SAP Datasphere Unleash the Power of Business Data

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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**

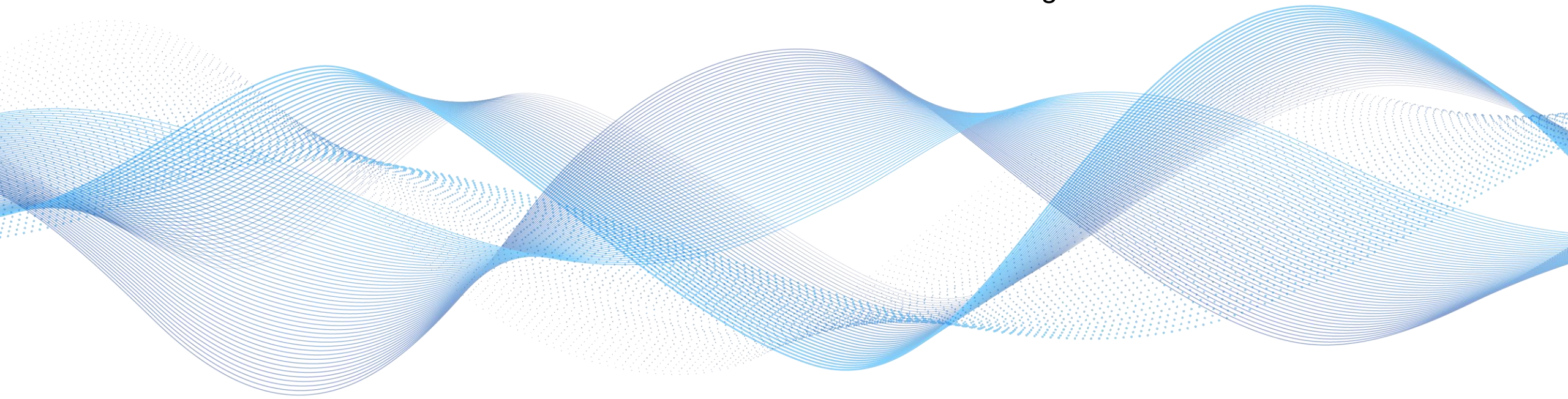
Why a business data fabric

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

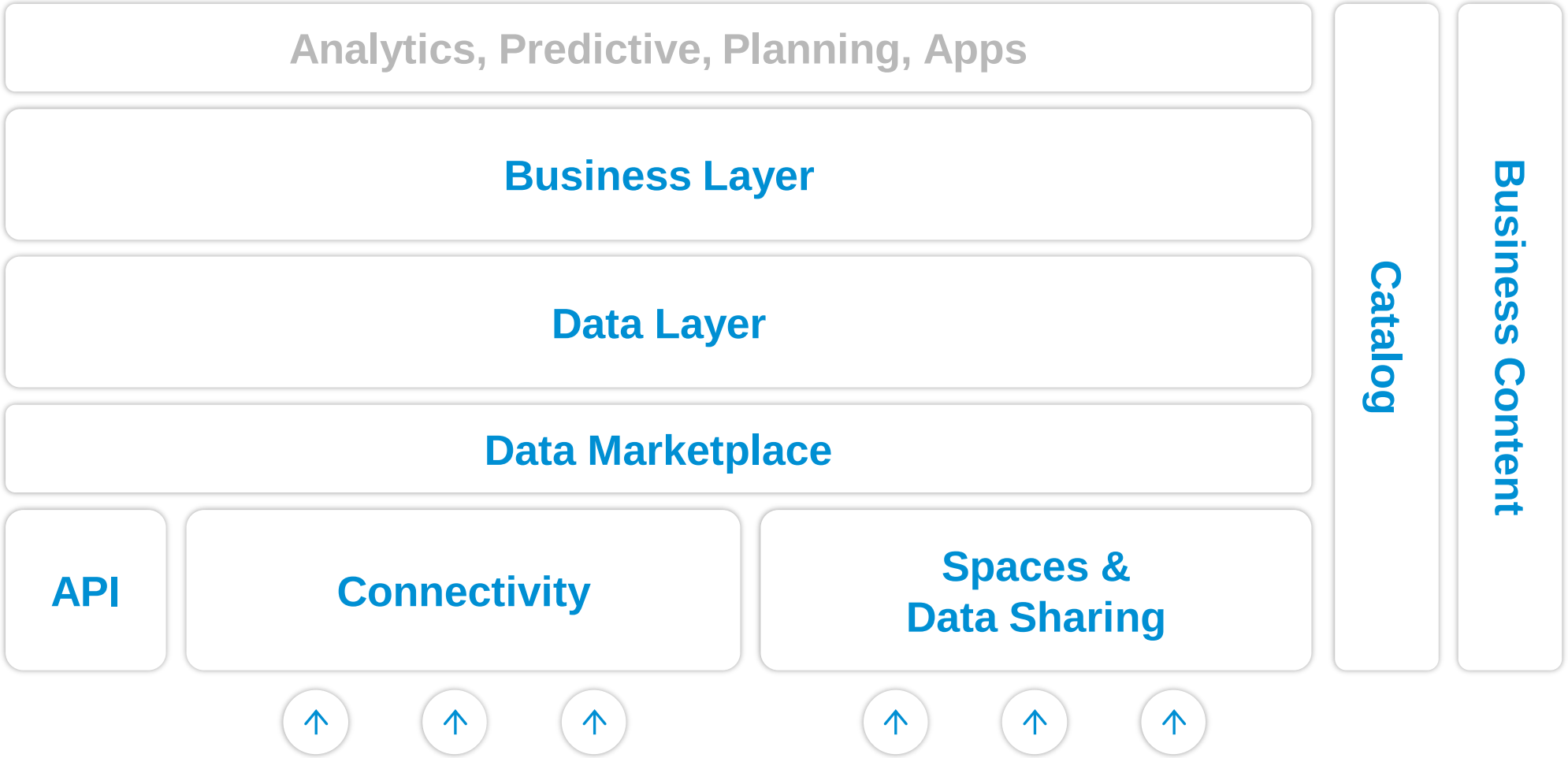
Comprehensive data governance assures every stakeholder that private data stays private

