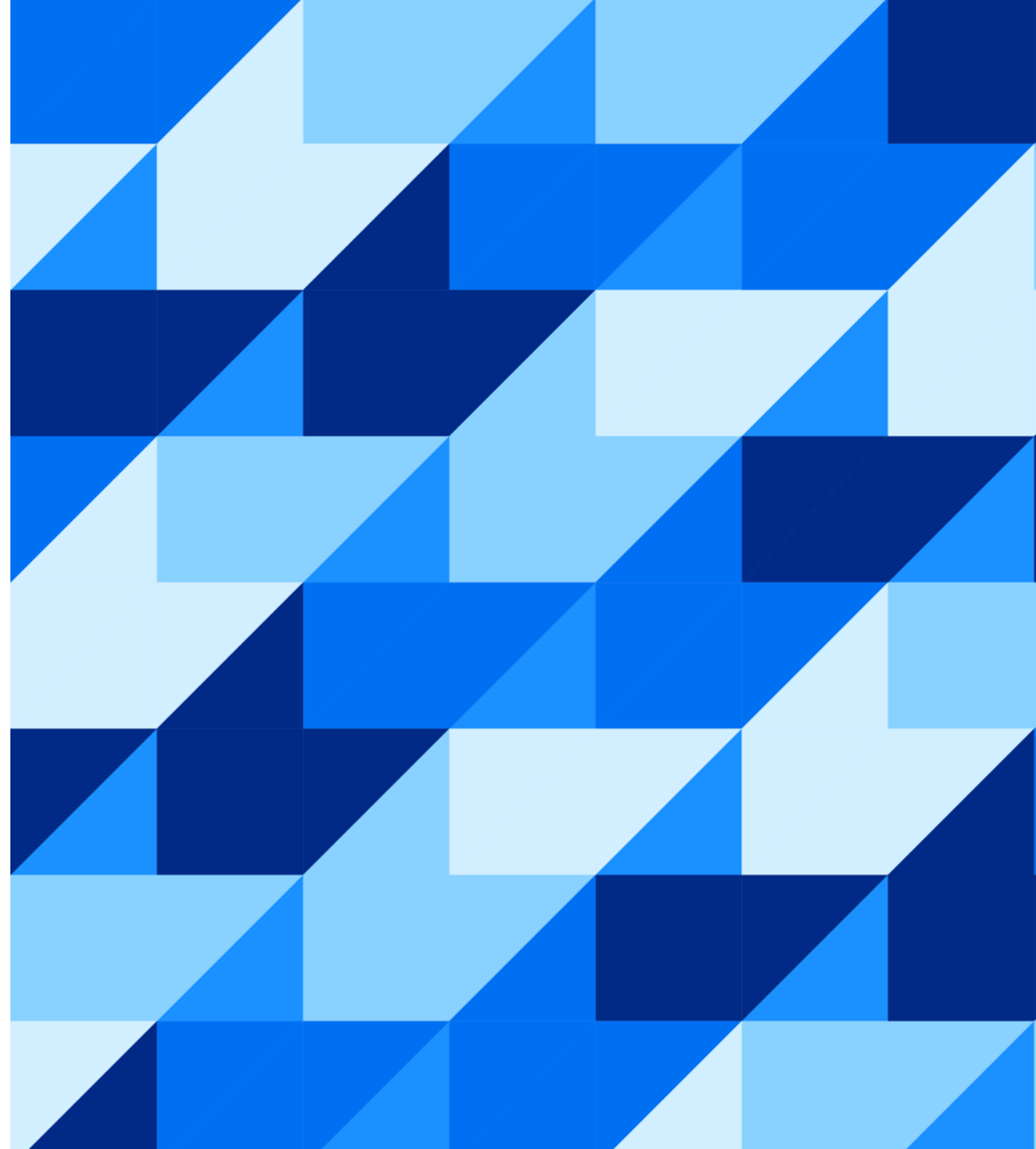# SAP Datasphere
Unleash the power of business data

Florian Neukirch, SAP
February 20, 2024

Public

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
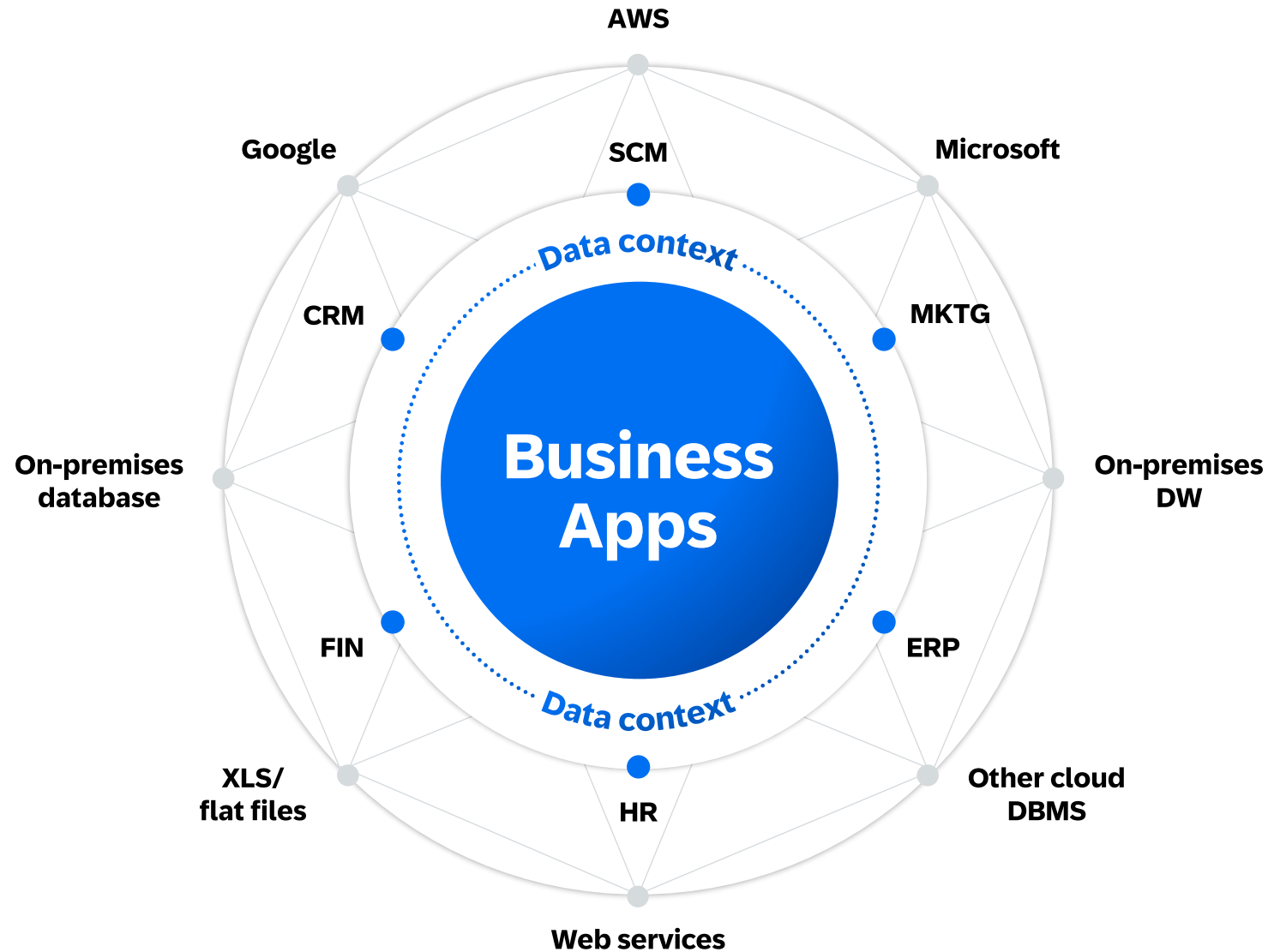
(Multi-) cloud brings new opportunities and challenges

