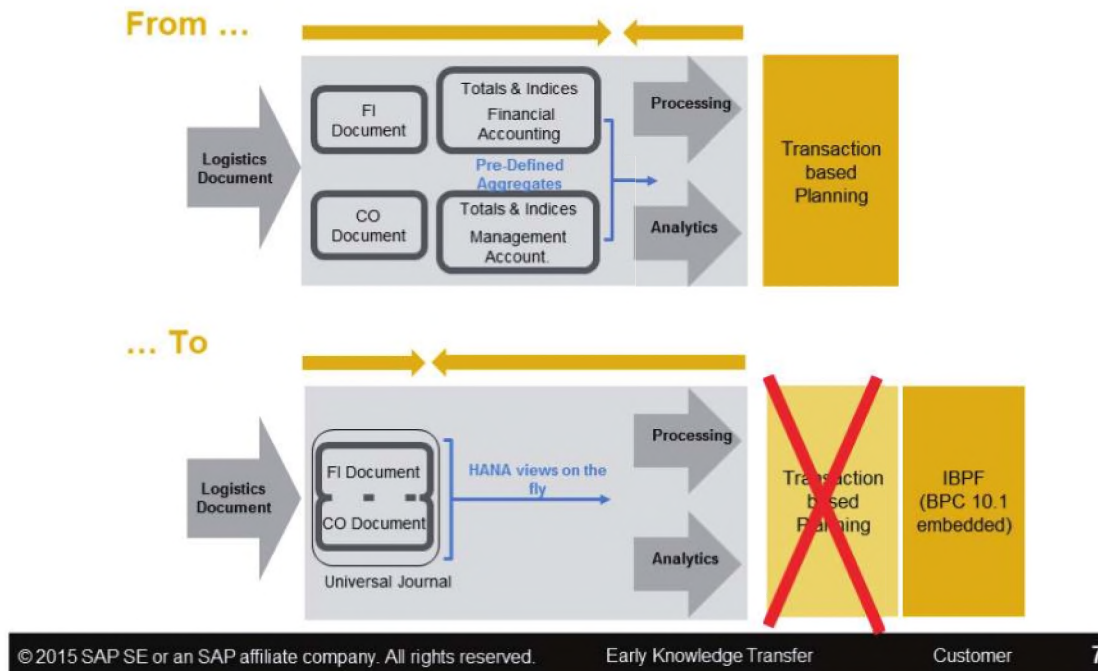


Figure 280: New Data Model --> New planning process

With SAP S/4HANA certain transaction codes and programs in the application areas of AC, CO, FI, AA and FIN - compared to EhP7 for SAP ERP 6.0 - have been removed and partially replaced with newer transactions, programs or WebDynpro applications.

Note that with SAP Simple Finance the logic of SAP General Ledger (New GL) is used. Therefore transactions of classic General Ledger have to be replaced by the relevant transactions from New General ledger.

SAP recommends you to read the SAP Simple Finance release scope information in SAP Note 1946054 and 2119188 for a general overview on supported functions and compatibility information.

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

Appendix

Comparison: Where can you capture which plan data ?

Plan data for	IBPF	CO	FI	CO-PA
Balance Sheet	X		○	
Profit & Loss	X		○	
Profit Center (and other GL)	X		○	
Cost Center	X	↔ X		
Internal Order	X	↔ X		
Project	X	↔ X		
Functional Areas	X			
Market Segment (Account Based)	X			X
Market Segment (Cost Based)	Customer			X
Free Dimensions	Customer			X
Plan Data Processing	Full BPC functionality	X	○	X

○ under discussion

↔ = retraction/extraction available

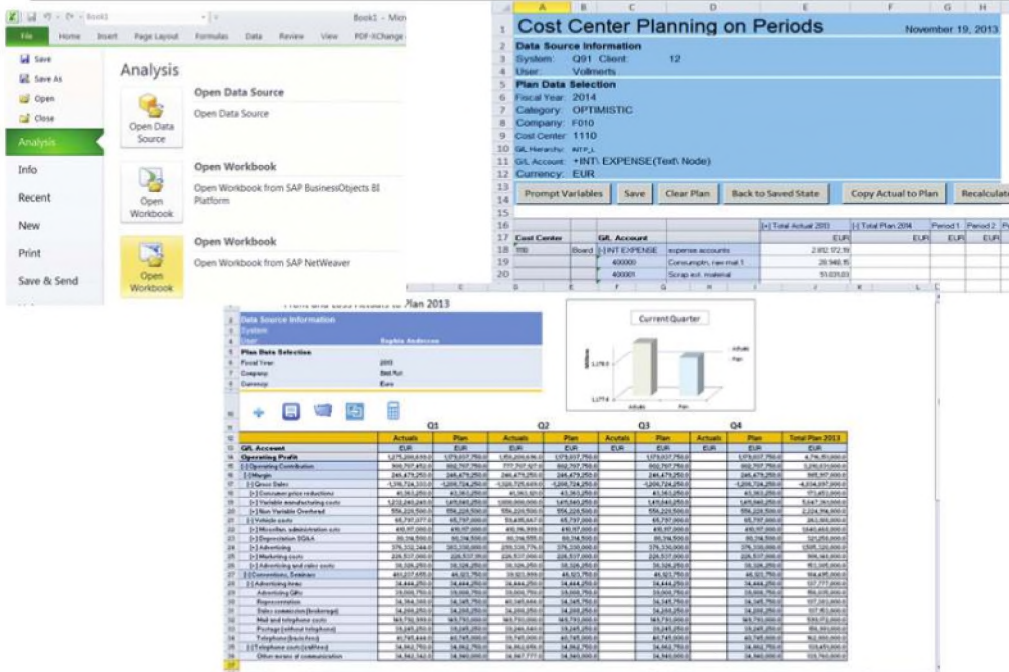
Figure 281: Appendix Comparison: Where can you capture which plan data?

With IBPF you have the full power of planning functionality.

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

Integrated Business Planning for finance
Real Time Planning across the enterprise



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Figure 282: Integrated Business Planning for finance Real Time Planning across the enterprise

Agile

Engage across Finance and SAP ERP with by consuming data for actuals and plans with one tool and consistent user experience

Rapidly deploy pre-packaged templates and functional content for real time planning with instant access to ERP for data and master data

Reduce implementation time and costs by deploying in the cloud.

Real time

Leverage SAP Central Journal to access Actuals and compare to plan variances instantaneously

Increase accuracy leveraging allocations and calculations used for actuals with budgets and forecasts

Plan at any level of detail across the enterprise and aggregate data on the fly from actual transactions.

Integrated

Save time and reduce errors with a single, integrated solution for planning and actuals across the enterprise

Lower cost of ownership and reduce data duplication with ability to plan directly on existing SAP BW and ERP objects

Eliminate silos, reduce errors by working across multiple planning functions through one system

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

What is some of the content delivered with Integrated Business Planning for finance?

Integrated Business Planning for finance includes templates that provide support for:

- Cost Center Planning
- Internal Order Planning
- Project Planning
- Profit Center Planning
- Cost of Sales Planning
- P&L Planning
- Market Segment Planning
- Liquidity Planning (requires Cash Management)

Integrated Business Planning for finance also includes:

- Queries
- Planning Functions
- Sequences

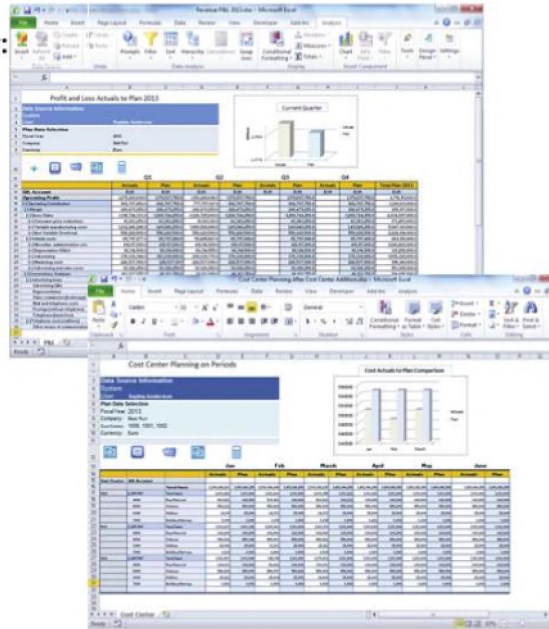


Figure 283: What is some of the content delivered with Integrated Business Planning for finance?

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

How different P&L related planning steps are connected in Real Time

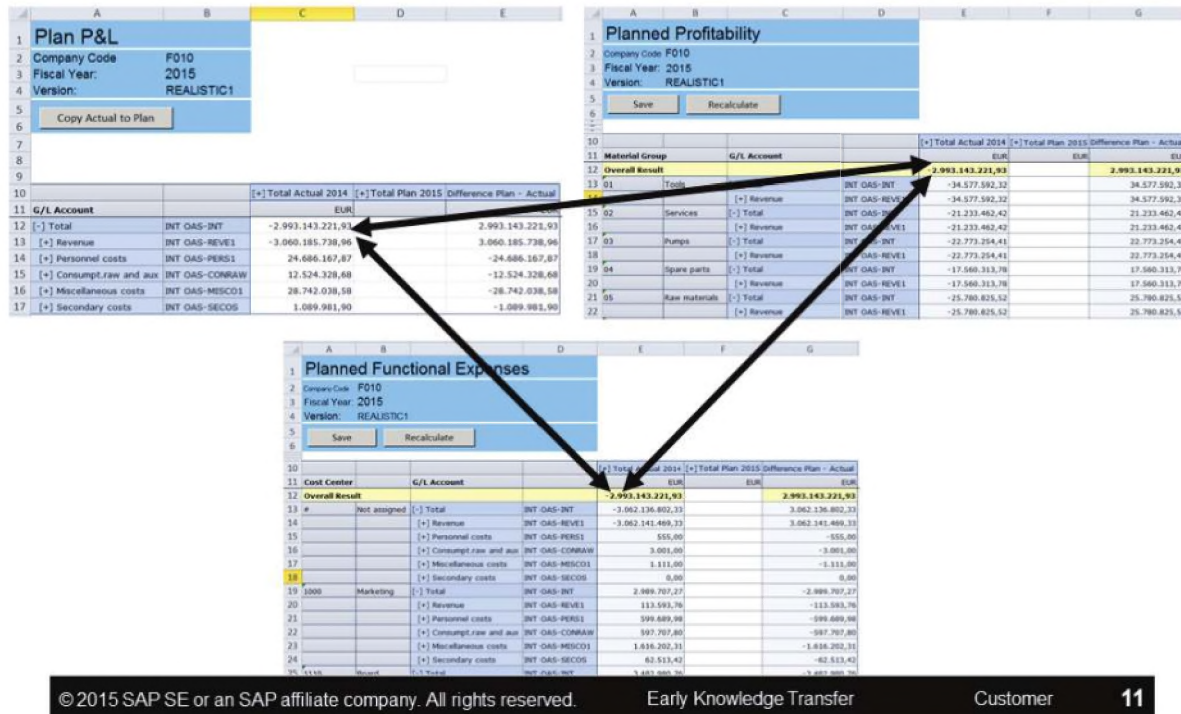


Figure 284: How different P&L related planning steps are connected in Real Time

The following workbooks are part of the sample content which is delivered with S/4 HANA. These workbooks are interlinked.

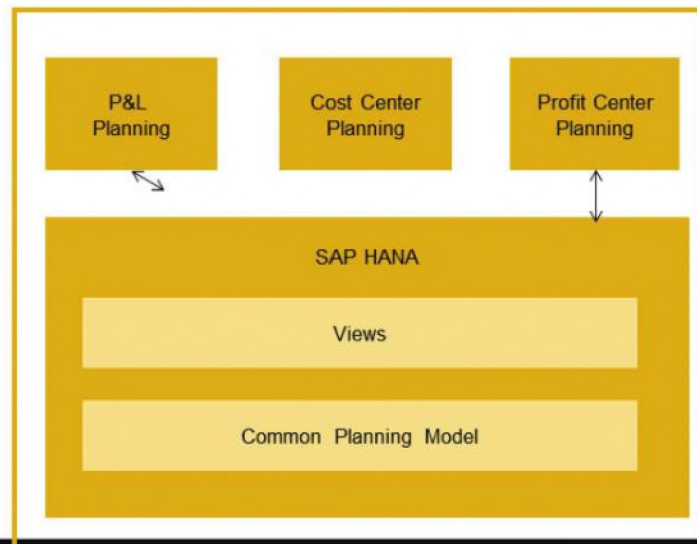
- Cost Center,
- Internal Order,
- Project Planning,
- Market Segments,
- Profit Center Planning,
- Functional Area and
- P&L Planning

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

How does Integrated Business Planning for finance work in Real Time?

Integrated Business Planning for finance



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Figure 285: How does Integrated Business Planning for finance work in Real Time?

Leverage SAP Smart Accounting Central Journal for real time access to Actuals data and master data.

The Integrated Business Planning for finance model is able to read actuals “Real Time” as transactions update the FI & CO document tables within ERP.

Actual data is aggregated on the fly leveraging SAP HANA views.

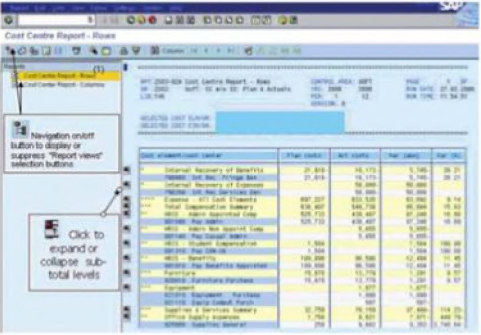
Very quickly analyze financial data and model results.