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

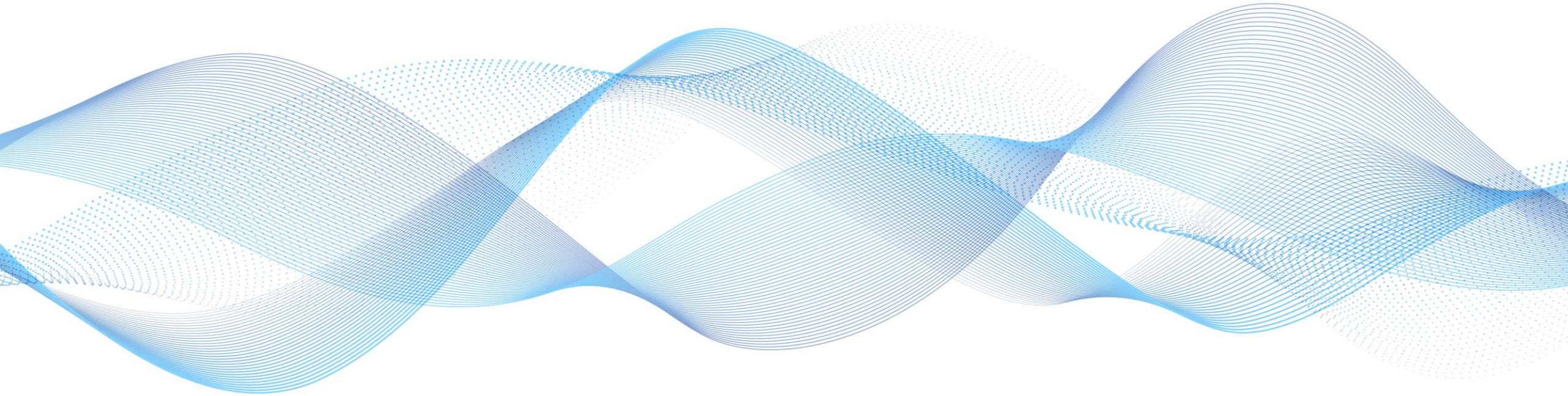
A **simplified data landscape** reduces costs and technical debt while maximizing current investments



SAP Datasphere. High-level Component Overview

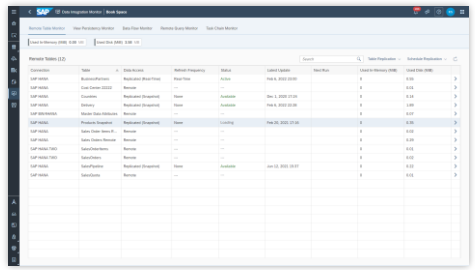


Integrate.



