

# SAP Data Warehouse Strategy

## Unleash the power of business data

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Public

April, 2023





# Data needs context for authoritative decision-making

Innovation has happened in silos

Data, especially metadata, has been removed from its context

There's been a fundamental error—focusing solely on technology rather than the data



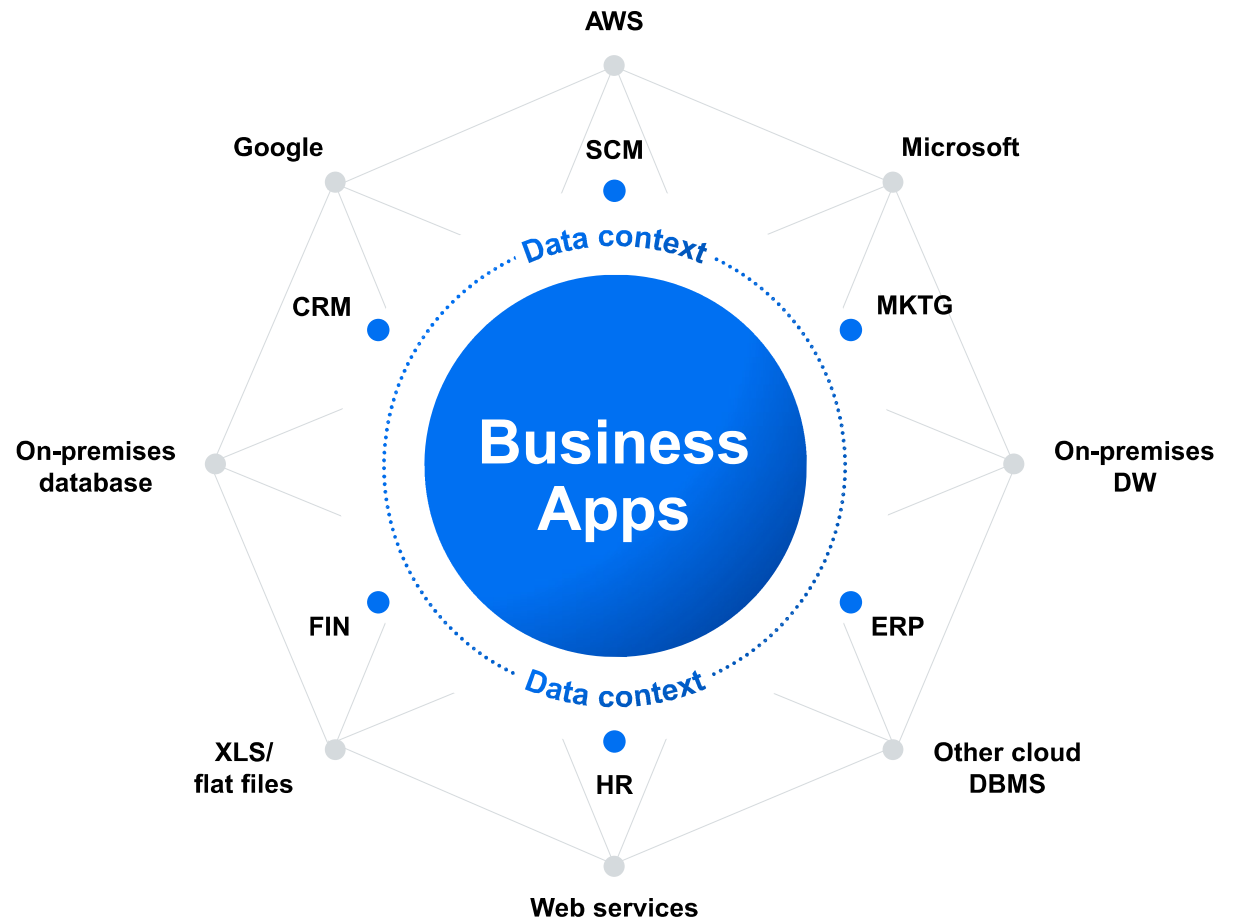


# (Multi-) cloud brings new opportunities and challenges

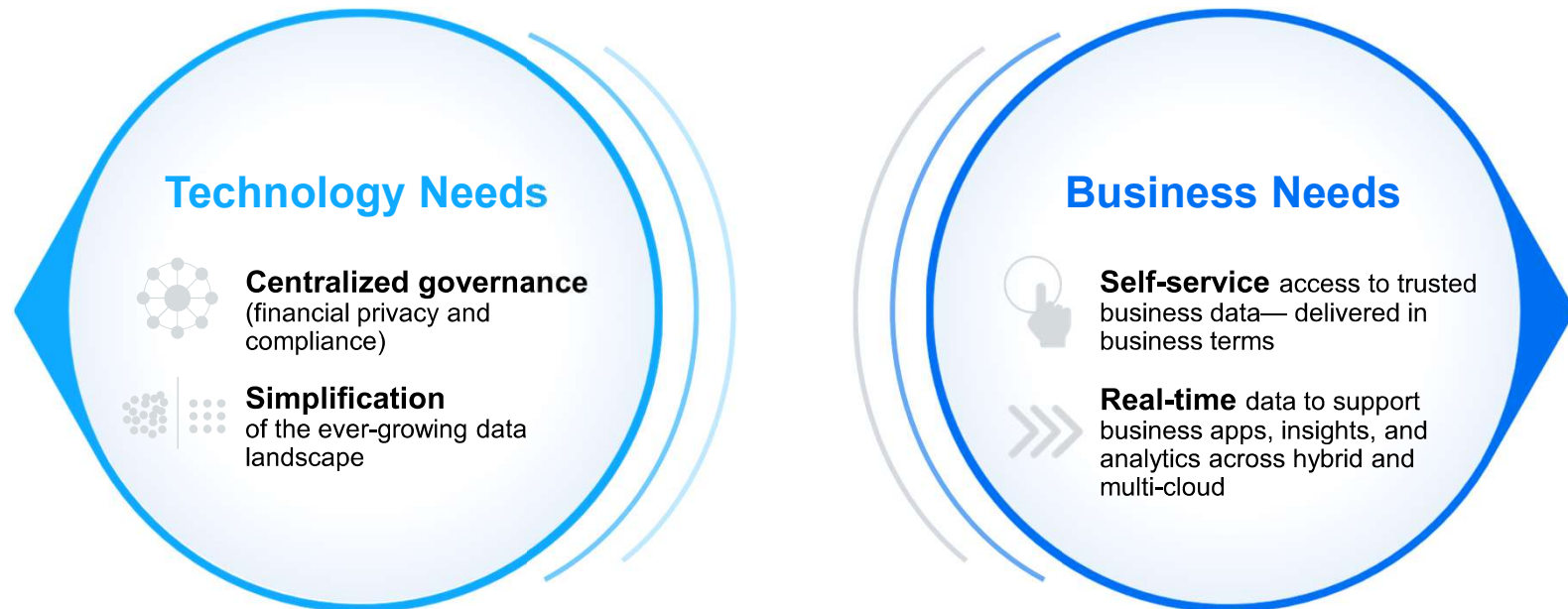
New data sets spawn new projects

On-premises sources remain

Complexity has increased, shifting governance and integration work back to customers



# Universal yet opposing data needs for business and technology stakeholders



# Why a business data fabric

**Self-service access** to trusted data breeds agility and accelerated, accurate decisions

**Comprehensive data governance** assures every stakeholder that private data stays private

**Real-time data**, infused throughout your data architecture helps business users, partners, and employees make in-the-moment improvements

A **simplified data landscape** reduces costs and technical debt while maximizing current investments