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

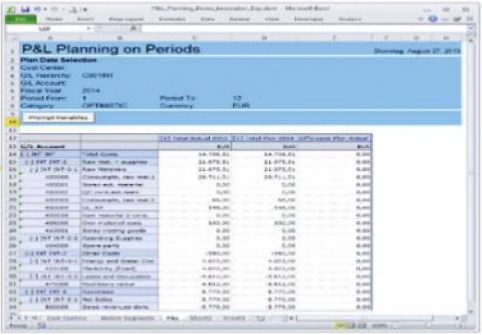
SAP ERP Planning vs Integrated Business Planning for finance

SAP ERP Planning



- SAP GUI
- Sequential Planning Process
 - Cost Center Plan
 - Project Plan
 - No direct share of values
- Many current customers use this

Integrated Business Planning for finance



- HTML5 UI, Analysis for Office
- Parallel Planning Process
- HANA Optimized performance
- Workflow/Workstatus support
- Real time Actuals
- Activity Log

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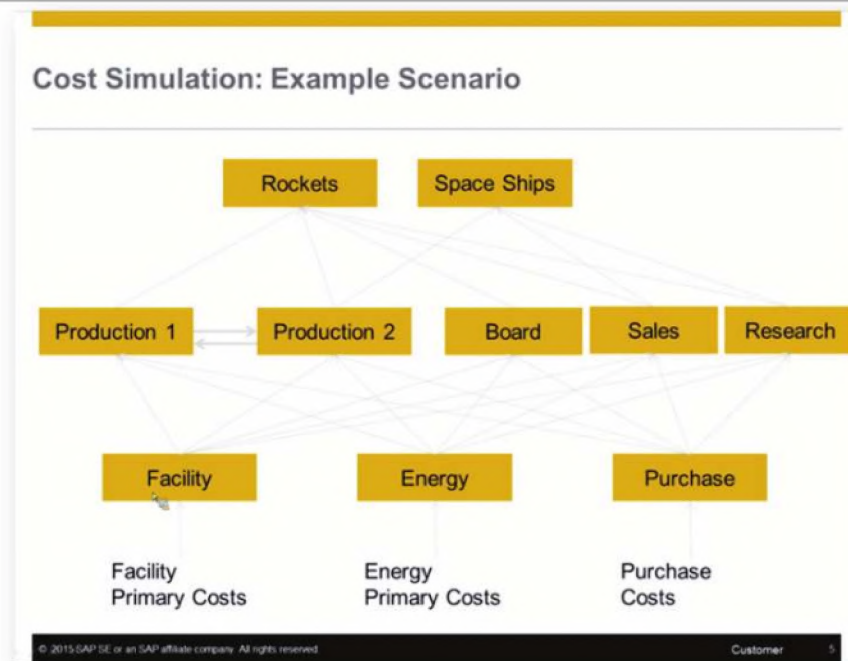
Figure 286: SAP ERP Planning vs Integrated Business Planning for finance

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

Cost Simulation

1511



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Figure 287: Cost Simulation

The Cost Simulation functionality enables you to quickly identify the impact a change of primary costs (recorded at lowest level) has on top level.

This helps you to find the most suitable cost structure.

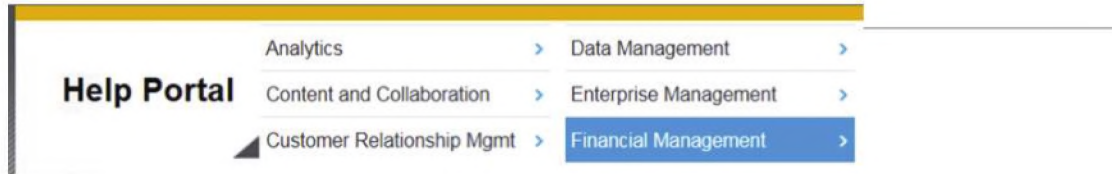
The main advantage of this solution is its high performance: A user can simulate a change in basic data and immediately see the impact.

It is not the goal of the Cost Simulation to provide the identical functionality as allocations in CO.

UNIT 5 SAP S/4HANA Applications

Lesson: Planning in S/4HANA

Additional Information



The screenshot shows the SAP Help Portal navigation menu. On the left, the text 'Help Portal' is displayed. To its right, there is a list of menu items with right-pointing chevrons: 'Analytics', 'Content and Collaboration', and 'Customer Relationship Mgmt'. On the right side of the menu, there is a list of sub-items: 'Data Management', 'Enterprise Management', and 'Financial Management'. The 'Financial Management' item is highlighted with a blue background.

Integrated Business Planning for SAP Simple Finance Add-On for SAP Business Suite powered by SAP HANA

The Integrated Business Planning for SAP Simple Finance Add-On for SAP Business Suite powered by SAP HANA (IBP) applications provide a consistent view of the planning process. From the UI perspective, all planning applications can be accessed by a Microsoft Excel frontend to provide a homogeneous look and feel. There are no longer silos for the planning data since all planning data is contained in a real-time info cube of the local Business Warehouse (BW), which is optimized for SAP HANA. Actual data and master data are accessed directly in real time without any replication that would be necessary in a standalone BW.

2081400 - Integrated Business Planning for Finance: Compilation of Information

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Figure 288: Additional Information

Note 2081400 is the central point to access all relevant information regarding this application.

Unit 6: SAP S/4HANA Embedded Analytics

Lesson: Planning in S/4HANA

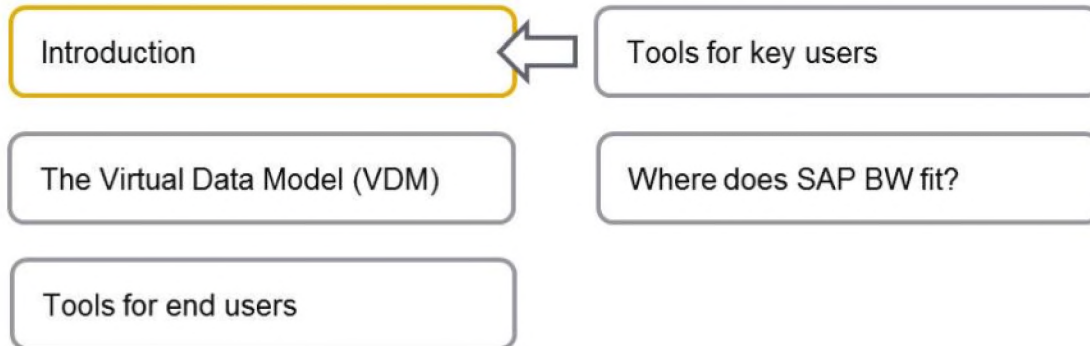
Unit 6: SAP S/4HANA Embedded Analytics



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

Agenda



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Figure 289: Agenda



Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

Learning Objective



After completing this lesson, you will be able to:

- Describe the concept of embedded analytics with S/4HANA

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Figure 290: Learning Objective



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Combining transactions and analytics on a single in-memory platform



- | | |
|--|---|
| <ul style="list-style-type: none"> • Decisions and Actions on Old Data • Multiple Copies of the Data • ETL and Batch Processing Efforts and Costs | <ul style="list-style-type: none"> • Instant Insight to Action on Live Data • One Copy of the Data • No ETL and Batch Processing |
|--|---|

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Figure 291: Combining transactions and analytics on a single in-memory platform

In the past we moved transactions to dedicated OLAP based systems through a series of steps known as Extraction, Transformation and Loading (ETL).

This created delay in making data available for analysis, plus there were many points of failure.

Also the landscape was complex, expensive and special skills were needed to implement and run the various components in the ETL flow.

With S/4HANA, we combine OLTP and OLAP on a single in-memory platform, so no more moving data, generating multiple copies and causing delay.

Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

Users express desire for better analytics



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Figure 292: Users express desire for better analytics

But it is not just about removing the complexity from the ETL flow. We need to also improve the type of analytics available to users.

The numbers speak for themselves. On the whole, using traditional business systems, users have reported that they experience a very low personal success rate in all areas of modern reporting.

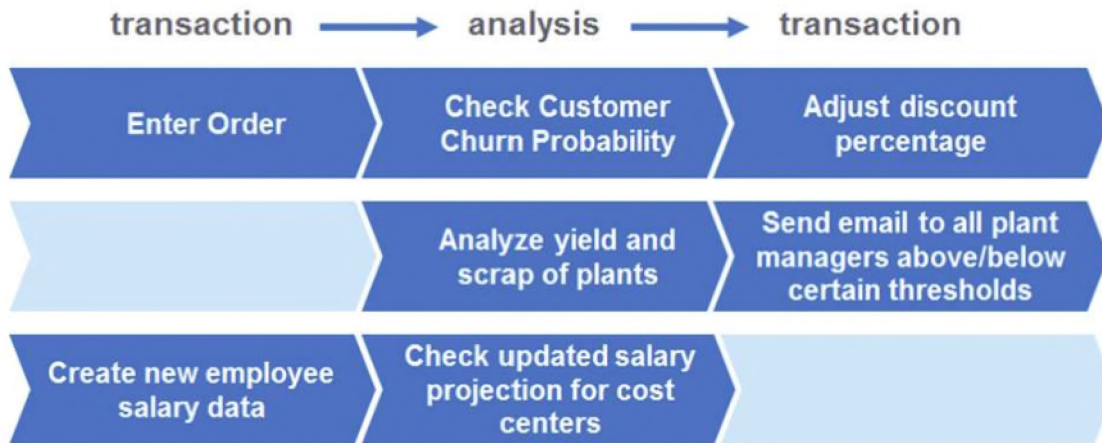
Yet they know these are important areas that could help them to be more successful in their roles.

Let's look at some of the reasons for this unsatisfactory situation.

Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

What are embedded analytics?



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Figure 293: What are embedded analytics?

In the past, analytics and transaction processing were considered as separate tasks, usually with their own dedicated systems.

Imagine this scenario:

A business user creates a sales order for a new customer. During the transaction, the business user needs to decide how much discount to offer the new customer based on how likely the customer would return. So the business user saves the incomplete transaction. Later that day an analysis is carried out and a report is produced in order to classify the customer’s life-time value with suggested range of discounts that could be offered. Then next day the sales order is reopened and the appropriate discount is applied. The business user calls the customer to confirm the order. The customer really likes the discount that has been applied but it is too late, the customer has already placed the order with a supplier who was able to react quicker. The order is lost.

Within a transaction a business user should be surrounded by contextual insight. This means key information relating customer, a supplier, an employee, an asset etc. should appear inside the transaction where it is needed.

But often, it is not a transaction that triggers the need for analysis. Sometimes it is as a result of an analysis that a transaction is needed. For example after analysis of wastage during manufacturing, each plant manager who has exceeded the thresholds for waste generation needs to be contacted with the results of the impact they have on the business profit. Rather than collect the details from the analysis, paste them into an Excel document, then attach the document to individual emails to the plant managers. We should simply send the communication at the moment of analysis and not



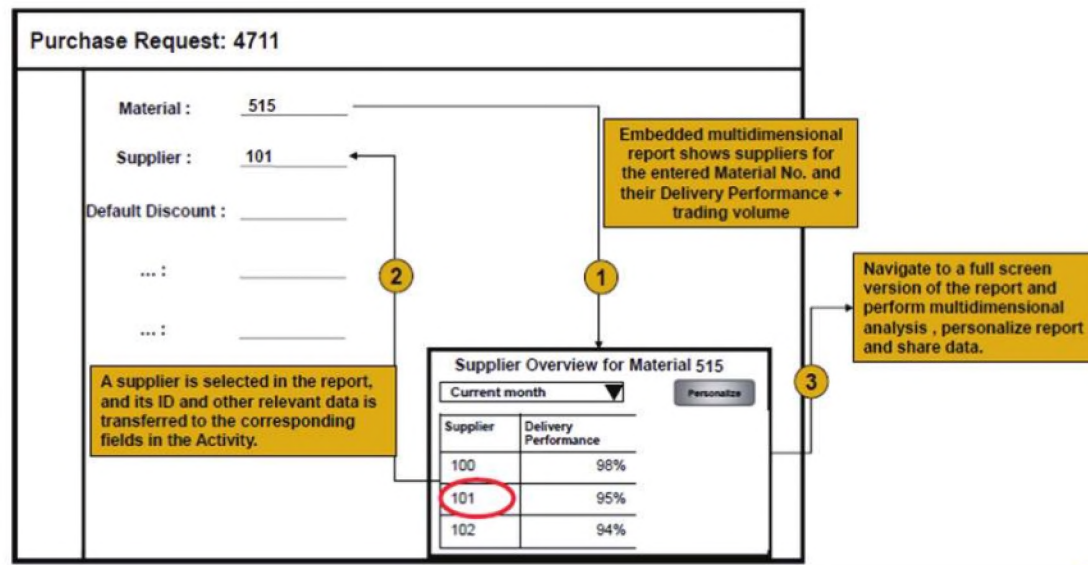
Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

as a separate task in a separate system and all relevant information should be automatically collected for the communication.

The key point is, analytics and transactions are no longer separate tasks in a modern business system, and they are combined.

A central theme of SAP S/4HANA is embedded analytics. Analytics at the point of opportunity or risk within a transaction. And because SAP S/4HANA works on real-time data all analytics are always up to date. With today's fast moving data, internal and external, decision making on out of date data, even when it is just a few minutes old, could be costly.

Embedded analytics – an example



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Figure 294: Embedded analytics – an example

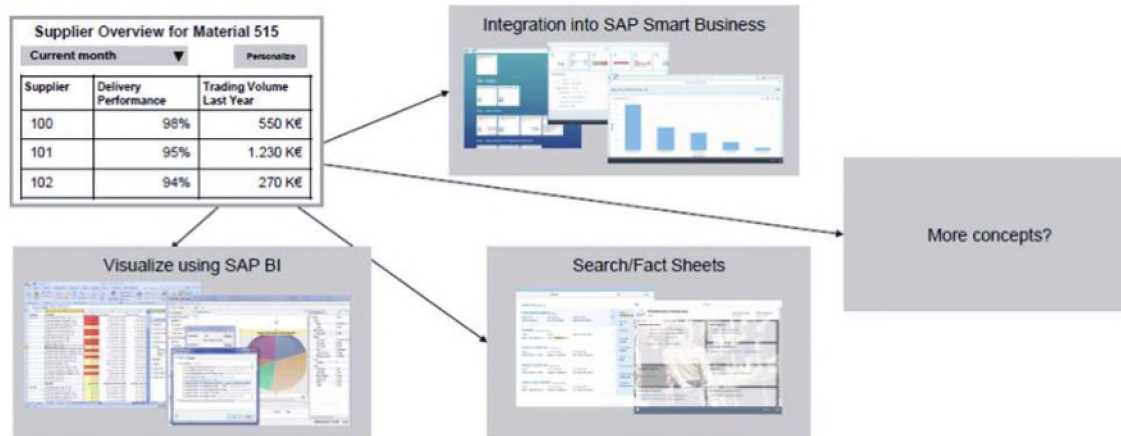
Here is an example of embedded analytics in action.

You can see the user is creating a new purchase request and needs to assign a supplier. There are quite a few suppliers who can shop this product so an embedded analysis provides some key decision making information to the user to help them make the decision without having to leave the transaction.

The users chooses the supplier with the best delivery performance.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Continue deeper analysis with dedicated BI tools



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Figure 295: Continue deeper analysis with dedicated BI tools

But perhaps the user needs to find out why this supplier did not achieve 100% delivery performance. Maybe there was a serious issue that might repeat.

