



# SAP Datasphere Unleash the Power of Business Data

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SAPinsider  
Las Vegas

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2023

**SAP**insider

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

Data consumers

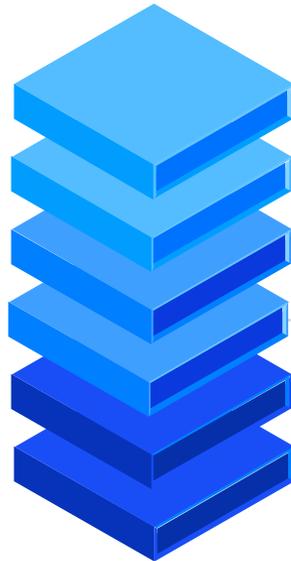
Planning and analytics

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, 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

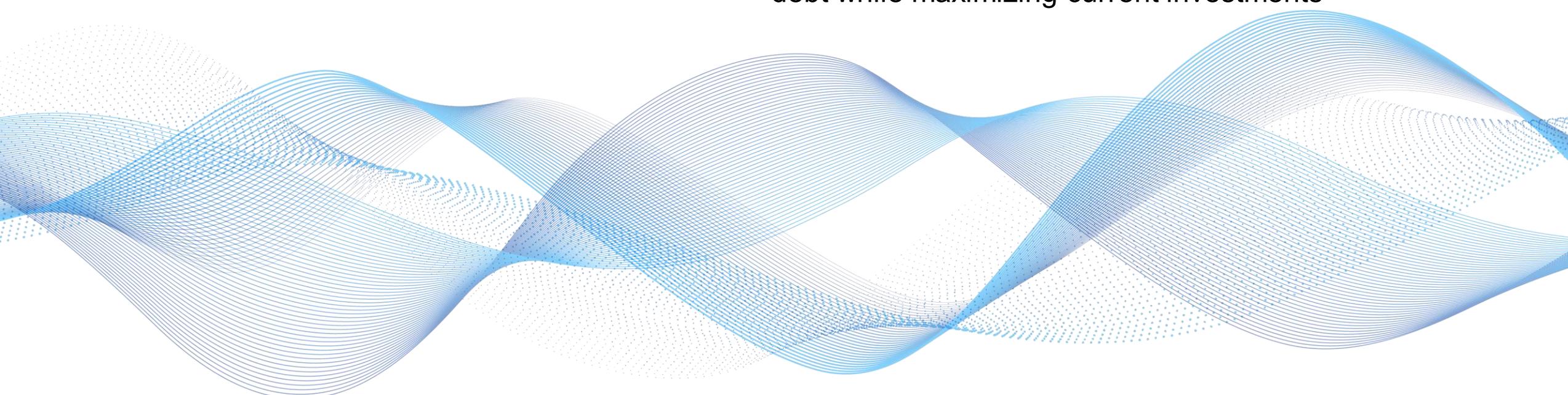
# Why a business data fabric

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

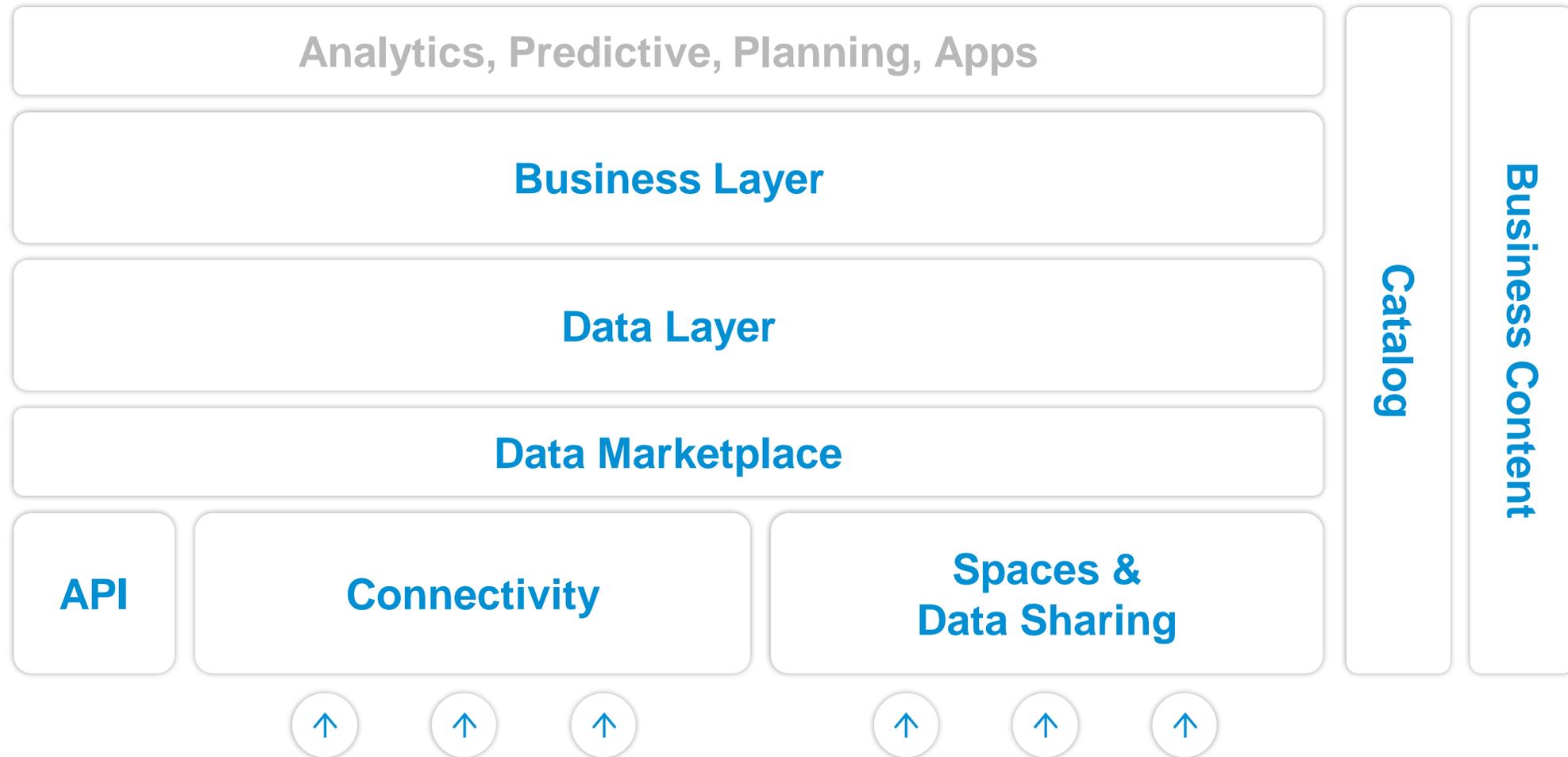
**Comprehensive data governance** assures every stakeholder that private data stays private

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

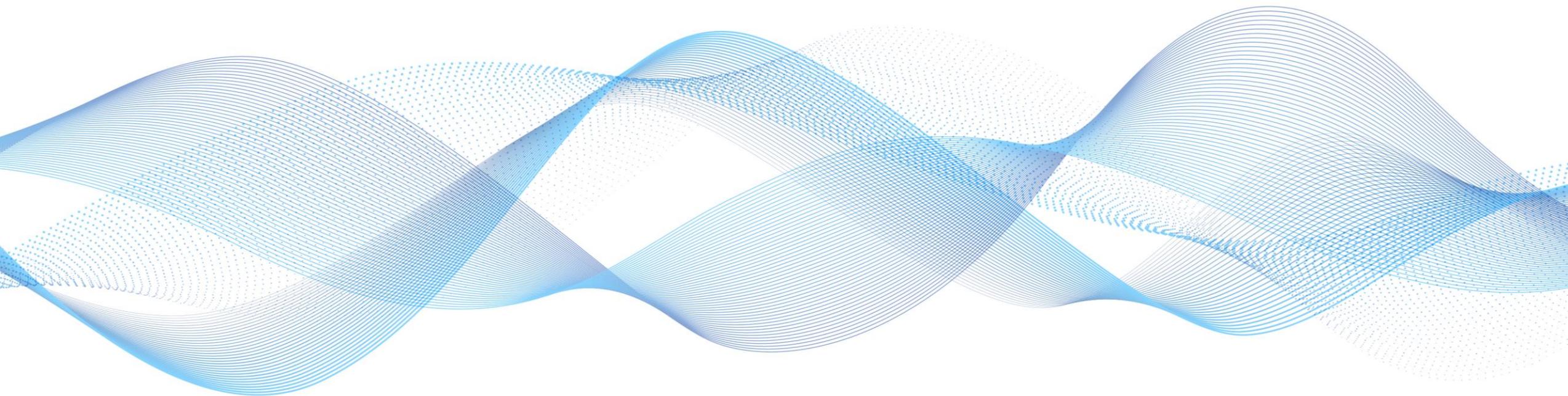
A **simplified data landscape** reduces costs and technical debt while maximizing current investments



# SAP Datasphere. High-level Component Overview

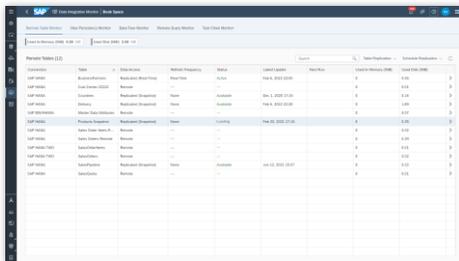


**Integrate.**



# Integrate. Open for Virtual Access and Persistence

## Virtual Access

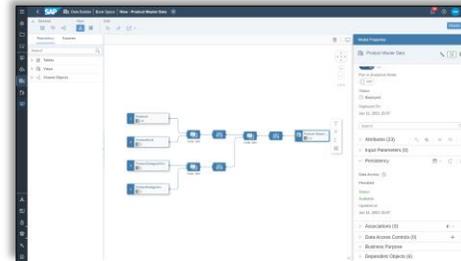


### Remote table federation

- 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



## Persistence



### Remote table replication

- Real-time replication or snapshots using single entities

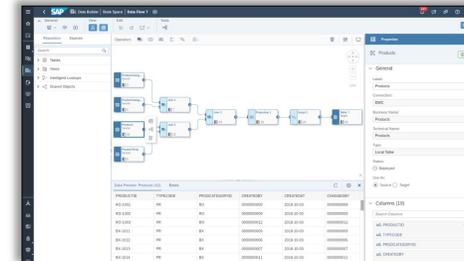
### Replication flow

- Replication with multiple entities and flexible targets

### View Persistence

- Materialize view output results in a stable persistence

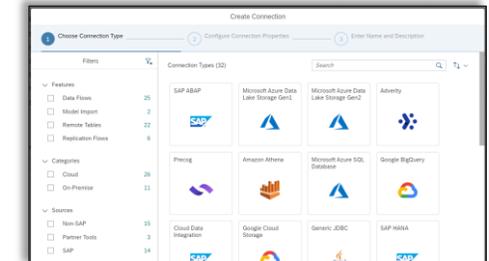
## Data Flow



### Batch loads & transformations

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

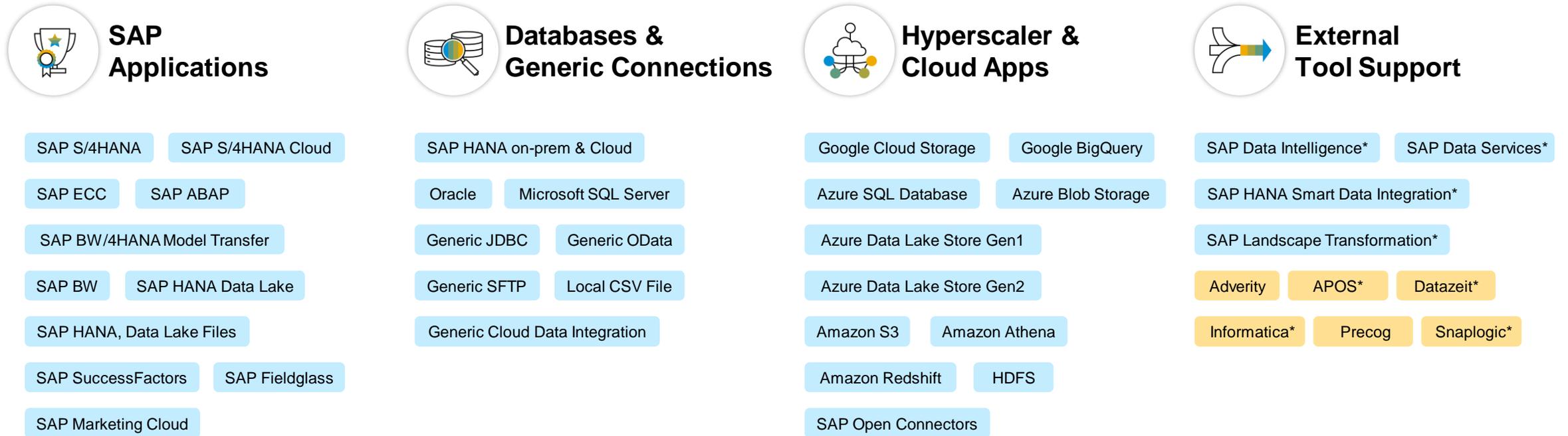
## External Tools



### Integrate with all data sources

Allow external data movement tools like SAP Data Services, SAP Data Intelligence, SAP OpenConnectors, SnapLogic, Precog, Adverity, etc. to bring data into the system using SQL interfaces and the open SQL schema

# Integrate. Data Sources Overview



SAP Help: [Connection Overview](#)

# Integrate. Virtual Data Access

- Virtual Access using remote tables, which points to a table in an external system
- Access remote data as if it was stored in local tables
- Remote tables access data without copying the data
- Data is transferred through the network each time a query is executed
- Restrict data transfer using central filters and selected columns only\*
- Seamless switching between remote access and data replication (or snapshots) without the need to change the data models

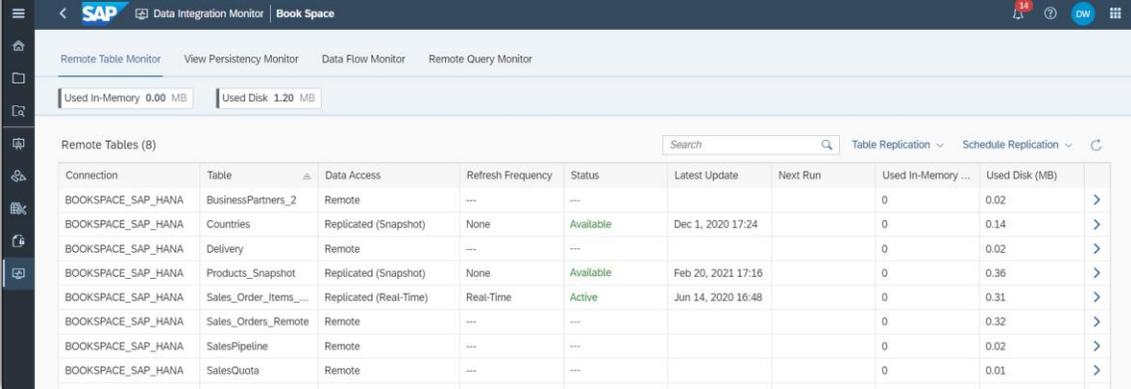
The screenshot displays the SAP Data Builder interface for a 'Sales Orders Remote View'. The main workspace shows a diagram with three data objects: 'Sales Order Items Re...' (ID 13), 'Sales Orders Remote' (ID 17), and 'Sales Orders Rem...' (ID 24). An 'Inner Join' operation is indicated between the first two objects. Below the diagram, a data preview table shows columns for Sales order ID, Created by, Created at date, Changed by, Changed at date, and Fiscal year variant. The right-hand pane shows the 'Remote Table Properties' for 'Sales Orders Remote', including fields for Business Name, Technical Name, Alias, Connection (BOOKSPACE\_SAP\_HANA), Remote Table ('DWC\_DEMO''SalesOrders'), Data Access, Distinct Values (set to OFF), and Status (set to Deployed). The Columns section shows selected columns: 'AA Sales order ID' and 'AA Created by'.

Sales order ID	Created by	Created at date	Changed by	Changed at date	Fiscal year variant
0500000001	000000018	Jan 1, 2016	000000018	Jan 2, 2016	K4
0500000002	000000013	Jan 2, 2016	000000013	Jan 3, 2016	K4
0500000003	000000009	Jan 2, 2016	000000009	Jan 5, 2016	K4
0500000004	000000023	Jan 2, 2016	000000023	Jan 5, 2016	K4
0500000005	000000016	Jan 2, 2016	000000016	Jan 5, 2016	K4
0500000006	000000017	Jan 2, 2016	000000017	Jan 3, 2016	K4
0500000007	000000013	Jan 3, 2016	000000013	Jan 5, 2016	K4

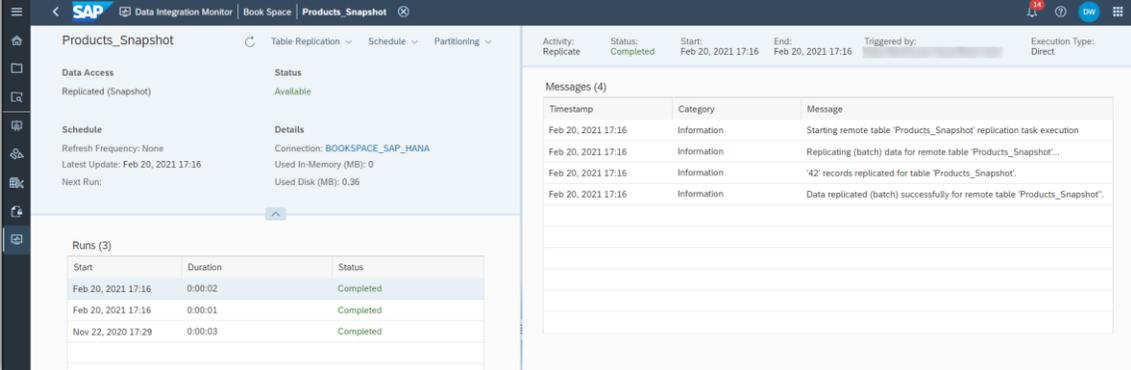
\* Filtering depends on source connection and column data types. See more information in the [online documentation](#).

# Integrate. Real-time Replication & Snapshots via Remote Tables

- Switch from remote access to snapshots or real-time replication for change-data-capture (CDC) enabled tables
- Schedule snapshot loading for remote tables, orchestrated via task chains (optional)
- Create partitions for snapshot and real-time replication to split larger data transfers and execute these single transactions in parallel
- Ability to start & stop, pause & resume, and cancel real-time replication
- Restrict data transfer using central filters and selected columns only\*
- Seamless switching between remote access and data replication or snapshots without the need to change the data models



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



Activity	Status	Start	End	Triggered by	Execution Type
Replicate	Completed	Feb 20, 2021 17:16	Feb 20, 2021 17:16		Direct

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

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

\* Filtering depends on source connection and column data types. See more information in the [online documentation](#).

# Integrate. Data Flow

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

The screenshot displays the SAP Data Builder Data Flow 7 interface. The main workspace shows a data flow diagram with several components: three 'Product Categories Source' objects, two 'Join' objects (Join 1 and Join 2), a 'Join 3' object, a 'Projection 1' object, a 'Script 1' object, and a 'Table 7 Target' object. The 'Data Preview' window at the bottom shows a table with the following data:

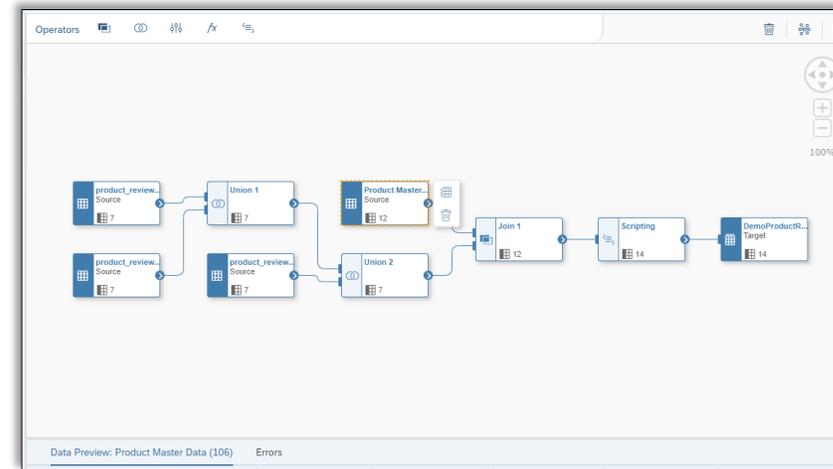
PRODUCTID	TYPECODE	PRODCATEGORYID	CREATEDBY	CREATEDAT	CHANGEDBY
RO-1001	PR	RO	0000000009	2018-10-03	0000000009
RO-1002	PR	RO	0000000009	2018-10-03	0000000009
RO-1003	PR	RO	0000000012	2018-10-03	0000000012
BX-1011	PR	BX	0000000009	2018-10-03	0000000009
BX-1012	PR	BX	0000000006	2018-10-03	0000000006
BX-1013	PR	BX	0000000007	2018-10-03	0000000007
BX-1014	PR	BX	0000000011	2018-10-03	0000000011

The right-hand side of the interface shows the 'Properties' panel for the 'Products' object, with fields for Label, Connection, Business Name, Technical Name, Type, Status, and Use As. The 'Columns (19)' panel at the bottom right lists columns such as AA PRODUCTID, AA TYPECODE, AA PRODCATEGORYID, AA CREATEDBY, and CREATEDAT.

# Integrate. Data Flow – Transformation Capabilities

## Standard Transformations

- Combine data sets with no code operators for Projection, Aggregation, Join, Filter, Union, Add Table
- Data source can be tables, ABAP CDS views, OData, remote files (JSON/JSONL, CSV, ORC, EXCEL, or PARQUET)
- Target mode: Append/Upsert, Truncate, Delete



## Scripting

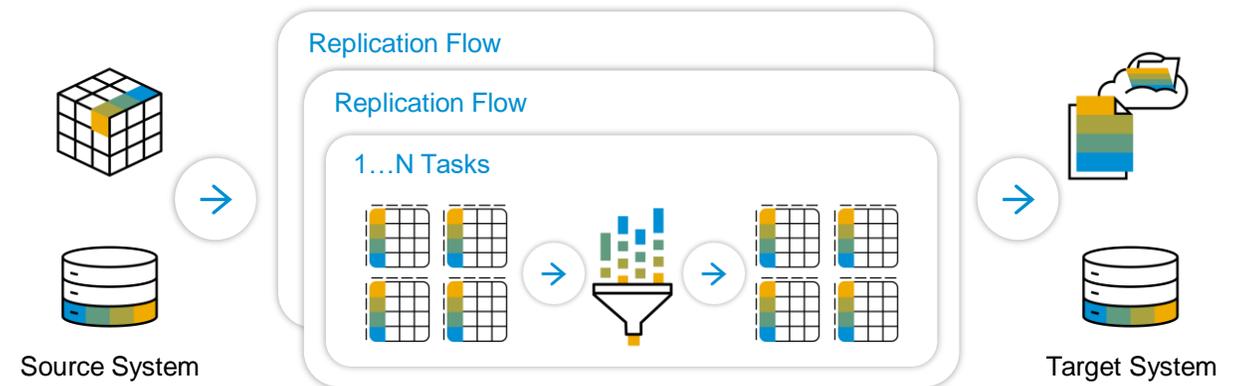
- Advanced transformation requirements like extraction of text
- Embedded scripting editor in Data Flow Modeler
- Support of standard Python 3 scripting language

```
Script
Properties
General  Script  Output Columns
  General
    Label: Scripting
    Code Language: Python
  Script
1 from textblob import TextBlob
2 def on_input(data):
3     try:
4         REVIEW_TEXT_INDEX = 17
5         if len(data.body) > 0:
6             for row in data.body:
7                 if row[REVIEW_TEXT_INDEX] is None:
8                     row[REVIEW_TEXT_INDEX] = ""
9                 tb = TextBlob(row[REVIEW_TEXT_INDEX])
10                row.append(tb.sentiment.polarity)
11                row.append(tb.sentiment.subjectivity)
12            api.send("output", data)
13    except Exception as e:
14        # just forward
15        raise e
16
17 api.set_port_callback("input1", on_input)
```

# Integrate. Replication Flow

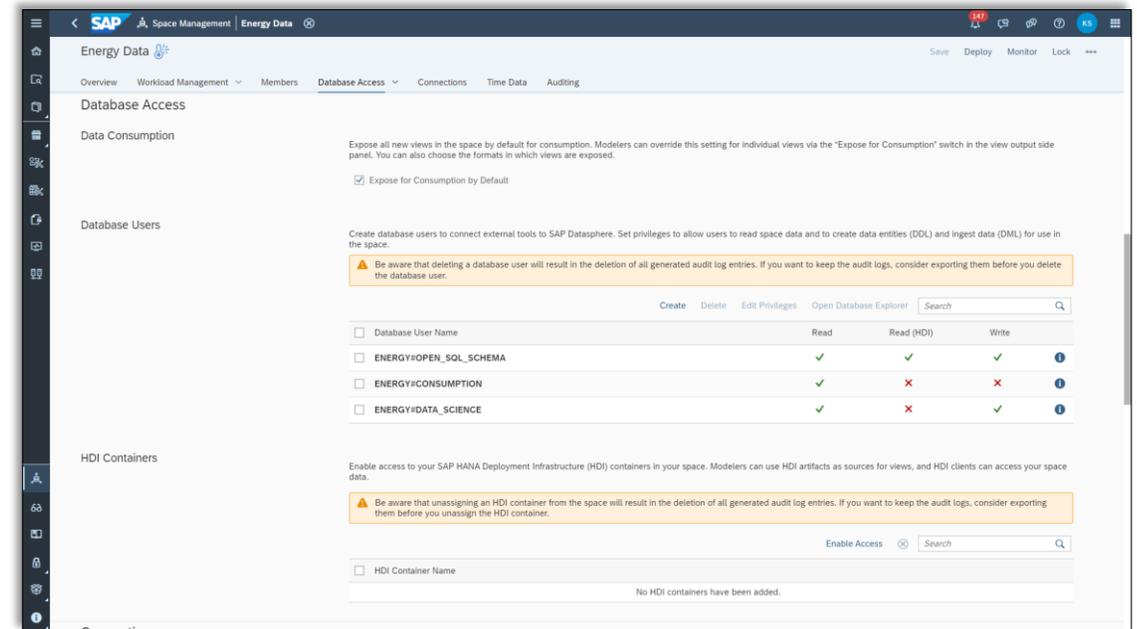
Enhancement of data replication use cases through a cloud based data replication tool

- Model data replication from a selected source to a selected target
- Focus on 1:1 replication with simple projections and filters
- Integrated user interface in Data Builder
- Integrated monitoring features in Data Integration Monitor
- Support initial load as well as delta load capabilities

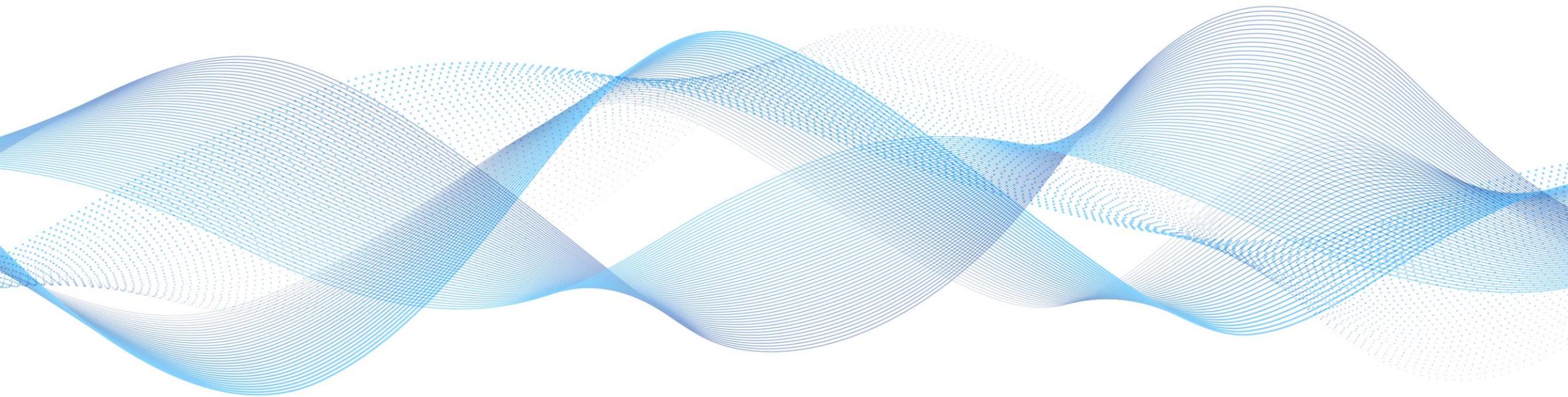


# Integrate. Open SQL Schema for Data Integration via SQL API

- Enabling external tools access to create artifacts and to write data to an Open SQL Schema of a Space
- Provide SQL endpoint to dedicated database schema
- Connect via an external data integration tool or SQL client
- Usage of SAP HANA SQL capability (DDL & DML)
  - Create views, tables
  - Define & execute stored procedures
  - Leverage Data Anonymization and Data Masking
  - Automated Predictive Library (APL) and Predictive Analysis Library (PAL), if enabled in Space
- Consume data models from your space in the Open SQL Schema
- Start SAP Database Explorer from Space Management

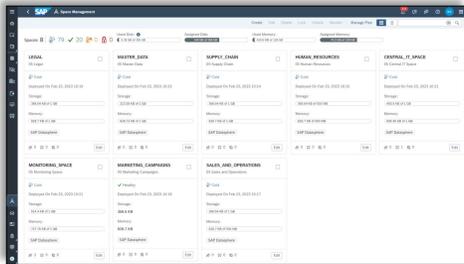


**Operate.**



# Operate. Unlocking data insights with integrity

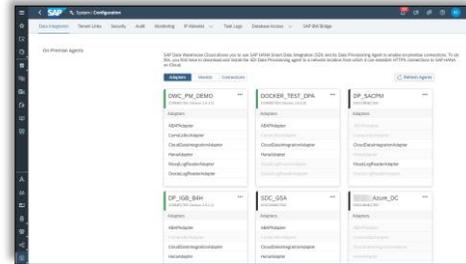
## Space Management



### Collaboration across spaces

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

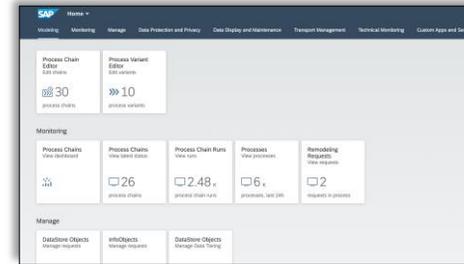
## Admin & Security



### Manage your settings

- IP Allowlisting & DP Agents
- 3<sup>rd</sup> Party driver & certificates
- User & Role Management
- Row-level Security & Remote Authorizations from SAP BW/4HANA
- Access HANA Cloud Cockpit
- Auditing & Resource Monitoring

