

SAP Datasphere

Unleash the power of business data

Morning Hands on Session

Glen Leslie
SAP BTP Center of Excellence, N. America

Public



ASUG

ASUG Developer Tool Days Agenda



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ASUG Ohio Chapter

Agenda

Datasphere Overview, Strategy for BW Customers and Roadmap - 45mins

Datasphere Hands On Lab: 120 mins plus break

- Data Acquisition using Replication Flow
- Data Modeling options – Facts, Dimensions, SQL Operations
- Analytic Models
- Catalog Operations
- Connecting SAC using basic Model

Lunch 12:00 – 12:45

SAC Solution Overview, Key Recent Deliveries and Roadmap– 45 mins

SAC Hands On Lab: 90 mins plus break

- Data Wrangling with SAC
- Advanced Exploration and Visualization options
- Story Board Creation / Consumption
- Leverage Embedded Artificial Learning to Predict Outcomes, Impact Analysis and find answers to next questions

Data needs context for authoritative decision-making

Innovation has happened in silos

Data, especially metadata, has been removed from its context

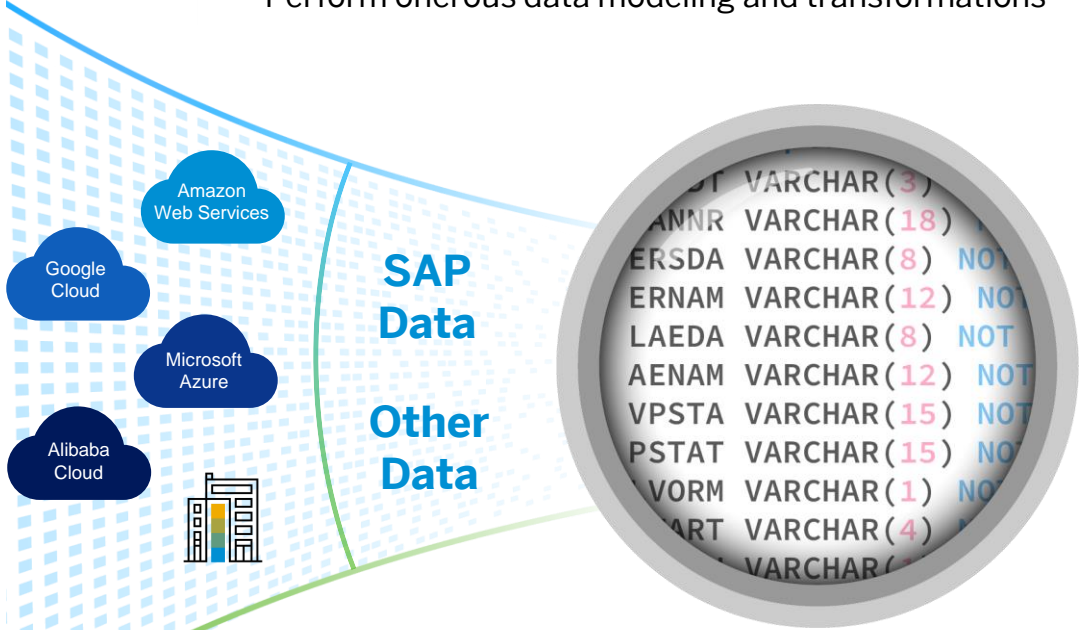
There's been a fundamental error—focusing solely on technology rather than the data



Connect data with **business context**

Typical Approach

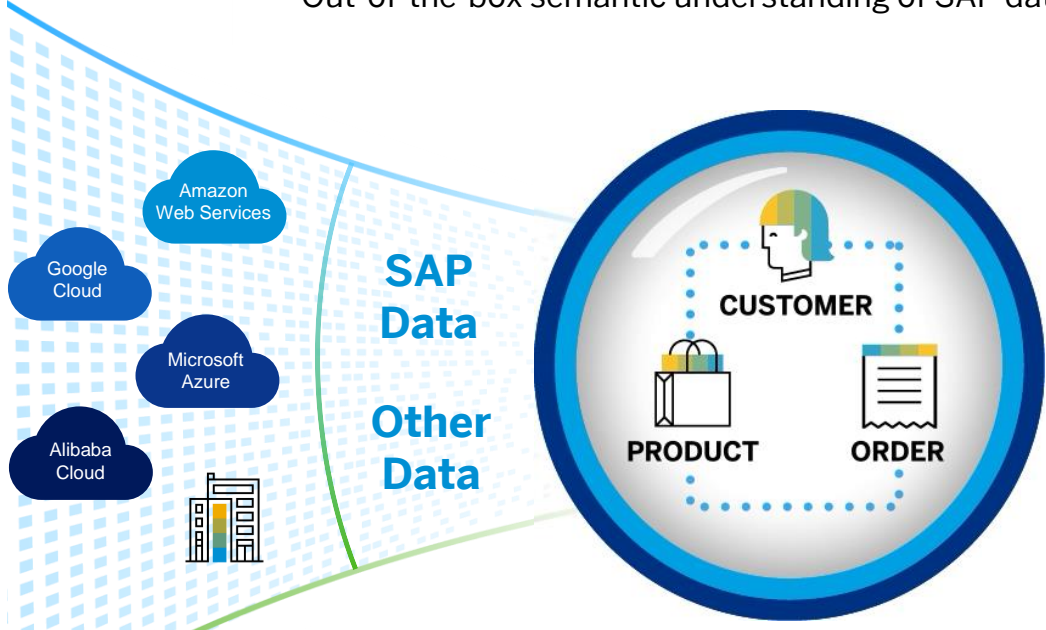
- Copy and move data to meet performance thresholds
- Make sense of obscure data structures and labels
- Perform onerous data modeling and transformations



Copy data and lose context

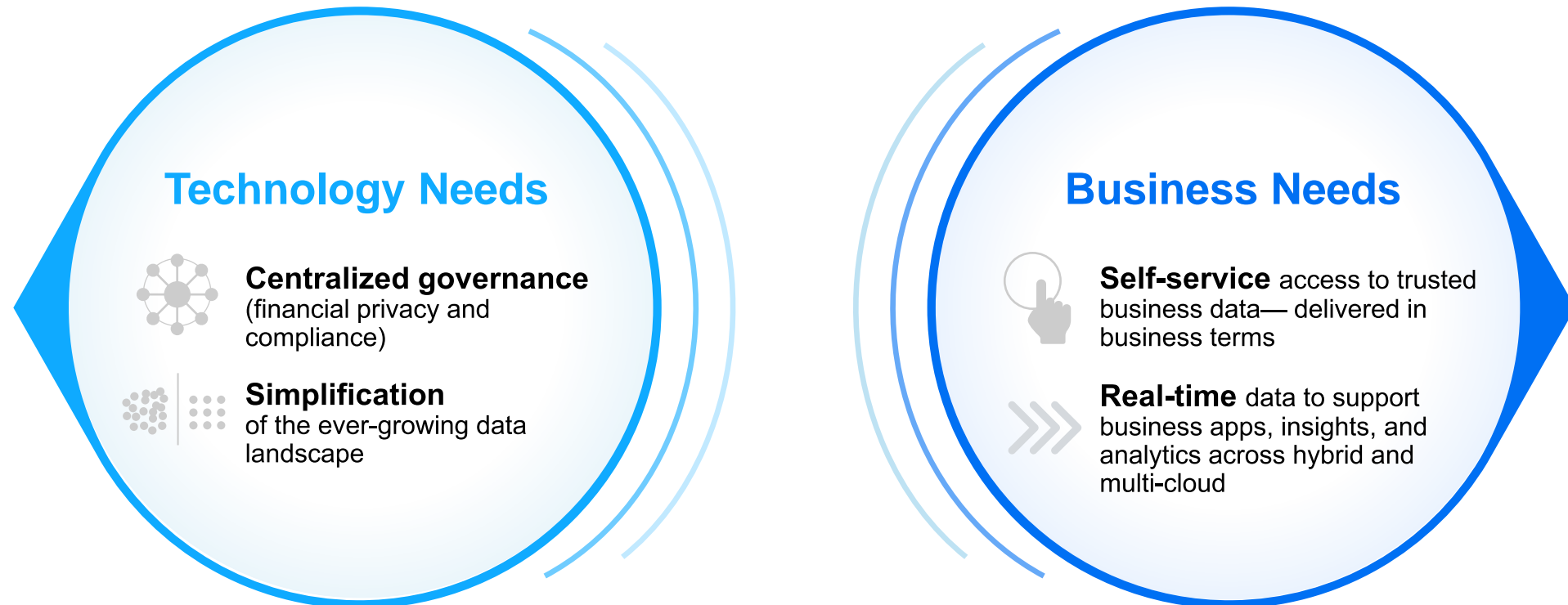
SAP Datasphere

- 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



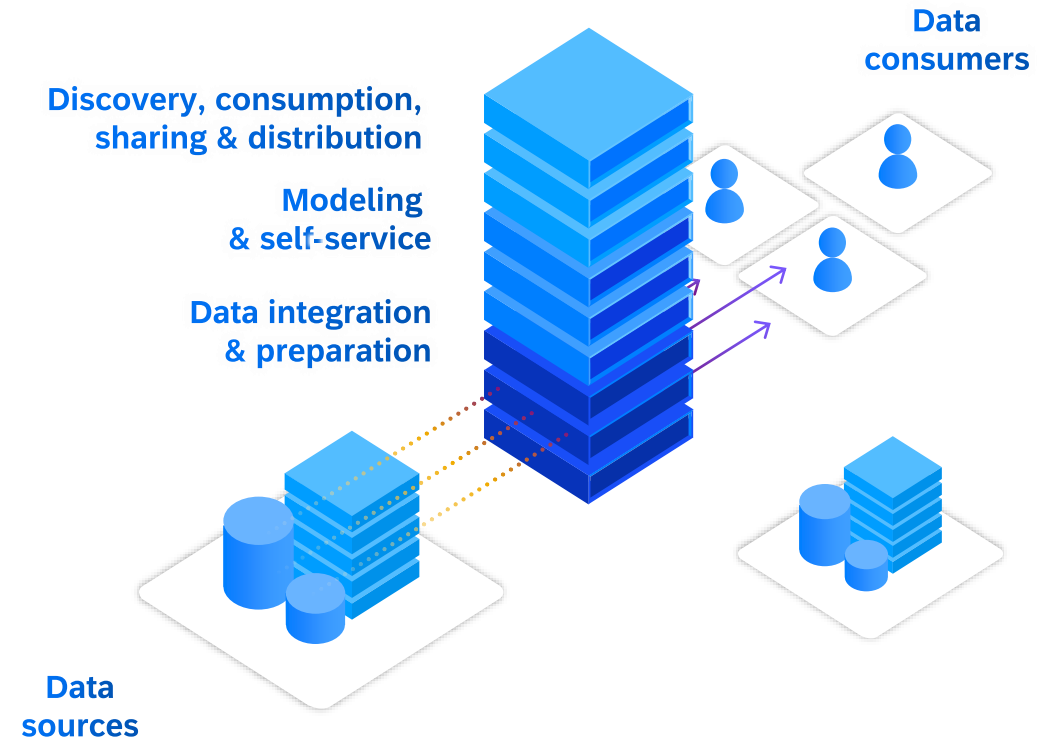
Give meaning to data instantly

Universal yet opposing data needs for business and technology stakeholders



SAP Datasphere

A business data fabric radically simplifies your data landscape



Harmonize **Business Semantics** across 100's / 1000's of sources and destinations

