



# SAP Data Warehouse Cloud

Kenneth Dalvik - SAP Svenska

PUBLIC



THE BEST RUN 

# AGENDA

- Intro & principles
- SAP Data Warehouse Cloud
- Demo
- Prebuilt Content
- Summary



# Main themes & principles

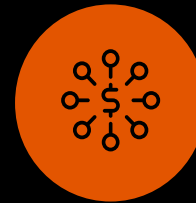


**Agility, flexibility, openness and innovation are key themes**



## **Embedded analytics: Reporting & analysis at source**

Operational reporting done directly in transaction system where applicable



## **Tactical & strategic reporting & analysis in data warehouse platform**

A data platform is required when data from several sources are needed and when history of data is required.



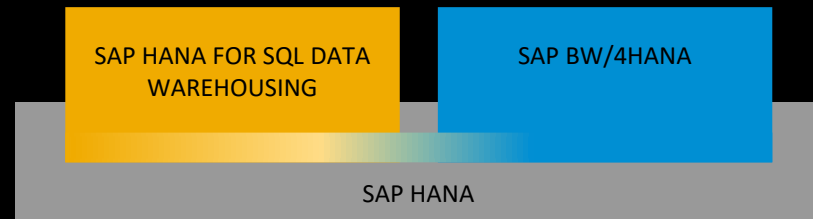
**SAP offers several flavours of data warehousing solutions;** On-premise, hybrid or Cloud



**ML and AI is built in to the analytical applications and data platforms**

# SAP Data platform & Analytics

## Complete offering & statement of direction



### ANYPREMISES

**SAP BW/4HANA** and **SAP HANA for SQL data warehousing** are the strategic solutions for on-premises and private cloud data warehousing.



### HYBRID

SAP Data Warehouse Cloud extends your existing data warehousing investment to support **hybrid cloud**.



### CLOUD

**SAP Data Warehouse Cloud** is the strategic public cloud product offered as a software service managed by SAP.



# Forrester Wave: Data Management for Analytics, Q1 2020





# SAP Data Warehouse Cloud

**A scalable, open, and persona-driven warehouse as-a-service tailored for business and IT**

Version 2020.21

PUBLIC



# Data Warehouse Cloud Overcomes Traditional Problems and Enables New Solutions



Limited data access



## COLLABORATIVE

Combine information from enterprise data sources and external data sources in spaces dedicated to a specific line of business or use-case



Lengthy time to value



## END-TO-END

Gain instant value with pre-built business content and self-service data modeling. Get in control



Lack of real-time data

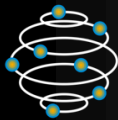


## FAST

Power of SAP HANA and in-memory technology for the fastest analytical and database experience and use federation technology to combine sources virtually



High entry costs



## ELASTIC

Flexible and simplified package pricing. Pay for what you use – no strings attached

# SAP Data Warehouse Cloud

“SAP Data Warehouse Cloud is the strategic public cloud product for all **data warehouse scenarios** in the cloud.”



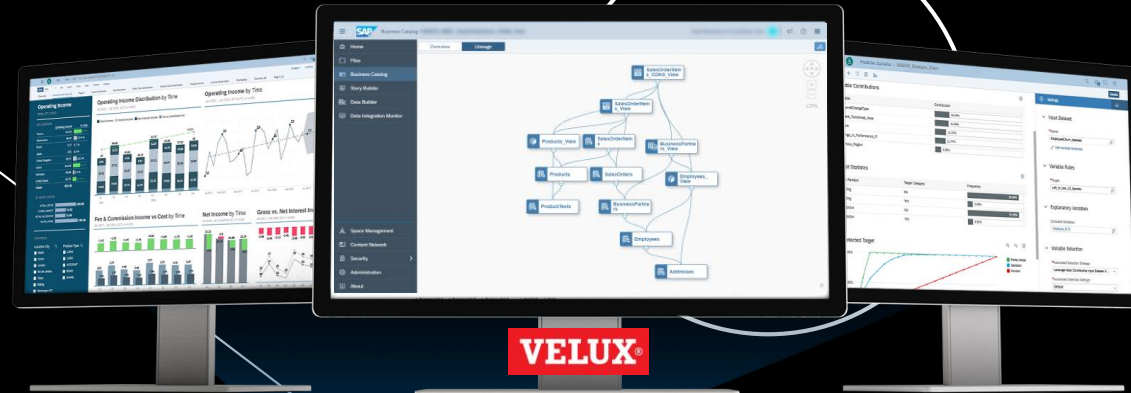
**Self-Service** Data  
Modeling & Analytics



**Enabling** Data  
Democratization



**End-to-End** Data  
Warehousing





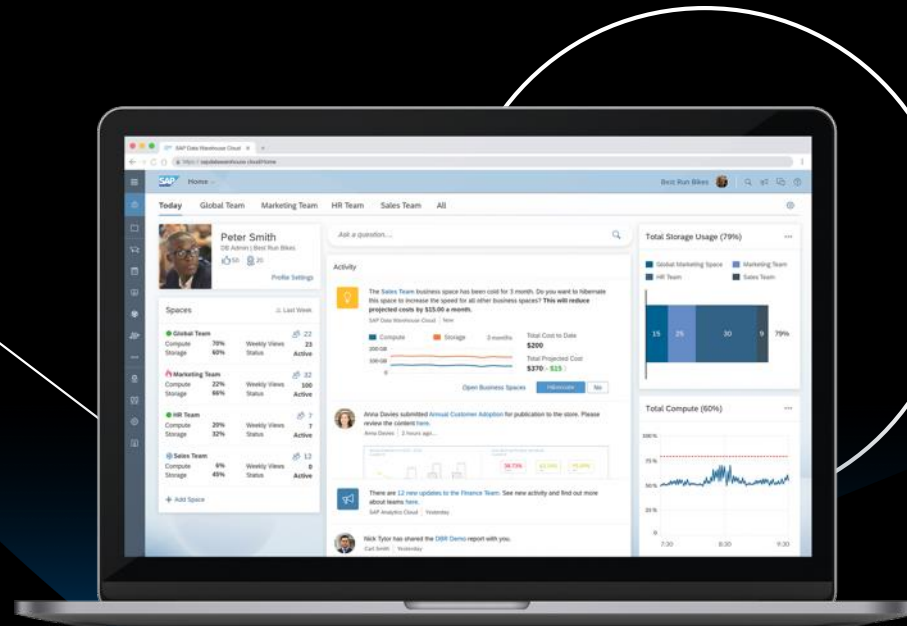
# SAP Data Warehouse Cloud is \_\_\_\_\_.

## COLLABORATIVE

Designed for both enterprise IT and line of business users to manage and gain valuable insights. Self-service data modeling.

## FAST

Leverage the power of SAP HANA to instantly access the data you need, when you need it, without front-loaded costs. Use federation technology to combine sources virtually



## END-TO-END

Integrate data from any source and consume with powerful native analytics and business semantics.

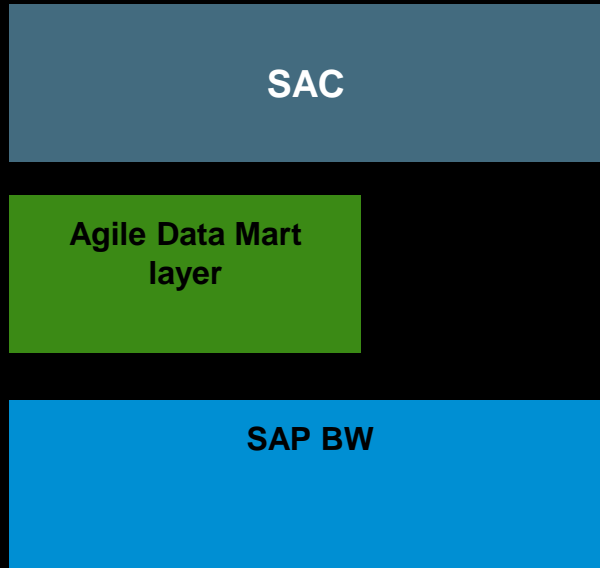
## ELASTIC

Only pay for what you use and re-allocate resources quickly and easily across different use-cases and lines of business. Separation of storage & compute

# Use case examples



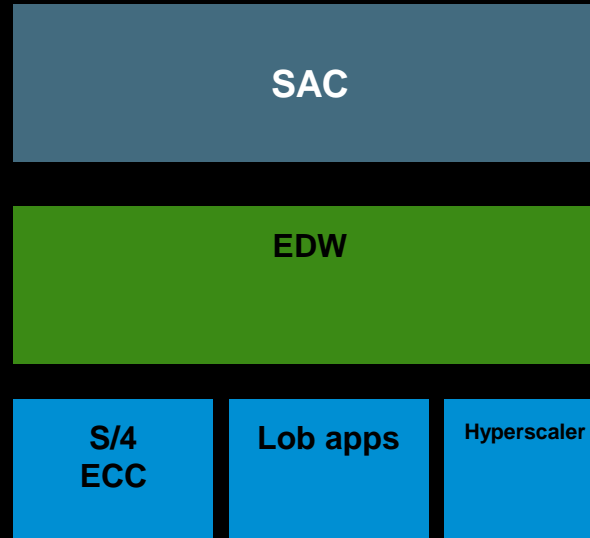
## Self-service Data modeling



- Extend SAP BW with SAP DWC
- Self-service data modeling & Analytics ( Agile Data mart + BI tool)



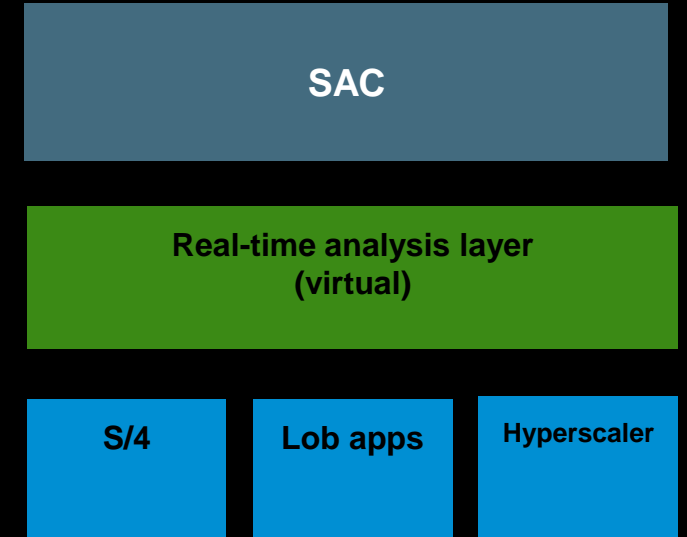
## EDW



- Modern Cloud DW + more
- SAP DWC & HANA Cloud = True
- Powerful analytics
- Data lake included



## Operational cross system analysis



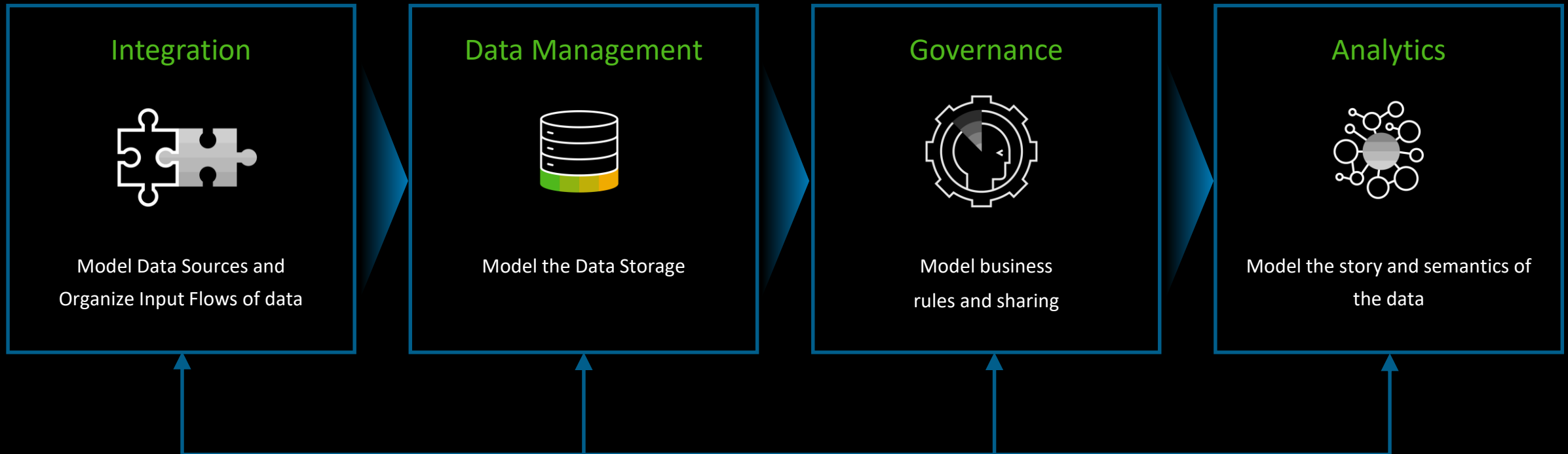
- Prebuilt content
- Real-time analytics on multiple systems incl Hyperscalers

# Key Features



## The Problem: Most Solutions only Manage Data

Most solutions only focus on the data management. A change in one part, often means manually changing the other parts.