# SAP Datasphere is the foundation for a business data fabric architecture

Data consumers

Planning and analytics

Intelligent data apps

Data science

SAP Datasphere  
running in SAP BTP

Security  
Access control  
Availability



**Self-service data access** | Virtual data products

**Data discovery** | Business content, data marketplace, recommendations

**Orchestration** | Data transformation and data ops

**Processing and persistency** | Warehousing, business semantics (analytic/relational models), knowledge graph

**Data governance** | Metadata management, catalog, lineage, privacy, data quality

**Data ingestion** | Data replication, data federation, real-time data, application integration

SAP and non-SAP data

Applications

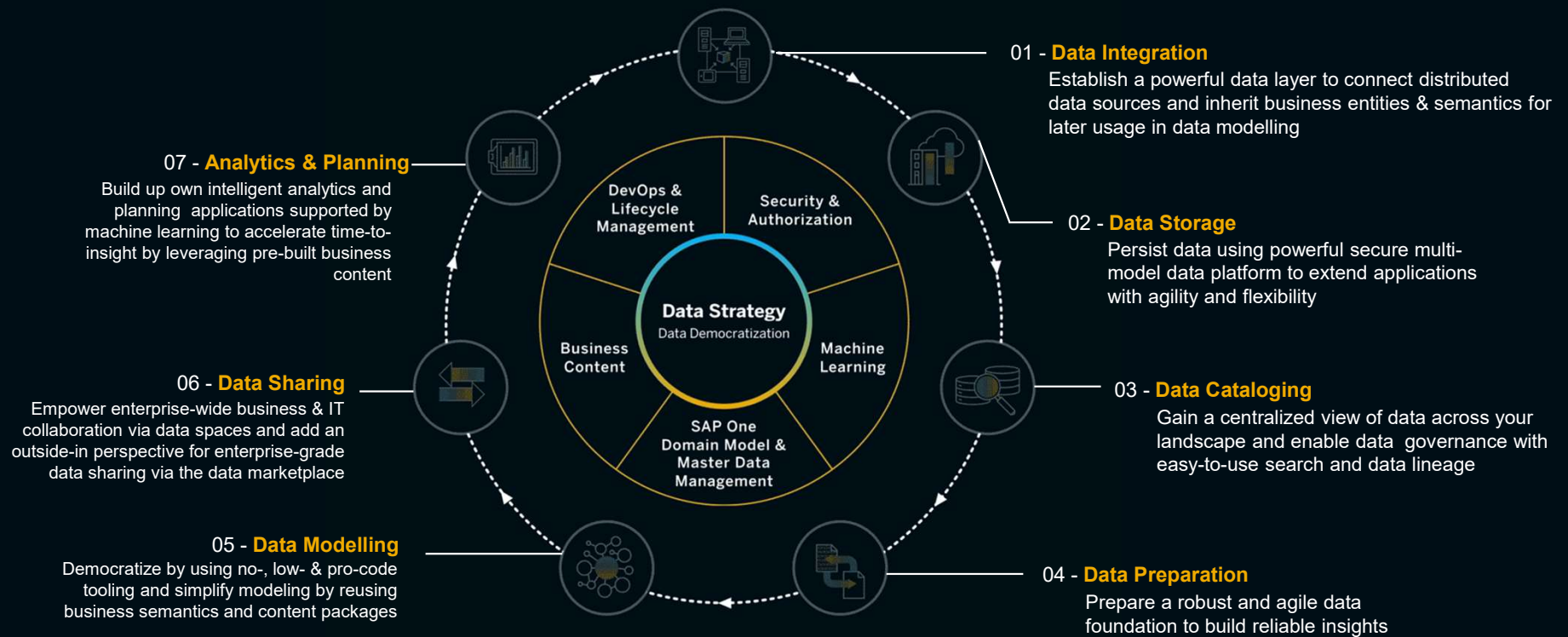
On-premises  
Data Warehouses

Cloud Data Warehouses  
and Lakehouses

Relational  
Databases

Unstructured/  
Semi-structured Data

# SAP Datasphere is the foundation for a business data fabric architecture

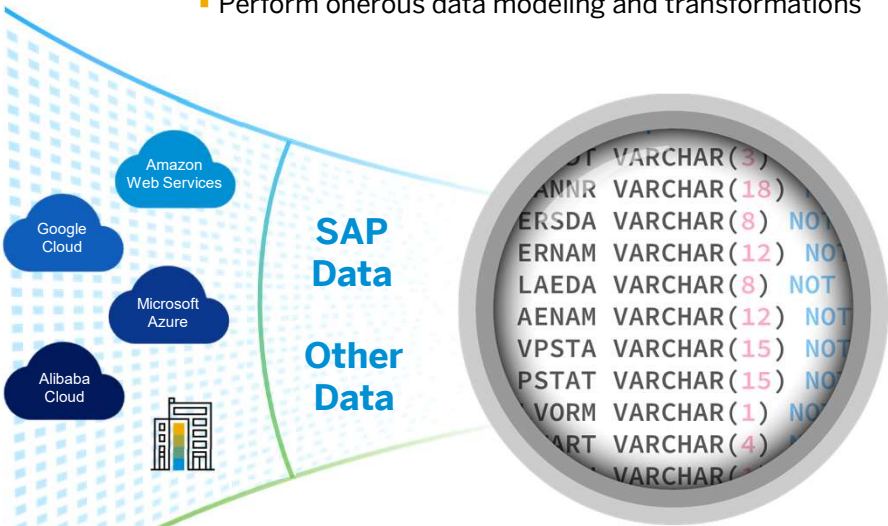




# Connect data with **business context**

## Typical Approach

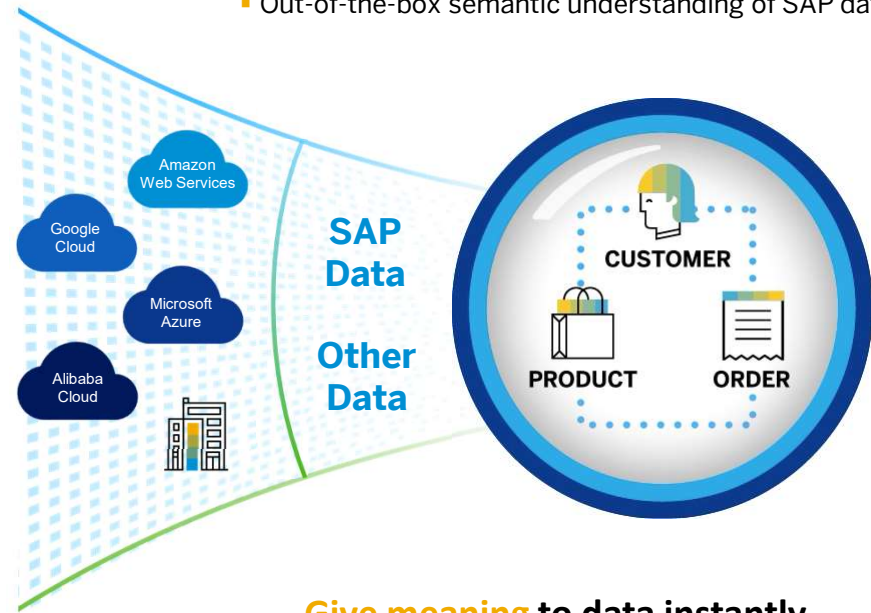
- Copy and move data to meet performance thresholds
- Make sense of obscure data structures and labels
- Perform onerous data modeling and transformations