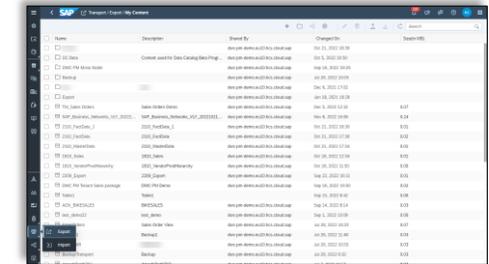
## SAP BW bridge



### Leverage SAP BW bridge

- SAP BW-based data integration
- Custom ABAP code support
- SAP BW/4HANA Content available for Data Integration
- Tool-supported move of SAP BW-based integration and staging (details see [SAP Note 3141688](#))

## Transport

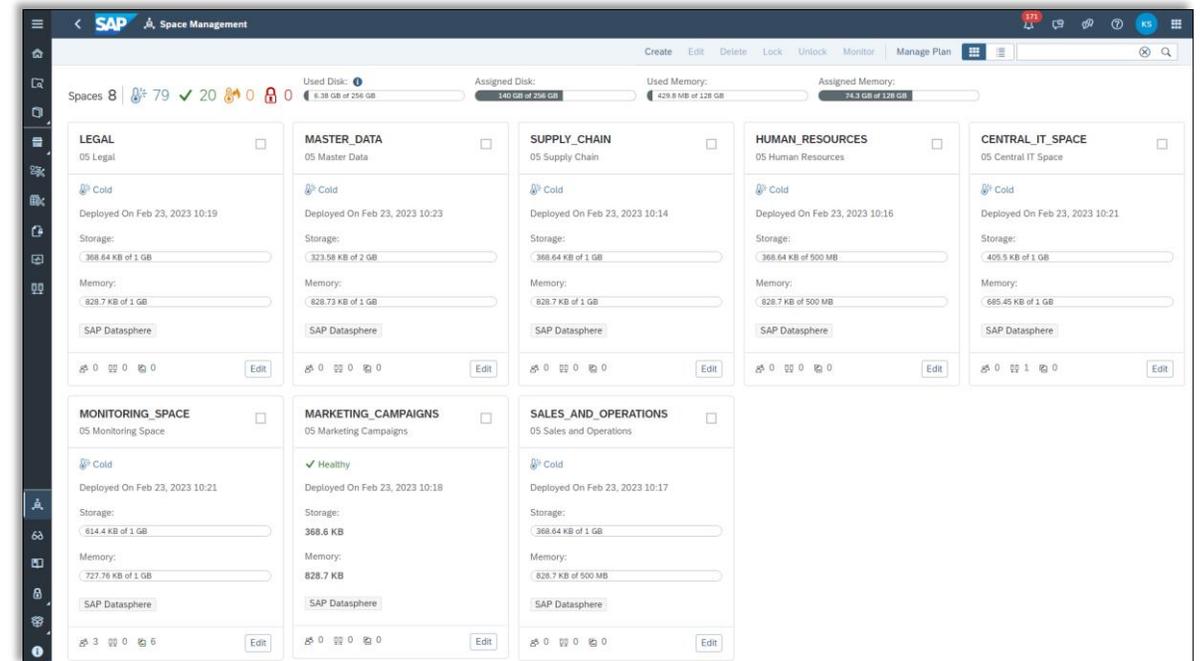


### Transfer content between tenants

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

# Operate. Space Management

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



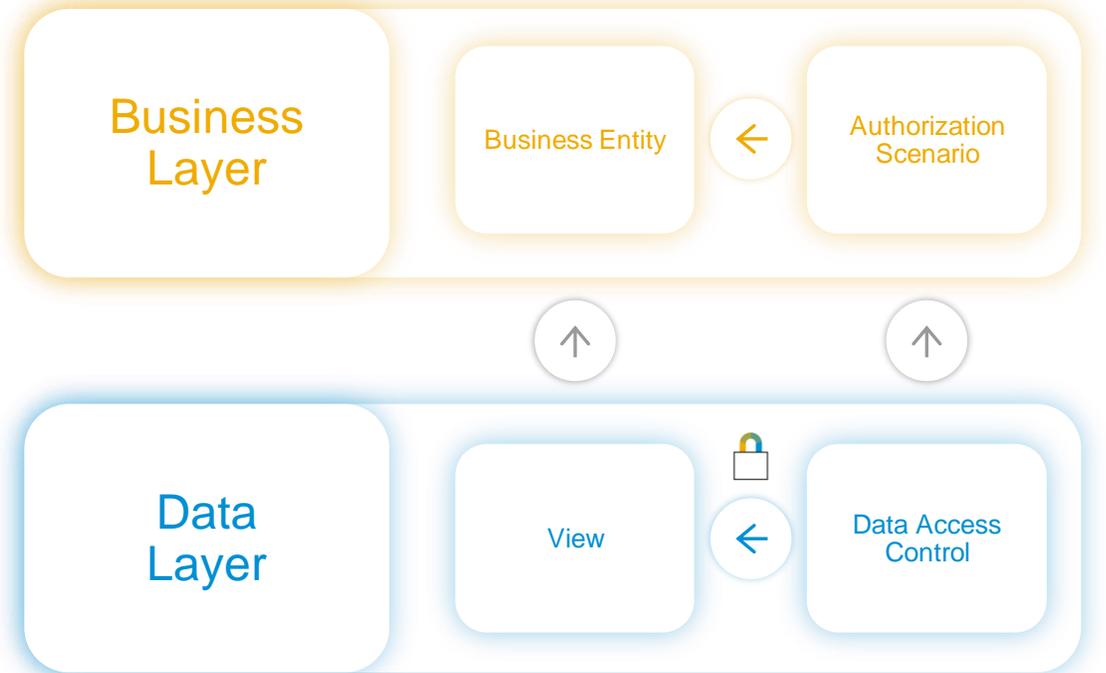
# Operate. Data Access Controls & Authorization Scenarios

## Data Access Controls

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

## Authorization Scenarios

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

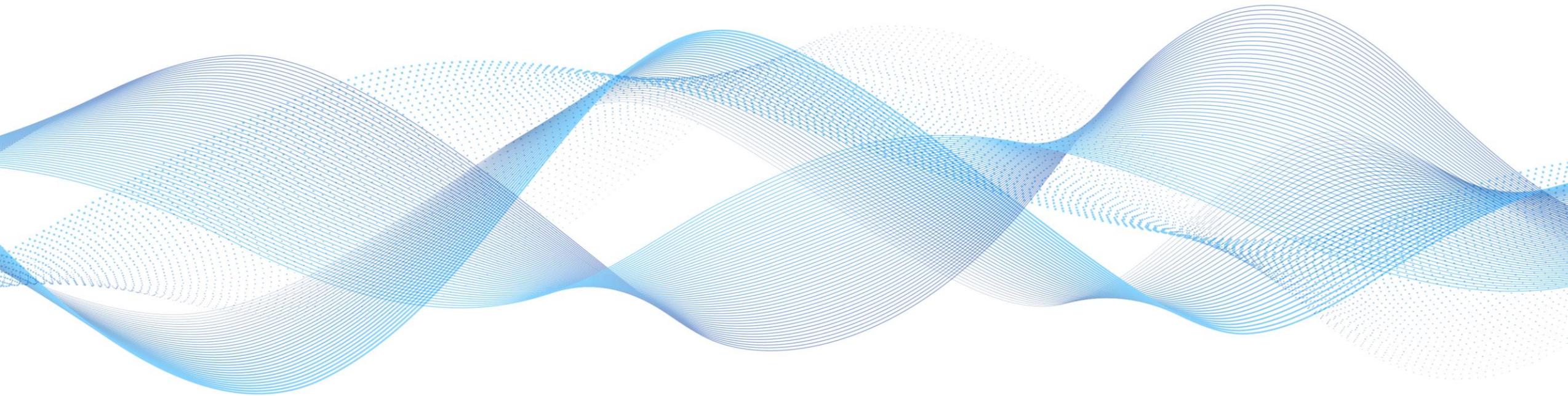


# Operate. Flexible Tenant Configuration

- The flexible tenant configuration is available for production and test tenants
- Allows to allocate resources (Capacity Units) according the specific needs after provisioning of a tenant with a fixed minimal configuration (4300 CU)
- Self-service to scale up the computing and storage with respect to subscribed capacity
- [More information](#)

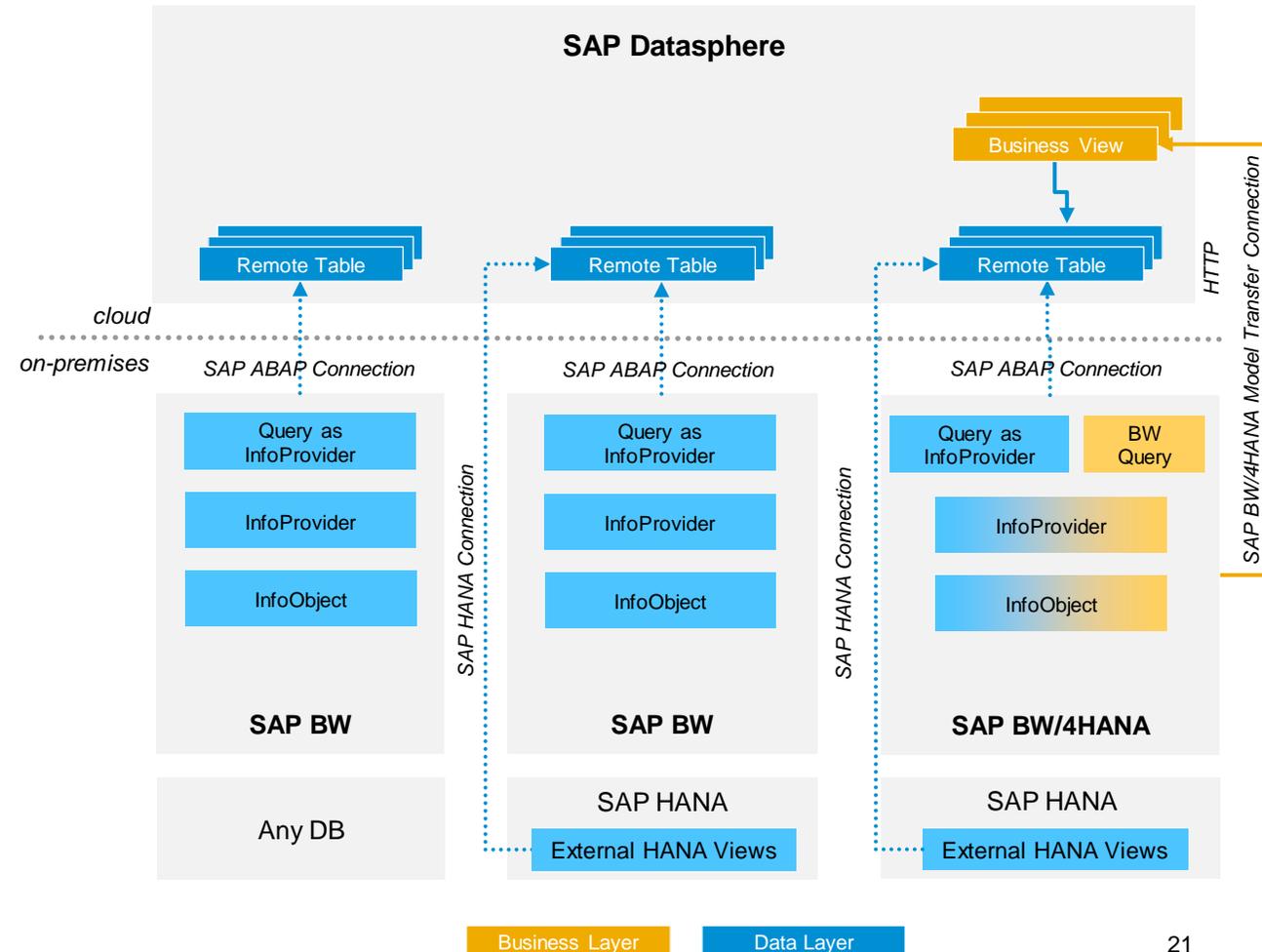
The screenshot shows the SAP System Configuration interface for Tenant Configuration. The top navigation bar includes options like Data Integration, Tenant Links, Security, Audit, Monitoring, IP Allowlist, Task Logs, Database Access, and Tenant Configuration. The main content area is titled "Based on your needs, you can configure your tenant. Caution: once you save the configuration of your tenant, you cannot change it." It features a "Our Recommendation" section with values: Storage: 768 GB, Compute Blocks: 4 Blocks, and Memory: 240 GB. Below this is a "Customize Your Configuration" section with adjustable sliders for Storage (256 GB), Compute Blocks (3 Blocks), Memory (180 GB), Total vCPUs (12 vCPUs), Data Lake Storage (0 TB), and SAP BW Bridge Storage (256 GB). The "Allocated CUs" is shown as 9.824 CU. On the right, a "Capacity Units" summary box displays: "Capacity Units (CU) are allocated to obtain storage and compute resources", "Your Subscription: Available Units: 10000 CU", and "Your Consumption: Units in Use: 0 CU, Remaining Units: 10000 CU".

# SAP BW Bridge & Hybrid.



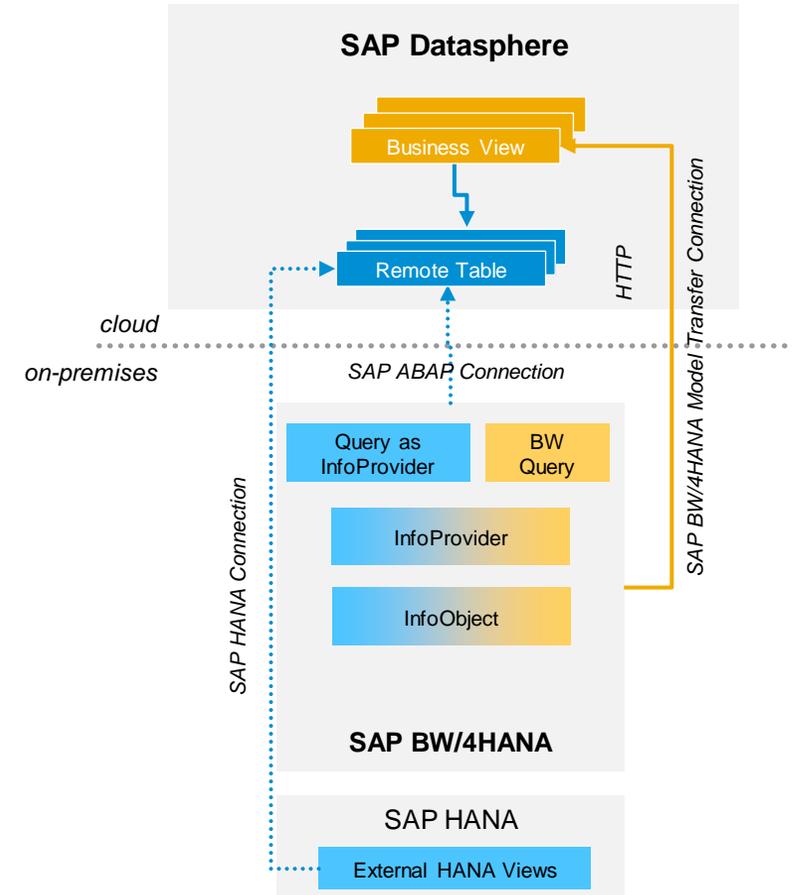
# SAP BW Hybrid. Integration Overview

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



# SAP BW Hybrid. 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
- Hierarchy Support (virtual, available via semantics, native SAP Datasphere dimension with hierarchies)\*
- SAP BW/4HANA system only acts remote data source, calculation engine execution (via MDS) happens in SAP Datasphere
- More information about supported features in [SAP Note 2932647](#)



# SAP BW Bridge. Value Proposition

## What is the SAP BW bridge?

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A SAP Datasphere **feature** that provides a path to the public cloud for SAP BW NetWeaver and SAP BW/4HANA customers.

Offers key capabilities of SAP BW directly in SAP Datasphere:

- **Connectivity & Business Content** providing proven SAP BW-based data integration (Extractors) from SAP ECC and SAP S/4HANA
- **Enterprise-ready staging layers** of SAP BW for managing data loading with partitioning, monitoring, error handling
- **Tool-supported move** of SAP BW-based integration and staging

## What are the key value propositions?

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### Re-use for business continuity

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



### Connect with confidence

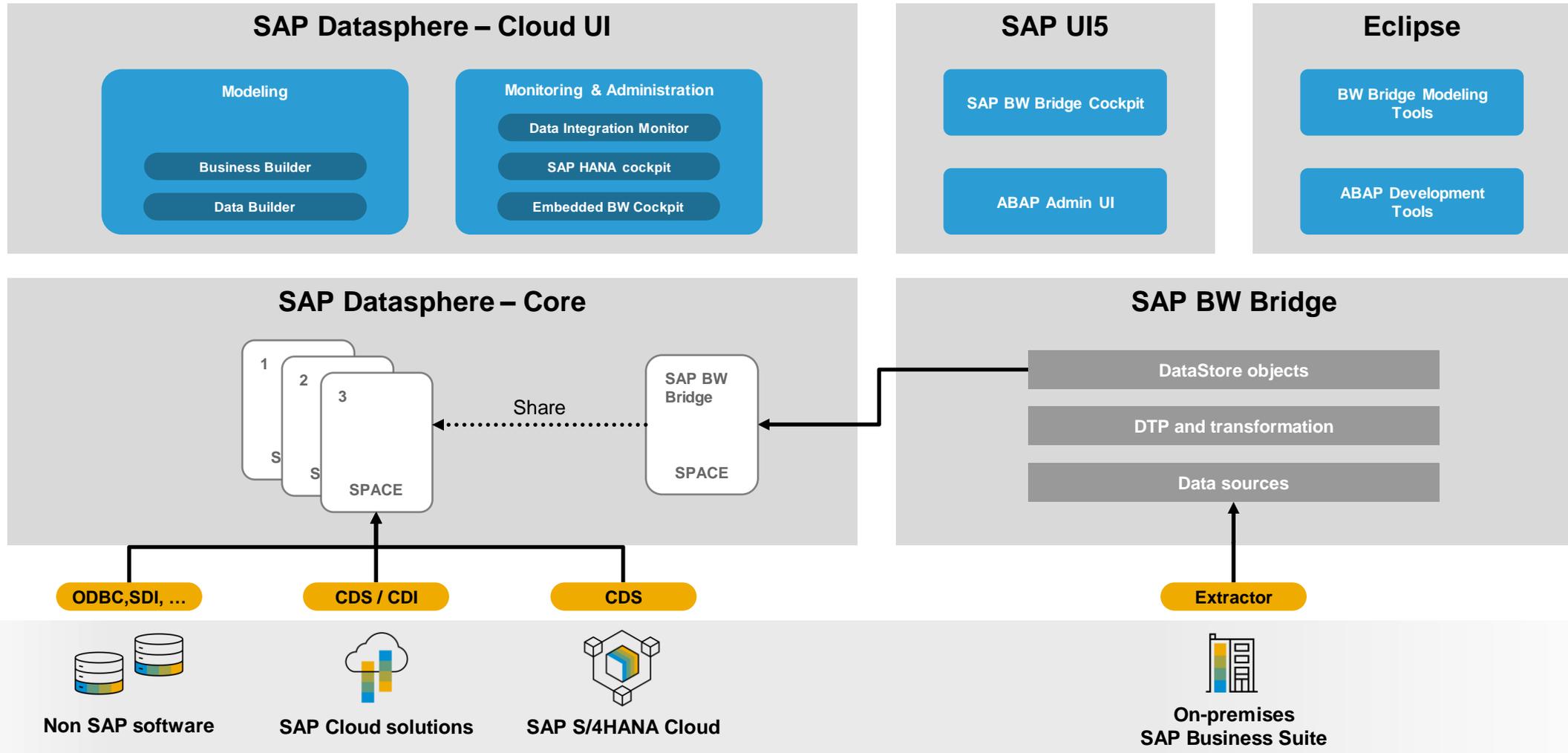
Integrate on-premises SAP Business Suite data with familiar connectivity and semantic richness – retaining instant access while expanding your analytics depth



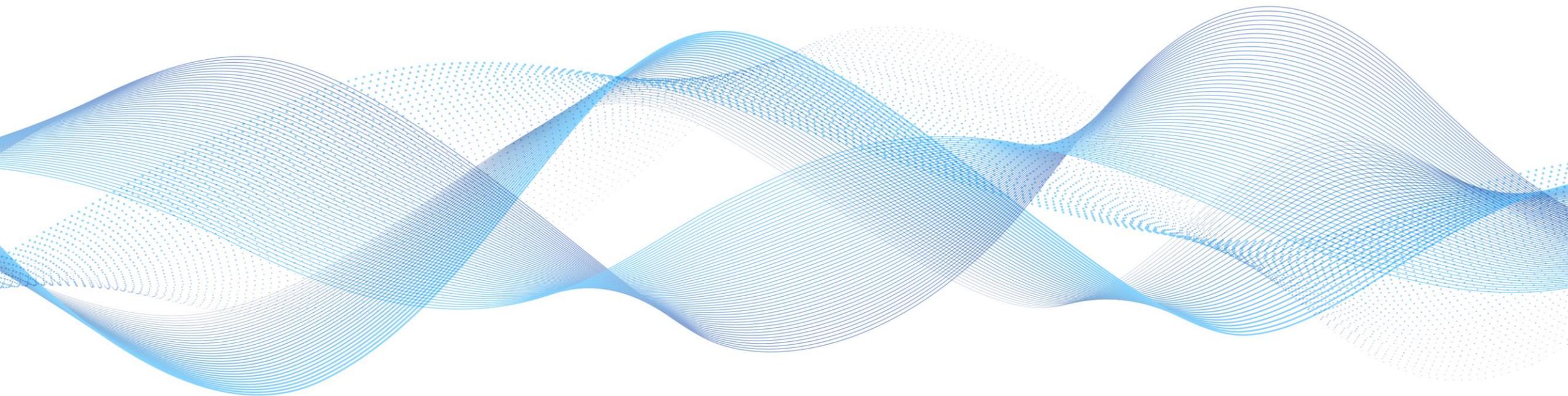
### Innovate with cloud agility

Empower your business to rapidly innovate on BW data with an open, unified data & analytics cloud service – scaling innovation and efficiency in the cloud

# SAP BW Bridge. Overview of data integration

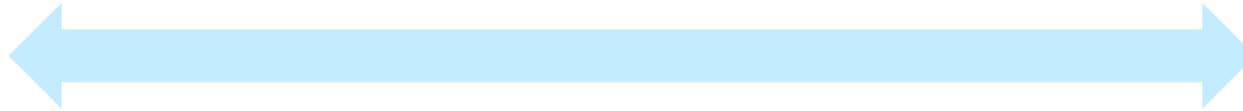


**Manage.**



# Manage. Modeling for Everybody

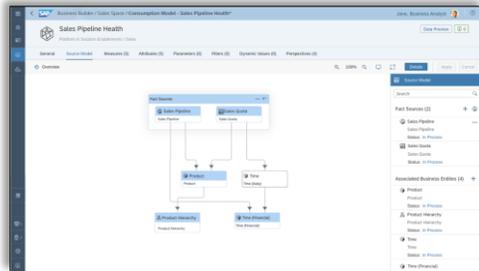
Business Analyst  
No Code / Low Code



Developer / Power User  
Pro Code

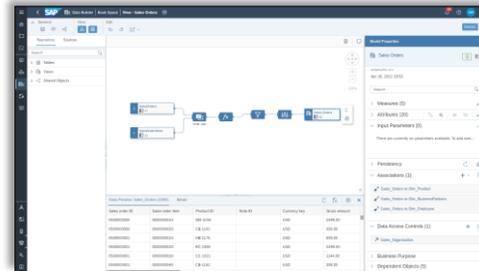
**BUILT-IN EDITORS**  
modeling for all users

## Business Modeling



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

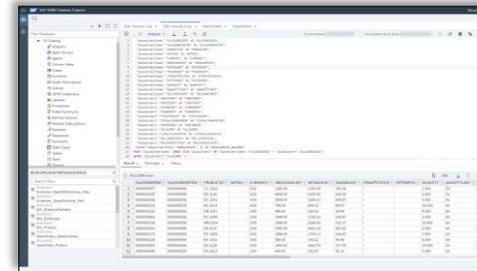
## Graphical & Scripted



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

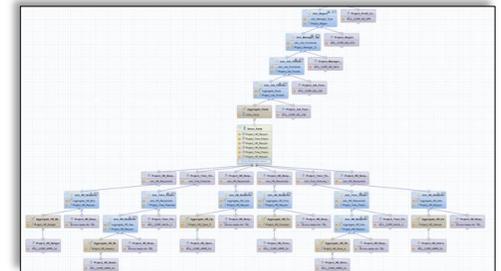
**EXTERNAL EDITORS**  
integrated SQL Data Warehousing

## Open SQL Schema



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

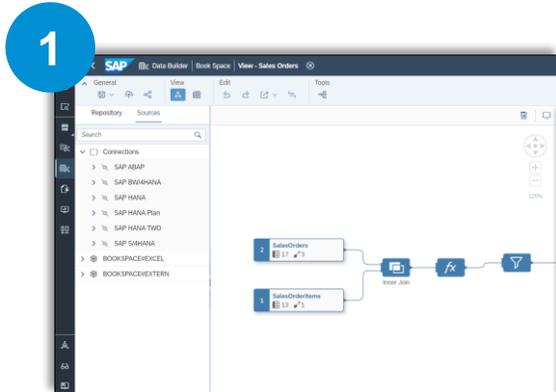
## SAP HANA Deployment Infrastructure



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

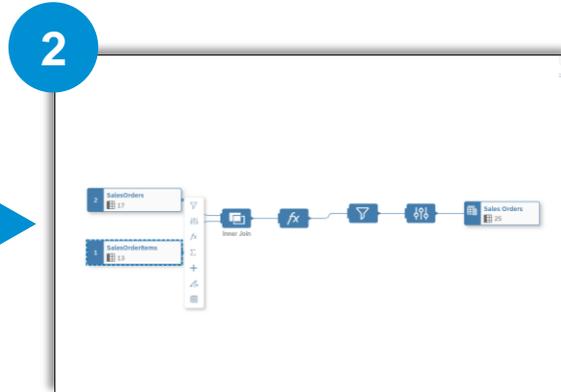
# Manage. Create Virtual Data Models

## Select Source Object



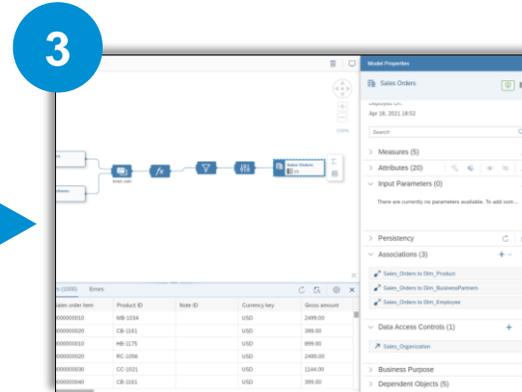
- Create a new source system connection or use an existing one
- Select the source object from
  - Connected source system
  - Open SQL Schema
  - Existing repository objects
- Create remote table if it does not already exist

## Build Your Model



- Add more source objects
- Use Join or Union operators to combine data from multiple sources
- Select operators for data transformations
  - Filter
  - Projection
  - Calculated Column
  - Aggregation
  - Join or Union

## Define View Properties



- Create views of type: Analytical Dataset, Dimension, Text, Hierarchy or Relational Dataset
- Optionally apply additional settings
  - Expose for consumption
  - Create and apply Input Parameters
  - Create & schedule View persistence
  - Associate other models or copy associations from sources
  - Apply Data Access Controls
  - Add business purpose & tags

## Create your Story

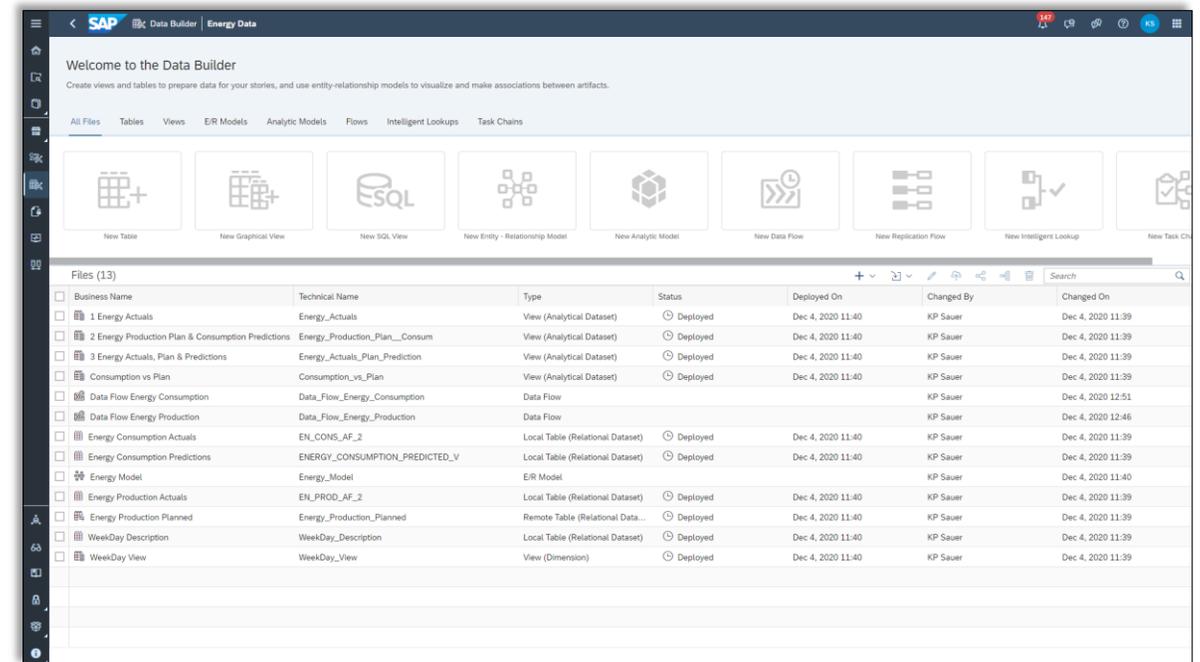


- Create a story in SAP Analytics Cloud based on the analytical view or
- Build new data models on top to integrate different data sources or associate master data views

# Manage. Data Builder Overview – Editors

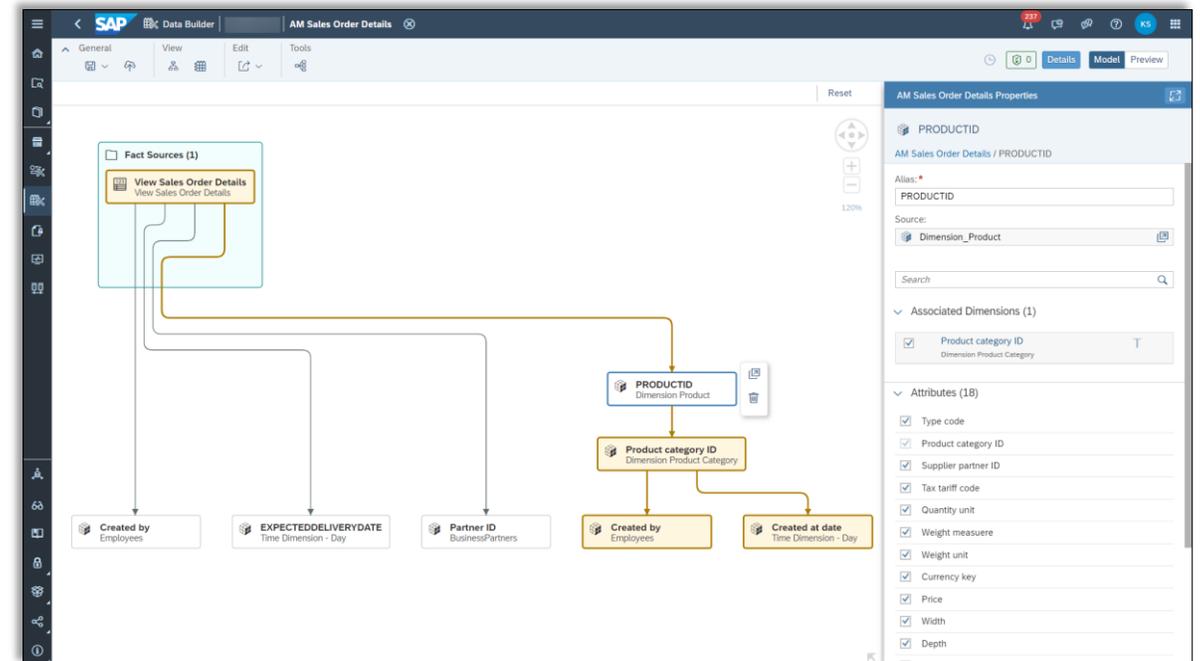
The **Data Builder** offers a collection of editors to create artifacts in the data layer like

- Table Editor
- Graphical View Editor
- SQL View Editor
- Entity Relationship Editor
- Analytic View Editor
- Data Flow Editor
- Intelligent Lookup Editor
- Replication Flow Editor
- Task Chain Editor



# Manage. Analytic Model

- The Analytic Model allows multi-dimensional and rich analytical modelling with less effort to answer business questions easier, faster and more efficiently
- It offers many features like
  - Calculated & restricted measures
  - Exception aggregation
  - Pruning of attributes and measures
  - Nested dimensions & variable support
  - Time-dependency for dimensions & texts
  - Multi-dimensional analytical preview incl. filtering, pivoting, hierarchies, etc.
  - Repository integration for impact & lineage analysis, model export/import, change management and transports
  - Migration support from Analytical Data Set



# Manage. Intelligent Lookup

- Intelligent Lookup is a business-centric, interactive data harmonization environment for subject matter experts, which lets you iteratively join entities by defining rules to match records and then reviewing the results
- New operator in Data Builder allowing to harmonize data that share no common identifier, starting where traditional joins are failing
- Interactive environment for mappings
- Filtering and sorting of multiple columns
- Mappings need to be created only once and can be automated through rules
- Use output view of Intelligent Lookup in other models
- [More information](#)

The screenshot displays the SAP Data Builder interface for the 'Intelligent Lookup Whats New' project. The top section shows a workflow diagram with three 'Rule' blocks: 'Exact Match', 'Exact Match', and 'Fuzzy Match', leading to an 'Intelligent Lookup Output' block. Below the diagram, a summary bar indicates 'Rule (395)', 'Matched (286)', 'Review (49)', 'Multiple (9)', 'Unmatched (51)', and 'Error'. The main area is split into two tables: 'NG\_Sales\_v5' and 'NG\_Customers\_v4'. The 'NG\_Sales\_v5' table lists sales records with columns for Rechnungnummer, Rechnungsadresse\_\_Strasse\_, Rechnungsadresse\_\_Ort\_, Kunde\_Name, and Kunde\_Vorname. The 'NG\_Customers\_v4' table lists customer records with columns for SCORE, Kundennummer, and Kunde\_Adresse\_\_Stras....