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

Technology Needs

Centralized governance (financial privacy and compliance)

Simplification of the ever-growing data landscape

Business Needs

Self-service access to trusted business data— delivered in business terms

Real-time data to support business apps, insights, and analytics across hybrid and multi-cloud

SAP Datasphere is the foundation for a business data fabric architecture
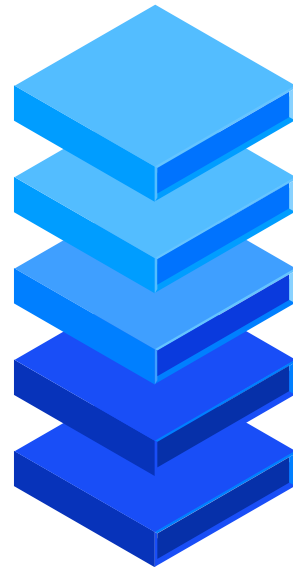
Data consumers

Planning and analytics · Intelligent data apps · Data science

SAP Datasphere running SAP BTP

Security

Access control

Availability

Discovery, consumption, sharing & self-service
space, data product, marketplace

Governance
cataloging, metadata management, lineage, privacy, quality

Business semantics
semantic onboarding, entity import, business content

Modelling
relational & rich analytic models, lifecycle management, authorizations

Data integration & preparation
real-time replication & federation, transformation, scheduling, monitoring

SAP and non-SAP data

Applications · On-premises Data Warehouses · Cloud Data Warehouses and Lakehouses · Relational Databases · Unstructured/ Semi-structured Data

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
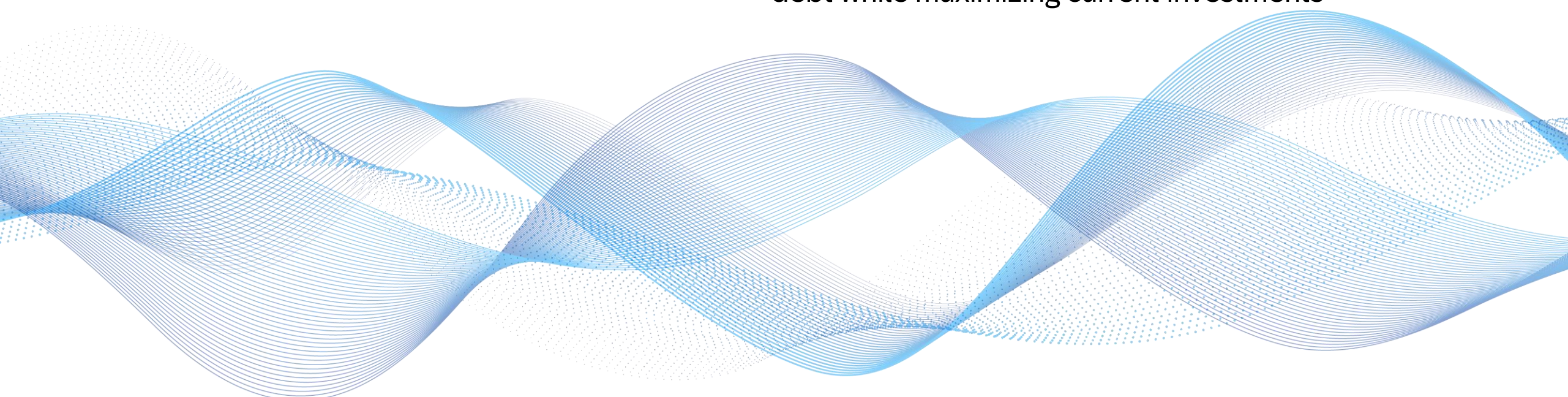
Integrated Data & Analytics portfolio to realize our vision

Planning and analytics
⌄

Data management and data warehousing
⌄

Operational databases
⌄

Extended planning and analytics

Take enterprise planning to the next level with an optimized, vertically integrated consumption layer for planning and analytics workloads.