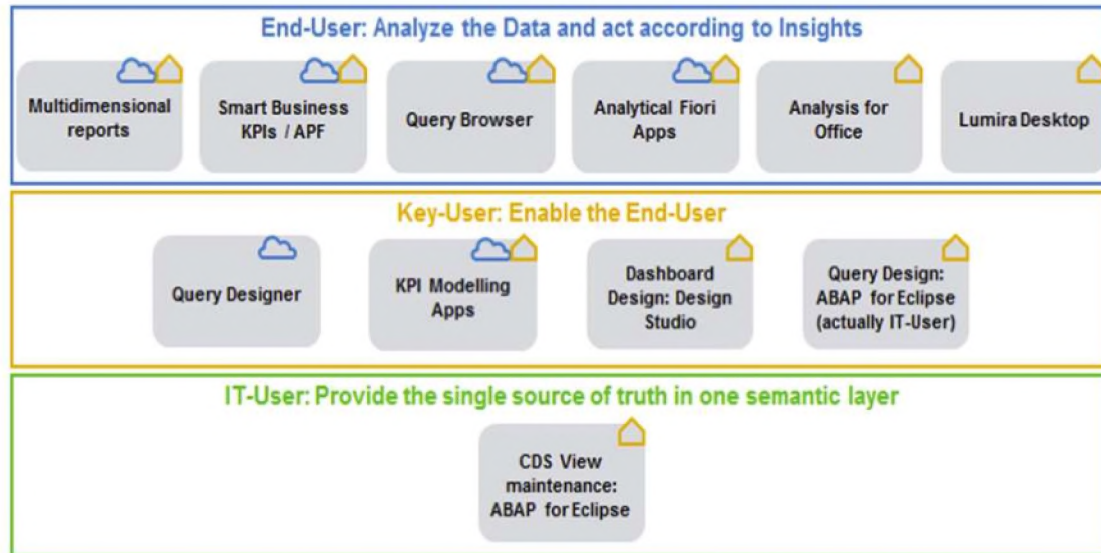
The users begins a drill down to break down that 95% figure to look for a pattern, maybe the concern was far in the past and issues have now been fixed, maybe the whole of the last order was a disaster?

So from the transaction we can link to dedicated SAP BI tools that allow the user to freely and deeply explore all dimensions of this supplier's performance all the way down to individual transactions.

Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

SAP S/4HANA reaches all user types



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Figure 296: SAP S/4HANA reaches all user types

A useful way to learn what is available in SAP S/4HANA Embedded Analytics is to break up the tools and components by user type. Of course there is never a clear separation of duties across different organisations but at least we can identify the intended audience for the various offerings.

In this unit we will take a look at the three user types and what is available for them.

We focus on:

IT personnel (usually developers), the Key User (sometimes called power user) and the End User (sometimes called business user)

This slide provides an overview of what is available for the 1511 release with reference to cloud or on premise deployments

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Learning Objective



You should now be able to:

- Describe the concept of embedded analytics with S/4HANA

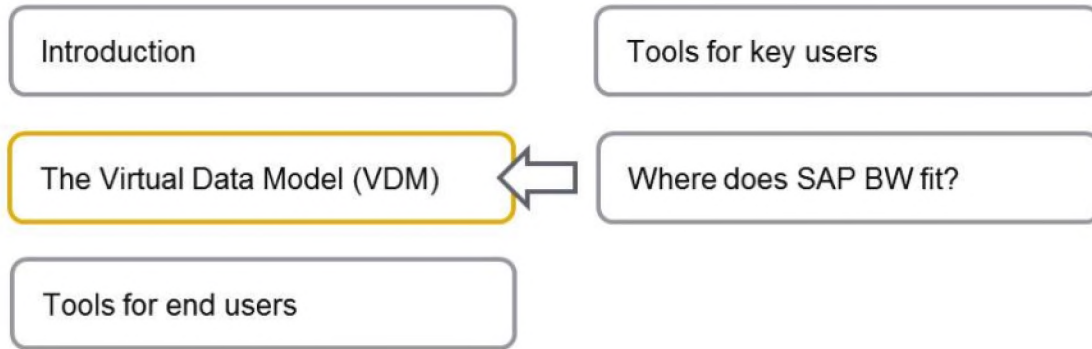
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Figure 297: Learning Objective



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Agenda



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Figure 298: Agenda

Let's take a look at the foundation of all analytics with SAP S/4HANA, the virtual data model



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Learning Objective



After completing this lesson, you will be able to:

- Describe a Virtual Data Model and in particular, describe how this is implemented with SAP S/4HANA

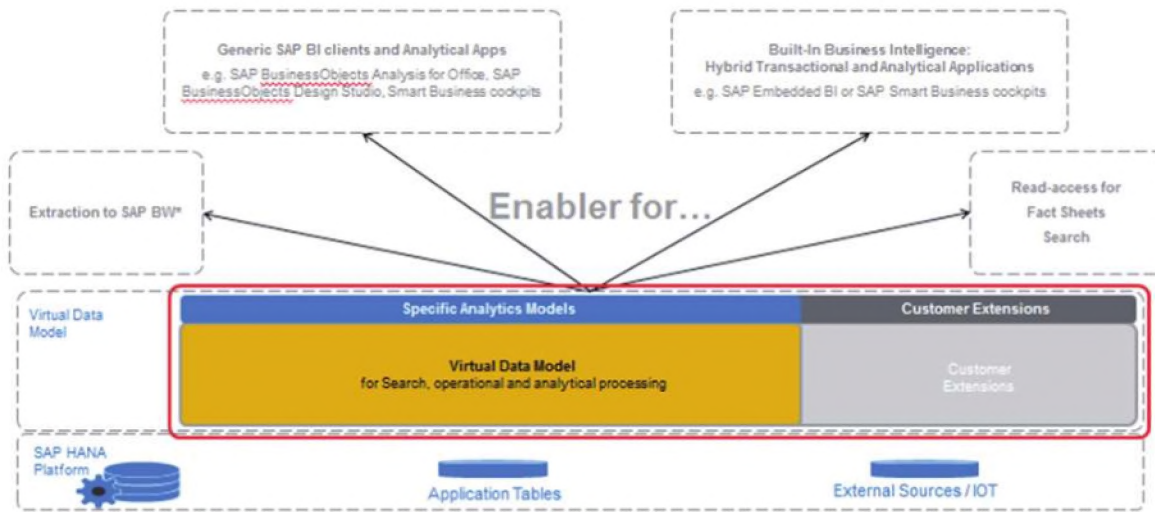
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Figure 299: Learning Objective



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Foundation for S/4HANA Embedded Analytics



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Figure 300: Foundation for SAP S/4HANA Embedded Analytics

We already explained how the core data model is massively simplified for SAP S/4HANA. We removed huge numbers of tables that were used for materialised aggregations, we removed indexes that were not needed and we flattened any hierarchical model right down to the line item. In other words, we store only what is absolutely needed and nothing else.

So we made the core model simpler, but this efficient model is too complex and too raw for direct consumption by analytic applications that need more business context to explain the meaning of the data. What is needed is a layer that sits above the application tables (and remember, the application tables could be remote and do not even need to reside physically in SAP HANA). This layer is a logical layer that defines consumption-ready views of the business data.

This is called the Virtual Data Model (VDM).

In the past there were many different consumption models. Some were physical (e.g. LIS and CO-PA) and some were virtual (e.g. Universes).

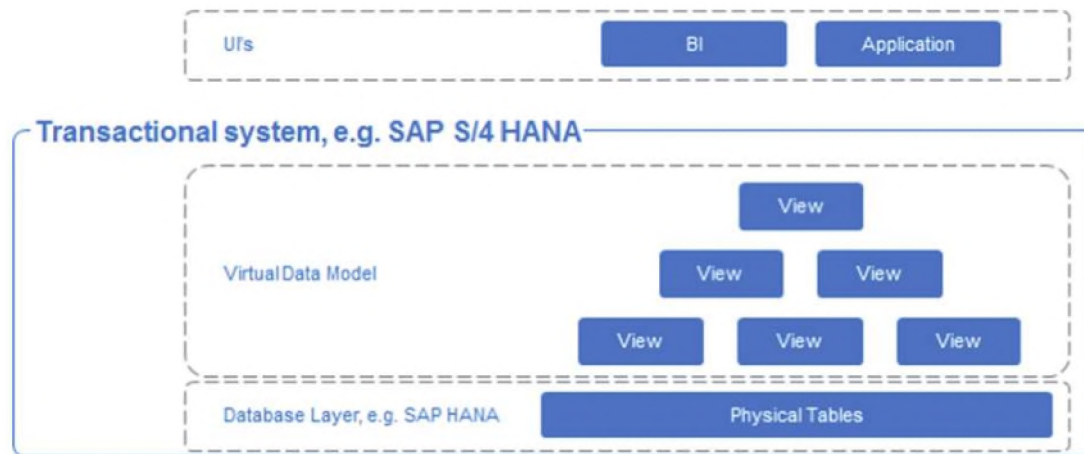
Recently SAP developed a comprehensive SAP HANA based virtual data model called SAP HANA Live which allows us to develop analytical views using SAP HANA Studio for easy consumption of SAP HANA data by any client.

But a new common virtual data model has been developed specially for SAP S/4HANA data consumption and we will describe this in detail in the coming slides.

The new common virtual data model can be easily extended by customers.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

What is a virtual data model?



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Figure 301: What is a virtual data model?

But what exactly is a virtual data model and why do we need this?

Data base tables are generally not built for direct consumption by an analytical applications. They do not have to be beautiful, in fact many table are very complex and ugly. But they make no apology, they were never meant to be on show. The reason tables are ugly in the first place is that the main goal of a table model is to provide a physical store of data and this does not take analytical applications consumption into account. Optimal storage is their main goal, and that does not always go with beauty.

A virtual data model is a hierarchy of views where each layer adds more business context until the top layer is consumed by the application.

The lowest virtual data model layer sits on top of the database tables and consume the most important data directly from the tables.

The next virtual data model layer consumes from the first virtual layer to refine the data, apply filters, add additional calculations, convert currencies, change the description of the columns etc.

There is no technical fixed limit to the number of layers of a virtual data model. But for consistency and governance, the number of layers and their purpose is usually well defined.

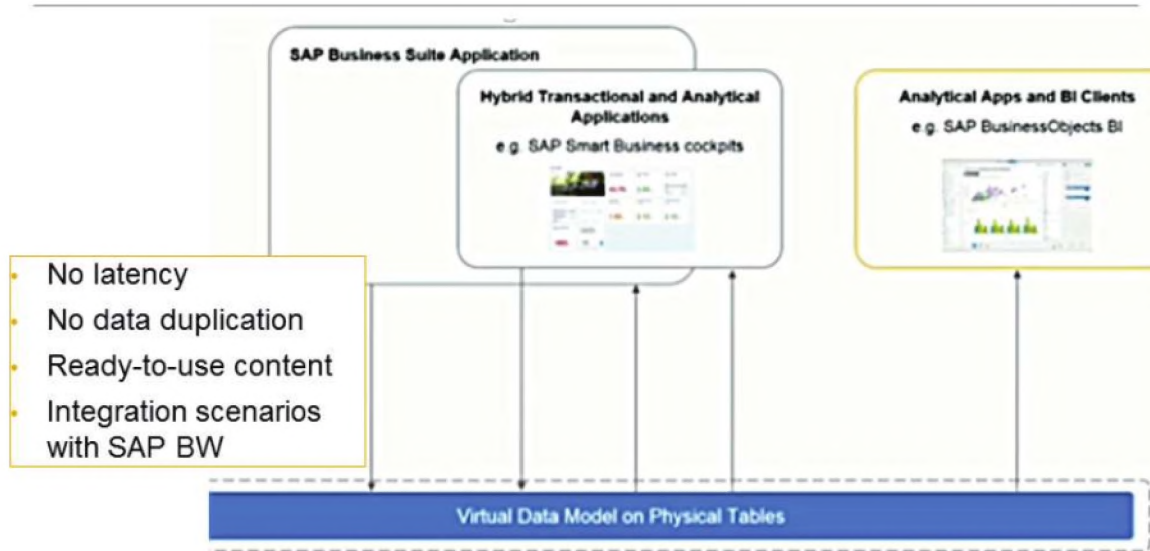
A virtual data model can be developed using scripting tools or graphical modeling tools.

The virtual data model contains views that are fully re-useable in any application.

Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

SAP HANA Live



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Figure 302: SAP HANA Live

As mentioned already, SAP HANA Live was the original virtual data model built for SAP HANA. Its main purpose is to provide a consumption model for any BI applications that needs access to real-time (hence the 'live') data specifically from SAP Business Suite tables that reside in SAP HANA.

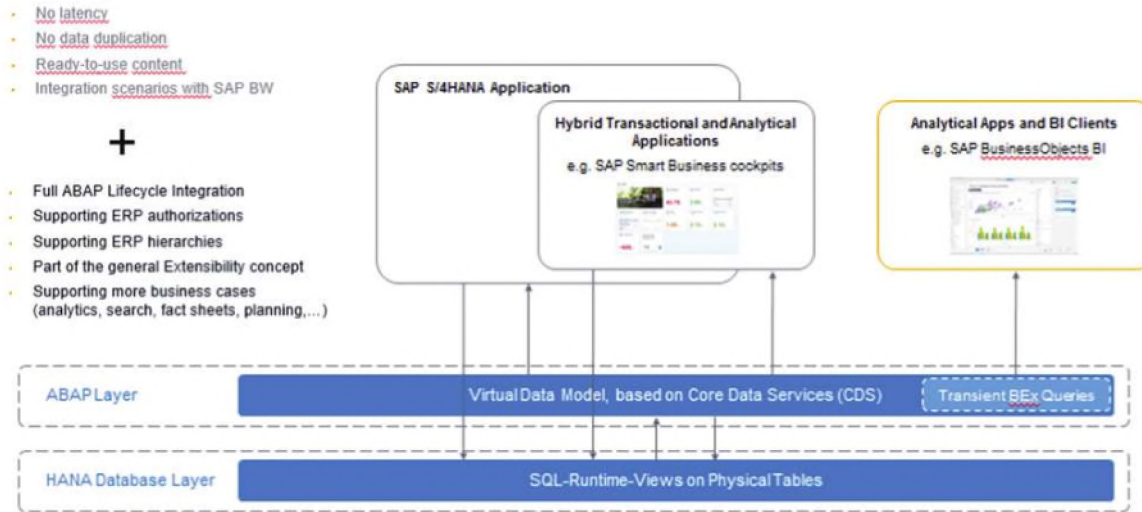
SAP HANA Live is built by SAP and is freely downloadable from Service marketplace as an add-in to SAP HANA. But it only makes sense when using SAP Business Suite applications as the virtual data model sits on top of SAP Business Suite tables. There are more than 1000 views delivered with SAP HANA Live to expose all key business documents such as sales orders, purchase invoices, customer payments etc.