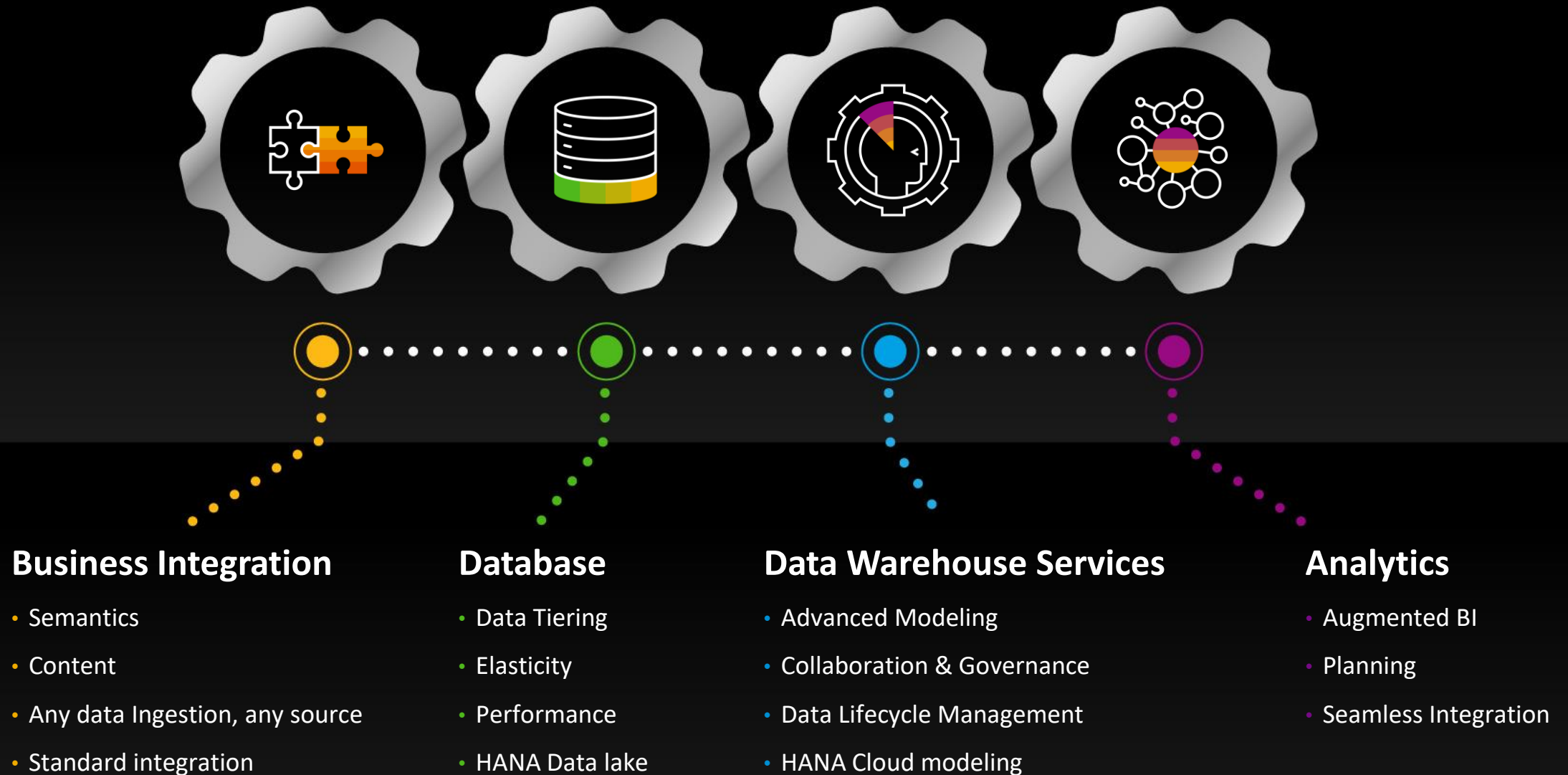


Traditional solutions solve each stage with a different tool and a different model. The end user is left to reconcile models as and when they change.



# SAP Data Warehouse Cloud

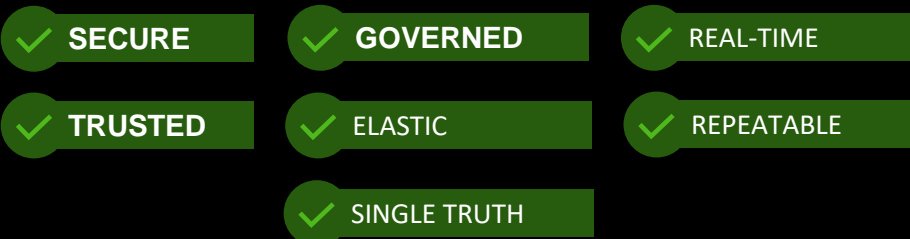
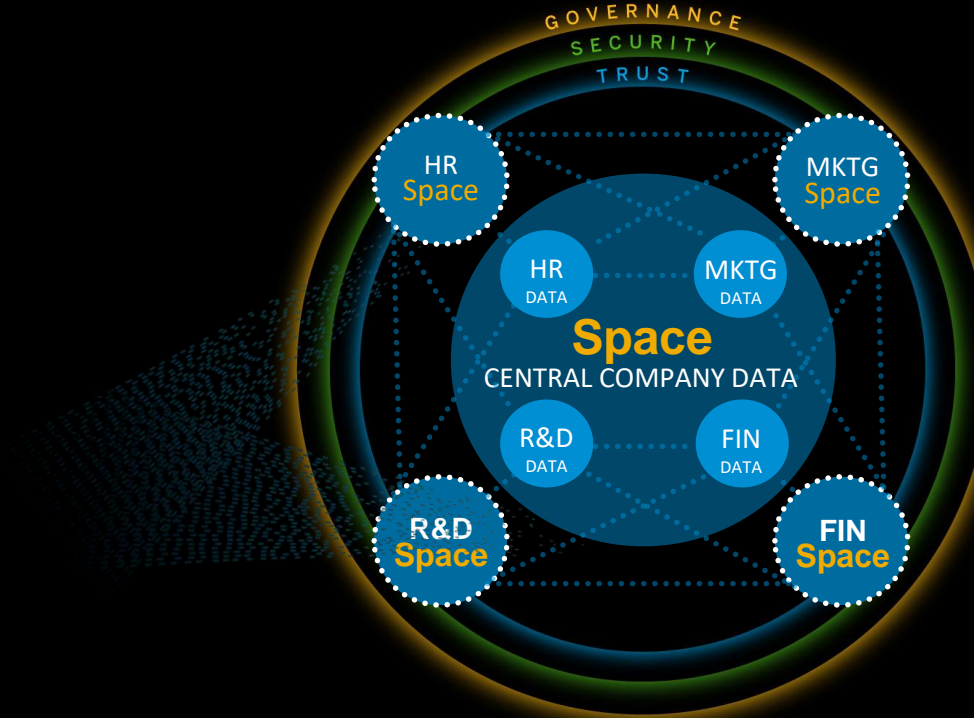
The **most complete end-to-end enterprise-grade** data warehouse in the cloud



# The Solution: Spaces empowers LOB users while IT enforces security and governance

## Spaces are virtual

- Metadata object isolation
- Compute and storage elasticity
- Transparent monitoring & statistics
- Space permissions
- Connection management
- SAP HANA Data Lake Integration



## Spaces empower users

- Work collaborative
- Connect enterprise data and own data
- Analyze, plan, predict
- Create Stories
- Share insights

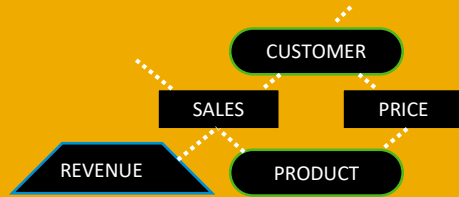


## Spaces empower IT

- Control provisioning and scale
- Enforce quality of service
- Govern enterprise data

# Business Layer helps you instantly understand data in business terms

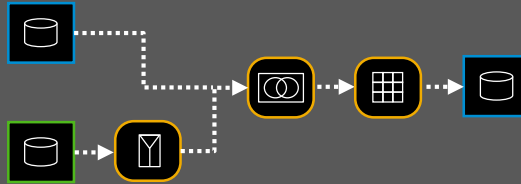
## BUSINESS LAYER



Users Work in Business Terms

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

## DATA LAYER



HANA handles the data model

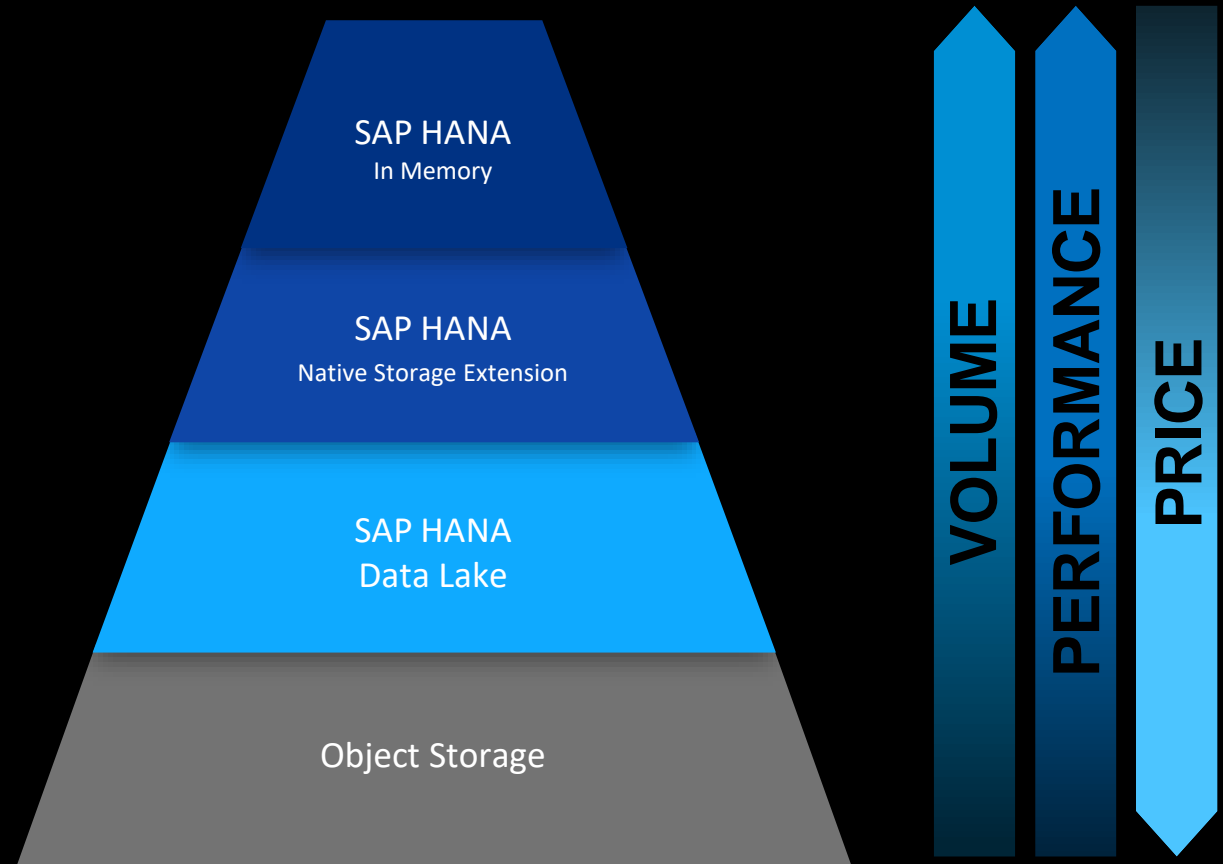
*"How can I assure queries will perform with data coming from heterogeneous systems?"*