SAP Analytics Cloud

⟷

Business data fabric

Deliver an integrated, semantically rich data layer over underlying data landscapes to provide smooth and scalable access to data without duplication.
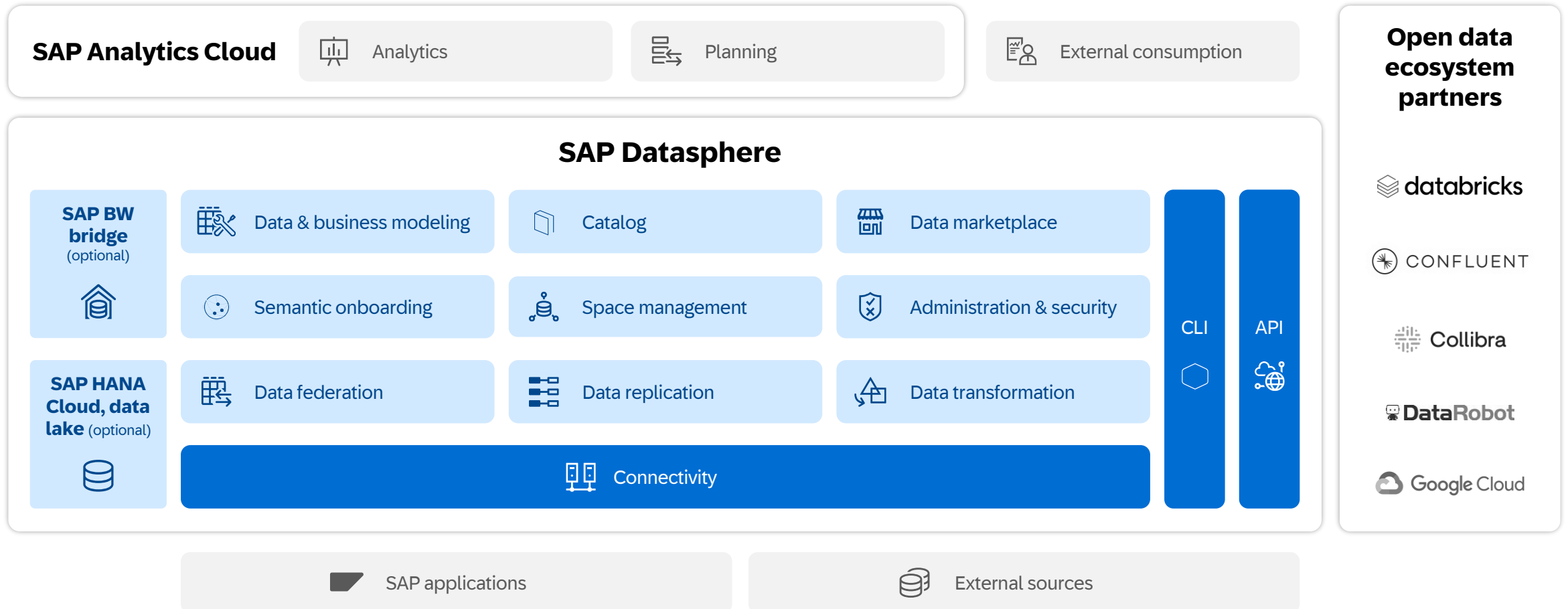
SAP Datasphere

⟷

Intelligent data applications

Build apps leveraging analytical capabilities (machine learning, graph, spatial), combining historical and real-time data.

SAP HANA Cloud

SAP Datasphere overview

SAP Analytics Cloud

Analytics	Planning	External consumption

SAP Datasphere

SAP BW bridge (optional)

SAP HANA Cloud, data lake (optional)

Data & business modeling	Catalog	Data marketplace
Semantic onboarding	Space management	Administration & security
Data federation	Data replication	Data transformation

CLI

API

Connectivity

Open data ecosystem partners

databricks

CONFLUENT

Collibra

DataRobot

Google Cloud

SAP applications

External sources

Different ways to connect data to SAP Datasphere

Built-in connectors →

Data marketplace →

Open connectors →

SAP BW bridge →

External tooling →

SAP Datasphere

Connection 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

Adverity | Precog

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

Outbound targets

SAP Datasphere

SAP HANA on-prem & Cloud

SAP HANA, Data Lake Files

Amazon S3 | Azure Data Lake Store Gen2

Google Cloud Storage | Google BigQuery

Apache Kafka

SAP Help: Connection overview

■ Available   ■ Partner

Federation and replication options

Remote tables

Virtual Access
⌄
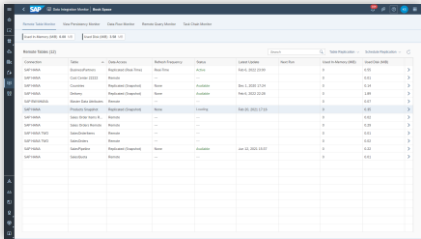
Replication
⌄

Remote table federation

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

⇄
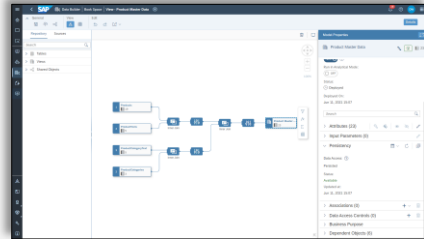
Remote table replication

- Real-time replication or snapshots using single entities
- Schedule via task chains

View persistence

- Materialize view output results in a stable persistence
- Schedule via task chains

Cloud native data integration

Replication flow
⌄

Transformation flow
⌄

Data flow
⌄
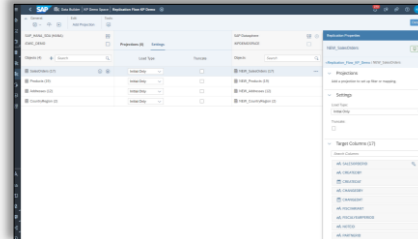
Mass data replication

- Data replication with multiple entities from a variety of sources
- Flexible targets to Datasphere and outbound target systems
- Support initial and delta replications from various sources
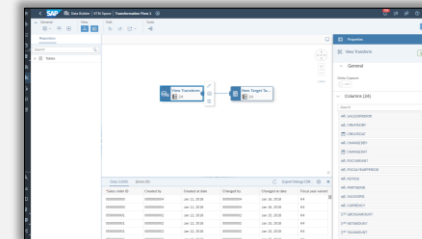
Cloud-based data transformations

- Load data from one or more source tables and apply transformations (e.g. SQL, field-based)
- Store output results in a local target table
- Supports to process delta changes
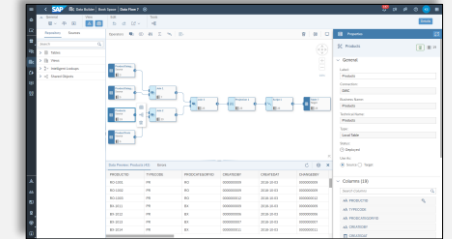
Batch loads & transformations

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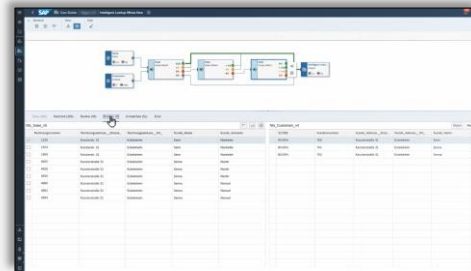- Schedule via task chains

Data modeling using integrated editors

Built-in editors
covering no code to pro code

| **Graphical & scripted view**	**Intelligent lookup**	**Business model**	**Analytic model**
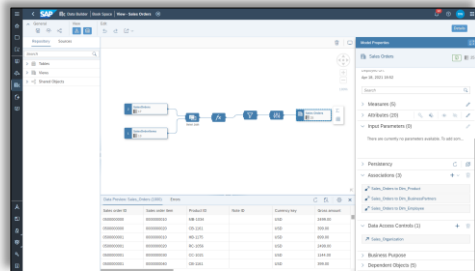
- Collection of no code/low code editors to support graphical modeling
- Model E/R-models, tables, views, SQL & SQL-script views
- Focuses on most-used modeling operators