NG_Sales_v5					NG_Customers_v4		
Rechnungsnummer	Rechnungsadresse__Strasse_	Rechnungsadresse__Ort_	Kunde_Name	Kunde_Vorname	SCORE	Kundennummer	Kunde_Adresse__Stras...
<input checked="" type="checkbox"/>	1225	Kanzlerstr. 31	Eckelsheim	Senn	93.00%	700	Kanzlerstraße 31
<input type="checkbox"/>	1533	Kanzlerstr. 31	Eckelsheim	Senn	84.00%	701	Kanzlerstraße 31
<input type="checkbox"/>	1569	Kanzlerstr. 31	Eckelsheim	Senn	80.00%	702	Kanzlerstraße 31
<input type="checkbox"/>	4925	Kanzlerstraße 31	Eckelsheim	Zenna			
<input type="checkbox"/>	4928	Kanzlerstraße 31	Eckelsheim	Zenna			
<input type="checkbox"/>	4930	Kanzlerstraße 31	Eckelsheim	Zenna			
<input type="checkbox"/>	4989	Kanzlerstraße 31	Eckelsheim	Senna			
<input type="checkbox"/>	4991	Kanzlerstraße 31	Eckelsheim	Senna			
<input type="checkbox"/>	4994	Kanzlerstraße 31	Eckelsheim	Senna			

# Manage. Open SQL Schema for Data Modeling via SQL API

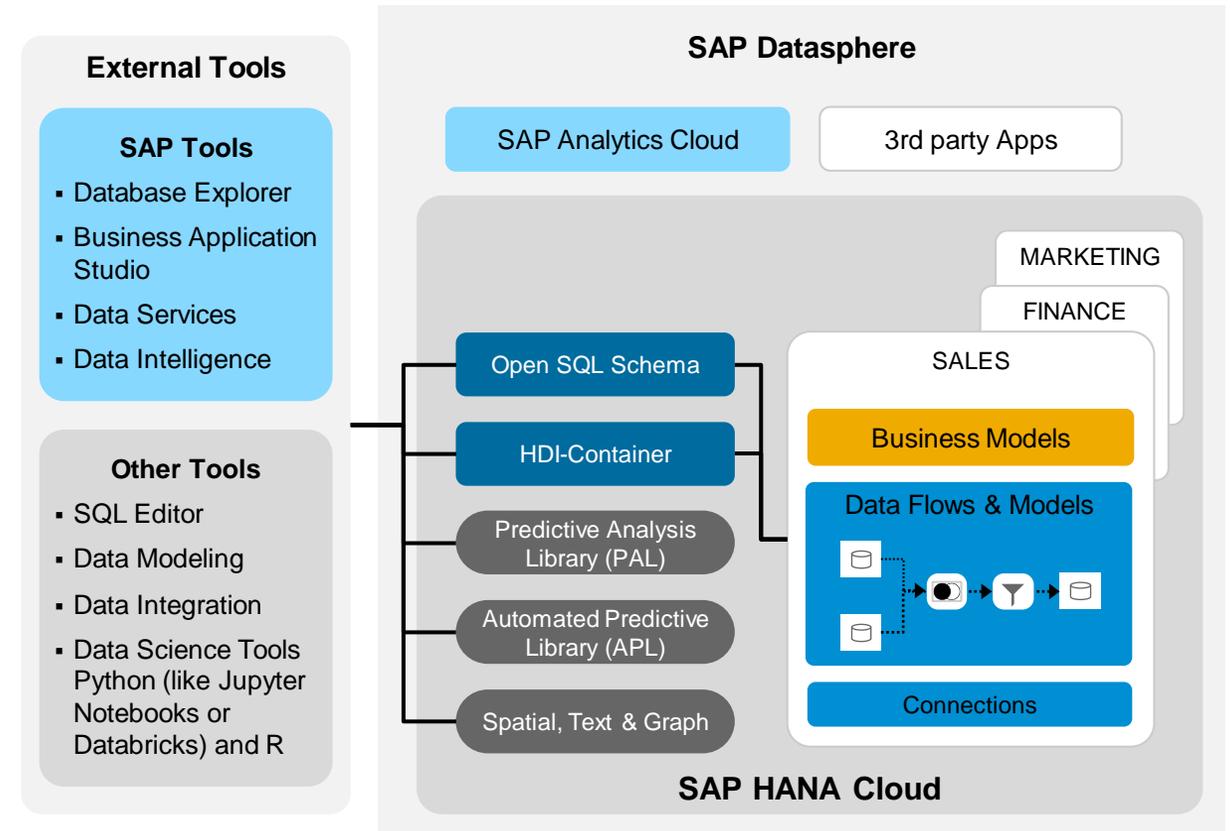
- External tools can create artifacts in an Open SQL Schema of a Space
- Connect via external SQL client like SAP Database Explorer directly from Space Management
- Usage of SAP HANA SQL capability (DDL & DML)
  - Create views, tables
  - Define & execute stored procedures
  - Leverage Data Anonymization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

The screenshot displays the SAP HANA Database Explorer interface. On the left, a tree view shows the database structure, including a 'Catalog' with various objects like 'Adapters', 'Agent Groups', 'Agents', 'Column Views', 'Cubes', 'Functions', 'Graph Workspaces', 'Indexes', 'JSON Collections', 'Libraries', 'Procedures', 'Public Synonyms', 'Remote Sources', 'Remote Subscriptions', 'Sequences', 'Synonyms', 'Table Types', 'Tables', 'Tasks', and 'Triggers'. The main area shows a SQL console with a query and its results. The query is a complex SELECT statement with multiple joins and filters. The results are displayed in a table with 12 columns: SALESORDERID, SALESORDERITEM, PRODUCTID, NOTEID, CURRENCY, GROSSAMOUNT, NETAMOUNT, TAXAMOUNT, ITEMATPSTATUS, OPITEMPOS, QUANTITY, and QUANTITYUNIT. The table shows 12 rows of data.

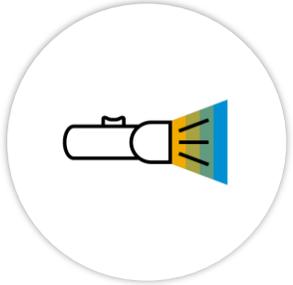
	SALESORDERID	SALESORDERITEM	PRODUCTID	NOTEID	CURRENCY	GROSSAMOUNT	NETAMOUNT	TAXAMOUNT	ITEMATPSTATUS	OPITEMPOS	QUANTITY	QUANTITYUNIT	DF
1	0500000057	0000000040	CC-1022		USD	1200.00	1050.00	150.00			1.000	EA	2C
2	0500000025	0000000090	EB-1134		USD	4800.00	4200.00	600.00			6.000	EA	2C
3	0500000034	0000000030	RC-1052		USD	3999.00	3499.13	499.87			3.000	EA	2C
4	0500000214	0000000070	EB-1014		USD	799.00	699.12	99.87			10.000	EA	2C
5	0500000210	0000000010	CB-1161		USD	399.00	349.12	49.88			8.000	EA	2C
6	0500000081	0000000020	RC-1055		USD	1999.00	1749.13	249.87			2.000	EA	2C
7	0500000248	0000000020	MB-1034		USD	2499.00	2186.63	312.37			10.000	EA	2C
8	0500000261	0000000080	EB-1137		USD	7900.00	6912.50	987.50			2.000	EA	2C
9	0500000171	0000000050	RC-1055		USD	1999.00	1749.13	249.87			7.000	EA	2C
10	0500000128	0000000060	BX-1012		USD	399.00	349.12	49.88			8.000	EA	2C
11	0500000063	0000000040	EB-1132		USD	1900.00	1662.90	237.50			10.000	EA	2C
12	0500000448	0000000010	BX-1013		USD	449.00	392.87	56.13			5.000	EA	2C

# Manage. Embedded Machine Learning and Advanced Analytics

- Data Science enrichment in SAP Datasphere without data extraction
- Leveraging SAP HANA Cloud data science capabilities
  - Native [Python Machine Learning Client for SAP HANA Cloud](#)
  - Native [R Machine Learning Client for SAP HANA Cloud](#)
  - Exposing the data as HANA data frame in Python
  - Remote use of SAP HANA Cloud machine learning, spatial, text and graph functions in Python or R
- Use your existing Python or R environment to trigger calculations in SAP Datasphere
- Train ML Model based on persisted and managed data in HDI-container or open SQL schema
- Store ML Prediction result in table in HDI-container or open SQL schema
- Ensure that the [SAP HANA Cloud Script Server is enabled on your Tenant](#)



# Manage. Catalog – Use Cases



## Data Discovery for self-service & Data democratization

- Metadata extraction from variety of sources
- Empower users to be data driven
- Increase productivity with search and filtering capabilities



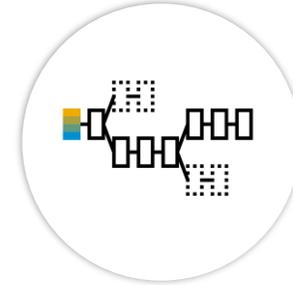
## Data Quality for trusted business insights

- Data profiling for assessing fit for use
- Run data quality rules and identify anomalies
- Maintain & enhance quality to maintain trust



## Data Compliance for effective data Governance

- Data profiling for assessing fit for use
- Run data quality rules and identify anomalies
- Maintain & enhance quality to maintain trust



## Comprehending Data with Asset Details & Lineage

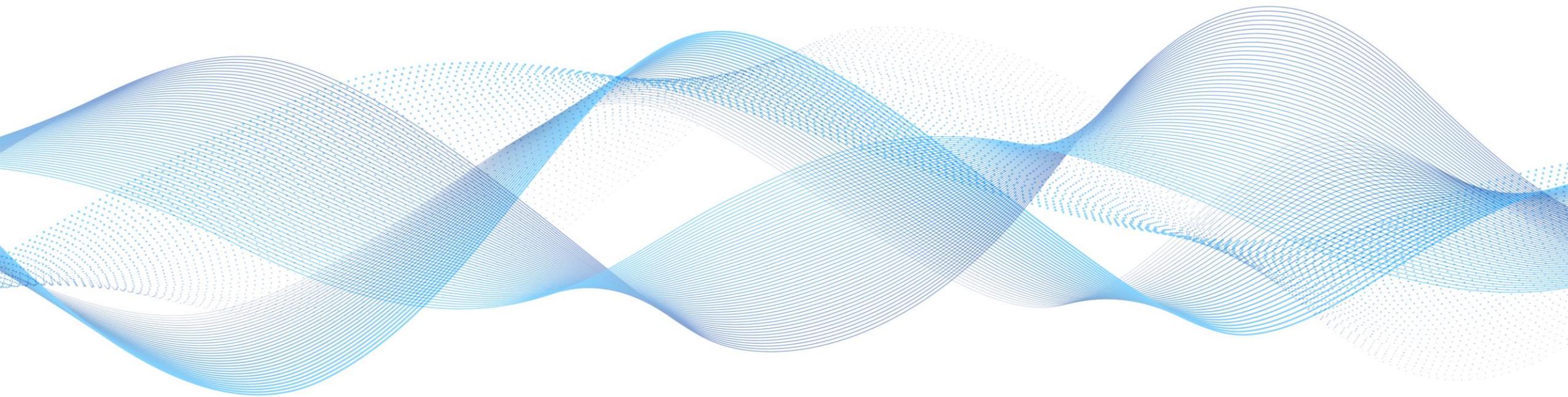
- Lineage and Impact analysis for Data provenance
- Minimize impact of changes by understanding relationships between assets
- Track transformation of data from source to point of use



## Organizational Data Literacy through Glossary & KPIs

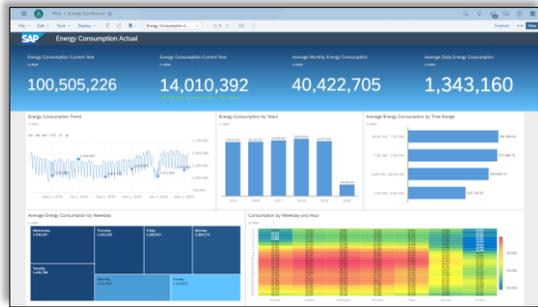
- Establish common language across enterprise
- Define KPIs for quantifiable, outcome-based strategic goals
- Save time and focus attention on what matters most

**Use.**



# Use. Choice and openness with pre-built business content

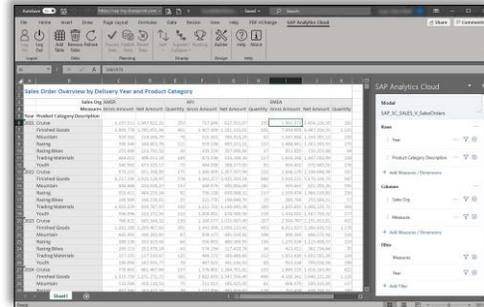
## SAP Analytics Cloud



### One seamless user experience

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

## MS Office Integration



### Live Connection to MS Excel

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

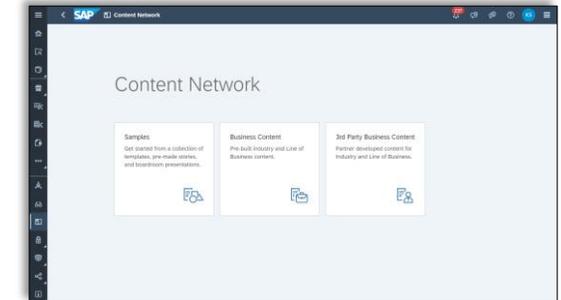
## External API



### External API for consumption

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

## Business Content

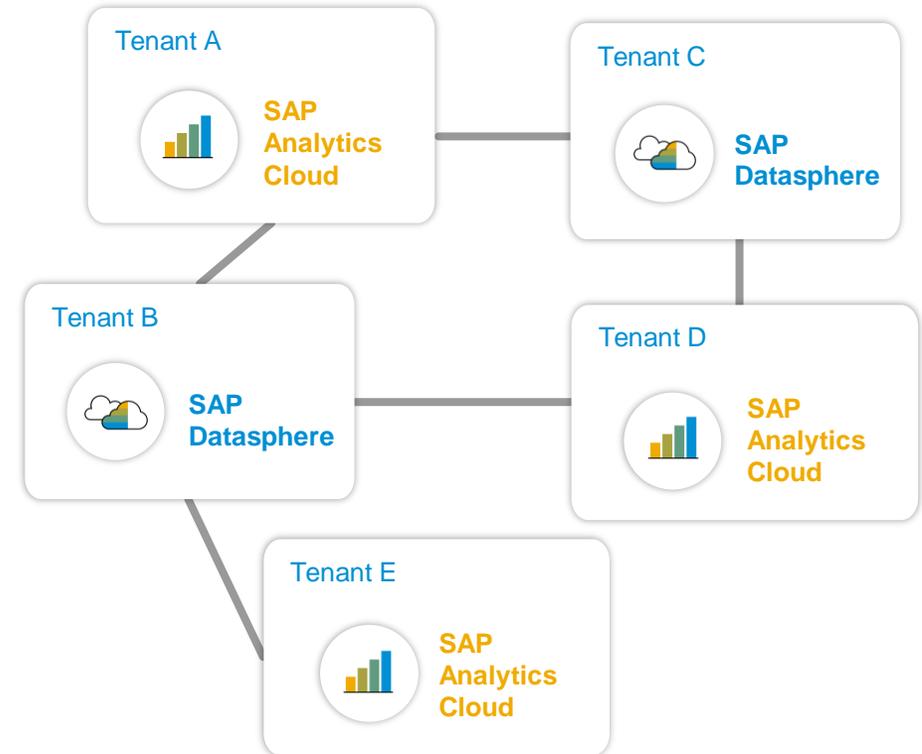


### Business accelerators

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

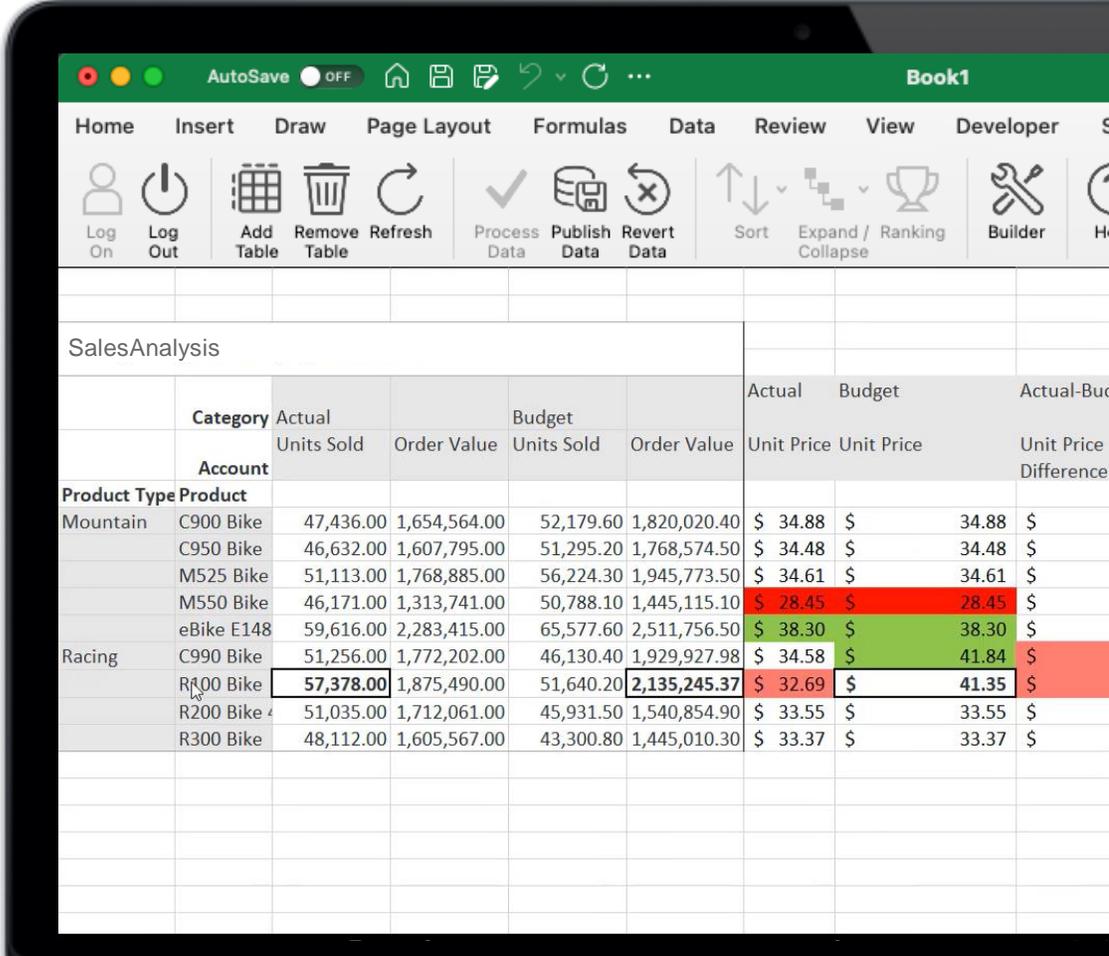
# Use. SAP Analytics Cloud & SAP Datasphere

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



# Use. SAP Analytics Cloud, add-in for Microsoft Office

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

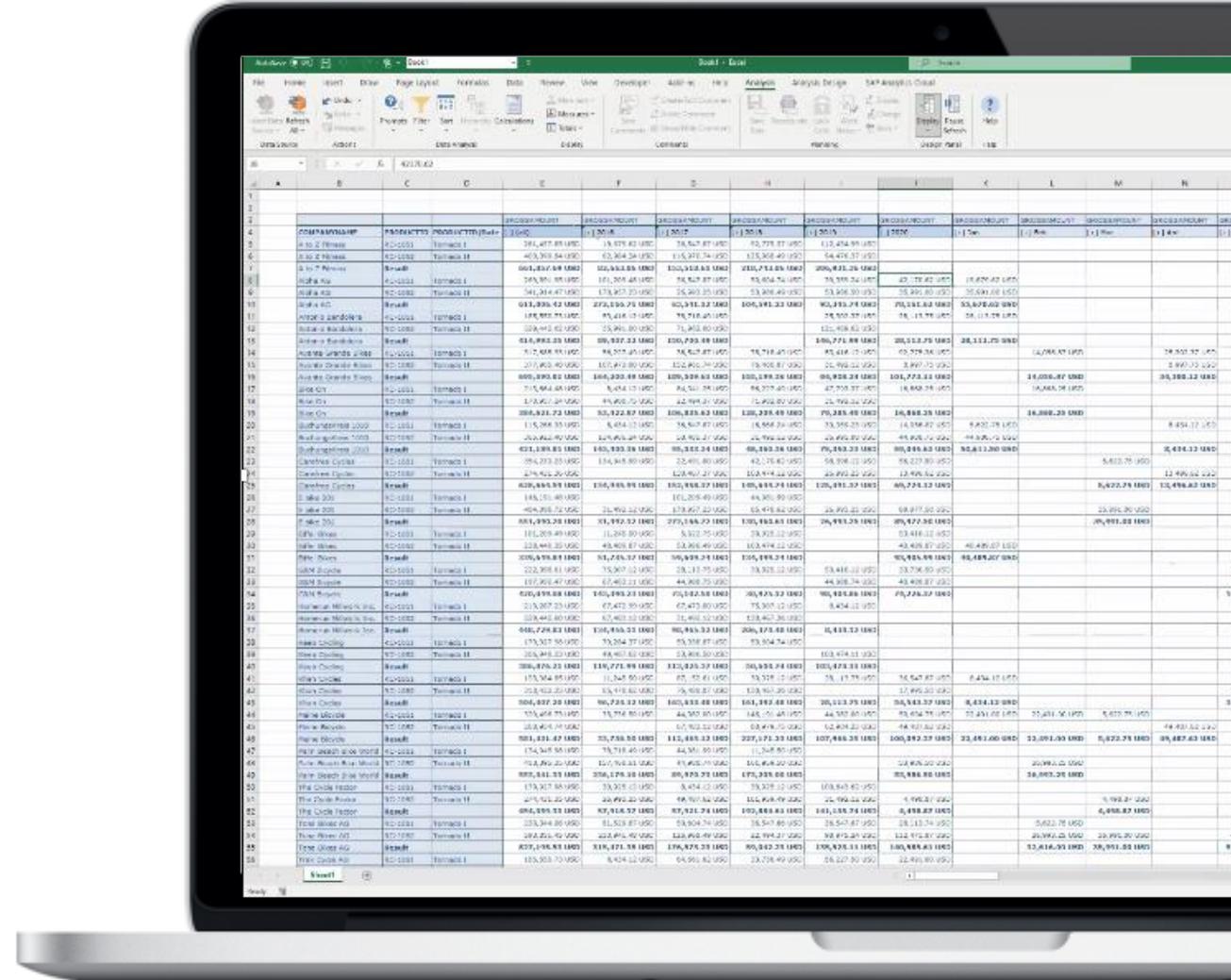


The screenshot shows the Microsoft Excel interface with the SAP Analytics Cloud add-in. The ribbon includes tabs for Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, and Developer. The Data tab is active, showing options like Log On, Log Out, Add Table, Remove Table, Refresh, Process Data, Publish Data, Revert Data, Sort, Expand / Ranking Collapse, and Builder. The main area displays a table titled 'SalesAnalysis' with columns for Category, Actual, Budget, and Unit Price. The table data is as follows:

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

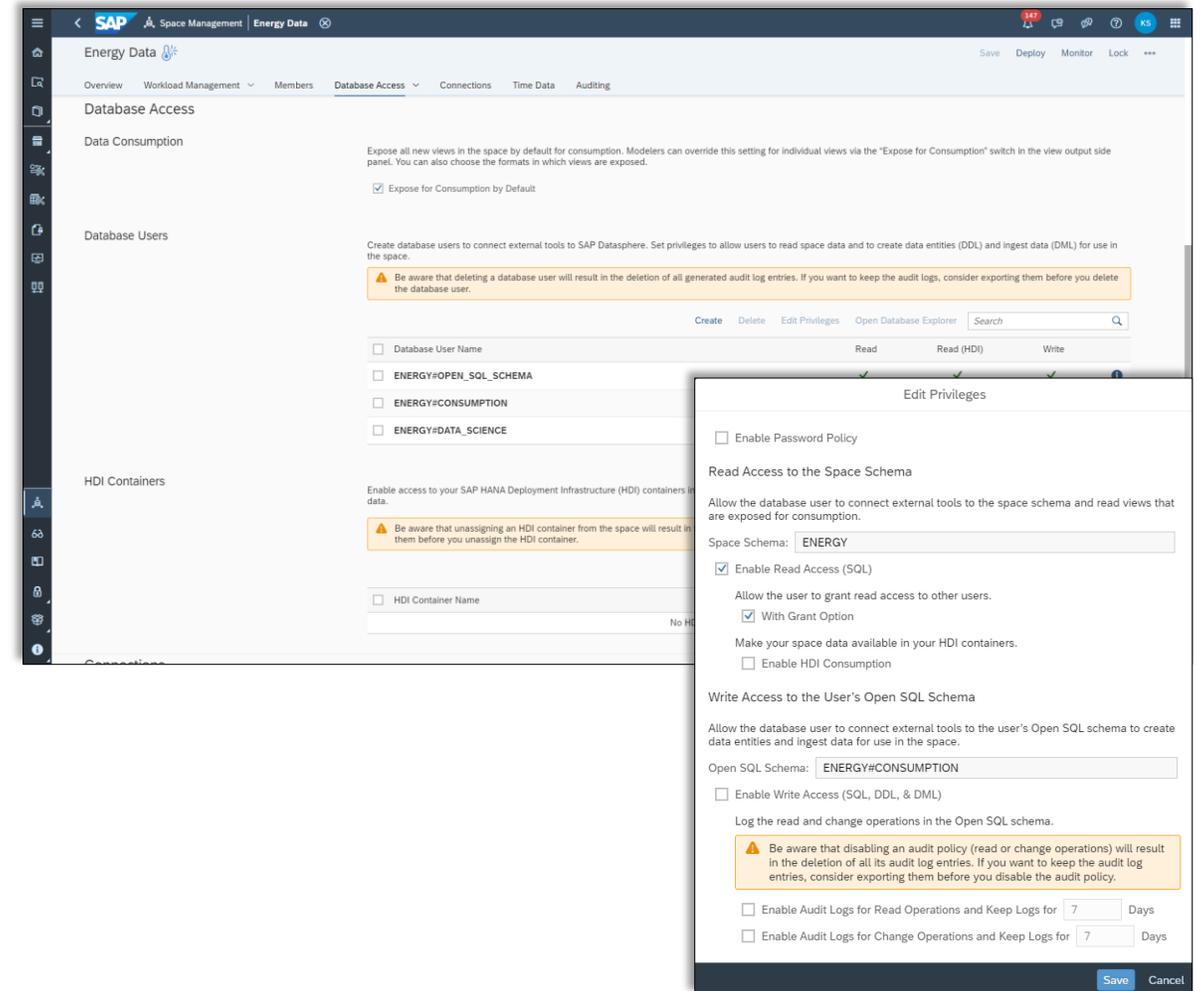
# Use SAP Analysis for Office Support

- Live connection support for SAP Datasphere via the Excel Plug-In
- Support SAP Datasphere as data source for the SAP Analysis for Office (AfO) Excel plug-in 2.8 SP14+
- Provide your business users with flexibility by extending the AfO support to cloud sources
- Find more information
  - SAP Community for the [SAP Analysis for Microsoft Office](#)
  - Learn how to use it in this [Blog](#)



