

Exploring SAP Data Warehouse Cloud from A to Z

Session ID ANA161

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PUBLIC

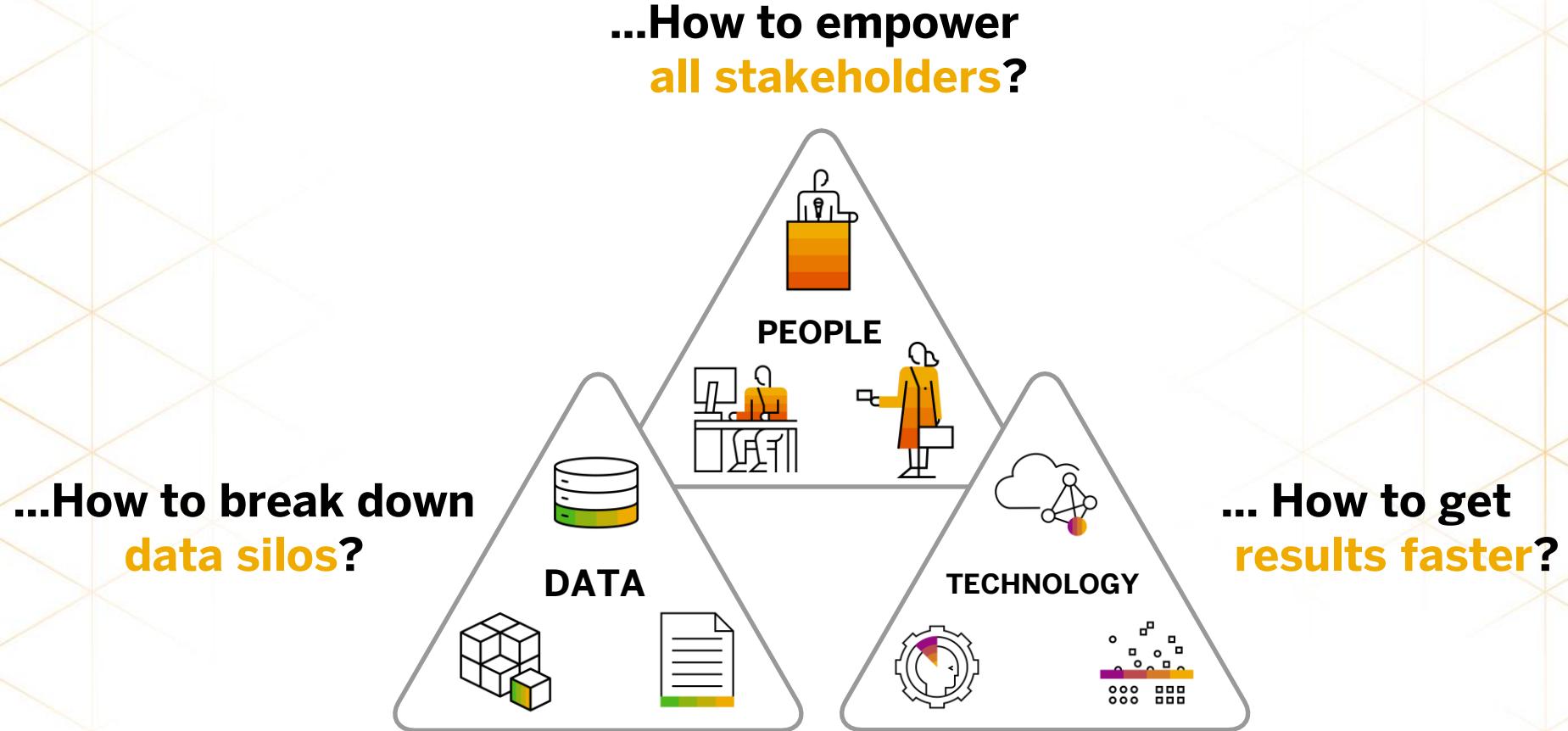
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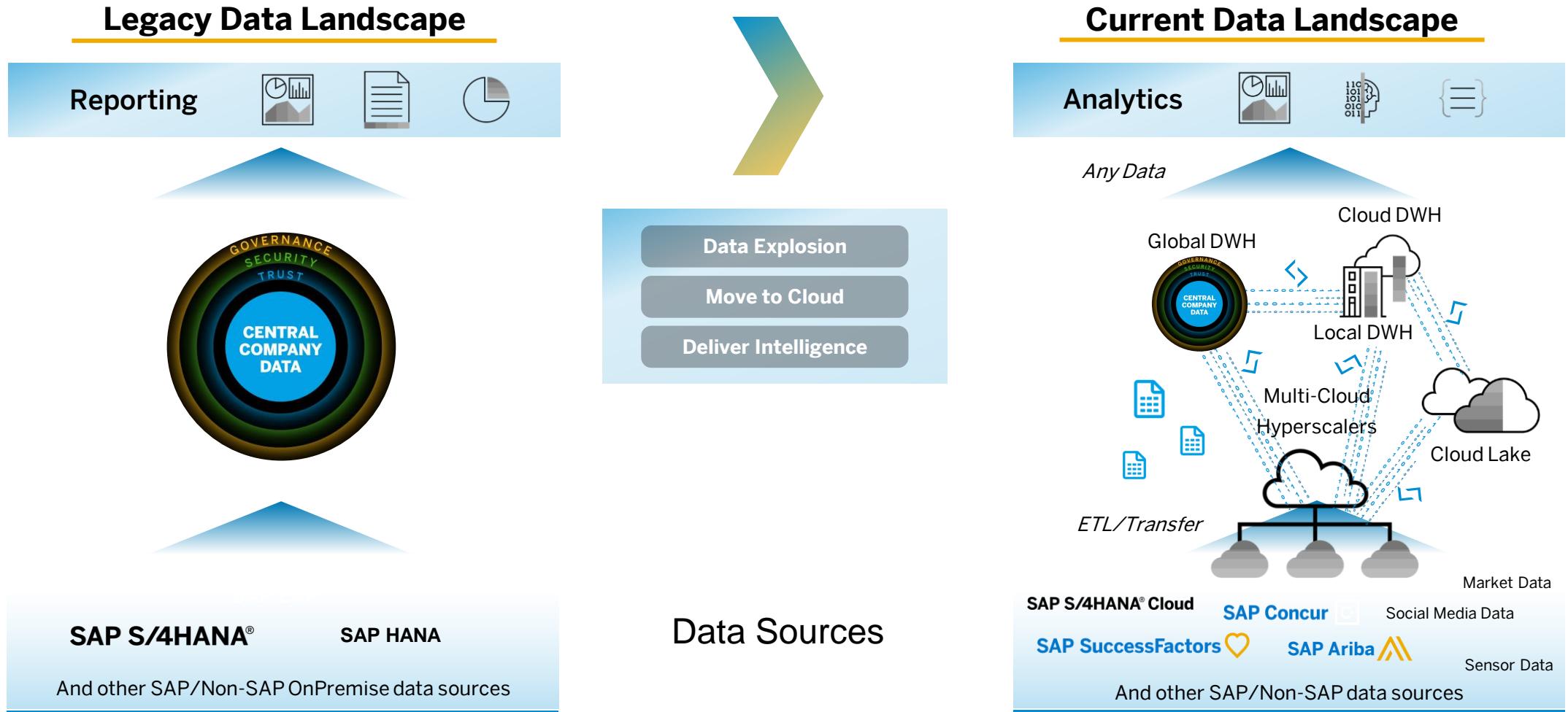
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The Challenge: Data and Analytics



Data management trends and challenges

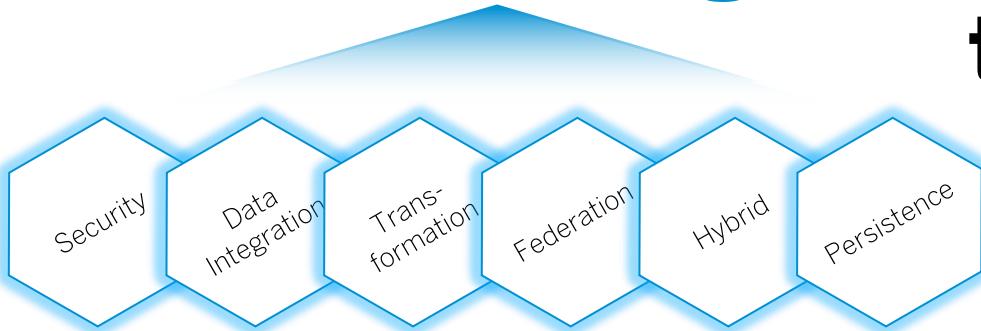
By 2022, 75% of all databases will be deployed or migrated to a cloud platform¹



How SAP Data Warehouse Cloud can help



SAP Data Warehouse Cloud goes beyond classical Data Warehousing and brings IT and Business together



SAP Data Warehouse Cloud. Use Cases



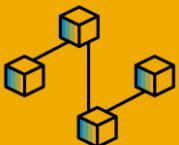
Self-Service Data Modeling & Analytics

Empower business users **with self-service, top-down** driven **analytics** in an **IT governed environment via spaces**. Instant access to business applications via **pre-built adapters to integrate any type of data** from any source, SAP and non-SAP data sources, on-prem and in the cloud.



Enabling Data Democratization

Accelerate time-to-insight via **rapid onboarding of resources**. Lower adoption barrier with a **business semantic layer** abstracting data layer from underlying physical data sources. Leverage data catalog and pre-built **business content** (industry-data models, KPIs) and deliver **enterprise-wide collaboration** via space concept to support **end-to-end decision-making**.

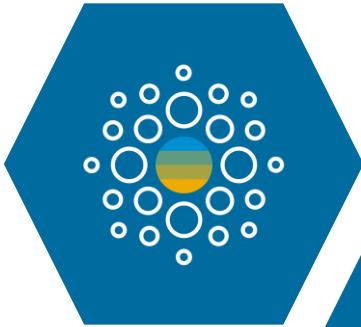


End-to-End Data Warehousing

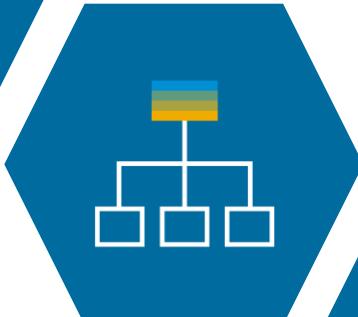
Leverage existing SQL skills, SAP IDEs, open-source and/or in-built tooling for data integration, governance, harmonization and Big Data historization to provide a **consolidated view across the enterprise**. Extract **maximum investment from existing on-prem investments via hybrid scenarios** e.g. SAP HANA for SQL DW, SAP S/4HANA, SAP BW/4HANA etc.

SAP Data Warehouse Cloud. Ready for Your Data Journey

Integrate.



Manage.



Use.



Operate.



Integrate.

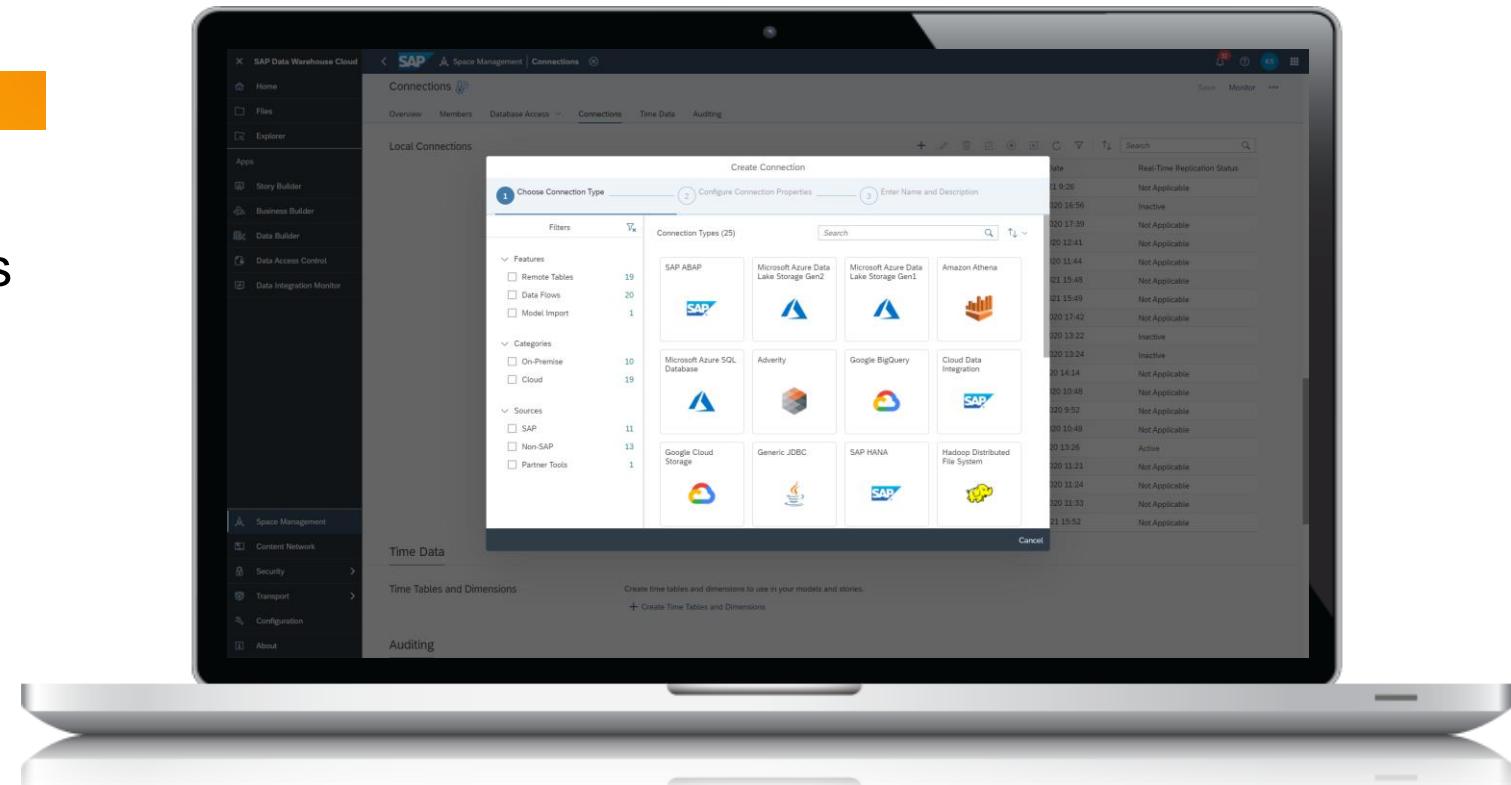




Integrate. Unify data silos to understand your business

CONNECT DATA WITH BUSINESS CONTEXT

- ✓ Broad Connectivity & Openness
- ✓ Data Virtualization, Replication & Persistence
- ✓ Hybrid Scenario