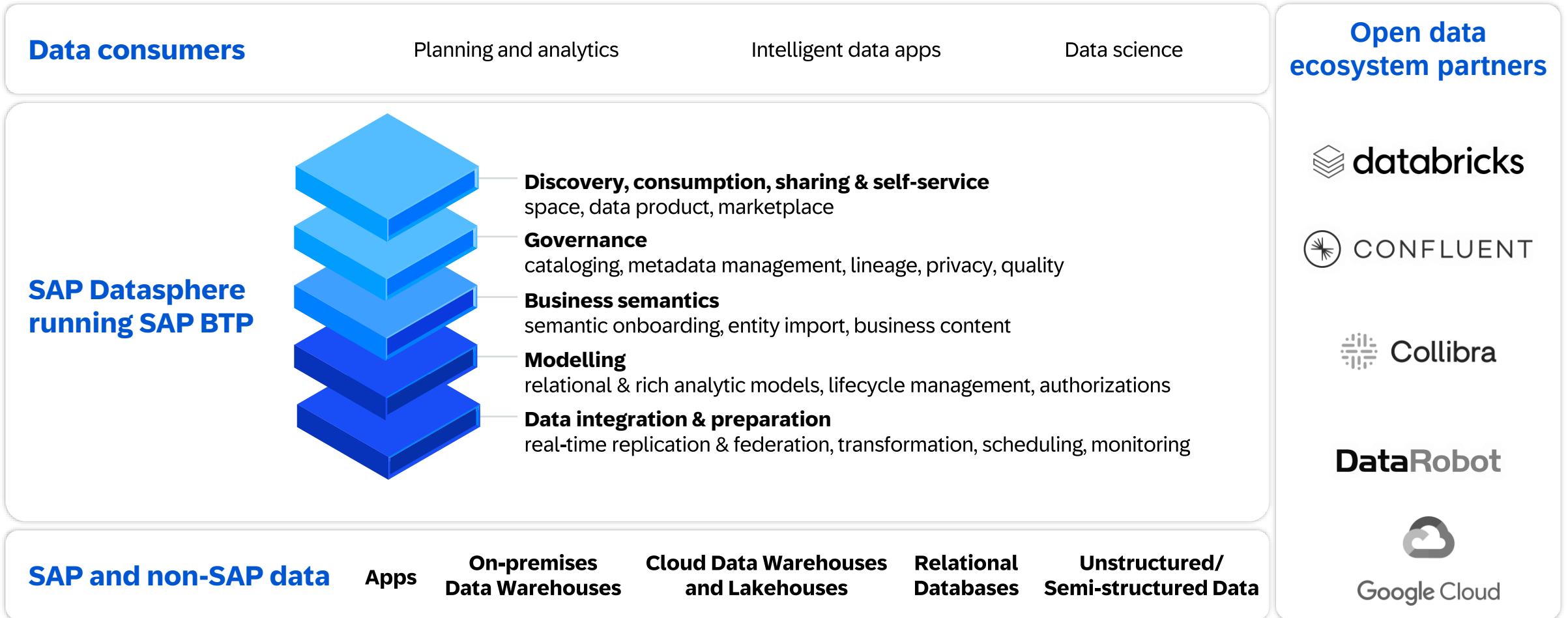


Out-of-the-Box **Business Agility** via vendor provided connectivity across hyperscalers and major data leaders

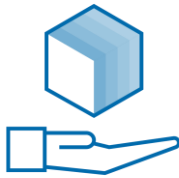


Open **Data Marketplace and Ecosystem** enables: subscribing to Data Products and Data services

SAP Datasphere is the foundation for **Business Data Fabric** and integrates with SAP's **Open Data Ecosystem**



Unleash the power of business data with SAP Datasphere



Access authoritative data

Semantic Onboarding

Deliver authoritative data in its business context

Make it effortless to model your business

Ensure governance throughout the data lifecycle



Enrich authoritative data

More Self-Service Data Modeling

Physically store and manage data

Connect trusted data partners and share data across the organization

Integrate with industry-leading data and AI platforms to capitalize on data investments



Simplify SAP data type

Ecosystem partnerships and integration

Support various architectures and SAP models

Enable self-service data access

Leverage existing SAP BW models and transformations to innovate in the cloud

Semantic onboarding

Import entities

Harmonize existing metadata import options from SAP S/4HANA Cloud, SAP S/4HANA, SAP Business Warehouse (SAP BW) application, SAP BW/4HANA solution

Content network

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

Data products

Access customer and partner managed data products to democratize SAP data within the SAP Datasphere solution and beyond using API

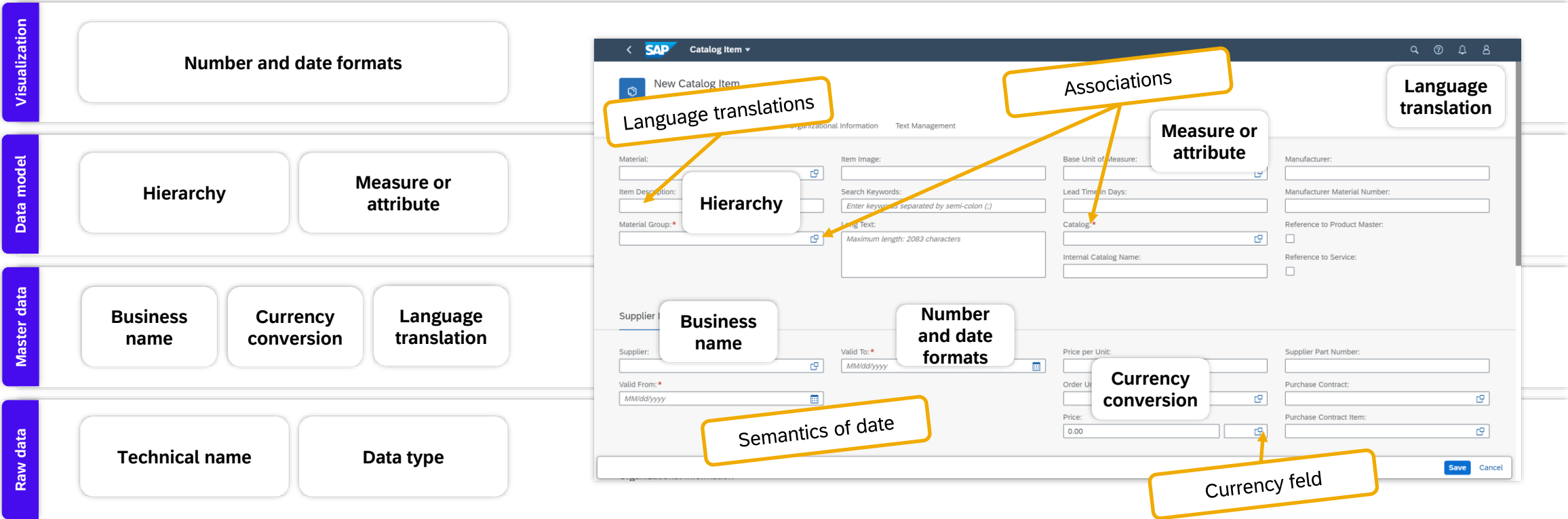
The screenshot displays the SAP Semantic Onboarding dashboard. At the top, the SAP logo and 'Semantic Onboarding' title are visible. The main content is organized into three sections:

- SAP Systems:** A grid of four cards representing different SAP environments. The first card, 'SAP S/4 HANA Cloud', shows 1 connection. The second, 'SAP S/4 HANA On Premise', shows 0 connections. The third, 'SAP BW4 HANA', shows 0 connections. The fourth, 'SAP BW4 Bridge', is marked as 'Not Enabled'. An 'Open Import Logs' link is present in the top right of this section.
- Content Network:** A grid of three cards. 'Samples' provides a starting point with templates and stories. 'Business Content' offers pre-built industry and Line of Business content. '3rd Party Business Content' features partner-developed content for industry and Line of Business.
- Data Products:** A grid of two cards. 'Public Data Marketplace' shows 88 data products. 'HXM Data Products' shows 1 data product.

A vertical sidebar on the left contains various navigation icons, and the top right corner includes user profile and notification elements.

SAP S/4HANA business context

SAP S/4HANA Operational model



Preserve business context

Preserving **business context**

The SAP Datasphere solution preserves the SAP S/4HANA business context and allows the SAP Analytics Cloud solution to consume it using the analytic model.

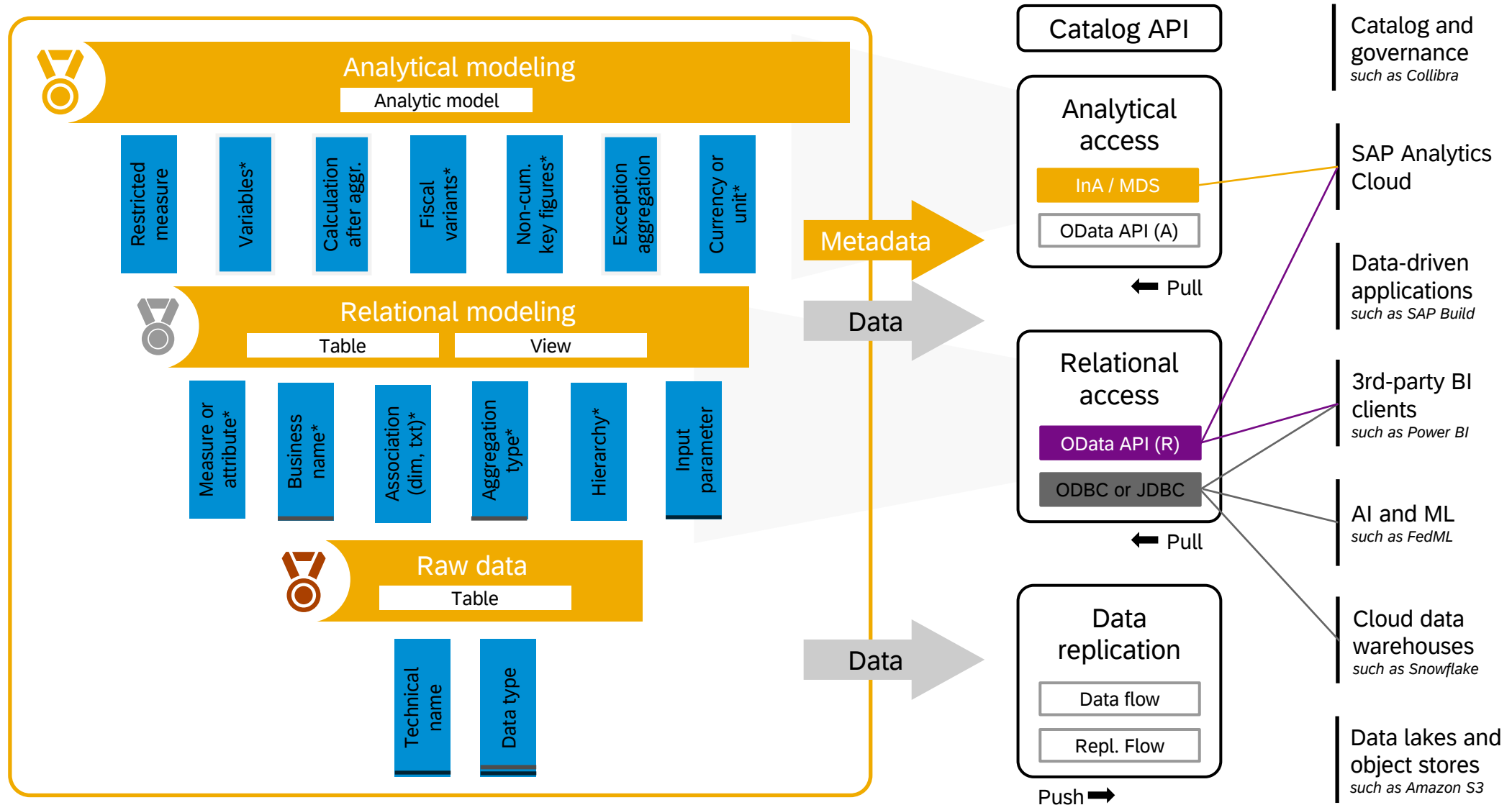
The image illustrates the preservation of business context in SAP Datasphere. On the left, a vertical list of categories and their associated items is shown:

- Visualization**: Number and date formats
- Data model**: Hierarchy, Measure or attribute
- Master data**: Business name, Currency conversion, Language translation
- Raw data**: Technical name, Data type

On the right, a screenshot of the SAP Data Builder interface shows a data model diagram. The diagram features a central 'Fact Sources (1)' box containing 'V_MCT_OpportunityItems_v2'. This fact source is linked to three dimension tables: 'Controlling Area (MCT_ConrollingArea)', 'Product ID (MCT_Products)', and 'Opportunity ID (MCT_Opportunities)'. The interface also displays the 'Opportunity Model Properties' panel on the right, showing details for the 'Product ID' dimension, including its alias, source, and associated dimensions and attributes.