- Represent business entities and relationships with business language
- Promote model standardization and reuse for greater efficiency
- Use your models to power visualizations once they are active
- Allow business users to work independently from IT

Allow business experts to **understand data and accelerate end-to-end decision making**

# Multiple storage options to meet your volume and performance needs

- **Smooth data tiering** - Hot, Warm, Cold storage
- **Scalability** - Separation of Compute & storage makes scalability easy
- **Inbuilt Data lake** - SAP HANA Data lake is optional , but built in. Easy to get started with.



Meet your cost/performance goals with efficient and scalable storage options



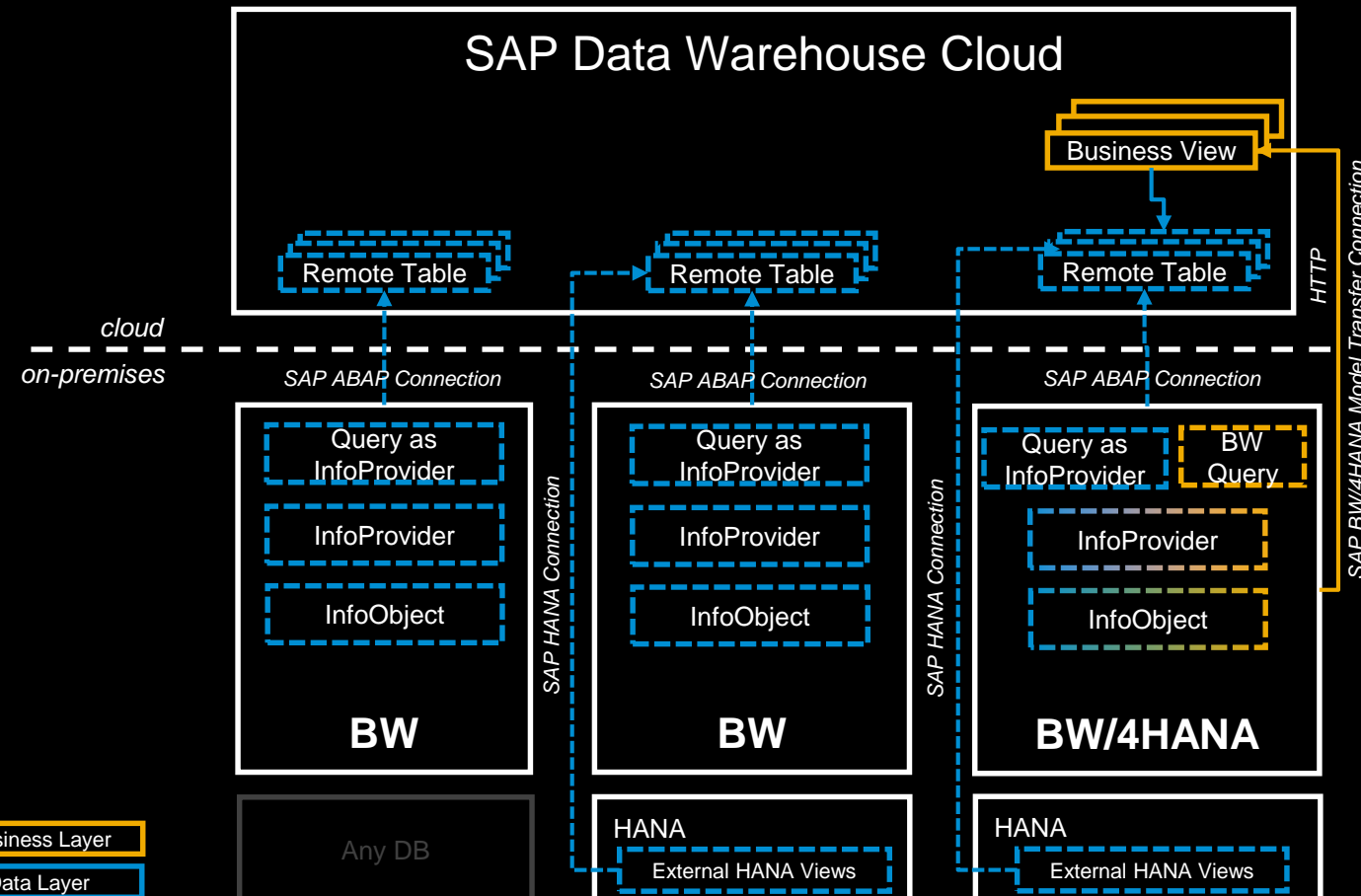
# Modeling & Architecture



# Data Sources & Ingestion: SAP BW Integration Overview



- Two different ways available for integrating SAP BW & SAP BW/4HANA systems:
  - Scenario 1: Federated/replicated **data consumption scenarios** via
    - Operational Data Provisioning framework (SAP ABAP connection)
    - External SAP HANA Views (SAP HANA connection)
  - Scenario 2: Federated/replicated **business semantics integration** scenarios via SAP BW/4HANA Model Transfer connection\*
- BW query as Business layer only available for SAP BW/4HANA via SAP BW/4HANA Model Transfer connection\*