- Interactive data harmonization environment
- Iteratively join entities by defining rules to match records
- Mappings created once and can be automated through rules
- Use output view in other models
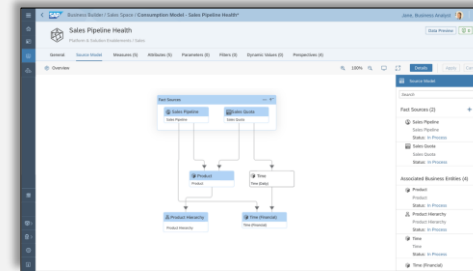
- Allow for a greater degree of self-service
- Non-disruptive environment for business scenarios – independent from the data integration layer
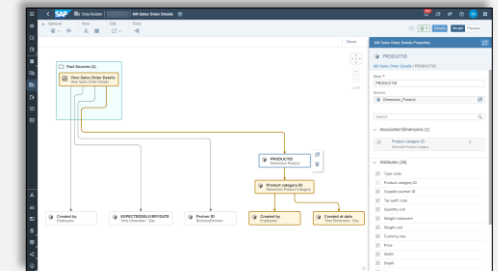
- Rich multi-dimensional & analytical modelling reusing pre-defined measures, hierarchies, filters, parameters & associations
- Built-in analytical preview incl. filtering, pivoting, hierarchies, etc.
- Seamlessly integrates with SAP Analytics Cloud and Office 365 to analyze data

Reuse SAP business semantics with a single entry point

Semantic onboarding

Bringing together all features & processes that allow SAP customers to make semantics available at ease & scale
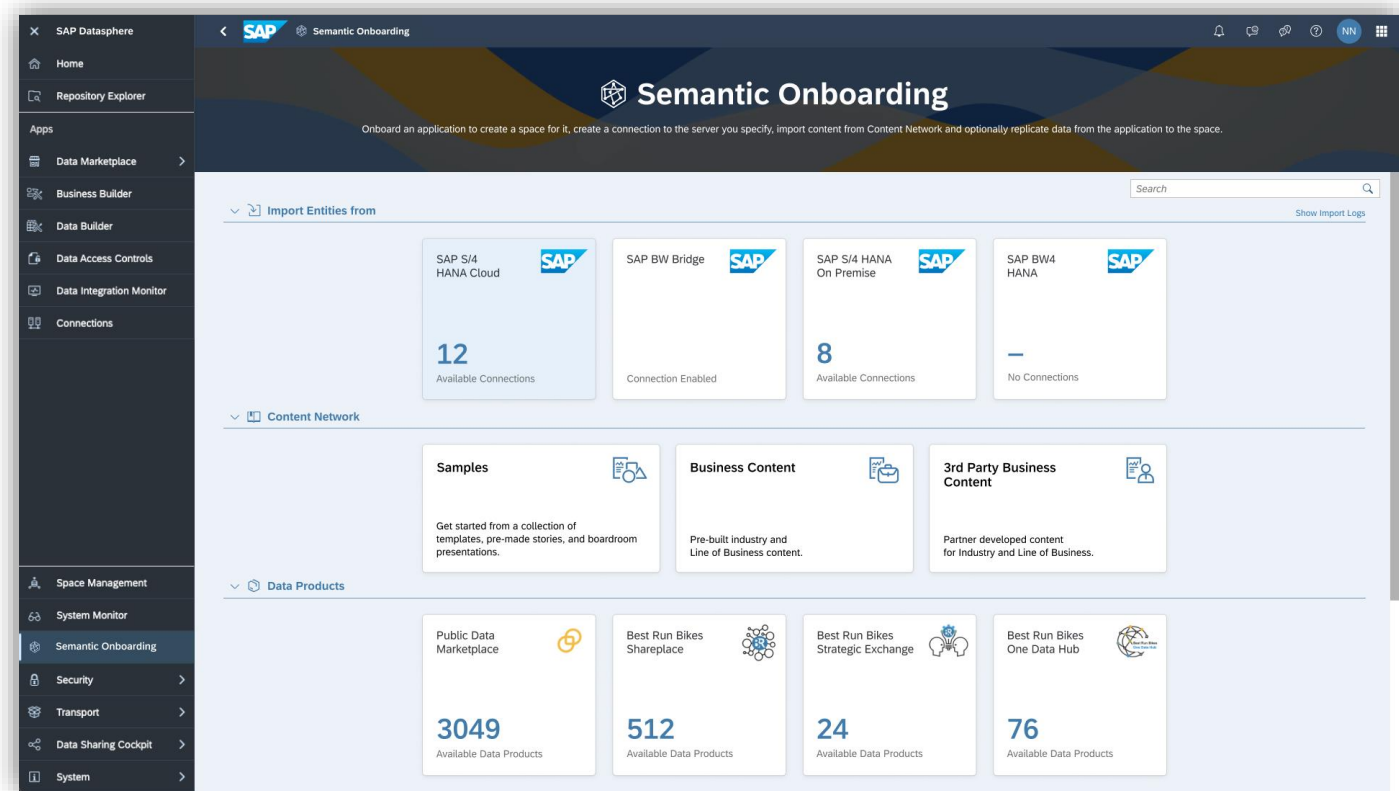
Import entities

Harmonize existing metadata import options from SAP S/4HANA Cloud, SAP S/4HANA, SAP BW, SAP BW/4HANA

Content network

Bring in prebuilt SAP and 3rd party business content as accelerator

Data products

Access customer and partner managed data products to democratize SAP data within SAP Datasphere & beyond via API

SAP business content
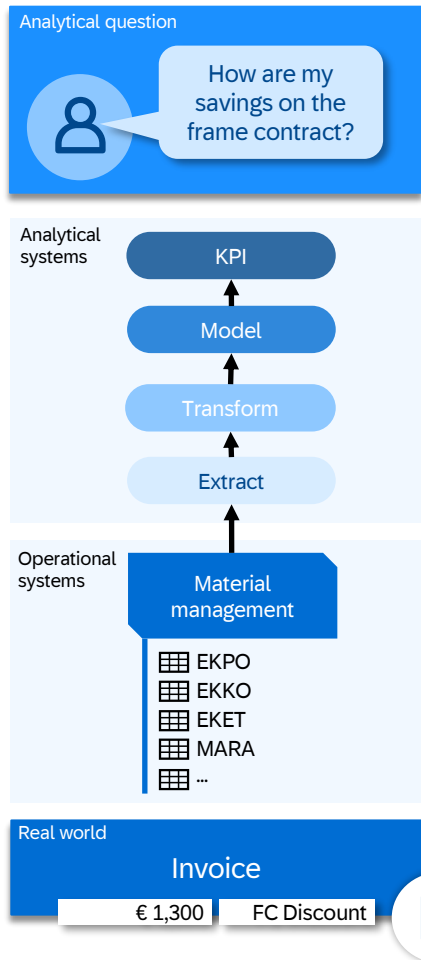
Business content collection