Integrate. Open for Virtual Access and Persistence

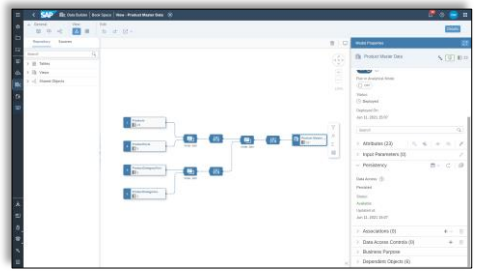
Virtual Access



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

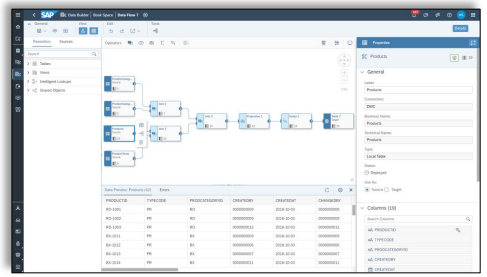
Replication flow

- Replication with multiple entities and flexible targets

View Persistence

- Materialize view output results in a stable persistence

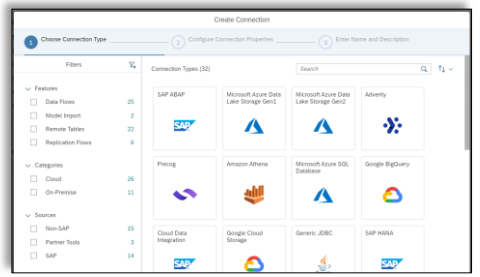
Data Flow



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 Applications

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

Databases & Generic Connections

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

Hyperscaler & Cloud Apps

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