# SAP Data Warehouse Cloud & SAP BW/4HANA

## Scenario 1 – Data layer

Ad-hoc data  
exploration



Powerful  
visualization

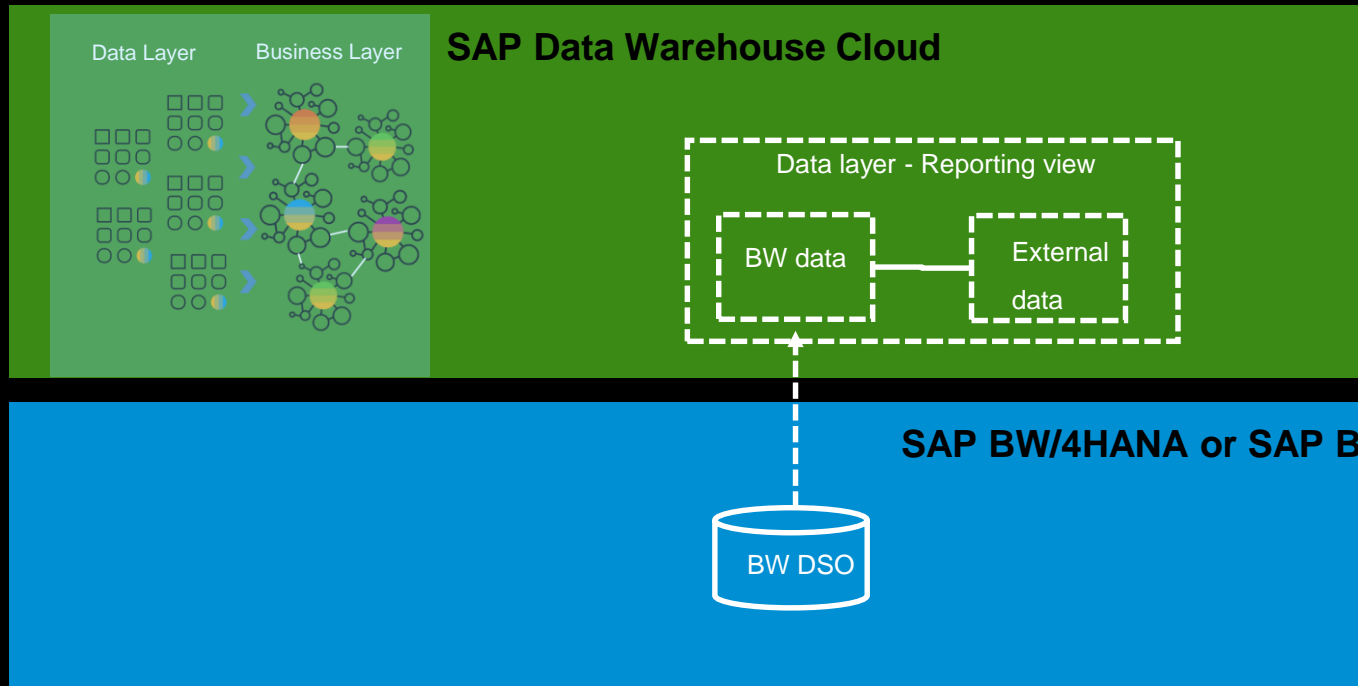


SAP Analytics

Intelligent  
augmentation



Business  
planning



# SAP Data Warehouse Cloud & SAP BW/4HANA

## Scenario 2 – Business & Data layer

Ad-hoc data  
exploration



Powerful  
visualization

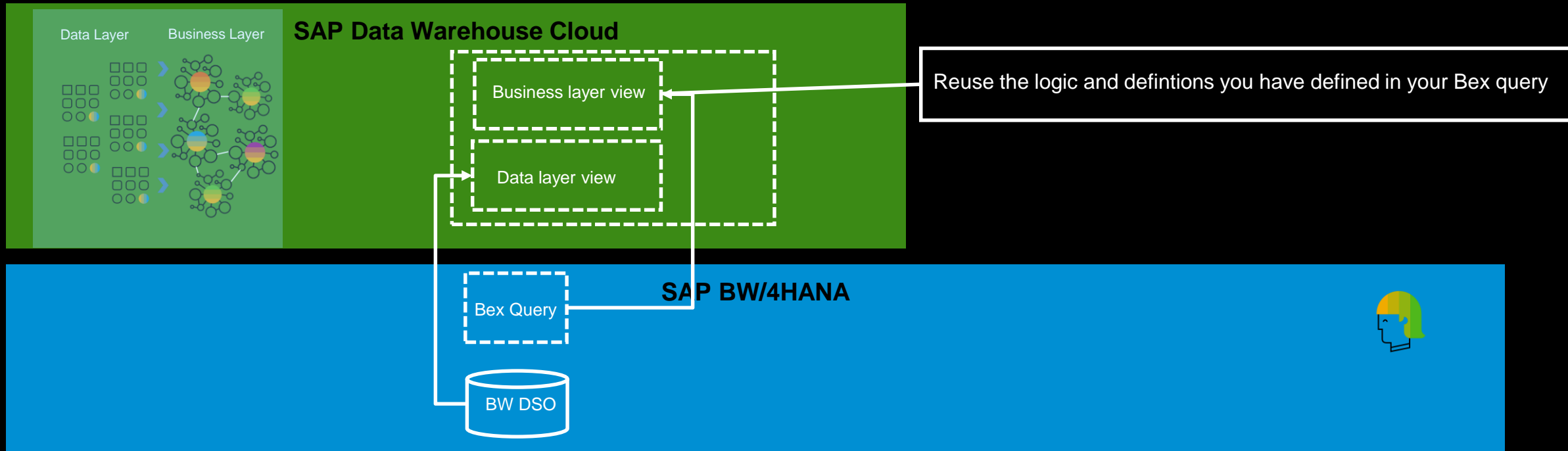


SAP Analytics

Intelligent  
augmentation



Business  
planning

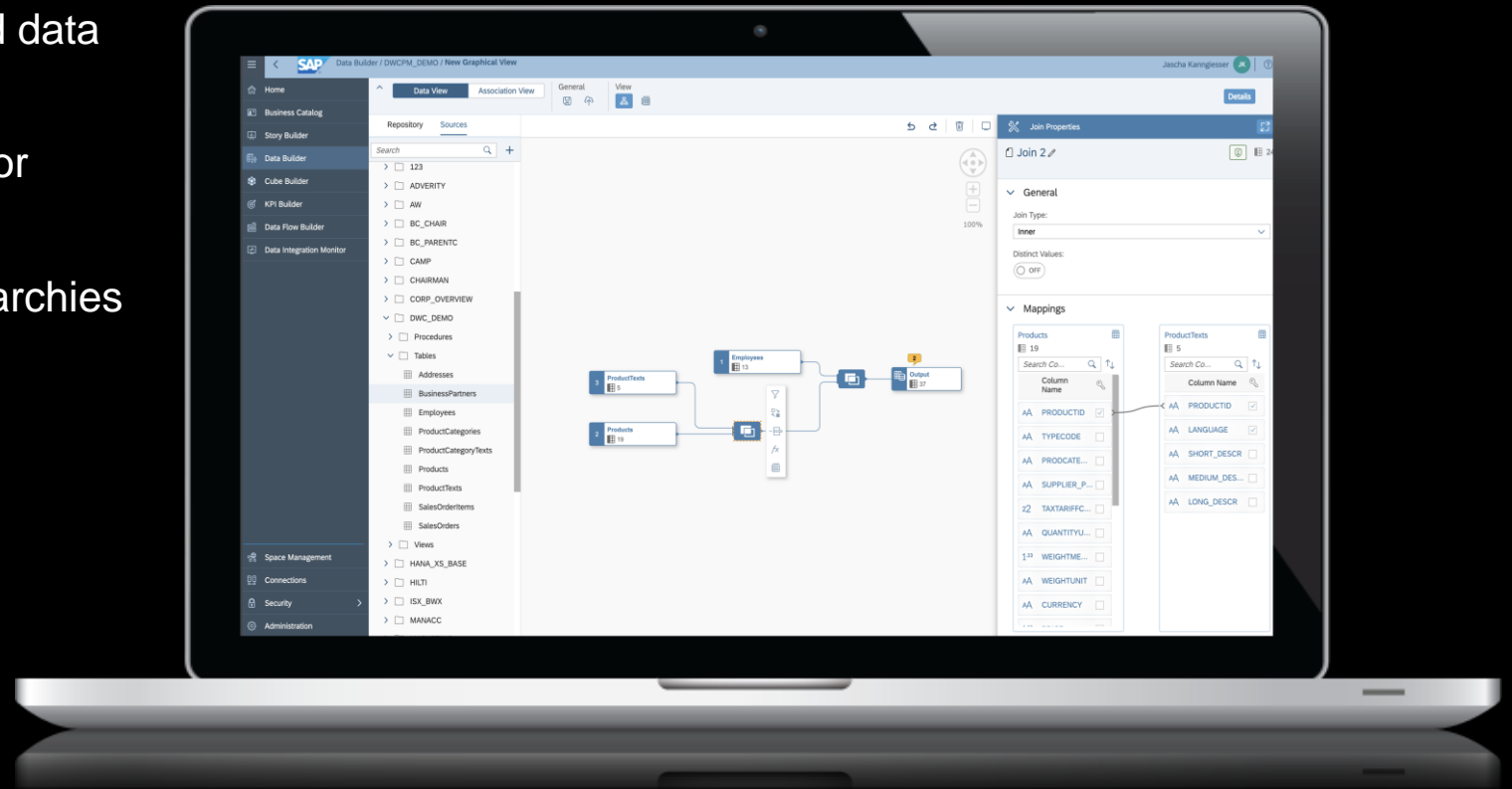






# Data Modeling Services: View

- Graphical or script-based (SQL & SQL Script) editor
- Define views on top of remote, replicated data sources, or tables
- Create Analytical Datasets, Dimensions or Relational Datasets
- Create Parent-Child or Level-based hierarchies in Dimension views

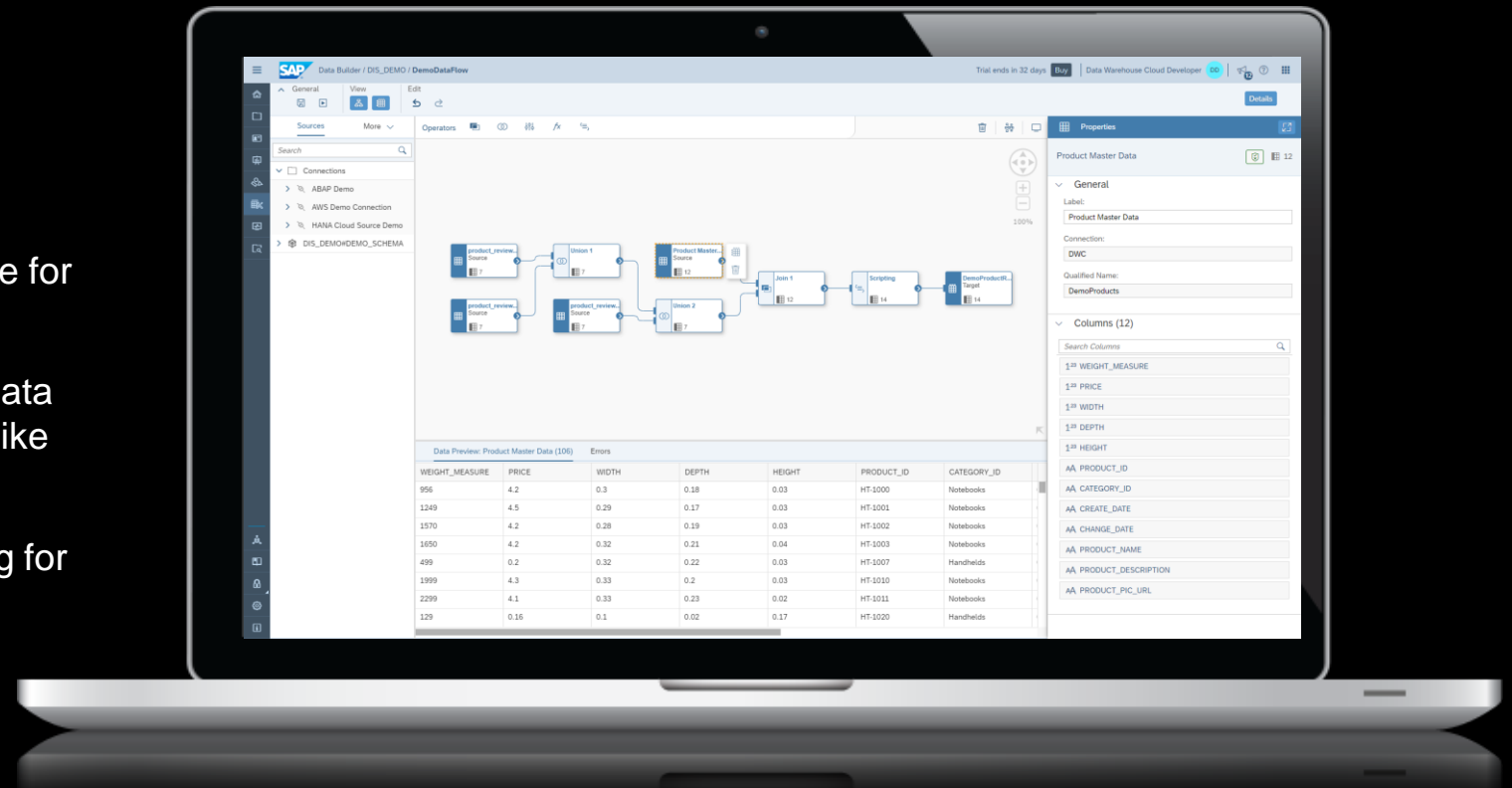


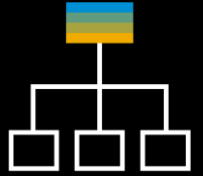


# Data Modeling Services: Data Flow – Overview

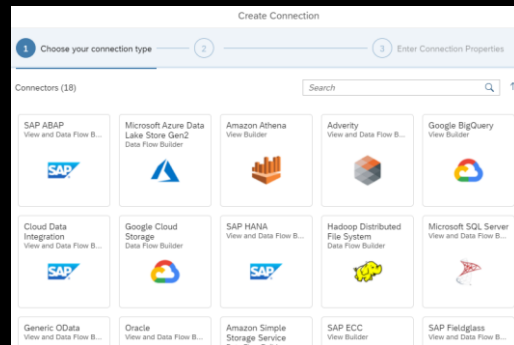
Data integration from various unstructured and structured data sources

- Easy to use data flow based modeling experience for ETL requirements
- Load and combine structured and unstructured 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



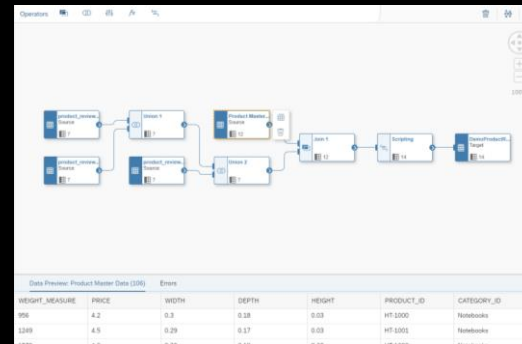


# Data Modeling Services: Data Flow – End to End process



## Create Connections

- Create a connection either in a central connection management or inside the context of a space
- show available Semantic objects



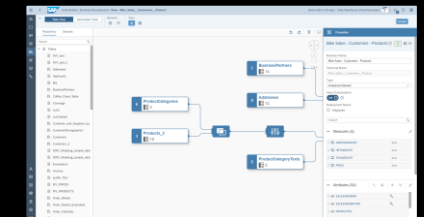
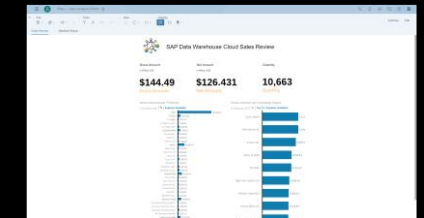
## Build Data Flow

- Browse data sources and select source data objects
- Browse table targets (from repository)
- Define transformations and map source data to target objects

Connection	Name	Partition Type	Status	Last Date	Data Rows (2024)	Qualified Rows
SAP ABAP	Product Master Data	Table	OK	2024-01-01	100	100
SAP ABAP	Product Master Data	Table	OK	2024-01-01	100	100
SAP ABAP	Product Master Data	Table	OK	2024-01-01	100	100

## Execute / Schedule Dataflow

- Trigger execution of data flow and see execution status
- Optionally: Schedule\* a data flow and find scheduled job in a job monitor