Leverage SAP's business expertise and knowledge from our ecosystem of partners with prebuilt data models, semantic views of SAP application data, and transformation logic.
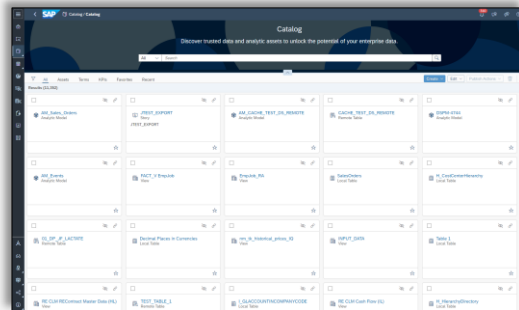
Continuously growing number of content packages

- 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 via semantic onboarding (1,000+ Fiori apps ready for import)
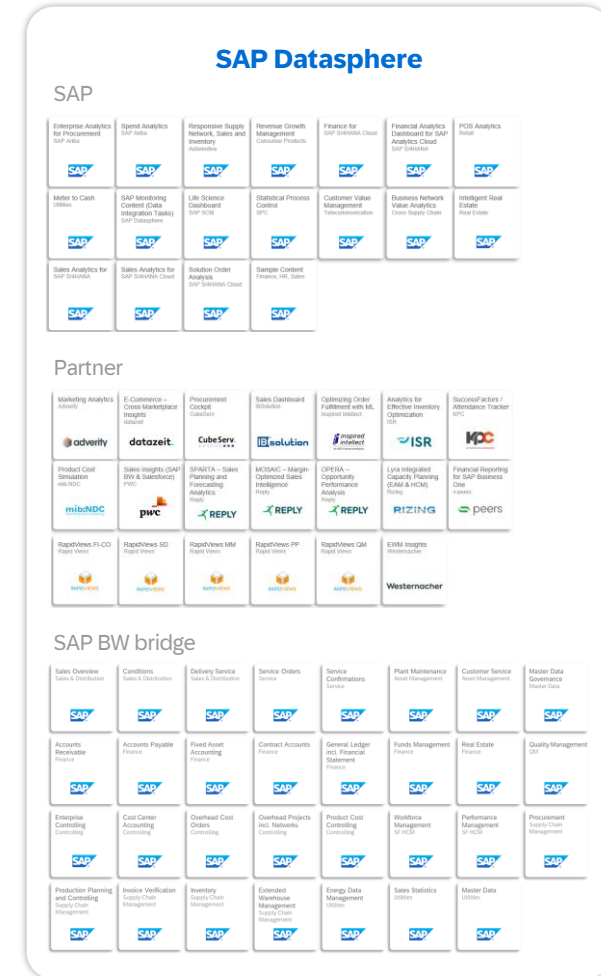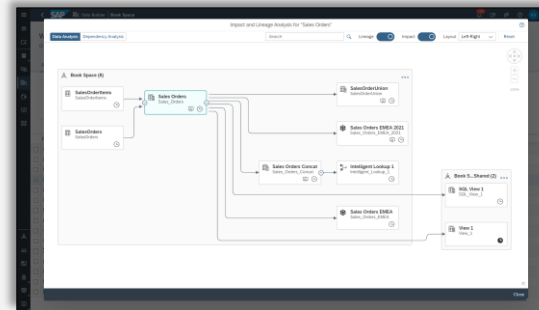
Governance in SAP Datasphere

Governance across all areas

Catalog

- The central place to discover, classify, profile, understand, and prepare all the data in your enterprise beyond SAP Datasphere only

- Map out a connected view of your data sources, build & apply data governance processes, and offer trusted, self-service data discovery to your users

Metadata & lineage

- Use the repository explorer to browse, create and import objects in SAP Datasphere

- Search and filter the list of existing objects or open them centrally
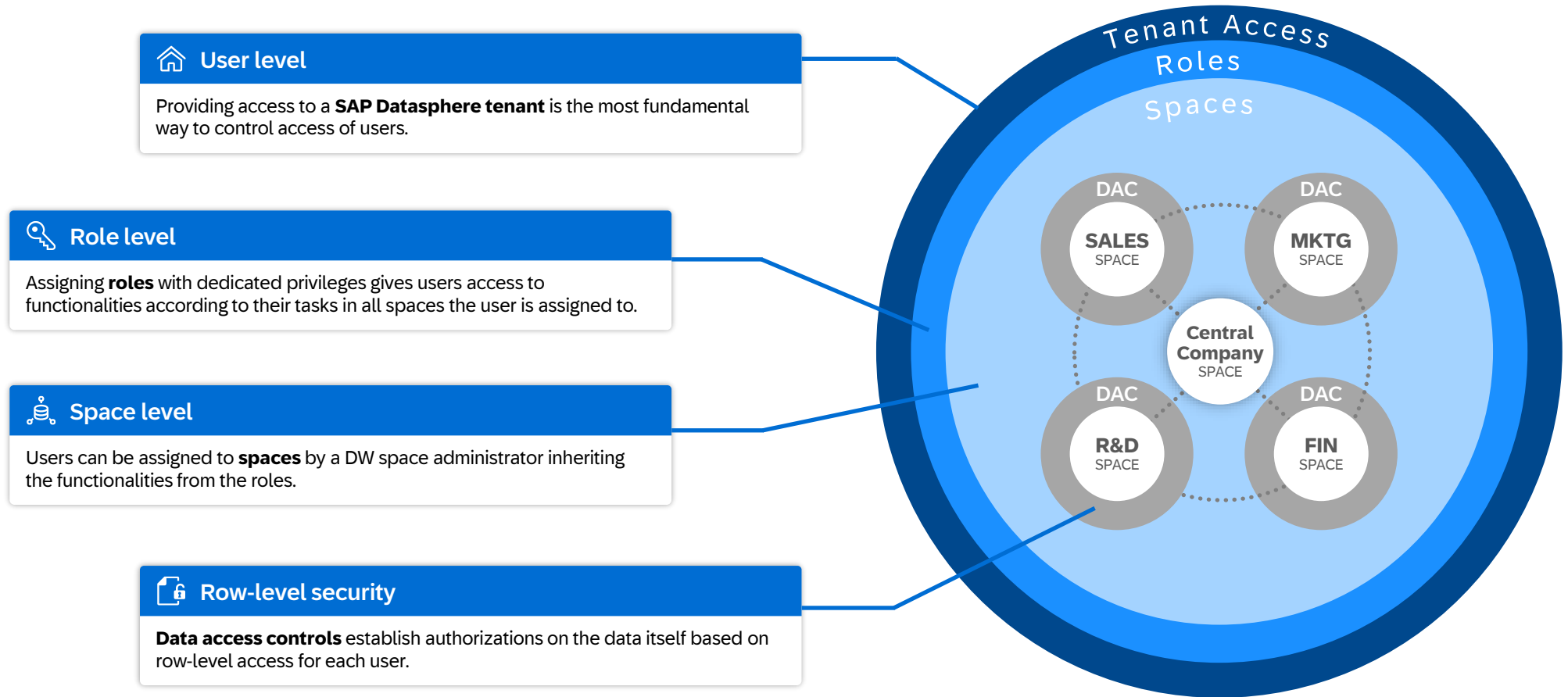
Data privacy
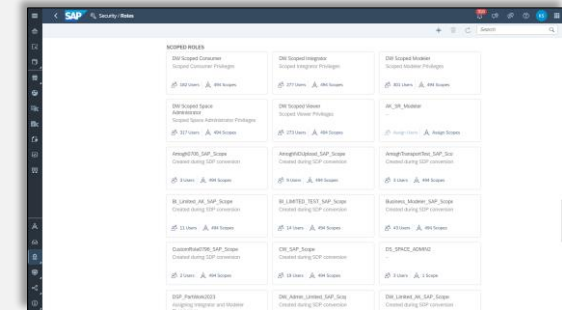
- SAP Datasphere is designed to fulfill the highest security standards which guarantee the safety of your data