# Use 3<sup>rd</sup> Party Data Consumption API SQL Access

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

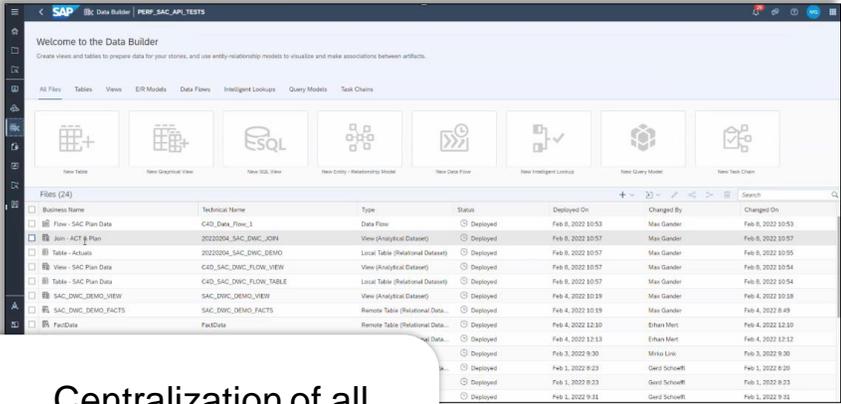


# Use 3<sup>rd</sup> Party Data Consumption API OData

- Support bi-directional integration with SAP Analytics Cloud for planning purposes
- Enable consumption through 3rd party BI tools & apps
- Supports deployed Data Builder artefacts that are marked as “Expose for Consumption”
- Supports standard OData v4 query parameters (\$select, \$filter, \$top, etc.)
- Supports business user access and authentication via “Authorization Code”
- No write-back (read-only)
- More information: [SAP Help](#)



Combined Plan vs. Actual Reporting in SAP Analytics Cloud

Welcome to the Data Builder

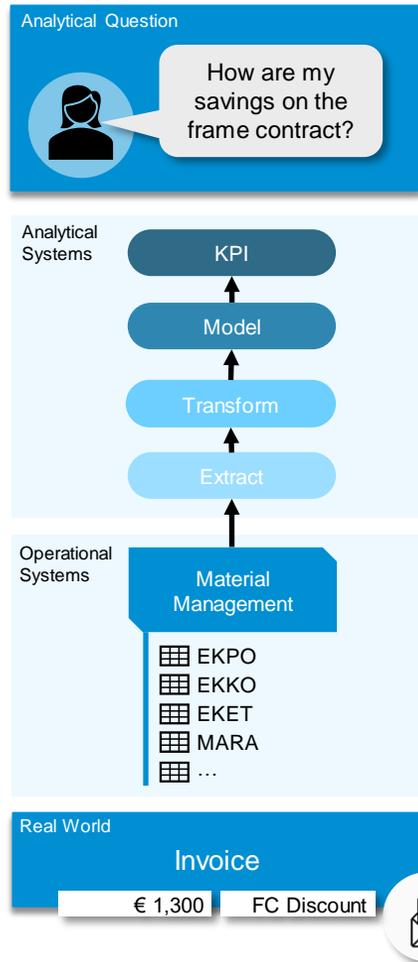
Files (24)

Business Name	Technical Name	Type	Status	Deployed On	Changed By	Changed On
Flow - SAC Plan Data	C4D_Data_Flow_1	Data Flow	Deployed	Feb 8, 2022 10:53	Max Gander	Feb 8, 2022 10:53
Join - ACT & Plan	20220204_SAC_DWC_JOIN	View (Analytical Dataset)	Deployed	Feb 8, 2022 10:57	Max Gander	Feb 8, 2022 10:57
Table - Actuals	20220204_SAC_DWC_DEMO	Local Table (Relational Dataset)	Deployed	Feb 8, 2022 10:57	Max Gander	Feb 8, 2022 10:55
View - SAC Plan Data	C4D_SAC_DWC_FLOW_VIEW	View (Analytical Dataset)	Deployed	Feb 8, 2022 10:57	Max Gander	Feb 8, 2022 10:54
Table - SAC Plan Data	C4D_SAC_DWC_FLOW_TABLE	Local Table (Relational Dataset)	Deployed	Feb 8, 2022 10:57	Max Gander	Feb 8, 2022 10:54
SAC_DWC_DEMO_VIEW	SAC_DWC_DEMO_VIEW	View (Analytical Dataset)	Deployed	Feb 4, 2022 10:19	Max Gander	Feb 4, 2022 10:18
SAC_DWC_DEMO_FACTS	SAC_DWC_DEMO_FACTS	Remove Table (Relational Data)	Deployed	Feb 4, 2022 10:19	Max Gander	Feb 4, 2022 8:49
SAC_DWC_DEMO_FACTS	SAC_DWC_DEMO_FACTS	Remove Table (Relational Data)	Deployed	Feb 4, 2022 12:10	Ethan Merr	Feb 4, 2022 12:10
FacData	FacData	FacData	Deployed	Feb 4, 2022 12:12	Ethan Merr	Feb 4, 2022 12:12
			Deployed	Feb 3, 2022 9:30	Mirko Lini	Feb 3, 2022 9:30
			Deployed	Feb 1, 2022 8:23	Gerd Schwoeff	Feb 1, 2022 8:20
			Deployed	Feb 1, 2022 8:23	Gerd Schwoeff	Feb 1, 2022 8:23
			Deployed	Feb 1, 2022 9:31	Gerd Schwoeff	Feb 1, 2022 9:31



Centralization of all Reporting and Planning Data in SAP Datasphere

# Use. Business Content Overview

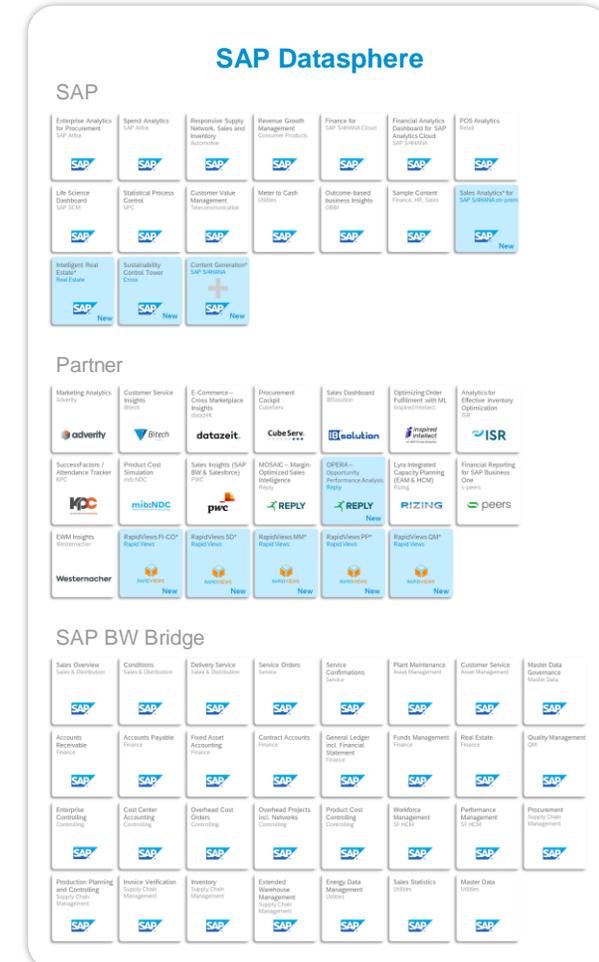


## Business Content Collection

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)



# Use. SAP Datasphere Business Content

## SAP Business Content

Enterprise Analytics for Procurement SAP Ariba	Spend Analytics SAP Ariba	Responsive Supply Network, Sales and Inventory Automotive	Revenue Growth Management Consumer Products	Finance for SAP S/4HANA Cloud
Financial Analytics Dashboard for SAP Analytics Cloud SAP S/4HANA	POS Analytics Retail	Life Science Dashboard SAP SCM	Statistical Process Control SPC	Customer Value Management Telecommunication
Meter to Cash Utilities	SAP Monitoring Content (Data Integration Tasks) SAP Datasphere	Sample Content Finance, HR, Sales	Sales Analytics for SAP S/4HANA on-prem	Intelligent Real Estate Real Estate
Sustainability Control Tower Cross	Solution Order Analysis SAP S/4HANA Cloud	Business Network Value Analytics Cross Supply Chain	Service Contract Analysis SAP S/4HANA	

## SAP Generator

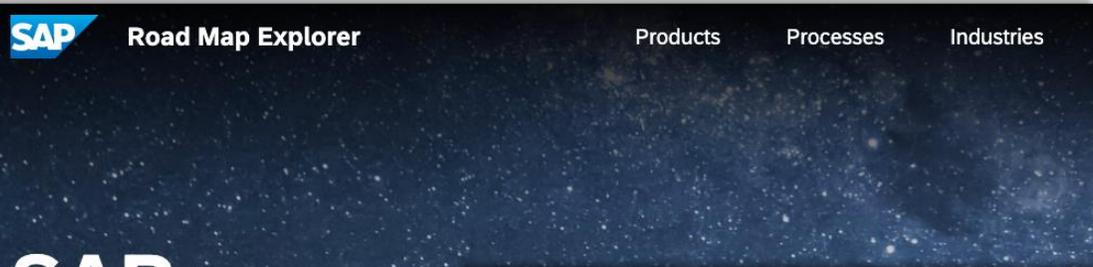


## Partner Business Content

Marketing Analytics Adverity	Customer Service Insights Bitech	E-Commerce – Cross Marketplace Insights datazeit	Procurement Cockpit CubeServ	Sales Dashboard IBsolution
Optimizing Order Fulfillment with ML Inspired Intellect	Analytics for Effective Inventory Optimization ISR	SuccessFactors / Attendance Tracker KPC	Product Cost Simulation mib:NDC	Sales Insights (SAP BW & Salesforce) PWC
MOSAIC – Margin-Optimized Sales Intelligence Reply	OPERA – Opportunity Performance Analysis Reply	Lyra Integrated Capacity Planning (EAM & HCM) Rizing	Financial Reporting for SAP Business One s-peers	EWM Insights Westernacher
RapidViews FI-CO Rapid Views	RapidViews SD Rapid Views	RapidViews MM Rapid Views	RapidViews PP Rapid Views	RapidViews QM Rapid Views

Find more information about the [Business Content](#) on the [SAP Community](#). Partner Content also listed on [SAP Store](#).

# SAP Datasphere. SAP Road Map Explorer



## SAP Road Maps

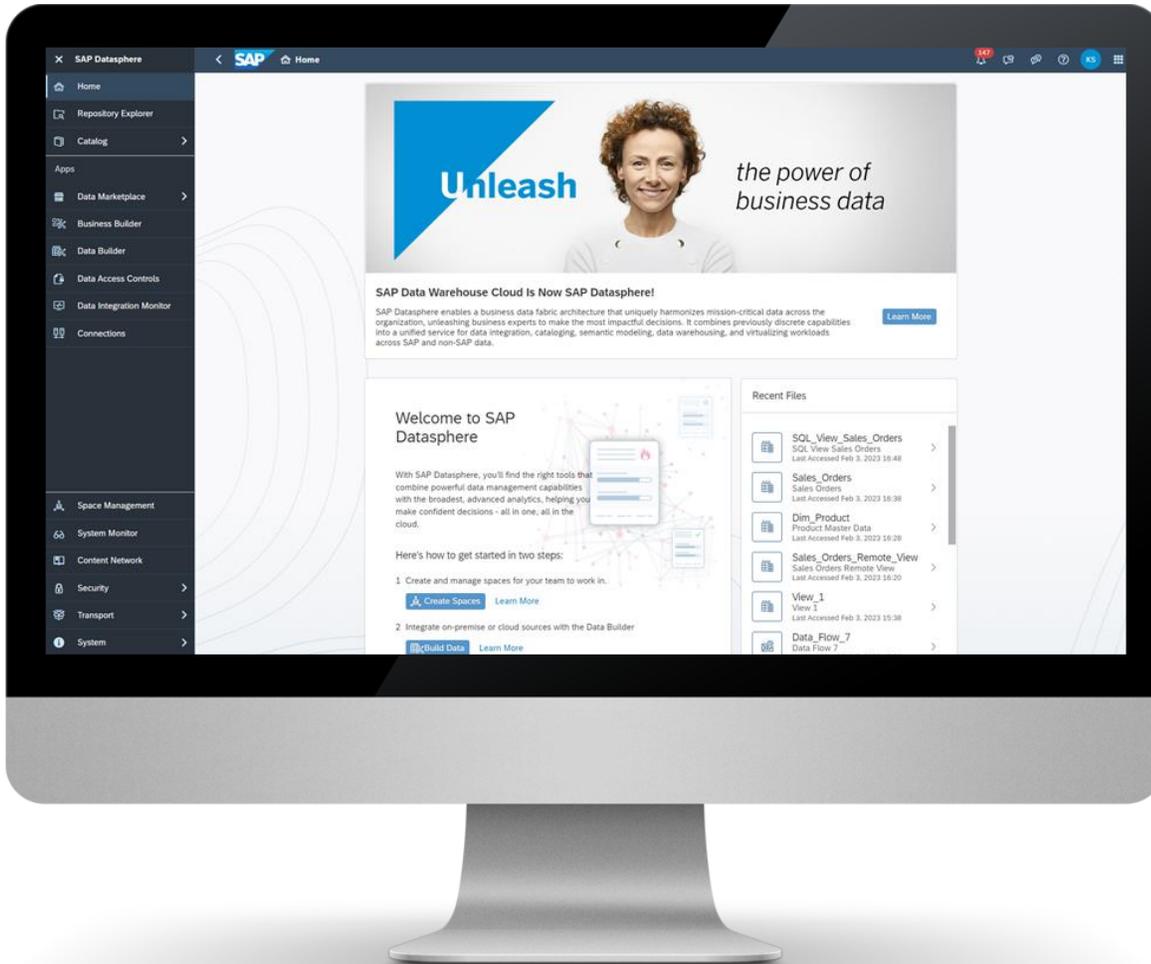
SAP Road Maps support the journey to SAP's future Enterprise. Explore our road maps, webinars, and more.

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

Check the latest information on the SAP ROAD MAP EXPLORER

The screenshot displays the SAP Road Map Explorer interface, showing a grid of road map items organized by quarter. The current view is for Q1 2023, with 143 road map items. The interface includes a search bar, navigation tabs for Products, Processes, and Industries, and a detailed list of items with categories like Business Modeling, Business Warehouse Bridge, and Data Integration. Each item includes a title, a star rating, and a link to the item details.

# 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](#)

# **SAP Datasphere**

## **Exercises**

# SAP Datasphere - Exercises

- Exercise 1: First Log On
- Exercise 2: Creating the Store Dimension
- Exercise 3: Creating the Product Dimension
- Exercise 4: Creating the Sales Manager Hierarchy
- Exercise 5: Creating the Sales Manager Dimension
- Exercise 6: Creating the Analytical Dataset
- Exercise 7: Creating the Analytical Model

# SAP Datasphere – Analytical Model

- The analytic model is now the object for building stories on in SAP Analytics Cloud.
- The analytic model will replace analytical datasets which are exposed for consumption. Analytical datasets will continue to exist, but you should now use the analytic model instead.
- The analytic model offers more calculations and greater functionality. You can prune what you want to expose in your object, thus avoiding unnecessary calculations and in turn achieving a better performance. It also offers calculated measures and restricted measures, and an analytical preview.
- Analytical datasets will still be available, but new features will only be developed for the analytic model. You can easily create analytic model on top of analytical datasets.

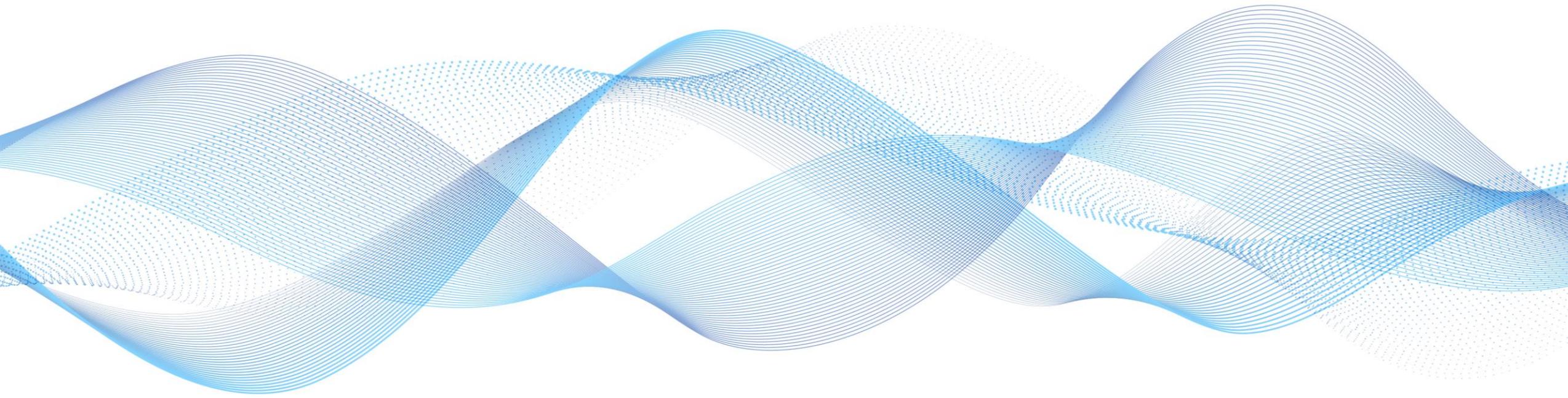
[https://help.sap.com/docs/SAP\\_DATASPHHERE/c8a54ee704e94e15926551293243fd1d/a9950b0a7bc04fd1b9827800e67b26f1.html?q=analytical%20model&locale=en-US](https://help.sap.com/docs/SAP_DATASPHHERE/c8a54ee704e94e15926551293243fd1d/a9950b0a7bc04fd1b9827800e67b26f1.html?q=analytical%20model&locale=en-US)

# SAP Datasphere – Analytical Model

- **Rich measure modelling:** With calculation **after aggregation**, restricted measures & exception aggregation as well as the possibility to stack all of these, users can build very complex calculation models and even refine them in SAC stories
- **Careful design how analytics users see the data:** modelers can curate which measures, attributes and associated dimensions to expose to users. This helps analytics users to see exactly the data that is relevant to them, reduces likelihood for errors & boosts performance
- **Collection of user input via prompts in SAP Analytics Cloud:** these can be used for subsequent calculations, filters & time-dependency. Value helps are provided too, of course.
- **Rich previewing possibility:** modelers can inspect the result of their modelling efforts in-place because the Data Analyzer of SAP Analytics Cloud is tightly embedded into the Analytic Model editor. So slice & dice, pivoting, filtering, hierarchy usage and many more features are available to help users understand the data how it'll be presented for consumption
- **Time-dependency support:** Analytic Models support this critical feature to let users travel back & forth in time while Lines of Business, structures & organizations are constantly evolving.
- **Dependency Management & Transport:** Complex analytic projects require careful planning and a sophisticated toolset for managing the dependency and lifecycle of all modelling artefacts. The Analytic Model is fully integrated into the SAP Datasphere repository and thus benefits from impact & lineage analysis, change management & transport management

# SAP Datasphere – Analytical Model

- With **calculated measures**, complex calculations can be expressed on top of the current drill-down & filter state. This calculation will be performed after aggregation. Calculated measures allow pulling together existing measures and combine them via standard operators and complex functions.
- **Restricted measures**, by contrast, are all about filtering data in complex ways across one or many dimensions & values. User input can be collected for full flexibility & dynamics. Especially when taken together with calculated measures, for example, complex ratios and value distributions can be expressed. Restricted measures also allow to redefine the standard aggregation of source measures to e.g. replace a SUM by a MAX, MIN or Average.
- **Count distinct measures** allow to count dimension members of the current drill-down and are super-helpful to e.g. count distinct customers in a sales region, or distinct products in a store.
- **Exception aggregation** can be added in order to express complex subquery relationships. Typical examples include counting customers w special properties, reporting warehouse stock levels that cannot be aggregated along the time axis or reporting on the total sales of best-performing products.



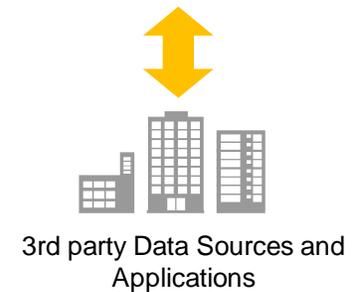
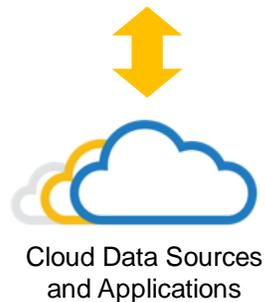
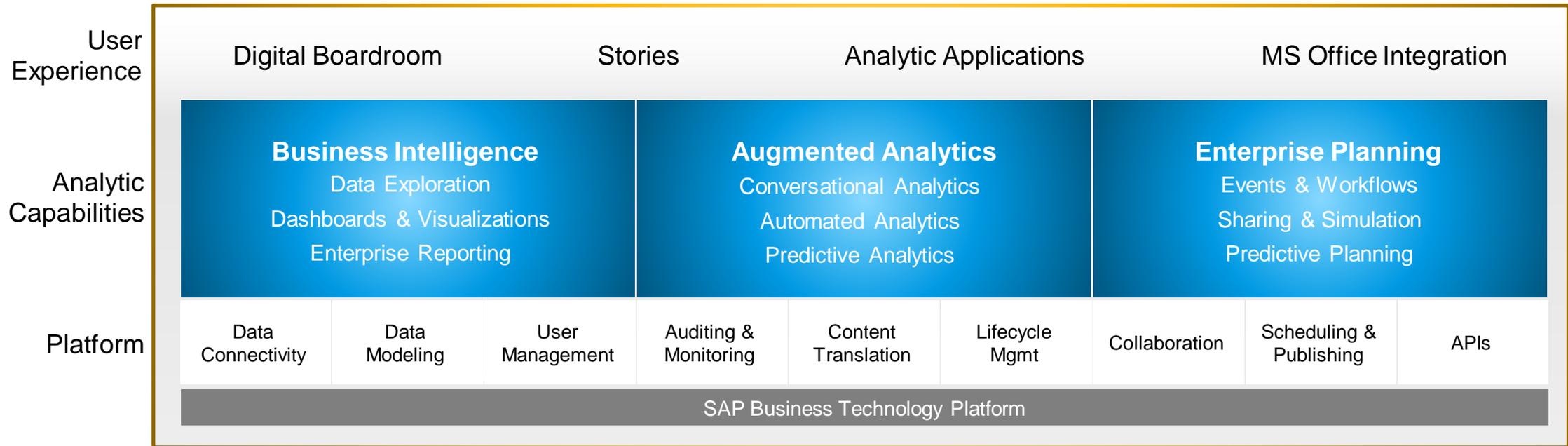
# **SAP Analytics Cloud**

## **Unleash the power of business data**

Speaker, SAP

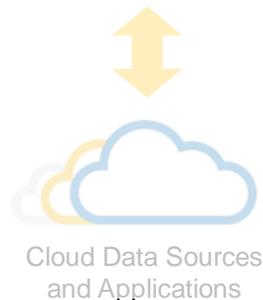
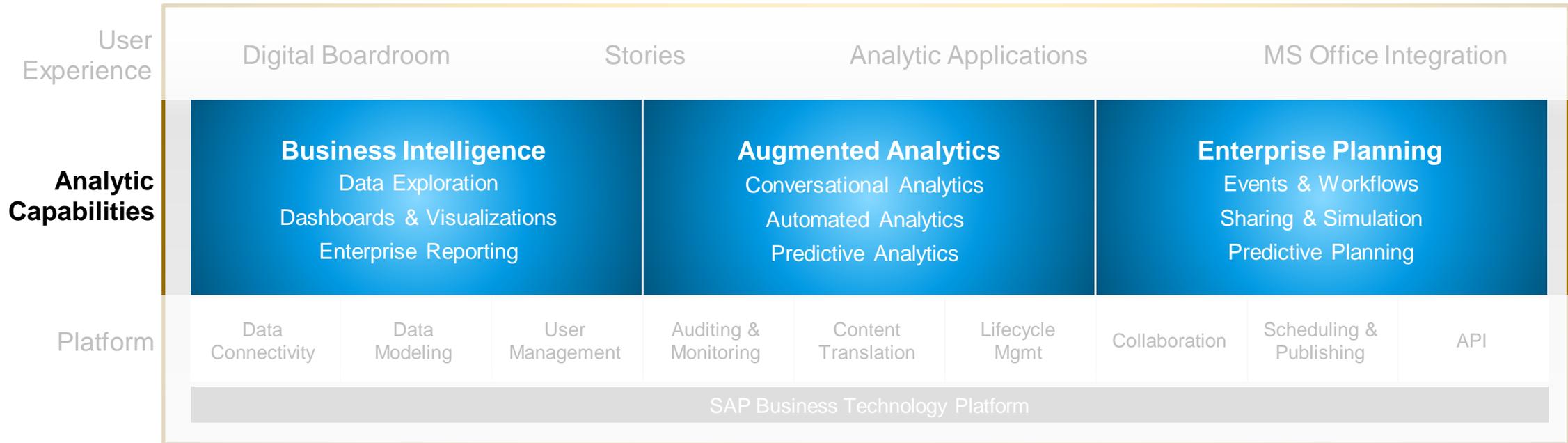
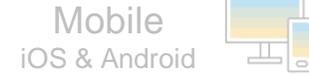
Public

# SAP Analytics Cloud



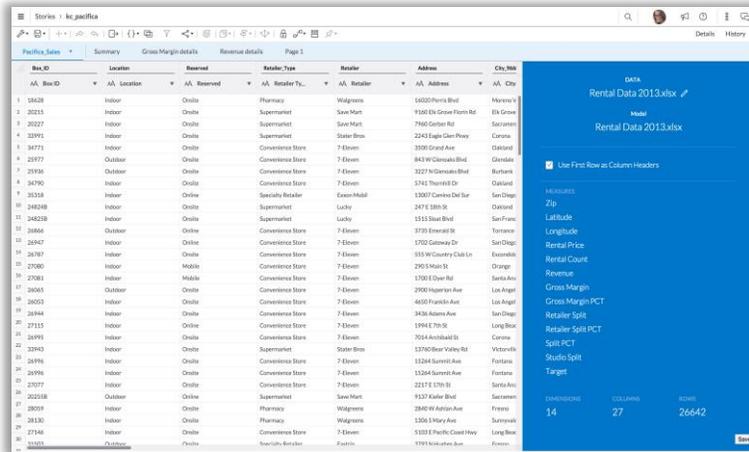
# SAP Analytics Cloud

## Analytic Capabilities



# Analytics and Business Intelligence

Explore data across the organization and deliver insights at the point of decision



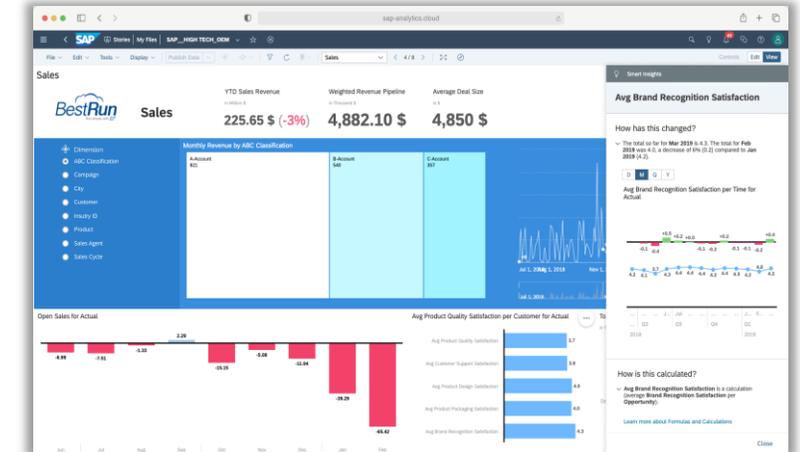
## Data Modeling & Preparation

Set key performance metrics, dimensions, and hierarchies and automate data wrangling to gain deeper insights.



## Data Exploration & Visualization

Discover insights and inspire audiences with interactive visualizations and data stories by slicing and dicing data, regardless of volume size.



## Augmented Analytics

Go the last mile of data-driven decision-making with machine-generated analytics and insights.

# Data Analyzer

## Query your data directly and perform ad-hoc analysis in a pivot-table style analysis view

- Standalone exploration tool with easy access from the side navigation bar
- Transient access to SAP BW and SAP HANA data sources
- Save Insights, share and publish
- Contextual exploration

The screenshot displays the SAP Data Analyzer interface. At the top, the SAP logo and 'Data Analyzer' title are visible. Below the title bar, there are navigation icons and a search bar. The main content area shows a pivot table titled 'Sales Data Scenario'. The table has four columns: 'Product ID', 'Measures', 'Sales Revenue', and 'Inquiry Number'. The 'Measures' column is currently empty, and the 'Sales Revenue' column is sorted in descending order. The 'Inquiry Number' column is also sorted in descending order. The table contains 20 rows of data, with the first row having a Product ID of 24 and a Sales Revenue of -1,543.92 EUR. The right-hand side of the interface shows the 'Available Objects' panel, which includes a search bar and a list of objects under 'Measures' and 'Dimensions'. The 'Measures' list includes 'Select All', '5% Discount', 'Inquiry Number', 'Sales Revenue', 'Sales Revenue restricted', and 'Transaction Counter'. The 'Dimensions' list includes 'Calendar Day', 'Calendar Year', 'Calendar Year/Month', 'Discount Program', 'Fiscal Year', 'Fiscal Year Period', 'Fiscal Year Variant', 'Manufacturer Place', and 'Material'.