Preserve business context →

Semantics in SAP Datasphere



Unified entry point for semantically rich model generation and import into **SAP Datasphere**

Semantic onboarding


Bringing together all features and processes that allow SAP customers to make semantics available at scale


Import entities
Harmonize existing metadata import options from SAP S/4HANA Cloud, SAP S/4HANA, SAP Business Warehouse, and SAP BW/4HANA


Content network
Bring in prebuilt SAP and 3rd-party content as accelerator

Data products
Access customer- and partner-managed data products to democratize SAP data within SAP Datasphere and beyond with APIs

Items (3)



 SAP BW Bridge


 SAP S/4HANA Cloud


 SAP S/4HANA On-Premise


Samples

Get started from a collection of templates, pre-made stories, and boardroom presentations.




Business Content

Pre-built industry and Line of Business content.




3rd Party Business Content


Partner developed content for Industry and Line of Business.




Featured Data Products


 VuGraph - Supply Chain Knowledge Graph to Capture External Shocks
 DEEPVU

 DeepVu's Supply Chain Knowledge Graph (VuGraph) -- Food/Agro
 VuGraph --Food & Bev is a dataset and a knowledge graph that captures all the external...


 OECD Environment Statistics: Greenhouse gas emissions from plastics lifecycle - projections
 OECD connected by SAP New Ventures & Technology

 This dataset presents baseline and policy scenario projections for greenhouse gas emissions from plastics lifecycle at the global level for the 2019-2060 period....


 Connect Hub: a dataset with Scope 1, 2 and 3 emissions of thousands of companies
 Connect Earth

 Get the published emissions data of your suppliers, competitors and potential business partners, along with financial and employee metrics to facilitate comparison between businesses of different sizes...

Unified entry point for semantically rich model generation and import into SAP Datasphere

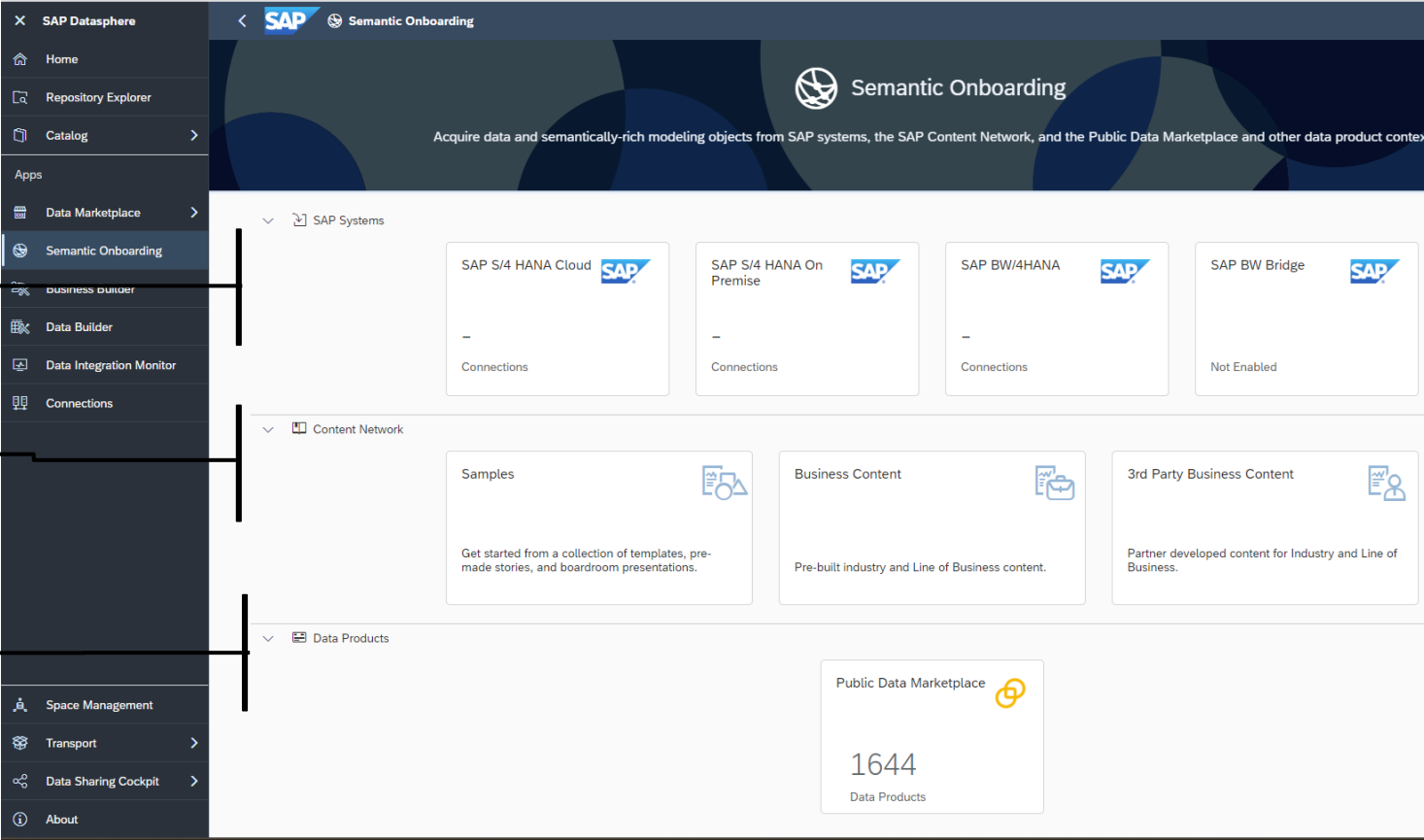
Semantic onboarding

Bringing together all features and processes that allow SAP customers to make semantics available at scale

Import entities
Harmonize existing metadata import options from SAP S/4HANA Cloud, SAP S/4HANA, SAP Business Warehouse, and SAP BW/4HANA

Content network
Bring in prebuilt SAP and 3rd-party content as accelerator

Data products
Access customer- and partner-managed data products to democratize SAP data within SAP Datasphere and beyond with APIs



Entity import for SAP S/4HANA and SAP S/4HANA Cloud

Leverage SAP S/4HANA analytic models and metadata

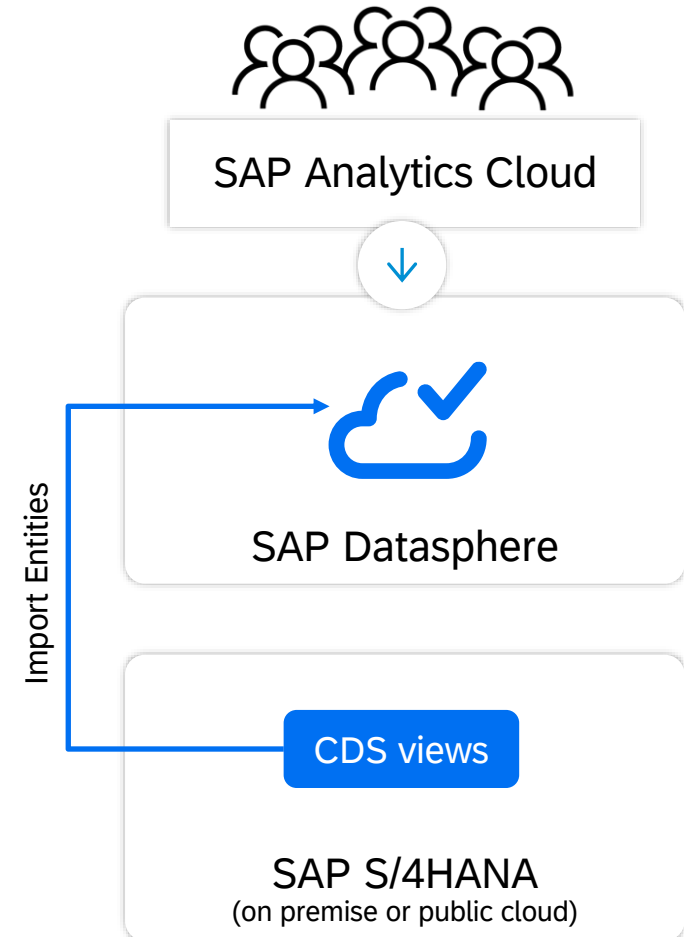
Convert the SAP S/4HANA semantics to SAP Datasphere entities

Use generated objects to allow consumption and the usage for advanced modeling in SAP Datasphere

Make possible federation, replication, and extraction scenarios using the data flow

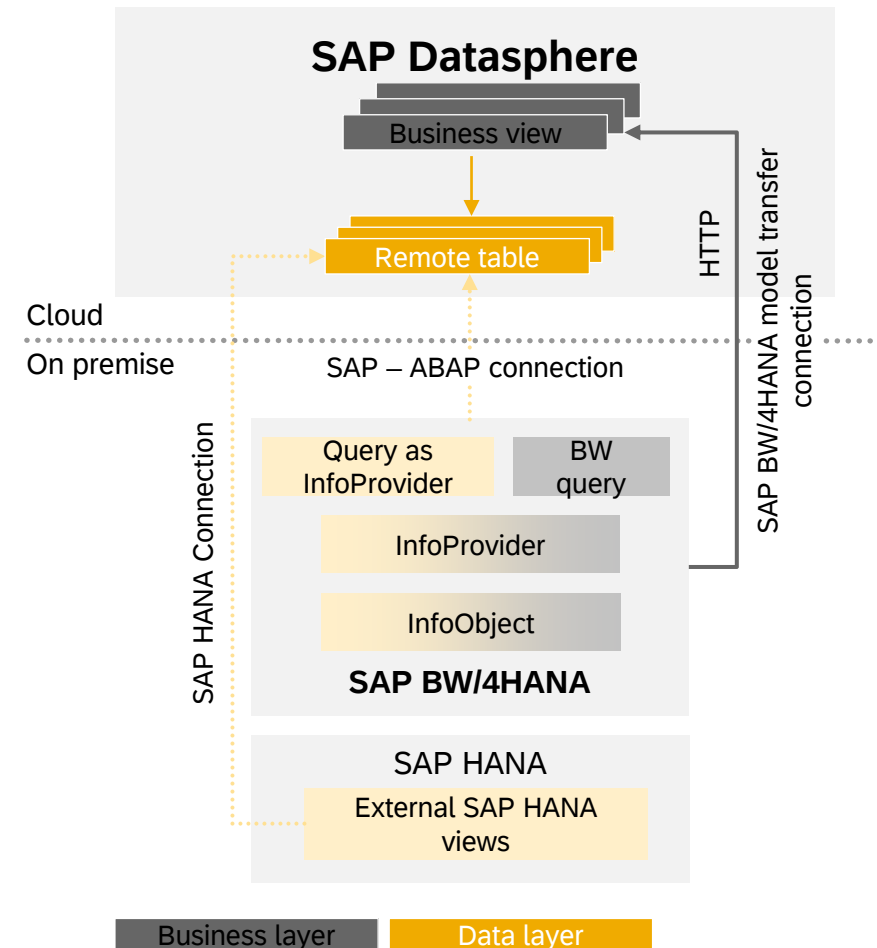
Ease the customer's journey from operational reporting to cross-analytics reporting in the public cloud