The SAP HANA Live virtual data model is built using SAP HANA graphical calculation views. These are developed using HANA Studio and the design time and run time objects are always stored in SAP HANA. They are part of the database. They can easily be extended by customers to add additional fields, calculations etc.

Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

New CDS based VDM for SAP S/4HANA Embedded Analytics



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Figure 303: New CDS based VDM for SAP S/4HANA Embedded Analytics

So why could we not use SAP HANA Live as the SAP S/4HANA virtual data model?

SAP HANA Live continues to play a key role in SAP S/4HANA. But the SAP HANA Live virtual data model does have limitations.

SAP HANA Live is built for one use case: Live operational reporting. For S/4HANA, we need a virtual data model that can handle this requirement plus many more use cases (e.g. Search/Fact sheets, Smart Business cockpits)

SAP HANA Live is native to SAP HANA and is built directly in SAP HANA. This means it is a data model only for SAP HANA and not for any other database. It also means that the virtual data model is not built using the same tools SAP application developers generally use (ABAP editor). All maintenance is done in SAP HANA and not in the application layer.

Representing native SAP ERP hierarchies is not easy with SAP HANA Live. In fact there are no hierarchy views delivered as standard.

And finally the authorisation mechanism for protecting data which passes through HANA Live model is built natively in SAP HANA and not in the application. This means an application, such as SAP ERP would also have its own security concept built in ABAP. So authorisations would need to be setup on the application layer and also the DB layer.

So a new virtual data model was developed specifically for SAP S/4HANA to remove these restrictions. It is built using Core Data Services (CDS) views.

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SAP S/4HANA Embedded Analytics

Core Data Services (CDS views) are developed, maintained and extended in the ABAP layer of the SAP S/4HANA System. You should refer to them as ABAP managed CDS views because there is another type of CDS view that is managed in the SAP HANA layer. These type of CDS views are not relevant to S/4HANA Embedded Analytics.

The new CDS based VMD provide access using ODATA services for embedded analytics within SAP S/4HANA applications and also generates transient info providers/Bex queries which are used for generic BI reporting including SAP BI tools. All possible functions are automatically pushed to SAP HANA to improve performance.

A key driver to move the virtual data model to the application layer was the need for cloud support. For cloud deployments of SAP S/4HANA, we can't give out database user ids for the development of DB side models. The SAP HANA platform in the cloud is a common public platform and we can't have developers modifying the common platform.

Another benefit of building the VDM in the APAB layer is to enable the use all ABAP object lifecycle maintenance functions, for example transports, version control.

Authorisations to the data are managed at the application layer so no double maintenance is needed.

With the CDS based VDM it is easy to expose ERP hierarchies, CDS views provide specific syntax to enable hierarchies.

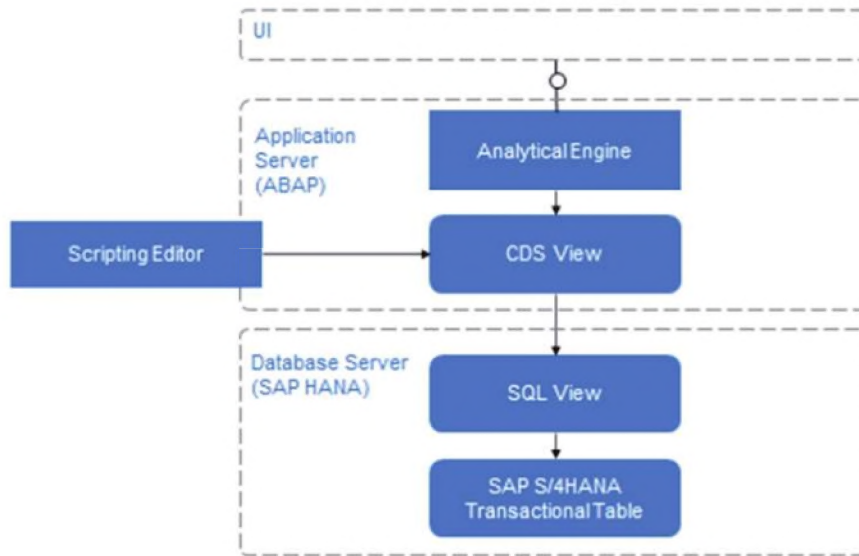
The new CDS based virtual data model is fully integrated into the extensibility concept of SAP S/4HANA. So adding new fields by a business user is easy and this new field then automatically becomes part CDS views.

CDS based VDM is designed for read and write cases, SAP HANA Live is designed for reading.



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

What are CDS views?



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Figure 304: What are CDS views?

A CDS view is built using SQL but with added annotations.

When the CDS view is activated, an SQL view is generated in the SAP HANA database.

Annotations are added to the native SQL to enrich data when it arrives to ABAP layer. The annotations describe how the view can be used (e.g. only for OLAP use), restrictions (e.g. for country France only) and business context (e.g. this account is a supplier not a customer)

When the CDS view is processed the result is exposed to a hidden, embedded analytic engine.

CDS views can be consumed by multitude of BI clients – structures, hierarchies, calculations, complex restrictions.

CDS views do not contain APAB code, just standard SQL plus annotations.

CDS view definitions are stored in the ABAP repository, the same place APAB application code is stored.

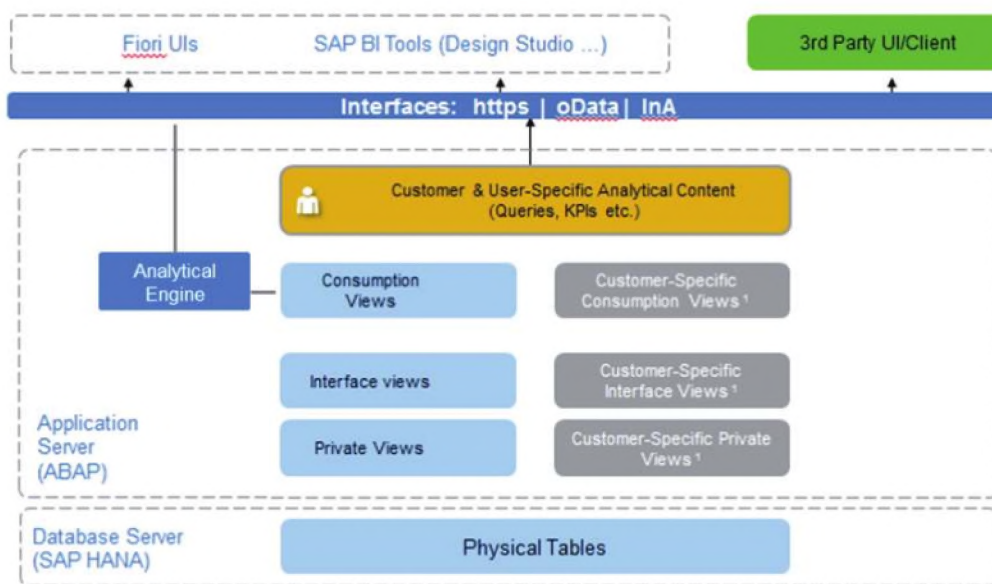
The run-time for CDS views is ABAP, so an SAP NetWeaver stack is required to execute CDS views. SAP S/4HANA is built on an SAP NetWeaver stack.

CDS views are built using the ABAP editor for Eclipse. Currently the CDS views are created using script (this makes copy/paste really easy and developers really like this), but later graphical tools maybe developed perhaps with wizards to guide the creation.

For detailed information please refer to:

http://help.sap.com/hana/SAP_HANA_Core_Data_Services_CDS_Reference_en.pdf

SAP S/4HANA virtual data model architecture



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Figure 305: SAP S/4HANA virtual data model architecture

CDS views are built in layers. In fact the very same layer concept that was created for SAP HANA Live are used.

The idea is to provide a set of base layer views (called private views) to offer a high degree of re-usability of common views.

Then we combine these private views to make them more useful at the next layer (interface views).

And finally, we add more semantics (filters etc.) to provide a view that is optimal for consumption by the application code or analytic engine (consumption view).

At all layers, extensions can be added. Also customers can add their own views at any layer and combine them with SAP delivered views.

This layering model is strictly enforced by SAP to provide governance.

Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

Learning Objective



You should now be able to:

- Describe a Virtual Data Model and in particular, describe how this is implemented with SAP S/4HANA

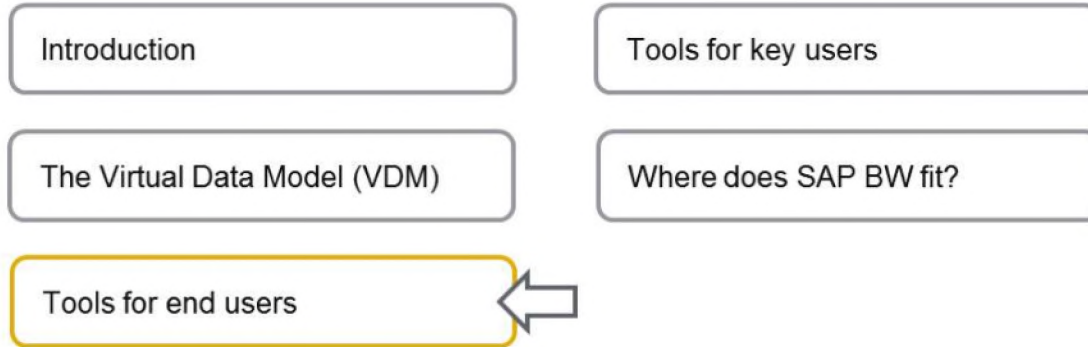
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Figure 306: Learning Objective



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Agenda



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Figure 307: Agenda

Let's take a look at what is available for the end user with SAP S/4HANA Embedded Analytics.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Learning Objective



After completing this lesson, you will be able to:

- Describe the tools for end users

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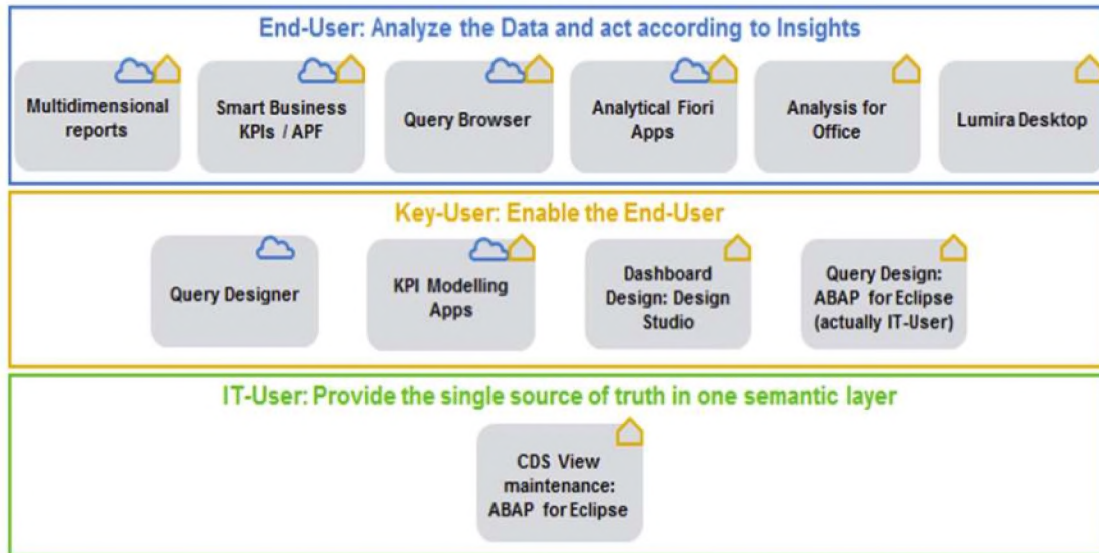
Figure 308: Learning Objective



Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

What do end users get?



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Figure 309: What do end users get?

An end user would be someone who is at the consumption end of SAP S/4HANA Embedded Analytics rather than in the development area.

They will be typically be business users who are IT literate and are comfortable and familiar with reporting tools.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Standard delivered reports

Component	1503 Cloud	1506 Cloud	1511 ¹⁾ On Premise / Cloud ²⁾
FI-AA			✓
FI-GL	✓	✓	✓
FI-FSCM	✓	✓	✓
LE-SHP	✓	✓	✓
LE-TRA	✓	✓	✓
LO-CMM			✓
LO-MD	✓	✓	✓
MM-IM	✓	✓	✓
MM-PUR	✓	✓	✓
PM-EOM			✓
PM-WOC			✓
PP	✓	✓	✓
PS-ST	✓	✓	✓
SD-BF	✓	✓	✓
SD-BIL	✓	✓	✓
SD-SLS	✓	✓	✓
SLC-EVL			✓
Cross Application and Basis	✓	✓	✓

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Figure 310: Standard delivered reports

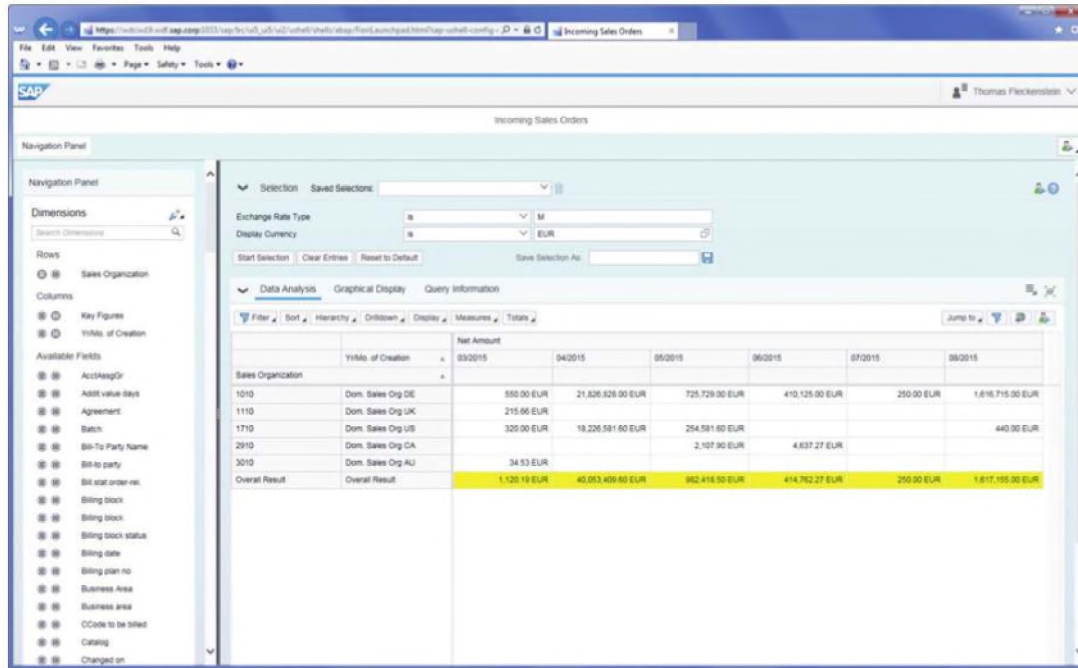
With SAP S/4HANA Embedded Analytics we deliver many standard reports to provide a quick adoption.