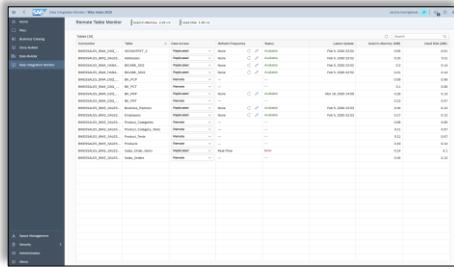




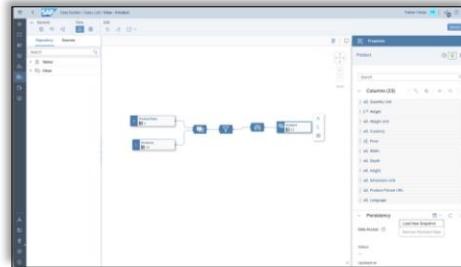
Integrate. Open for Virtual Access and Persistence

REMOTE TABLES

Virtual Access



Persisted



Realtime virtual data access

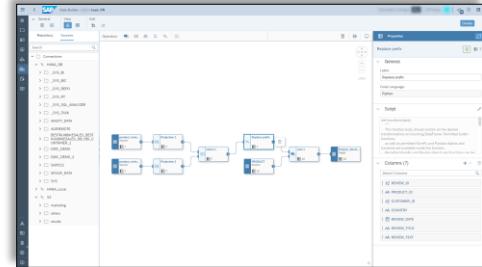
- Leave data in the source system and access remotely when needed
- No upfront data movement
- Federation is supported across various sources and hyperscalers

Single table replication

- Real-time table replication for up-to-date data
- Materialize views and update snapshots using automated, scheduled data loads

CLASSIC DATA INTEGRATION

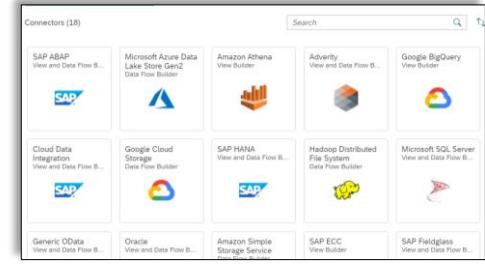
Data Flow



ETL beyond view modeling

- Combine structured and semi structured data while defining ETL processes
- Advanced transformation capabilities leveraging Python 3

External Tools



Integrate with all data sources

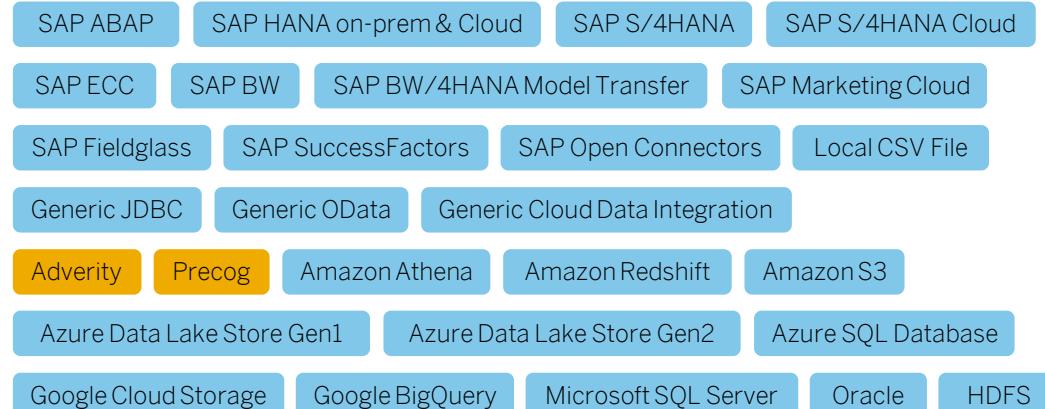
Allow external data movement tools like SAP Data Services, SAP Data Intelligence, SAP Open Connectors, SnapLogic, Precog, Adverity, etc. to bring data into SAP Data Warehouse Cloud using SQL interfaces



Integrate. Data Sources Overview

Current

Connection Tiles



2021 and beyond*

New Connection Tiles



SAP and partner tools supporting data ingestion via Open SQL Schema



SAP Help: [Connection Overview](#)

Available

Planned*

Partner

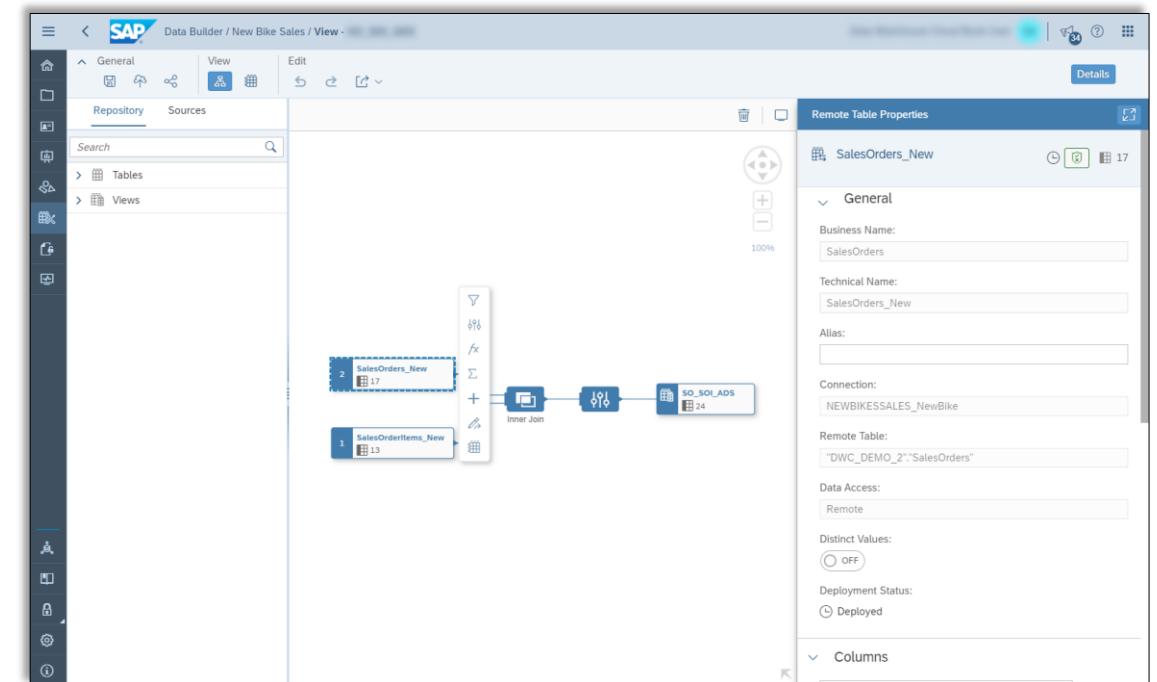
* According to the [SAP Data Warehouse Cloud Roadmap](#)

Note: The shown sequence does not reflect priority and timewise planning



Integrate. Virtual Data Access

- Virtual Access using remote tables, which points to a table in an external system
- Access remote data as if it was stored in local tables
- Remote tables access data without copying the data
- Data needs to be transferred through the network each time a query is executed
- Seamless switching between remote access and data replication or snapshots without the need to change the data models





Integrate. Real-time Replication & Snapshots

- Switch from remote access to snapshots or real-time replication for change-data-capture (CDC) enabled tables
- Schedule snapshot loading for remote tables
- Create partitions for snapshot and real-time replication to split larger data transfers and execute these single transactions in parallel
- Ability to start & stop, pause & resume, and cancel real-time replication
- Seamless switching between remote access and data replication or snapshots without the need to change the data models

The top screenshot displays the 'Remote Tables (8)' list in the SAP Data Integration Monitor. The table includes columns for Connection, Table, Data Access, Refresh Frequency, Status, Latest Update, Next Run, Used In-Memory (MB), and Used Disk (MB). The bottom screenshot shows the details for the 'Products_Snapshot' task, including its status, schedule, and run history.

Connection	Table	Data Access	Refresh Frequency	Status	Latest Update	Next Run	Used In-Memory (MB)	Used Disk (MB)
BOOKSPACE_SAP_HANA	BusinessPartners_2	Remote	---	---			0	0.02
BOOKSPACE_SAP_HANA	Countries	Replicated (Snapshot)	None	Available	Dec 1, 2020 17:24		0	0.14
BOOKSPACE_SAP_HANA	Delivery	Remote	---	---			0	0.02
BOOKSPACE_SAP_HANA	Products_Snapshot	Replicated (Snapshot)	None	Available	Feb 20, 2021 17:16		0	0.36
BOOKSPACE_SAP_HANA	Sales_Order_Items_...	Replicated (Real-Time)	Real-Time	Active	Jun 14, 2020 16:48		0	0.31
BOOKSPACE_SAP_HANA	Sales_Orders_Remote	Remote	---	---			0	0.32
BOOKSPACE_SAP_HANA	SalesPipeline	Remote	---	---			0	0.02
BOOKSPACE_SAP_HANA	SalesQuota	Remote	---	---			0	0.01

Products_Snapshot

Activity	Status	Start	End	Triggered by	Execution Type
Replicate	Completed	Feb 20, 2021 17:16	Feb 20, 2021 17:16	Data Warehouse Cloud Book User	Direct

Messages (4)

Timestamp	Category	Message
Feb 20, 2021 17:16	Information	Starting remote table 'Products_Snapshot' replication task execution
Feb 20, 2021 17:16	Information	Replicating (batch) data for remote table 'Products_Snapshot'...
Feb 20, 2021 17:16	Information	'42 records replicated for table 'Products_Snapshot'.
Feb 20, 2021 17:16	Information	Data replicated (batch) successfully for remote table 'Products_Snapshot'.

Runs (3)

Start	Duration	Status
Feb 20, 2021 17:16	0:00:02	Completed
Feb 20, 2021 17:16	0:00:01	Completed
Nov 22, 2020 17:29	0:00:03	Completed



Integrate. View Persistence

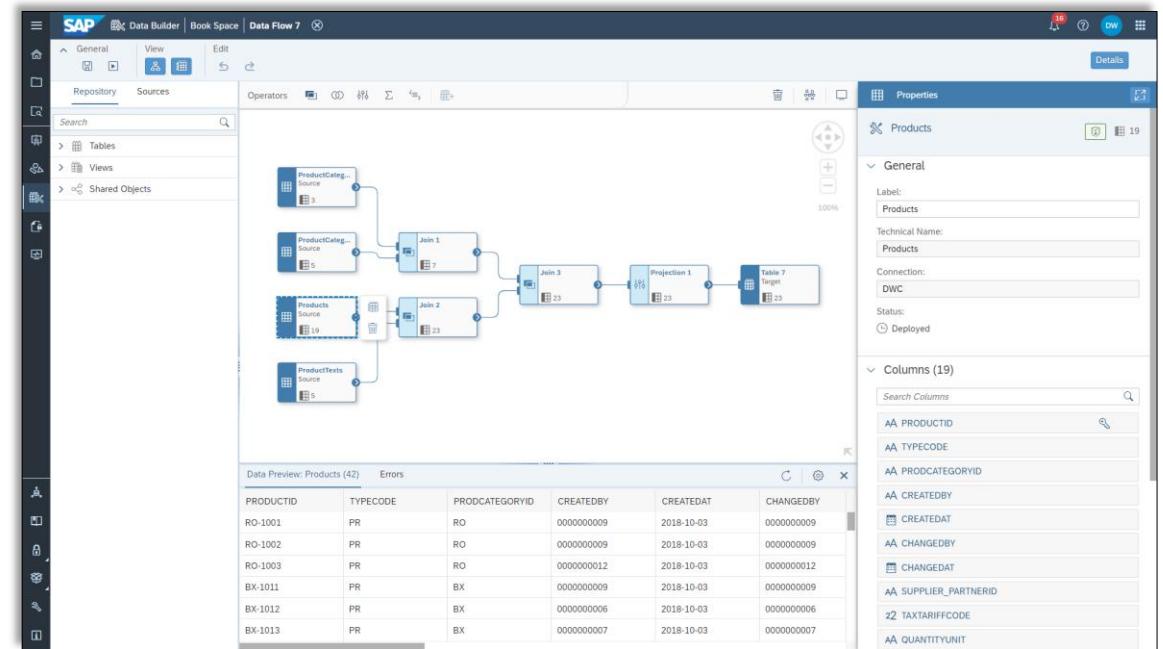
- Graphical & SQL-views can be configured as persisted views to materialize the output result
- The result set is persisted similar to remote table snapshots or data flow target tables, and supports partitioning
- Store only required data in SAP Data Warehouse Cloud instead of full 1:1 remote table replication
- Improve performance for views with heavy transformations or slow remote sources
- Monitoring and scheduling via the Data Integration Monitor

The top screenshot shows the SAP Data Builder interface for creating a persisted view named "Product Master Data". The interface includes a search bar, a repository tree with "Tables", "Views", and "Shared Objects", and a data flow editor. The data flow consists of four source tables (Products, ProductTests, ProductCategoryText, ProductCategories) connected via inner joins to a target table (Product Master). The bottom screenshot shows the SAP Data Integration Monitor for the view "Sales_Orders_Remote_View". The monitor displays the view's status as "Available" and a log of four messages related to its persistence. A table of recent runs shows one completed run from June 9, 2021, at 11:54.