Unleash metadata and domain knowledge from SAP source systems

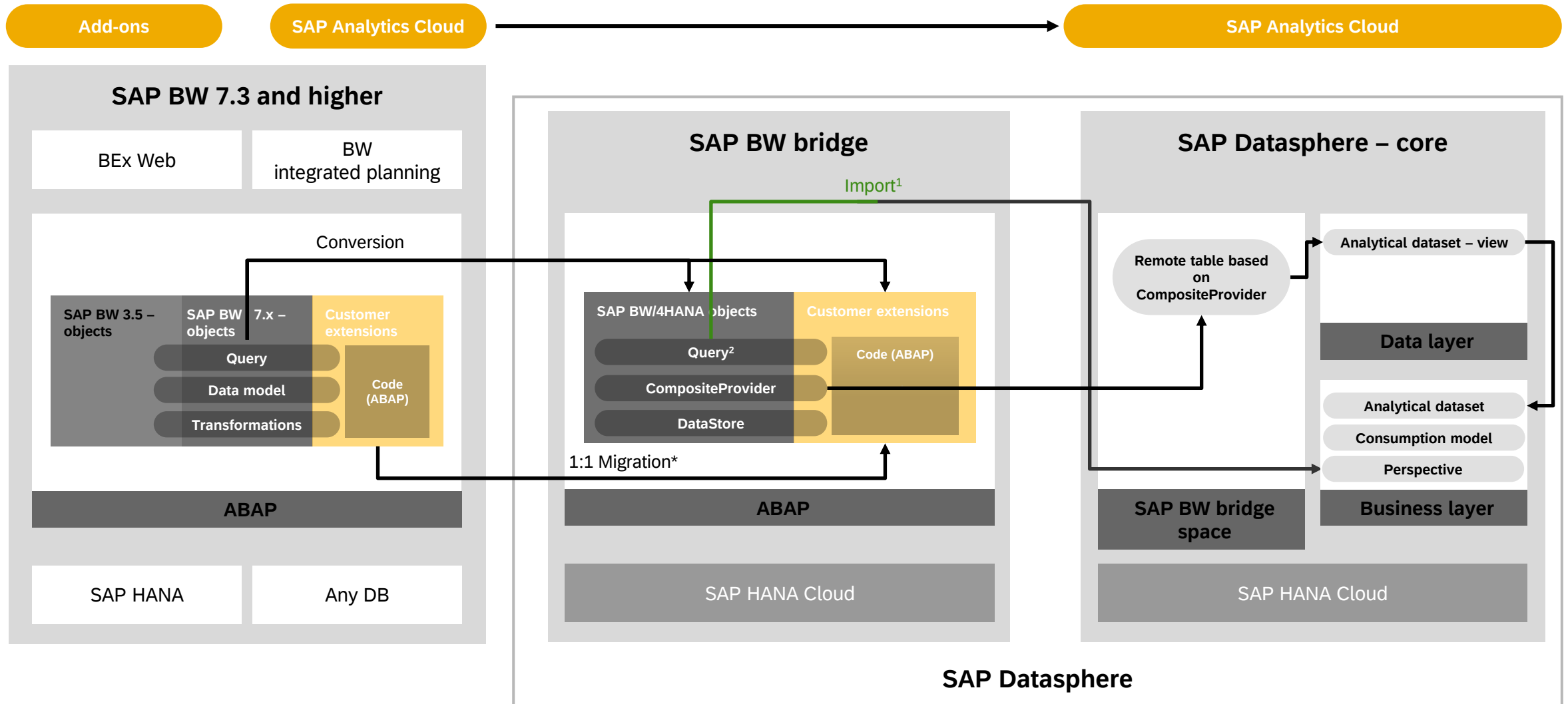


SAP BW/4HANA model transfer

- Provide SAP BW/4HANA business semantics to SAP Datasphere
- Enable staging scenarios for SAP BW/4HANA data and virtual models
- Transfer BW query as native entity (KPI, analytic model)
- Support BW analysis authorizations in SAP Datasphere
- Offer hierarchy support (virtual, available with semantics, native SAP Datasphere dimension with hierarchies)
- SAP BW/4HANA system only acts remote data source; calculation engine execution (through MDS) happens in SAP Datasphere



SAP BW bridge query to SAP Datasphere



¹ More information on the [road map](#); ² Not visible or executable

Move SAP BW Customers with SAP BW bridge

Replacement of BW or Hybrid Scenario

SAP BW

2023

2024

2025

2026+

Business Data Fabric
with SAP Datasphere

Partners & SAP can help with

BW Assessment

SAP RISE strategy full support

Tool-supported migration

System exploration tool

SAP partner network

Today, SAP Datasphere covers calculated and restricted key figures, hierarchies, time dependencies, and many other features of the BW world

Upcoming features

Data Tiering Optimization
via SAP HANA Cloud

Remote Table with Delta for heavy
data loads from SAP BW bridge

Unit Conversion support and
expanded support of Input Variables
from the status quo

SAP BW Assessment – Move to SAP Datasphere



Source system versions: BW 7.x / BW4

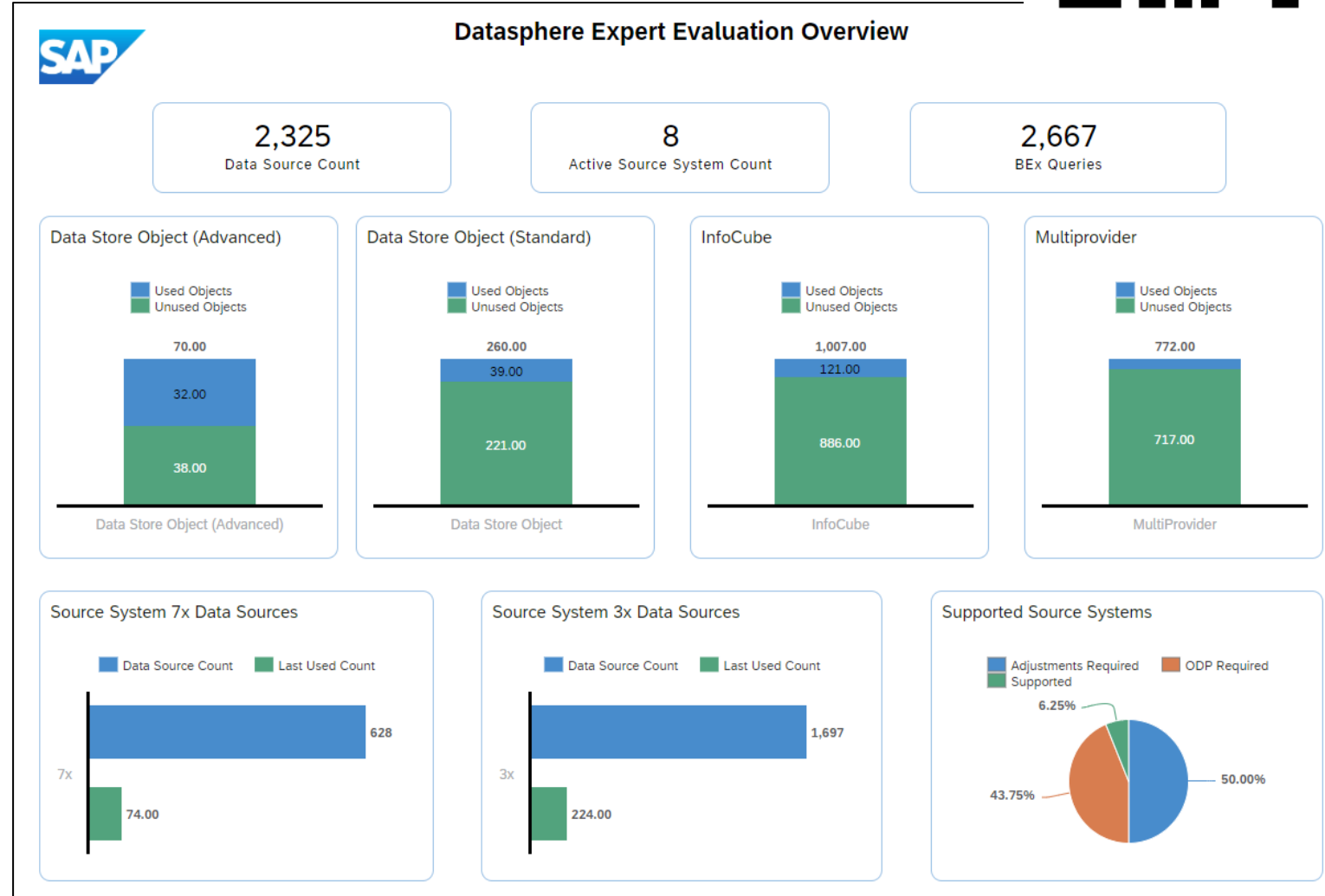
Outputs

- Detailed PPTX/PDF overview
- Dashboard in SAP Analytics Cloud (SAC accessible for 1 week).
- Impact analysis per BW Object
- Usage frequency
- Direct Migration / Intervention needed
- Links to the relevant SAP docs / notes

Assessment offered at no charge!