These standard reports are launched from tiles on the SAP Fiori Launchpad.

These reports are pre-assigned to roles so it is easy to quickly deploy reports to users

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Multi-dimensional reporting client



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Figure 311: Multi-dimensional reporting client

An easy to use end user reporting tool that is embedded in SAP S/4HANA and comes with the installation of core S/4HANA. No separate installation of this tool is needed.

The multi-dimensional reporting client is available for cloud and on premise deployments

.Embedded SAP Design Studio templates are used to provide the framework and layout.

Key capabilities include drill down, sort, filters and free construction of the report using any attributes and measures.

The client is limited to basic OLAP and reporting capabilities. For full BI capabilities customers should consider tools in the SAP BI suite which are all fully compatible with SAP S/4HANA.

When you launch a standard report, this appears in the multi-dimensional reporting client.

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SAP S/4HANA Embedded Analytics

Launch Smart Business cockpits from KPI tiles



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Figure 312: Launch Smart Business cockpits from KPI tiles

Smart Business cockpits deliver out of the box KPIs. Plus you can create your own.

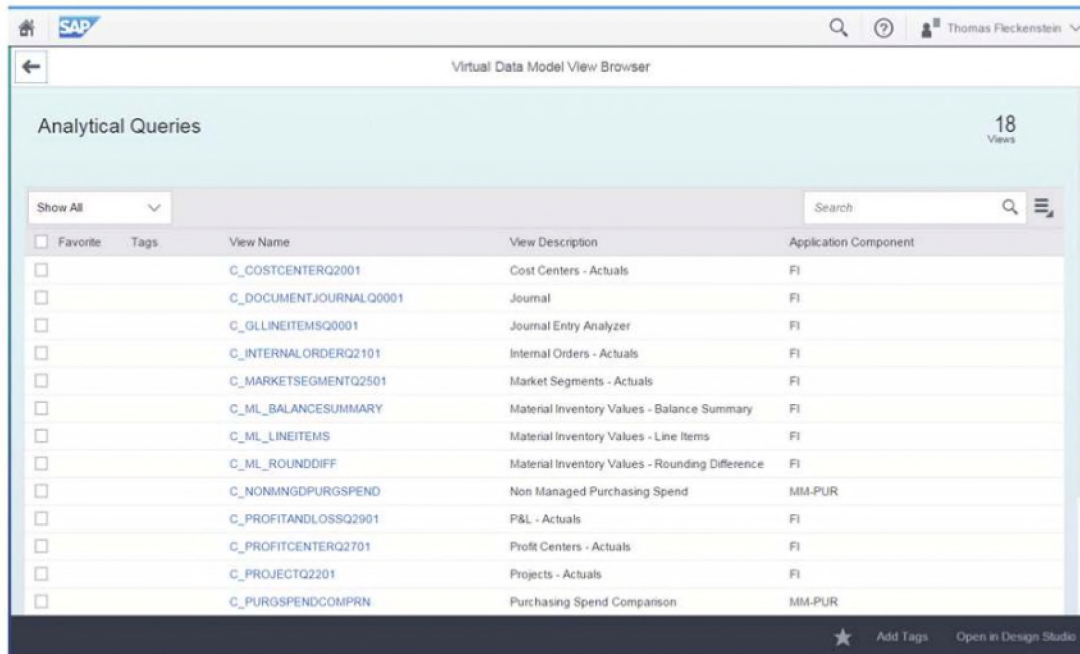
On the slide you see tiles that highlight KPI key information at a glance. Numbers can be colour coded to represent different level of alert. The information on the tile is updated in real-time.

When you click a KPI tile you launch a Smart Business cockpit that provides more information to break down the KPI, provides drill down capabilities and also suitable actions. We call this Insight to Action. For example you could observe a KPI tile that shows in red a missed profit target for your project, when you click the tile you can drill down on the highest costs to reveal some high spending on travel expenses. You realise some of the expenses are wrongly posted to your project so you hit the button to make the adjustments all on the same screen. The KPI tile immediately reflects the adjustment and now the profit figure is back in green.

Customers can create their own KPI tiles and configure a Smart Business cockpit to support it.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Query Browser



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Figure 313: Query Browser

The Query Browser provides a list of all available reports in S/4HANA, both standard and also those that are created by customers.

You can search for reports by name or by application component.

It is possible to tag reports so they can easily be identified by key words or synonyms.

Reports can be marked as favorites so each user can quickly locate their most popular reports.

Reports can be launched from the Query Browser.

Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

Analytical SAP Fiori Applications

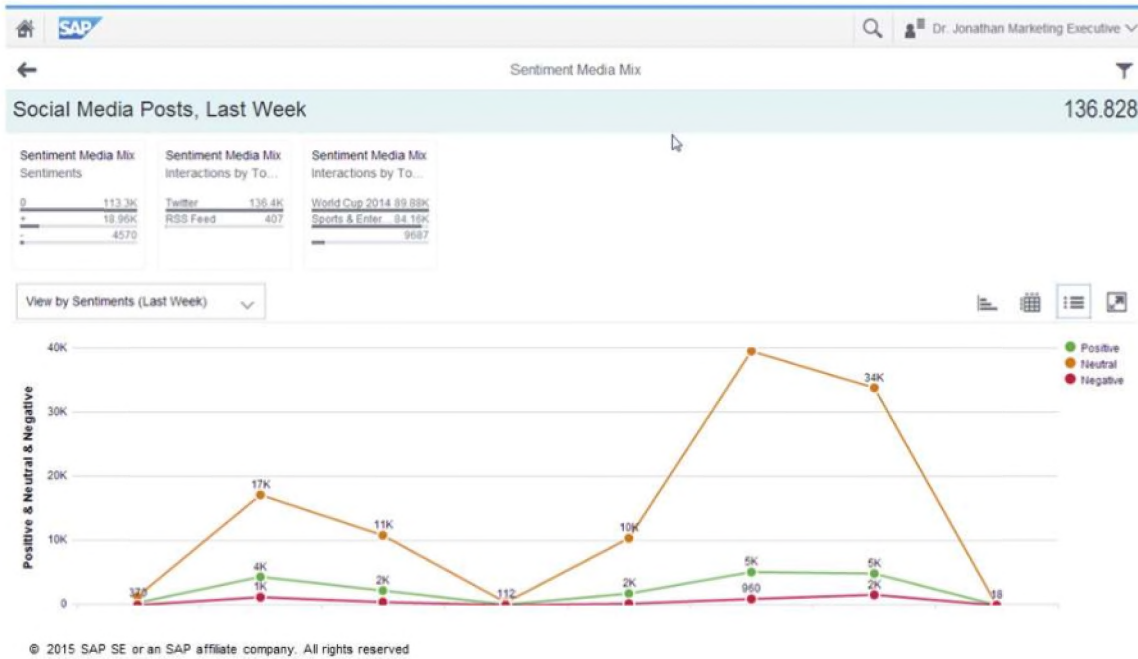


Figure 314: Analytical SAP Fiori Applications

These are dedicated Fiori applications that use a particular Fiori template that is optimal for analysis.

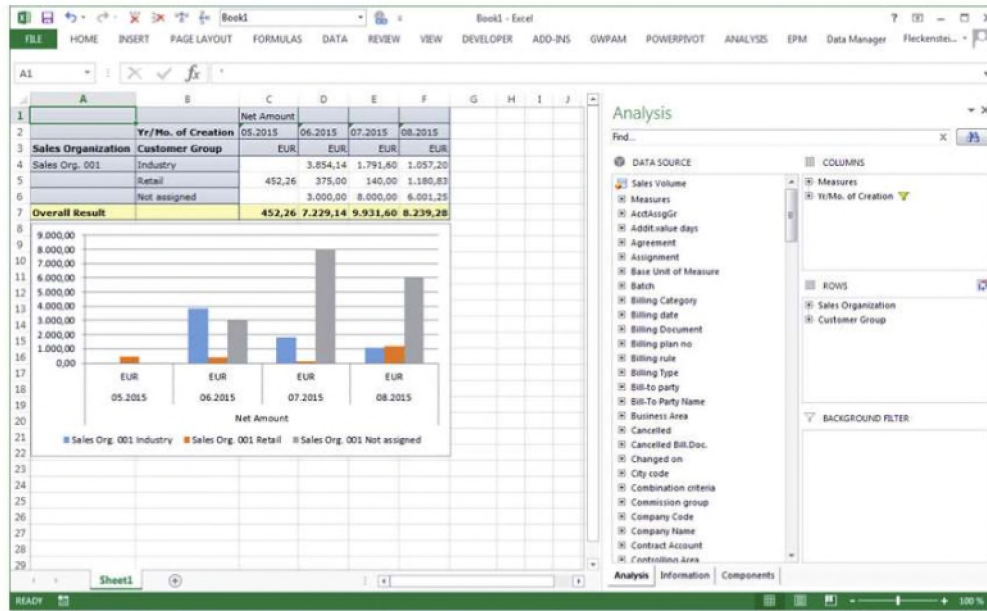
Here is an example of a delivered analytical Fiori application.

It uses the same virtual data model as all analytical applications in SAP S/4HANA to provide instance response of real-time data.

End users are assigned to relevant analytical SAP Fiori applications to support them in their role.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Analysis, Edition for Office



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Figure 315: Analysis, Edition for Office

If more advanced OLAP features are required than are available in the built-in multi-dimensional reporting client, then the recommended tool is Analysis, Edition for Microsoft Office.

This powerful reporting tool can be used to create simple Excel based reports all the way up to the most advanced highly formatted reports with full integration with Excel functions and features.

Integration with Analysis, Edition for Microsoft Office is available for the on premise edition of S/4HANA. It is not available in the cloud.

This is a key tool used by financial controllers and planners but its ease of use and familiar interface make it a popular choice regardless of role.

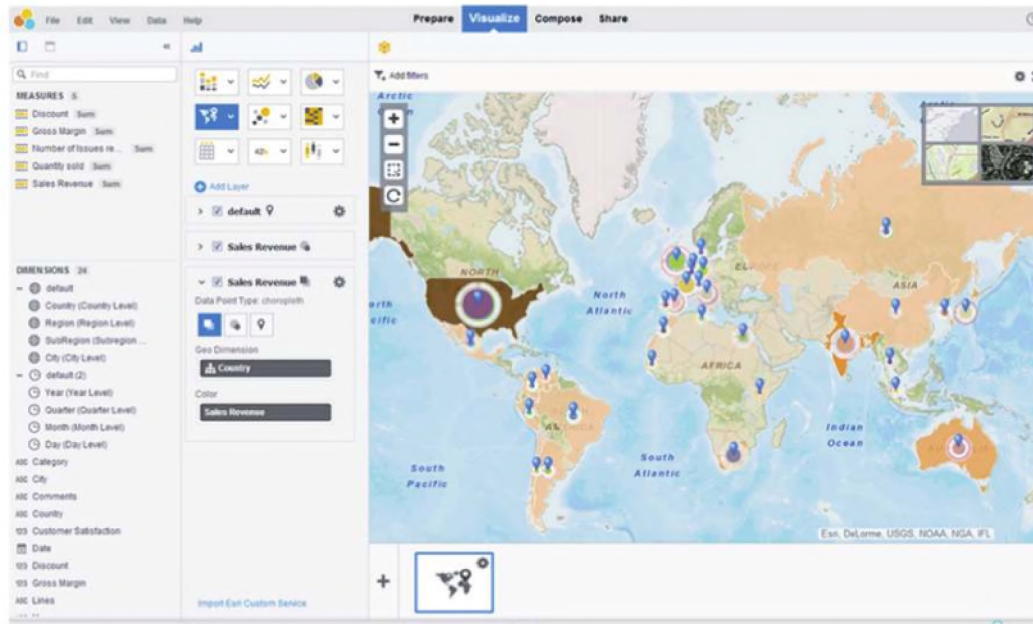
Analysis, Edition for Microsoft Office is already used by many customers.

It is the flag ship reporting tool for SAP BW and end users will be able to re-use the skills they already developed.

Analysis, Edition for Microsoft Office is a separate license and is not included with SAP S/4HANA.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

SAP Lumira



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Figure 316: SAP Lumira

For self-service BI within SAP S/4HANA Embedded Analytics, we recommend SAP Lumira.

SAP Lumira is a powerful, but easy to use desktop tool which allows an end user to acquire data from SAP S/4HANA but also from any other data sources in a customer’s landscape. Data from multiple sources can be combined into a single data set. The harmonisation logic of multiple sources can be controlled by the end user.

SAP Lumira can automatically suggest enrichments for the data. For example, if your data contains city names SAP Lumira automatically adds in the country, continent etc.

SAP Lumira provides tools to allow the end user to prepare source data. For example, split fields, trim unwanted leading characters, assign customers to groups, add additional calculations, replace values etc.

One of the most important features of SAP Lumira is its built in visualisations. Particularly for very large data sets, the built in visualisations (which are also extendable) provide very beautiful insights into data patterns.

SAP Lumira reports against the same common virtual data model.