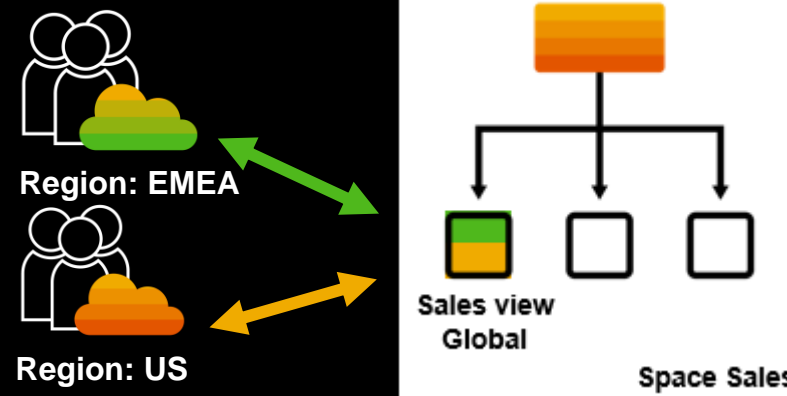
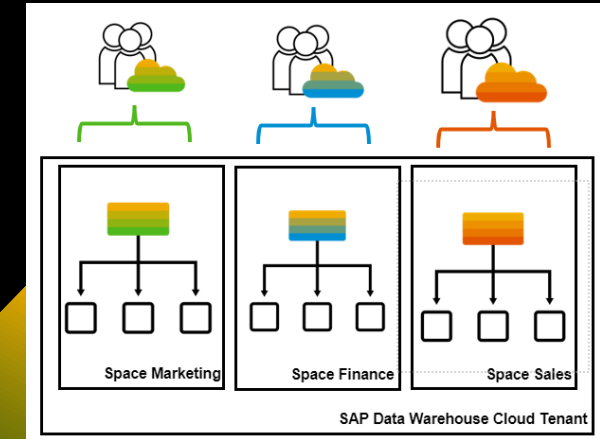


## Story Designer / Data Modeling

- Create story based on loaded data on top of data warehouse analytical artifacts
- Build new data models on integrate different data sources

# Security Services – Introducing Data Access Controls

- Fine granular access to certain slices of the data of a given view
- Based on authorizations (e.g. In a Sales View, User 'A' can only see data for region 'EMEA')





# Data Warehouse Cloud – Key benefits



## Data ingestion

- Open to any source
- Any Data ingestion method; Batch, real-time replication, streaming and federation



## Self-service data modeling

- Business users and IT collaborate around self-service models and self-service data pipelining



## Cloud Data warehouse

- View modeling or Data flows in one integrated tool
- Elastic price model & separation of storage & compute
- Quarterly releases of new functionality



## Database

- Data Tiering (Hot, Warm, Cold)
- Performance in every operation
- HANA engine: OLTP/OLAP , graph, spatial, text



## Analytics

- Augmented BI
- Planning
- Seamless Integration to SAP Analytics cloud
- Open to external BI tools



## Pre-delivered content SAP Semantics

- Pre delivered SAP content

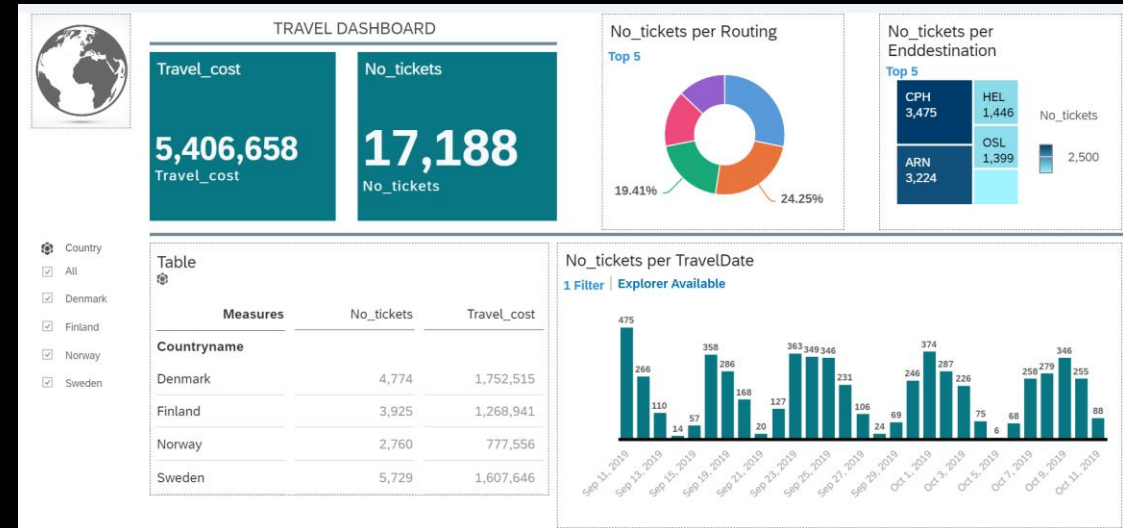
**DEMO**



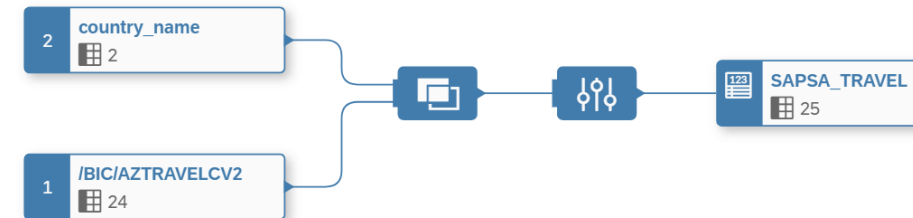
# Demo of Data warehouse cloud

## Demo steps:

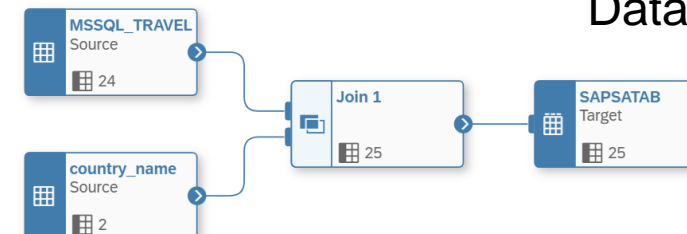
- Show DWC Welcome page
- Navigate in DWC (Space, Connection, Help)
- Build analytic dataset (View)
- Build Data Flow
- Build & Show SAC dashboard

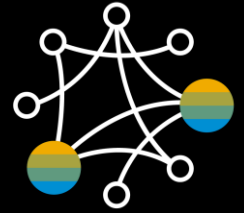


## View



## Data Flow





## Business Content Packages

### SAP Content

- Retail – Sales Analysis based on SAP Consumer Intelligence (Q2/2020) - **on SAP CAR & Sales Intelligence**
- CFO Dashboard: financial information, personnel costs and related Human Resource information will be integrated to provide a comprehensive view on the cost structure. (H2/2020)

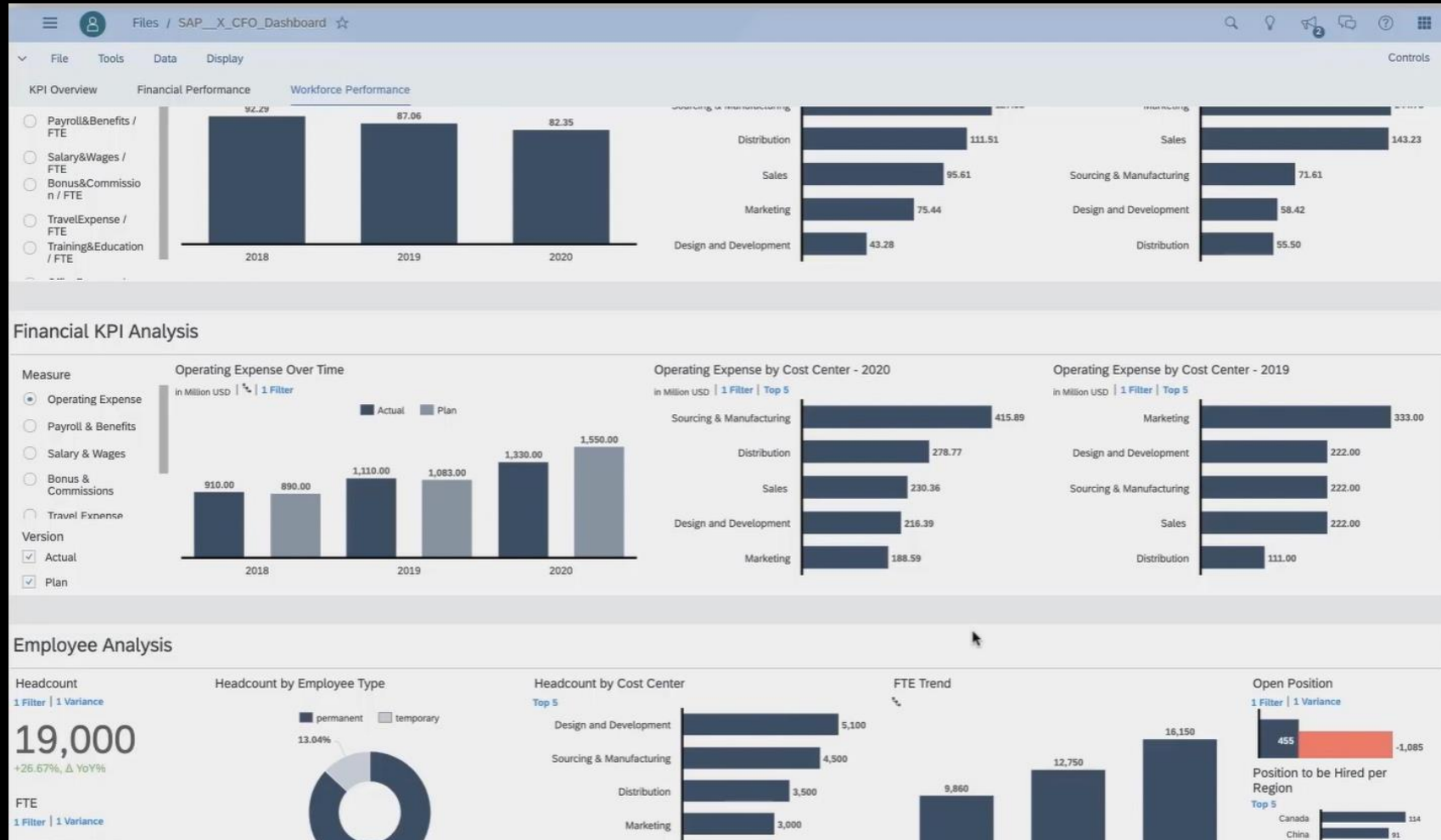
### Partner Content (Q2/2020) also listed [AppCenter](#)

- Adverity GmbH – Marketing Analytics for SAP Data Warehouse Cloud
- CubeServ: Procurement Cockpit for SAP Data Warehouse Cloud
- datazeit: E-Commerce Insights in SAP Data Warehouse Cloud
- Inspired Intellect: Optimizing Order Fulfillment with Machine Learning
- KPC: HR Cockpit - Automatic Attendance Tracker
- PwC: Sales Insights – One place, all your sales data
- Rizing: Lyra Integrated Capacity Planning
- s-peers AG: Financial Reporting for SAP Business One
- Westernacher: EWM Insights on Data Warehouse Cloud



# Example of Pre-built solutions for SAP Data Warehouse Cloud

Financial analytics – real-time analytics of S/4 HANA and Successfactors



# Example pre-built solutions from Partners

Real time layer ontop of several SAP EWM systems to get a holistic warehouse management view

Partner built content for EWM insights



# Flexible and simplified package pricing or pay for what you use

Keeping you in control



## PREDICTABLE

Choose what you need and spend what you plan.



