

SAP BW/4HANA – Overview and Road Map

Product Management, SAP Data Warehousing September, 2019

PUBLIC



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Agenda

Overview

Product Road Map

Conversion Paths

Overview



SAP Data Warehousing - Statement of direction

Establish SAP Data Warehousing as the leading data warehousing offering in order to enable the Intelligent **Enterprise**

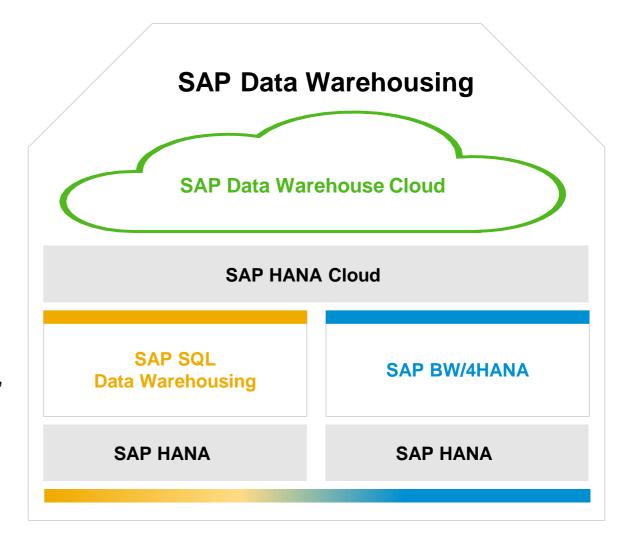
- Cloud-, on-premises and hybrid deployments
- Logical data warehousing support
- Integration of any data type and source
- Scale out to high data volumes and data lakes
- Out-of-the-box and cross-industry business content
- Continuous innovations in SAP Data Warehouse Cloud, SAP SQL Data Warehousing and SAP BW/4HANA











SAP BW/4HANA – The Evolution From SAP BW/4HANA 1.0 to 2.0

SAP BW/4HANA 1.0 SAP BW/4HANA 1.0 SP04 SAP BW/4HANA 1.0 SP08 SAP BW/4HANA 2.0

- The next generation data warehouse
- Builds on the innovations of SAP BW powered by SAP HANA
- Leaves behind the legacy of SAP BW on any DB
- Data Tiering Optimization (DTO) to manage hot, warm and cold data tiers

- Enhanced Data Tiering Optimization (DTO) options to reduce TCO
- Enhanced Master Data Loads
- Tight integration with SAP Data Hub
- Analytical Engine Improvements

- Unified UI for all SAP BW/4HANA Modeling Aspects (DTP and Transformation Editor)
- SAP BW/4HANA Web Cockpit as single entry point for administration and monitoring
- New Storage Options for Data Tiering Optimization (DTO)

2018

- SAP's vision for a modern packaged data warehousing solution
- Simplified in every aspect of data warehousing
- Smart integration of all business applications and modern data sources

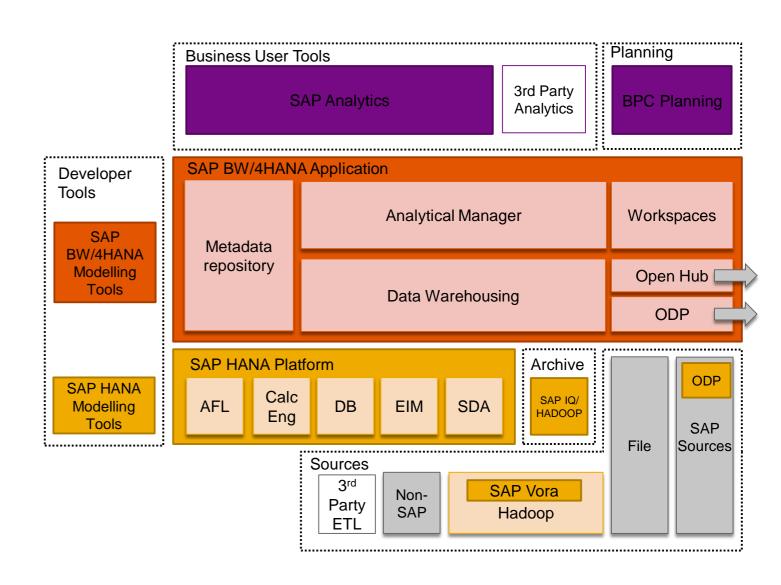
2019

2016 2017

SAP BW/4HANA Architecture

SAP BW/4HANA is...

- a new (innovation) code line
- not part of and does not depend on a NetWeaver delivery
- based on the ABAP application server and SAP HANA
- running on premise or in the cloud
- not the legal successor of SAP BW powered by SAP HANA
- the "logical successor" of SAP BW powered by SAP HANA



SAP BW/4HANA Design Principles



High Performance

10-100x faster query performance

Leverage huge amounts of data in real time for competitive advantage

Openness

Easier access to all information

Work with HANA in BW mode, or in native SQL mode, or both

Simplicity

Reduced development efforts

Get up and running sooner and keep running at lower cost Modern Interface

New user interface for all users

Simplify access for everyone, not just database experts

Conversion

Powerful transition tools

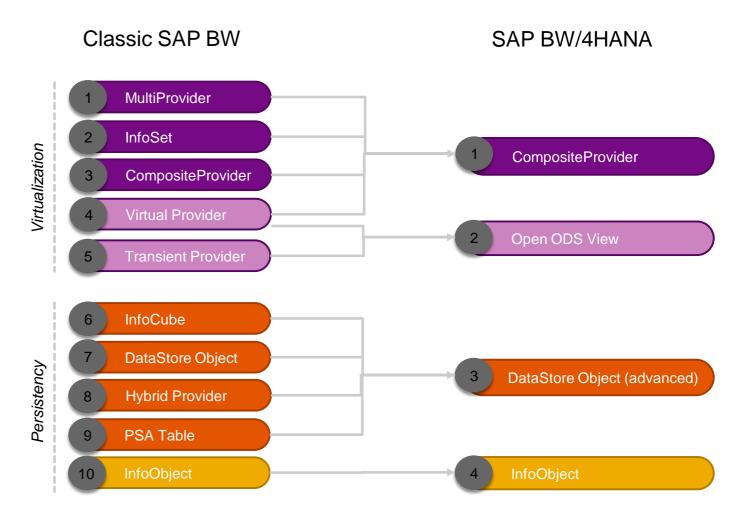
Convert models, flows, and data from SAP BW to SAP BW/4HANA

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Simplicity: Simplifying the Models