Copy data and lose context

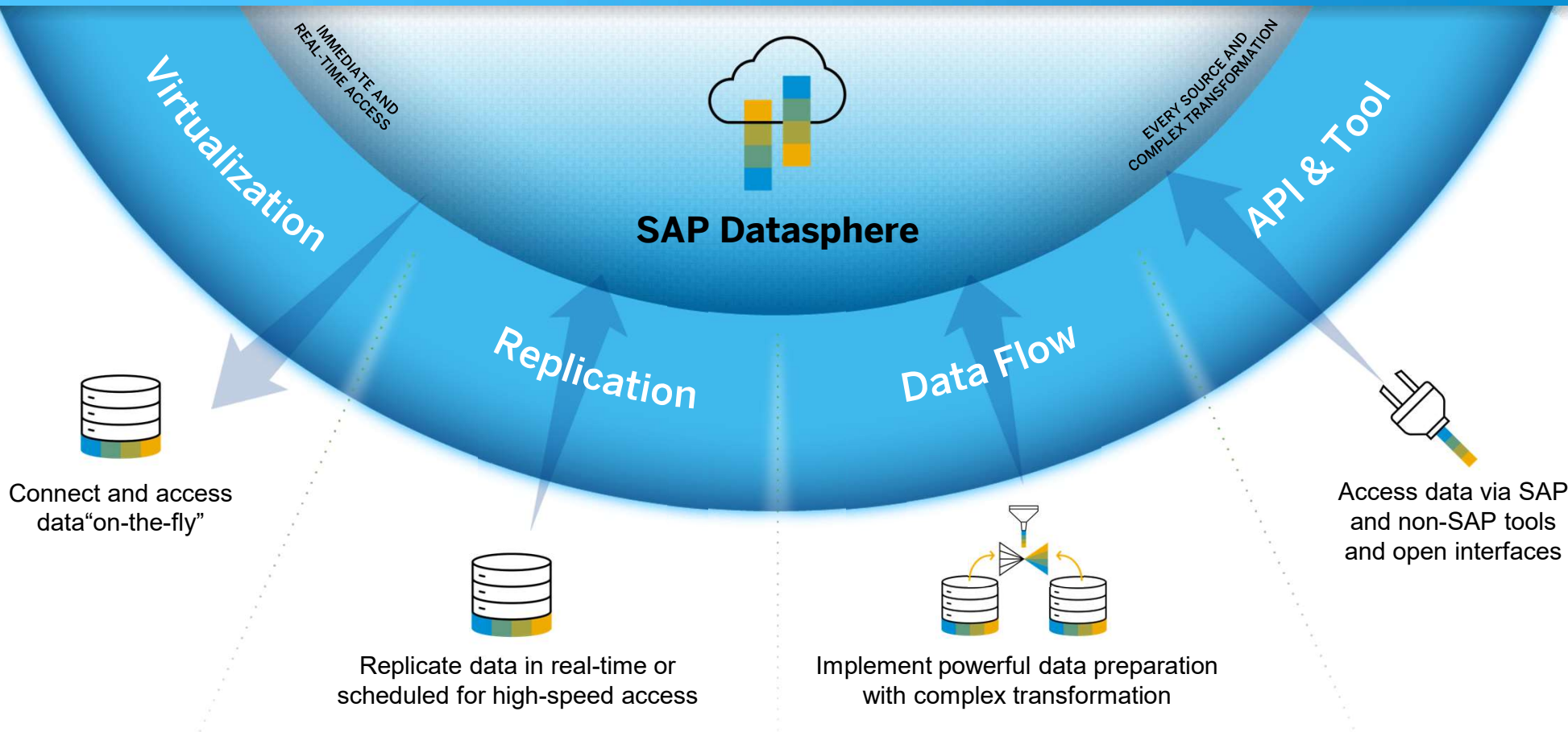
## SAP Data Warehouse Cloud

- Connect or collect data with optimized performance and TCO
- Insight on real-time data across clouds and on prem
- Out-of-the-box semantic understanding of SAP data



Give meaning to data instantly

# Connect and collect data flexibly – catering to all styles of data integration



# Integrate. Data Sources Overview

## SAP Applications

- SAP S/4HANA
- SAP S/4HANA Cloud
- SAP ECC
- SAP ABAP
- SAP BW/4HANA Model Transfer
- SAP BW
- SAP HANA Data Lake
- SAP HANA, Data Lake Files
- SAP SuccessFactors
- SAP Fieldglass
- SAP Marketing Cloud

## Databases & Generic Connections

- SAP HANA on-prem & Cloud
- Oracle
- Microsoft SQL Server
- Generic JDBC
- Generic OData
- Generic SFTP
- Local CSV File
- Generic Cloud Data Integration

## Hyperscaler & Cloud Apps

- Google Cloud Storage
- Google BigQuery
- Azure SQL Database
- Azure Blob Storage
- Azure Data Lake Store Gen1
- Azure Data Lake Store Gen2
- Amazon S3
- Amazon Athena
- Amazon Redshift
- HDFS
- SAP Open Connectors

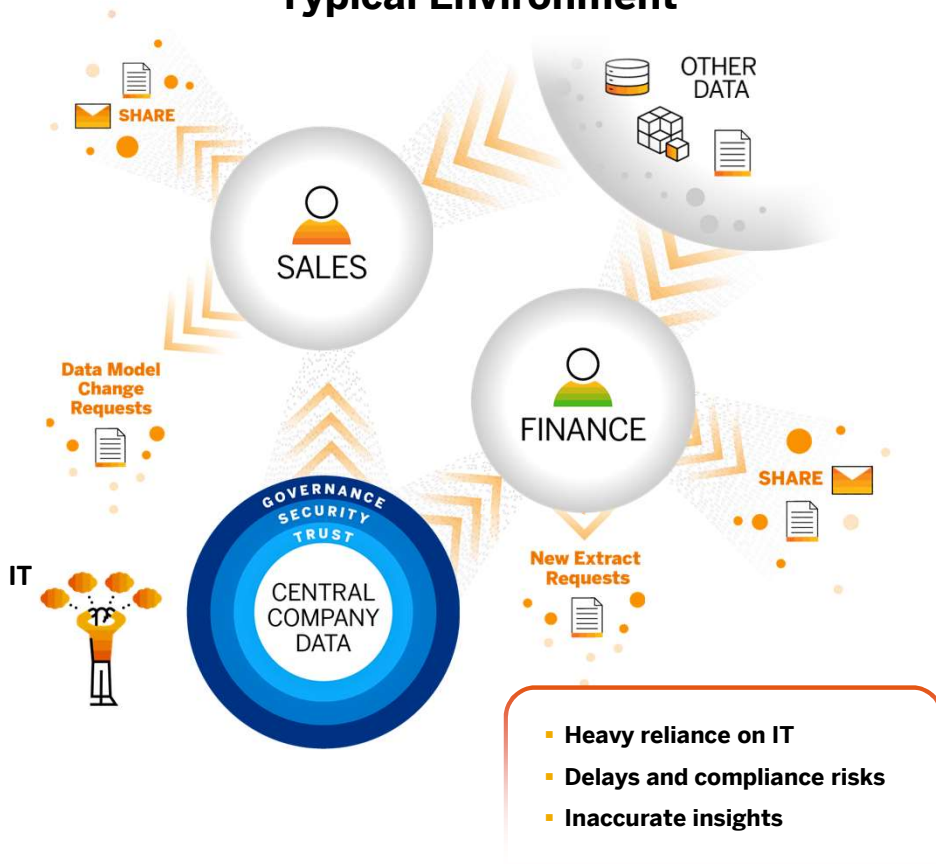
## External Tool Support

- SAP Data Intelligence\*
- SAP Data Services\*
- SAP HANA Smart Data Integration\*
- SAP Landscape Transformation\*
- Adverity
- APOS\*
- Datazeit\*
- Informatica\*
- Precog
- Snaplogic\*

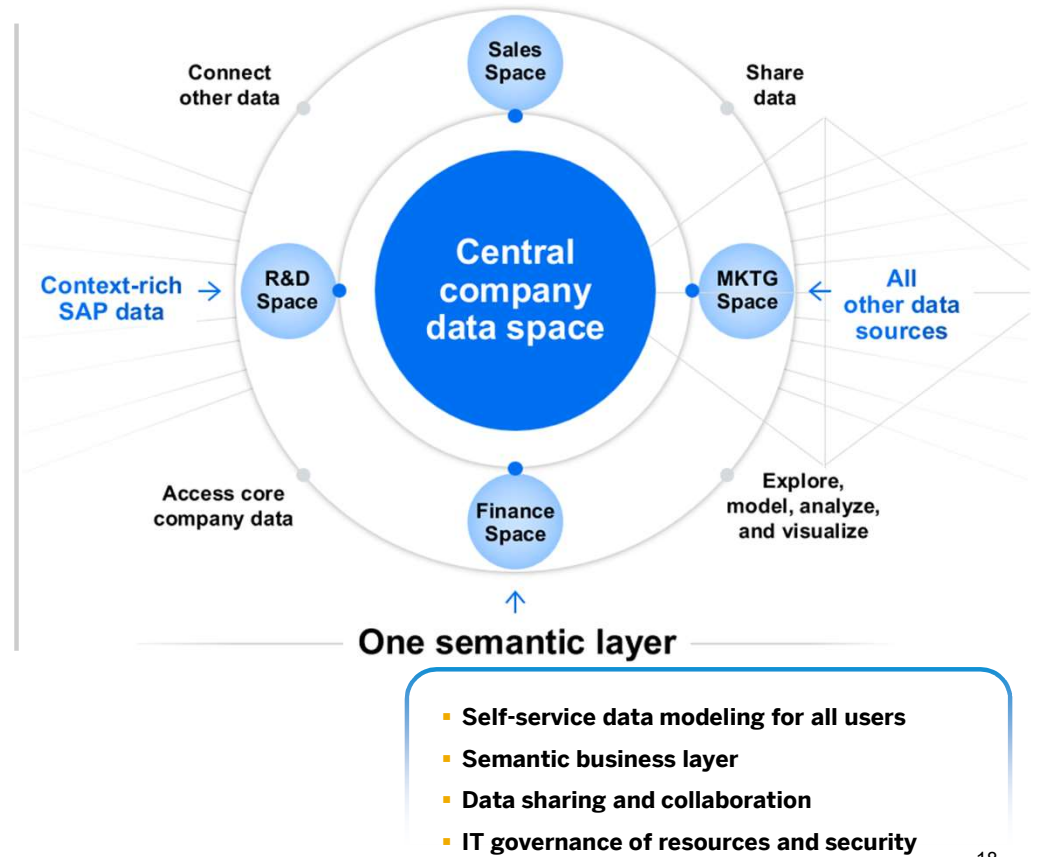
SAP Help: [Connection Overview](#)