Integrate. Data Flow

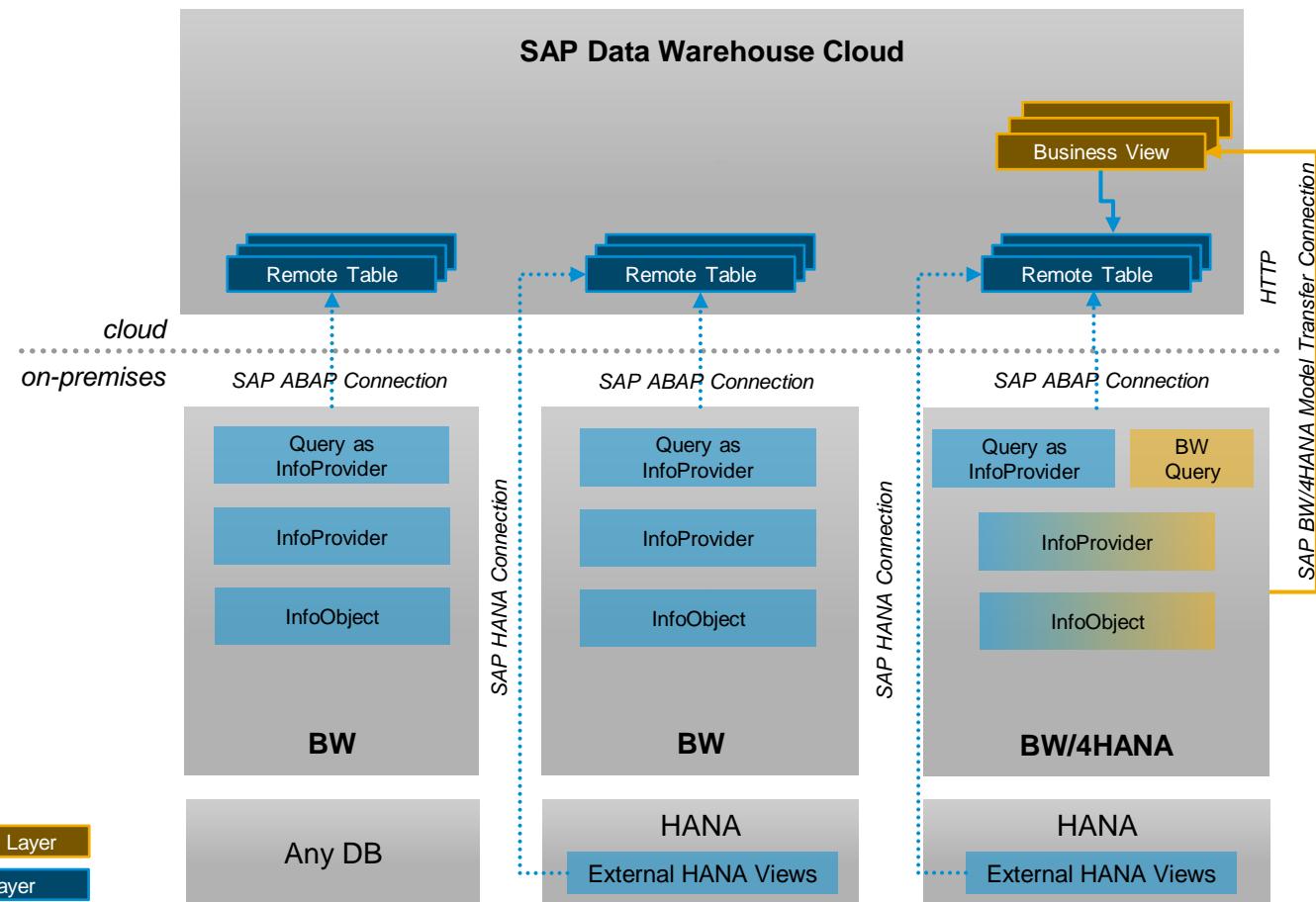
- Data integration from variety of data sources
- Easy to use data flow modeling experience for ETL requirements
- Load and combine data from different data sources (SAP and non-SAP) like file storages, DBMS or SAP S/4HANA
- Standard transformation capabilities and scripting for advanced requirements
- Apply a generic filter-based delta to reduce the amount of data that needs to be transferred





Integrate. Hybrid SAP BW Integration Overview

- Two different ways available for integrating SAP BW & SAP BW/4HANA systems:
 - Federated/replicated data consumption scenarios via
 - Operational Data Provisioning framework (SAP ABAP connection)
 - External SAP HANA Views (SAP HANA connection)
 - Federated/replicated business semantics integration scenarios via SAP BW/4HANA Model Transfer connection
- Differences in support of consumable entities, supported entity features, federated or replicated scenarios, location & usage of calculation engine
- Remote or replicated data consumption scenarios supported with SAP BW & SAP BW/4HANA
- Business semantics migration support for SAP BW/4HANA only via SAP BW/4HANA Model Transfer connection



Operate.

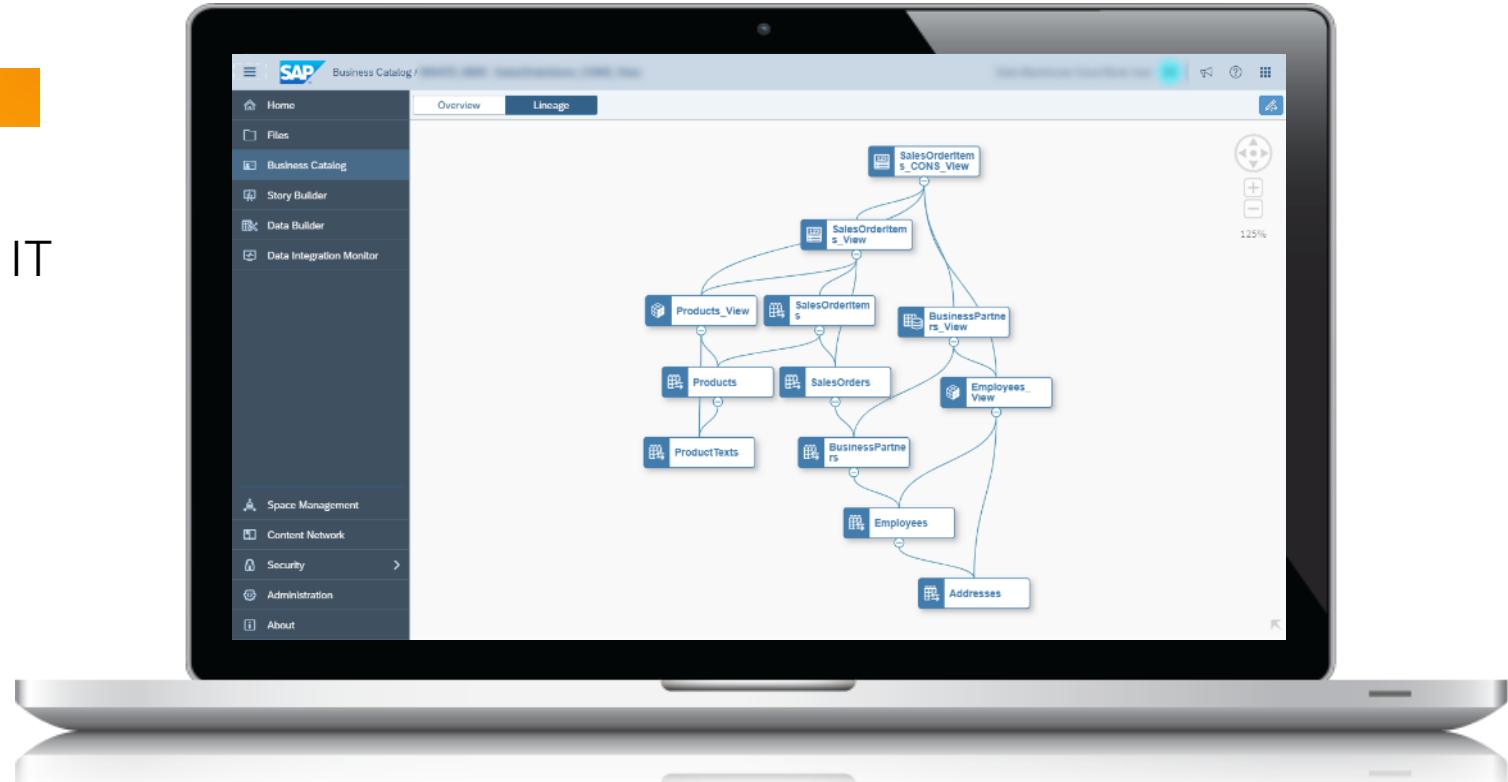




Operate. Accelerate outcomes without complexity

ENSURE GOVERNANCE AND EFFICIENCY

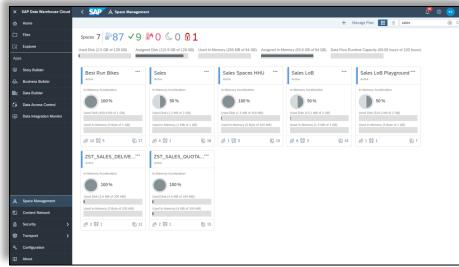
- ✓ Virtual working areas governed by IT
- ✓ Enterprise-wide collaboration
- ✓ Access to global & local data
- ✓ Openness for Hyperscalers





Operate. Unlocking data insights with integrity

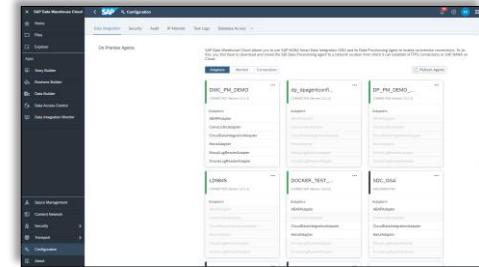
Space Management



Collaboration across spaces

- Access to globally managed data without export & import
- Work independently with your local data and create new insights
- Share your results with others
- Governed by IT

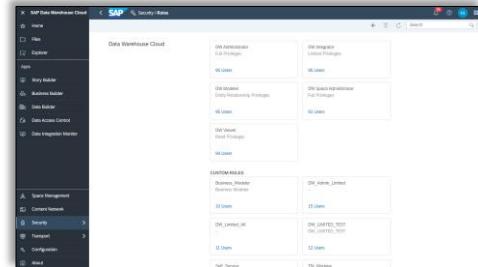
Configuration



Manage your system settings

- IP-Allowlisting
- Data Provisioning Agents monitoring & configuration
- 3rd Party driver & certificate Management
- Access HANA Cloud Cockpit
- Auditing & Resource Monitoring

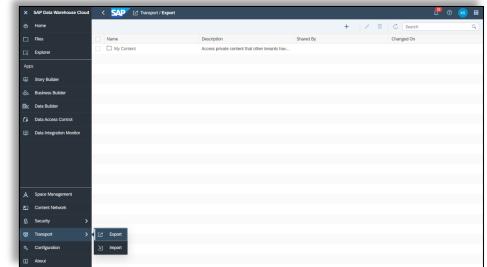
Security



Security on all layers

- User Management
- Row-level Security
- Remote Authorizations from SAP BW/4HANA
- Secure Source System Connections
- Data Anonymization & Data Masking