Product ID	Measures	Sales Revenue	Inquiry Number
24	ALVE Arbeitsplatz mit Aufbewahrung	-1,543.92 EUR	96
37	AMORF OPTI Duschvorhang	-1,498.85 EUR	94
70	ASTA Tischset	-1,483.94 EUR	92
26	ALVINE BLANK Meterware	-1,394.18 EUR	91
54	ANTILOP Hochstuhl, Baby	-1,739.74 EUR	85
43	ANJA RAND Duschvorhang	-1,724.10 EUR	84
67	ARV ROS Papierserviette	-1,592.24 EUR	81
77	AVENTURIN Deckenspot	-1,007.02 EUR	79
73	ATTARP Haengeleuchte	-1,441.36 EUR	78
41	ANEBODA Kleiderschrank	-1,144.31 EUR	76
16	ALKOV Korb	-1,451.52 EUR	75
28	ALVINE BRED Kissenbezug	-1,358.46 EUR	75
23	ALUNIT Arbeitsleuchte	-1,346.67 EUR	73
31	ALVINE KNOPP 2 Gardinenschals mi...	-1,617.30 EUR	73
38	AMORF RASTER Bettwaescheset, 5-...	-1,432.83 EUR	73
92	BAGIS Kinder-Kleiderbuegel	-1,411.91 EUR	73
3	AGAM Kinderhochstuhl	-1,122.66 EUR	72

# Dashboards & Visualizations

## Design and deliver stunning, interactive enterprise dashboards across all lines of business

- Extensive visualization library, geo maps
- Custom calculations, calculated dimensions, aggregations and more
- Easily comment, collaborate and share content
- Highly Interactive with Linked Analysis, Ranking and Sorting, Filtering and Drill Functionality.



# Enterprise Reporting

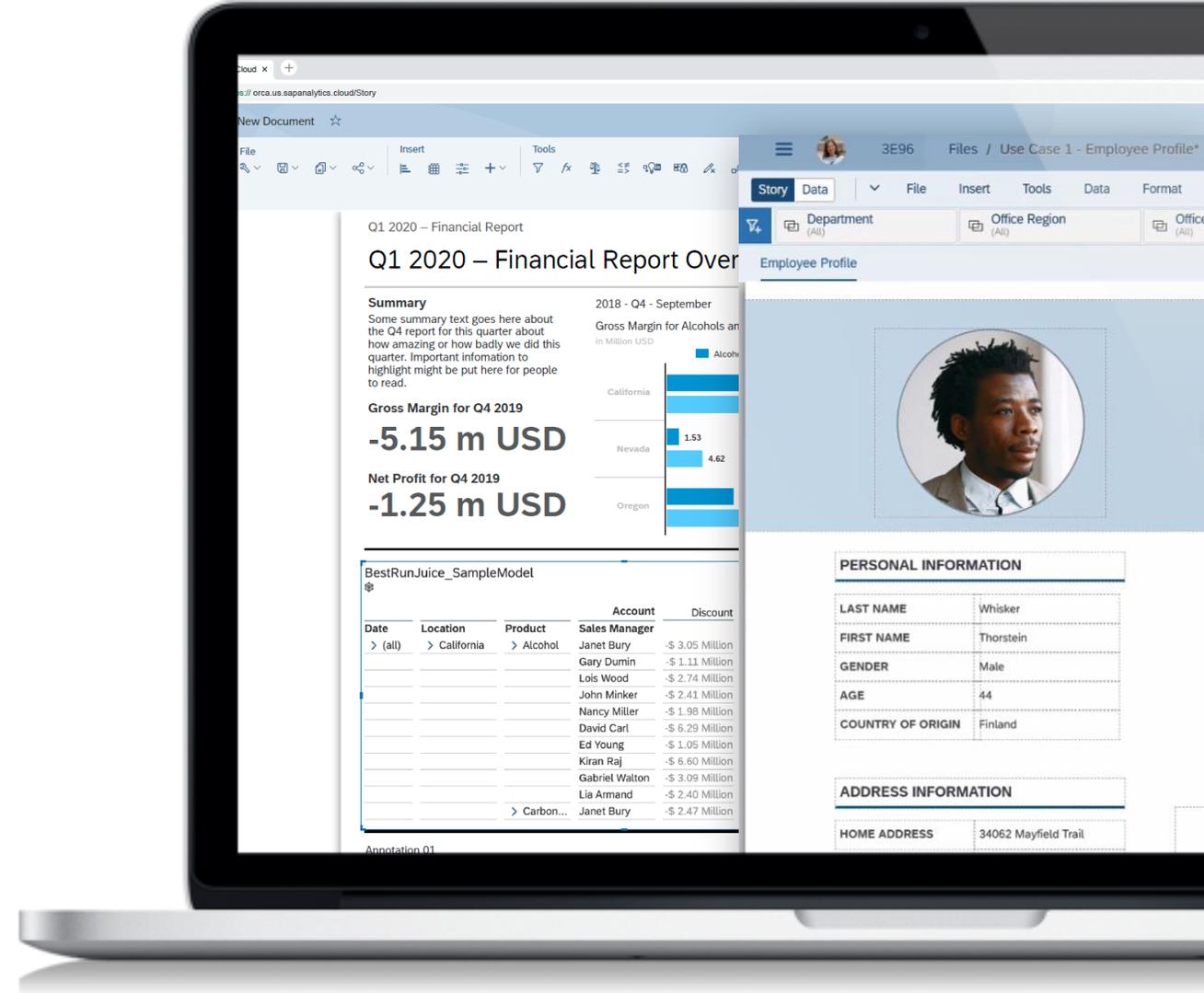
Design reports and distribute to the workforce on-demand or scheduled

## Report Formatting

- Multi-page reports
- Report sections, headers and footers
- Paginated export to pdf and pptx

## Report Delivery

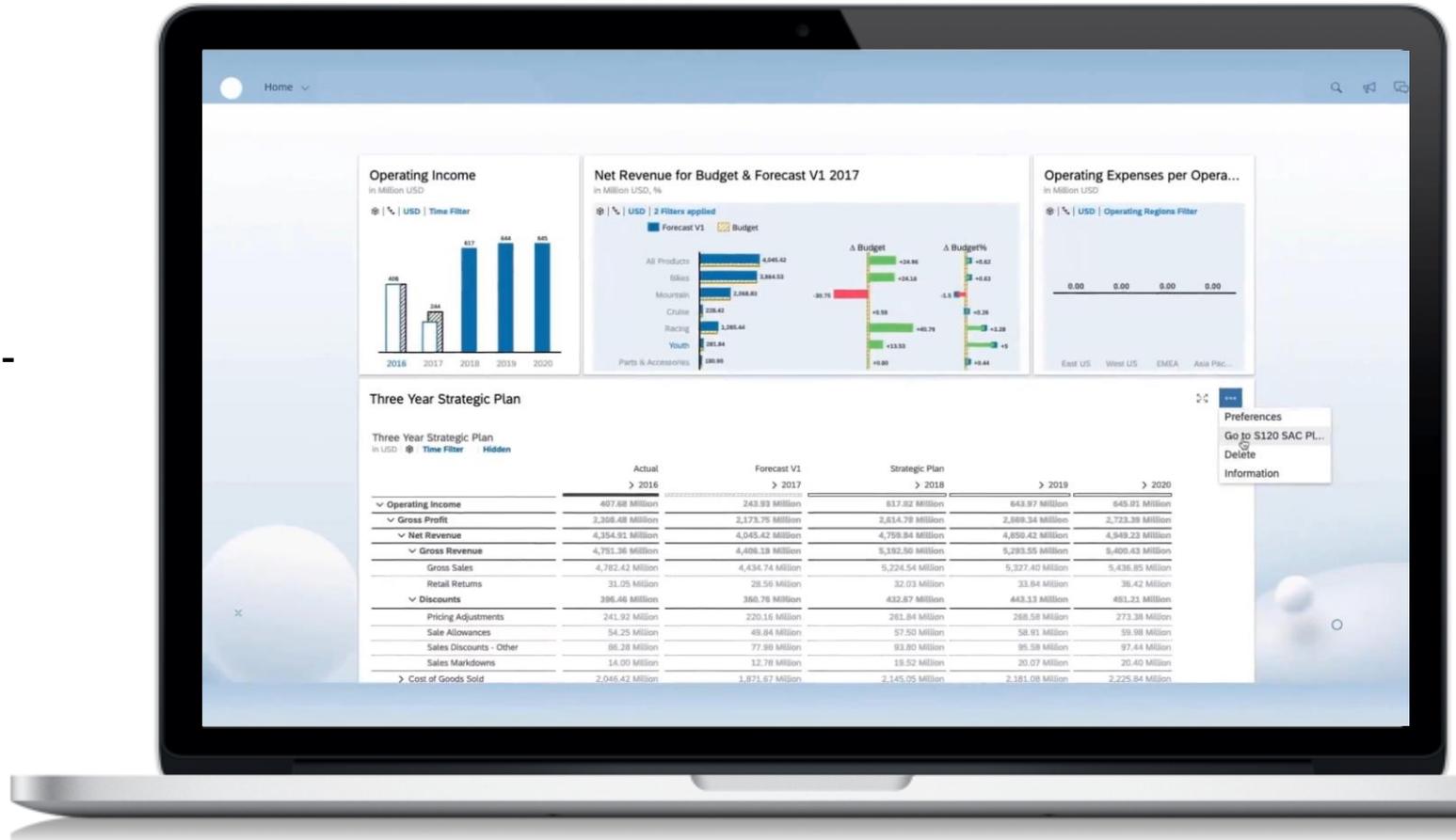
- Schedule and distribute reports to SAP Analytics Cloud and non-SAP Analytics Cloud recipients
- Burst personalized content to SAP Analytics Cloud recipients based on recipient authorization



# What-If Analysis

## Simulate “what-if” scenarios to test possible outcomes

- Perform what-if visually with value driver trees and tables
- Perform top-down bottom and bottom-up simulations
- Answer questions like:
  - What if you increase discount by 20%?
  - What if you hire more staff?
  - What if costs of goods increased?²

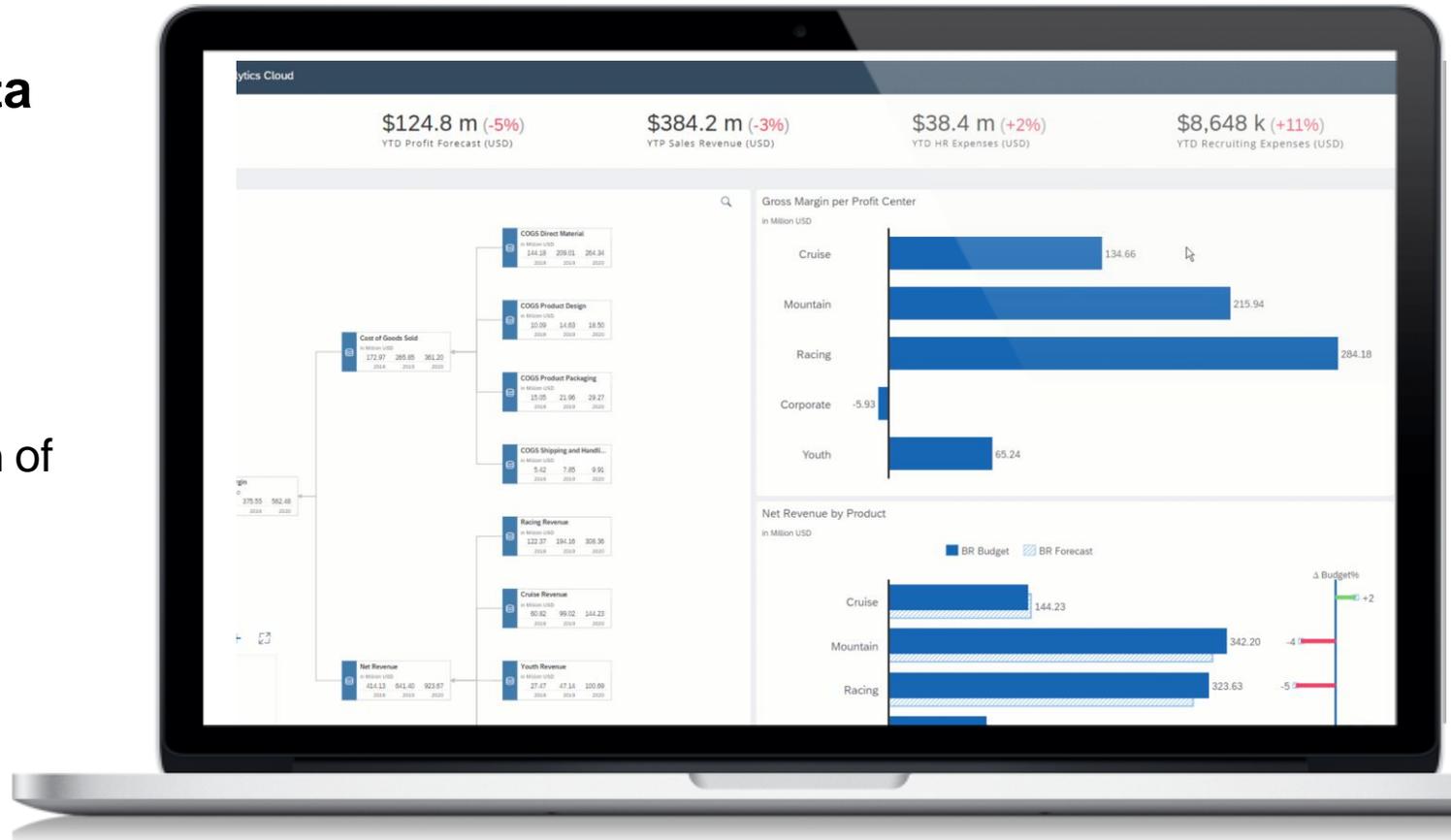


# Smart Insights

Insight in one click from dimension members contributing most to a data point or to its variance

## Tailored for BI Consumers

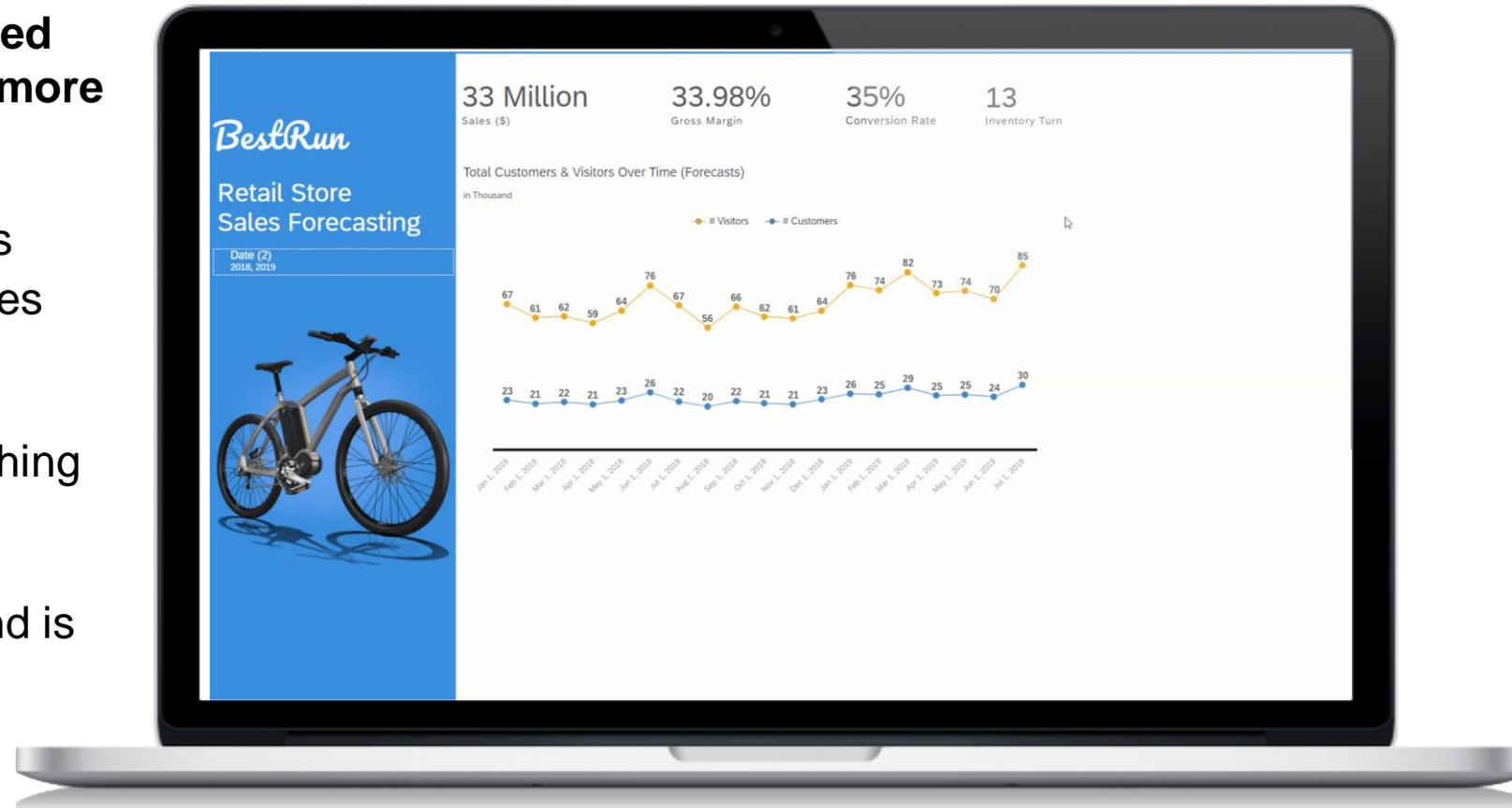
- Beyond filter & drill, open up exploration of underlying model
- Natural language that explains top contributors



# Time Series Forecasting

**Predict future values of a series based on historical data to help you make more confident decisions**

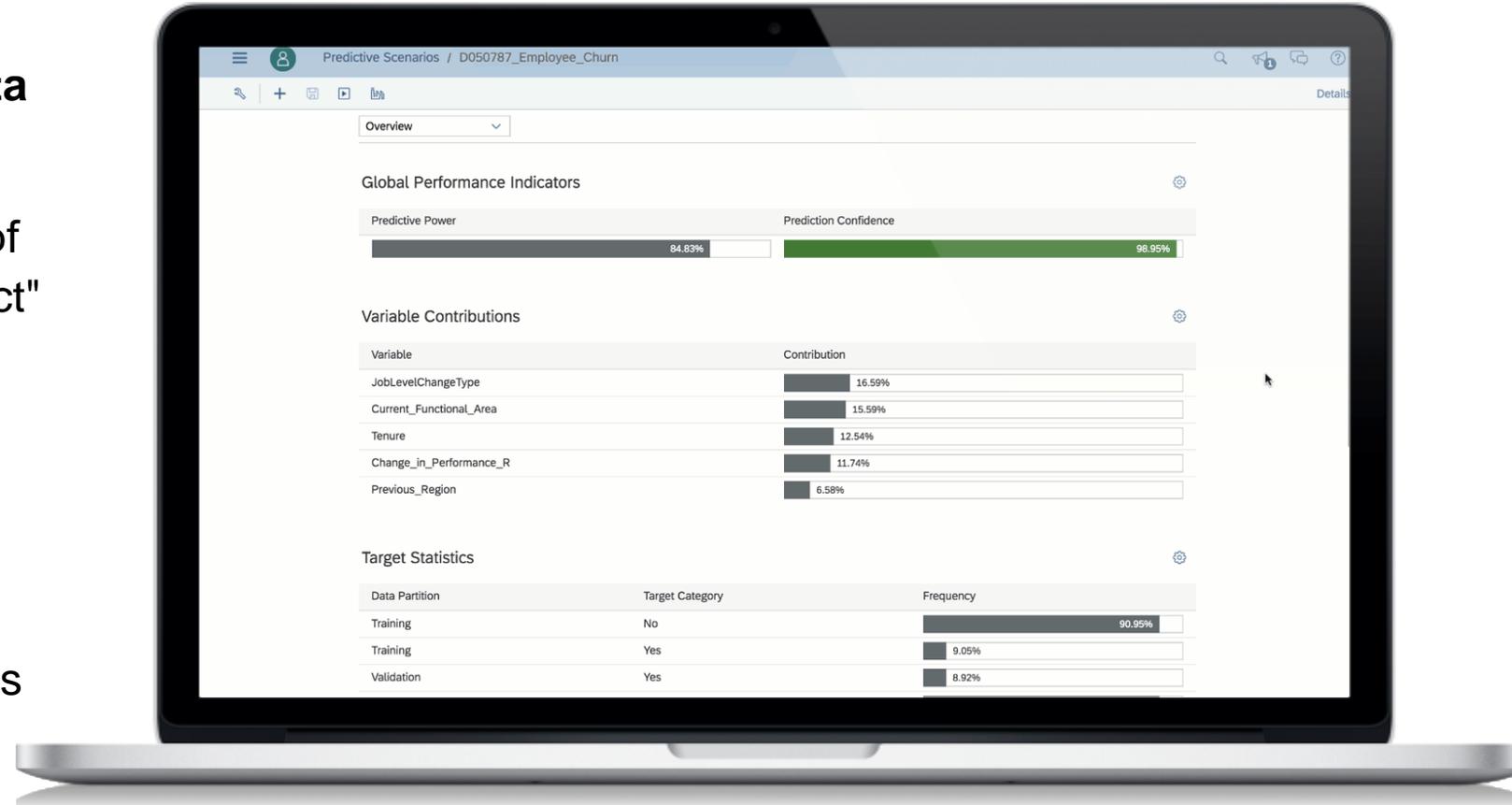
- Automatic forecasting on time series charts, line charts and planning tables
- Apply advanced options like linear regression, triple exponential smoothing and include additional inputs
- Forecast quality based on MAPE and is displayed as 0-5 rating



# Smart Predict

## Build trusted and actionable predictions without the help of a data scientist

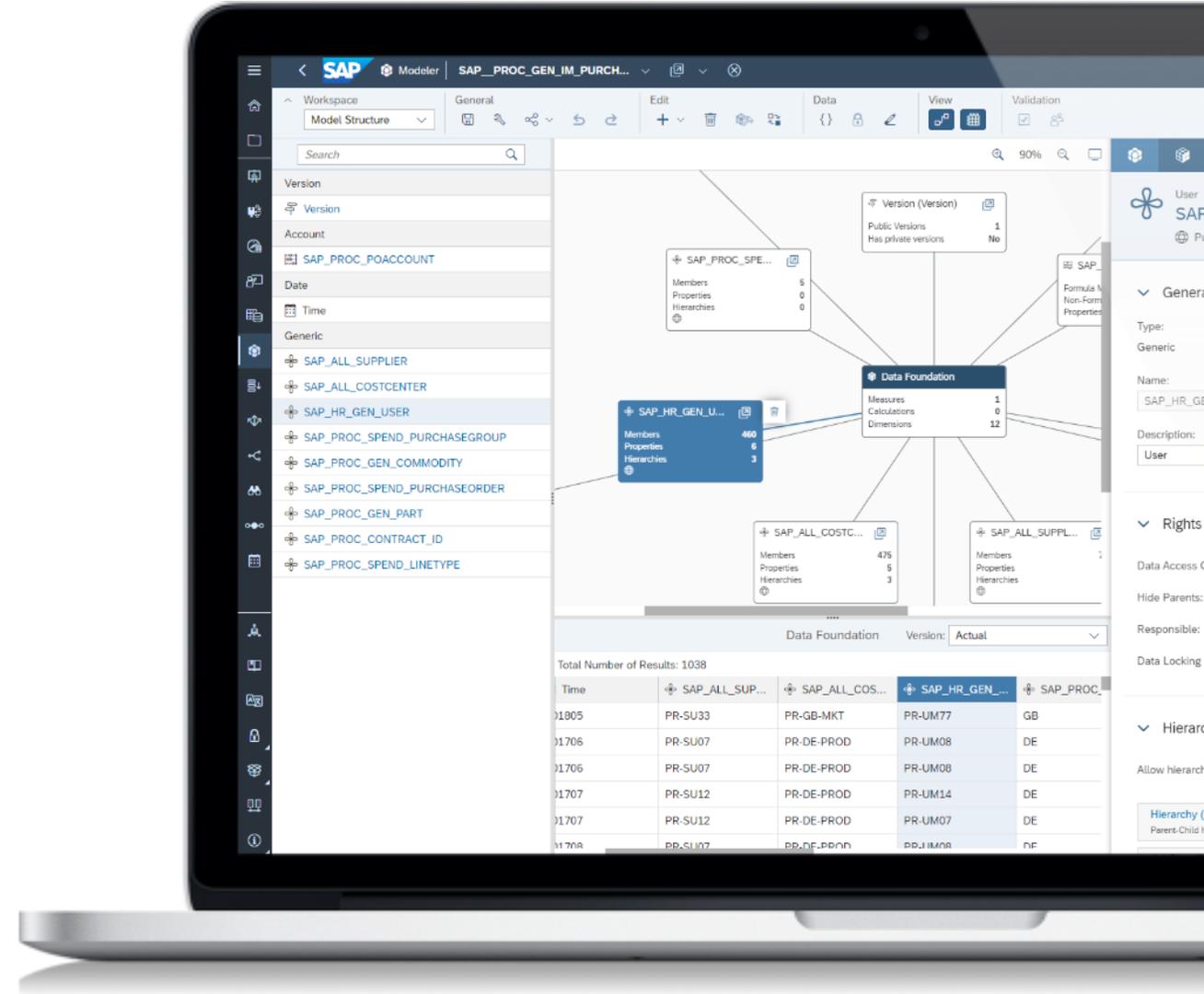
- Classification: "Create a sorted list of prospects to focus on for this product"
- Regression: "Give me revenue estimates for each customer for the next 6 months"
- Time Series: "Forecast revenue for each product and each point of sales daily for the next 30 days"



# Data Modeling

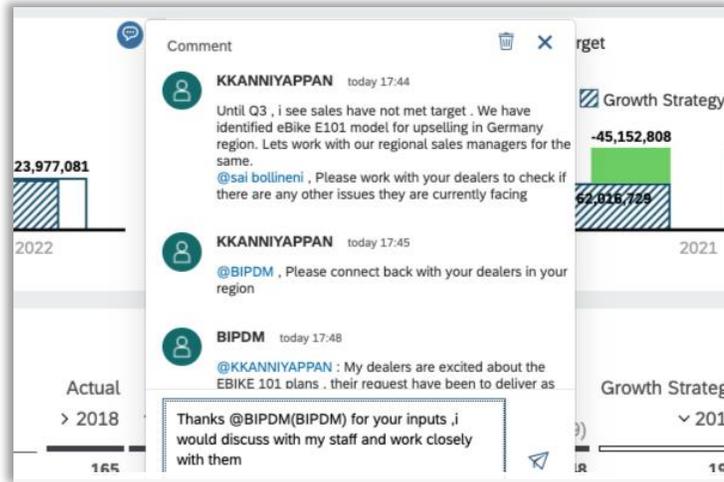
**Model your imported data and define dimensions, measures, hierarchies and more, in preparation for analysis and planning**

- Define your measures and dimensions, hierarchies, setting units and currencies, and formulas
- Enable Model Data Privacy to define row and column level data security
- View related objects where model is in use, such as planning work flows, stories and applications



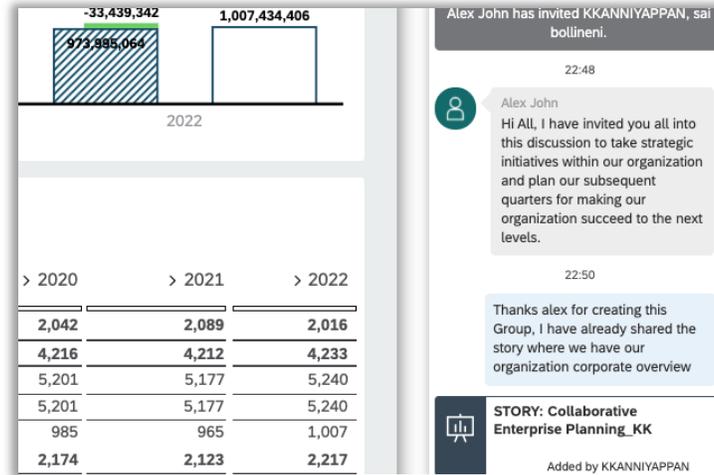
# Collaboration

Increase engagement, and accountability with built in collaboration capabilities



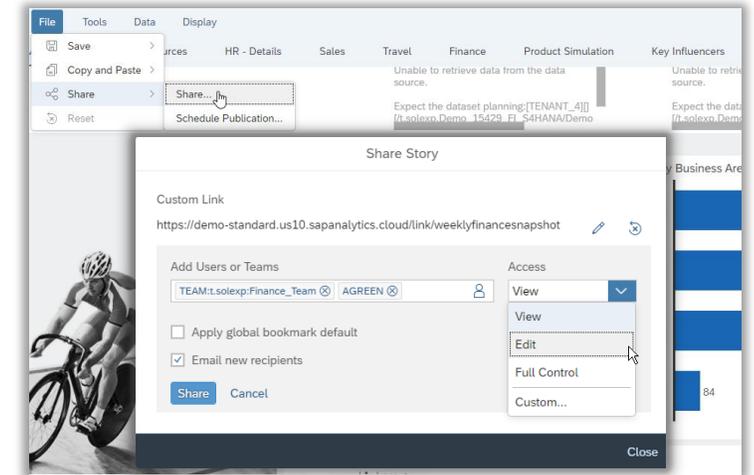
## Commenting

Comment on stories, applications and event specific data point table cells. Like, reply, address other users as @UserName



## Discussions

Start discussions on your analytics to collaborate with other SAP Analytics Cloud users and teams, on the desktop or on your mobile device.

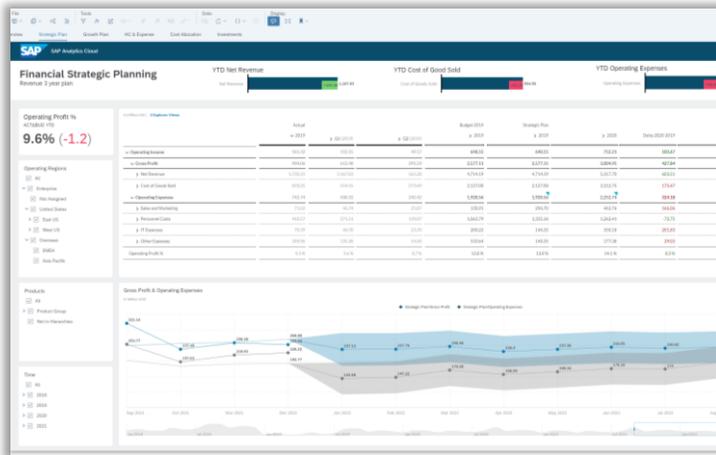


## Sharing

Easily share private or public stories and bookmarks to any SAP Analytics Cloud user or team via a customized link.