# Unlock data insights with integrity

## Typical Environment

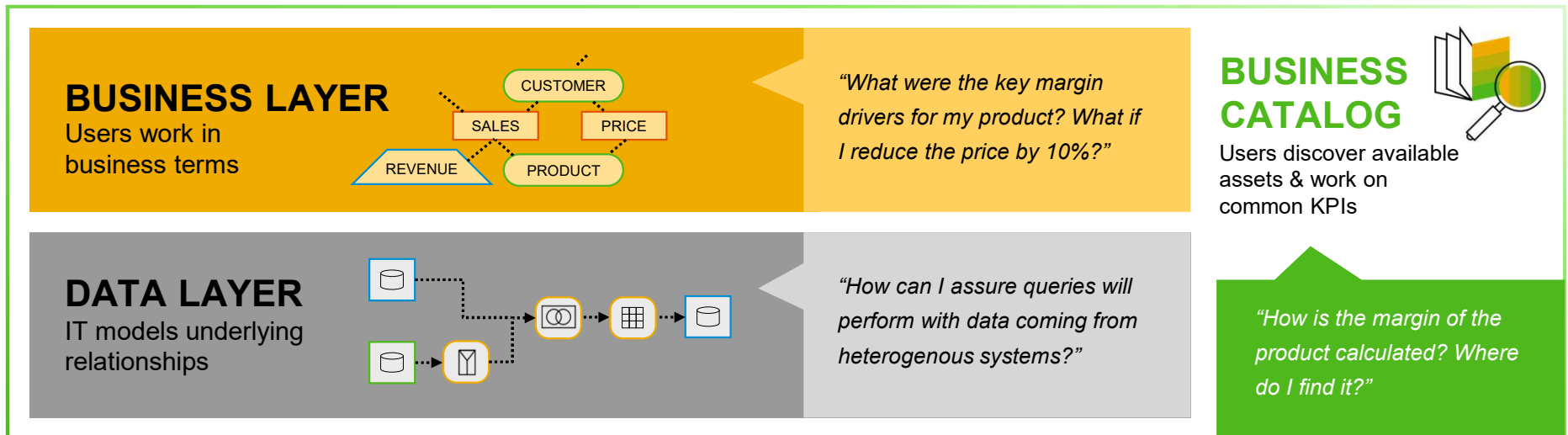


## SAP Datasphere





## Manage. Collaborate in business terms



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

# Manage. Modeling for Everybody

Business Analyst  
No Code / Low Code

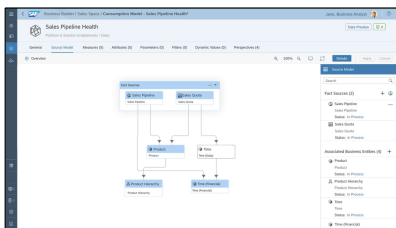


Developer / Power User  
Pro Code

**BUILT-IN EDITORS**  
modeling for all users

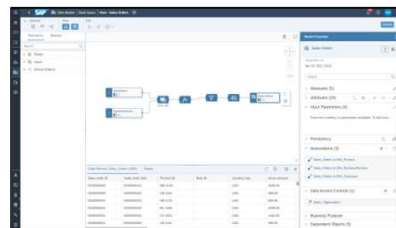
**EXTERNAL EDITORS**  
integrated SQL Data Warehousing

## Business Modeling



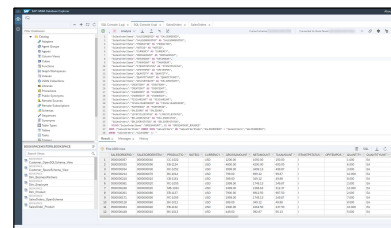
- Allow for a greater degree of self-service
- Non-disruptive environment for business scenarios – independent from the data integration layer

## Graphical & Scripted



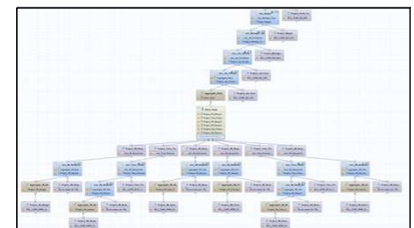
- Collection of no code/low code editors to support Graphical Modeling
- Model E/R-models, Tables, Views, SQL & SQL-Script Views
- Focuses on most-used modeling operators

## 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

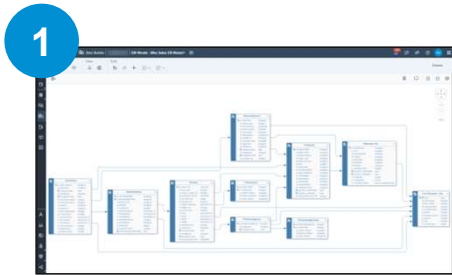
## SAP HANA Deployment Infrastructure



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

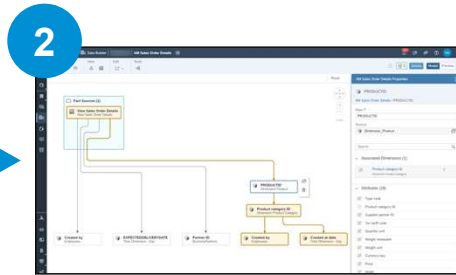
# Manage. Create Analytic Models

## Prepare Dimensions & Facts



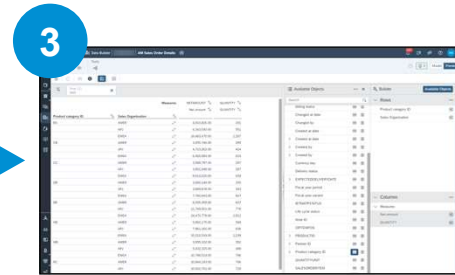
- Create and define your dimension and fact tables or views
- Associate them with other dimensions, text and/or hierarchy models (nested dimensions are supported)
- Enrich semantic type information
- Expose them for consumption

## Build Your Analytic Model



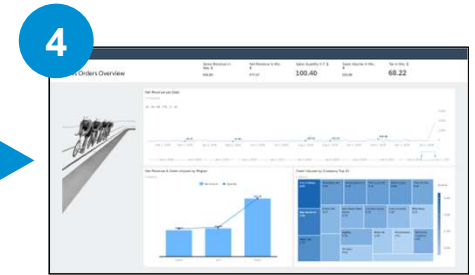
- Select your fact model including relevant attributes, measures and associated dimensions
- Define further drill down paths using nested dimensions
- Add calculated & restricted measures
- Use exception aggregations, variables, time-dependency and hierarchies where needed

## Preview the Data



- Use preview to confirm correctness of the analytic model
- Apply filters, sorting, hierarchies, totals display and other features

## Create your Story



- Create a story in SAP Analytics Cloud based on the analytical view or
- Build new data models on top to integrate different data sources or associate master data views