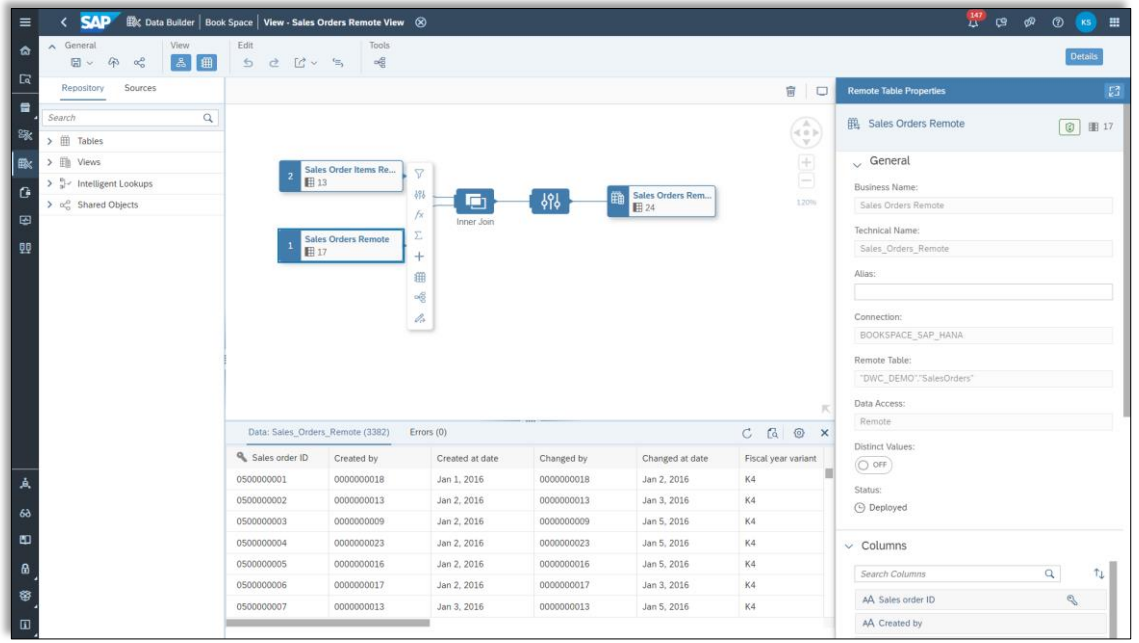
External Tool Support

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

SAP Help: Connection Overview

Integrate. Virtual Data Access

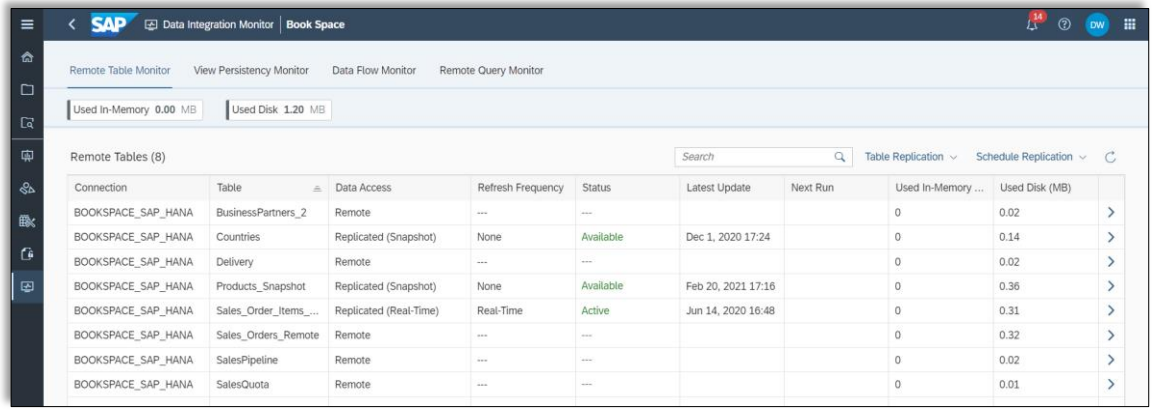
- Virtual Access using remote tables, which points to a table in an external system
- Access remote data as if it was stored in local tables
- Remote tables access data without copying the data
- Data is transferred through the network each time a query is executed
- Restrict data transfer using central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

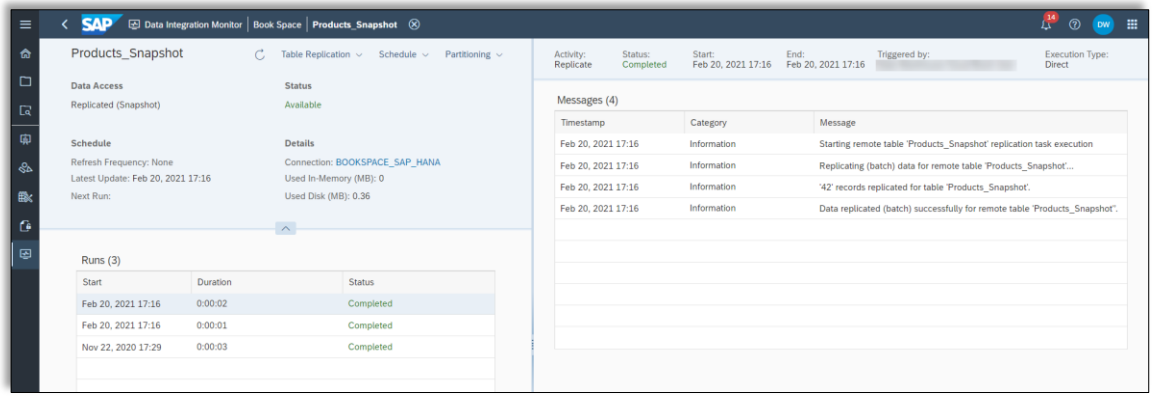


* Filtering depends on source connection and column data types. See more information in the online documentation.