# Enterprise Planning

Analyze, predict and plan in one application to reduce errors and increase organizational agility



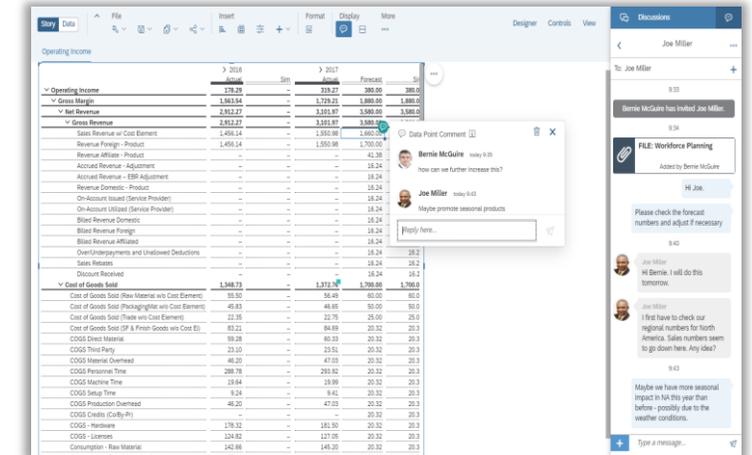
## Budgeting and forecasting

Create and modify versions of a planning model for data-driven budgeting, forecasting, and analysis from one cloud interface



## Predictive planning

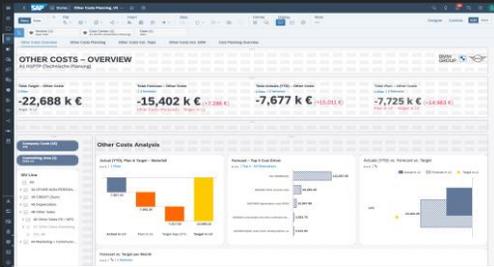
Automate data-driven enterprise planning and accelerate planning cycles with time series forecasting thanks to a tight integration between Smart Predict and Planning



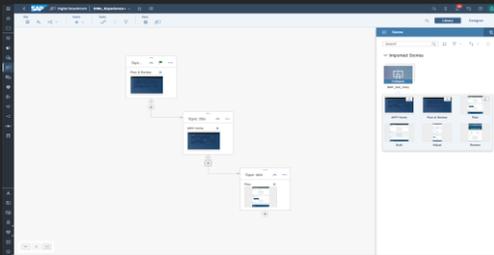
## Collaborative planning

Plan across all lines of business to turn real-time insight into action, ensure strategic alignment, and decide confidently.

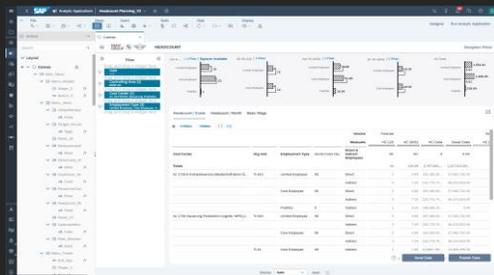
# “Story 2.0” - One Tool For All



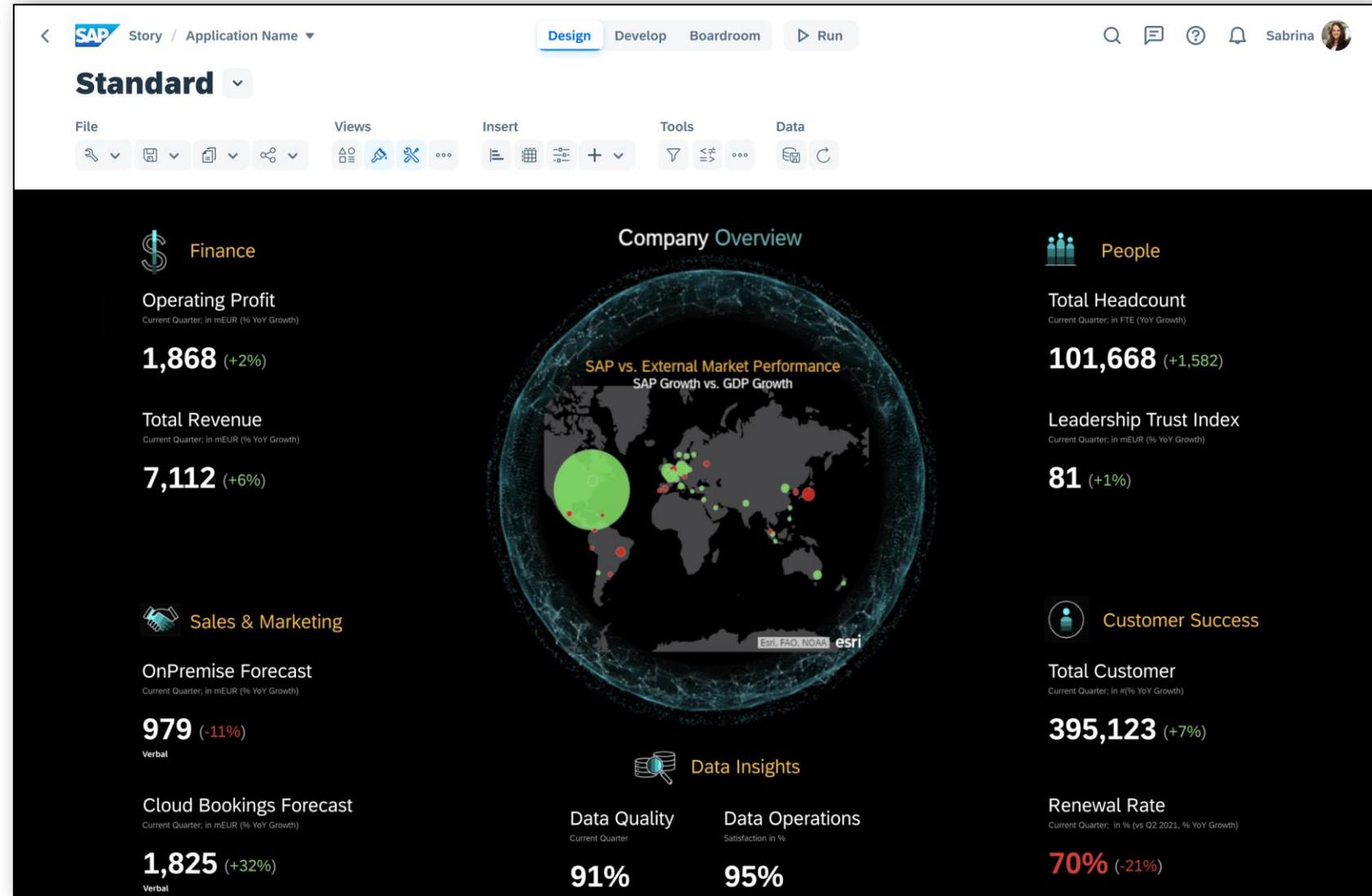
Story Builder



Digital Boardroom

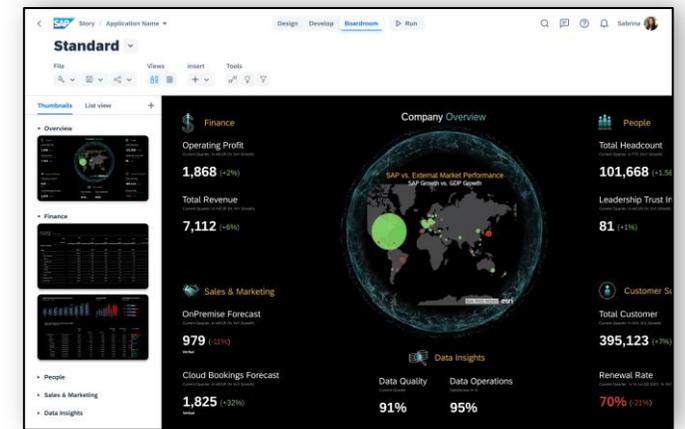
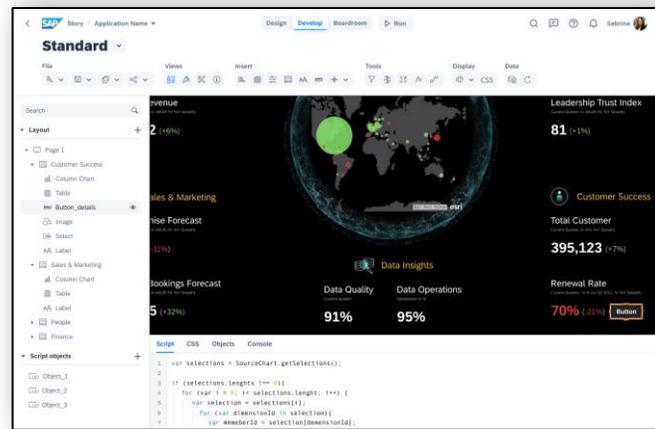
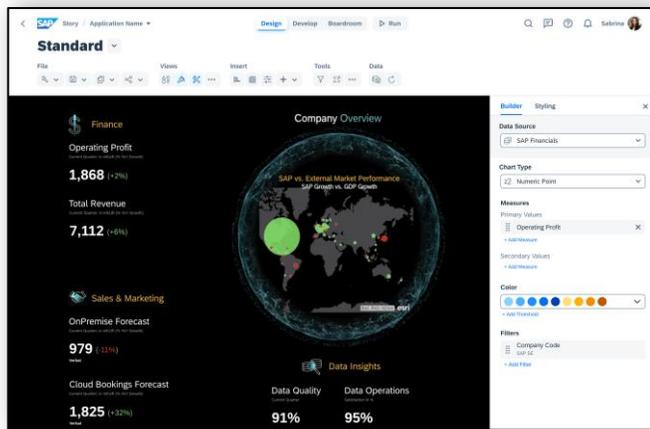


Analytic Application



# One Tool For All - Story, Analytics Designer & Digital Boardroom

## Simplicity, Consistency and Extensibility



### DESIGN

- Simple mode
- Define the layout
- Add data visualizations

### DEVELOP

- Advanced mode
- CSS and pixel perfect
- Enhance with code/logic

### BOARDROOM

- Build your presentation
- Add pages from stories
- Define navigation paths

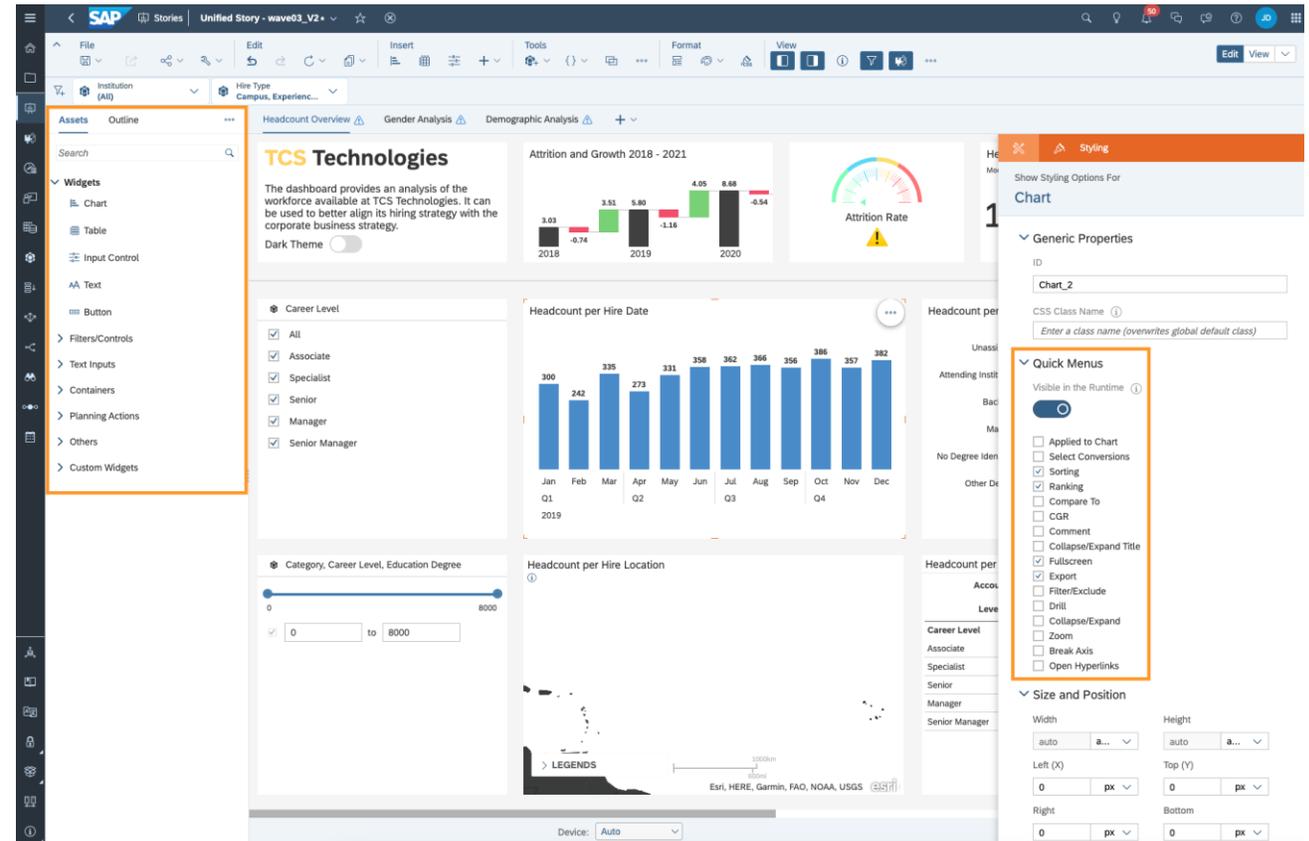


# “Story 2.0” – Feature Highlight

## Integrated Design Time for Both Designer and Developer

Story Designers and developers are working together in one environment, for seamless collaboration. Within this integrated design time they will be able to open widgets and the outline panel via the left panel icon:

- Assets panel – provides all the widgets that can be added to story canvas via drag & drop
- Outline panel – provides a structured view of all widgets that are currently available in the story
- In addition, story designers and story developers will be able to lock a widgets position and show/hide widgets in outline
- As story designer you can configure the context menu of a widget to flexibly adapting story individual needs

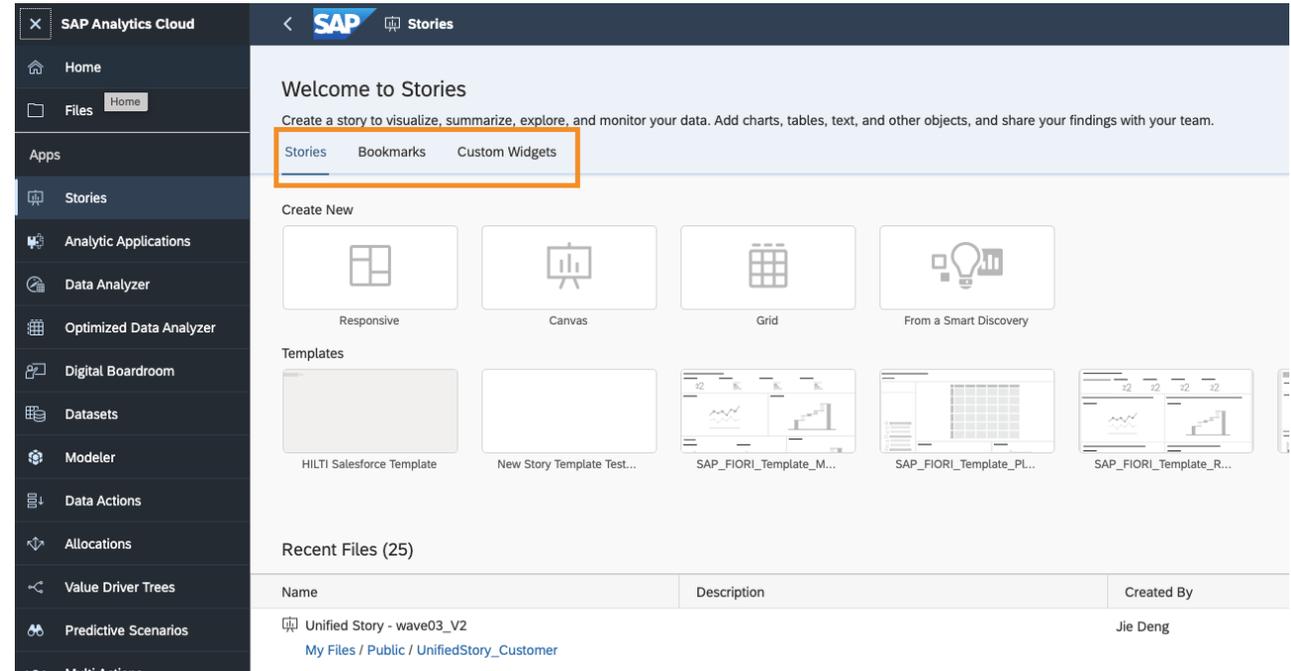


# “Story 2.0” – Feature Highlight

## Unified Story Module and Landing Page

We have evolved the existing story module into the unified story module. Creating new analytic applications with the optimized design experience is redirected to the Story module page.

The central landing page has been extended with bookmark list and custom widgets. Bookmarks can be launched directly from this bookmark list without first opening the story. Story developers, with the corresponding privilege, can see the custom widget list that is deployed on this tenant.



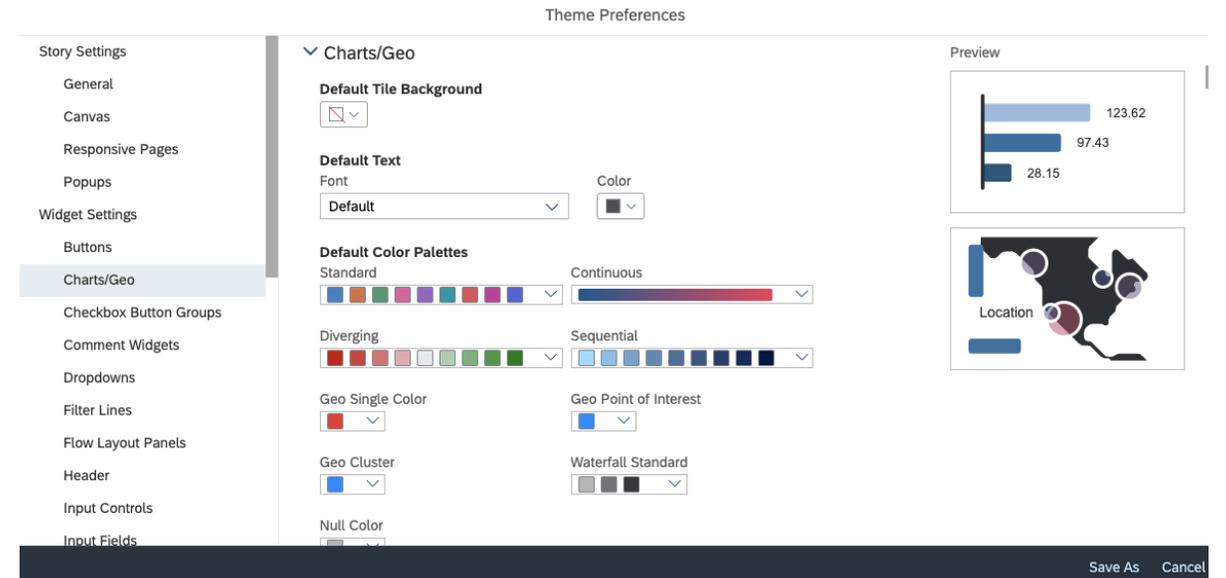
# “Story 2.0” – Feature Highlight

## Flexible Theme and CSS Capability

Now you as customers can define your corporate theme and save theme as an artefact in SAP Analytics Cloud repository.

Story designers or developers can apply this theme to their stories, via one click in design time, without defining the color/font size etc. in each story.

In addition, Theme editor is provided with a preview to give the visual guidance for Theme designer.



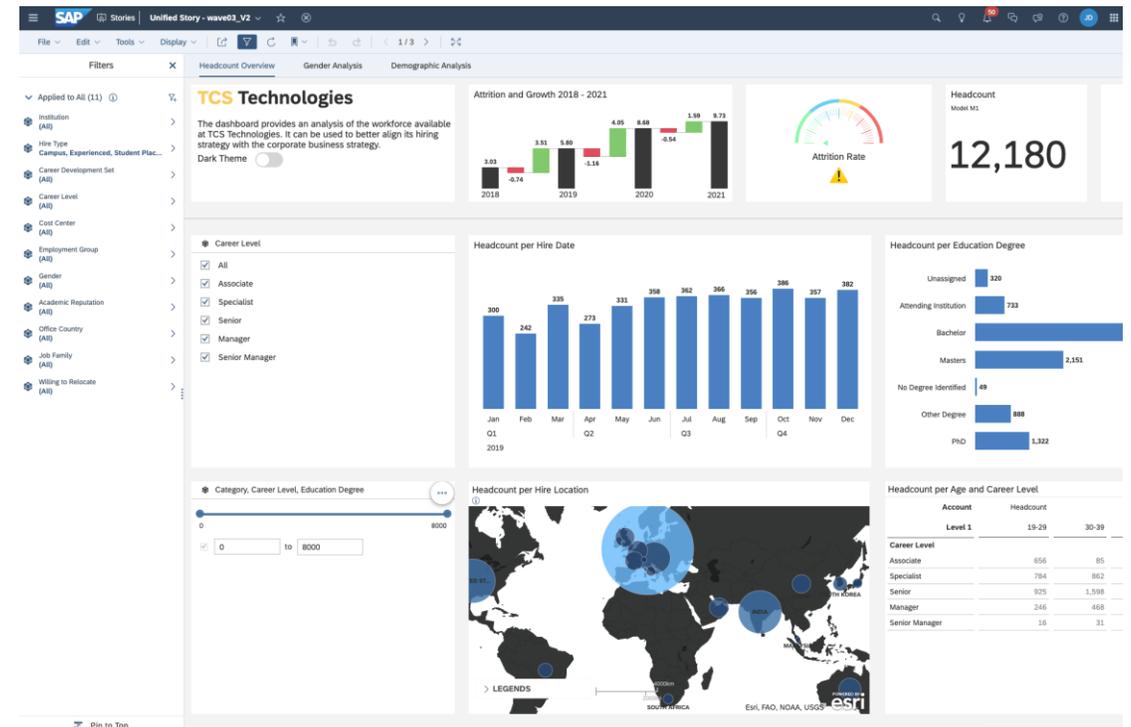
# “Story 2.0” – Feature Highlight

## Vertical Filter Panel

Story viewers can now switch the orientation of the filter panel between horizontal and vertical.

A vertical filter panel provides more space to display and interaction with filters (in particular while navigating hierarchical value lists).

Story designers can configure the default orientation that viewers see when opening the story.



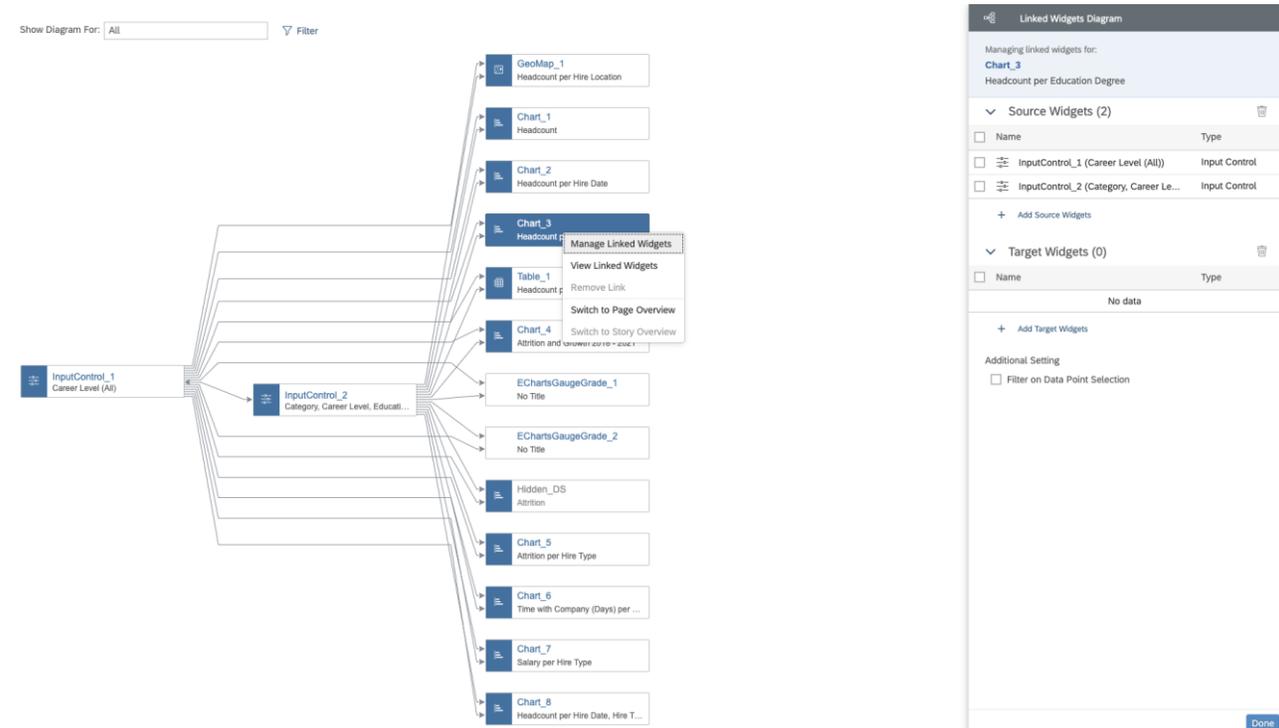
# “Story 2.0” – Feature Highlight

## Linked Widgets Diagram

A Linked Widgets Diagram provides a graphic overview of the defined linked analysis among widgets.

Moreover, it is the central location for story designers or developers to maintain linked analysis definitions (edit, delete, and add linked analysis).

This diagram will be especially beneficial if there are many defined linked analyses between charts, tables, input controls, and users want to understand the interactions between widgets.

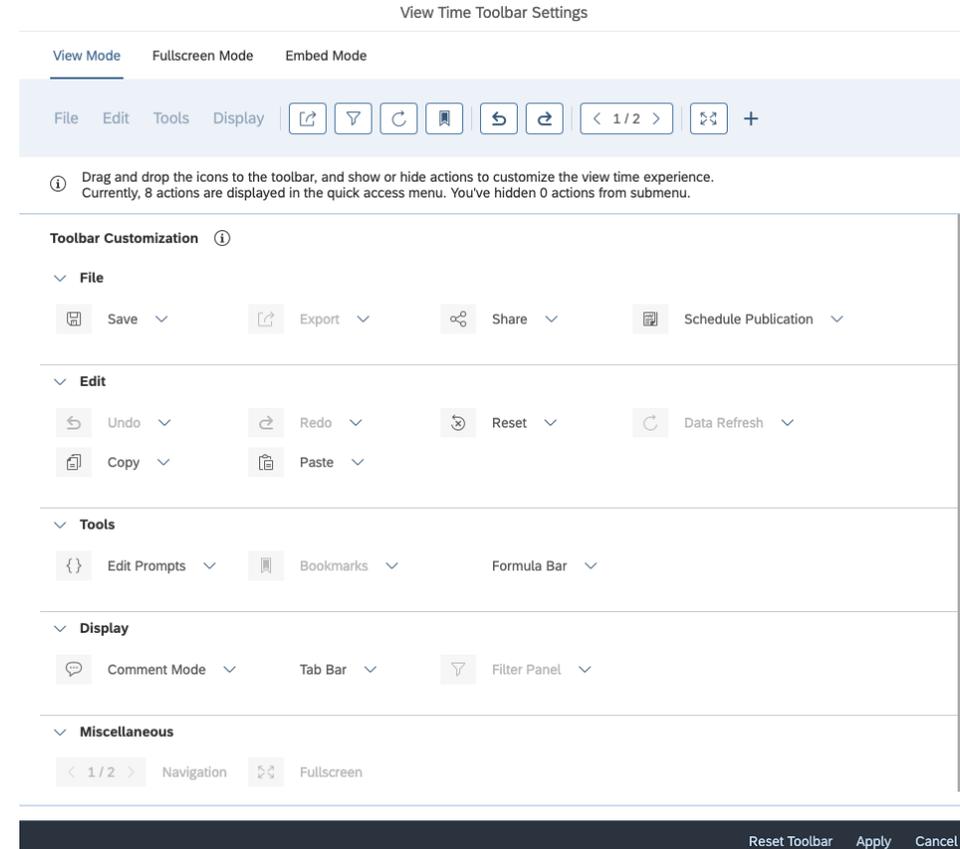


# “Story 2.0” – Feature Highlight

## Configurable View Time Toolbar

Now the story toolbar can be configured for view mode, presentation mode or embed mode.

Story designer or developers can configure the toolbar to best match the needs to story viewers. E.g., if the story does not contain any variable value, then the prompt icon in toolbar can be removed and replaced by another icon via drag and drop.