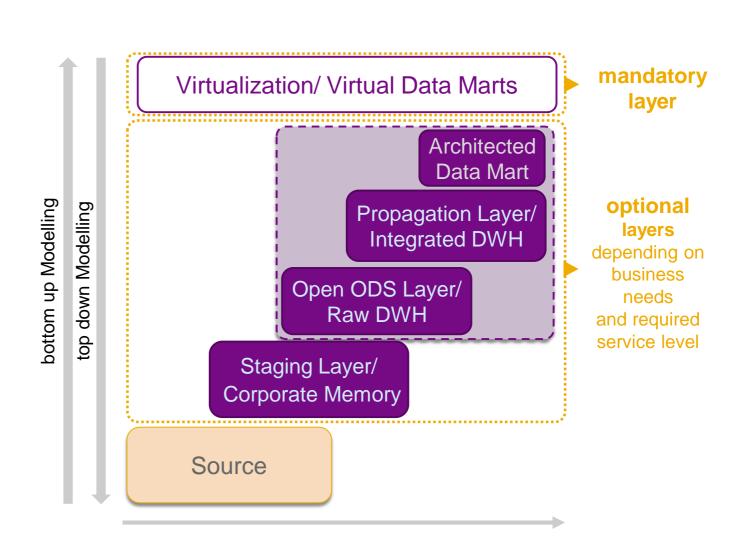
- Number of Modelling object types reduced from 10 to 4 (60% less)
- No complex data structures (extended star schema)
- Field or InfoObject based modelling
- Greater control of data persistency and virtualization
- Support for external, structured and unstructured data



Simplicity: Simplifying the Dataflows



- Report at any layer of the Data
 Warehouse with speed and flexibility
- Virtually combine data across layers
- Business and service level driven
- Combining bottom-up and top-down modelling approaches allows for agile and flexible development

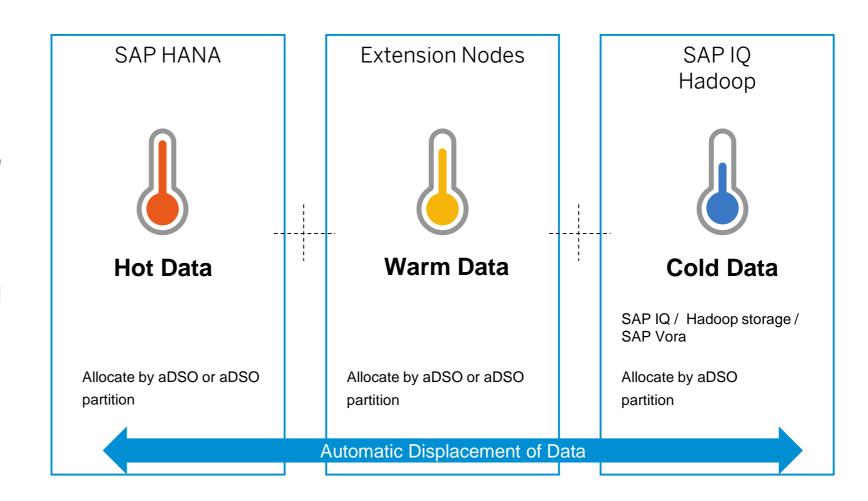


Simplicity: Simplifying the Data Aging Process



Scale SAP BW/4HANA using Data Tiering Optimization (DTO)

- Consistent approach for hot, warm and cold data
- Allocate temperature by partition
- Displace data automatically between hot, warm and cold storage
- Support for cold storage in SAP HANA Vora (disk engine) and Hadoop File System (HDFS)
- Support for multiple extension nodes



Simplicity: New Chart Types for SAP Analytics Cloud on SAP BW/4HANA 2.0

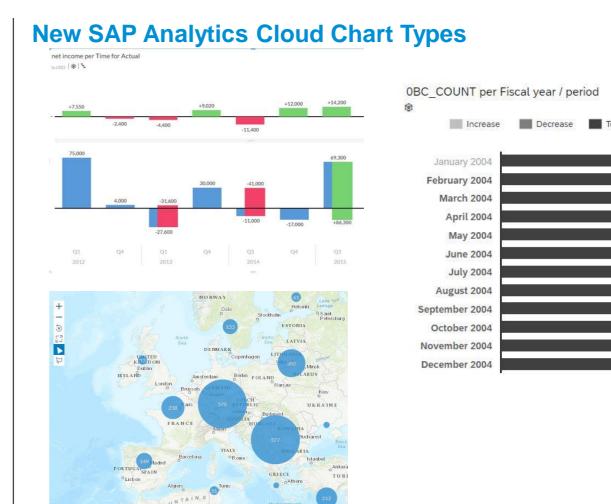


Feature Description

- Support for additional chart types with SAC Live connection
 - Waterfall Chart
 - Geospatial
 - Time Series
 - Variance Chart
 - Linked Analysis with more than one dimension
 - Conditions
 - Tuple Filter

Benefits

New visualization capabilities

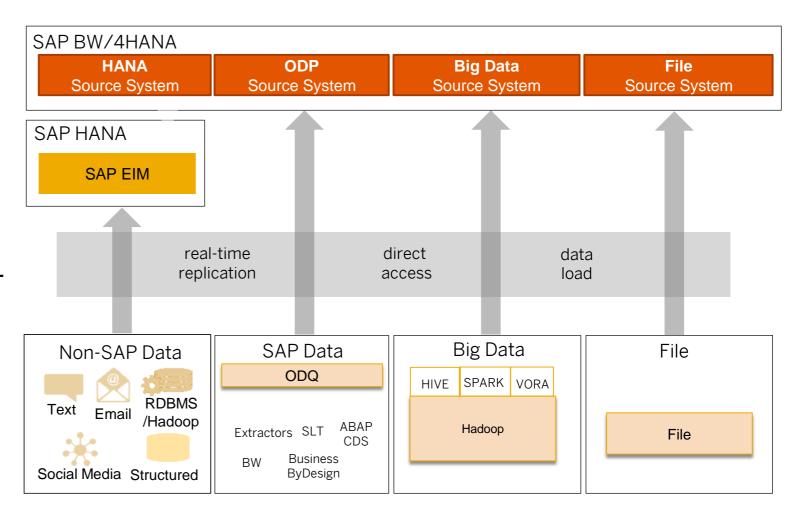


Openness: Comprehensive Access to all Data



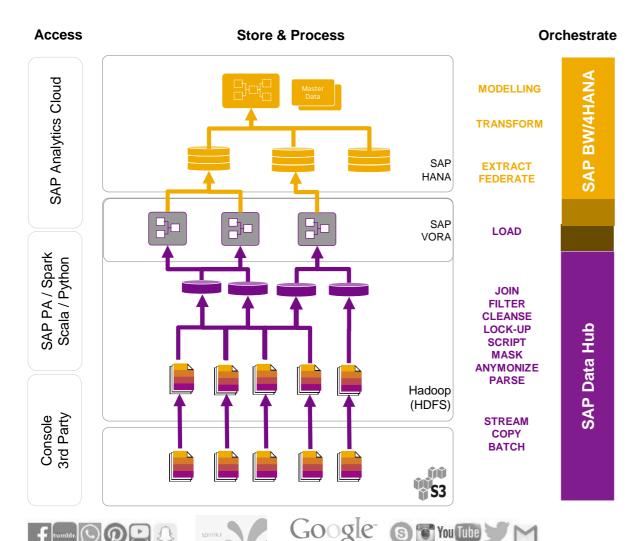
SAP BW/4HANA simplifies data integration, offering comprehensive access to external systems