- Security options range from cloud network communication and identity provider settings to user and access management as well as spaces, roles and data access controls

Different levels of authorizations in SAP Datasphere

Before introducing scoped roles

User level

Providing access to a **SAP Datasphere tenant** is the most fundamental way to control access of users.

Role level

Assigning **roles** with dedicated privileges gives users access to functionalities according to their tasks in all spaces the user is assigned to.

Space level

Users can be assigned to **spaces** by a DW space administrator inheriting the functionalities from the roles.

Row-level security

Data access controls establish authorizations on the data itself based on row-level access for each user.

Tenant Access
Roles
Spaces

DAC — **SALES** SPACE

DAC — **MKTG** SPACE

Central Company SPACE

DAC — **R&D** SPACE

DAC — **FIN** SPACE

Challenge
The roles of users are the same for all spaces they are assigned to, and cannot be different from space to space.
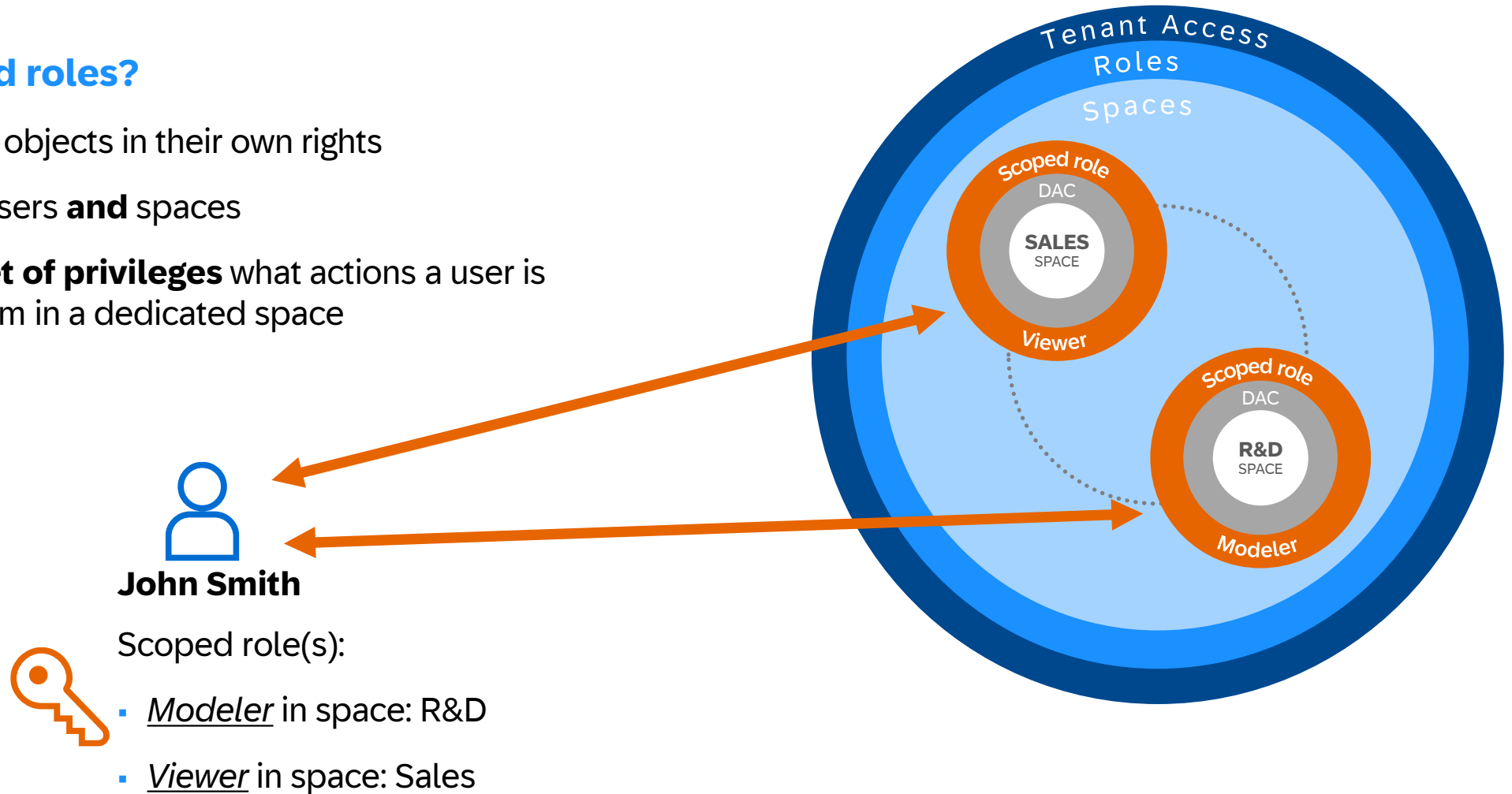
Different levels of authorizations in SAP Datasphere

Introducing scoped roles

What are scoped roles?

- Scoped roles are objects in their own rights

- Are assigned to users **and** spaces

- Define by their **set of privileges** what actions a user is allowed to perform in a dedicated space

John Smith

Scoped role(s):

- *Modeler* in space: R&D

- *Viewer* in space: Sales

Tenant Access Roles
Spaces

Scoped role
DAC
SALES SPACE
Viewer

Scoped role
DAC
R&D SPACE
Modeler

It all starts with a space in SAP Datasphere

What is a space?