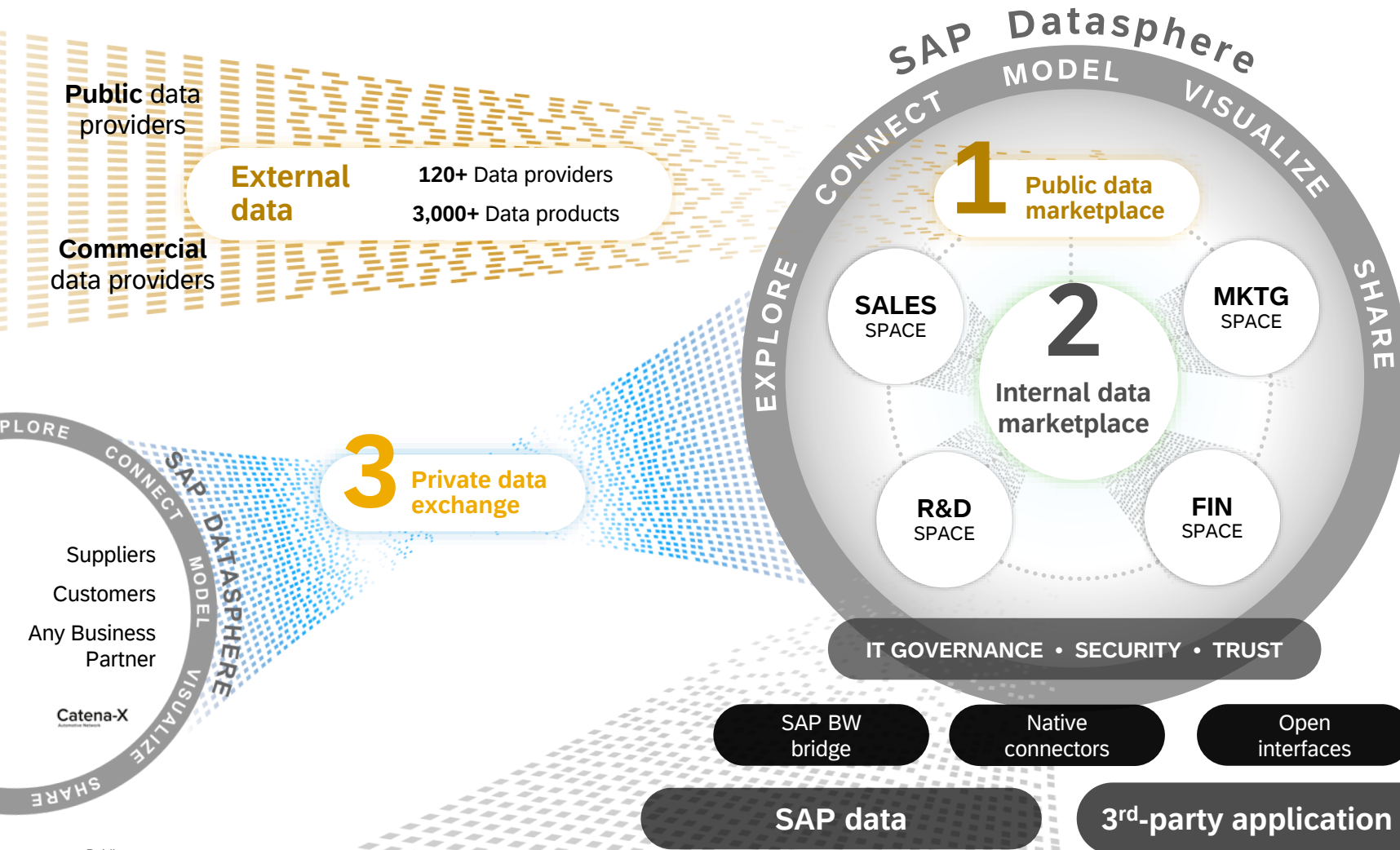
- URL below or scan QR Code

<https://url.sap/wxjrs7>



SAP Datasphere data marketplace

Access to external and internal data in clicks for better, faster, and more scalable data collaboration

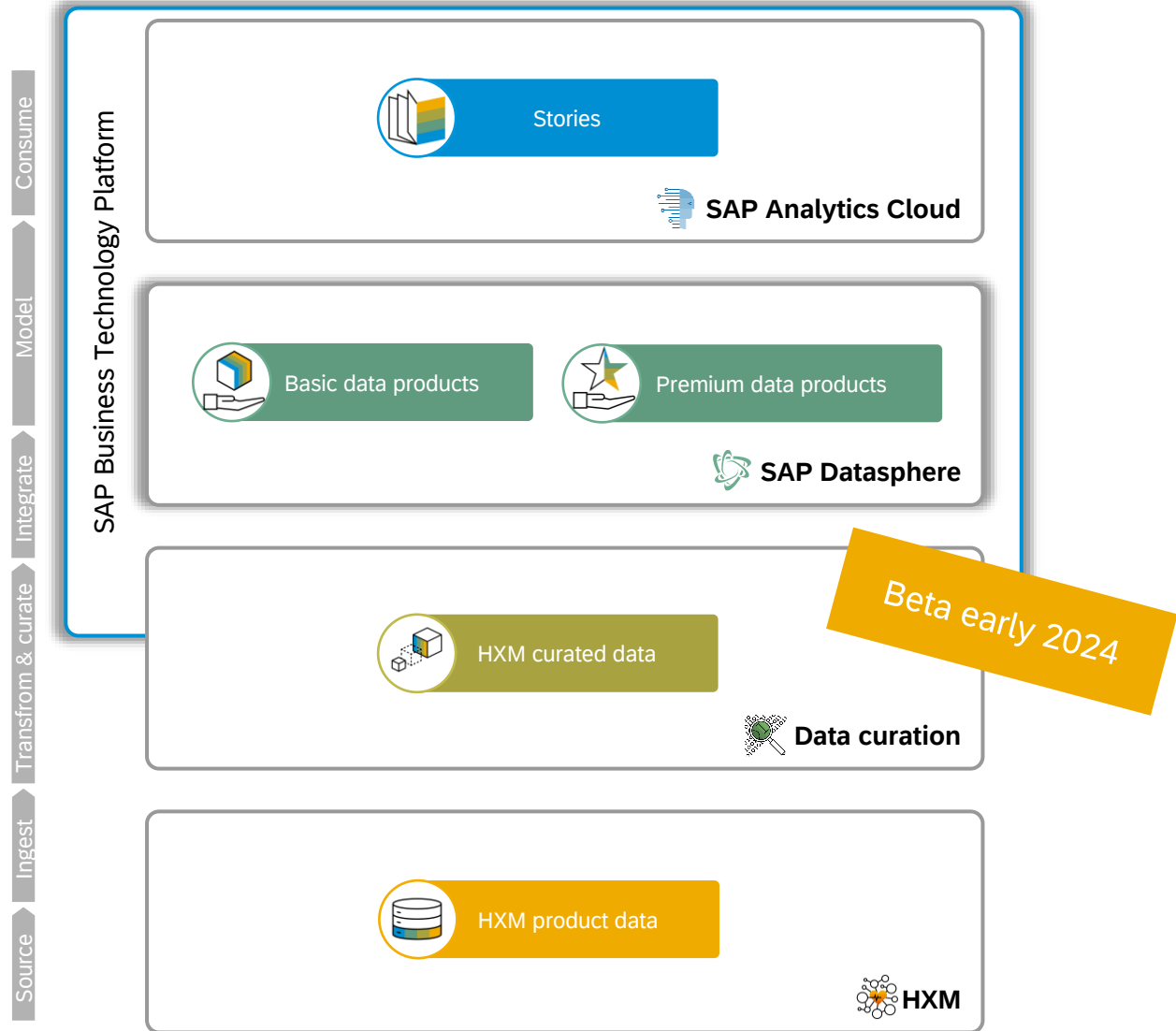


The data marketplace technology provides data sharing capabilities and processes to conduct the following use cases:

- 1 Public data marketplace**
 Discover and connect external data products for instant usage in your space for harmonization with other (internal) data artifacts.
- 2 Internal data marketplace**
 Productize internal data assets for more scalable self-service and more effective adoption.
- 3 Private data exchange**
 Exchange data with suppliers, customers and other business partners in private environment within or between tenants.

Give people data purpose

Empowering organizations to make informed decisions using data, analytics, and AI



- HXM curated data products help ensure HXM data is available to SAP Datasphere in a readily consumable format.
- SAP Datasphere will leverage HXM premium data products in the analytics models.
- SAP Datasphere tools allow for extensions and custom sources.
- Built-in stories in SAP Analytics Cloud provide provide leaders strategic people insights.

Self-service modeling

Analytic model

Stacking | Multifact | Authorization | BW qualities

Folder support

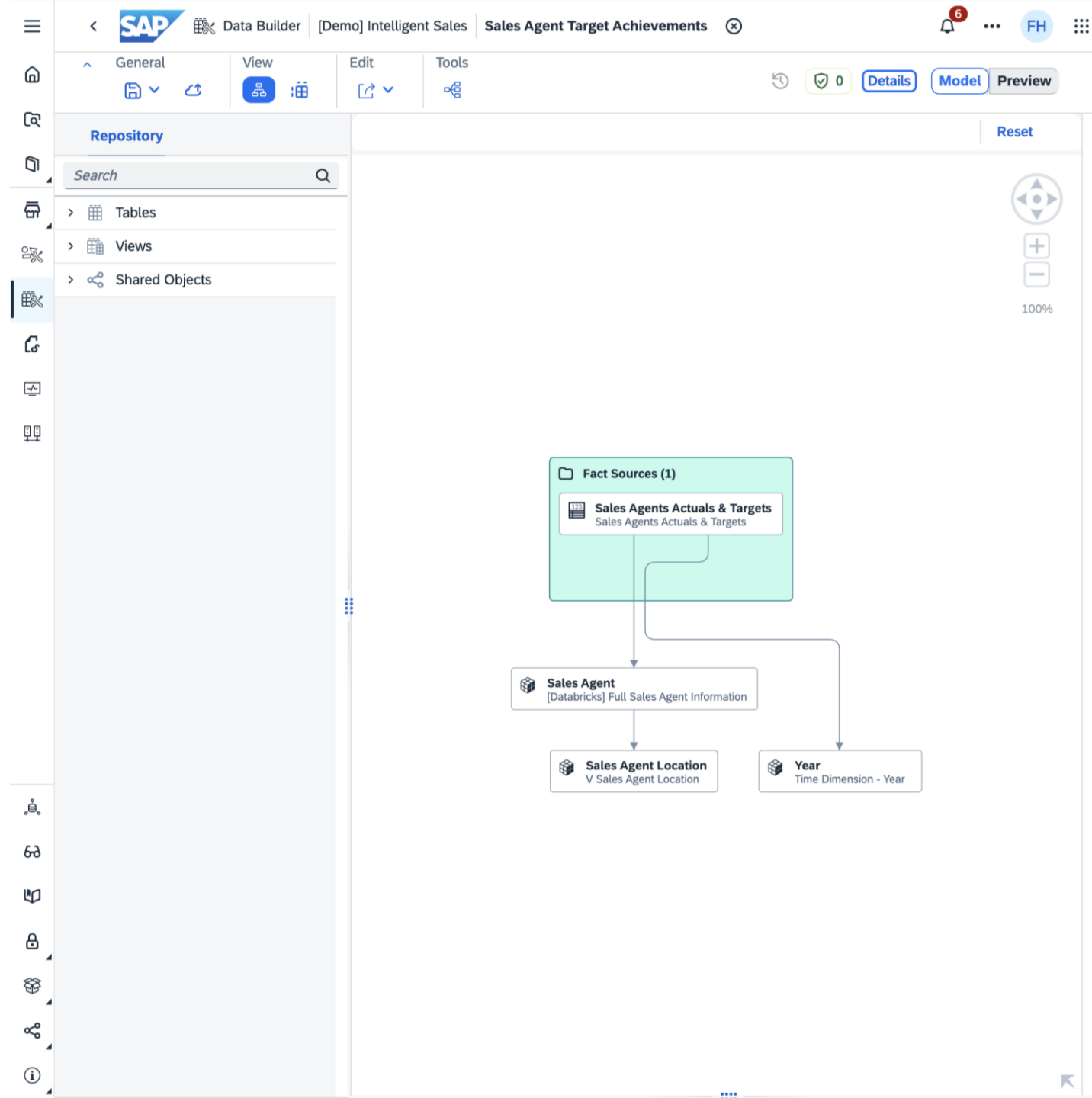
One folder system throughout all builder areas