- Number of source system types reduced from 10 to 4
- Replicate data in real-time (HANA SDI based replication or via ODP especially with ODP-SLT)
- Access data virtually
- Load data using optimized processing



Openness: Big Data Integration with SAP Data Hub





Example Scenario

- Combine refined big data with enterprise data and corporate master data
- Extract or federate data into SAP BW/4HANA

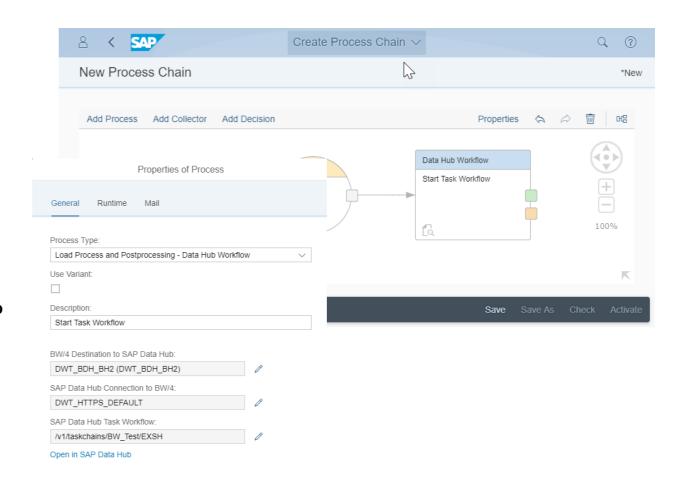
- Ingest data into S3 as landing zone for data
- Orchestrate and schedule all related processes
- Implement transformations and data pipelines
- Harmonize data structures and look up of reference data
- Execute operations on large data volumes

Openness: Big Data Integration with SAP Data Hub



Integration with SAP Data Hub

- Start Data Hub Task Workflows from BW/4HANA Process Chain
- Specific Process Type "Data Hub Workflow"
- Start BW/4HANA Process Chain from SAP Data Hub Task Workflow
- Transfer data from SAP BW/4HANA to SAP Data Hub (SAP Vora) using SAP BW/4HANA Data Transfer Tasks
- Govern and manage SAP BW Metadata assets from SAP Data Hub Metadata catalog



Openness: Data Integration SAP BW/4HANA 2.0



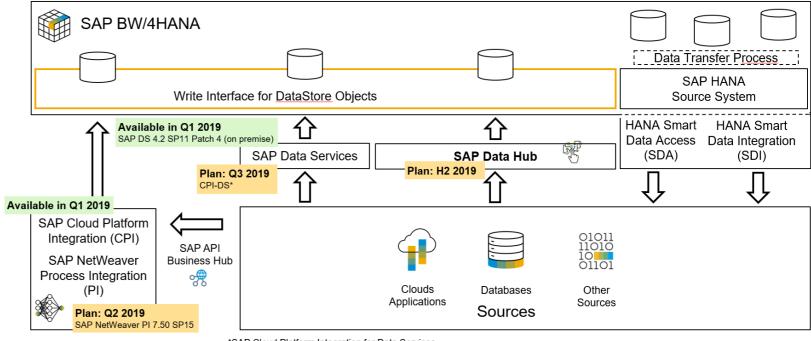
Feature Description

- New DataStore Object setting "Write Interface Enabled" to write directly into Inbound Queue
- Support for Standard- and Staging DataStore Objects
- Integration for:
 - SAP Data Services
 - SAP Cloud Platform Integration (CPI)
 - SAP NetWeaver PI (planned for Q2/2019)
 - SAP Data Hub Integration (planned for H2/2019)
- Successor for SAP Web Service and SAP Data Services Source System (manual conversion)
- No open support for ETL partners

Benefits

- Cost savings
- Simplification

Data Integration Scenarios



*SAP Cloud Platform Integration for Data Services

Openness: Data Integration from SAP S/4HANA Cloud to SAP BW/4HANA 2.0



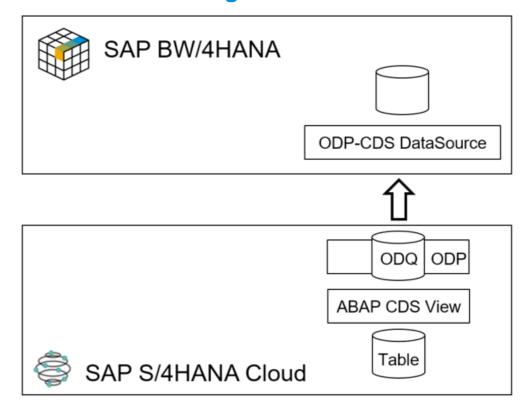
Feature Description

- Technical framework and connectivity (HTTP / SOAP based) between SAP BW/4HANA and SAP S/4HANA Cloud (communication scenario)
- Application based ABAP CDS Content for extraction (e.g. financials, logistics, ...)
- Planned for SAP S/4HANA Cloud 1905
 - Status Quo: see SAP Note 2674373
 - SAP Help Portal for further information
- Easy to extend and support for custom ABAP CDS Views

Benefits

- Cost savings
- Simplification

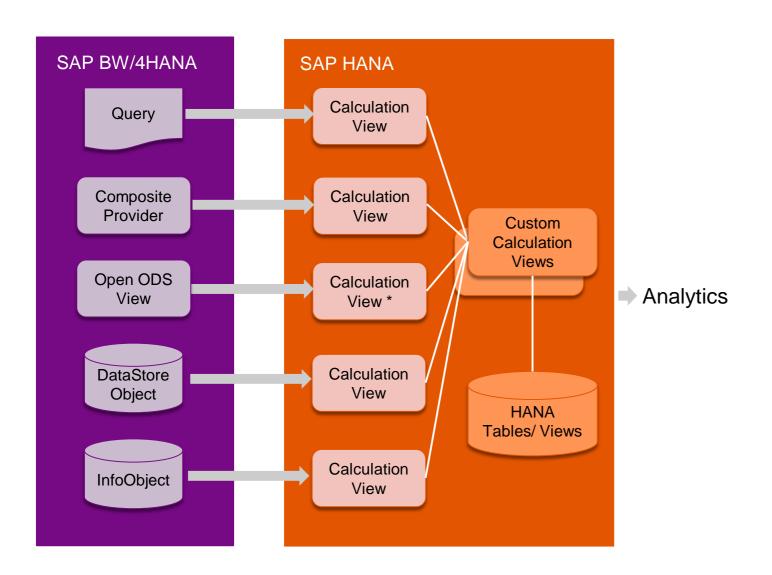
SAP S/4HANA Cloud Integration



Customer availability planned for S/4HANA Cloud in 2019

Openness: Flexible Access to Enterprise Data





SAP BW/4HANA logic and data can be exposed to SAP HANA through automatically generated HANA views allowing:

- SQL logic on top of generated views
- Combined data from native SAP HANA
- SQL access for front-end tools

* Planned for BW/4HANA 2018/2019

Openness: SQL View for Look-ups on DataStore Objects



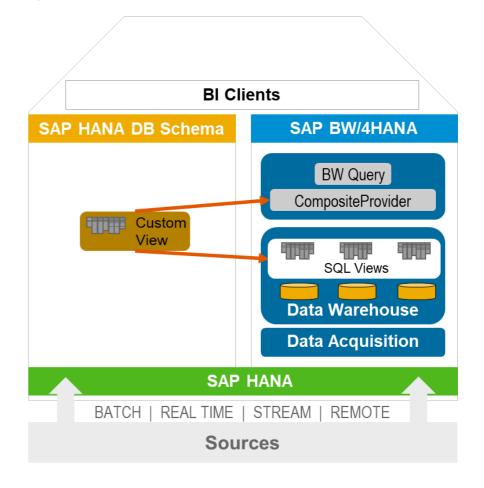
Feature Description

- SAP BW/4HANA 2.0 creates a External SAP HANA SQL View on ADSOs
 - Exposes only fields/InfoObjects of the ADSO, no join with text, master data
 - Also includes fields considered not reporting-relevant
 - AMOUNT fields included in internal and external format (i.e. with and without decimal shift)
 - Covers all ADSO partitions hot, warm and cold
 - Automatically created for all ADSOs, no user maintenance required (/<Namespace>/A<adsonm>8)
 - More information available in SAP Note 2723506

Benefits

- Provides Access for Lookups, JOINs, etc. in SQL Transformations or for SAP HANA native access
- Enhanced support for mixed scenarios

DataStore Object Look-up SQL View



Modern UI: BW/4HANA Modeling Tools in Eclipse

Delivered Eclipse Editors in SAP BW/4HANA

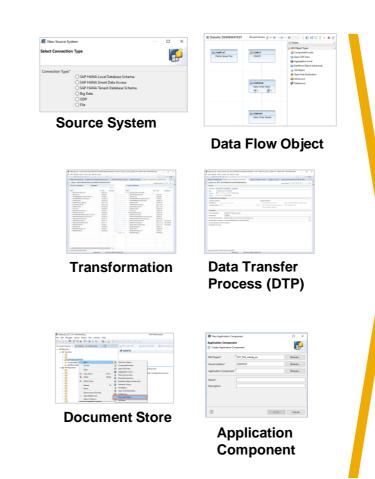


Overview

- Unified UI for all BW/4HANA Modeling
- Single point of entry for modeling tasks in SAP BW/4HANA
- SAP GUI no longer required for modeling tools

Benefits

- Reduced efforts and easy to use
- Faster time to value



SAP BW/4HANA 1.0



Process Chain Integration



Currency Translation Type



Unit Conversion Type



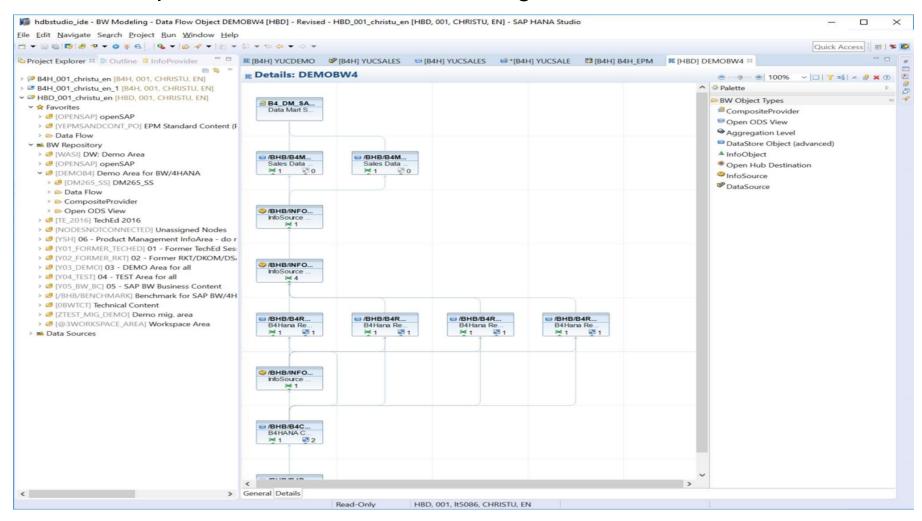
Key Date Derivation Type

SAP BW/4HANA 2.0

Modern Interface: Faster to Learn, Easier to Use



Developer User Interface – Introducing the new Dataflow Modeller



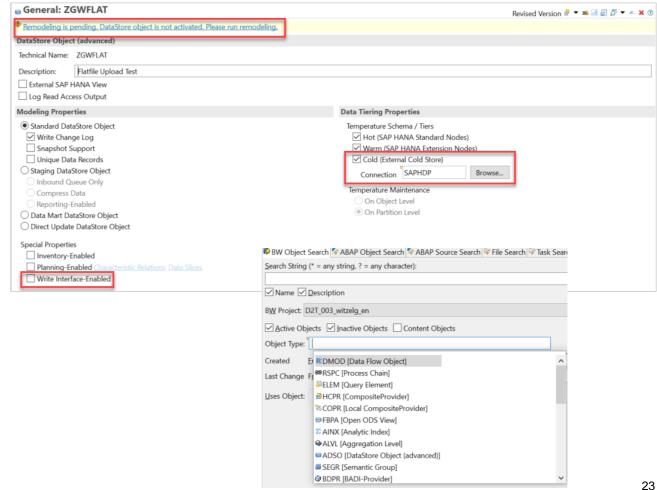
Modern UI: BW Modeling Tools in Eclipse



New Features with SAP BW/4HANA 2.0

- Enhanced Data Flow Copy (more than one copy, definition on object level)
- DataFlow: Display of HANA View(s) in CompositeProvider
- Optimized Data Store Object Editor
- Data Store Object remodeling in Eclipse and execution in SAP BW/4HANA Web Cockpit
- Data Tiering Optimization cold store connection configurable on object level
- Simplified Search
- New Editors: Currency Translation Type, Unit Conversion Type and Key Date Derivation
- HDI consumption
- Asynchronous object activation editor is not blocked during activation
- **Process Chain Integration**