Transport



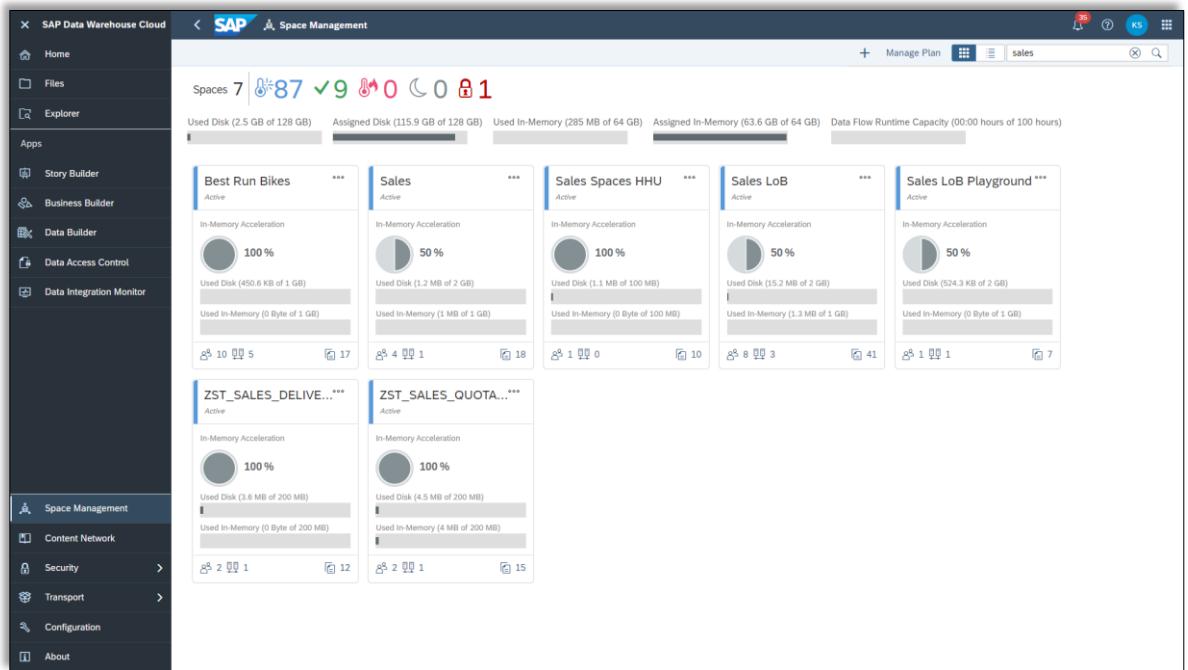
Transfer content between tenants

- Move your own content between different tenants
- Export content packages and share with other tenants



Operate. Space Management

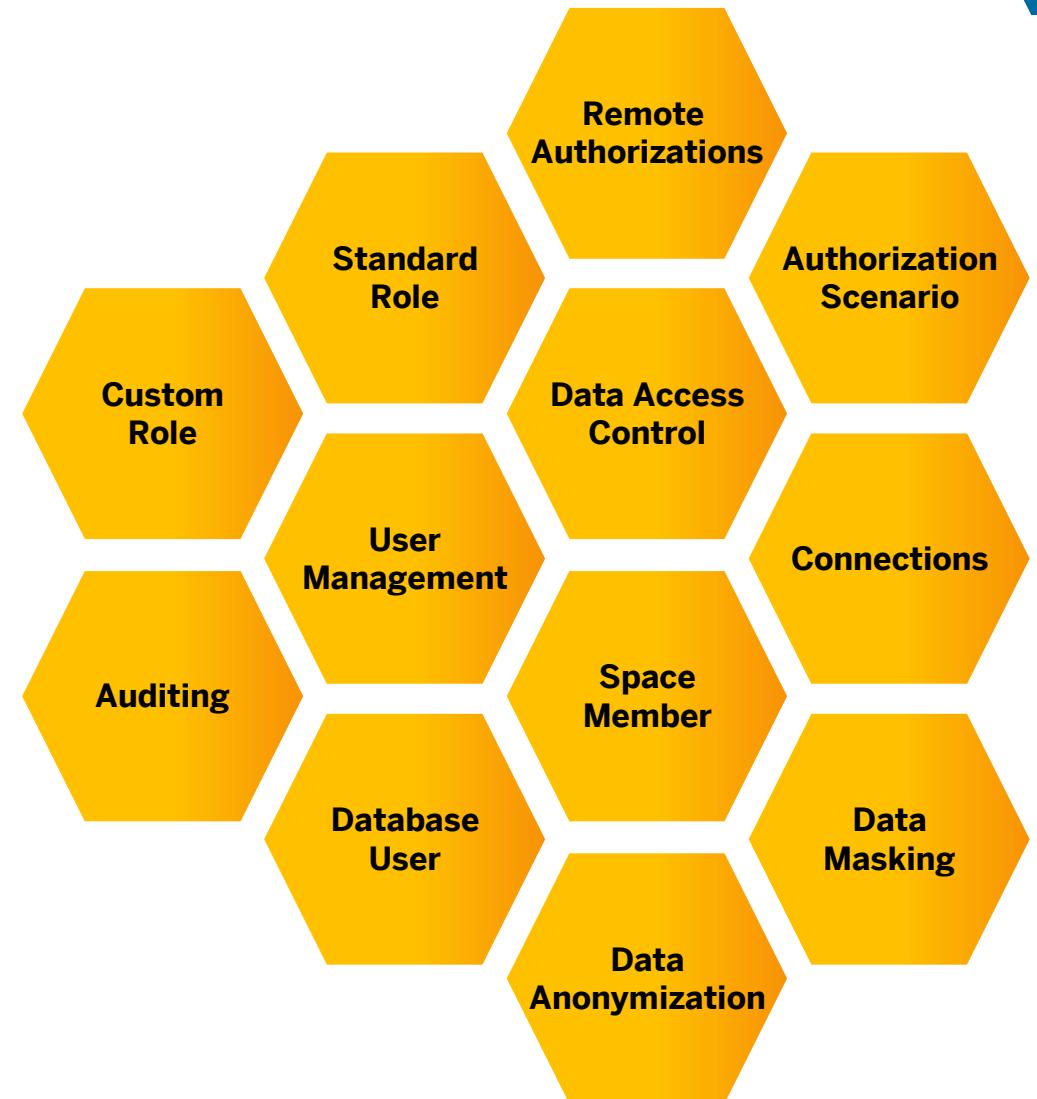
- Spaces are secured virtual work environments which
 - provide isolation for metadata objects and space resources
 - define space storage quota and control resource usage
 - enables sharing of data with other spaces
- Transparent monitoring & statistics
- Manage user access for space members
- Maintain source system connections
- Define workload class settings per Space
- Database users for
 - read access from other applications
 - write access to an Open SQL Schema via external tools
 - deployment of SAP HANA Deployment Infrastructure (HDI) containers
- Time dimension
- Optional Auditing for read and change operations
- Optional SAP HANA Data Lake Integration





Operate. Security on all layers

- Access on tenant level handled by user management
- Functional access managed by standard and custom application roles
- Space level access granted for members only
- Row-level security managed by Data Access Controls on data and business layer via authorization scenarios
- Reuse Remote Authorizations from SAP BW/4HANA
- Secure Source System Connections
- Define database user privileges
- Data anonymization & data masking features of SAP HANA Cloud can be leveraged in an Open SQL Schema
- Auditing for read and change operations
- Certifications: [ISO 27001 / 27017 / 27018](#), [ISO22301](#), [SOC1 Type 2](#), [SOC2 Type 2](#), [CSA STAR registry](#) / [CSA STAR Certificate](#), [EU Cloud CoC](#) available on [SAP Trust Center](#) as part of the SAP Business Technology Platform





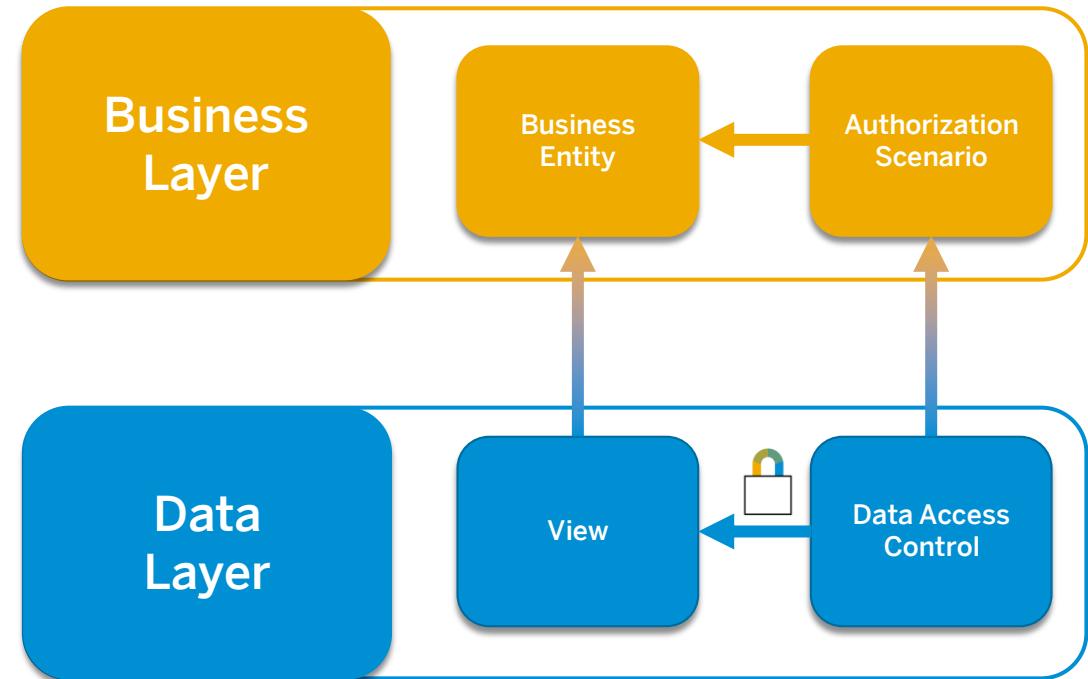
Operate. Data Access Controls & Authorization Scenarios

Data Access Controls

- Allow more granular access to data on row level
- Applied on artifacts in the Data Layer
- Cannot be overruled
- Data Access Controls are defined once and can be applied to multiple artifacts in Data Layer

Authorization Scenarios

- Authorization Scenarios in Business Layer define the context in which data is consumed and which Data Access Control is applied
- Consuming objects in Business Layer need to leverage one of the Data Access Controls assigned to the underlying source object in Data Layer



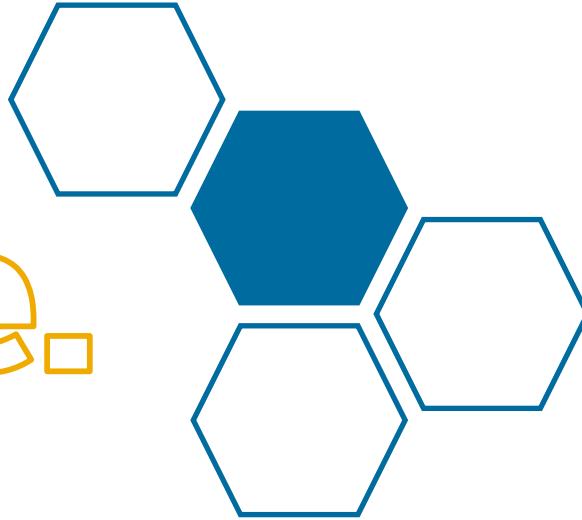


Operate. Transport content between tenants

- Export and import your own content using the content network
- Collect and build your own content package based on one or multiple spaces
- Provide export package for transport to other systems
- Import content from other systems into an existing Space (same technical name)
- Alternatively, import and export metadata of modelling artifacts as a CSN file containing the definition and description of the SAP Data Warehouse Cloud metadata

Name	Description	Shared By	Changed On
My Content	Access private content that other tenants have...		

Manage.