Again, SAP Lumira is a separate license and is not shipped with SAP S/4HANA and is not available with the cloud edition of S/4HANA, only the on premise edition.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Learning Objective



You should now be able to:

- Describe the tools for end users

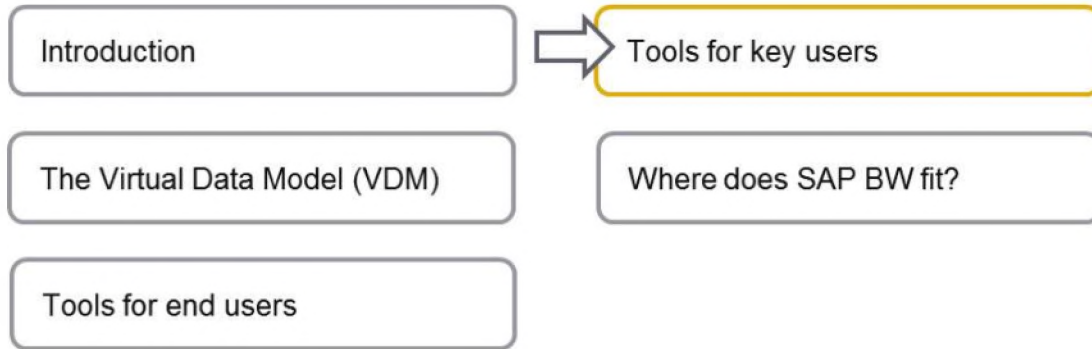
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Figure 317: Learning Objective



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Agenda



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Figure 318: Agenda

Let's take a look at what is available for the key business user with SAP S/4HANA Embedded Analytics.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Learning Objective



After completing this lesson, you will be able to:

- Describe the tools for key users

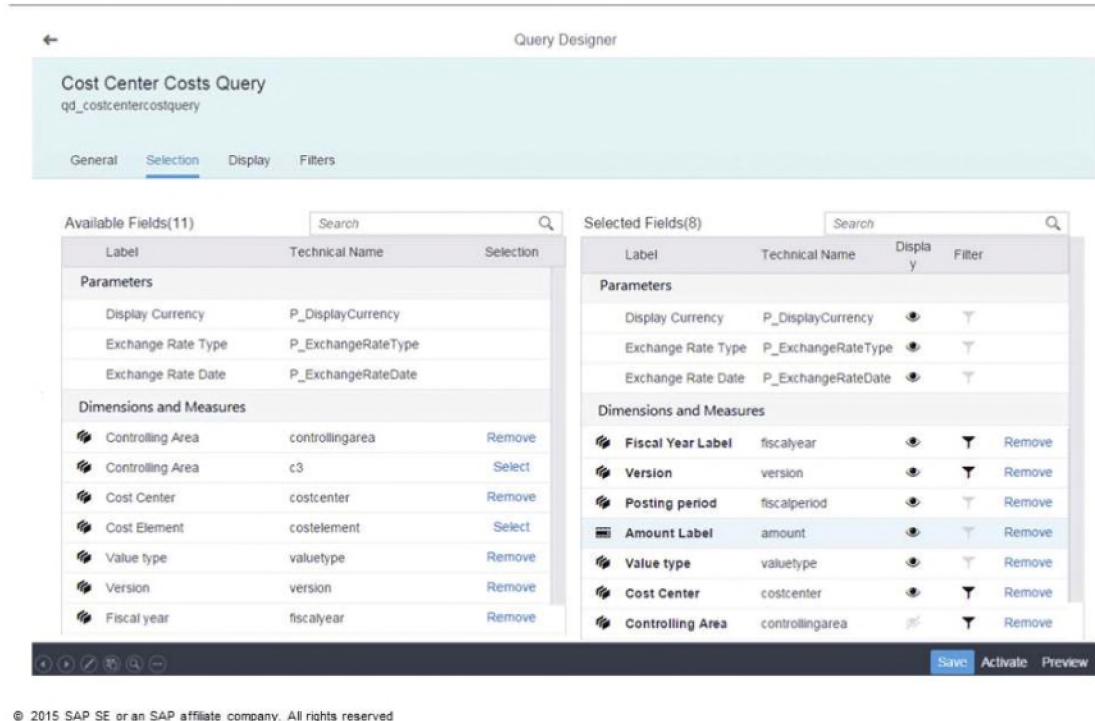
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Figure 319: Learning Objective



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Query Designer



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Figure 320: Query Designer

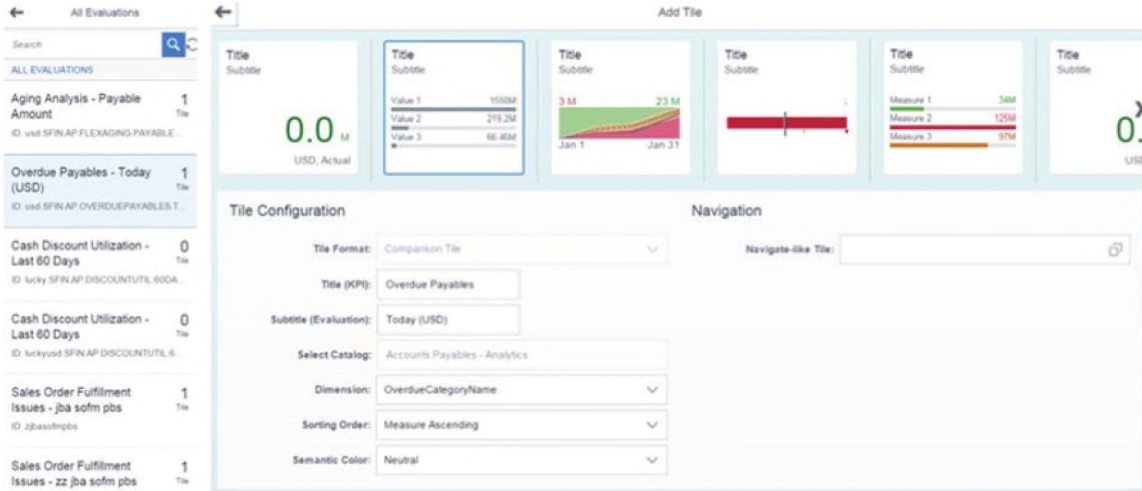
For building reports from scratch we provide a built-in Query Designer.

This tool is available in the cloud for now but it is likely to be delivered with the on premise edition later.

Although it is an easy to use tool, it is aimed at a key user and not and an end user. An end user would expect to see an already constructed report whereas this tool is used to create new reports.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

KPI modeling



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Figure 321: KPI modeling

This is a key part of how we develop the Smart business cockpit.

It is the design time KPI configuration tool and we chose from a range of KPI tile templates. For example, on the KPI tile we can decide to present a critical business number which can change colour depending on the threshold value. We can also present a mini chart to highlight a worrying trend that needs attention.

With this tool we also define the drill down that follows the click of a KPI tile and also how to classify the KPI tile so that it appears in the relevant group of the related KPI tiles.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

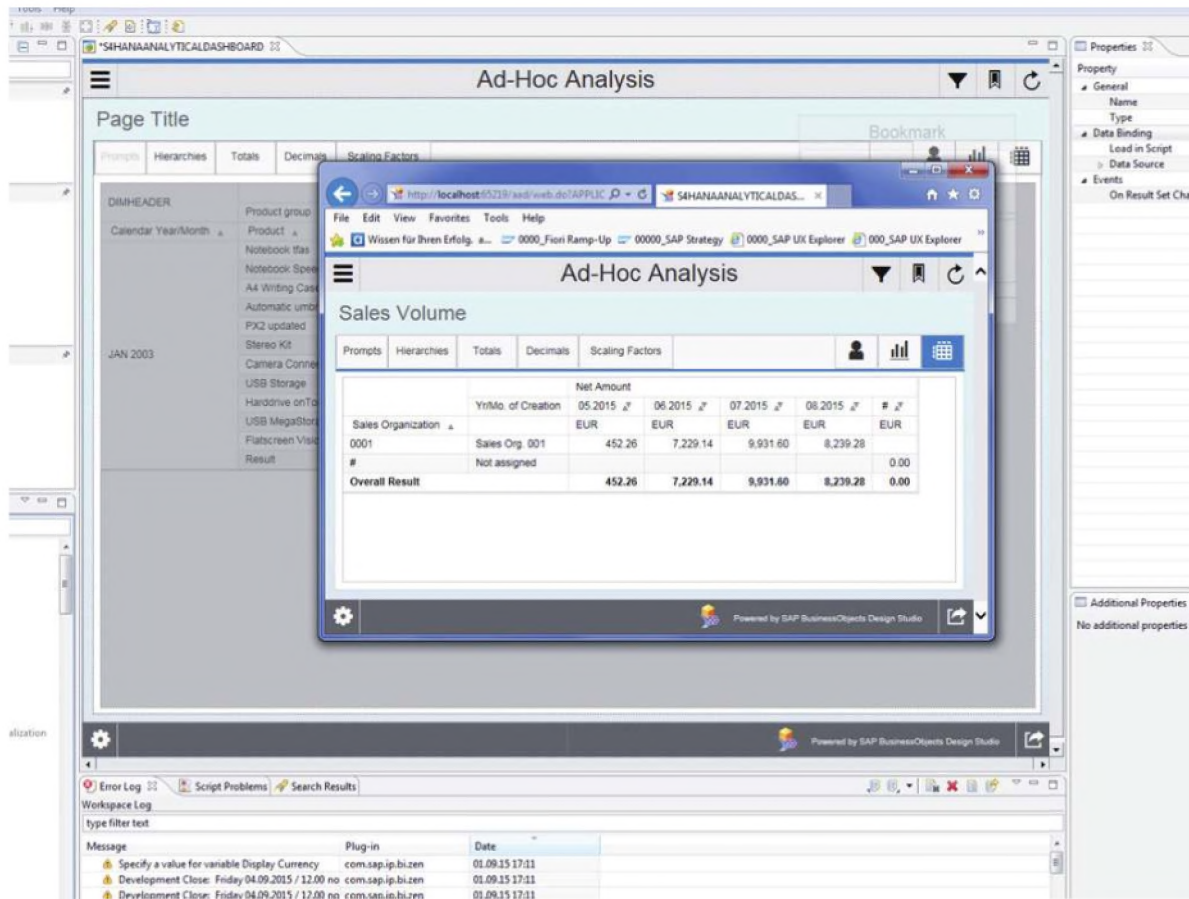


Figure 322: Design studio for dashboard buiding

The recommended tool to develop dashboards within SAP S/4HANA Embedded Analytics is Design Studio.

Design Studio is a powerful tool that can be used to develop composite analytic applications, cockpits and dashboards and can combine data from multiple sources, relational, multi-dimensional and flat files.

The built in graphical components such as charts, maps, buttons, allow the rapid design of highly interactive dashboards.

It is not a tool that can be used by and end user as it requires some specialist training. But a key user could use the supplied templates provided for a quick start.

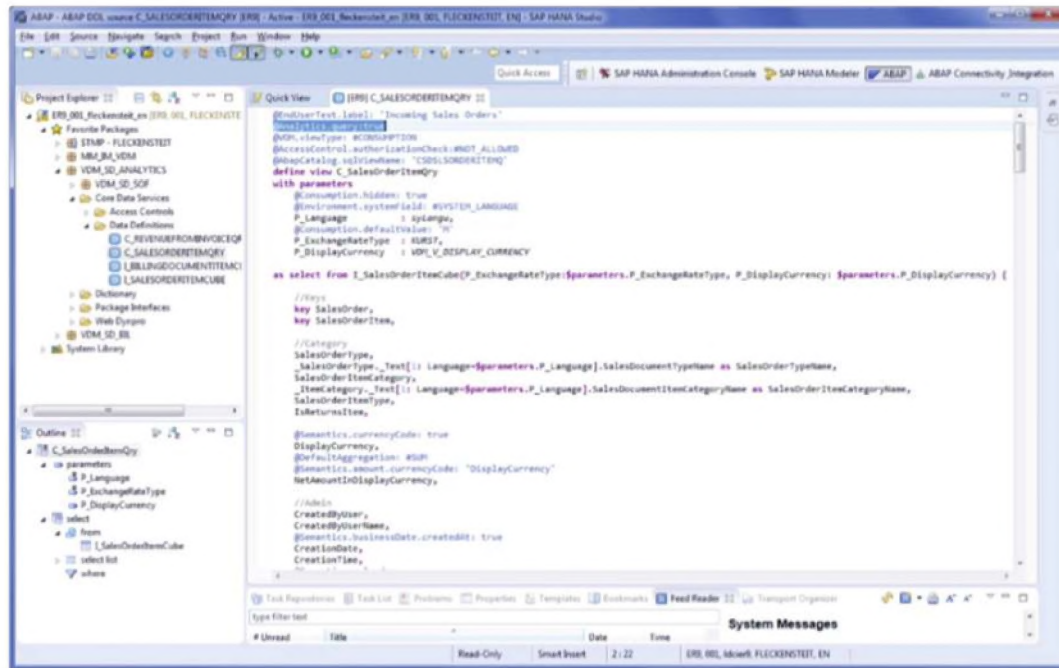
Design Studio can automatically generate dashboards for immediate desktop and mobile device deployment.

Dashboard created with Design Studio can be easily embedded into Smart Business cockpits to provide insight into a KPI that needs investigating.

The slide shows the Design Studio opened in the background with the generated dashboard displayed in the foreground.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

ABAP for Eclipse for VDM maintenance



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Figure 323: ABAP for Eclipse for VDM maintenance

Remember the virtual data model is based on ABAP managed CDS views.

The design interface for CDS views is called ABAP for Eclipse. Despite the name, no ABAP code is entered in a CDS view, as we already mentioned, a CDS view contains SQL code plus annotations.

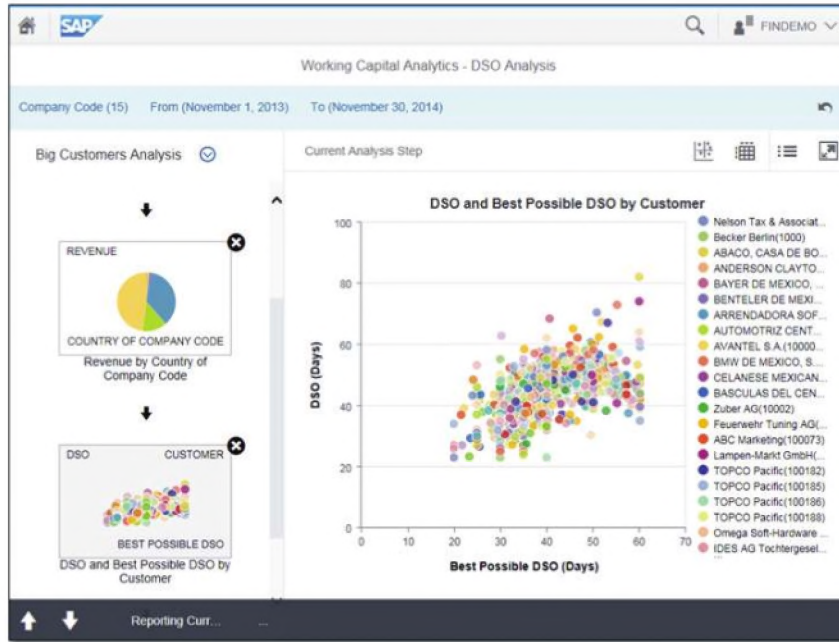
Use this interface to review standard delivered CDS views, copy views and extend them with additional SQL logic and annotations.