SAP BW/4HANA Modeling Tools



Modern UI: New DataStore Object Remodeling Capabilities with SAP BW/4HANA 2.0



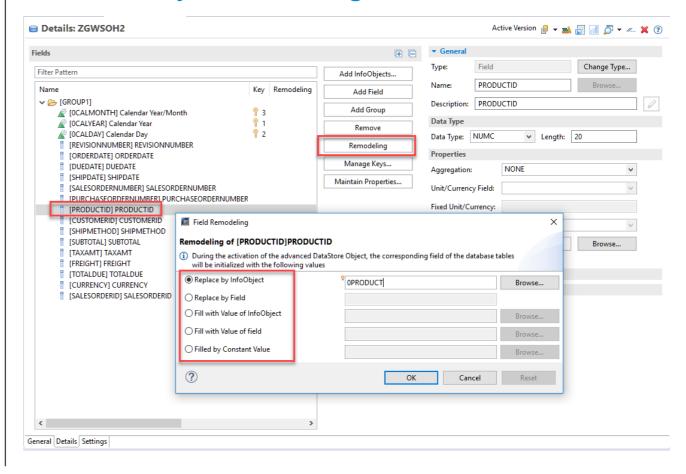
Feature Description

- New option in DSO editor -> Remodeling
- Enables new modeling approaches (start agile and move to more guided data models EDW vs. DataMart)
- Available on Field or InfoObject selection in the Fields Tree
- Remodeling options:
 - Replace by InfoObject
 - Replace by Field
 - Fill with Value of InfoObject (must exist in current ADSO)
 - Fill with Value of Field (must exist in current ADSO)
 - Filled by Constant Value

Benefits

- Flexibility to enhance/change data models without reloading
- Low remodeling effort and easy to use
- Higher Productivity

DataStore Object Remodeling



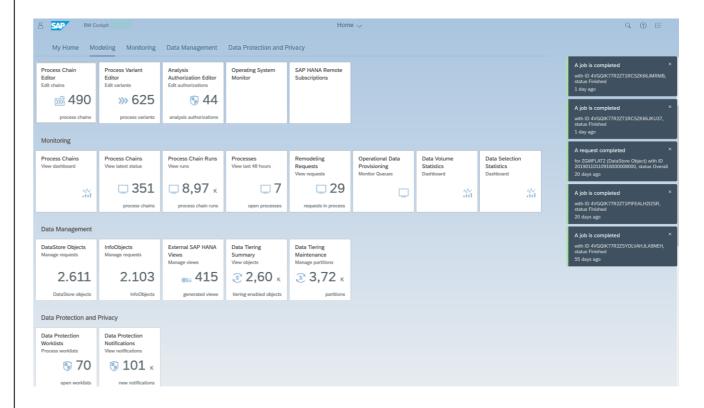
Modern UI: SAP BW/4HANA Web Cockpit



Overview

- Following SAP Fiori design patterns
- Single point of entry for administration tasks in SAP BW/4HANA
- Unified user experience
- Extensible for own applications and groups
- Modifiable for user context and authorizations

SAP BW/4HANA Web Cockpit



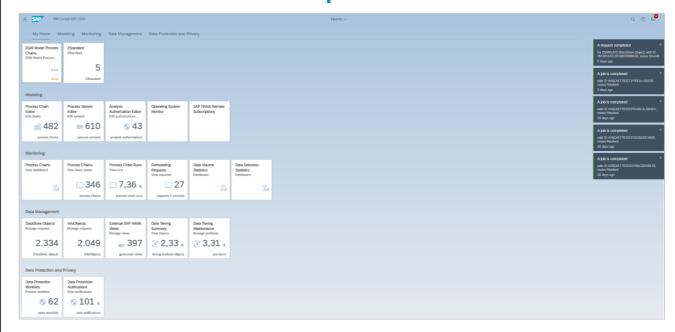
Modern UI: SAP BW/4HANA Web Cockpit



New Features with SAP BW/4HANA 2.0

- Simplified Search
- Personalization, Subscription & Notifications
- Enhanced Master Data Maintenance
- Data Volume & Data Selection Statistics
- Execute and Schedule Remodeling Requests
- Data Tiering Summary & Maintenance (partition management)
- Data Protection Management (Worklist & Notifications)
- Analysis Authorization Editor
- External SAP Hana View Management
- Enhanced Process Chain Maintenance (InfoArea)
- Direct File Upload to Data Store Objects

SAP BW/4HANA Web Cockpit



Modern UI: ABAP CDS Views for SAP BW/4HANA Statistics



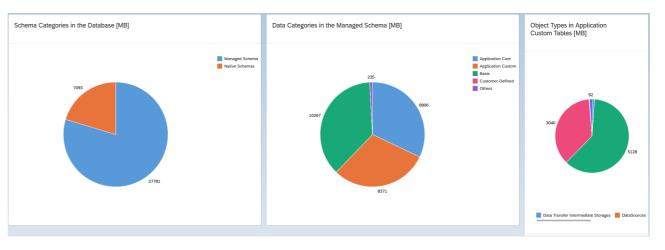
Feature Description

- SAP BW/4HANA application statistics available as ABAP CDS Views
- New Content to replace former Technical Content for:
 - Current query performance
 - Process Chain and Data Transfer Process
 - Data Volume Statistics & Data Store Object Request
- Delivered with SAP BW/4HANA 2.0:
 - Data Volume History statistics
 - Data Selection statistics
 - Extraction/Staging support for statistics data

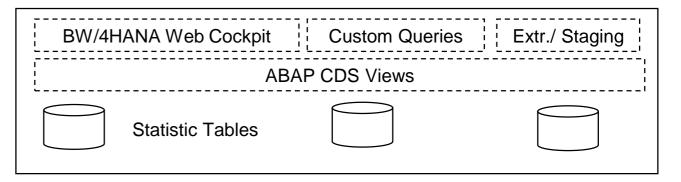
Benefits

- Out of the box access to SAP BW/4HANA application statistics
- Web UI accessible from multiple devices
- Configurable to build custom monitoring