Compatibility contracts

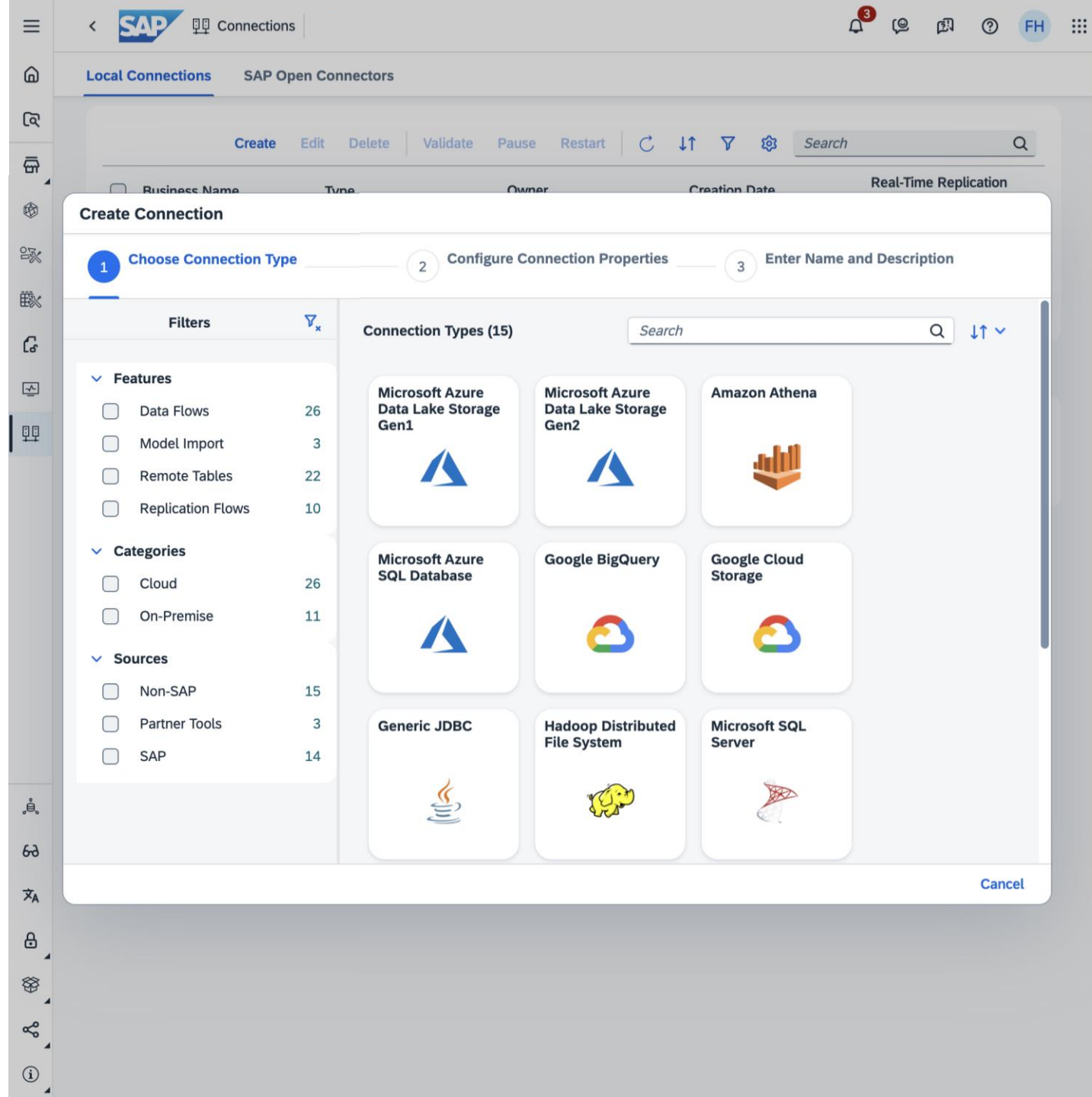
Maintaining object lifecycle within SAP Datasphere

External hierarchies

Aligned hierarchies between SAP BW/4HANA, SAP S/4HANA, and SAP Datasphere



Open ecosystem



SAP Datasphere with Databricks unifies business data across the business data fabric

Data consumers

Planning and analytics

Intelligent data apps

Data science



Business Data Fabric powered by SAP Datasphere



- 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

Relational Databases

Data Warehouses

Semi and Unstructured Data

Data Lakehouses



 databricks


Databricks SQL


Databricks Workflows


Delta Live Tables


Databricks ML

Unity catalog

Delta Lake

Accelerate insights with access to semantically rich SAP data



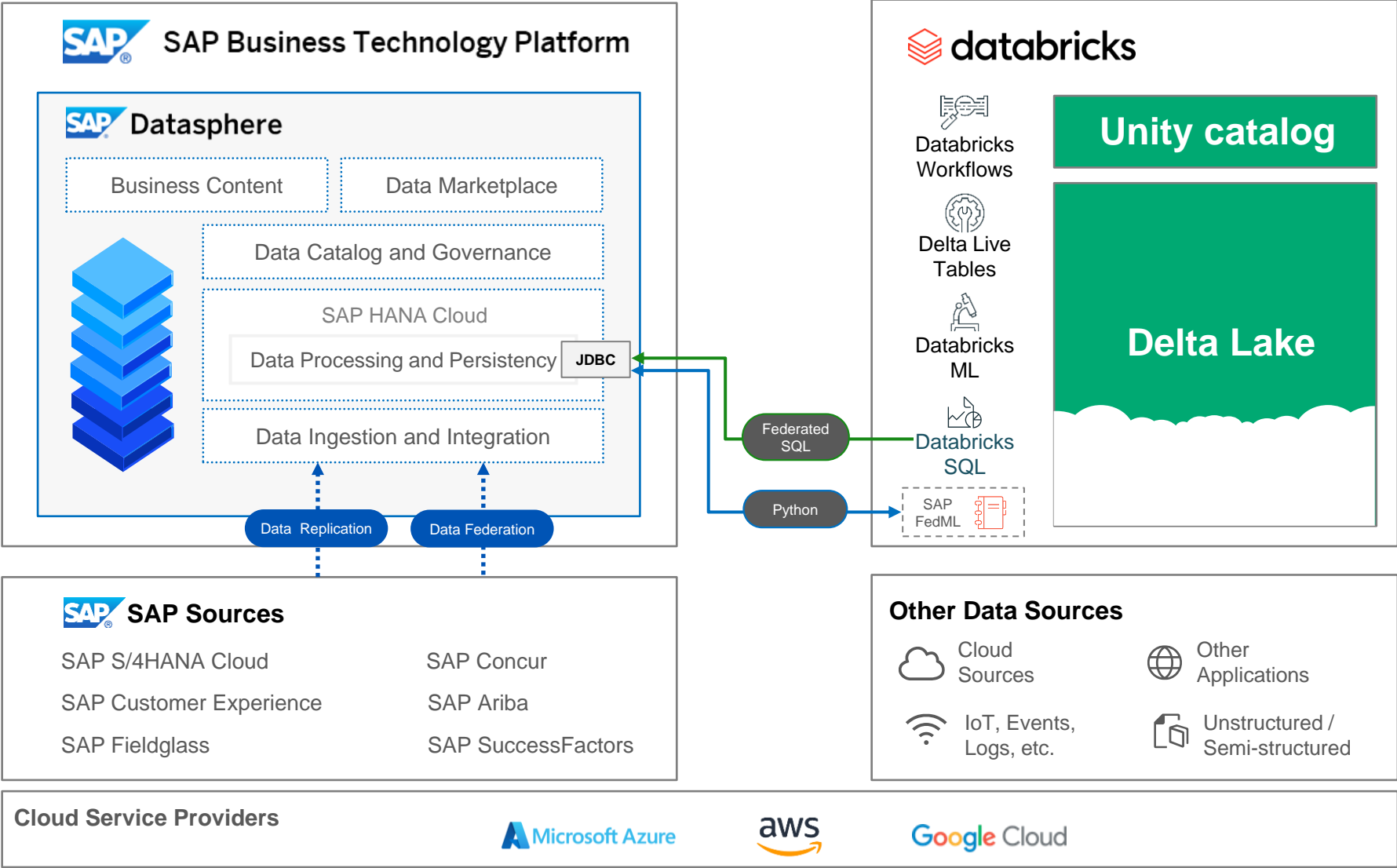
SAP Datasphere delivers governed, scalable, and seamless access to SAP data with business semantics and context preserved

Unlock the value of data across the business data fabric

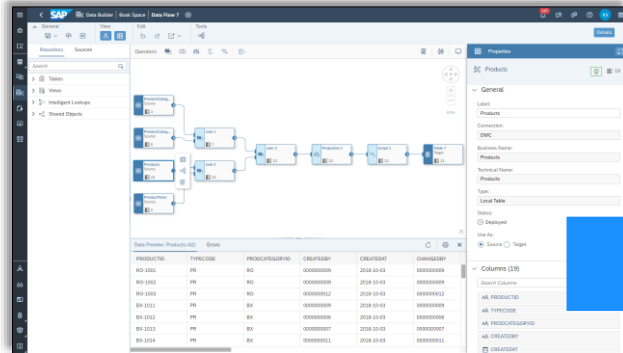


Databricks delivers an open, unified data lakehouse platform for data, analytics and AI uses cases

SAP Datasphere integration with Databricks



ETL and ELT with SAP Datasphere (prior to Dec. 2023)



ETL as established integration paradigm with **data flow**

Extract

Transform

Load

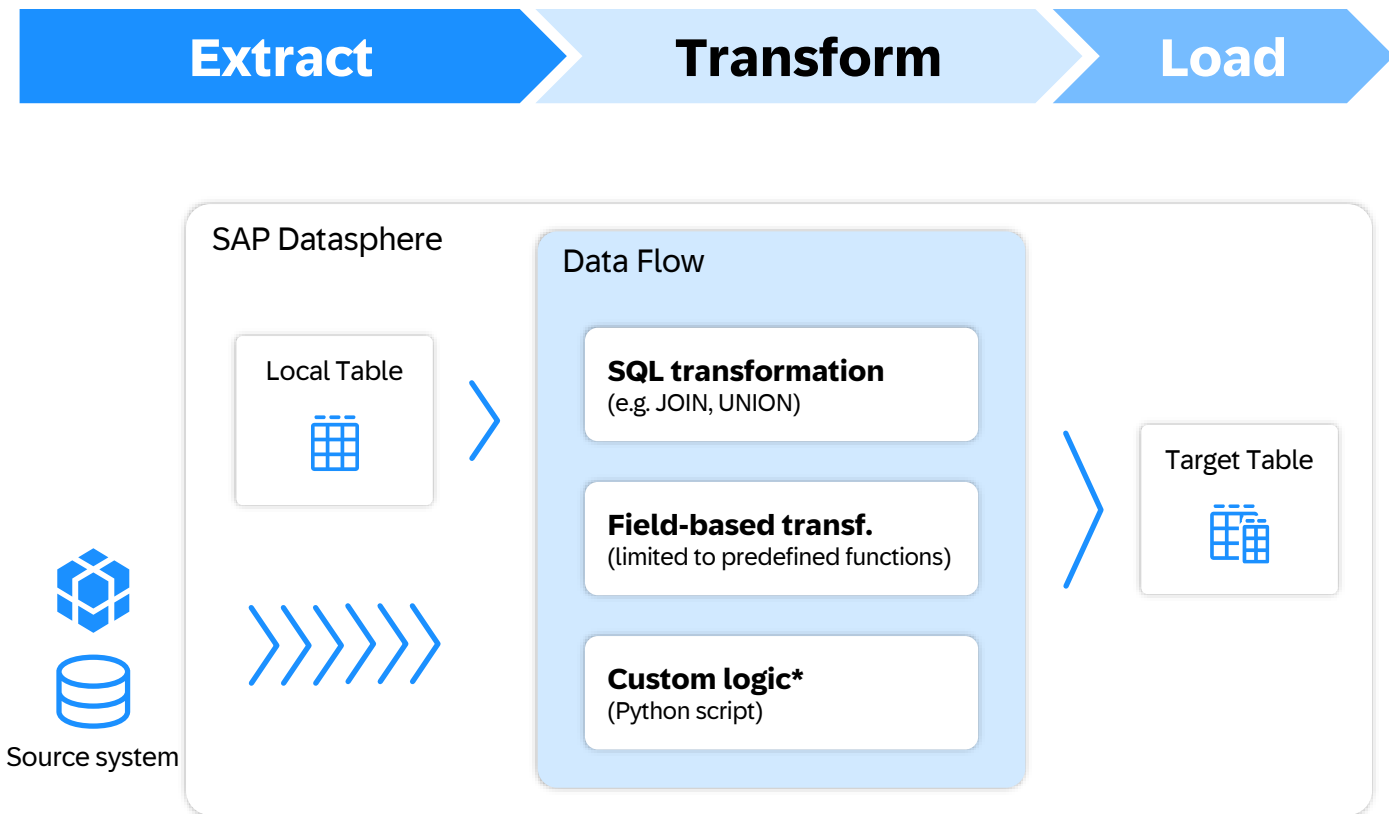
Expectations to architectures

- High speed of extract and load process of data including delta capabilities
- Scalability and parallelization of ingestion process to manage increased data volumes
- Need to persist raw data as a basis to mine more insights