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





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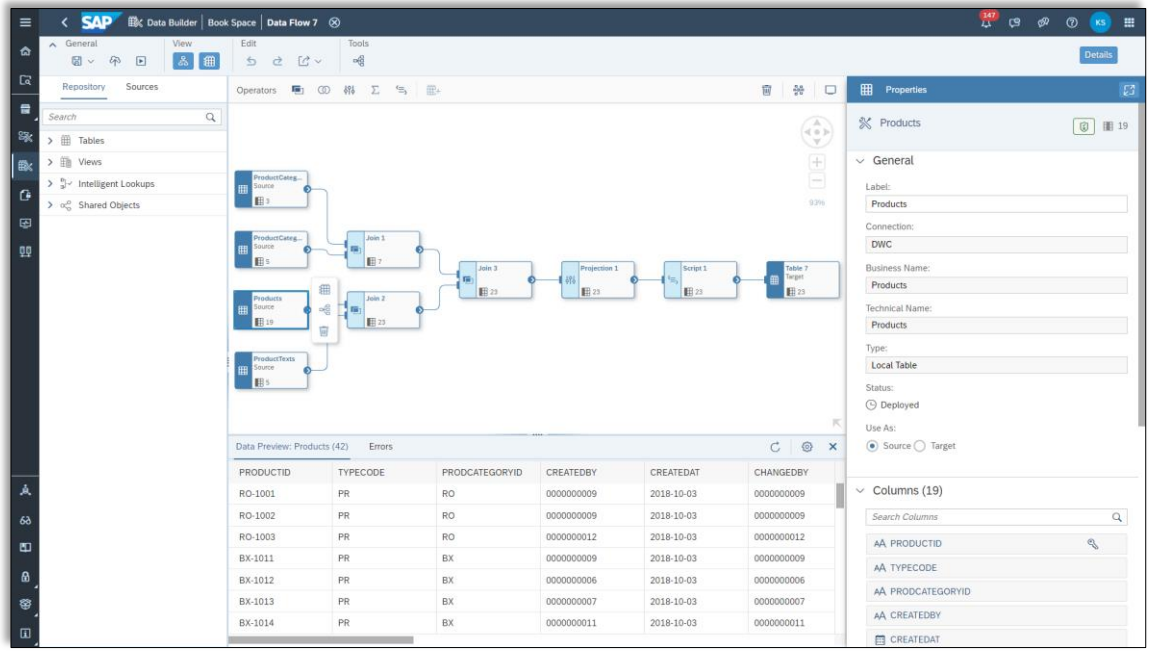
See more information in the online documentation.

Integrate. Data Flow

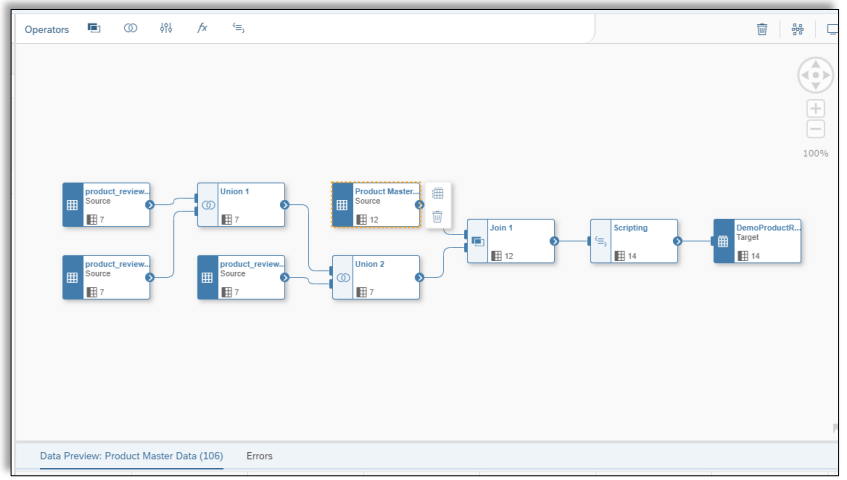
- Data integration from variety of data sources
- Easy to use data flow modeling experience for ETL requirements
- Load and combine data from different data sources (SAP and non SAP) like file storages, DBMS or SAP S/4HANA
- Standard transformation capabilities and scripting for advanced requirements
- 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