Statistics



Data Volume Statistics Dashboard in the SAP BW/4HANA Web Cockpit

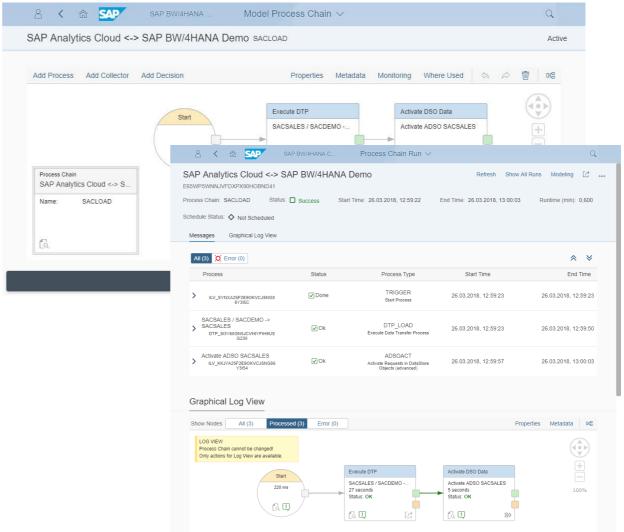


Modern UI: SAP BW/4HANA Web Administration Tools



Process Chain Modeler and Monitor

- State-of-the-art modeling UI
- Intuitive, comprehensive monitoring tool for detailed error analysis and recovery



Modern Interface: Faster to Learn, Easier to Use



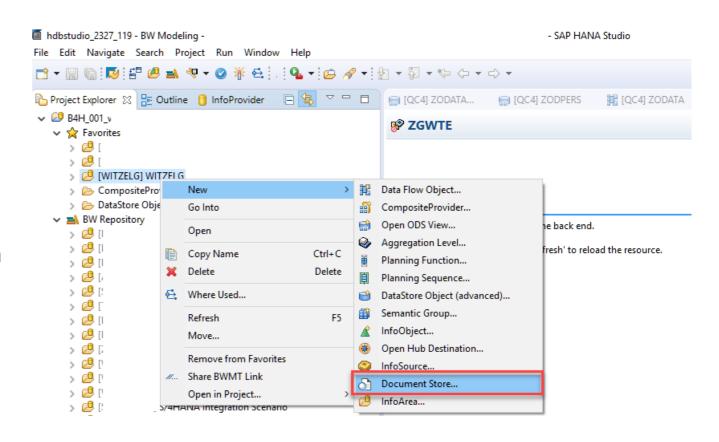
Business User Interface – Integration with SAP Analytics (on-premise and cloud)



High Performance: Analytical Engine with SAP BW/4HANA 1.0*



- Automated Query Execution Mode Optimizer including machine learning
- Query Cell based Documents for adding comments**
- Enhanced performance
 - by optimized query parallelization
 - for Analysis for Office** Query Catalog Search
- Advanced reporting features for Analysis for Office***



* A blog for detailed information is available

- ** available with Analysis Office 2.7
- *** SAP Analysis for Microsoft Office Road Map

High Performance: Analytic Engine with SAP BW/4HANA 2.0* *



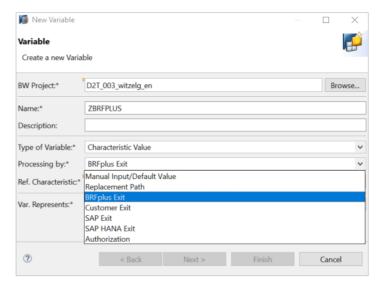
New Features

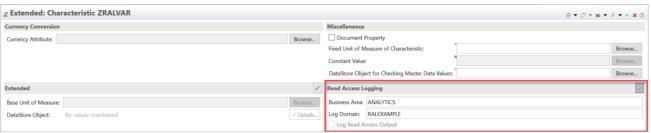
- Conditions calculated in SAP HANA (push-down)
 - TopN, BottomN, LessThan, GreaterThan, NotBetween, ...
- RSECADMIN (maintain analytic authorization) in SAP BW/HANA Web Cockpit
- Variable Type BRF+ (used for customer defined validations, derivations and calculations)
- Read Access Logging (RAL) integration for advanced auditing
- Custom Exception Aggregation and IF Operator for Analysis Office and SAC
- SAP Analytics Cloud Adoption through SAP BW Live Connection including new Chart Support

Benefits

- Provides Access for Lookups, JOINs, etc. in SQL Transformations or for SAP HANA native access
- Enhanced support for mixed scenarios

Analytic Engine

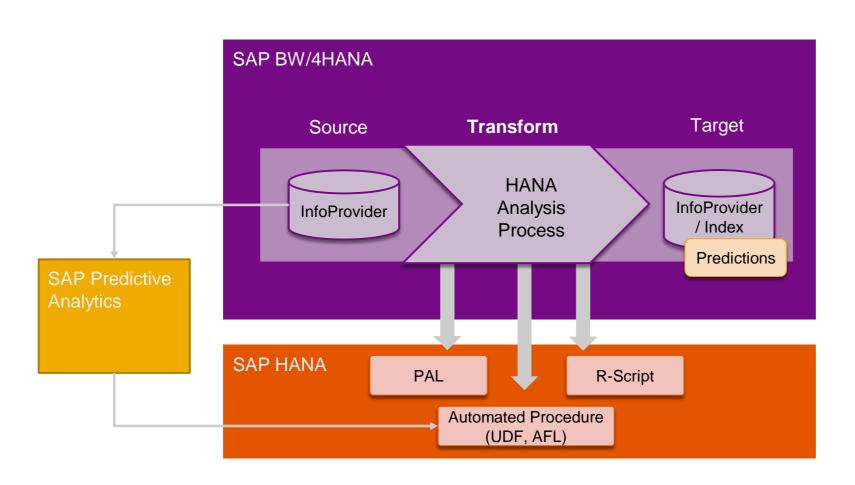




* A blog for detailed information is available

High Performance: Enabling Advance Analytics

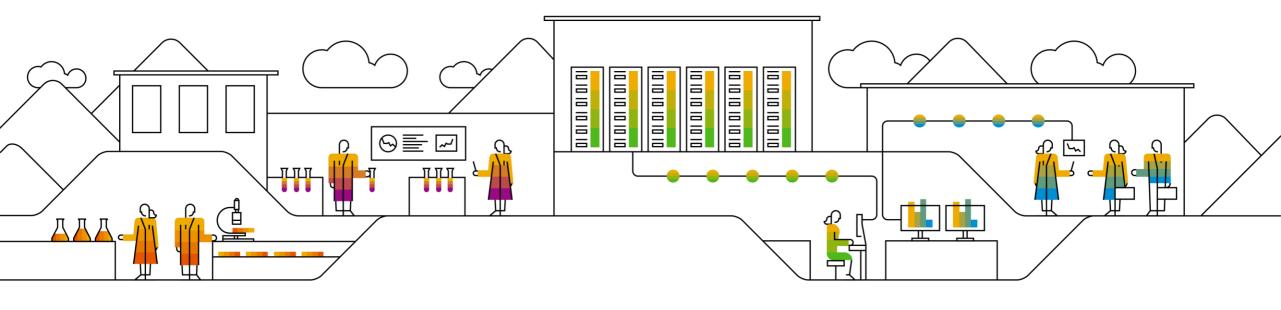




Enhance data with Advanced Analytics using HANA specific libraries (AFL), R-Script or a custom HANA procedure