ETL with SAP Datasphere using Data Flow

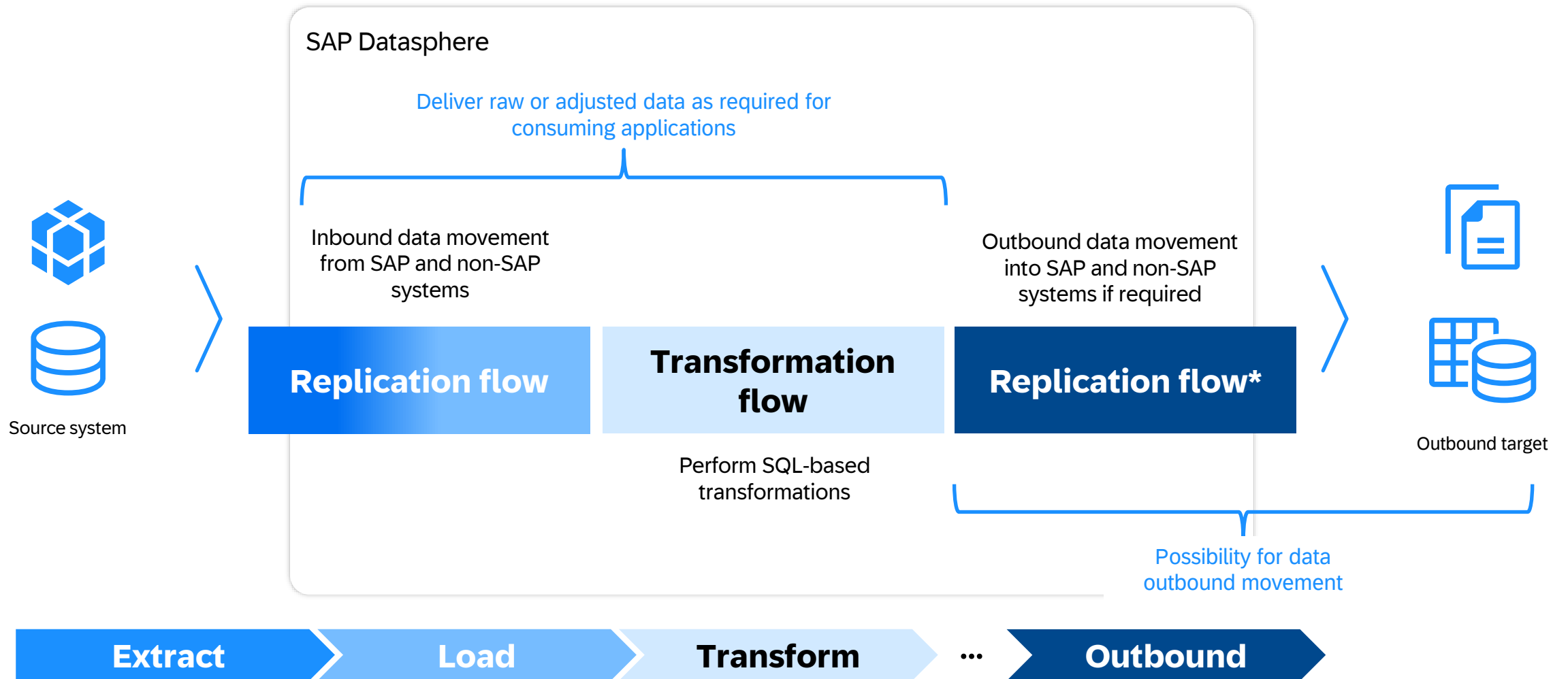
Extract, Transform and Load data using Data Flow

- Use Dataflow to **extract**/read data from external sources or from a local table in SAP Datasphere
- Perform some **transformations** on the data using the existing operators as well as the limited set of built-in SQL functions
- Finally **load** the result into a target table in Datasphere without any delta capability



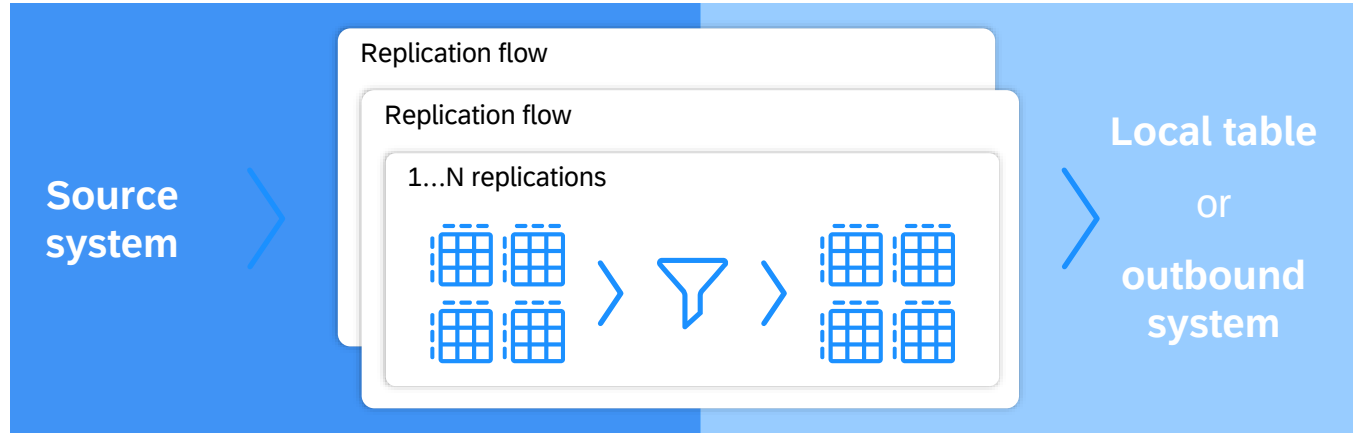
To address market expectations, we introduce the new ELT paradigm based on **Replication Flow & Transformation Flow**

Recent innovations in data integration in SAP Datasphere



Focus of replication flow and transformation flow

Replication flow



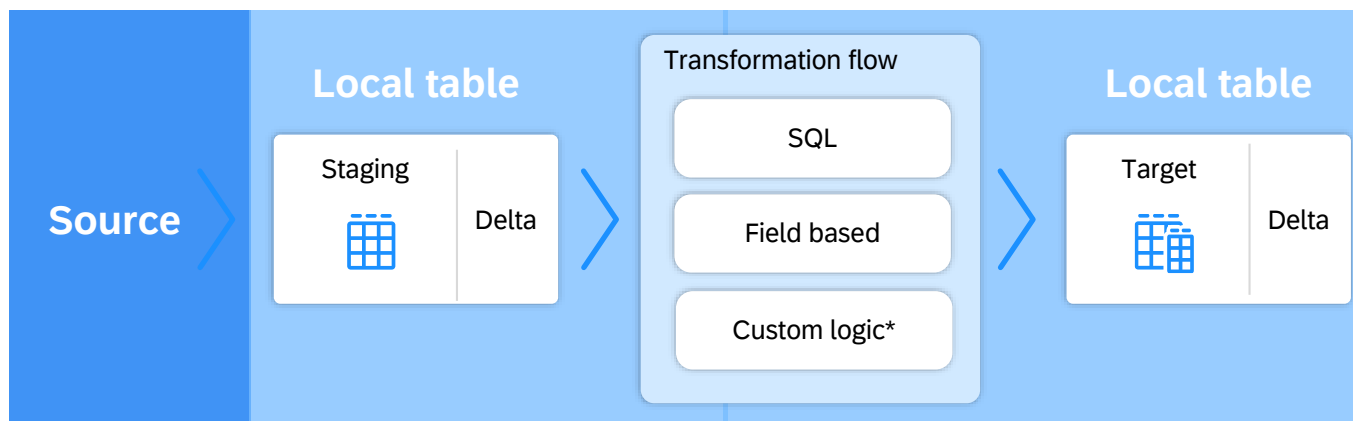
Value proposition

Extraction and load of data into SAP Datasphere (local table) with focus on SAP sources and tooling to load data to outbound systems

Support for **initial** data loads together with **delta** replication

Load and replication into **outbound systems** for object stores and message queues planned

Transformation flow



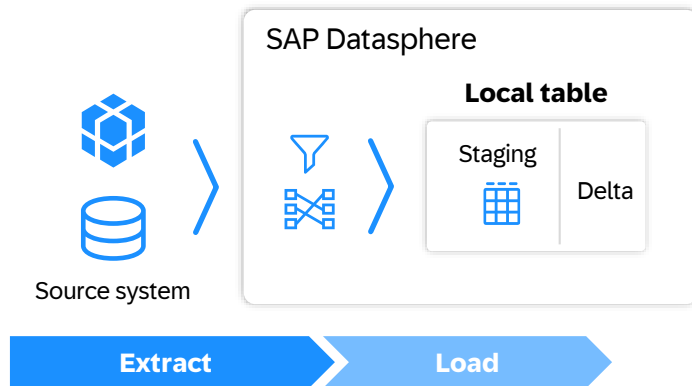
Value proposition

Improve and streamline **transformation** capabilities within one tooling

Execute SQL-based **transformations directly on local tables**

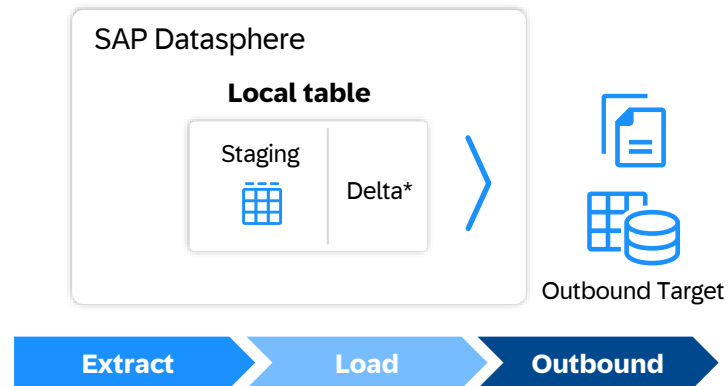
Replication Flow Use Cases

1 Inbound Data Movement



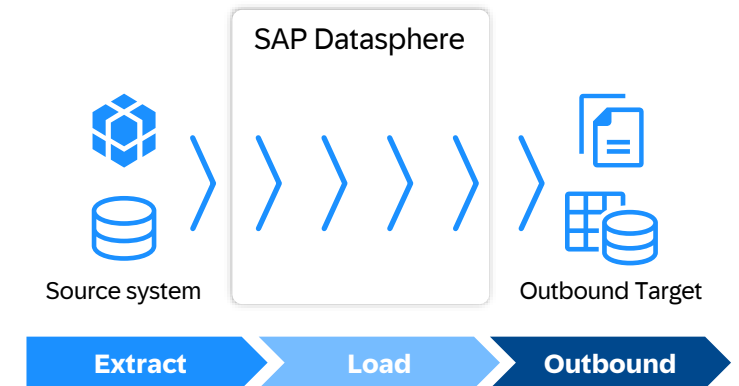
Replicate data from SAP or non SAP sources into SAP Datasphere and capture data changes occurring near-real-time from the source to update the target table

2 Outbound Data Movement



Read data from SAP Datasphere and replicate it into supported SAP and non SAP outbound targets while tracking data changes*

3 Pass-Through Option



Use SAP Datasphere as a middleware and replicate data from supported sources into supported targets while tracking data changes* occurring near-real-time in that source

SAP Datasphere replication flow

Replication flows offer a cloud-based replication tool in which cloud-to-cloud based replication scenarios for on-premise components are not needed anymore (for example, data provisioning agent).