# Manage. Catalog enabling Governance

## Discover



**Discover data** (*crawl, profile, organize, link, and enrich*) and make data **accessible** (*browse, search*)

## Organize

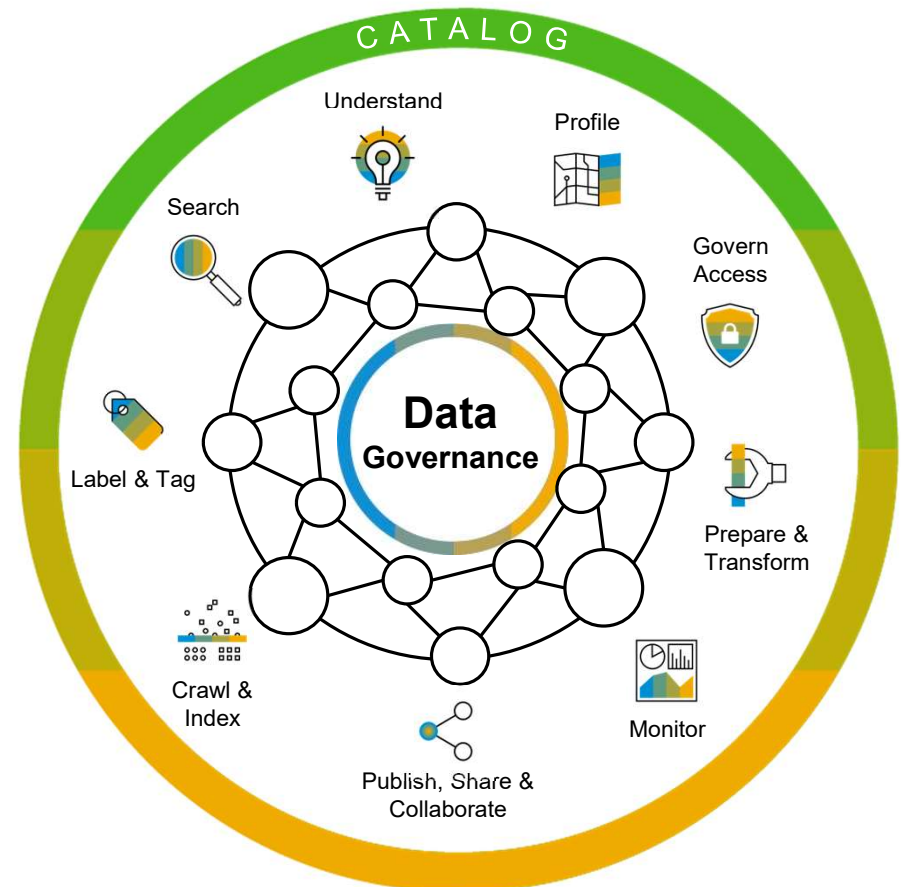


**Classify, organize, and understand data** (*location, attributes, quality, lineage, sensitivity*)

## Curate

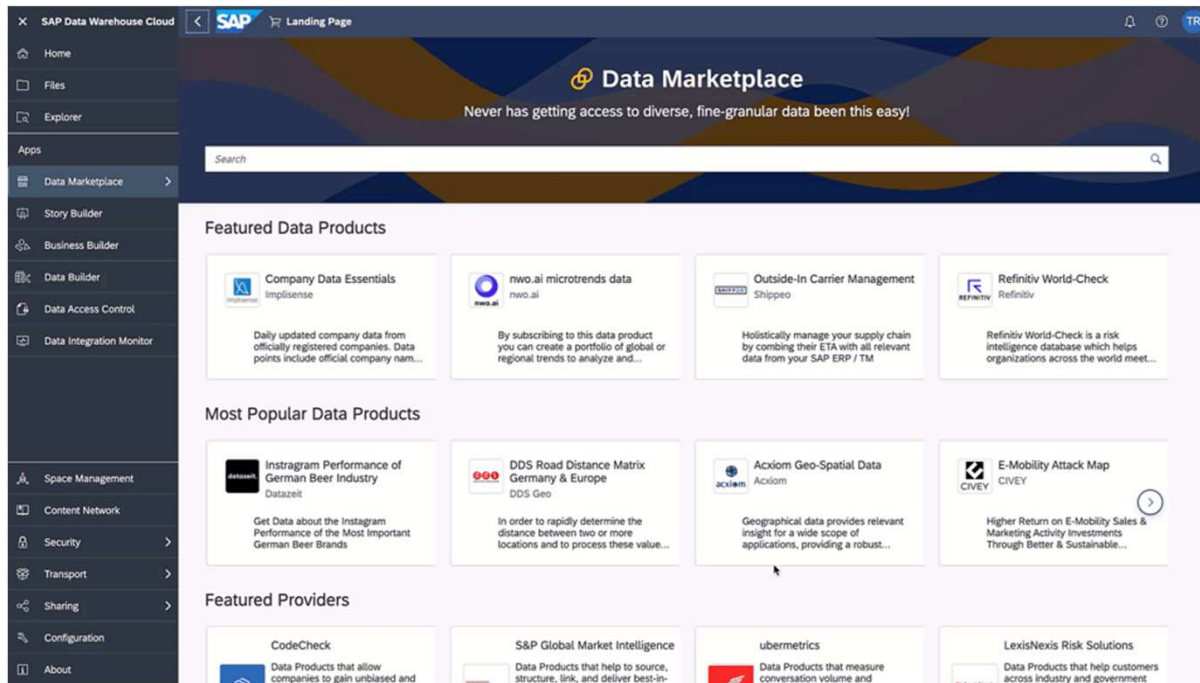


Enforce **centralized authorization** and **security** for data orchestration, and control **data quality standards**





# Data Marketplace – Access to External Data in Clicks, Not Projects



**In-App Data Discovery Experience** for transparent evaluation of more than 100 Data Providers & 3000+ data products through the cooperation with [Datarade.ai](https://www.datarade.ai)



**Complimentary Deployment Channel** as you can bring your existing data provider license with no brokerage for SAP



**Managed Data Integration & Update Management** for sustainable adoption of external data sources



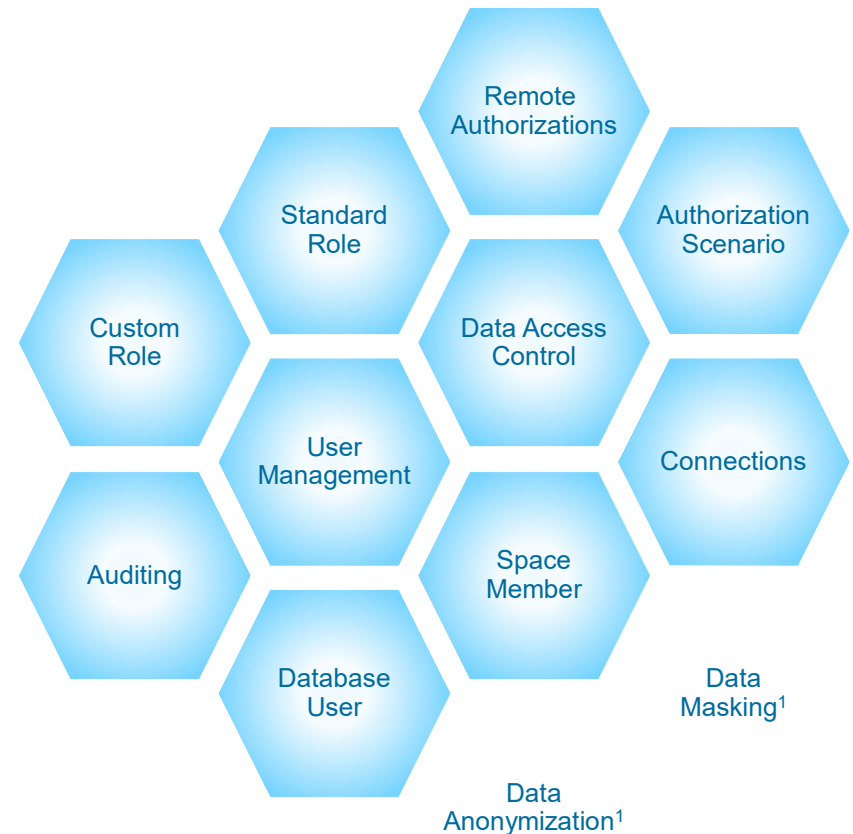
**Seamless Consumption** with SAP Analytics Cloud, SAP Data Intelligence & SAP HANA Cloud or the 3rd Party Frontend Tool of Customer Choice



**Unparalleled Data Management** Functionality for Data Enrichment & Harmonization with SAP Data for Business & IT Users

## 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 layer and on the business layer via authorization scenarios
- Re-use 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



# BI, Augmented Analytics, and Planning on one common platform



## Monitor & Process

- Monitor & Alert
- Process execution

## Ask

- Understand status quo
- Model business questions

## Act & Visualize

- Review Data
- Smart Analytics
- Trigger Actions

## Collaborate

- Share Stories
- Run Discussions
- Enter Comments

## Analyze

- Adhoc insights
- Data Exploration

## Plan

- Input / Adjustment
- Distribution & Allocations
- Advanced Formulas

## Predict

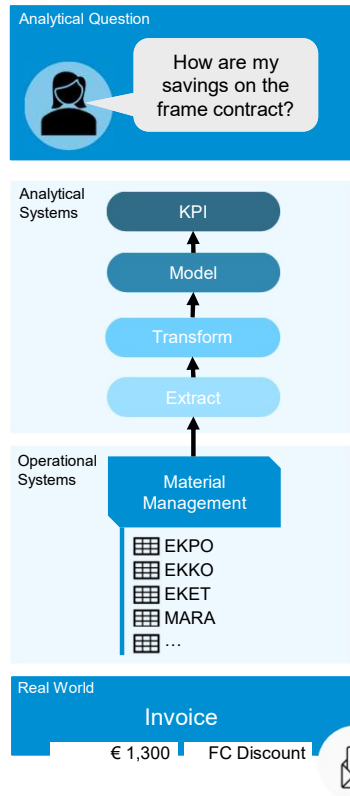
- Time Series Forecast
- Planning Proposition
- Driver determination

**1** Powerful Analytics, Planning & Applications create a closed loop from insight to action

**2** Link Operational and Financial data from all LoB's data to see one version of the truth in context

**3** Integrate with enterprise applications in real time to bring intelligence to the end user

# SAP Datasphere Business Content



## Business Content Collection

Leverage SAP's business expertise and knowledge from our ecosystem of partners with pre-built data models, semantic views of SAP application data, and transformation logic.