## FLEXIBLE

Start small and grow at your pace.  
Add remove, and reallocate resources as needed.



## TRANSPARENT

What you see is what you get, no hidden costs.



## SIMPLE

Get all the features you need in one package.

### BENEFITS

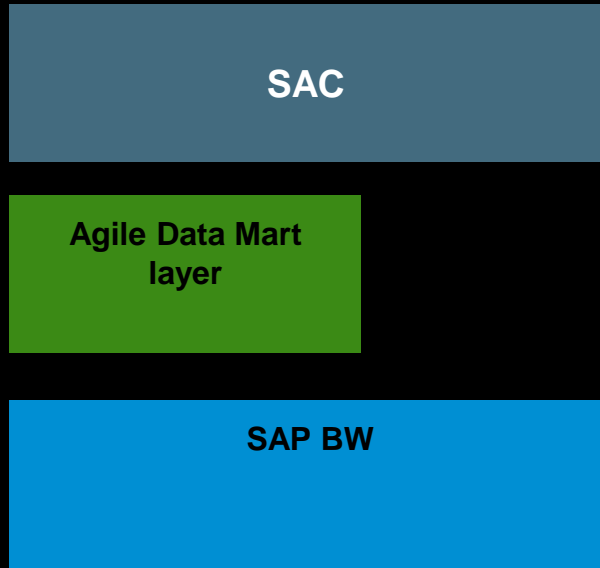
- Avoid surprises with clear terms and all-inclusive packaging
- Gain control into usage and consumption
- Avoid lock-in with flexibility on usage, terms, and spending

**One** product, **all** features with **total** cost transparency

# Summary



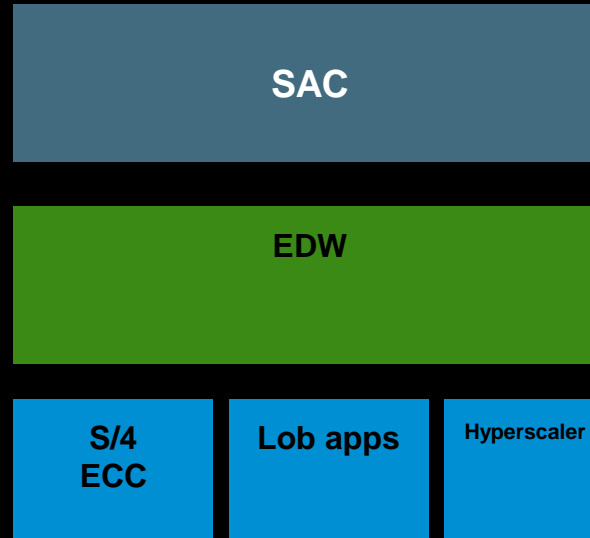
## Self-service Data modeling



- Extend SAP BW with SAP DWC
- Self-service data modeling & Analytics ( Agile Data mart + BI tool)



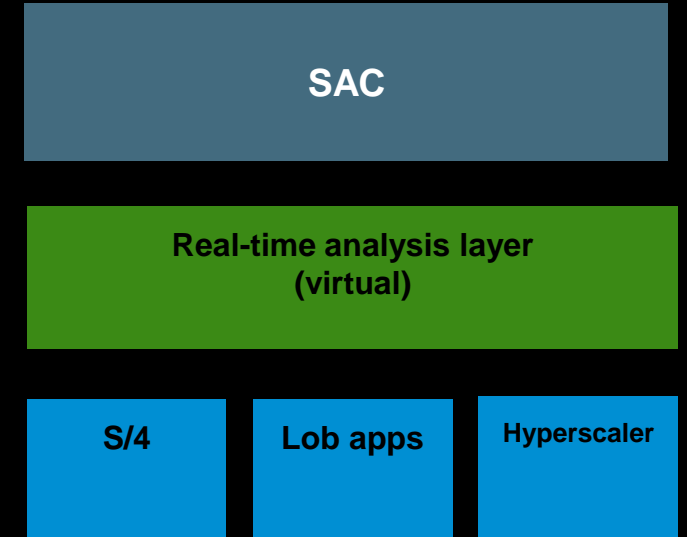
## EDW



- Modern Cloud DW + more
- SAP DWC & HANA Cloud = True
- Powerful analytics
- Data lake included



## Operational cross system analysis



- Prebuilt content
- Real-time analytics on multiple systems incl Hyperscalers

# Do you want to try SAP Data Warehouse Cloud?

## SAP Data Warehouse Cloud

Technical Academy

The purpose of the hands-on exercises are to get you familiar with the Data Warehouse Cloud solution. There are four runbooks available.

1. The "**Simple Start**" workshop provides a quick overview of the Data Warehouse Cloud. It walks participants thru the process of loading data from flat files, creating a model, and creating analytical stories in the SAP Analytics Cloud.
2. The second runbook provides a **deep dive thru Data Warehouse Cloud**. It demonstrates how to create Entity-Relationship views, data views, and creates a simple analytical story in the SAP analytics cloud.
3. The third runbook (1 of 2) **explores the Data Builder** in Data Warehouse Cloud. It demonstrates how to create Joins, Calculated Columns, Aggregation and Hierarchies using Graphical views, SQL views and Entity-Relationship views. Data are also loaded from flat files and tables federated from HANA Cloud.
4. In the forth runbook (2 of 2) we will leverage the model created in the 'Data Modeling in Data Builder' exercise to consume and visualize the data by means of a dashboard.

Planned to be hosted by SAPSA

## 90 day POC environment

Get a trial environment where you can work with your data

The system will be available for 90 days with full functionality where you can build E2E scenarios, incl your own connections.

Presales resources from SAP Sweden will be supporting and involved in the POC.

The POC should have clear evaluation use cases and success criteria's.

Any solutions built in the POC cannot be migrated to a productive environment.

Partner resources can be involved in POC work

No cost for you as a customer

Contact [kenneth.dalvik@sap.com](mailto:kenneth.dalvik@sap.com) or your partner



# More Information about SAP Data Warehouse Cloud



Find out more at

[www.sapdatawarehouse.cloud](https://www.sapdatawarehouse.cloud)

- Onboarding Guide
- Learning Academy
- Blogs

[SAP Help Documentation](#)

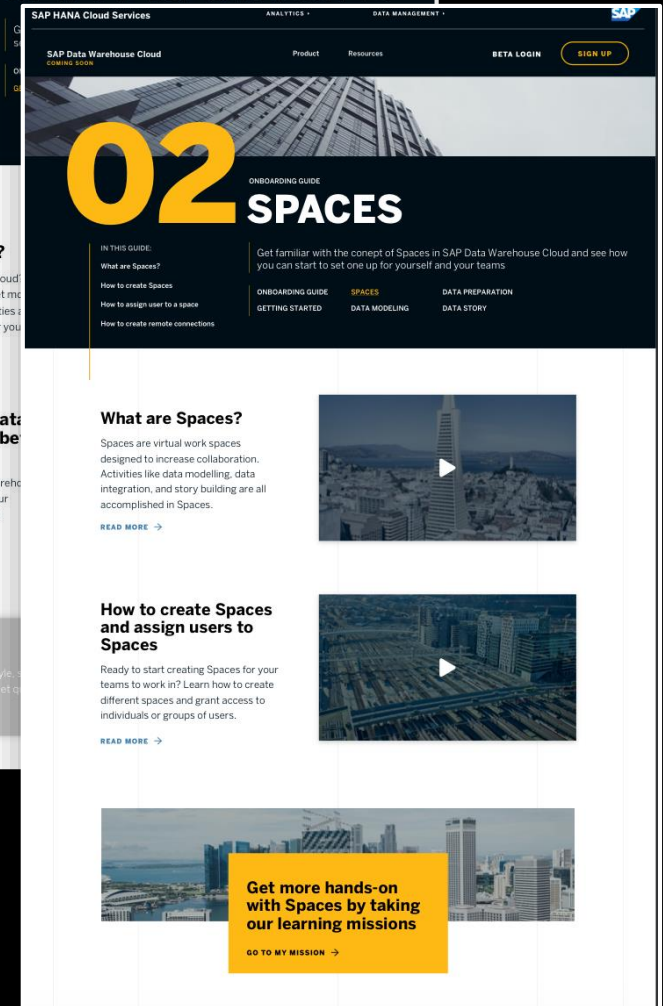
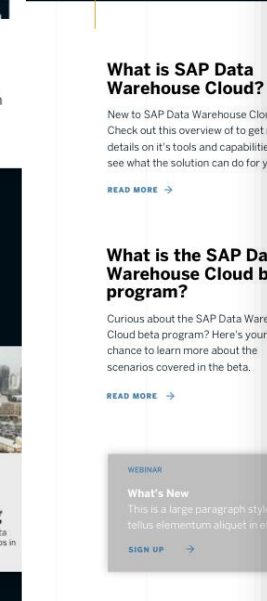
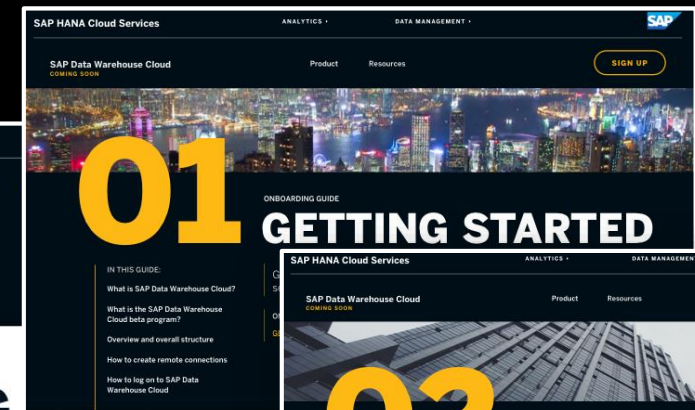
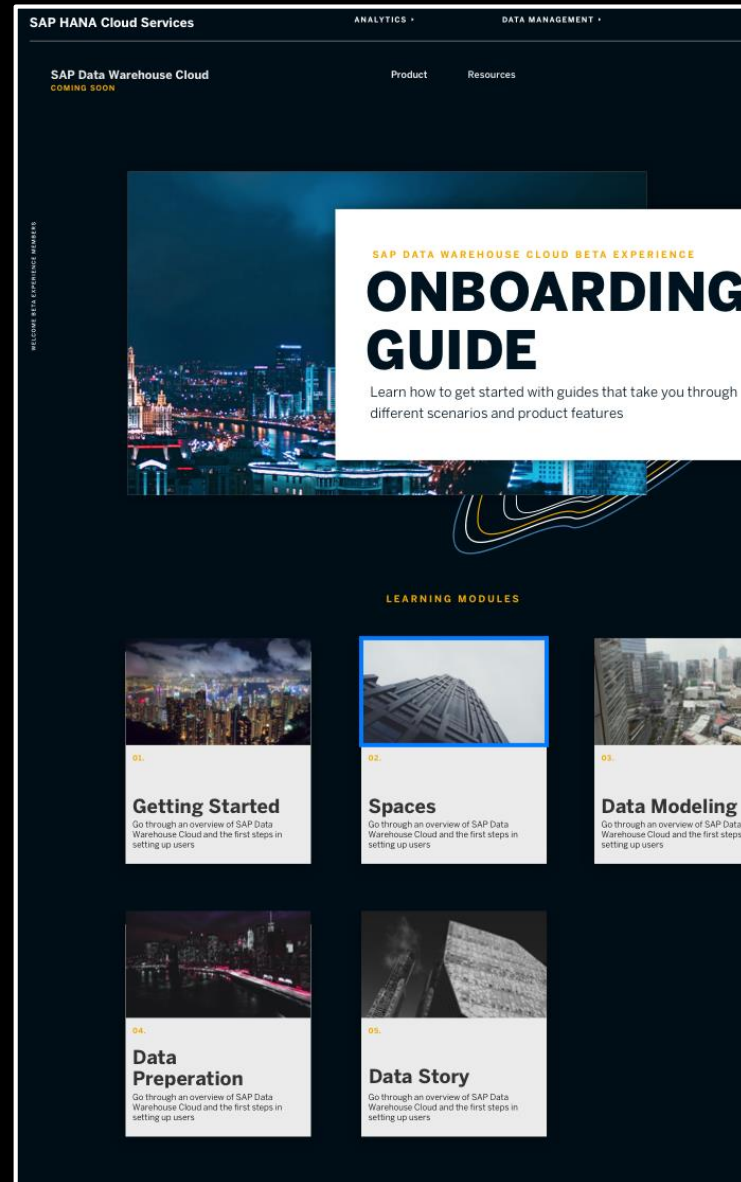
[Calculator](#)