A space is a secure area created by an administrator, in which members can acquire, prepare, and model data.

MY_WONDERFUL_SPACE
My Wonderful Space

✓ Healthy

Deployed on Feb 23, 2023 02:23

Storage:
2.5 GB of 5 GB

Memory:
1.5 GB of 2 GB

SAP Datasphere

👥 72 🗄 9 📋 143   Edit

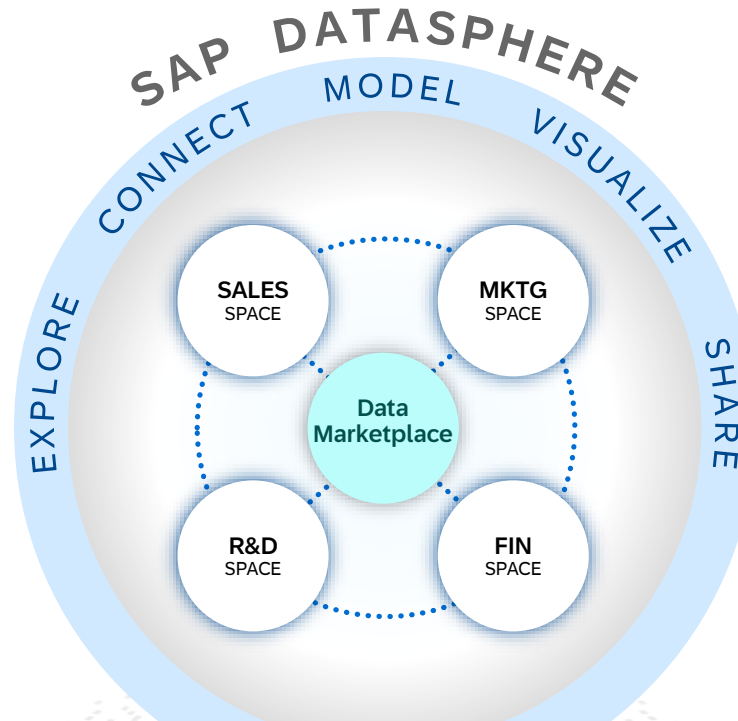**Resources** | Storage & RAM

Users | Only members get access

Connections | SAP & non-SAP systems

Models | Tables, views, data flows, …

Sharing | Tables & views

Reusable data products can be accessed in clicks for better, faster & more scalable data collaboration across spaces

Independent virtual work environments
for departments, LOB's, data domains, project teams, and individual

Data sharing fosters collaboration
between IT, business units, and projects to connect global & local data

Get in control of data sprawl
by reusing shared data & avoid maintaining disconnected data sets

SAP DATASPHERE

MODEL
CONNECT
VISUALIZE
EXPLORE
SHARE

SALES SPACE
MKTG SPACE
Data Marketplace
R&D SPACE
FIN SPACE

IT GOVERNANCE • SECURITY • TRUST

SAP BW bridge
Native connectors
Open interfaces

SAP data
3rd party application data

Public & private data exchange
with other enterprises to access external data, collaborate or monetize data

Open partner ecosystem

Data marketplace
3500+ data products

Customers with SAP Datasphere

SAP Datasphere data marketplace

Facilitates self-service data exchange within and between enterprises to be a driving force for data democratization

Ecosystem tenants
Interaction · Collaboration · Business

Corporate tenant
Stability · Governance · Performance

LOB tenant
Access · Freedom · Business

Data provider SPACEs

Data monetization SPACEs

Data collaboration SPACEs

Public & private data exchange

STORE · CONNECT · MODEL · VISUALIZE · SHARE

SALES SPACE

MKTG SPACE

Data Marketplace

R&D SPACE

FIN SPACE

Internal data marketplace

Self service SPACE

Key components of the Data Marketplace

Data Provider

- Create Data Products on top of existing data assets
- Democratize data within organizations

Context

- Define visibility of Data Products
- Clearly define group of Data Consumers per Data Product
- Invite users, tenants or 3rd party stakeholders
- Define who is able to ship and consume data with predefined context types

Data Product

- Contains Views on top of data
- Provides metadata information
- Different delivery methods available

License

- Manage accessibility of Data Products
- Leverage licenses in commercial set ups and/or for sensitive data

Consumption in SAP Analytics Cloud and add-in for MS Office

Tight integration with SAP Analytics Cloud for analytics and planning

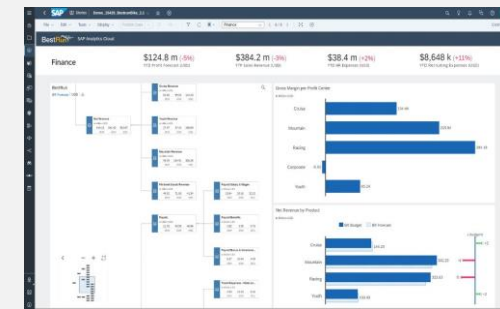### SAP Analytics Cloud, analytics
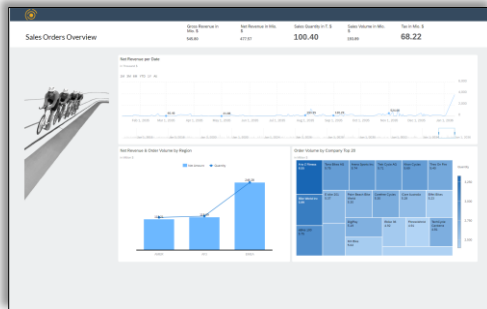
- Direct consumption of SAP Datasphere data models in SAP Analytics Cloud using a live connection
- Multiple SAP Datasphere tenants can be connected to any number of SAP Analytics Cloud systems

Microsoft Office
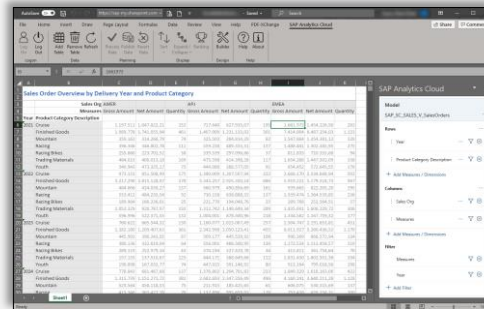
- SAP Analytics Cloud, add-in for Microsoft Office 365 with live connection for online or desktop version
- SAP Datasphere with SAP Analysis for Microsoft Office 2.8 SP14+

SAP Analytics Cloud, planning

- Bi-directional integration of SAP Datasphere and SAP Analytics Cloud for planning
- Use OData API to pull data from SAP Datasphere into planning
- Use data export service API to pull data into SAP Datasphere

SAP Datasphere

Why SAP Datasphere

Foundation for business data fabric
Comprehensive data service that enables every data professional to deliver seamless and scalable access to mission-critical business data.