Manage. Unlock data insights with integrity

EMPOWER BUSINESS USERS

- ✓ Semantic Business Layer
- ✓ No-code/Low-code Data Modeling
- ✓ Designed for Business & IT
- ✓ Open for External Tooling





Manage. Modeling for Everybody

Business Analyst
(no-code/low-code)



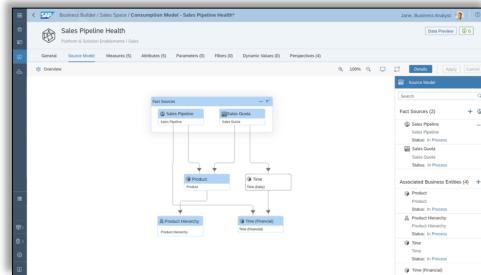
Developer
Power User



BUILT-IN EDITORS

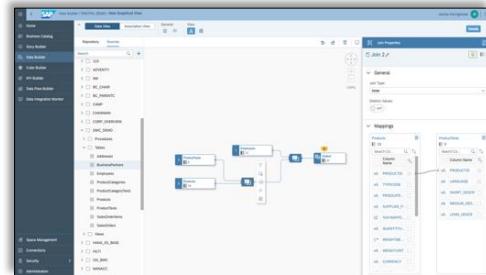
modeling for all users

Business Modeling



- Allow for a greater degree of self service
- Non-disruptive environment for business scenarios – independent from the data integration layer

Graphical & Scripted

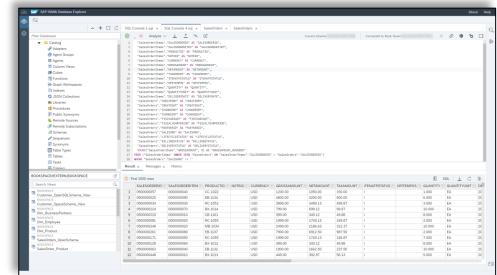


- Collection of no-code/low-code editors to support Graphical Modeling
- Model E/R-models, Tables, Views, SQL & SQL-Script Views
- Focuses on most commonly used modeling operators

EXTERNAL EDITORS

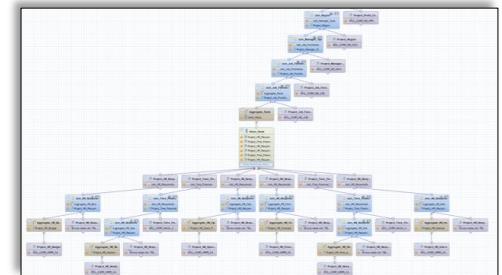
integrated SQL Data Warehousing

Open SQL Schema

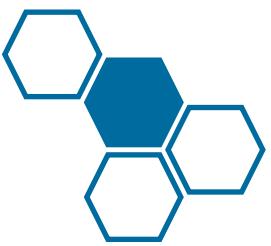


- Option to use SQL DDL & DML leveraging e.g. SQL Views, Tables, Procedures, etc.
- Leveraging existing SQL-tooling & skillset
- SAP Database Explorer

SAP HANA Deployment Infrastructure



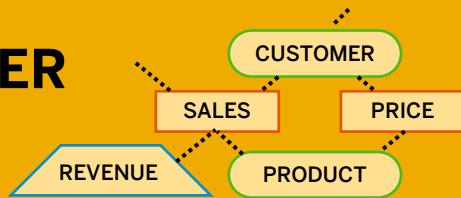
- SAP HANA Cloud Modeling capabilities leveraging Calculation View, Flowgraph, Synonym, etc.
- Simply re-use HANA based Modeling within SAP Data Warehouse Cloud



Manage. Collaborate in business terms

BUSINESS LAYER

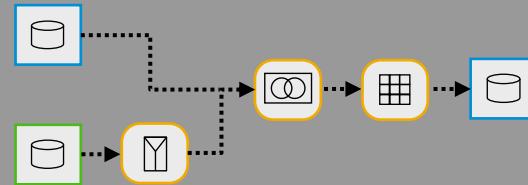
Users work in business terms



"What were the key margin drivers for my product? What if I reduce the price by 10%?"

DATA LAYER

IT models underlying relationships



"How can I assure queries will perform with data coming from heterogeneous systems?"

BUSINESS CATALOG

Users discover available assets & work on common KPIs



"How is the margin of the product calculated? Where do I find it?"

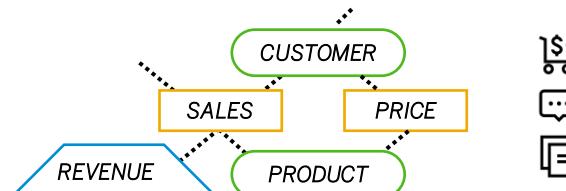
- Business entities and relationships with business language
- Model standardization and reuse for efficiency
- Independence for business users from IT



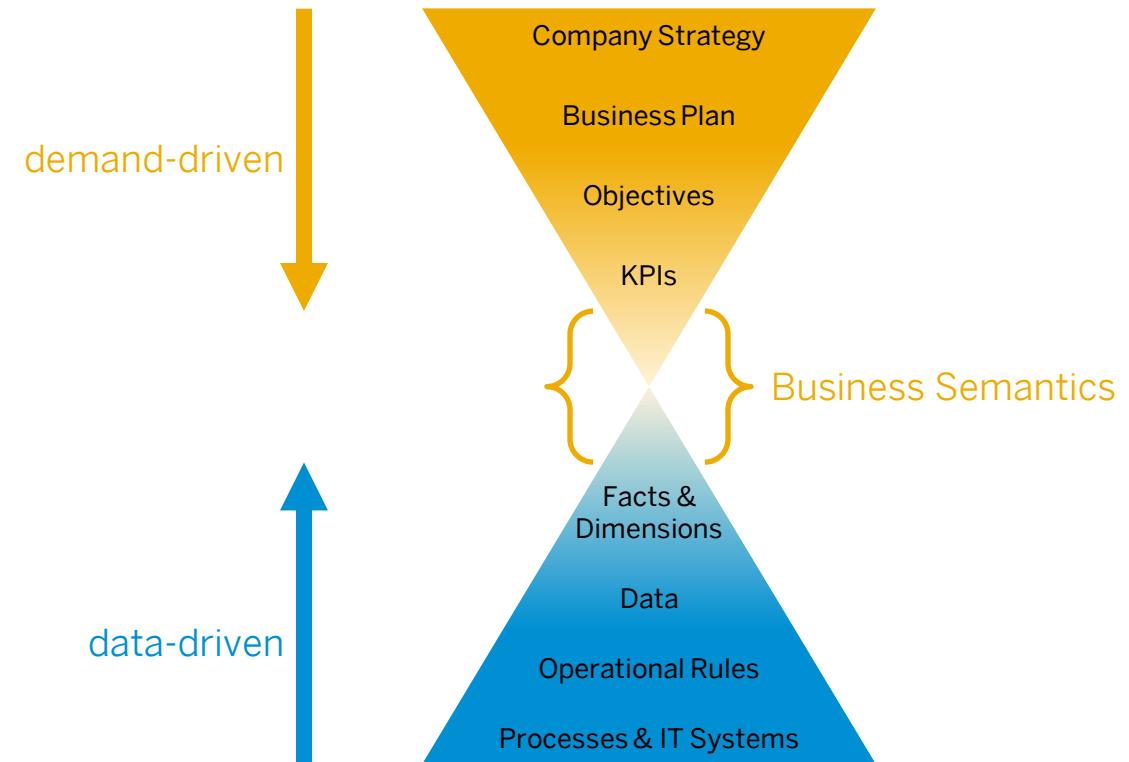
Manage. Business Modeling

The business layer will empower BI analysts to model using business terminology and allow for **demand-driven modeling** in addition to **data-driven modeling**.

- Enables business users to model their business scenario without knowing the underlying data models
- Self-service modeling for Lines of Business
- Hides data complexity through using business language terminology
- Business model independent from data layer

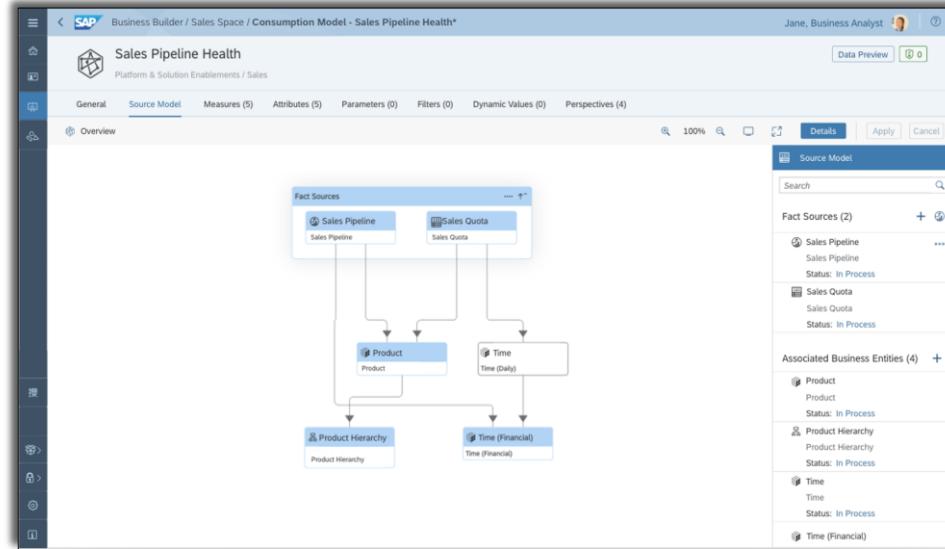


**Users Work in
Business Terms**





Manage. Business Modeling



Fact and Consumption Modeling

FULL_NAME	Number of Follower	Social Media Costs	Cost per 1000 Follower (EUR)	
Matthias Schweighöfer	2,081,866.00	4,000.00	1.92	
Banana Moon 1978	24,884.00	50.00	2.01	
SV Sandhausen 1916 e.V.	24,611.00	50.00	2.03	
Michael Charles Hilton	24,561.00	50.00	2.04	
CHRIS	23,993.00	50.00	2.08	
Ecliptic Brewing	23,983.00	50.00	2.08	
BIKE-Magazin	23,968.00	50.00	2.09	
Enrike Lozano Coello	23,928.00	50.00	2.09	
Brauerl C. & A. VELTINS	23,925.00	50.00	2.09	
Oliver Gavrylik	238,761.00	500.00	2.09	
EYECANDY PHOTOGRAPHS ©	23,824.00	50.00	2.10	
VELTINS-Arena	23,626.00	50.00	2.12	
BAOS: Craft Beer Podcast	23,398.00	50.00	2.14	
Great Notion Brewing	92,455.00	200.00	2.16	
Wild West Village, NYC	23,052.00	50.00	2.17	
Lover's Beer	23,037.00	50.00	2.17	
Tattoos Chaos Blöðsinn	22,977.00	50.00	2.18	
Dra. Luz Marina Bertolotto	22,876.00	50.00	2.19	
Jan Hoier	91,255.00	200.00	2.19	
Rollin Smoke Barbeque	22,649.00	50.00	2.21	

Interactive Data Discovery

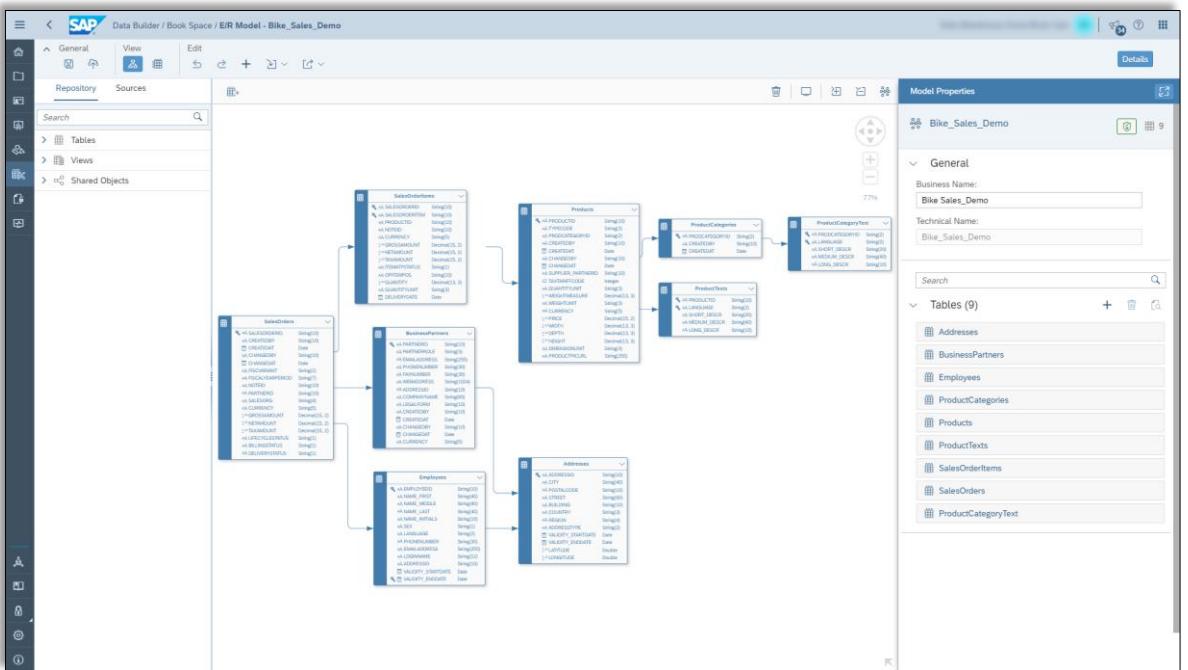
- Build **one semantic layer** for all your consumers
- Flexibly **change the underlying data layer** when needed (i.e. changes in source systems) without disrupting your consumers
- Run **advanced data preview** with filtering, sorting and parameterization* capabilities, to validate the modeled business logic immediately

* According to the [SAP Data Warehouse Cloud Roadmap](#).