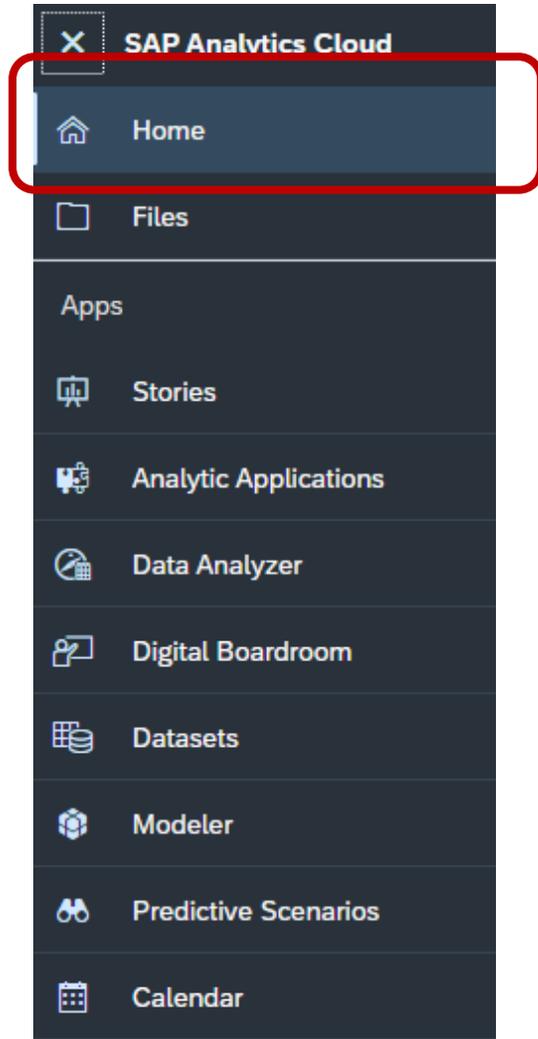




# **SAP Analytics Cloud**

## **Exercises**

# SAP Analytics Cloud – Exercise Details



- Home menu (top left)
- Provides access to the repository as well as the option to create stories / apps

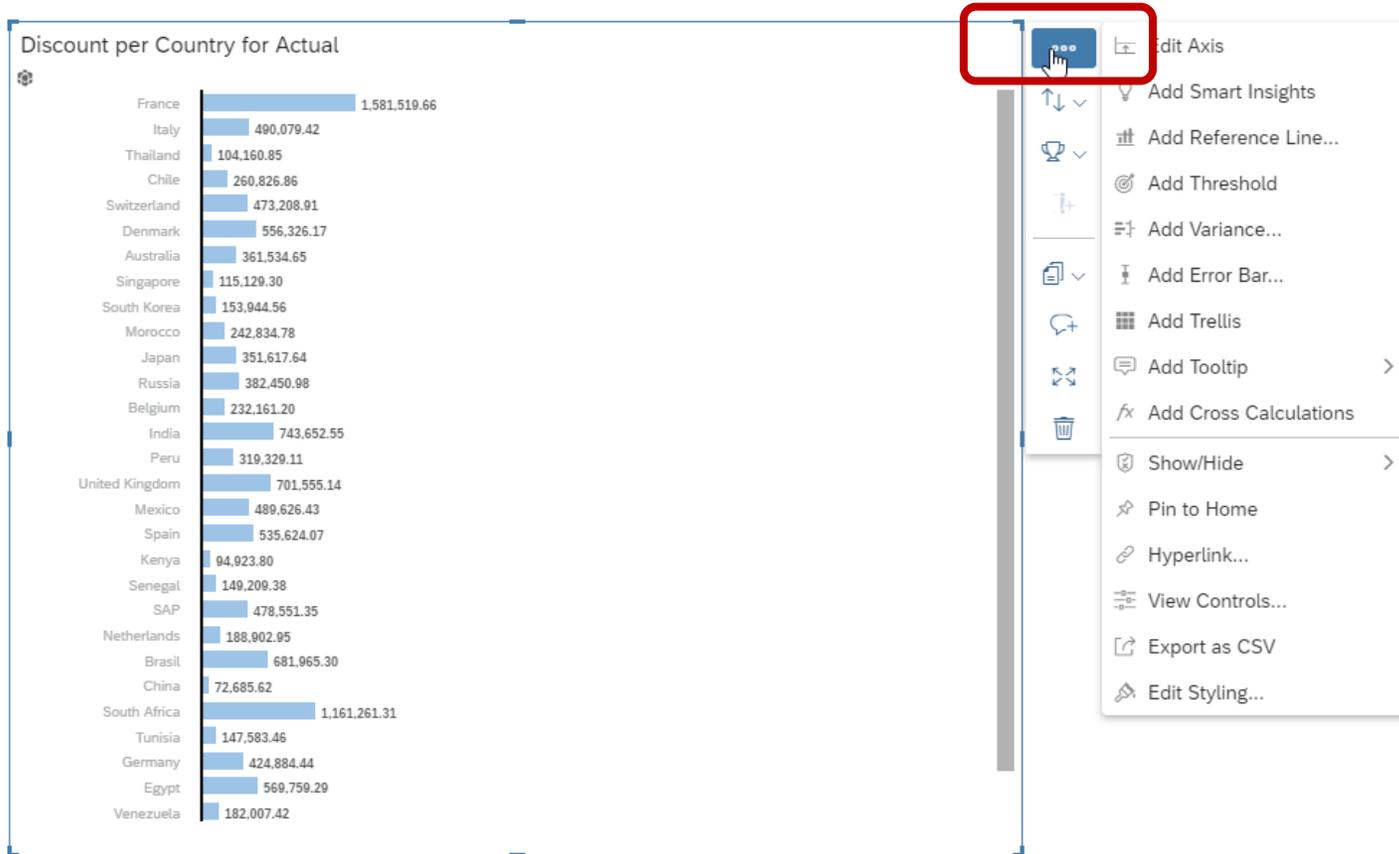
# SAP Analytics Cloud – Exercise Details

The screenshot shows the SAP Analytics Cloud Designer interface. The top navigation bar includes 'Designer', 'Controls', and 'View'. The 'Builder' panel is highlighted with a red box. Below the navigation bar, the 'Data Source' is set to 'BestRunCorp\_Retail'. The 'Chart Structure' section is expanded, showing various chart types: Comparison, Trend, Distribution, Correlation, Indicator, and More. The 'Chart Orientation' is set to 'Horizontal'. The 'Measures' section has an '+ Add Measure' button. The 'Dimensions' section has an '+ Add Dimension' button. The 'Color' section has an '+ Add Dimension/Measure' button and a color palette. The 'Filters' section shows a filter for 'Category (1)' with the value 'Actual'. The 'Properties' section has a 'View Mode' dropdown and an 'Enable Explorer' checkbox.

The screenshot shows the SAP Analytics Cloud Designer interface with the 'Styling' panel highlighted by a red box. The panel is titled 'Show Styling Options For Chart'. It is divided into several sections: 'Widget' (Background Color, Border), 'Actions' (Order), 'Boardroom Properties' (Enable Sort Option in Boardroom, Enable Top N Option in Boardroom), 'Font' (Text Selection, Font, Size, Color, Style), 'Legend' (Placement, Alignment), and 'Axis' (Axis Line Color).

- Builder Panel
- Chart and Table configuration on elements, like dimension / measures
- Styling Panel
- Formatting details like font, color, ...

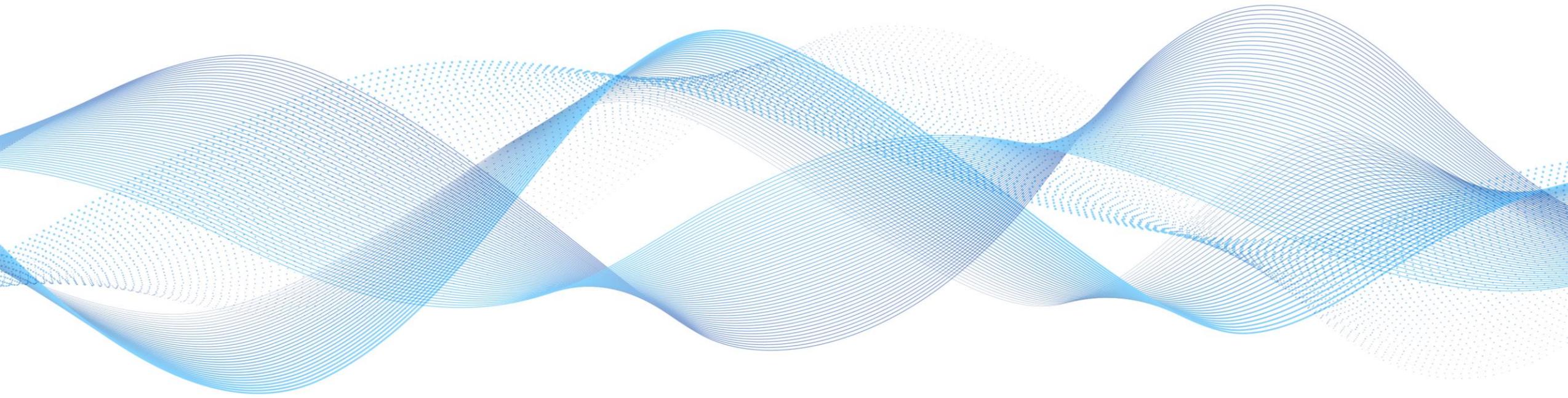
# SAP Analytics Cloud – Exercise Details



- Context menu provides access to elements like Variance, Threshold, Reference line...
- Available for Map, Chart, table

# SAP Analytics Cloud – Exercise Details

- EXERCISE 01 – Year over Year Comparison
- EXERCISE 02 – Geographic Revenue Distribution
- EXERCISE 03 – Sales Person Report
- EXERCISE 04 – Using the Analytical Model



# **SAP Analytics Cloud, Analytics Designer**

## **Unleash the power of business data**

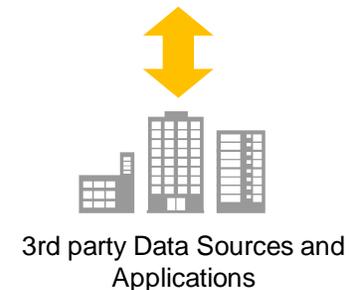
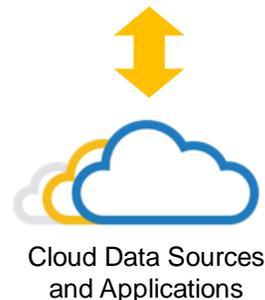
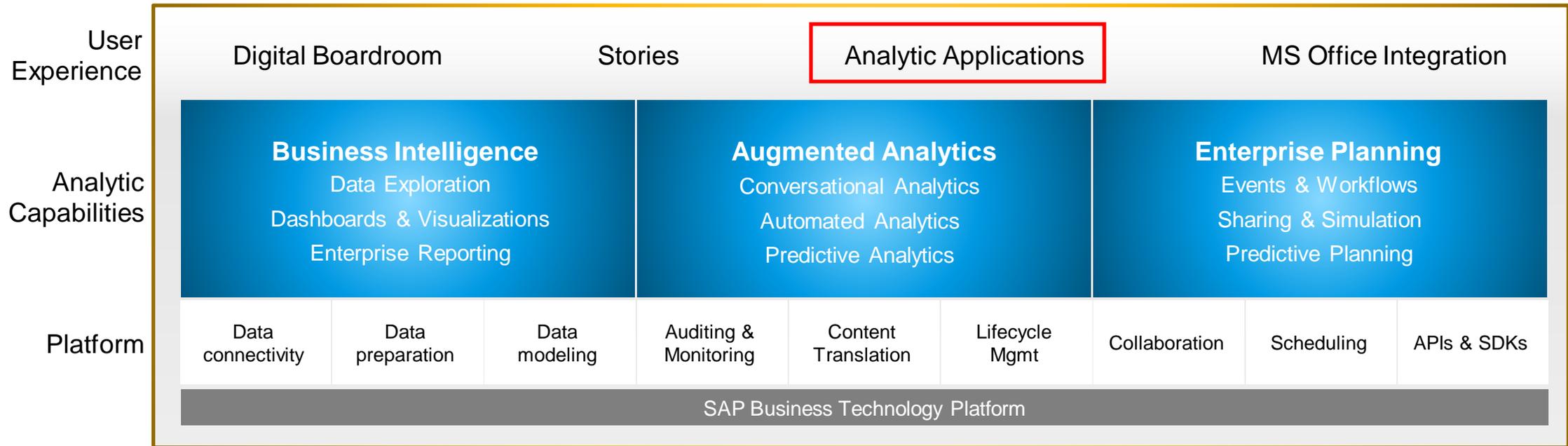
Speaker, SAP

Public



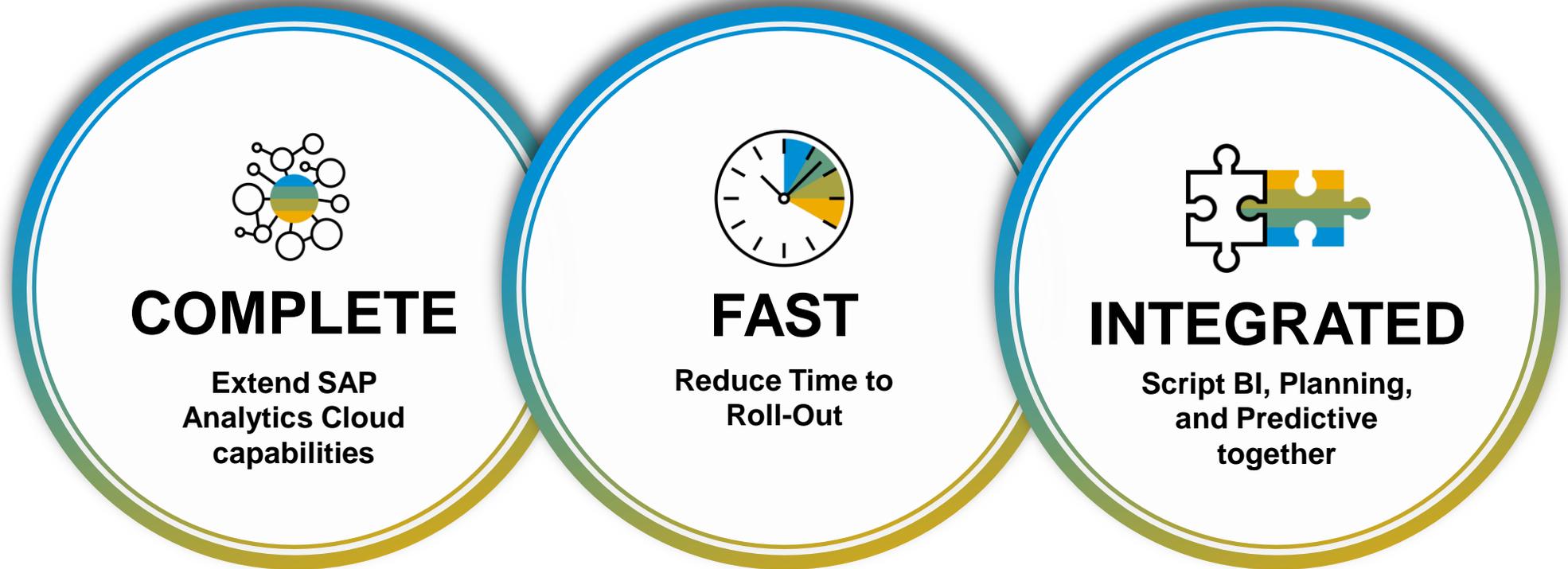
# SAP Analytics Cloud, Analytics Designer

Fulfill unique and advanced use cases and workflows with analytic applications built with Analytics Designer



# The SAP Analytics Designer Vision

Application development framework in SAP Analytics Cloud





# COMPLETE: Extend SAP Analytics Cloud Capabilities

## One Analytics Platform

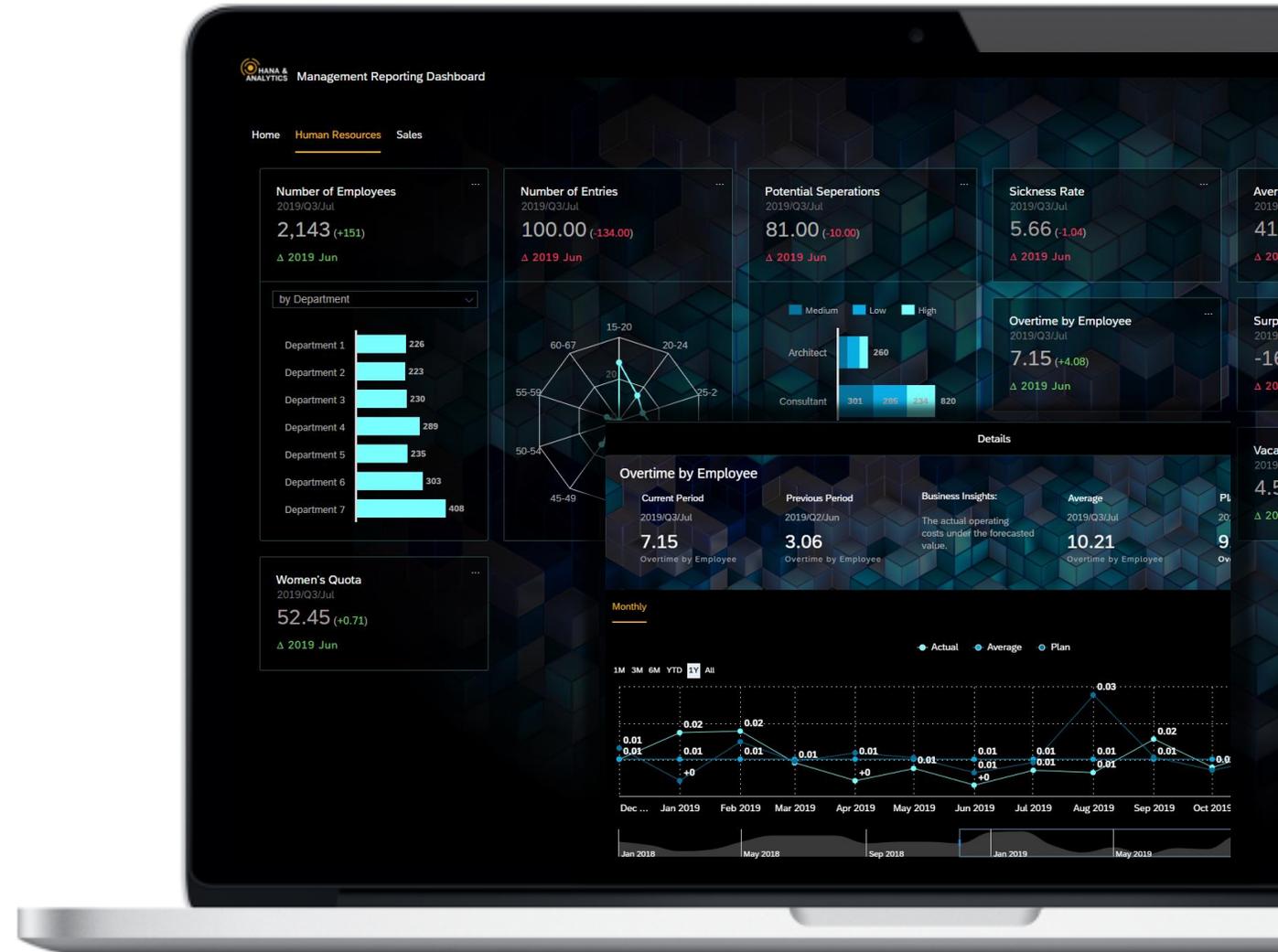
- Bring together BI, Planning, and Predictive
- Reuse existing datasets, models, connections...
- Create sophisticated custom widgets

## Meet users expectations

- Go beyond stories
- Create custom applications
- Create custom themes

## Advanced business scenarios

- Close loop scenario
- What if scenario
- Augmented analytics scenario





# FAST: Reduce Time to Roll-Out

## One Design Environment

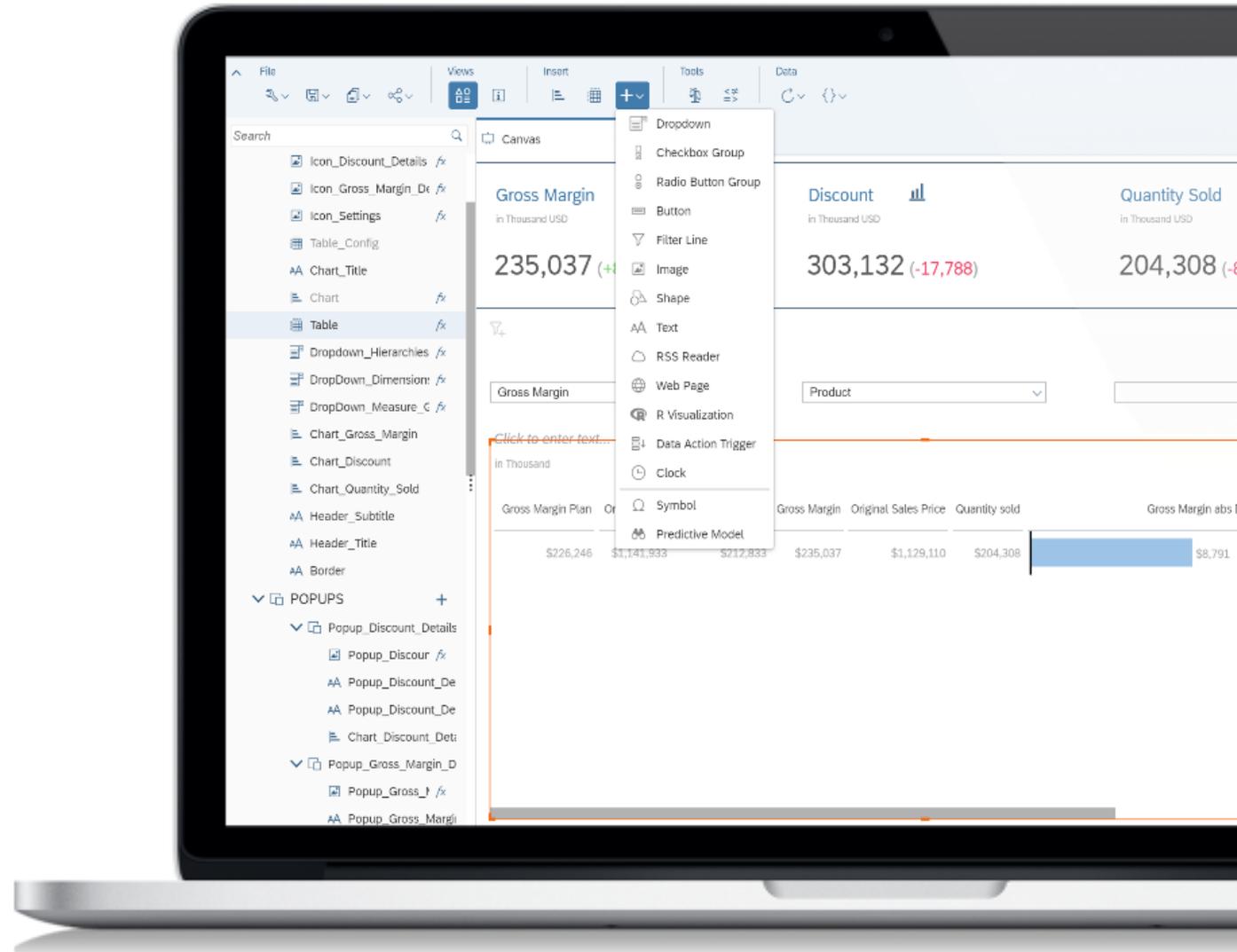
- Exposes SAP Analytics Cloud capabilities in a powerful environment geared for professional designers of analytical applications

## Rapid Prototyping

- Application are based on the same data models
- Start from existing content, templates or stories

## Standardization of analytics content

- Use of the same UI elements provides a consistent user experience
- Create composites, packaging UI elements and application logic
- Drive standardization by reusing centrally maintained composites





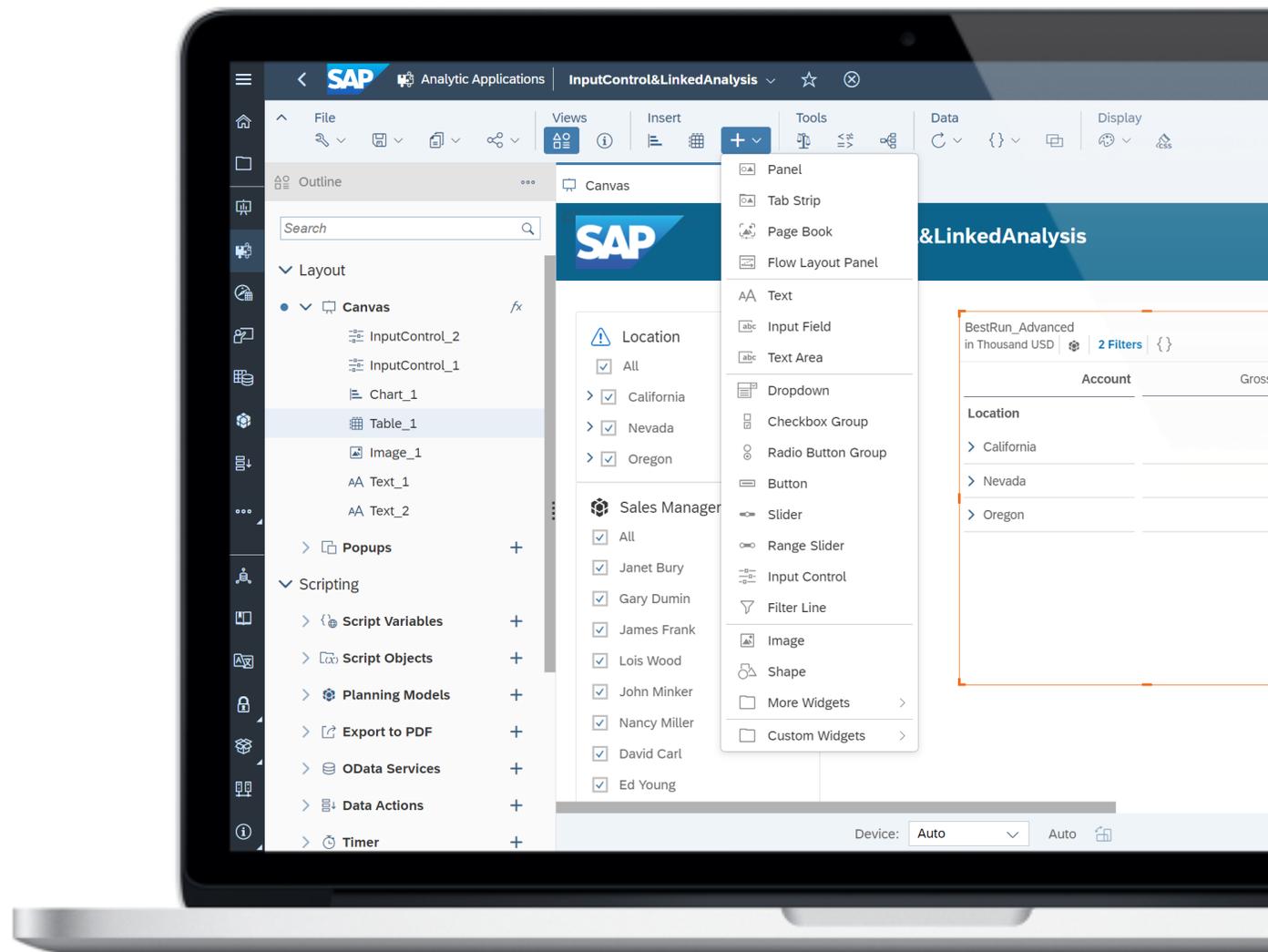
# FAST: Reduce Time to Roll-Out

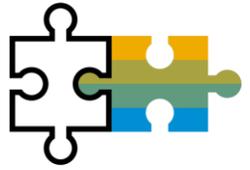
## Graphical Design

- Organize the widgets on the canvas
- Rich library of widgets for building applications
- Create interactions with input controls and linked widgets diagram (no code)
- The interactions can be controlled via scripting
  - Examples: display a popup dialog,
  - Implement a cascading filter behavior
  - Dynamic switch between chart and table at run time

## Advanced Scripting Capabilities

- Subset of JavaScript
- Auto complete and syntax check
- Content assistance available with Ctrl + Space lists available functions, and available data





# INTEGRATED: Build End-to-End Analytic Applications

## Planning and Predictive together

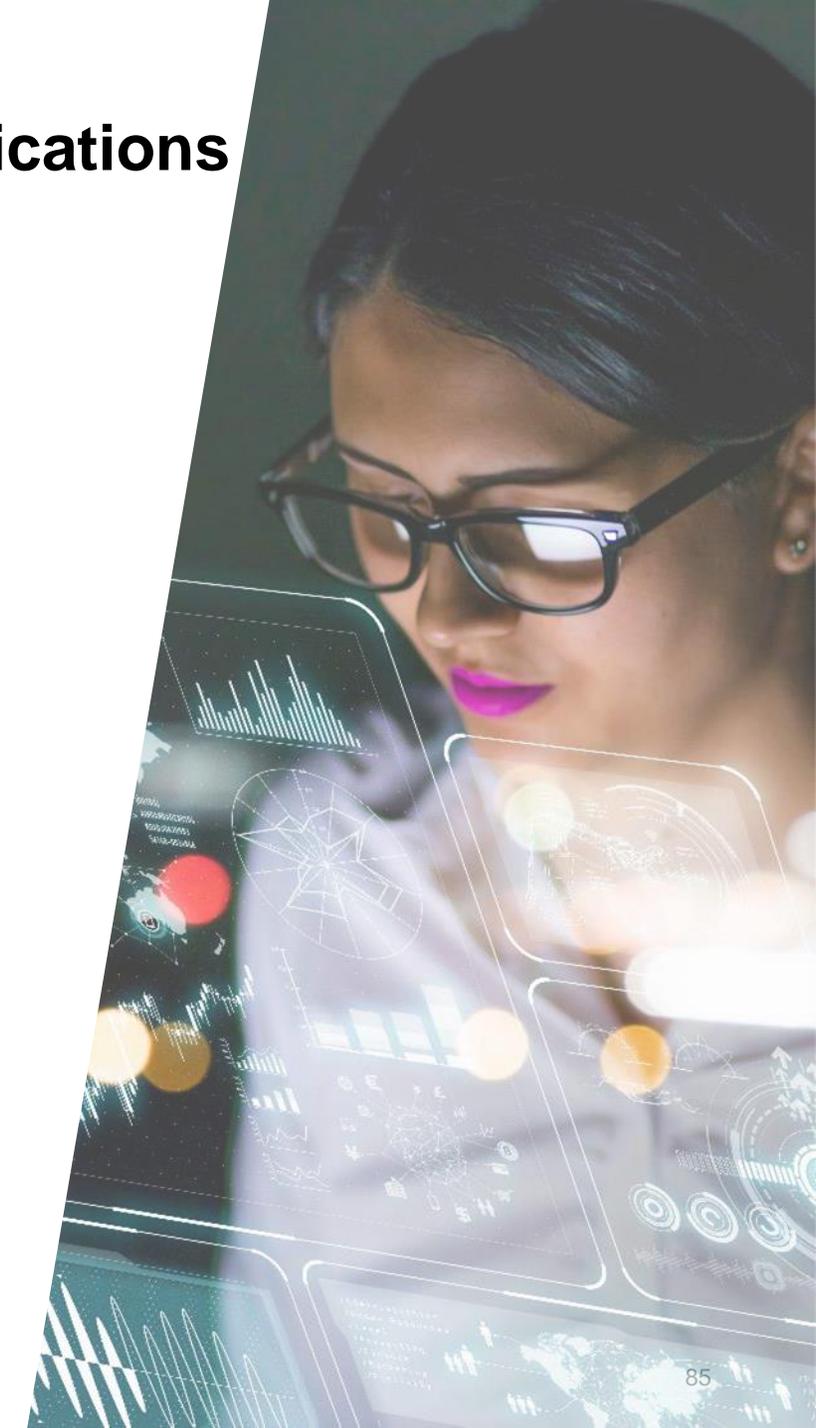
- Control planning functions from scripts
- Control smart features from scripts

## Interact via external backend services

- OData action for easy integration
- R Server calls with scripting access

## Embedded applications

- Embed analytic applications into SAP Line-of-Business application
- Embed HTML page in analytics applications



# Major Analytic Designer Use-Cases

## Generic Application



Flexible **ad hoc analysis** of SAC models

**Table** centric

Application **template**

## Planning Application

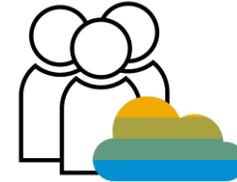


**Customized** planning UI

**Guided** planning experience

User **friendly UX** for planning users

## Extended Application



Extend SAC capabilities with **custom widgets**

Implement **non-standard** scenario

**Partner** extension

# Typical Analytics Designer Use Cases

- Generic Applications like Data Analyzer or generic analysis templates
  - Table-centric slide-dice analysis
  - Adding dimension/key figure/filter etc. at application runtime

The screenshot displays the SAP Analytics Designer interface for a report titled 'B4H\_PM\_SALES'. The main area shows a table with columns for 'Measures' and three data columns: 'Net Value stat curr', 'Open order quantity', and 'Open order stat curr'. The table is organized into a hierarchy with rows for 'Region (SAP NW Demo)', 'EMEA', 'America', and 'Worldwide', each containing sub-rows for 'Mobile Devices', 'Monitors', and 'Notebooks', and a 'Totals' row. The 'Measures' column lists 'Net Value stat curr', 'Open order quantity', and 'Open order stat curr'. The right-hand side of the interface features a 'Builder' panel with a search bar and three sections: 'Measures' (with checked items: Net Value stat curr, Open order quantity, Open order stat curr), 'Dimensions' (with items: Calendar Year/Month, Distribution Channel, Country, Company code, Country, Plant, Product, Sold-to Party, Sales Organization, Region (SAP NW Demo), Product Category), and 'Columns' (with item: Measures, 3 Members).