[SAP Road Map Explorer](#)

[SAP Community](#)

Sample Content on [GitHub](#)

Provide [your feedback](#):



# Thank you.

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# SAP Data warehouse cloud as EDW



# Data Sources Overview

## Current

### Connection Tiles

SAP ABAP SAP HANA Generic OData SAP Marketing Cloud  
Microsoft SQL Server Oracle Local CSV File SAP Fieldglass  
Generic Cloud Data Integration Adverity SAP ECC Google GCS  
SAP S/4HANA SAP SuccessFactors Google BigQuery  
HDFS SAP BW Azure ADLS Amazon S3 Amazon Athena

### SAP Source System Connectivity

SAP HANA 1.0 SAP HANA 2.0 HDI SAP HANA Cloud  
ABAP Extractors ABAP CDS ABAP DDIC Tables  
ABAP ODP BW Query-as-a-Provider SAP Business One  
BW InfoProvider SAP BW/4HANA  
SAP S/4HANA Cloud SAP Data Warehouse Cloud

### Partners

APOS 150+ Sources Snaplogic 500+ Sources Informatica 140+ Sources Adverity 400+ Sources  
Datazeit Precog

## Q4 2020\*

### New Connection Tiles

SAP BW/4HANA Model Transfer SAP HANA Cloud  
CamelJDBC RESTful Webservices SFTP  
Amazon Redshift SAP Open Connectors

### Source System Connectivity

MySQL Dynamo DB PostgreSQL  
Teradata IBM DB2

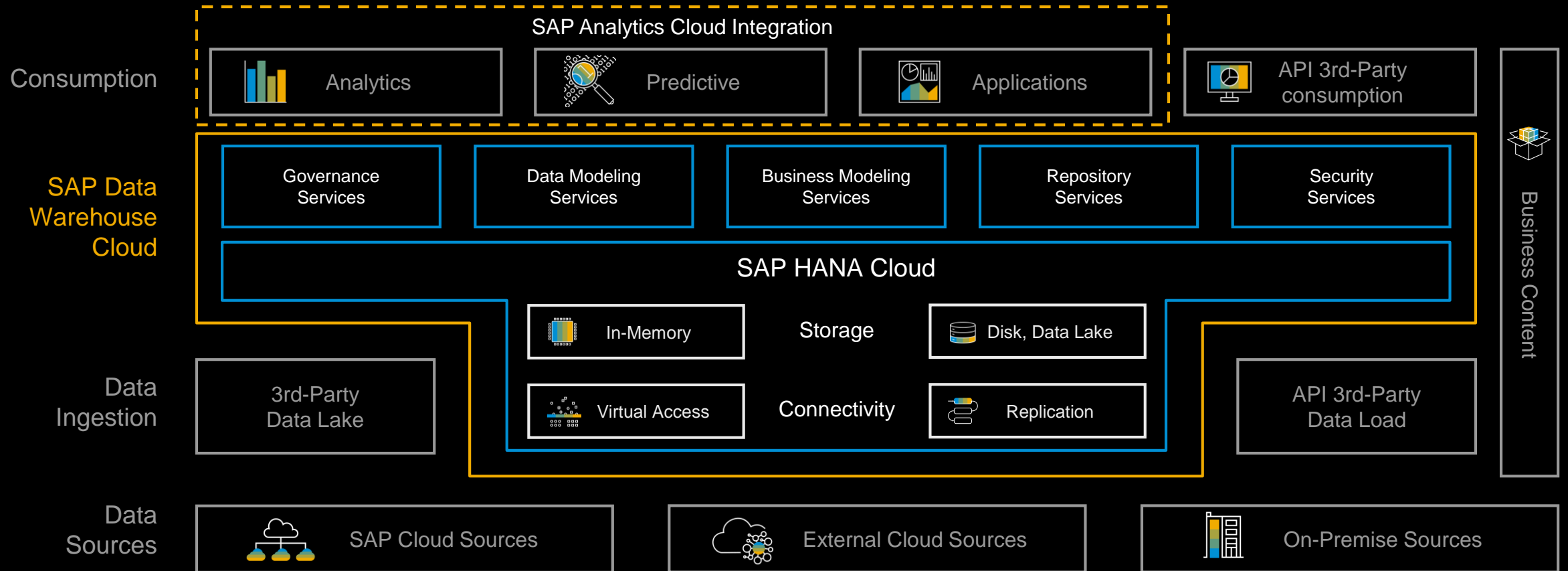
## H1 2021\*

### New Connection Tiles

SAP HANA Data Lake SAP Sybase IQ SAP IBP  
SAP S/4HANA Cloud Qualtrics SAP BPC  
Dremio Azure Synapse Azure Analysis Services  
Azure SQL Database Apache Cassandra

 Delivered  Planned\*  Partner

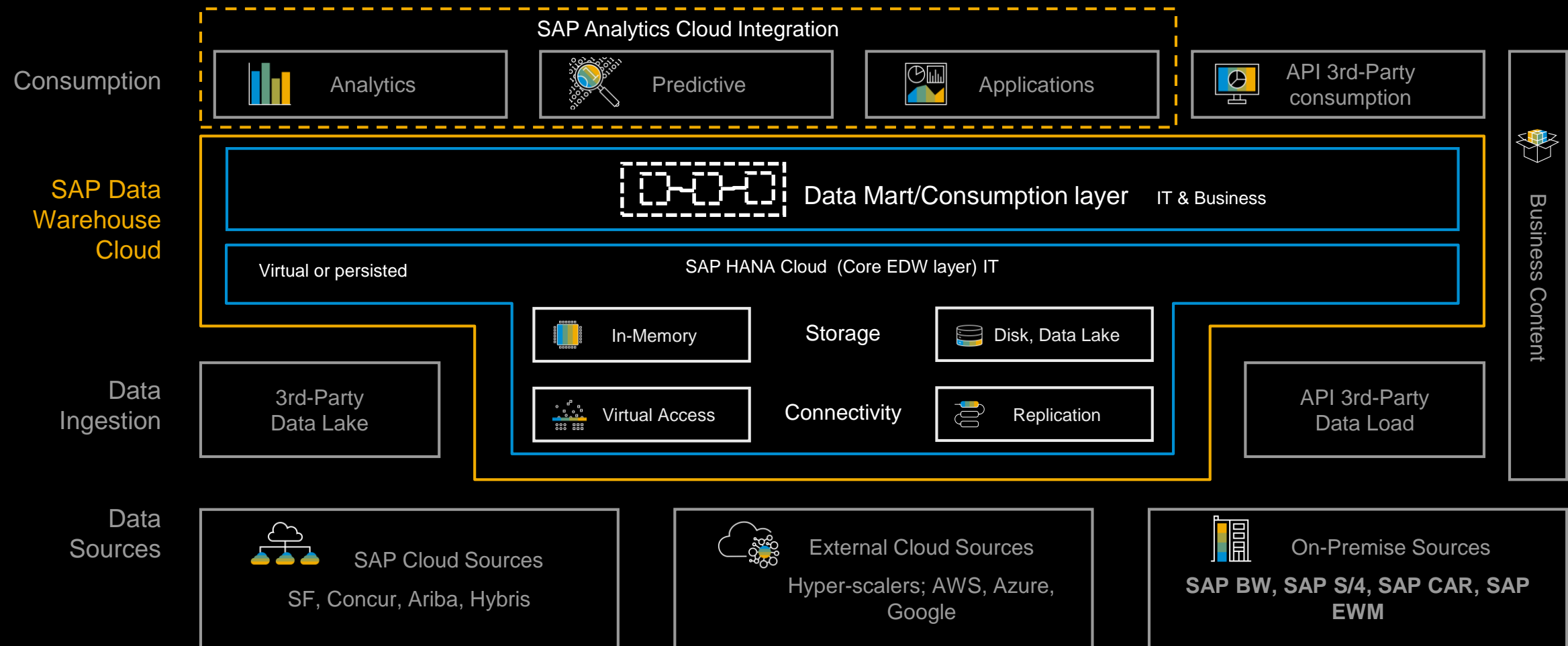
# Architecture



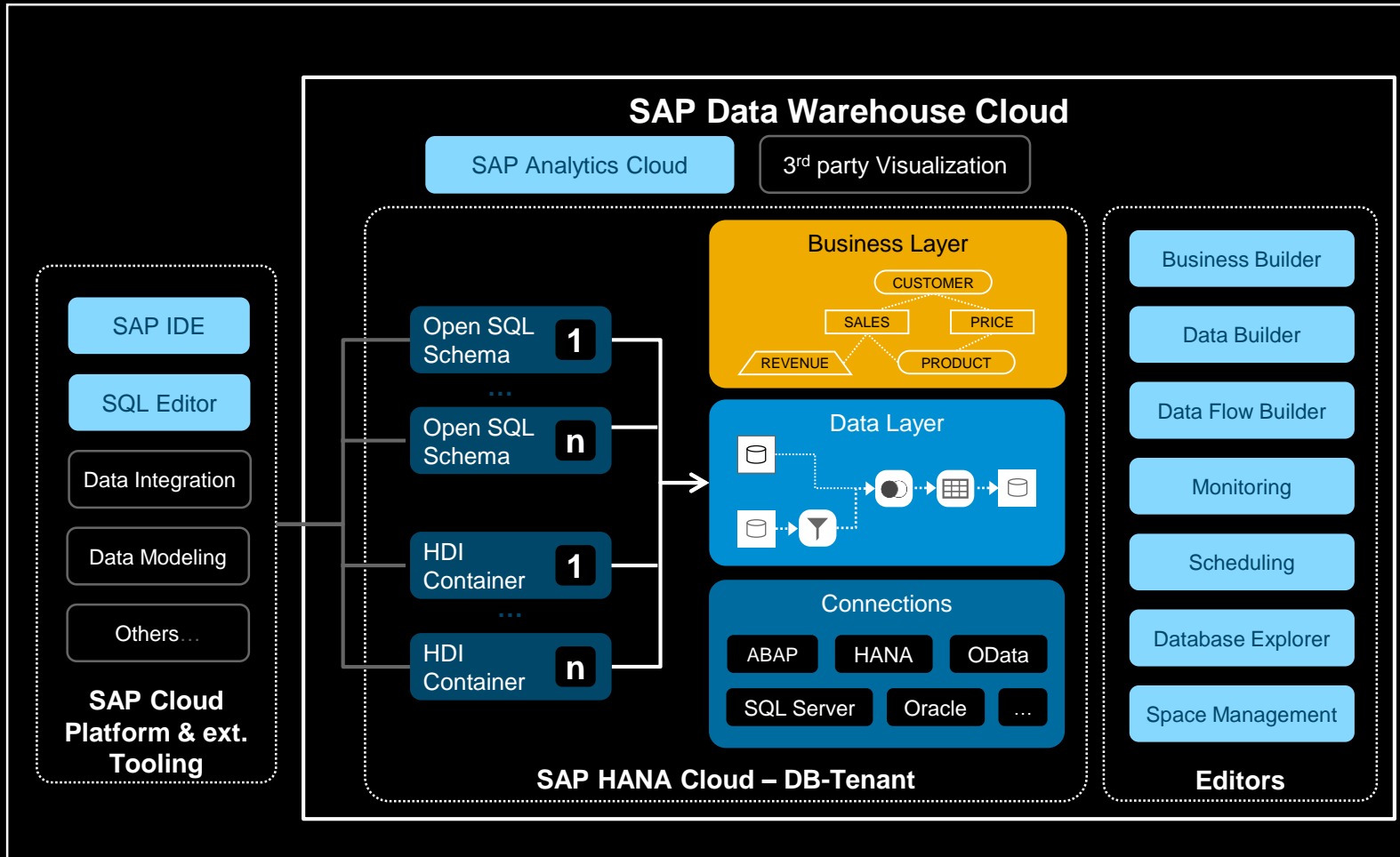
A comprehensive approach to data warehousing for instant data-to-value