Manage. Entity-Relationship Modeler

- Definition of entity-relationship models
- Design physical or remote database models
- Reverse model engineering
- Re-use existing entities (table, view) from Data Builder
- Add new entities on-the-fly
- In-editor real time data preview
- Model Import / Export





Manage. Table Editor

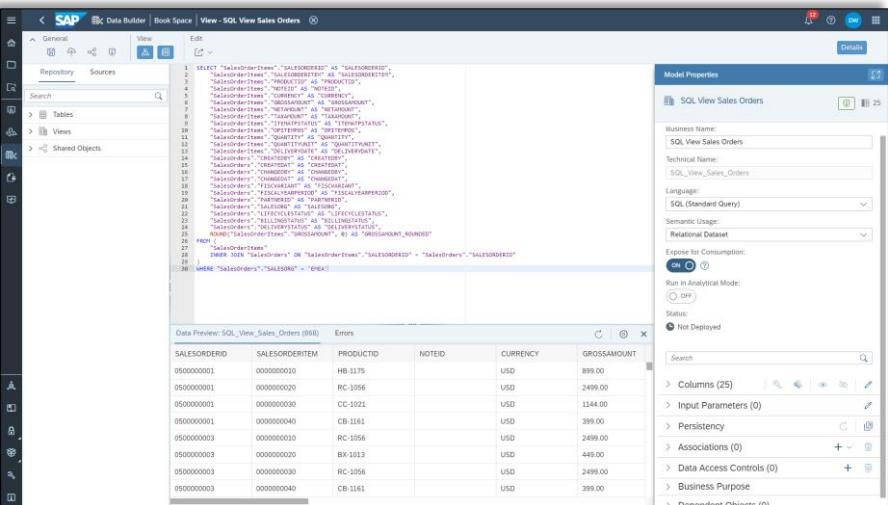
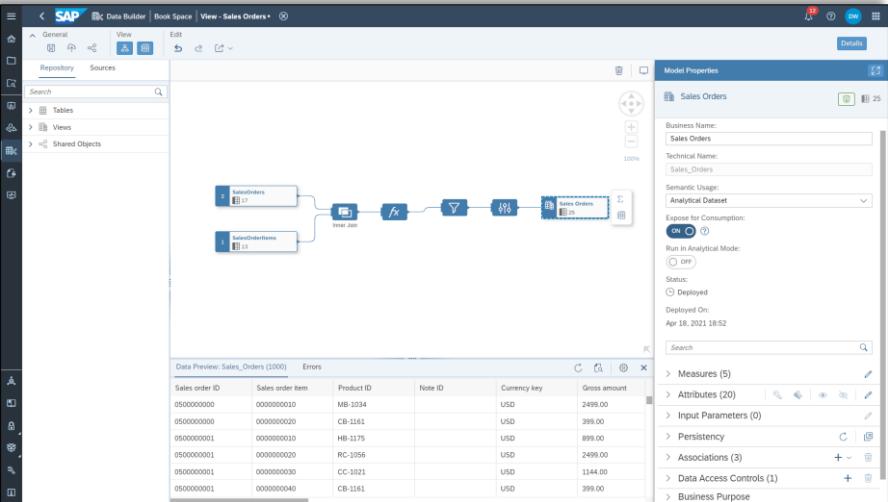
- Define general properties like technical and business name, as well as semantic usage
- Provide business purposes for easy re-use and search capabilities
- Customize field list by adjusting descriptions, field names, data types and semantics
- Maintain associations and check on dependent objects when changing tables
- Define primary keys, default values and column visibility
- Delete current and upload new data from files
- Share tables with other spaces
- Allow to refresh the meta data for the remote tables definition

The screenshot shows the SAP Data Warehouse Cloud Data Builder interface. On the left, a sidebar lists various applications: Home, Files, Explorer, Story Builder, Business Builder, Data Builder (which is selected), Data Access Control, and Data Integration Monitor. Below these are Space Management, Content Network, Security, Transport, Configuration, and About. The main area is titled 'Table - SalesOrders'. It has tabs for General, Columns (17), Associations (3), Business Purpose, Table Services, and Dependent Objects (0). Under General, fields include Business Name (SalesOrders), Technical Name (SalesOrders), Semantic Usage (Relational Dataset), Status (Deployed), and Deployed On (May 20, 2021 12:45). The Columns (17) section lists columns with their technical names, data types, and default values. The Associations (3) section lists three associations. The interface is clean with a light blue header and a white body.

Manage. Graphical & Scripted View Editors



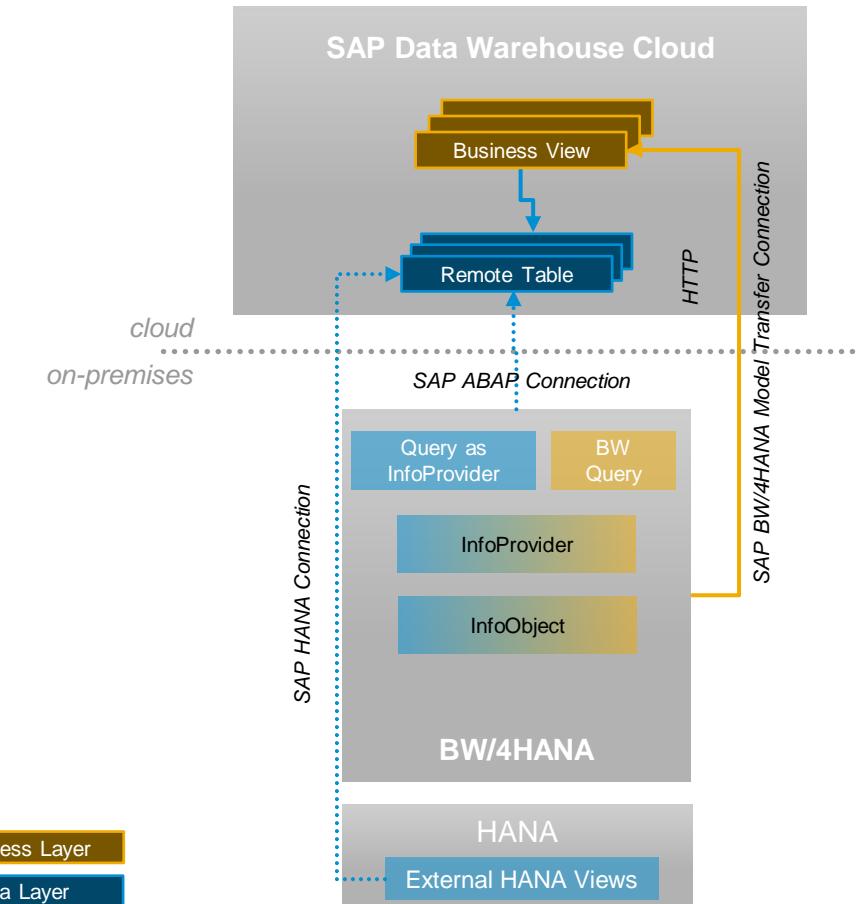
- Define views on top of remote, replicated or local tables
 - Create views of type: Analytical Dataset, Dimension, Text, Hierarchy or Relational Dataset
 - Define measures & attributes in Analytical Datasets
 - Create Parent-Child or Level-based Hierarchies in Dimension Views
 - Support multi-language text fields
 - Define Exposure for Consumption & Sharing with other spaces
 - Apply Data Access Controls and Input Parameters
 - Create and Schedule View Persistency
 - Graphical View Editor
 - Define unions, joins and aggregations, rename and remove columns, add calculations and filters
 - Preview the data at each node and display the corresponding SQL Statement
 - SQL & SQL-Script Editor for Developers





Manage SAP BW/4HANA Model Transfer

- Provide SAP BW/4HANA business semantics to SAP Data Warehouse Cloud
- Enable staging scenarios for SAP BW/4HANA data & virtual models
- Transfer BW Query as native entity (KPI, analytic model)
- Support BW Analysis Authorizations in SAP Data Warehouse Cloud*
- Hierarchy Support (virtual, available via semantics, native SAP Data Warehouse Cloud dimension with hierarchies)*
- SAP BW/4HANA system only acts remote data source, calculation engine execution (via MDS) happens in SAP Data Warehouse Cloud
- More information about supported features in [SAP Note 2932647](#)



* According to the [SAP Data Warehouse Cloud Roadmap](#).



Manage. Open SQL Schema Modeling

- External tools can create artifacts in an Open SQL Schema of a Space
- Connect via 3rd party SQL client like SAP Database Explorer directly from Space Management
- Usage of SAP HANA SQL capability (DDL & DML)
 - Create views, tables
 - Define & execute stored procedures
 - Leverage Data Anonymization and Data Masking
 - Automated Predictive Library (APL) and Predictive Analysis Library (PAL), if enabled in Space

The screenshot shows the SAP HANA Database Explorer interface. On the left, the 'Catalog' tree view is expanded, showing various database objects like Adapters, Agent Groups, Agents, Column Views, Cubes, Functions, Graph Workspaces, Indexes, JSON Collections, Libraries, Procedures, Public Synonyms, Remote Sources, Remote Subscriptions, Schemas, Sequences, Synonyms, Table Types, Tables, Tasks, and Triggers. In the center, there are two tabs: 'SQL Console 1.sql' and 'SQL Console 4.sql'. The 'SQL Console 1.sql' tab contains the following SQL code:

```
1  SELECT * FROM "SalesOrderItems" AS "SALESORDERITEM"
2  WHERE "SALESORDERITEM"."SALESORDERID" = "SALESORDERS"."SALESORDERID"
3  ORDER BY "SALESORDERITEM"."NETAMOUNT" DESC
4  LIMIT 10;
```

The 'SQL Console 4.sql' tab contains a more complex query:

```
1  SELECT *
2  FROM "SalesOrderItems" AS "SALESORDERITEM"
3  WHERE "SALESORDERITEM"."SALESORDERID" = "SALESORDERS"."SALESORDERID"
4  GROUP BY "SALESORDERITEM"."SALESORDERID"
5  ORDER BY "SALESORDERITEM"."NETAMOUNT" DESC
6  LIMIT 10;
```

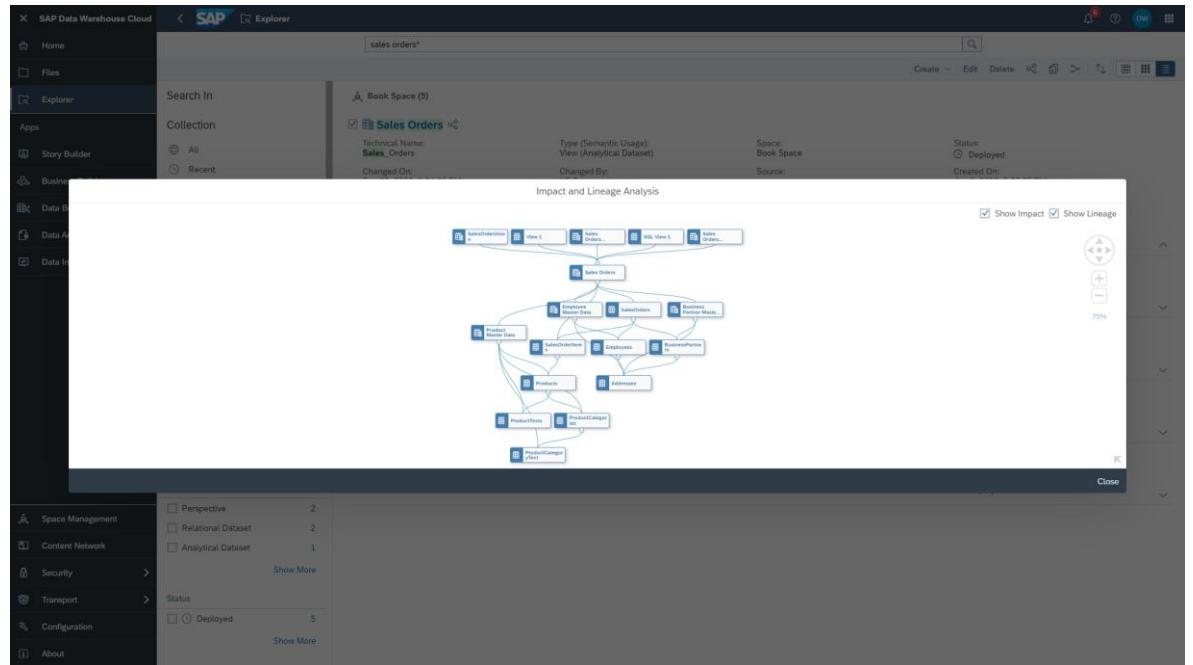
On the right, the 'Result' tab displays the query results. The table has 12 columns: SALESORDERID, SALESORDERITEM, PRODUCTID, NOTEID, CURRENCY, GROSSAMOUNT, NETAMOUNT, TAXAMOUNT, ITEMATPSTATUS, OPITEMPOS, QUANTITY, QUANTITYUNIT, and DE. The data is as follows:

SALESORDERID	SALESORDERITEM	PRODUCTID	NOTEID	CURRENCY	GROSSAMOUNT	NETAMOUNT	TAXAMOUNT	ITEMATPSTATUS	OPITEMPOS	QUANTITY	QUANTITYUNIT	DE
1	0500000057	0000000040	CC-1022	USD	1200.00	1050.00	150.00	I		1.000	EA	ZC
2	0500000025	0000000090	EB-1134	USD	4800.00	4200.00	600.00	I		6.000	EA	ZC
3	0500000034	0000000030	RC-1052	USD	3999.00	3499.13	499.87	I		3.000	EA	ZC
4	0500000021	0000000070	BK-1014	USD	799.00	699.12	99.87	I		10.000	EA	ZC
5	0500000020	0000000010	CB-1161	USD	399.00	349.12	49.88	I		8.000	EA	ZC
6	0500000081	0000000020	RC-1055	USD	1999.00	1749.13	249.87	I		2.000	EA	ZC
7	05000000248	0000000020	MB-1034	USD	2499.00	2186.63	312.37	I		10.000	EA	ZC
8	05000000261	0000000080	EB-1137	USD	7900.00	6912.50	987.50	I		2.000	EA	ZC
9	0500000171	0000000050	RC-1055	USD	1999.00	1749.13	249.87	I		7.000	EA	ZC
10	0500000128	0000000060	BK-1012	USD	399.00	349.12	49.88	I		8.000	EA	ZC
11	0500000063	0000000040	EB-1132	USD	1900.00	1662.50	237.50	I		10.000	EA	ZC
12	05000000448	0000000010	BK-1013	USD	449.00	392.87	56.13	I		5.000	EA	ZC



Manage. Repository Explorer

- One entry point for all Business and Data Layer objects
- Start all modeling activities from one place
- Get an instant overview on all available objects
- Intuitive Fuzzy Search Function
 - Sorting, Filtering, Grouping
 - Favorites list
 - For spaces, tags, business purpose,
- Governance and Modeling Life Cycle Management
 - Show Impact and data lineage
 - Artifacts comparison*
 - Approval and review workflows*



* According to the [SAP Data Warehouse Cloud Roadmap](#)

Use.