- Predictive
- Text Analysis
- Data Mining
- Machine Learning

Data Protection Management in SAP BW/4HANA 2.0



Data Protection & Privacy: Data Protection

Workbench - Motivation

Situation today

- Personal data is increasingly protected by laws (e.g. <u>EU GDPR</u>)
- SAP BW/4HANA offers capabilities for Data Protection & Privacy support (see security guide SAP BW/4HANA)
- Generic deletion capabilities in SAP BW/4HANA are independent of Business Suite handling
- SAP ILM ensures retention management in operational systems and is used to support data protection & privacy compliance

Challenge

 Improved support and tight integration of SAP BW/4HANA with SAP ILM to delete replicated personal data in SAP BW/HANA after the end of purpose of the data.

Approach

- SAP ILM notification framework allows to persist notifications of deleted (personal) data during ILM processes
- Replicate notifications from SAP ILM to SAP BW/4HANA
- Data Protection Workbench supports:
 - Identify InfoProviders containing sensible data
 - Selective deletion of corresponding transactional- and master data records

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Data Protection & Privacy: Data Protection Workbench – Process

Feature Description

SAP ILM

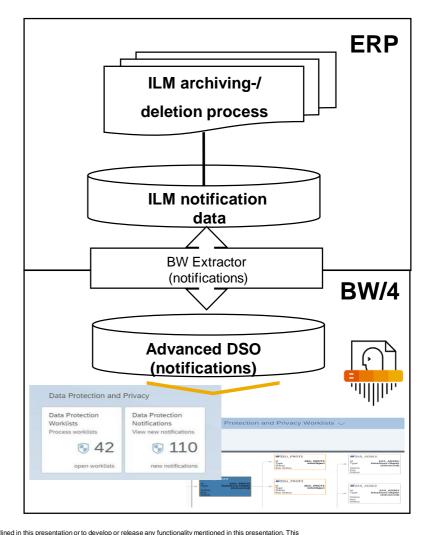
- SAP ILM persists events during SAP ILM processes (e.g. deletion of personal data)
- Mapping of SAP ILM object (e.g. ,Sales Order') to SAP BW/4HANA DataSource allows identification of relevant data targets in SAP BW/4HANA

Data Protection Workbench

- Persist notifications from SAP ILM into a SAP BW/4HANA Data Store Object
- Seamless integration into Fiori-based SAP BW/4HANA Web Cockpit
- Grouping of notifications into worklists according to subject matters to orchestrate the deletion process
- Identification of InfoProviders along a data flow containing the data to be deleted
- Documentation of worklist processing status (for legal auditing)

Benefits

- Integrated solution to consistently delete replicated data from supported operational SAP source systems to reduce administration effort
- Modern UI seamlessly integrated in SAP BW/4HANA Web Cockpit



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SAP BW/4HANA Road Map



SAP BW/4HANA Roadmap – Planned Innovations

Planned for 2020 – SAP BW/4HANA 2.0



Simplicity

- Data Tiering Optimization (DTO)
 - Updates to cold data (external storage)
 - SAP HANA Native Storage Extension (NSE) support for warm data
 - Automatic Temperature Rule Maintenance
 - Dynamic Partitioning
- Data Protection Workbench
 - Processing of notifications from SAP S/4HANA CE



Modern Interface

- Additional Composite Provider modeling capabilities
 - new features (Jointypes, etc.) & optimized UI
- Enhanced Web-based Administration & Monitoring
 - Hierarchy Maintenance



Openness

- Integration with
 - SAP Analytics Cloud
 - Custom Shape Files (Geo support)
 - Push-down of Current member OLAP Capability (Performance Improvement)
 - SAP Data Hub
 - > Simplified data integration
 - SAP Cloud Platform
 - CPI data push to SAP BW/4HANA DSO (advanced)



Hybrid Scenarios with SAP Data Warehouse Cloud

- Transforming BW Data Flows into native SAP Data Warehouse Cloud modeling scenarios
- Data Integration between SAP Data Warehouse Cloud and BW/4HANA

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SAP BW/4HANA Roadmap – Product Direction

Planned for 2021



Simplicity

- Data Tiering Optimization (DTO)
 - DTO automation rules and statistics based
 - Further cloud storage options for cold data based on SAP Vora



Modern Interface

- System Health Monitoring and Prediction
- Machine-learning Based DW Administration



Openness

- Further integration with SAP Data Hub providing Big Data Warehouse architectures
 - Improved impact analysis
 - Seamless data exchange
- Open Hub Modernization



Hybrid Scenarios with SAP Data Warehouse Cloud

- Tight Process Integration
- Metadata & Data Exchange

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SAP BW/4HANA Roadmap – Product Vision

2022 and Beyond



- Data Tiering Optimization (DTO)
 - Machine Learning based automation



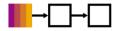
- Continued System Health Monitoring and Prediction
- Continued Machine-learning Based DW Administration



- Enhanced Process Integration
- Enhanced Metadata & Data Exchange

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Conversion Paths



Conversion



SAP BW/4HANA Conversion





- Full system conversion of an existing SAP BW installation (keep same SID)
- Step-by-step in-place transfer of classic objects into their HANA-optimized counterparts
- Followed by a system conversion to SAP BW/4HANA
- Minimum start release: SAP BW 7.5 SP 5 powered by SAP HANA



SAP BW/4HANA

- Start with SAP BW/4HANA as green field installation (new SID)
- Support of carve-out and consolidation scenarios
- Transport data models and remote data transfer (including Unicode conversion)
- Risk mitigation due to parallel system
- Minimum start release: SAP BW 7.3 or higher on any DB *