Connect to SAP data with business context
Out-of-the box understanding of SAP data with semantic business context from SAP applications using semantic onboarding and prebuilt business content data models.
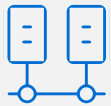
Connect and collect data from all sources
Data virtualization, replication, orchestration and distribution from and to SAP and external solutions across cloud and on-premises landscapes.

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

Space 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.

Reuse & extend SAP BW investments
Leverage SAP BW data structures, transformations, customizations, and skills to quickly extend your SAP BW investments to the public cloud using the SAP BW bridge or hybrid scenarios.

Open interfaces and partner ecosystem
Hyperscaler choice with data centers in a variety of regions, open interfaces for data integration and consumption, and integration with industry-leading ecosystem of data and AI partners.

Governance and metadata management
Ensure governance, metadata management and data lineage throughout the data lifecycle and across systems: discover, manage, and govern all data using the catalog.

Integrated data marketplace
The data marketplace leverages trusted data partners and allows to securely share data across the organization with public, private and company-internal data products across tenants.
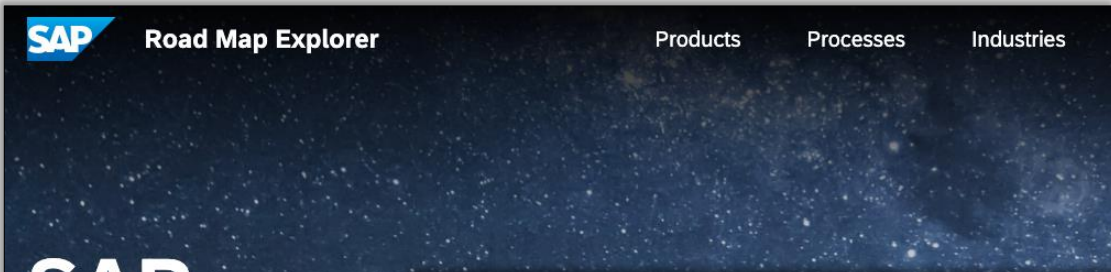
Foundation for planning
Streamlining planning and analysis with reduced modelling efforts, while operating on a single source of truth for analytics and planning across the organization.
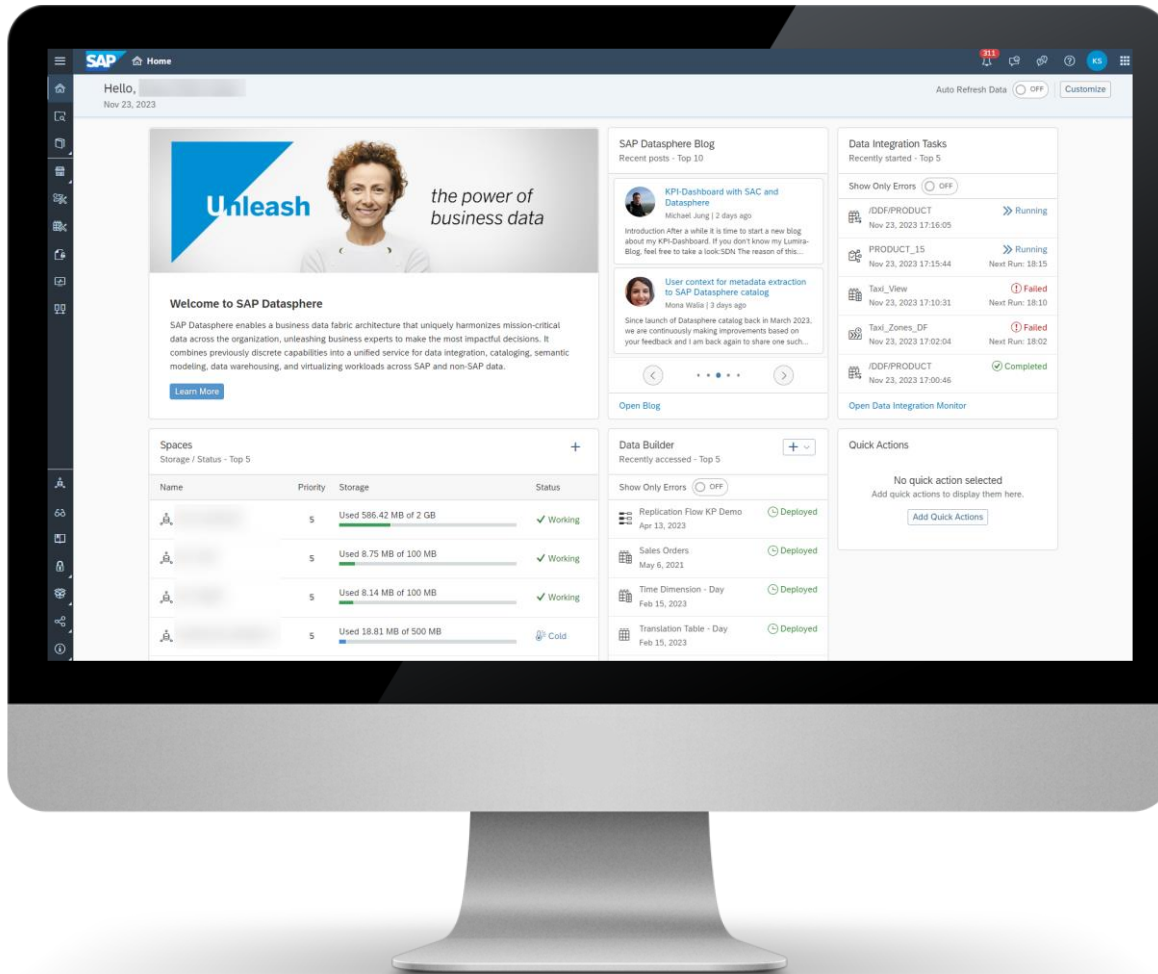
SAP Road Map Explorer

Check the latest information on the
SAP ROAD MAP EXPLORER

More information

- Check out the product page on sap.com and get access to a guided experience trial system

- Get started with documents & videos

- Use the tutorials and our learning journey to learn more

- Stay updated using the release navigator

- Join the community and check out the best practices recommendations

- Add your ideas and requests for new features on the SAP Datasphere customer influence

- Online Documentation on SAP help

Thank you.

Contact information:

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Data Warehouse
SAP HANA Database & Analytics

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