Use. The Unified Data and Analytics Service

ENABLING DATA DEMOCRATIZATION

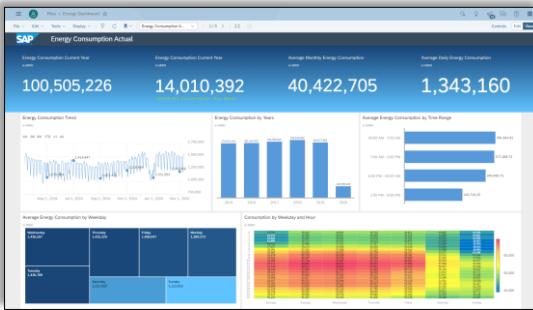
- ✓ Integrated Analytics
- ✓ 3rd Party Tooling supported
- ✓ Business Content





Use. Choice and openness with prebuilt business content

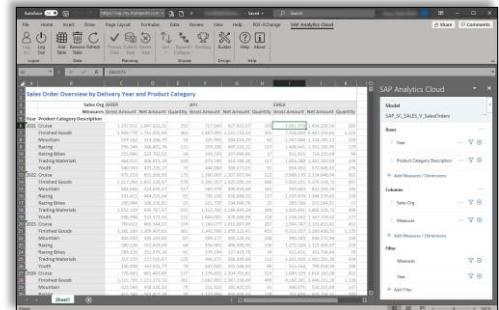
SAP Analytics Cloud



One seamless user experience

- Direct consumption of models in SAP Analytics Cloud (live connection)
- Any number of SAP Data Warehouse Cloud systems can be connected to any number of SAP Analytics Cloud systems

MS Office Add-in



Live Connection to MS Excel

- Direct consumption of models in SAP Analytics Cloud, add-in for Microsoft Office (live connection)
- Use Microsoft Office 365 online or desktop version
- Add-in available via Microsoft Store

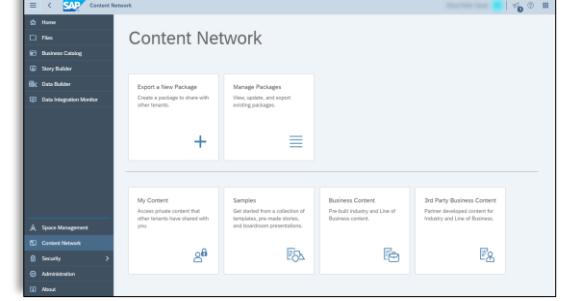
3rd Party API



3rd Party API for consumption

- Freedom of choice
- Use consumption interface to connect any 3rd-party front end tool to your exposed views
- Make your data models accessible for consumption tools & applications

Business Content



Business accelerators

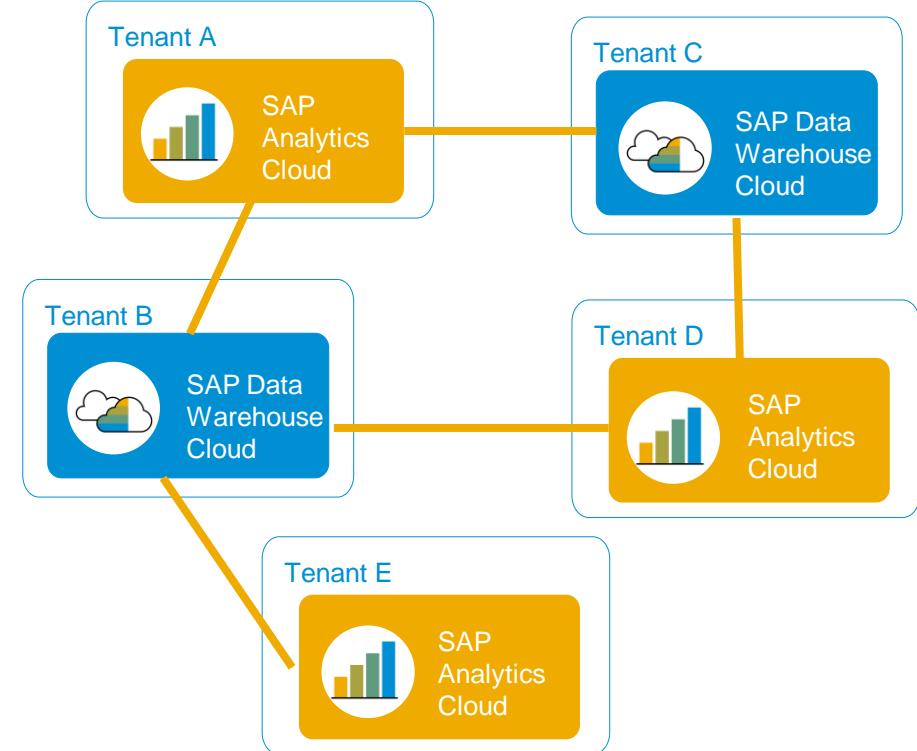
- Content packages ready to use and accelerate your project
- Packages SAP and partners for various LOB and industry scenarios
- Separate packages for data models and visualizations

* According to the [SAP Data Warehouse Cloud Roadmap](#)



Use SAP Analytics Cloud & SAP Data Warehouse Cloud

- Regardless of the tenant any SAP Data Warehouse Cloud can be connected across tenants to any SAP Analytics Cloud
- SAP Data Warehouse Cloud systems are connected via Live Connector
- The live connectivity needs to be set up manually
- SAP Data Warehouse Cloud remote connections can also be set up for SAP Analytics Cloud NEO tenants
- SAP Analytics Cloud and SAP Data Warehouse Cloud can run in different release cycles



SAP Note: [2832606 - Limitations with Live Connections](#)



Use SAP Analytics Cloud, add-in for Microsoft Office

- Live connection support for SAP Data Warehouse Cloud via the SAP Analytics Cloud, add-in for Microsoft Office
- Ability to connect live to source data sets in SAP Data Warehouse Cloud and create Excel reports.
- Use Microsoft Office 365 online or desktop version
- Add-in available via Microsoft Store
- Find more information
 - SAP Community for the [SAP Analytics Cloud, add-in for Microsoft Office](#)
 - Learn how to use it: [A perfect couple: SAP Data Warehouse Cloud & SAP Analytics Cloud, add-in for MS Office](#)

Category	Account	Product Type	Product	Actual		Budget		Unit Price	Actual-Budget Unit Price Difference
				Units Sold	Order Value	Units Sold	Order Value		
Mountain	C900 Bike	47,436.00	1,654,564.00	52,179.60	1,820,020.40	\$ 34.88	\$ 34.88	\$ 34.88	\$ 0.00
	C950 Bike	46,632.00	1,607,795.00	51,295.20	1,768,574.50	\$ 34.48	\$ 34.48	\$ 34.48	\$ 0.00
	M525 Bike	51,113.00	1,768,885.00	56,224.30	1,945,773.50	\$ 34.61	\$ 34.61	\$ 34.61	\$ 0.00
	M550 Bike	46,171.00	1,313,741.00	50,788.10	1,445,115.10	\$ 28.45	\$ 28.45	\$ 28.45	\$ 0.00
	eBike E148	59,616.00	2,283,415.00	65,577.60	2,511,756.50	\$ 38.30	\$ 38.30	\$ 38.30	\$ 0.00
Racing	C990 Bike	51,256.00	1,772,202.00	46,130.40	1,929,927.98	\$ 34.58	\$ 34.58	\$ 41.84	\$ -7.26
	R100 Bike	57,378.00	1,875,490.00	51,640.20	2,135,245.37	\$ 32.69	\$ 32.69	\$ 41.35	\$ -8.66
	R200 Bike	51,035.00	1,712,061.00	45,931.50	1,540,854.90	\$ 33.55	\$ 33.55	\$ 33.55	\$ 0.00
	R300 Bike	48,112.00	1,605,567.00	43,300.80	1,445,010.30	\$ 33.37	\$ 33.37	\$ 33.37	\$ 0.00



Use 3rd Party Data Consumption API

- Enabling read access for external consumption tools or applications via a database user with read privileges
- Consume exposed data models from your space
- Provide SQL endpoint to dedicated space schema
- Connect with 3rd party SQL client

The screenshot shows the SAP Space Management interface for the 'Energy Data' space. The main menu bar includes 'SAP', 'Space Management / Energy Data', and various navigation icons. The top navigation bar has tabs for 'Overview', 'Members', 'Connections', 'Database Access', 'Time Data', and 'Auditing'. The 'Database Access' tab is selected.

Data Consumption: A section with the sub-section 'Expose for Consumption by Default' set to 'ON'. It also includes a note about exposing views by default for consumption.

Database Users: A table listing database users with checkboxes for 'Database User Name' and their corresponding 'Read', 'Read (HDI)', 'Write', and 'Status' permissions.

HDI Containers: A section with the sub-section 'Enable access to your SAP HANA Deployment Infrastructure (HDI) so clients can access your space data.' It includes a checkbox for 'HDI Container Name' and a note that no HDI containers are currently listed.

Edit Privileges (Modal): This modal is open over the main interface. It contains sections for 'Edit Privileges', 'Read Access to the Space Schema', 'Write Access to the User's Open SQL Schema', and 'Audit Logs'.

- Edit Privileges**: Includes checkboxes for 'Enable Password Policy' and 'Read Access to the Space Schema'.
- Read Access to the Space Schema**: Includes a 'Space Schema' dropdown set to 'ENERGY' and a checked checkbox for 'Enable Read Access (SQL)'.
- Write Access to the User's Open SQL Schema**: Includes an 'Open SQL Schema' dropdown set to 'ENERGY#CONSUMPTION' and checkboxes for 'Enable Write Access (SQL, DDL, & DML)', 'Enable Audit Logs for Read Operations and Keep Logs for [30] Days', and 'Enable Audit Logs for Change Operations and Keep Logs for [30] Days'.
- Audit Logs**: Includes checkboxes for 'Enable Audit Logs for Read Operations and Keep Logs for [30] Days' and 'Enable Audit Logs for Change Operations and Keep Logs for [30] Days'.

Buttons at the bottom of the modal: 'Save' and 'Cancel'.



Use Business Content

SAP Business Content

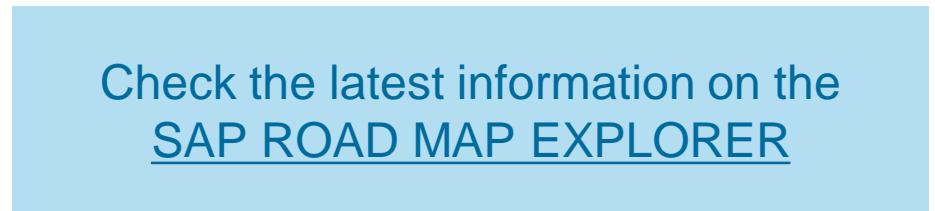
Enterprise Analytics for Procurement SAP Ariba	Spend Analytics SAP Ariba	Responsive Supply Network, Sales and Inventory Automotive	Revenue Growth Management Consumer Products	Finance for SAP S/4HANA Cloud
Financial Analytics Dashboard for SAP Analytics Cloud SAP S/4HANA	POS Analytics Retail	Life Science Dashboard SAP SCM	Statistical Process Control SPC	Customer Value Management Telecommunication

Partner Business Content

Marketing Analytics Adverity	Customer Service Insights Bitech	E-Commerce - Cross Marketplace Insights datazeit	Procurement Cockpit CubeServ	Sales Dashboard IBSolution
Optimizing Order Fulfillment with ML Inspired Intellect	Analytics for Effective Inventory Optimization ISR	SuccessFactors / Attendance Tracker KPC	Product Cost Simulation mib:NDC	Sales Insights (SAP BW & Salesforce) PWC

More information about the [Business Content](#) the [SAP Data Warehouse Cloud Community](#).
Partner Content also listed on [SAP Store](#).