Mass data replication

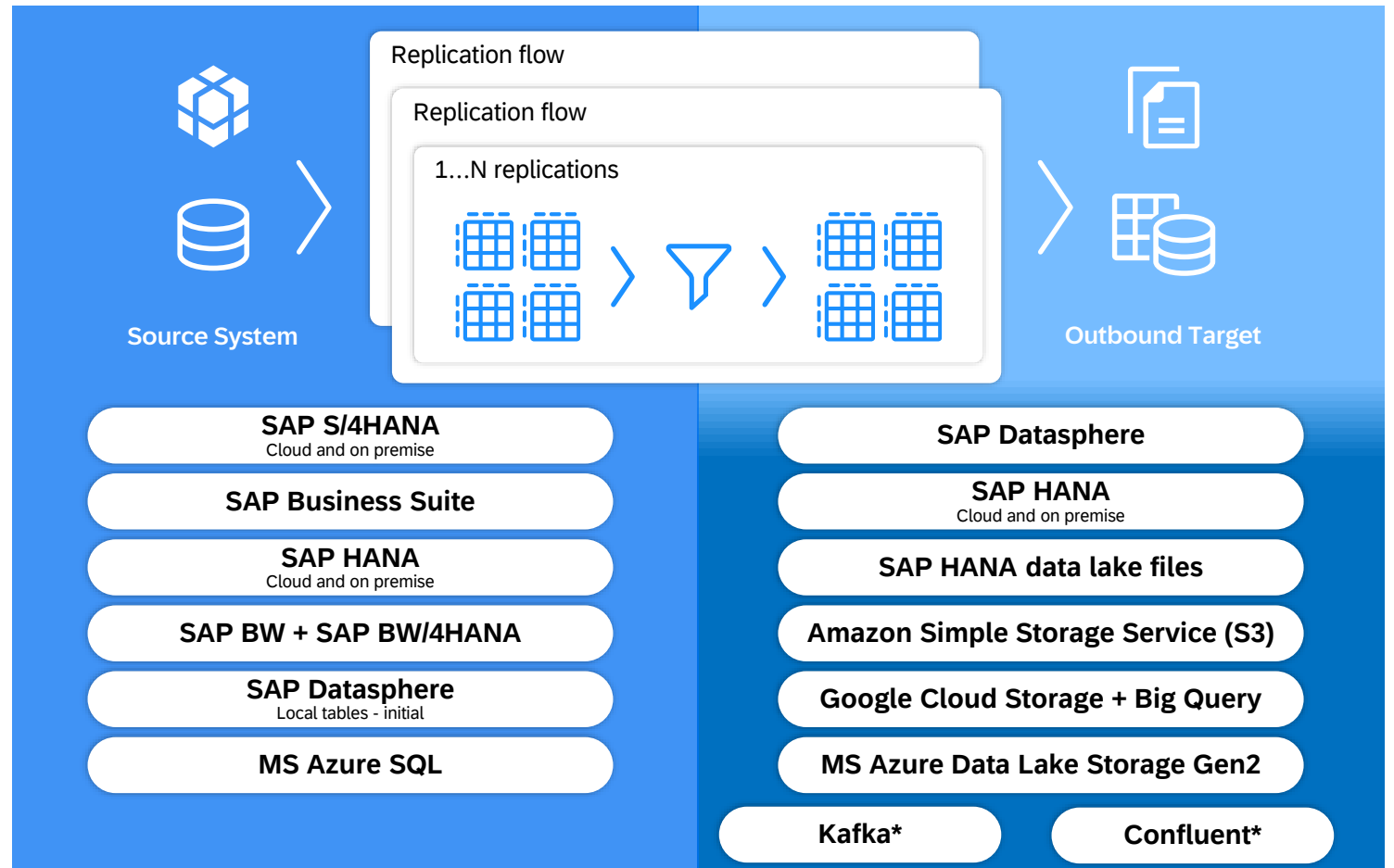
Possibility to replicate **parallelized** data from supported **source systems** into supported **target systems**

Integrated monitoring

Overview of monitoring features within **integrated** monitoring application

Capture changes

Support for **initial** data replications together with **delta** replications



Possible Homework assignment – beyond today's hands-on

The screenshot shows a GitHub search interface. At the top, there is a navigation bar with links for Product, Solutions, Open Source, and Pricing. A search bar contains the query 'org:SAP-samples teched 2023 da271'. To the right of the search bar are 'Sign in' and 'Sign up' buttons. Below the navigation bar is a 'Filter by' section with a list of categories: Code (1), Repositories (1), Issues (0), Pull requests (0), Discussions (0), Users (0), and More. Underneath this is an 'Advanced' section with various filters like Owner, Size, Number of followers, Number of forks, Number of stars, Date created, Date pushed, and Topic. The main search results area shows '1 result (88 ms) in SAP-samples'. The result is a repository named 'SAP-samples/teched2023-DA271' with the description 'Delight Your Analytics Users with Advanced Data Models in SAP Datasphere'. It has 3 stars and was updated 11 days ago. To the right of the repository card is a 'Star' button. Further right is a 'Sponsor open source projects you depend on' section with a cartoon cat icon and a link to 'Explore sponsorable projects'. At the bottom right, there is a 'ProTip!' that says 'Press the / key to activate the search input again and adjust your query.'

Product Solutions Open Source Pricing

org:SAP-samples teched 2023 da271

Sign in Sign up

Filter by

- Code 1
- Repositories 1
- Issues 0
- Pull requests 0
- Discussions 0
- Users 0
- More

Advanced

- Owner
- Size
- Number of followers
- Number of forks
- Number of stars
- Date created
- Date pushed
- Topic

1 result (88 ms) in SAP-samples

Sort by: Best match

SAP-samples/teched2023-DA271

Delight Your Analytics Users with Advanced Data Models in SAP Datasphere

☆ 3 · Updated 11 days ago

Star

Sponsor open source projects you depend on

Contributors are working behind the scenes to make open source better for everyone—give them the help and recognition they deserve.

Explore sponsorable projects →

ProTip! Press the / key to activate the search input again and adjust your query.

Navigate to:

<https://github.com/SAP-samples/>

Search DA271

Heads Up: openSAP Course – More SAP Datasphere on your own system!

4 Week Course

| Available On-Demand

| Now Open!

Course Content

Week 1: Introduction and Data Modeling

- Focus on modeling and enhancing existing models
- Integrating remote sources, data flows, data integration monitor
- How to share data and apply row-level security

Week 2: Advanced Data Modeling

- Advanced modeling: analytic model & business builder
- Data marketplace & intelligent lookup
- Repository, impact and lineage, catalog, CLI

Week 3: What Else You Should Know About

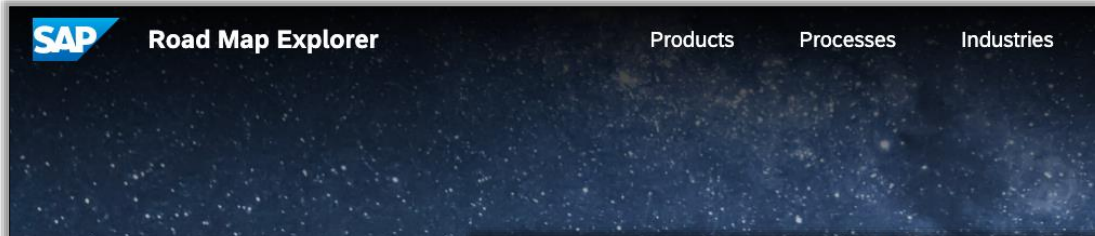
- Additional components: Administration, user management, transport, business content, replication flow, analytics and planning integration, BW bridge, and BW hybrid

Week 4: Final Exam



Enroll here - <https://open.sap.com/courses/dsp1>

Keep current! SAP Datasphere and SAP Road Map Explorer



SAP Road Maps

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

Search SAP Road Maps by keywords, topics, and more.

Check the latest information on the [SAP Road Map Explorer Web site](#)

SAP Road Map Explorer

Products Processes Industries My Road Maps Disclaimer

143 Road Map Items

Q4 2021 13 Road Map Items

- Business Modeling
 - Ability to handle text associations in business entities
- Business Warehouse Bridge
 - SAP BW bridge
- Data Center Availability
 - Data center availability in the European region on Azure
- Data Integration
 - Data flow: connection to (S)FTP-based file shares
 - Loading of the Microsoft Excel format in the data flow
 - Model transfer functionality support for BW analytic queries
 - Remote tables – filtering
 - Scheduling and monitoring options
 - View persistency – partitioned execution

Q1 2022 14 Road Map Items

- Administration and Service Management
 - Flexible tenant configuration – self-service provisioning
- Business Modeling
 - S/4HANA content generation: Importing meta data from S/4HANA...
- Business Warehouse Bridge
 - Replication of data sources (DDP)
 - Shell conversion (metadata transfer) for SAP BW bridge
 - 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

Q2 2022 18 Road Map Items

- Administration and Service Management
 - Automatic mass deployment of imported objects after the analytic...
- Business Modeling
 - Flexible tenant configuration – self-service to increase the size of a...
- Business Warehouse Bridge
 - Calculated measures and exceptional aggregation of measures
 - Creation of business entity hierarchies (Controlled availability)
 - ABAP variants in process chains
 - Enablement 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 ob...
 - SAP BII/4HANA: model transfer and currency conversion support

Q3 2022 7 Road Map Items

- 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 choreplet layer in SAP Analytics Cloud for a live...

Q4 2022 7 Road Map Items

- Administration and Service Management
 - Health monitoring in a cloud landscape
- Business Modeling
 - Product experience survey
- Business Warehouse Bridge
 - Ability to replace a zero value with an entry of "null"
 - Deletion of overlapping requests as a process chain variant
 - Improvements to the Web cockpit and BW modeling tools: display of...
 - 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...

Q1 2023 40 Road Map Items

- Administration and Service Management
 - Elasticity and scalability with flexible tenant configuration
 - Flexible tenant configuration – self-service to increase the size of a...
 - Flexible tenant configuration: self-service for scale-down
 - 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...
 - Automatic restart of the data transfer process
 - BW queries to SAP Data Warehouse Cloud
 - Data anonymization – SAP BW bridge

Q2 2023 12 Road Map Items

- Business Warehouse Bridge
 - ABAP package assignment to elastic read nodes
 - Automatic restart of data transfer processes and process chain...
 - Data extraction: use of operational data provisioning through HTTP
 - Explorer to show ABAP package hierarchy with BW objects
 - Model transfer between SAP BW bridge and SAP BII/4HANA – new...
 - Write interface-enabled InfoObjects (IOBJ)
 - 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-tenant loads
 - Public data marketplace – Open SQL and OData access through...

Q3 2023 19 Road Map Items

- Administration and Service Management
 - Elasticity and workload – financial configuration of elastic read nodes
 - Elasticity and workload – support configuration of elastic read nodes
 - Business Warehouse Bridge
 - Data tiering optimization and cold 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
 - Use SAP Data Warehouse Cloud data as source for SAP BW bridge
 - Data Cataloging
 - Cross-application lineage for reporting, modeling, databases, an...
 - External API for one data catalog (ODC)
 - 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
 - Extending extraction of column and attribute details
 - Metadata extraction for SAP HANA

Q4 2023 11 Road Map Items

- Administration and Service Management
 - Central Notification Center
 - Unified home: focus on priority action items and react to need-to...
- Data Cataloging
 - External API for one data catalog (ODC)
 - Harvesting metadata from additional sources: synchronous replication...
- 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