Continuously growing number of content packages

- 250+ Content packages built by SAP & Partners for SAP Analytics Cloud and SAP Datasphere
- 31 Content Packages with SAP BW Bridge (11,000+ reusable objects)
- SAP S/4HANA Content Generation (1,000+ Fiori apps ready for import)

## SAP Datasphere

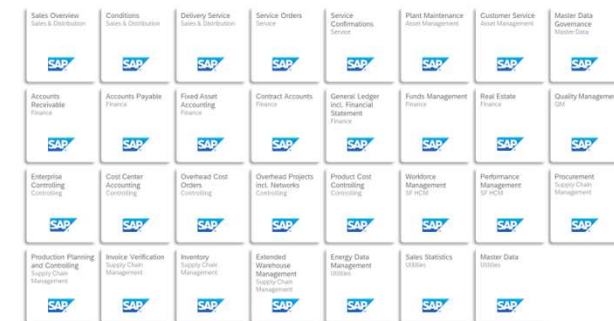
SAP



Partner



SAP BW Bridge





# SAP Analytic Cloud

## Accelerate Outcomes with Prebuilt Business Content

**Accelerate customer outcomes** with prebuilt line-of-business and industry content packages from SAP and partners.

### Line of business

- Advanced compliance reporting
- Carbon footprint analytics
- Environment, health and safety
- Finance
- FI operational expense planning
- Human resources
- Liquidity planning
- Marketing
- Procurement
- Product cost planning
- Project and portfolio management
- Project budgeting and planning
- Project staff planning
- Sales and distribution
- Sports one
- Trade management
- Travel and expense
- Treasury management for SAP
- Vendor management system
- Workforce planning
- + many more

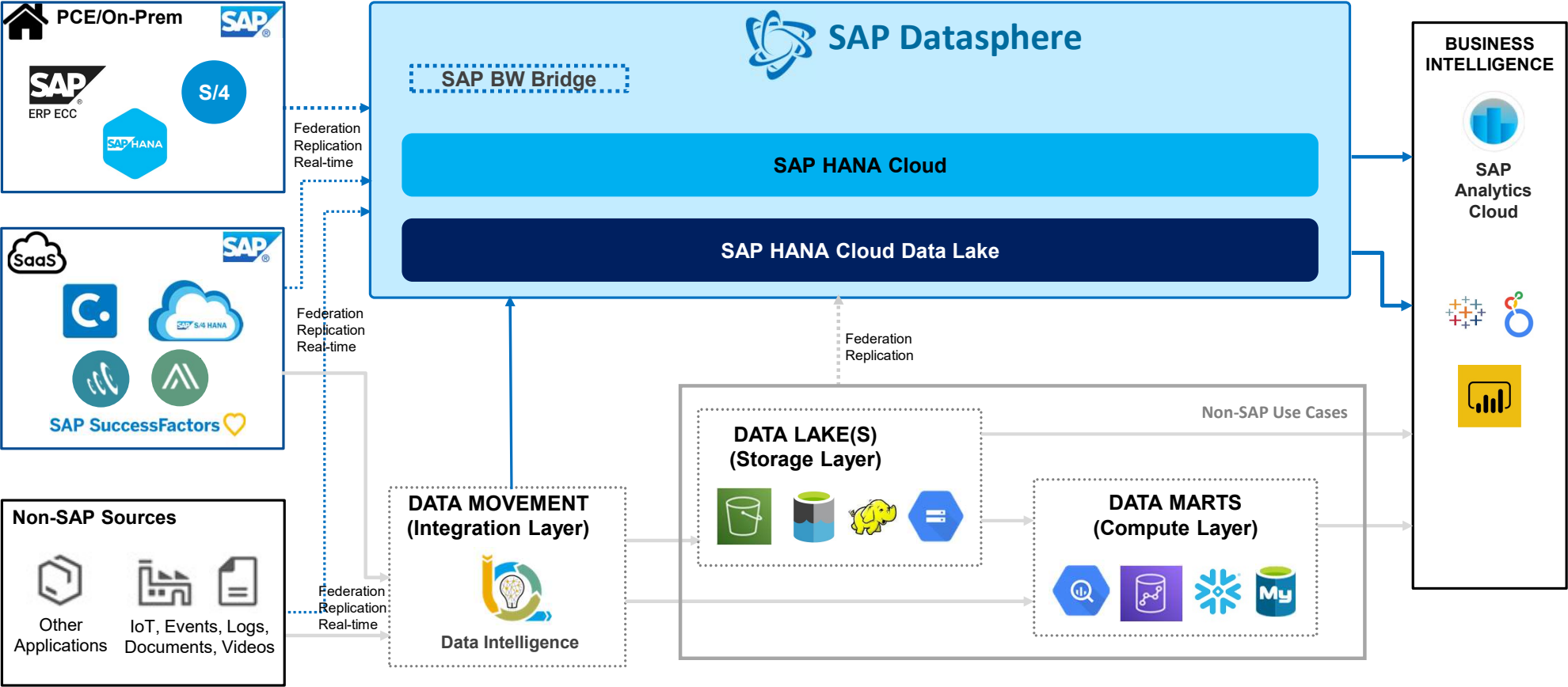
### Industry

- Trading and risk management analysis
- Banking
- Chemicals
- Consumer products
- Customer profitability analysis
- Engineering, construction and operations
- Health care
- High tech
- Insurance
- Mill products
- Mining
- Oil and gas
- Professional services
- Public sector
- Higher education and research
- Real estate
- Retail
- Rural sourcing management
- Utilities
- + many more



Please visit our [SAP Store](#) and [SAP Business Content Center](#) for further information