	Measures	Net Value stat curr	Open order quantity	Open order stat curr
Region (SAP NW Demo)	Product Category			
	Mobile Devices	EUR1 869 361 405,00	2 640 PC	EUR110 885 062,00
	Monitors	EUR2 558 679 148,00	2 640 PC	EUR117 270 346,00
	Notebooks	EUR3 509 101 463,00	2 640 PC	EUR110 123 242,00
> EMEA	Totals	EUR7 937 142 016,00	7 920 PC	EUR338 278 650,00
	Mobile Devices	EUR1 546 654 385,00	2 112 PC	EUR90 669 116,00
	Monitors	EUR1 945 962 792,00	2 112 PC	EUR89 383 220,00
	Notebooks	EUR2 854 652 102,00	2 112 PC	EUR89 394 836,00
> America	Totals	EUR6 347 269 279,00	6 336 PC	EUR269 447 172,00
	Mobile Devices	EUR3 416 015 790,00	4 752 PC	EUR201 554 178,00
	Monitors	EUR4 504 641 940,00	4 752 PC	EUR206 653 566,00
	Notebooks	EUR6 363 753 565,00	4 752 PC	EUR199 518 078,00
^ Worldwide	Totals	EUR14 284 411 295,00	14 256 PC	EUR607 725 822,00

# Typical Analytics Designer Use Cases

- Guided analytic applications
  - Provide end user guidance /analysis path
  - Support closed loop scenarios (notification → analyze issue → simulation → take actions)

**OPERATING COSTS DETAILS**

1.1% over Forecast

Orlando - Atlanta: 6,975.00

Orlando - Newark: 978,900.00

Orlando - Chicago: 13,596.55

From 2019-05-15 to 2019-05-16 OK

Flight SAP 221 - 2019-05-15

Operating Cost	Load Factor Economy	Load Factor Business	Alert
11,700.00	61.00 %	17.00 %	
11,700.00	62.00 %	58.00 %	
11,700.00	60.00 %	67.00 %	
9,100.00	47.00 %	42.00 %	
11,700.00	78.00 %	92.00 %	
11,700.00	79.00 %	83.00 %	
11,700.00	84.00 %	92.00 %	
11,700.00	83.00 %	100.00 %	
9,100.00	79.00 %	83.00 %	
11,700.00	94.00 %	92.00 %	

Load Factor is low, you may consider changing the airplane type.

Simulate this flight with below airplane types to reduce Operating Casts.

Narrow-body Aircraft

Regional Aircraft

Buttons: Simulate, Apply, Cancel

**Overview**

Maggi's Homemade Cupcakes

**Financial Overview**

Account	Actual	Planning*
Net Profit	132.60	121.54
Revenue	3,270.00	3,270.00
Cost	3,137.40	3,148.46
Material Cost	837.40	79.80
Labor Cost	1,200.00	271.00
Other Cost	1,100.00	159.56
Margin	4.06 %	

**Production Overview**

Account	Material Cost	Planning Price	Material Cost	Planning Price
	338.10	600.00	397.20	600.00
	79.80	300.00	103.20	300.00
	271.00	500.00	350.00	500.00
	159.56	400.00	194.72	400.00

**Material Purchase Price Overview**

1M 3M 6M YTD 1Y All

Dear Maggi,

According to the latest online price information from supermarkets, we detected a significant data change of total material cost. We will be able to generate a total profit of **-85.12 USD**, with a margin of **-5.38%**. In order to improve this forecast, we have created two proposals.

Click [here](#) to open the application.

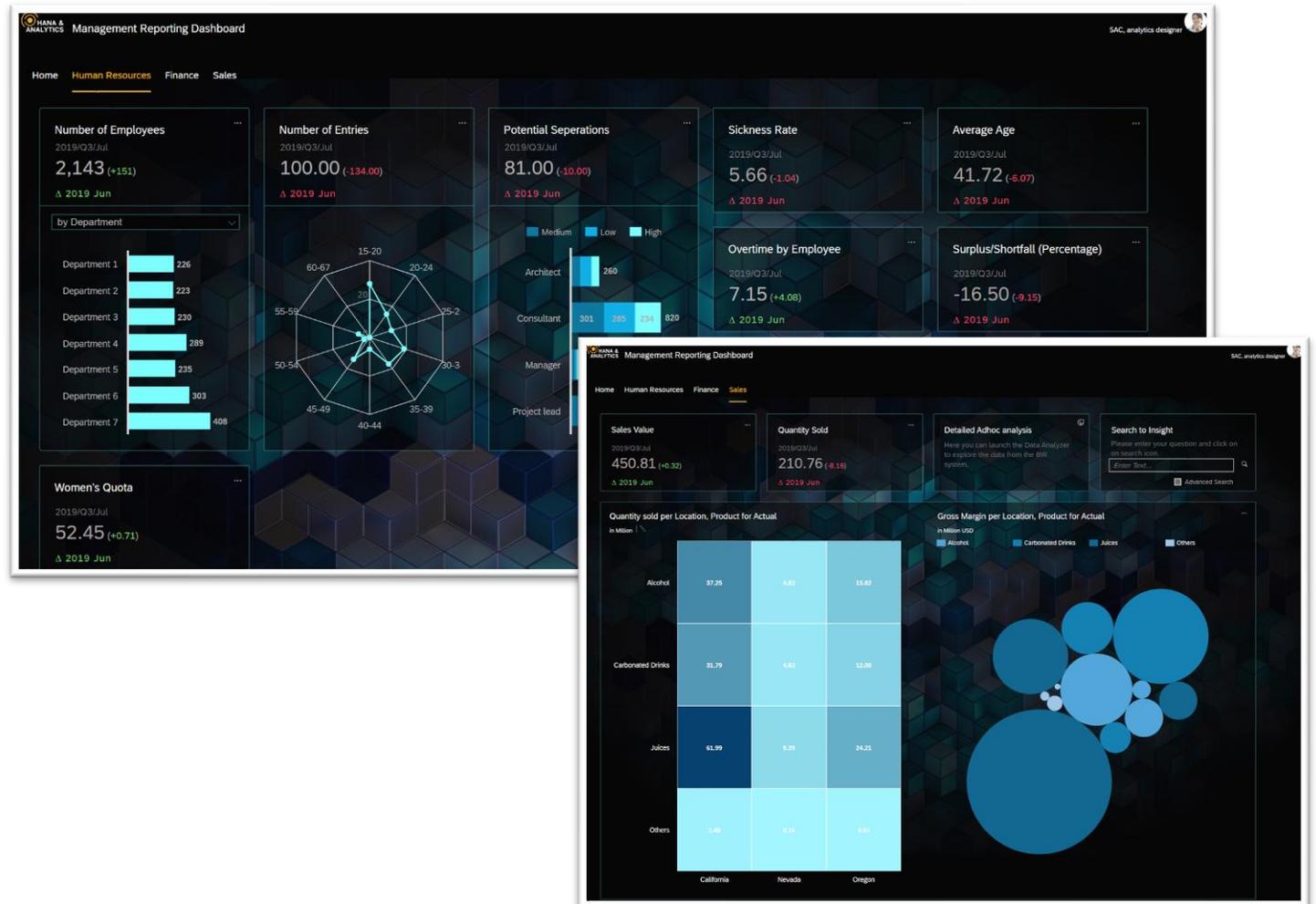
Click [here](#) to find out the proposal details.

SAP Analytics Cloud

Buttons: Open Application, Close

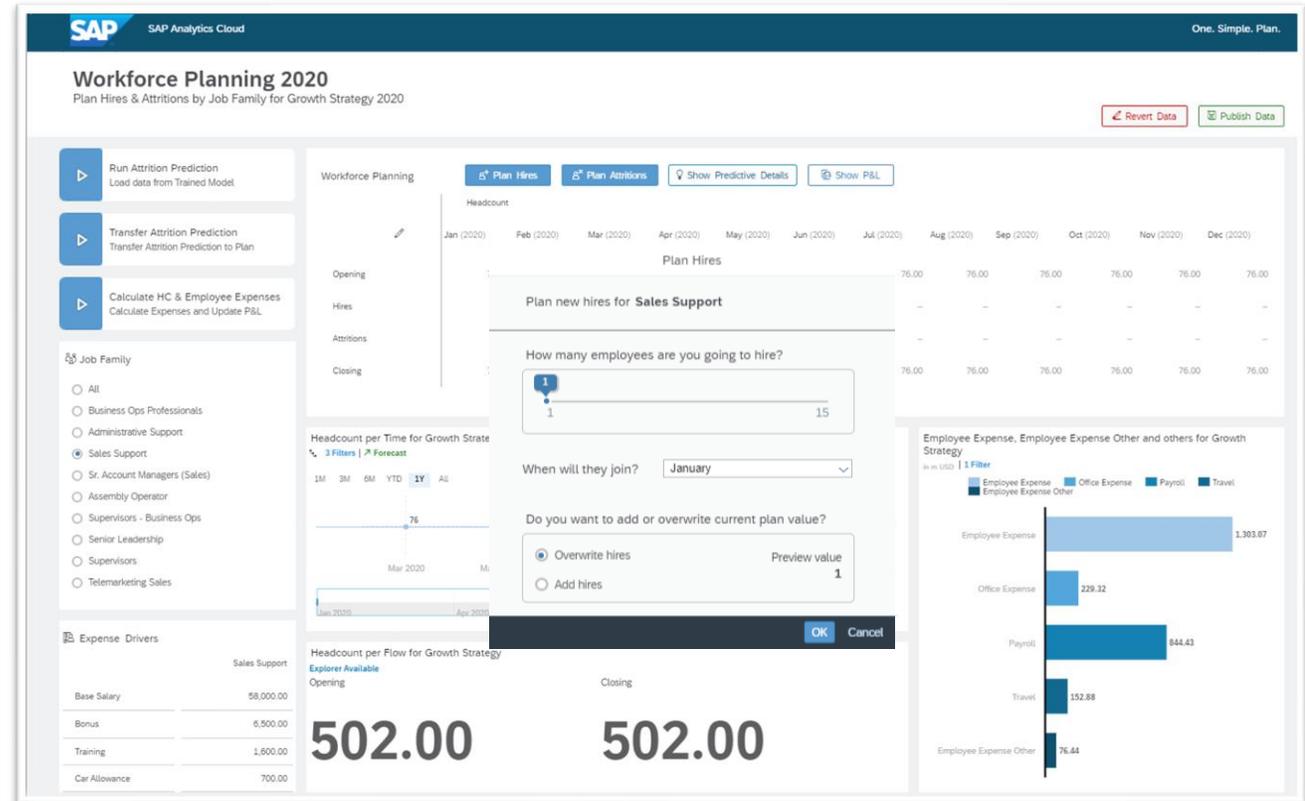
# Typical Analytics Designer Use Cases

- Dashboarding including flexible interactions and layout
  - Complex navigation and interaction
  - Flexible Layout / Responsive layout



# Typical Analytics Designer Use Cases

- Planning applications (customized planning UI)
  - Guided planning experience
  - More user friendly and tailored UX for planning users
  - Mobile usage



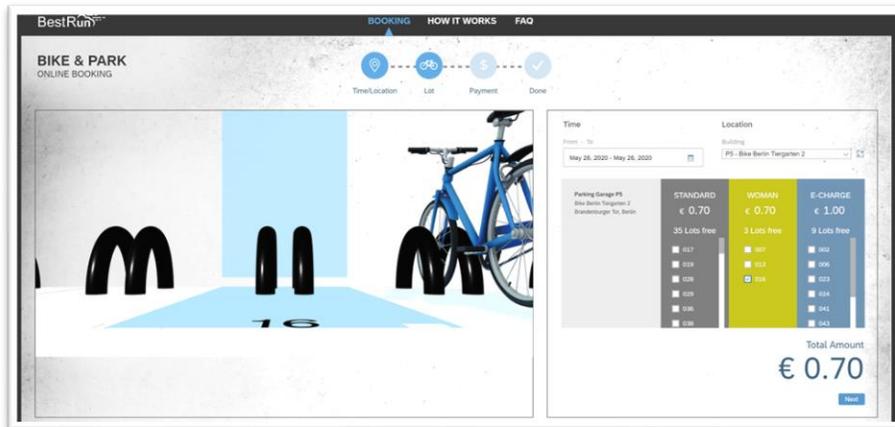
# Typical Analytics Designer Use Cases

## Embedding/Extending applications

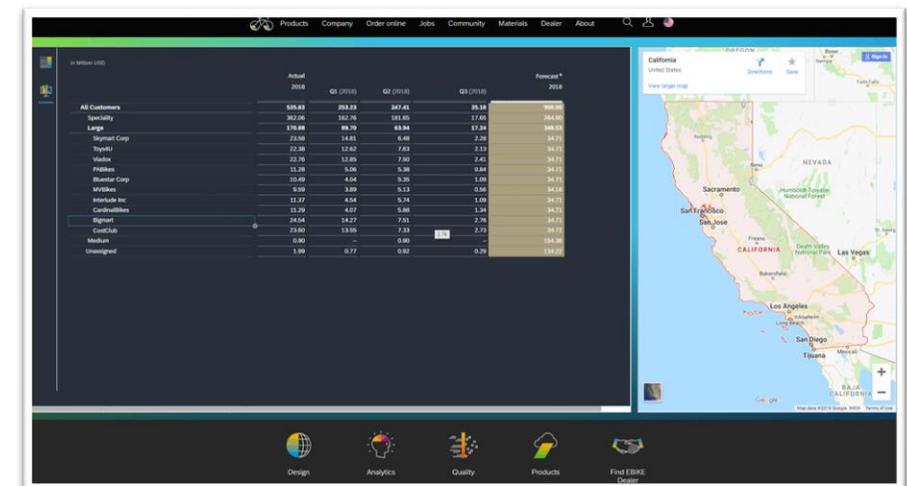
- Any external page can be embedded into analytic applications
- Or analytic applications can be embedde to any external page
- Analytic applications and external pages can communicate to each other by using post message API
- Extending Applications via custom widget SDK



Embedding applications into other web pages

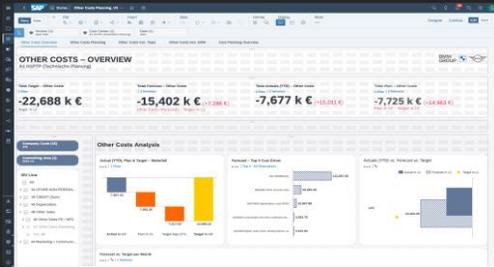


3D custom widgets integrated into analytic application

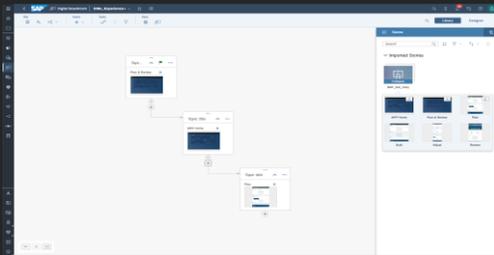


Communicating with other web pages

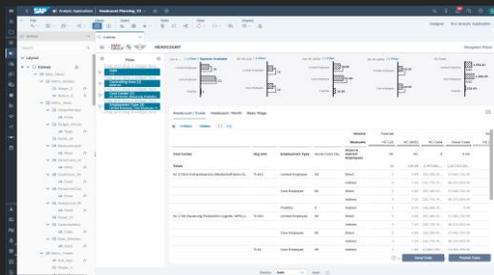
# “Story 2.0” - One Tool For All



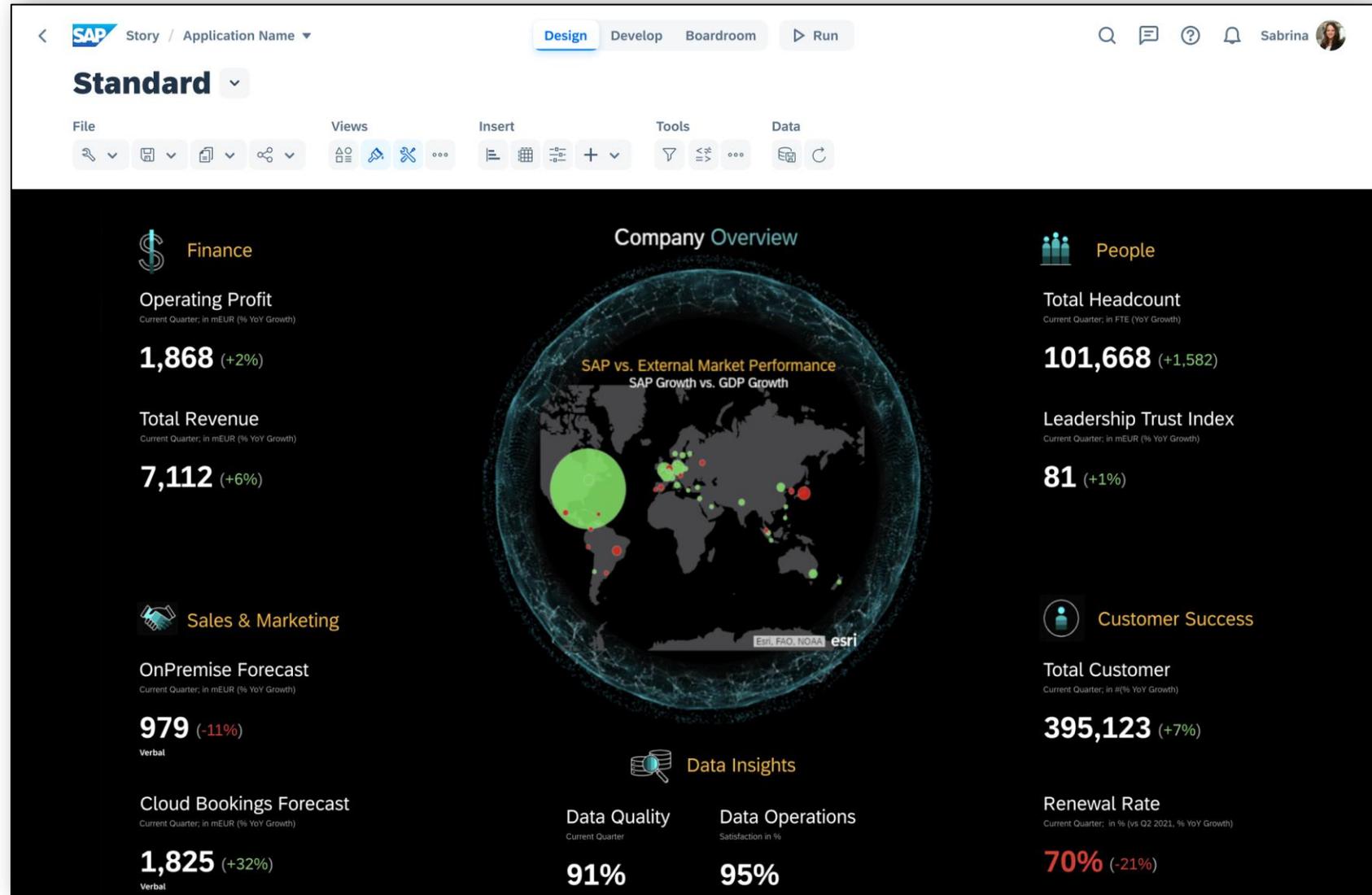
Story Builder



Digital Boardroom

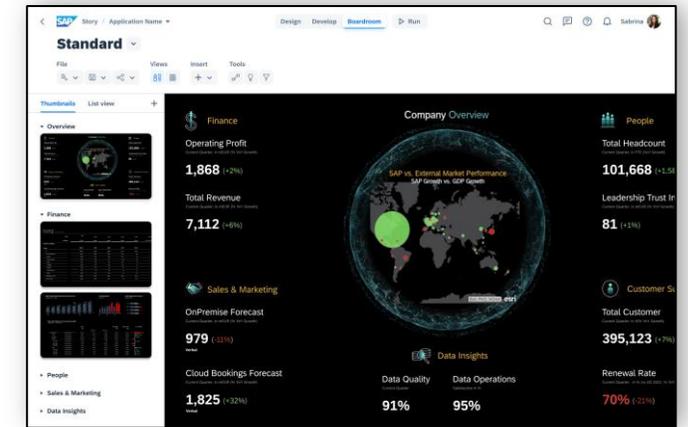
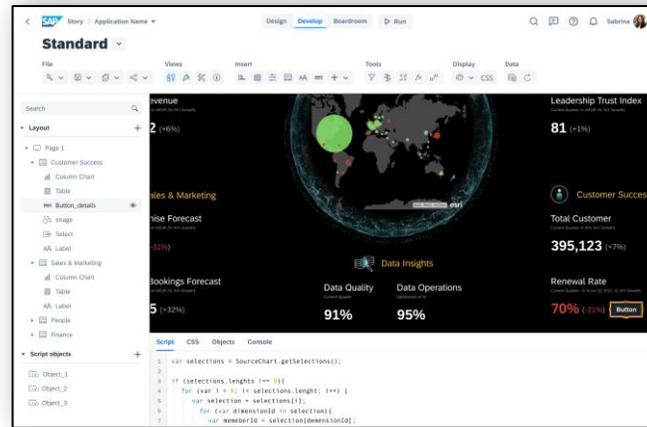
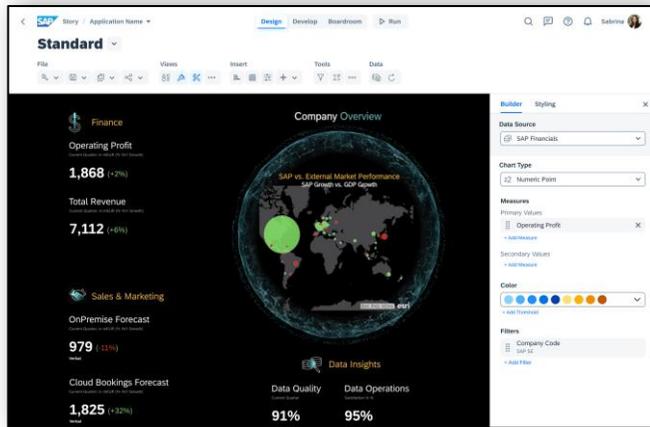


Analytic Application



# One Tool For All - Story, Analytics Designer & Digital Boardroom

## Simplicity, Consistency and Extensibility



### DESIGN

- Simple mode
- Define the layout
- Add data visualizations

### DEVELOP

- Advanced mode
- CSS and pixel perfect
- Enhance with code/logic

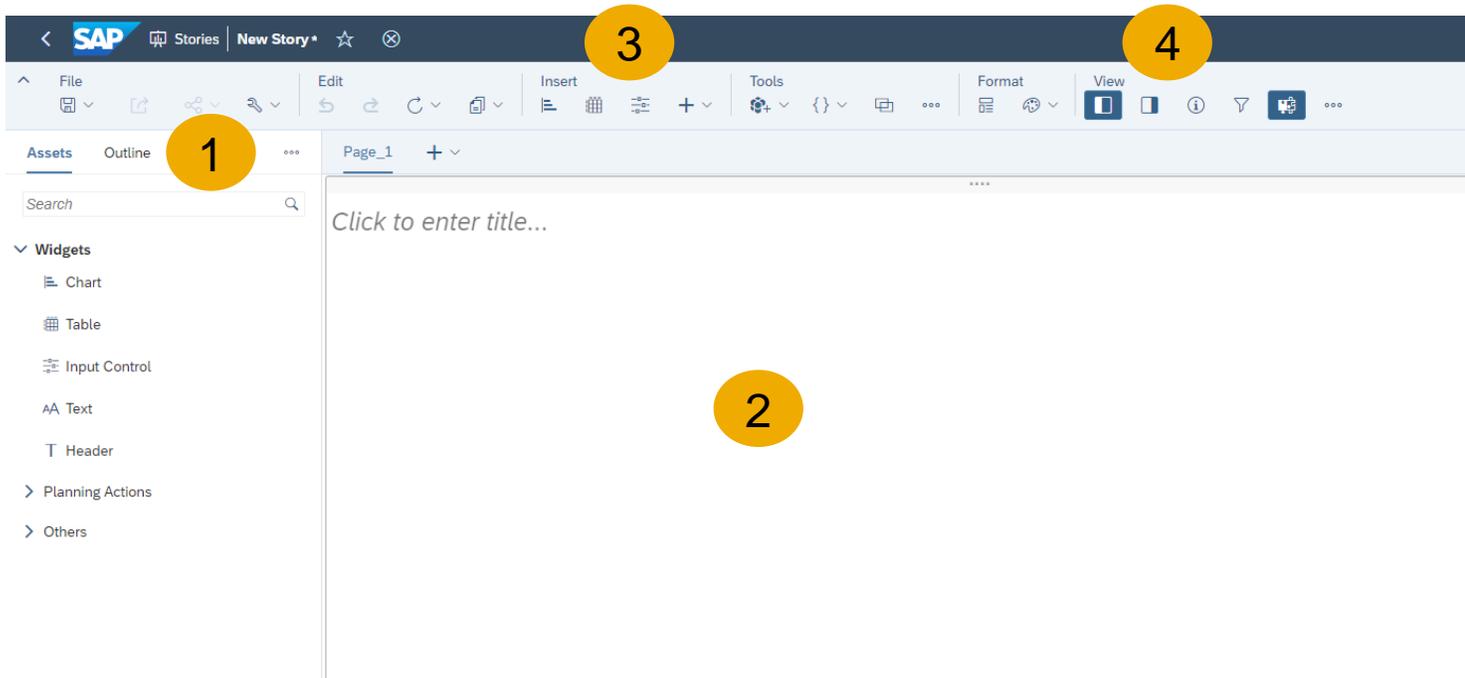
### BOARDROOM

- Build your presentation
- Add pages from stories
- Define navigation paths

# **SAP Analytics Cloud – Analytics Designer**

## **Exercises**

# SAP Analytics Cloud, Analytics Designer – Exercise Details



- (1) Outline
  - All objects from the app will be listed
  - Popups are shown separately as they have their own canvas
- (2) Main Canvas
- (3) Insert Menu
- (4) Show / Hide the Builder and Styling panel

# SAP Analytics Cloud, Analytics Designer – Exercise Details

Discount per Product for Actual

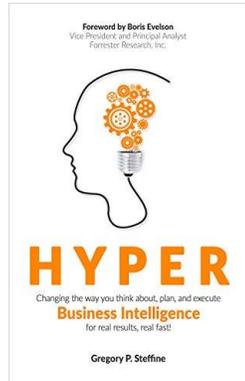
Product	Discount (in k USD)
Soda	396
Dark Beer	34,122
Lager	4,204
IPA	957
Amber	4,726
Low Calorie Beer	509
Red Wine	1,062
White Wine	6,668
Mixed Drinks	58
Sparkling Water	1,097
Sprite	336
Ginger Ale	192
Fanta	1,695
Orange Crush	9,548
Diet Coke	5,989
Root Beer	3,014
Apple Juice	997
Best Selling	195,944
Medium-Selling	17,718
Worse Products	13,897

- Scripting
  - Can be opened up as part of the menu in the Outline (1) or as part of the context menu per component (2)

# SAP Analytics Cloud, Analytics Designer– Exercise Details

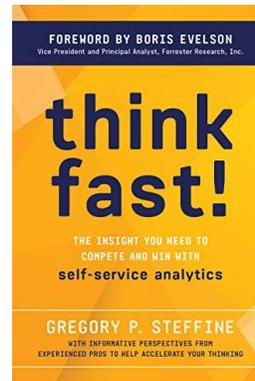
- Exercise 1: Add chart, table and filter line widget
- Exercise 2: Add dropdown to filter measures for the table and chart
- Exercise 3: Add dropdown to swap dimensions in table and chart
- Exercise 4: Add check box group to switch between chart and table
- Exercise 5: Add pop up for showing details
- Exercise 6: Define interaction between chart and table widget
- Exercise 7: Add dropdown widget to switch the hierarchy for dimensions

# Resources



## **Hyper: Changing the way you think about, plan, and execute business intelligence for real results, real fast!**

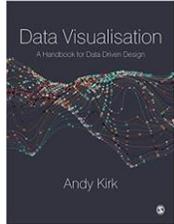
by Gregory P. Steffine, Boris Evelson



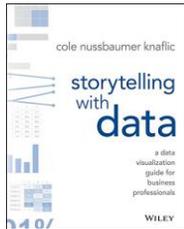
## **Think Fast!: The insight you need to compete and win with self-service analytics**

by Gregory P. Steffine, Boris Evelson

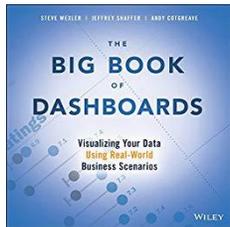
# Resources



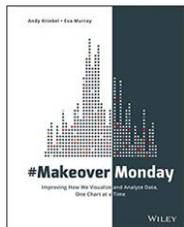
[Data Visualisation: A Handbook for Data Driven Design](#)  
Andy Kirk



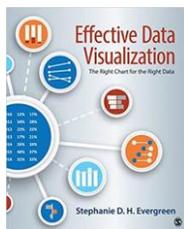
[Storytelling with Data: A Data Visualization Guide for Business Professionals](#)  
Cole Nussbaumer Knaflic



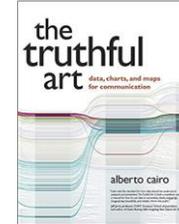
[The Big Book of Dashboards: Visualizing Your Data Using Real-World Business Scenarios](#)  
Steve Wexler, Jeffrey Shaffer, Andy Cotgreave



[#MakeoverMonday: Improving How We Visualize and Analyze Data, One Chart at a Time](#)  
Andy Kriebel, Eva Murray



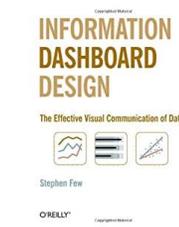
[Effective Data Visualization: The Right Chart for the Right Data](#)  
Stephanie Evergreen



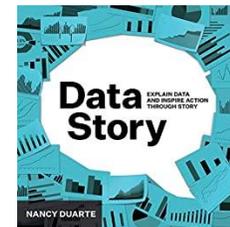
[The Truthful Art: Data, Charts, and Maps for Communication](#)  
Alberto Cairo



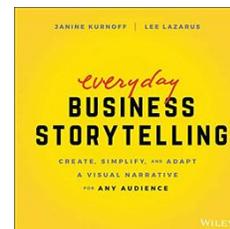
[Solid, outlined, hatched: How visual consistency helps better understand reports, presentations and dashboards](#)  
by Rolf Hichert , Jürgen Faist



[Information Dashboard Design: The Effective Visual Communication of Data](#)  
By Stephen Few



[DataStory: Explain Data and Inspire Action Through Story](#)  
By Nancy Duarte



[Everyday Business Storytelling: Create, Simplify, and Adapt A Visual Narrative for Any Audience](#)  
By Janine Kurnoff

## Workshop Resources

<https://ingohilgefert.box.com/v/SAPInsiderPreConference>

# Thank you.

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Global Solution Architect

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# SAPinsider



## SAPinsider.org

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