# EDW Architecture

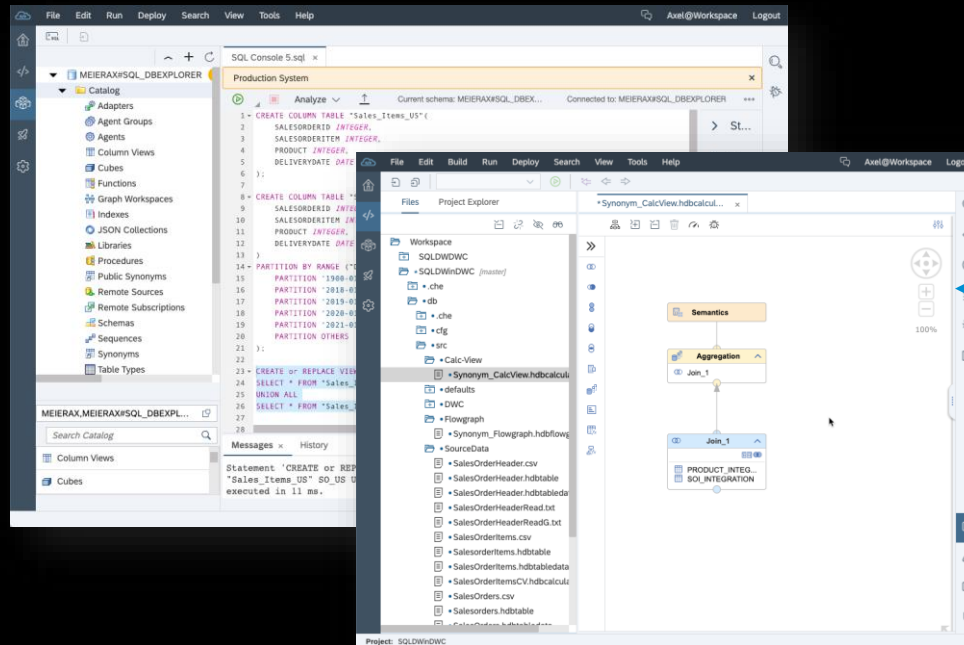


# SAP SQL data warehousing Integration: Integrated SQL DW



- **SAP Data Warehouse Cloud**
  - **Editors** empower Business & IT Users to create End-to-End Scenarios
  - **Data** is accessed, processed, federated and persisted using SAP HANA Cloud
- **SAP Cloud Platform & external Tooling** are enabled to connect, access and process data, governed by SAP Data Warehouse Cloud
  - HANA Artefacts, like: Calculation View

# Business and IT collaborate throughout the data-to-insight lifecycle with the best tools to get the job done



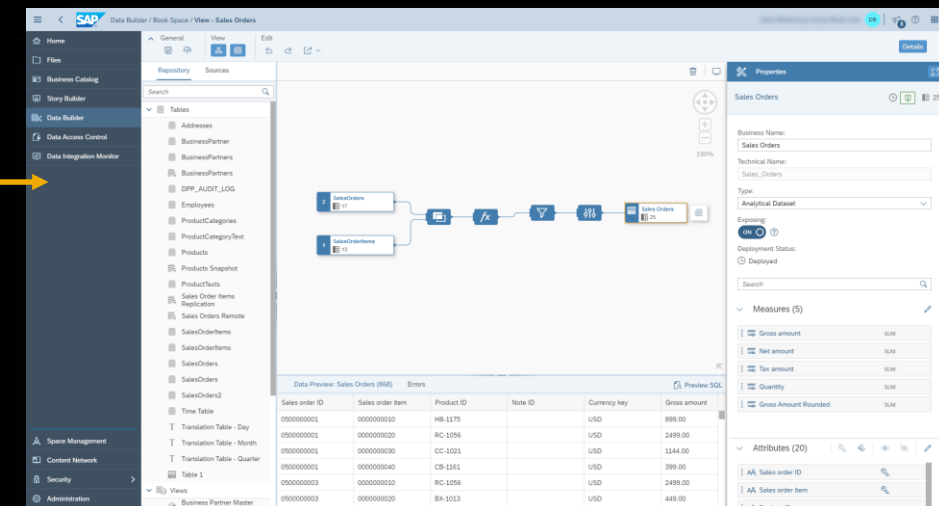
IT driven development

Command-line and graphic modelling in SAP IDE



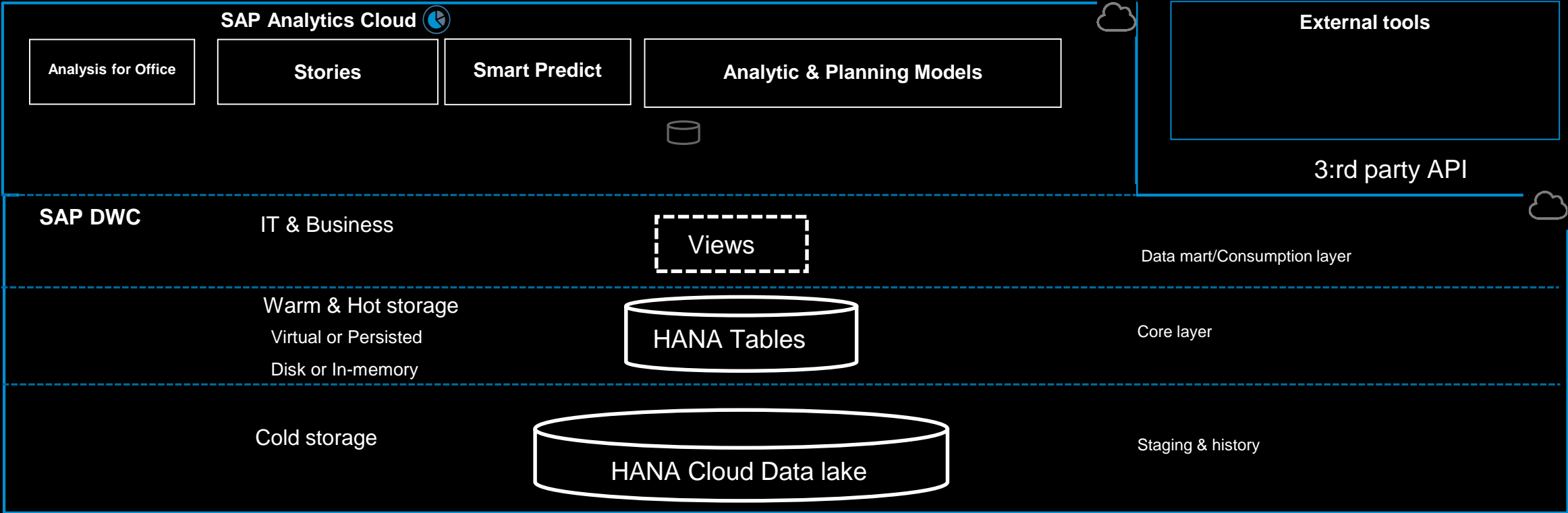
Self-Service data modeling

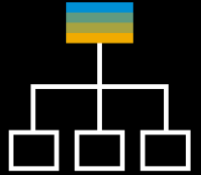
Intuitive views and graphic modelling in SAP Data Warehouse Cloud Data Builder



# EDW Architecture

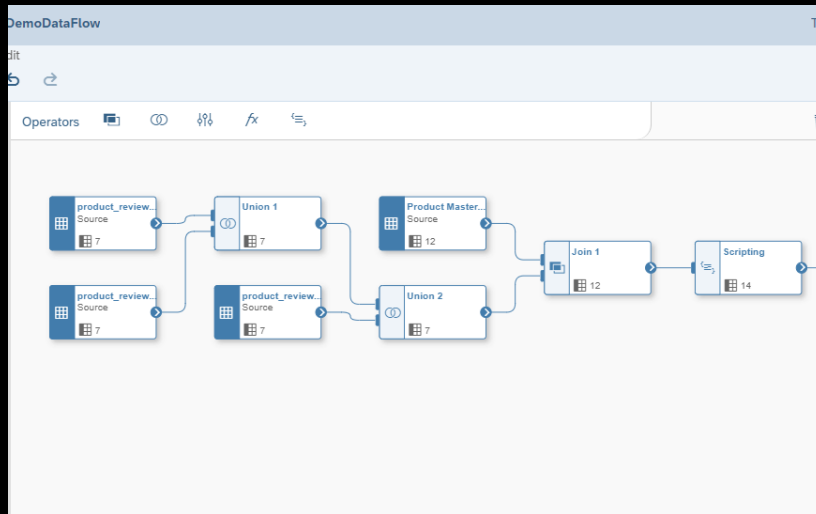
- On-Premise Environment
- Cloud Environment
- Application Datastore





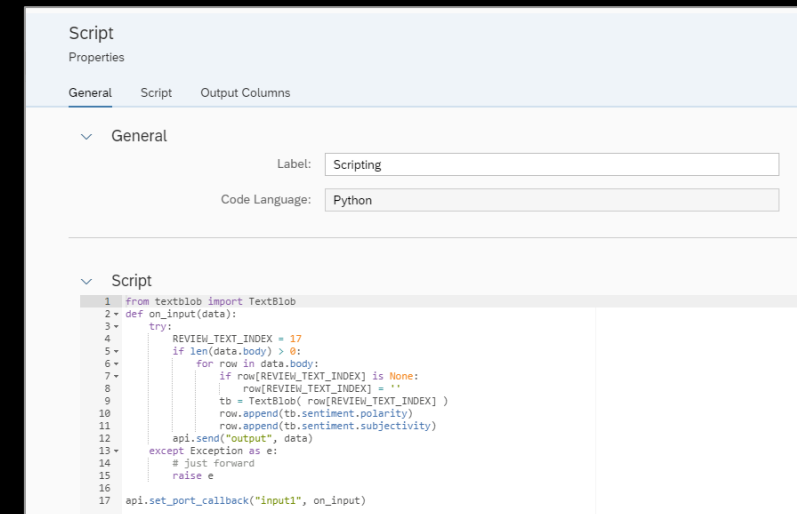
# Data Modeling Services: Data Flow – Transformation Capabilities

## Standard Transformations



- Combine structured, semi-structured and unstructured data
- Operators for Projection, Aggregation, Join, Filter, Union, Add Table
- Data source can be tables, CDS views, remote files, OData
- Outlook\*: Case, Lookup, Cleanse, Rules and JSON, Excel, XML

## Scripting



- Advanced transformation requirements like extraction of text
- Embedded scripting editor in Data Flow Modeler
- Support of standard Python 3 scripting language