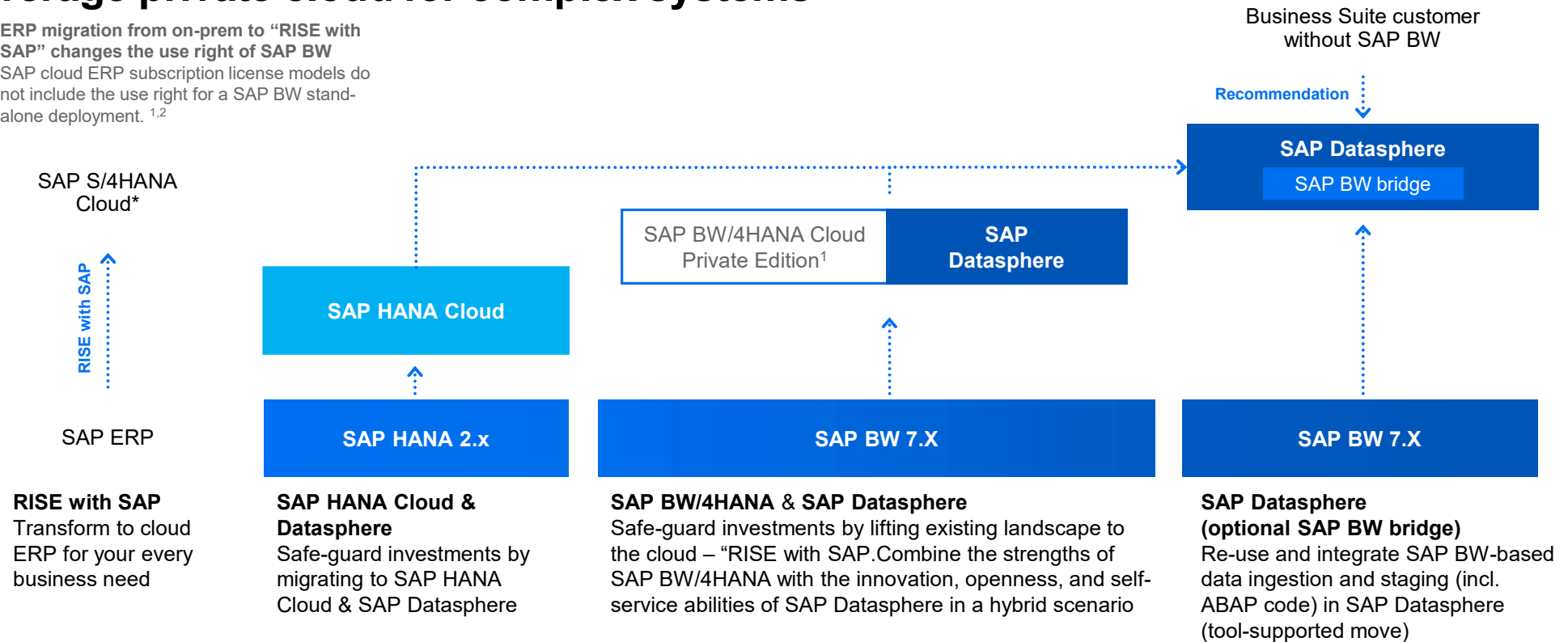
# SAP Reference Architecture



# Safeguard investments & transition to the cloud

## leverage private cloud for complex systems

ERP migration from on-prem to “RISE with SAP” changes the use right of SAP BW  
 SAP cloud ERP subscription license models do not include the use right for a SAP BW stand-alone deployment. <sup>1,2</sup>



<sup>1</sup> SAP BW/4HANA is fully supported until 2040 and can also be deployed on-premises; SAP BW NetWeaver 7.5 available in private cloud

<sup>2</sup> SAP cloud ERP includes the embedded BW

More information on the [SAP Datasphere Roadmap](#)

# Supporting Data-Driven Decision-Making with SAP® Data and Analytics Solutions

## Before: Challenges and Opportunities

- Multiple, disparate data silos and a reliance on numerous third-party analytic visualization tools
- Data duplication and different database versions across different departments
- Complex data management and analytics infrastructure that was costly to maintain and difficult to safeguard from security risks
- Requirement to reduce IT time spent on reporting by providing business users with self-service modeling tools

## Why SAP and Applexus Technologies Inc.

- Unified data and analytics foundation based on SAP® Business Technology Platform (SAP BTP)
- SAP Datasphere to consolidate and model data from both SAP and third-party sources
- Rich visualization functionality and self-service reporting tools provided by the SAP Analytics Cloud
- Project planning guidance and implementation support from SAP partner Applexus Technologies Inc.

## After: Value-Driven Results

- Trusted view of the truth, streamlining reporting processes and increasing employee confidence in the data
- Intuitive self-service tools, providing business users with fast access to detailed analytics reports
- Less time spent by IT generating reports, freeing up time for higher-value tasks
- Simpler, cloud-based data and analytics infrastructure that is straightforward to keep updated while meeting data governance requirements



“The business data fabric architecture enables us to bring SAP and non-SAP data together in the seamless and self-service way we’ve been envisioning. **SAP Datasphere provided us with a solution to build a harmonized layer across SAP and non-SAP, cloud, or on-premise data sources**, making the best use of our existing investments in SAP, Microsoft Azure, Salesforce, and Oracle.”

David Johnston, CIO, Messer Americas

One

Trusted foundation for enterprise-wide information

100%

Of data modeling tasks achievable using self-service tools

Featured Partner



**Messer Americas**  
Bridgewater, New Jersey  
[www.messeramericas.com](http://www.messeramericas.com)

**Industry**  
Oil, gas, and energy

**Products and Services**  
Industrial gases

**Employees**  
5,000

**Revenue**  
US\$3.8 billion

**Featured Solutions**  
SAP BTP, SAP Datasphere, and SAP Analytics Cloud



# SAP Datasphere Summary



## Complete End-to-end Solution

Unified data and analytics service providing a complete end-to-end solution with one semantic view designed for business and IT.



## Connect to SAP Data with Business Context

Out-of-the box understanding of SAP data with semantic business context from SAP applications.



## Connect and Collect Data from all Sources

Data virtualization, replication and orchestration from SAP and third-party solutions across clouds and with on-prem.



## Semantic Business Modelling

User empowerment with self-service modeling, governance and IT control. User ability to connect own data, share it securely, and run analytics without affecting other users.



## Spaces Management & Data Sharing

Independent virtual work environments to foster collaboration and enable data sharing between IT, business units, and projects to connect global and local data.



## Re-use & Extend SAP BW Investments

Leverage SAP BW data structures, transformations, customizations, and skills to quickly extend your SAP BW investments to the public cloud.



## Choice and Openness

Multi-cloud support and open interfaces with choice of modeling environments, analysis tools & languages (SQL, Python, Jupyter notebook etc.) – from business analysts to data scientists to developers.



## Business Content

Pre-built data models, semantic views of SAP ERP data (CDS views & Service APIs), and transformation leveraging SAP's business expertise and ecosystem partners' knowledge.



## Integrated Data Marketplace

Data Marketplace manages scalable and decentralized cross tenant data exchange for data providers & consumers. Use Intelligent Lookup to match imperfect data sets for enterprise-ready usage.



## Future Platform for Planning\*

Streamlining planning and analysis with reduced modelling efforts, while operating on a single source of truth for analytics and planning across the organization.



# SAP Datasphere. SAP Road Map Explorer

**SAP** Road Map Explorer

Products Processes Industries

## SAP Road Maps

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

Search SAP Road Maps by keywords, topics, products, processes, industries, and more.

Check the latest information on the [SAP ROAD MAP EXPLORER](#)

SAP Road Map Explorer

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SAP Data 143 Road Map Items

Products Industries Focus Topics

Q4 2021 13 Road Map Items Q1 2022 14 Road Map Items Q2 2022 18 Road Map Items Q3 2022 8 Road Map Items Q4 2022 1 Road Map Items Q1 2023 12 Road Map Items Q2 2023 12 Road Map Items Q3 2023 10 Road Map Items Q4 2023 11 Road Map Items

Business Modeling

- Ability to handle test associations in business entities
- SAP BW bridge
- Data Center Availability
- Data Integration
- Data Integration
- Loading of the Microsoft Excel format in the data flow
- Model transfer functionality support for BW Analytics queries
- Remote tables – filtering
- Scheduling and monitoring options
- View consistency – partitioned execution

Administration and Service Management

- Flexible tenant configuration – self-service provisioning
- S/4HANA content generation: Importing meta data from S/4 HANA
- Business Modeling
- Business Warehouse Bridge
- Shel conversion (metadata transfer) for SAP BW bridge
- Data Integration
- Connection to SAP HANA using a cloud connector
- OData authentication: OAuth2.0 support
- Remote tables – projection
- Data Modeling
- Advanced change management capabilities
- Change management – input parameters

Administration and Service Management

- Automatic mass deployment of imported objects after the analysis...
- Business Modeling
- Calculated measures and exceptional aggregation of measures
- Creation of business entity hierarchies (Controlled availability)
- Business Warehouse Bridge
- ABAP variants in process chains
- Enabling of data transfer for remote conversion to SAP BW...
- Mass activation of inactive objects in modeling tools for the SAP BW...
- Data Integration
- Remote table editor: refresh option for connections based on smart da...
- SAP S/4HANA: model transfer and currency conversion support

Administration and Service Management

- Resource monitoring – key figures on a dashboard
- Business Warehouse Bridge
- Updated usability of the Import wizard
- Data Center Availability
- SAP BW bridge: availability on all remaining Amazon Web Service...
- Data Integration
- SAP ABAP services – support for standard remote function call (RF...
- Data Modeling
- Mass deployment
- Support of compound keys
- Data Provisioning
- Public OData API – general release
- Support for optimized view and design mode
- Support of the choropleth layer in SAP Analytics Cloud for a live...

Administration and Service Management

- Health monitoring in a cloud landscape
- Product experience survey
- Business Modeling
- Ability to replace a zero value with an entry of "null"
- Business Warehouse Bridge
- Deletion of overlapping requests as a process chain variant
- Improvements to the Web cockpit and BW modeling tools: display of...
- Data Integration
- Improvements to the Web cockpit and BW modeling tools: display of...
- Data Modeling
- Data preview – new preview used in the view builder
- Data Preparation
- Data lineage: connections, tables and views, data flows and business laye...
- Data anonymization – SAP BW

Administration and Service Management

- Elasticity and scalability with flexible tenant configuration
- Flexible tenant configuration – self-service to increase the size of...
- Flexible tenant configuration: self-service for scale-down
- Business Modeling
- Analytic Model
- Enabling a business layer for Import-export and business content delivery
- Support of value help for input parameters
- Business Warehouse Bridge
- Ability to add BW process information to SAP BTP: ABAP...
- Data Modeling
- Automatic restart of the data transfer process
- Business Warehouse Bridge
- Public data marketplace – Open SQL and OData access through...