Similar to Remote Conversion but without data transfer

SAP BW

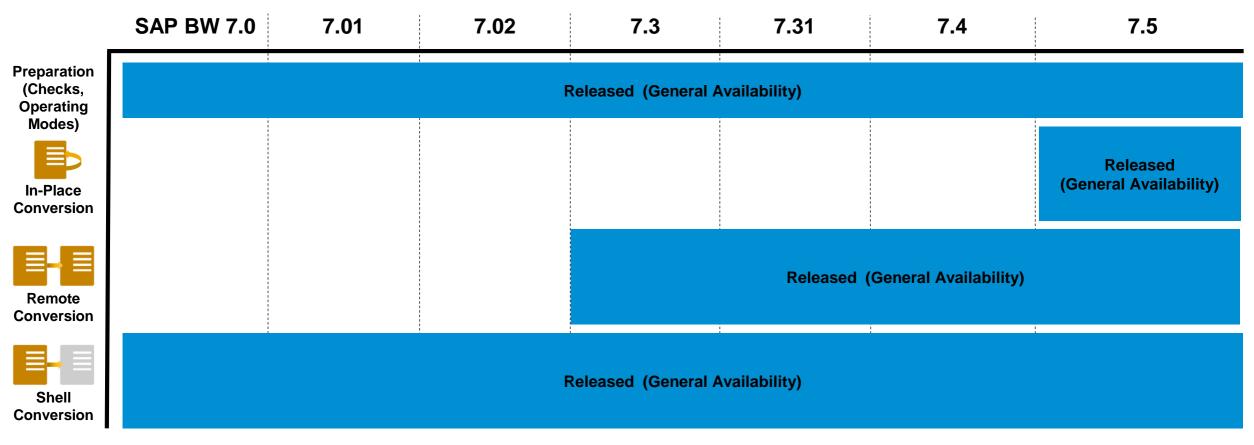
- Accelerate greenfield approach by transferring and converting data models and flows
- Minimum start release: SAP BW 7.0 or higher on any DB *

* Including SAP BW 7.5 and including SAP HANA

Availability Matrix



Last update: 2019-04-01



Preparation: Install via SAP BW Note Analyzer (SAP Note <u>2383530</u>)

In-place + Shell Conversion: Install via SAP BW Note Analyzer (SAP Note 2383530)

Remote Conversion: Install via SAP BW Note Analyzer (SAP Note 2383530) and DMIS Add-on (SAP Note 2513088)

Availability of In-place and Shell Conversion



using SAP BW/4HANA Transfer Cockpit

Availability

In-place as well as Shell Conversion are released for all customers and partners (generally available)

Installation

 For details about SAP BW/4HANA Transfer Cockpit system set up and prerequisites, please see SAP Note <u>2383530</u>

Support

 Report incidents using the SAP Support Portal, component "BW-B4H-CNV-IPL" (in-place conversion) or "BW-B4H-CNV-SHL" (shell conversion)

Availability of Remote Conversion



using SAP BW/4HANA Conversion Cockpit

Availability

Remote Conversion for SAP BW/4HANA is released for all customers and partners (generally available)

Installation

 For details about SAP BW/4HANA Conversion Cockpit system set up and prerequisites, please see SAP Note 2513088

Support

Report incidents using the SAP Support Portal, component "BW-B4H-CNV-RMT" (SAP BW/4HANA Transfer Cockpit) or "CA-LT-BW4" (SAP BW/4HANA Conversion Cockpit)

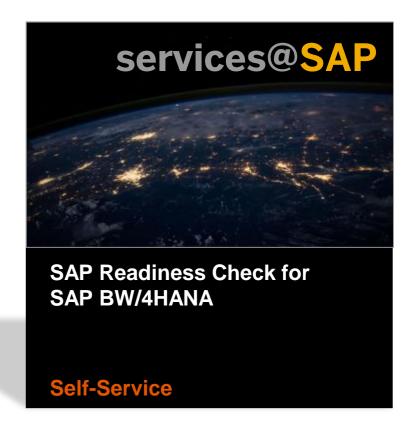
SAP Readiness Check for SAP BW/4HANA



A holistic system analysis is the foundation for further planning steps towards a successful and smooth system transition to SAP BW/4HANA. The SAP Readiness Check for SAP BW/4HANA is a self-service and summarizes the most important aspects of the conversion in an easy consumable way.



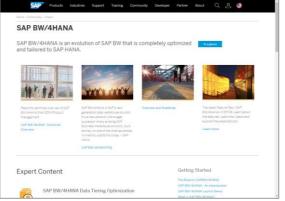
https://help.sap.com/viewer/p/SAP_READINESS_CHECK https://launchpad.support.sap.com/#/readiness





SAP BW/4HANA









Home Page https://sap.com/bw4hana

Community / Product Page https://sap.com/bw4hana10

https://help.sap.com/bw4hana10

Product Road Map https://sap.com/roadmaps



Training & Certification

https://training.sap.com/

Get Started

Free Learning @ openSAP, Free Trial

Get Help

FAQ, Q&A, Community Wiki, Support, Services, Availability

Read & Learn More

SAP Blogs, Community Blogs, Learning Journey

Transition from SAP BW

Blog, SAP Activate Road Map, SAP Readiness Check

Related Solutions

SAP HANA, SAP Data Hub, SAP Analytics Cloud



Watch

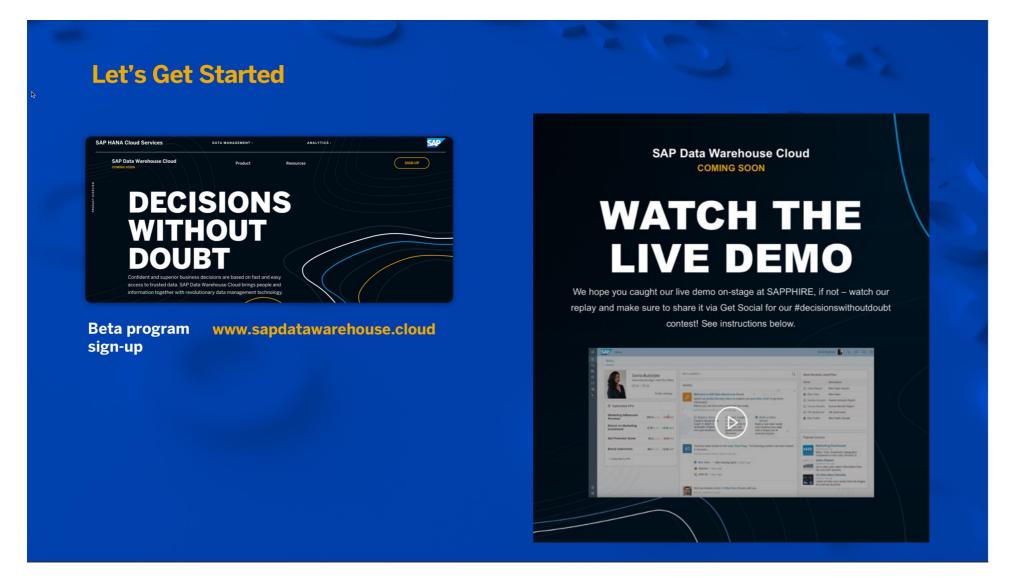
Demos & Tutorials, YouTube Channel. SAP HANA Academy



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SAP Data Warehouse Cloud - Get started



Thank you.

Product Management SAP BW/4HANA

Landing Page: http://sap.com/bw4hana
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