Integrate. Data Flow – Transformation Capabilities

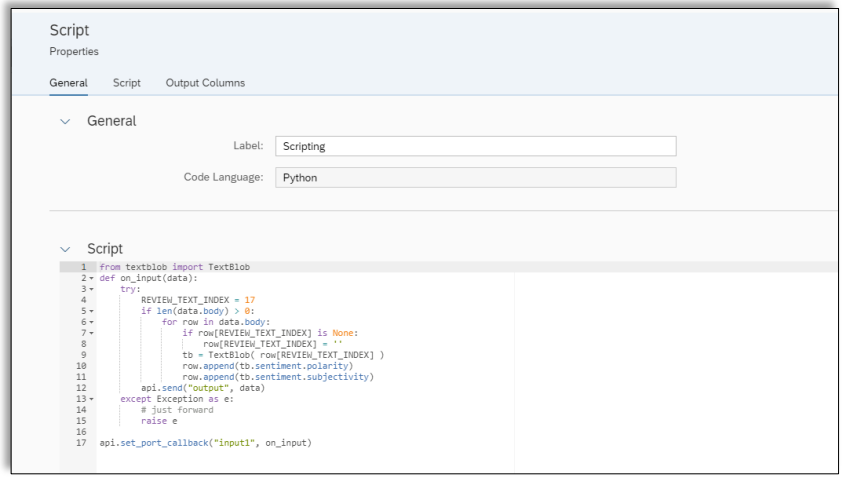
Standard Transformations

- 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

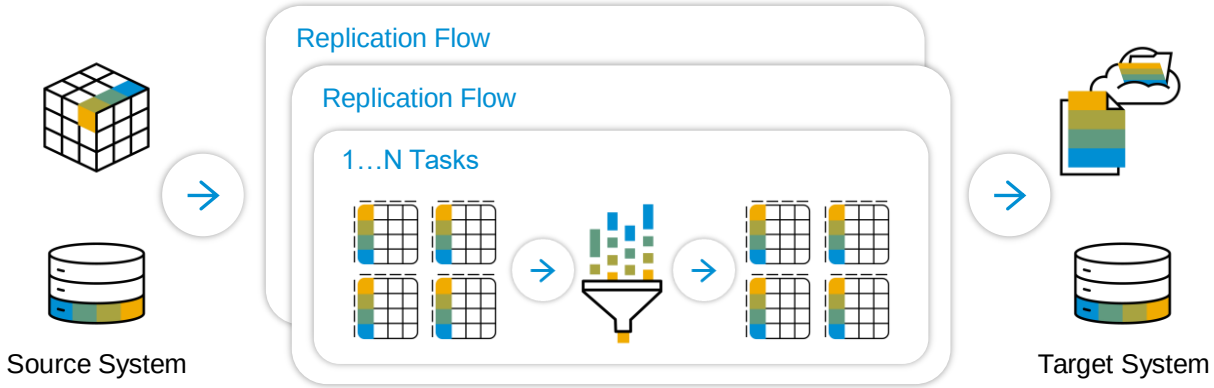
- Advanced transformation requirements like extraction of text
- Embedded scripting editor in Data Flow Modeler
- Support of standard Python 3 scripting language



Integrate. Replication Flow

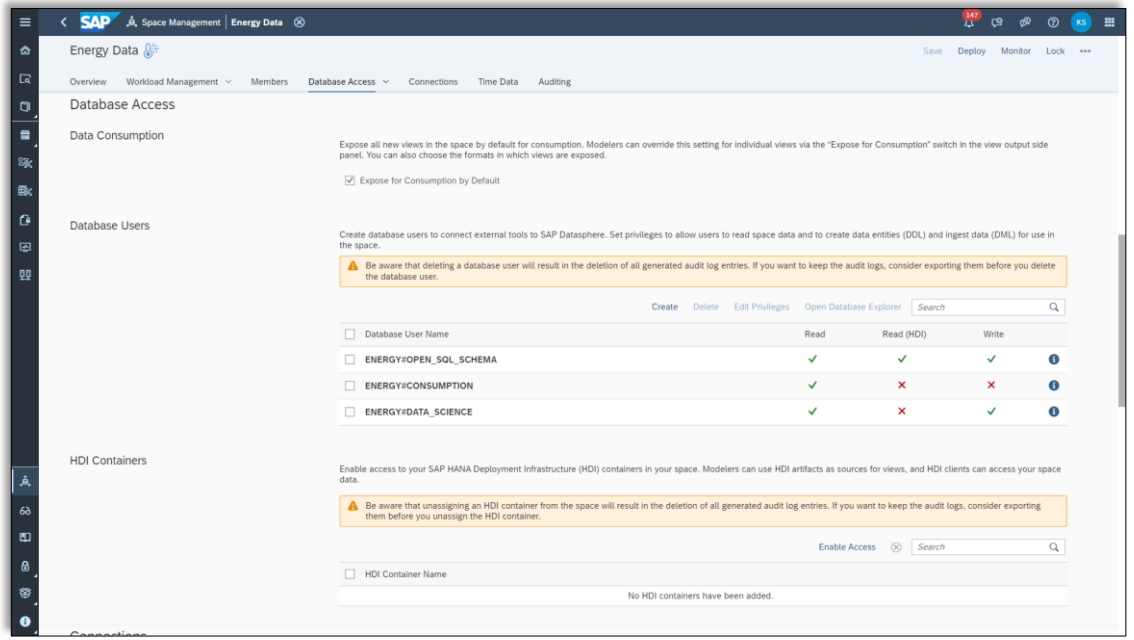
Enhancement of data replication use cases through a cloud based data replication tool