Business Warehouse Bridge

- ABAP package assignment to objects in SAP Business Warehouse...
- Automatic restart of data transfer processes and process chain...
- Data extraction: use of operational data processing through HTTP
- Explorer to show ABAP package hierarchy with BW objects
- Model transfer between SAP BW bridge and SAP S/4HANA – new...
- Write Interface-enabled InfoObjects (IOEs)
- Data Center Availability
- Data center availability in North America through Google Cloud...
- SAP BW bridge: data-center availability in the U.S. and Europe...
- Data Marketplace
- Data sharing cockpit – live access for cross-recent loads
- Public data marketplace – Open SQL and OData access through...

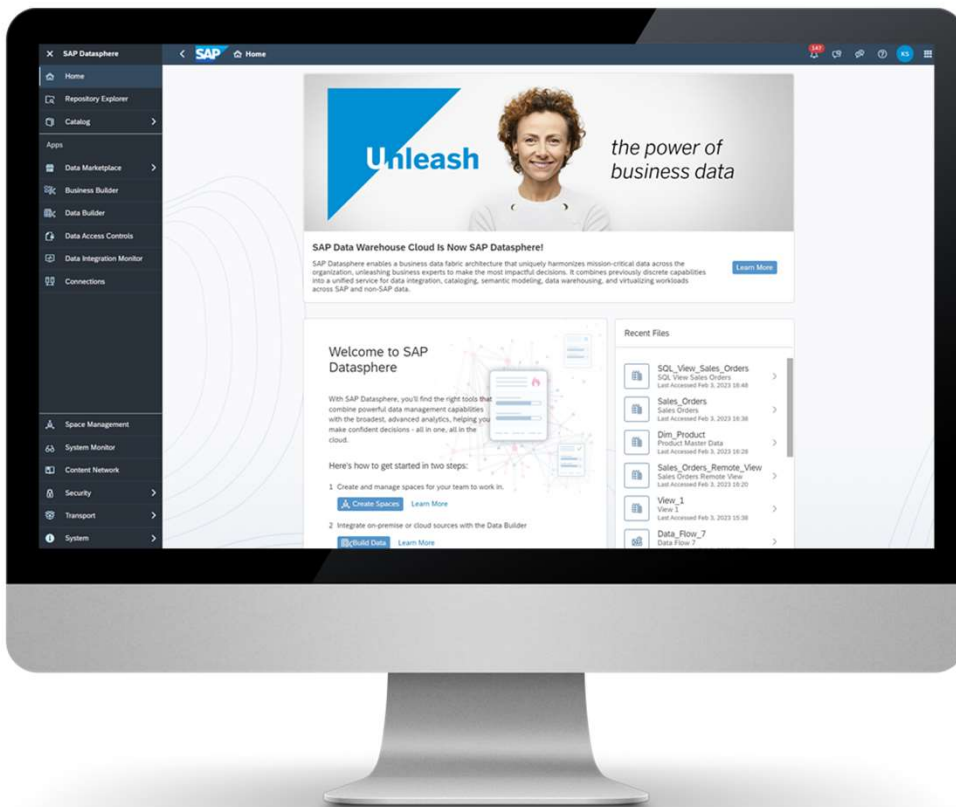
Administration and Service Management

- Elasticity and workload – support configuration of elastic read nodes
- Elasticity and workload – support configuration of elastic read nodes
- Business Warehouse Bridge
- Data being optimization and code storage
- Handling and reuse of hierarchies in SAP BW bridge
- Overview of migrated queries and the option to delete from SAP BW...
- Resolving the composite provider during model import
- Data Center Availability
- Use SAP Data Warehouse Cloud data as source for SAP BW bridge
- Data Cataloging
- Data profiling for SAP HANA
- Metadata extraction for SAP HANA

Administration and Service Management

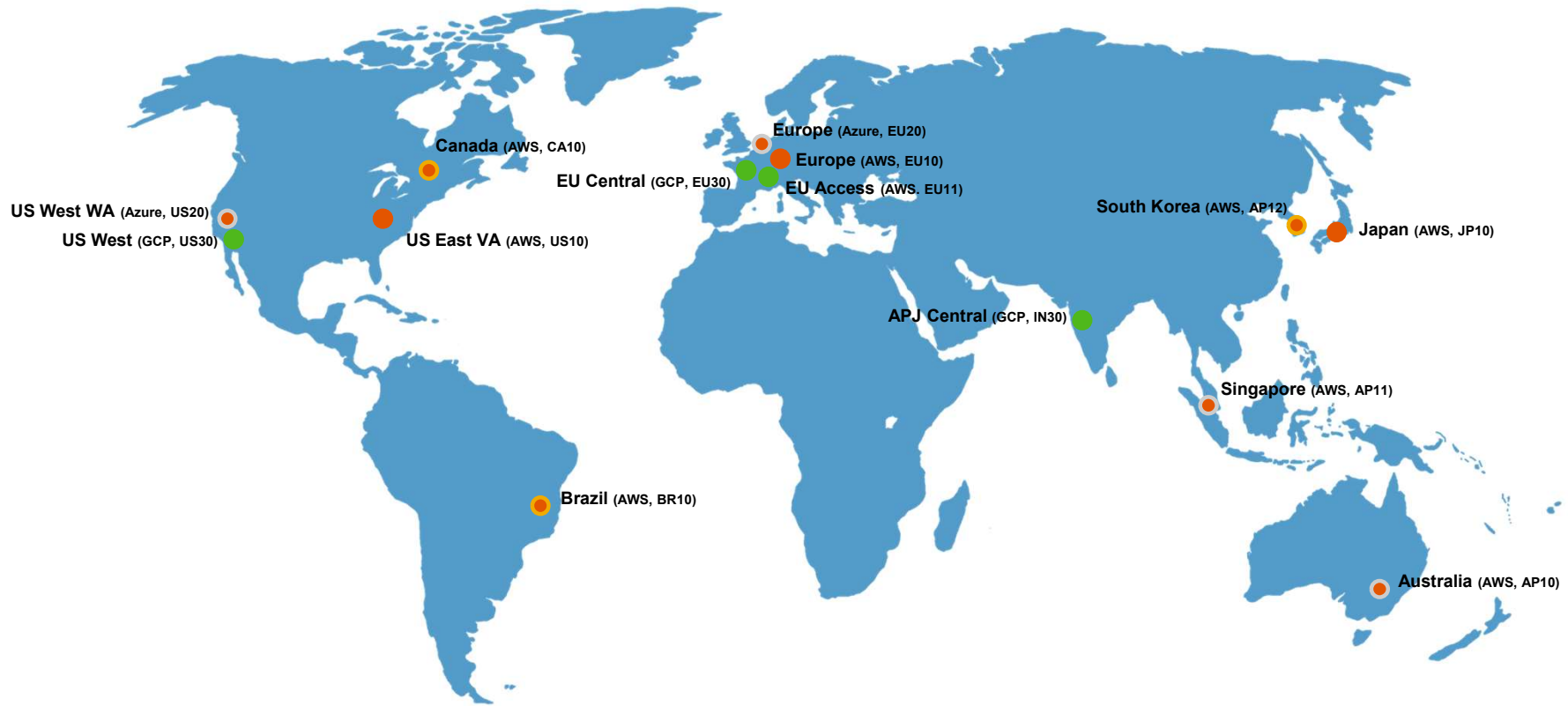
- Central Notification Center
- Unified home: focus on priority action items and next to need-to...
- Data Cataloging
- Cross application lineage for reporting, modeling, databases, an...
- External API for one data catalog
- Harvesting metadata from additional sources: synchronous replication...
- Workflow Management
- Data Center Availability
- Data center availability in the Asia-Pacific region through Google Clo...
- Data center availability in the European region through Google...
- Data Modeling
- Multilingual content support

## More information



- Check out the product page on [sap.com](https://sap.com)
- Get started with [documents & training](#), [videos](#) or visit our [Learning Journey](#)
- Use the [tutorials](#) to learn more
- Join the [Community](#) and check out the [Best Practices](#) recommendations
- Online Documentation on [SAP Help](#)


# Operate. Global Data Center Availability



- Active Data Center
- Active Data Center w/o BW bridge
- Active Data Center w/o Data Lake & BW bridge
- Planned Data Center for 2023\*

# Thank you.

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