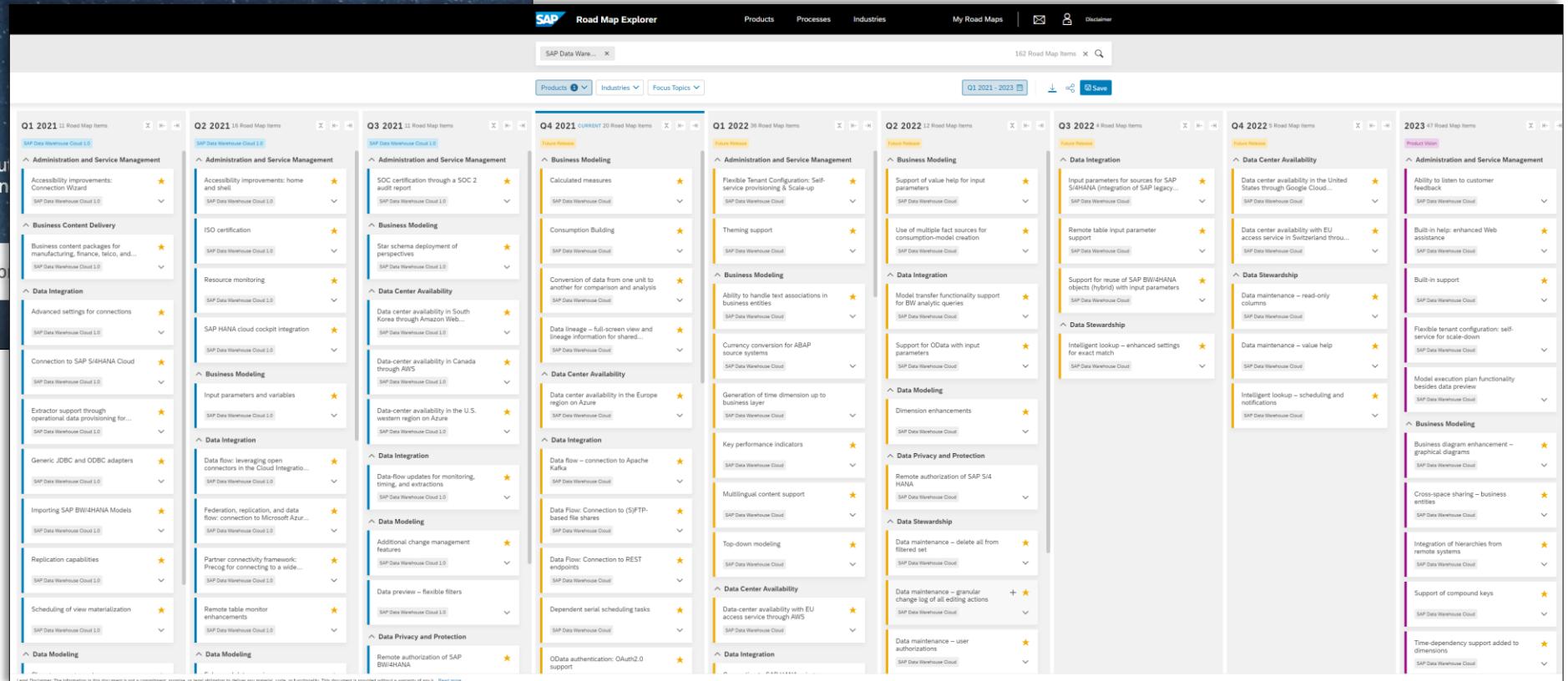
SAP Data Warehouse Cloud. SAP Road Map Explorer



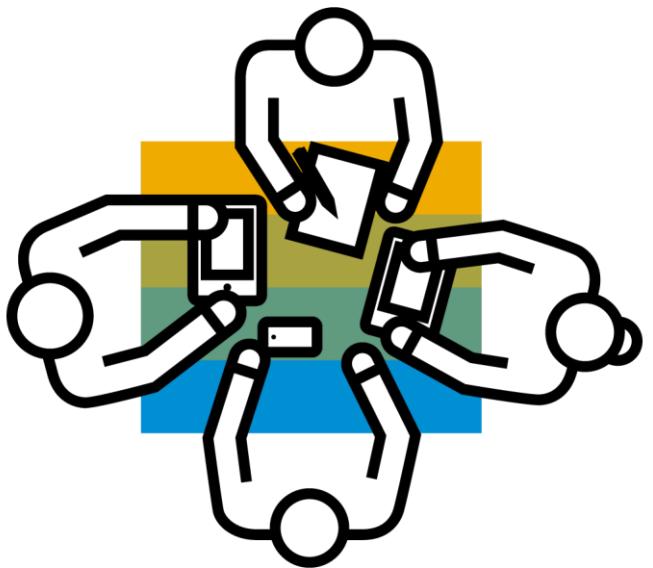
SAP Road Maps

SAP Road Maps support the journey to SAP's future Enterprise. Explore our road maps, webinars, and

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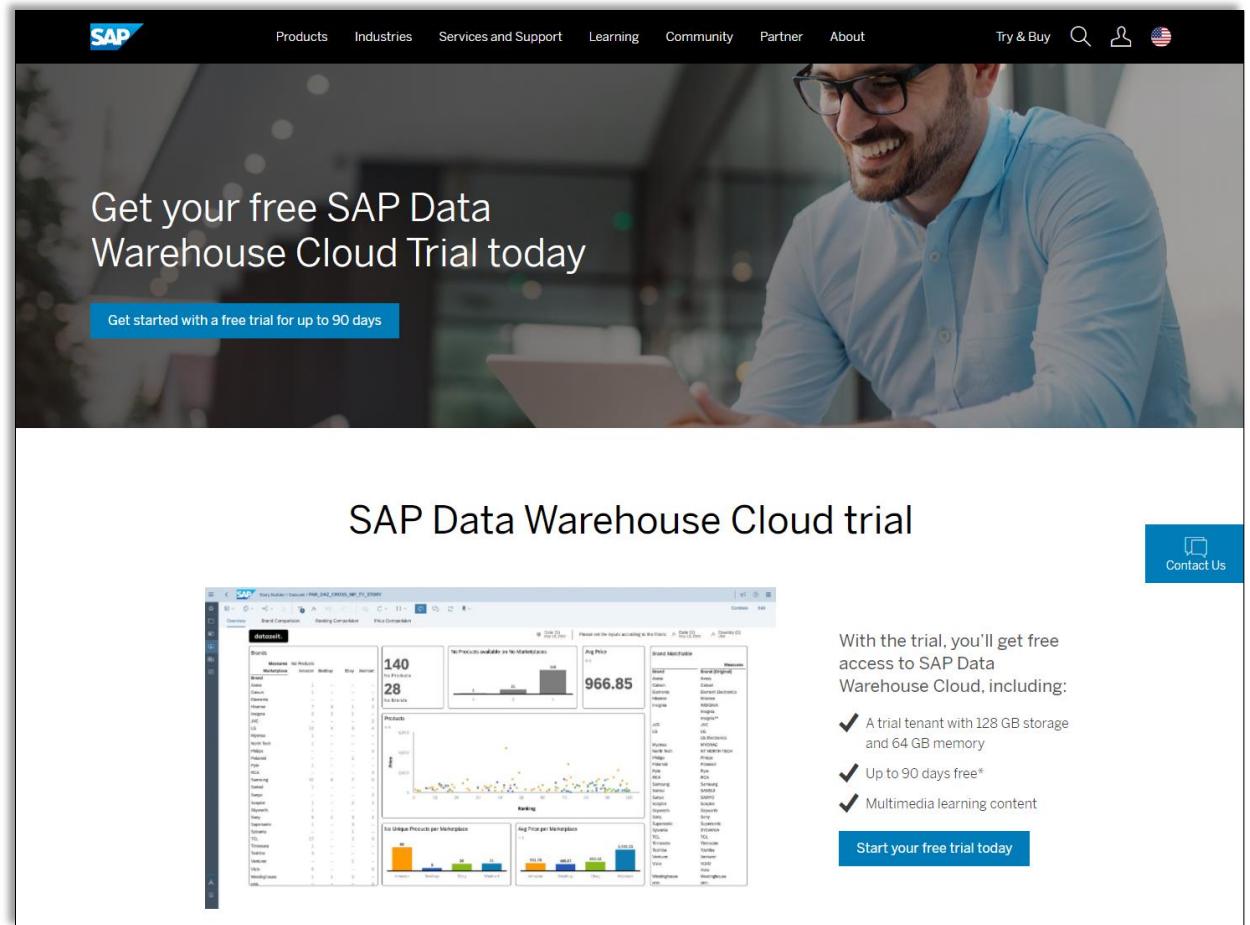


Get your **free trial for** **up to 90 days** today



<https://www.sap.com/products/data-warehouse-cloud/trial.html>

User the [sample content](#).



The screenshot shows the SAP Data Warehouse Cloud trial landing page. At the top, there's a navigation bar with links for Products, Industries, Services and Support, Learning, Community, Partner, About, Try & Buy, a search icon, a user icon, and an American flag icon. Below the navigation is a large banner featuring a smiling man in a blue shirt looking at a laptop. The banner text reads: "Get your free SAP Data Warehouse Cloud Trial today" and "Get started with a free trial for up to 90 days". Below the banner is a section titled "SAP Data Warehouse Cloud trial" showing a screenshot of the SAP Data Warehouse Cloud interface with various data visualizations and tables. To the right of the interface is a list of trial benefits: "With the trial, you'll get free access to SAP Data Warehouse Cloud, including:" followed by three bullet points: "A trial tenant with 128 GB storage and 64 GB memory", "Up to 90 days free*", and "Multimedia learning content". At the bottom right is a blue button labeled "Start your free trial today".

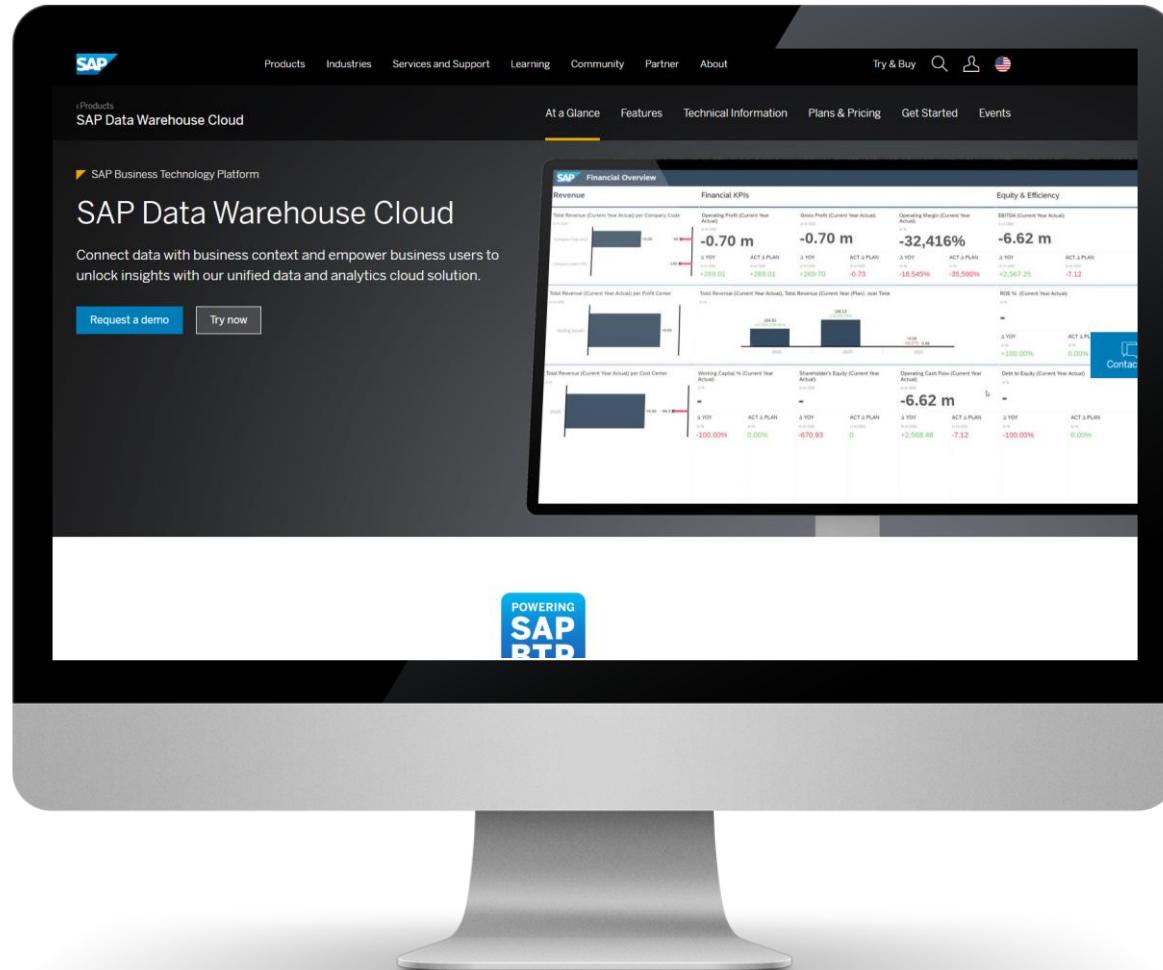
With the trial, you'll get free access to SAP Data Warehouse Cloud, including:

- ✓ A trial tenant with 128 GB storage and 64 GB memory
- ✓ Up to 90 days free*
- ✓ Multimedia learning content

[Start your free trial today](#)

SAP Note on Trial restrictions [3007887](#)

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* Pearson VUE, [Study Reveals Value of IT Certification in Challenging Times](#), 2021.

Thank you.

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