For now the only way to view and maintain CDS views is using the ABAP for Eclipse. Developers very much like this method of access to CDS views and it is a familiar interface for coders with many productivity aids. This interface is the same used by application developers who may be building ABAP code on one tab, some Javascript on another tab and a database table on another tab. This single consistent interactive development environment (IDE) face is optimised for productivity of the IT / developer. As well as a desktop client, it is also available as a web client which is key for cloud developers.

SAP are working on the creation of a graphical interface for the viewing and maintenance of CDS views so it is a little friendlier for the non-technical people.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Analysis Path Framework



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Figure 324: Analysis Path Framework

The Analysis Path Framework (APF) can be integrated within Smart Business cockpits.

APF provides insight to help you focus on where to dig even deeper to find the root cause of an issue.

The analysis path is a recorded sequence of analysis steps (see left of slide) and you can move back and forward through the path to refine this iteratively when you discover more insights.

It is very helpful to help you explain how you reached your conclusion, how your analysis evolved, and it is possible to replay the same path over multiple set of similar data.

Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Learning Objective



You should now be able to:

- Describe the tools for key users

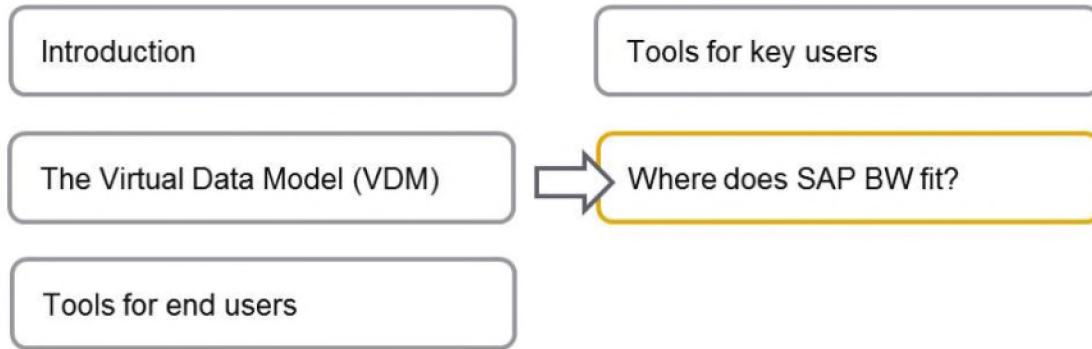
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Figure 325: Learning Objective



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Agenda



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Figure 326: Agenda

So where does SAP BW relate to SAP S/4HANA Embedded Analytics?

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SAP S/4HANA Embedded Analytics

Learning Objective



After completing this lesson, you will be able to:

- Describe where SAP BW fits with SAP S/4HANA

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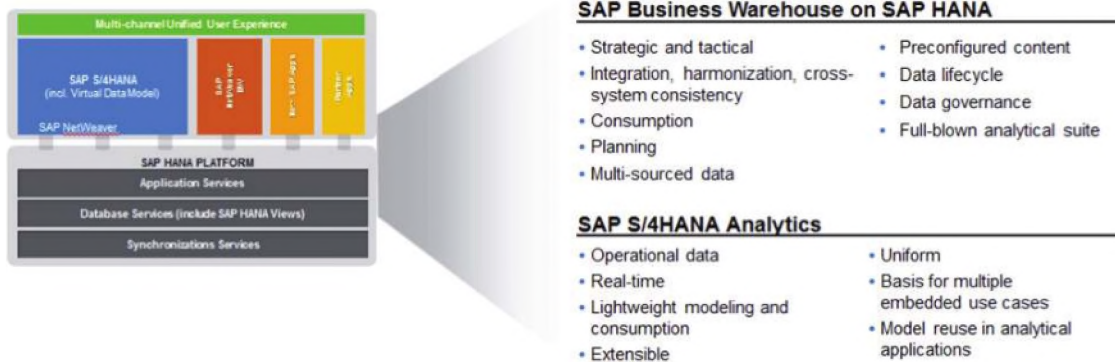
Figure 327: Learning Objective



Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

We still need BW with S4HANA



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Figure 328: We still need BW with S4HANA

Does SAP BW play a role in SAP S/4HANA?

We know that real time analytics on operational data is very well supported with SAP S/4HANA and the goal of taking operation reporting back to the operational systems is achieved. But we also know operational data needs archiving once its value in day to day business operations has reduced.

At that point we need a solution for data archiving but an intelligent and automated archive that can integrate back with real-time operational data and also from multi sources in a landscape made up of multiple SAP and non-SAP systems. A sophisticated enterprise data warehouse is needed with strong data governance. SAP BW is the solution for this.

SAP S/4HANA provides extractors that expose the application data for batch and real time loading to SAP BW.

CDS views are being developed for BW extraction technology and will co-exist with classic extractors. There will be no big-bang cutover, customers can adopt the new CDS views based extractors in their own time.

Remember that strong application based use-cases for SAP BW. For example, business planning requires data to be stored at various levels of aggregation and not at the typical atomic level of line item data as preferred by S/4HANA. Also, whenever the need for long term strategic reporting is required on aggregated levels, SAP BW is the solution.

It is important to remember that SAP BW is moving away from the classic approach of acquiring all data and storing it, we call this persistence. Today with SAP BW powered by SAP HANA, there are

Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

many ways design a logical data warehouse using many of the newly introduced modeling components. This means the data is not always moved, but SAP BW can 'see' the remote data as if it were loaded.



Integration with SAP BW and S/4HANA



Open Orders

Material		Sales Qty last Period	Current Open Quantity
[.] 200	Material (configurable objects)	355 PC	368 PC
[.] 200/CL_MONITOR_PC	200/CL_MONITOR_PC	355 PC	368 PC
GK1	Flatscreen LE 50 P	50 PC	100 PC
M-01	Sunny Sunny 01	30 PC	40 PC
M-02	Sunny Xa1	50 PC	46 PC
M-03	Sunny Tetral3	19 PC	26 PC
M-04	Sunny Extreme	31 PC	39 PC
M-05	Flatscreen LE 50 P	1 PC	1 PC
M-06	Flatscreen MS 1460 P	22 PC	26 PC
M-07	Flatscreen LE 64P	9 PC	11 PC
M-08	Flatscreen MS 1575P	7 PC	5 PC
M-12	MAG DX 15F/Fe	3 PC	3 PC
M-13	MAG DX 17F	70 PC	60 PC
M-14	MAG PA/DX 175	9 PC	11 PC
T-01	Test Material	0 PC	0 PC
[+] Not Assigned Material (s)		99 PC	136 PC

From BW
(e.g.
hierarchy)

From BW
(optional)

From S/4HANA
Analytics

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Figure 329: Integration with SAP BW and S/4HANA

Here we see a report that is built using a modelled material hierarchy that comes from the master data of SAP BW. This hierarchy can be custom created in SAP BW and can be independent of any standard corporate hierarchies.

For the transactional data you see last period sales quantity comes from the SAP BW Info Providers. This data could have originated in any source system.

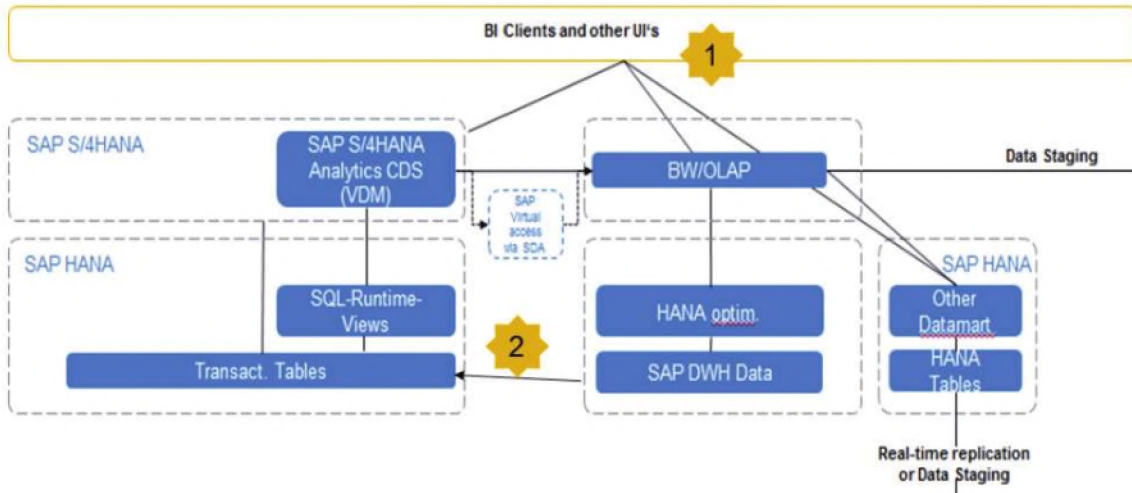
Then you see for each material the real-time open sales quantities that come from SAP S/4HANA CDS views.

So it is easy to create hybrid reports that combine the historical data with real-time data.



Unit 6: SAP S/4HANA Embedded Analytics
SAP S/4HANA Embedded Analytics

Hybrid scenarios



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Figure 330: Hybrid scenarios

SAP BW and SAP S/4HANA side by side.

1. Here we see an example landscape with SAP S/4HANA on the left, virtual connectivity between SAP S/4HANA and SAP BW using SAP HANA Smart Data Access (SDA), separate SAP BW powered by SAP HANA in the centre of the diagram and on the right, another SAP HANA side car on which you might deploy an SAP BI solution for 2 tier reporting.

On the top we can deploy BI clients.

So there is strong integration between SAP S/4HANA and SAP BW and they work together to form a complete analytics solution to combine real-time operational data, archived data and at any level of aggregation.

2. Another option is to use the fact table from BW and the master data inside you HANA modelling.

It depends on your experience and your system landscape which possibilities you choose. Everything is do-able!

For more detailed information on SAP S/4HANA and BW integration, checkout these links:

<https://scn.sap.com/docs/DOC-68337>

<http://scn.sap.com/docs/DOC-55312>

Unit 6: SAP S/4HANA Embedded Analytics

SAP S/4HANA Embedded Analytics

<http://scn.sap.com/community/bw-hana/blog/2014/05/26/go-hybrid--sap-hana-live-sap-bw-data-integration>

<http://www.sdn.sap.com/irj/scn/go/portal/prtroot/docs/library/uuid/70865ffd-6455-3310-8eb4-d5427a0b62d3?QuickLink=index&overridelayout=true&60550448943562>

Learning Objective



You should be able to:

- Describe where SAP BW fits with SAP S/4HANA

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Figure 331: Learning Objective



Appendix: To complete your SAP S/4HANA journey
SAP S/4HANA Embedded Analytics

Appendix: To complete your SAP S/4HANA journey

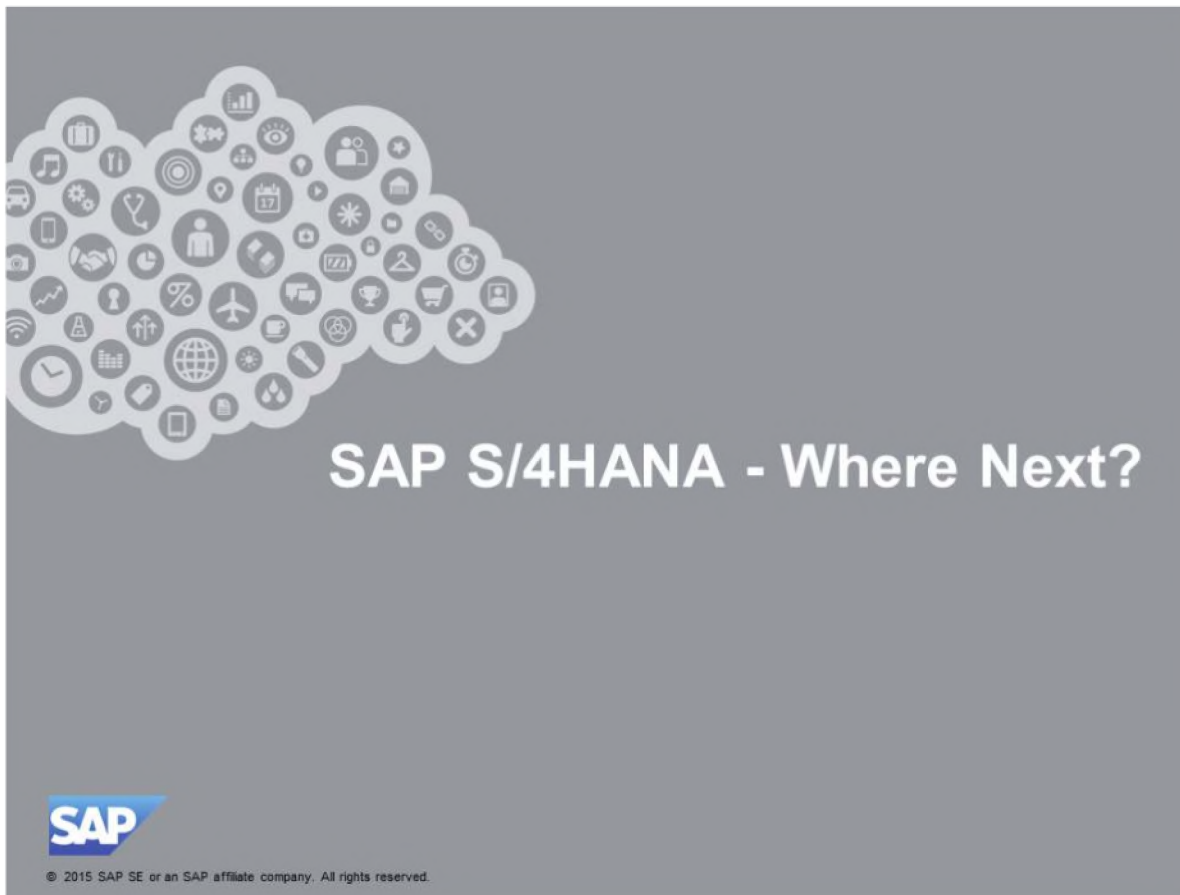
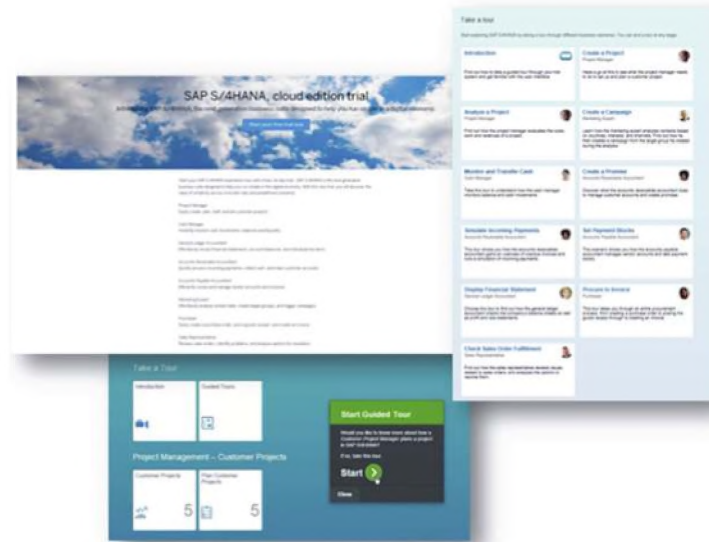


Figure 332: Where next



Appendix: To complete your SAP S/4HANA journey
SAP S/4HANA Embedded Analytics

SAP S/4HANA, cloud edition Trial



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Figure 333: SAP S/4HANA, cloud edition Trial

You can access the 30-days free cloud trial for first-touch experience.

You can test drive the solution based on various pre-defined user roles delivered in a self-led evaluation mode with guided tours.

Purpose

Enable first-touch experience for customers and prospects to support buying decision

Embedded in End-To-End Consumption Experience

Utilizing the SAP Fiori user experience and new help

Scope

Limited functional scope focusing on easy-to-consume scenarios

Project Manager, Marketing Expert, A/R Accountant, A/P Accountant, Cash Manager, General Ledger Accountant, Purchaser, Sales Representative

Approach

Self-led evaluation of S/4HANA, cloud edition supported by Guided Tours

Trial Access via SAP S/4HANA Landing page or directly www.sap.com/s4hana-trial

Boundary Conditions

Trial includes scenarios from cloud edition only

Appendix: To complete your SAP S/4HANA journey
SAP S/4HANA Embedded Analytics

Help and Guided Tours not available for tablet

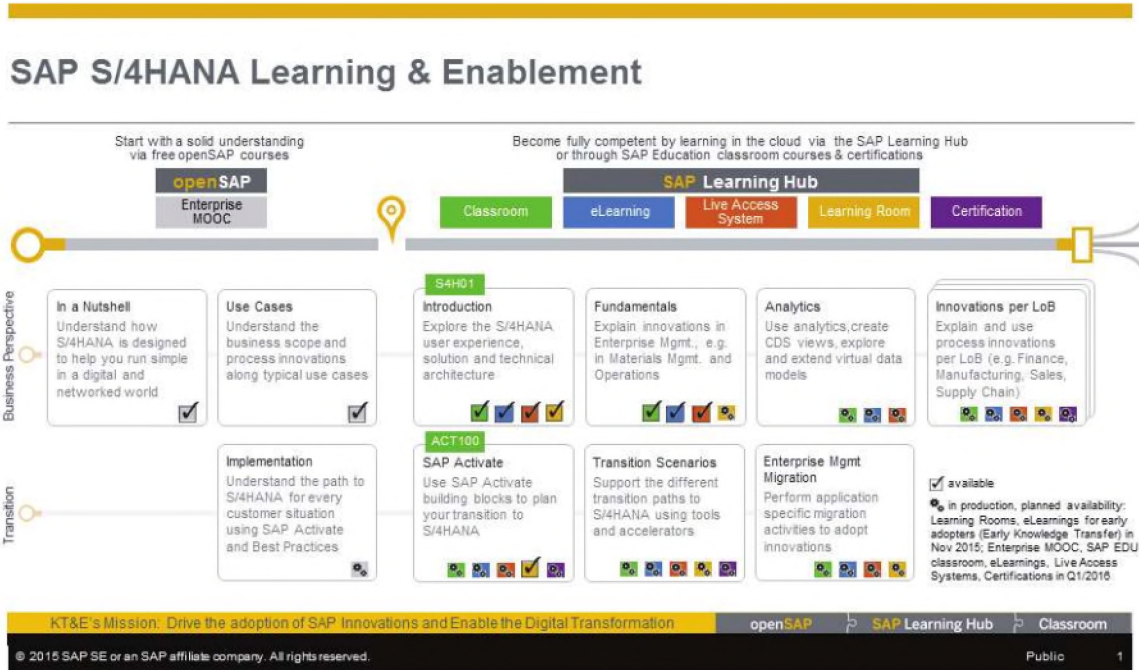


Figure 334: SAP S/4HANA Learning & Enablement

Experience SAP S/4HANA with free trials for the cloud and on-premise editions

The image shows two promotional cards for SAP S/4HANA trials. The left card, titled 'SAP S/4HANA, cloud edition trial', features a background image of a modern building and describes a 14-day free trial. The right card, titled 'SAP S/4HANA, on-premise edition trial', features a background image of two people in a modern office and describes a 30-day free trial. Both cards include a 'Start your journey now' link. The footer includes '© 2015 SAP SE or an SAP affiliate company. All rights reserved. Public 2'.

Figure 335: Experience SAP S/4HANA with free trials for the cloud and on premise editions

Appendix: To complete your SAP S/4HANA journey
SAP S/4HANA Embedded Analytics

Where to go for more information

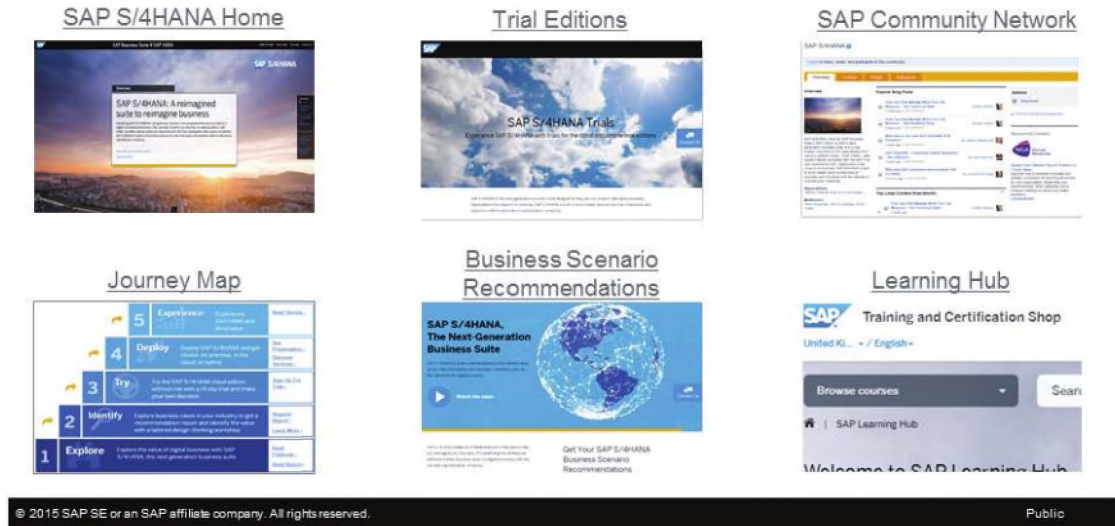


Figure 336: Where to go for more information

Appendix: Solutions of Assessments
SAP S/4HANA Embedded Analytics

Appendix: Solutions of Assessments



Appendix: Solutions of Assessments

Assessment Unit 1

1.1. Assessment Unit 1

Trends of re-engineered business suite

What are some of the trends driving the need for a re-engineered business suite for the digital world?

<input checked="" type="checkbox"/>	Massive increase in device connectivity
<input type="checkbox"/>	Business users are taking on more technical IT tasks
<input checked="" type="checkbox"/>	Increase in ownership of mobile devices
<input type="checkbox"/>	Adoption of cloud computing

Need have rework coding

Why was the application code mostly rewritten for S/4HANA?

<input type="checkbox"/>	None of the ABAP we wrote for SoH would not work with S/4HANA
<input checked="" type="checkbox"/>	To take advantage of the simpler data model
<input type="checkbox"/>	ABAP is being phased out so we moved SAP S/4HANA is now written in Java
<input checked="" type="checkbox"/>	To rewrite code optimised for the way SAP HANA works

Missing word

What is the missing word? With SAP S/4HANA, all OLTP and ____ processing is managed within the same system.

<input checked="" type="checkbox"/>	OLAP
<input type="checkbox"/>	OSAL
<input type="checkbox"/>	OLTC
<input type="checkbox"/>	PALO



Appendix: Solutions of Assessments

Assessment Unit 1

SAP S/4HANA Core

What is the name of the SAP S/4HANA core?

	Enterprise Edition
X	Enterprise Management
	Enterprise Central Component
	Enterprise Line of Business (LOB)

SAP S/4HANA editions

What are the names of SAP S/4HANA editions?

(3 correct answers)

X	Public Cloud
	SAP Cloud
X	On Premise
X	Private Cloud

Integration

SAP S/4HANA is built to natively integrate with SAP Business Networks such as:

X	Ariba
	LinkedIn
X	Concur
X	Fieldglass
X	Hybris
	HADOOP



Appendix: Solutions of Assessments

Assessment Unit 2

Dimensions of SAP Fiori

What are the three dimensions of SAP Fiori? (3 correct answers)

<input checked="" type="checkbox"/>	Design
<input checked="" type="checkbox"/>	Technology
<input checked="" type="checkbox"/>	Concept
<input type="checkbox"/>	Speed

Offer of SAP FIORI

What does SAP Fiori offer? (3 correct answers)

<input type="checkbox"/>	Messaging other users
<input checked="" type="checkbox"/>	Presentation of KPIs on tiles
<input checked="" type="checkbox"/>	Search for applications
<input checked="" type="checkbox"/>	Search for applications



Appendix: Solutions of Assessments

Assessment Unit 2

Common features of SAP Fiori

What are common features of an SAP Fiori application? (3 correct answers)

<input checked="" type="checkbox"/>	Fuzzy Search
<input checked="" type="checkbox"/>	Buttons to show next action
<input type="checkbox"/>	Voice control for mobile devices
<input checked="" type="checkbox"/>	Embedded analytics

Correct statements

Which are correct statements?

<input checked="" type="checkbox"/>	SAP Fiori is based on SAPUI5 technology
<input type="checkbox"/>	SAPUI5 is based on SAP Fiori technology
<input type="checkbox"/>	SAP Fiori is part of SAP GUI



Appendix: Solutions of Assessments

Assessment Unit 3

1.2. Assessment Unit 3

Hardware architecture trends

What are hardware architecture trends that SAP HANA exploits?

(3 correct answers)

X	Multi-core processors
X	Huge memory size
	Faster disk speeds
X	Multi CPUs working in parallel

Table storage

What type of table storage does SAP HANA support?

(2 correct answers)

X	Column
X	Row
	Array
	Cluster



Appendix: Solutions of Assessments

Assessment Unit 3

Take overs

What type of tasks does SAP HANA typically take over from the application server? (4 correct answers)

X	Search
X	Filter
X	Aggregate
	Validate screen input
X	Sort

Disk storage

True or false? SAP HANA still requires disk storage.

X	Yes ;for logging and recovery, and data storage for aged data
---	---



Appendix: Solutions of Assessments

Assessment Unit 4

1.3. Assessment Unit 4

Pillars of SAP Activate

What are the 3 pillars of SAP Activate?

(3 correct answers)

X	Methodology
	Performance tuning
X	Guided configuration
X	Best Practices

Implementation Scenarios

What are the 3 implementation scenarios covered by SAP Activate?

(3 correct answers)

X	System Conversion
X	New Implementation
X	Landscape Transformation
	Database migration (



Appendix: Solutions of Assessments

Assessment Unit 4

Essential custom ABAP code

What are examples of essential custom ABAP code checks you must make? (4 correct answers)

	All data intensive functions are pushed down to SAP HANA
X	Review use of pool and cluster tables
X	Ensure incompatible native SQL is adjusted
X	Remove DB hints
X	Explicitly define sort sequences

Processes Guided Configuration

What processes does SAP Activate Guided Configuration cover?

X	Test your processes
X	Migrate your data
X	Configure your solution



Appendix: Solutions of Assessments

Assessment Unit 5

1.4. Assessment Unit 5

Single Source of truth

What is named as the single source of truth in SAP S/4HANA Finance?

	CO-PA
X	Universal Journal
	HANA
X	ACDOCA
	Universal studios

Highlights of sLO

What are the Highlights of Key Business Innovations in SAP S/4HANA Logistics?

X	Re-architecting for in-memory platform
X	Acceleration of response time for applications
X	Responsive user experience design
	Unifying functionality in core



Appendix: Solutions of Assessments

Assessment Unit 5

Essential custom ABAP code

Why fits SAP S/4HANA Logistics the change of requirements to core processes? (5 correct answers)

	Better integration of social media
X	Streamlined end-to-end processes like order-to-cash
X	HANA-optimized functions like MRP-planning
X	Contextual analytics on-the-fly like "Vendor quality"
X	Real just-in-time information without prior aggregation
	SAP S/4HANA Logistics is able to handle streams of data from internet of things

Planning Tool

What is the name of the embedded Tool for planning?

	Excel
	SEM-BPS
X	IBPF
	BW-IP



Appendix: Solutions of Assessments

Assessment unit 6

1.5. Assessment unit 6

Virtual data model

What is a virtual data model provide?

(1 correct answers)

	Copy of the database for analytical use
	Reporting tools for users
X	Consumption ready views of data
	Out of the box standard reports

SAP HANA Live is no longer needed with S/4HANA

SAP HANA Live is no longer needed with SAP S/4HANA

	True
X	False

What are typical tools in SAP S/4HANA Embedded Analytics?

What are typical tools used by end users in S/4HANA Embedded Analytics? (4 correct answers)

X	Query Browser
X	Multi-dimensional reports
X	Analytical SAP Fiori applications
	Query Designer
X	Smart Business KPIs



Appendix: Solutions of Assessments

Assessment unit 6

Need of BW

Why do we still need SAP BW when we have SAP S/4HANA Embedded Analytics?

X	To manage the full data lifecycle
X	To implement strong data governance
X	To support BW powered business applications
	To provide SAP S/4HANA Embedded Analytics with real-time data