- 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

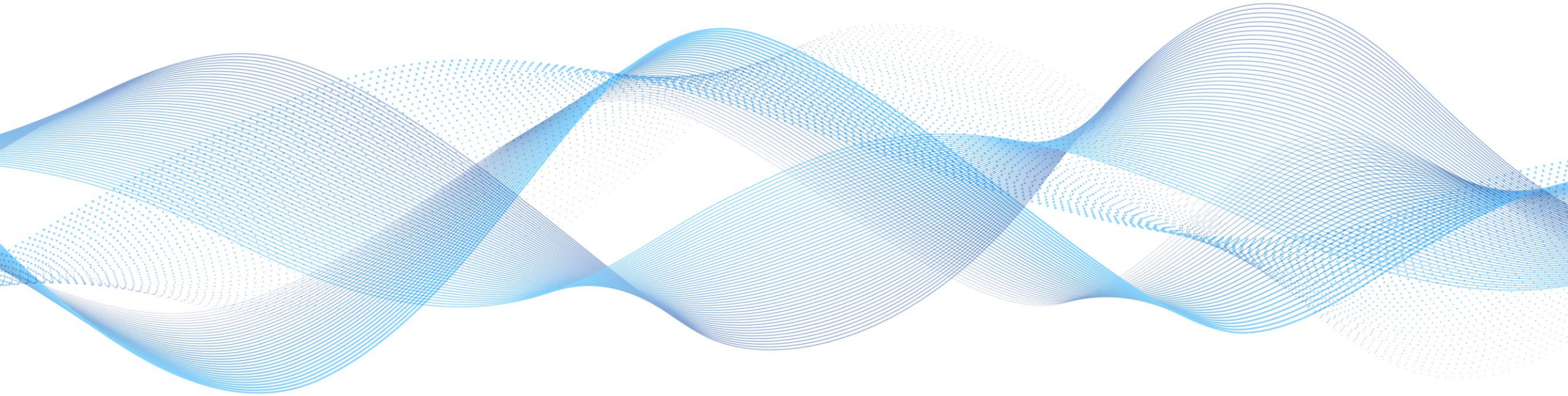


Integrate. Open SQL Schema for Data Integration via SQL API

- 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

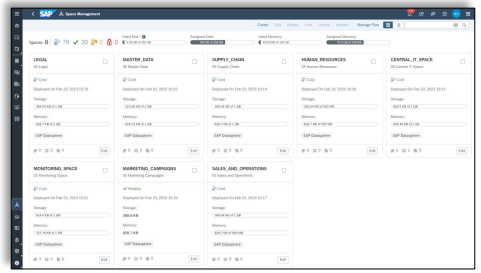


Operate.



Operate. Unlocking data insights with integrity

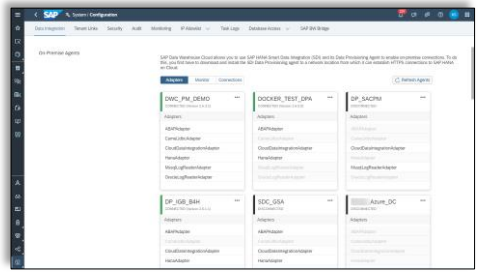
Space Management



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

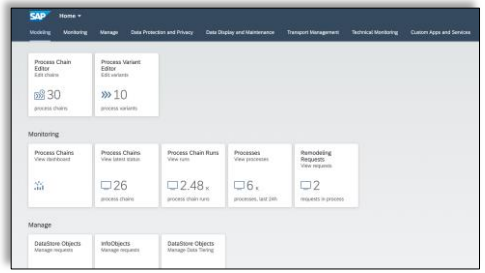
Admin & Security



Manage your settings

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

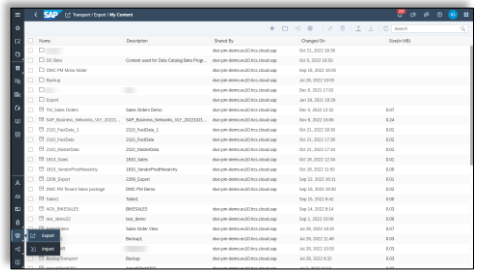
SAP BW bridge



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

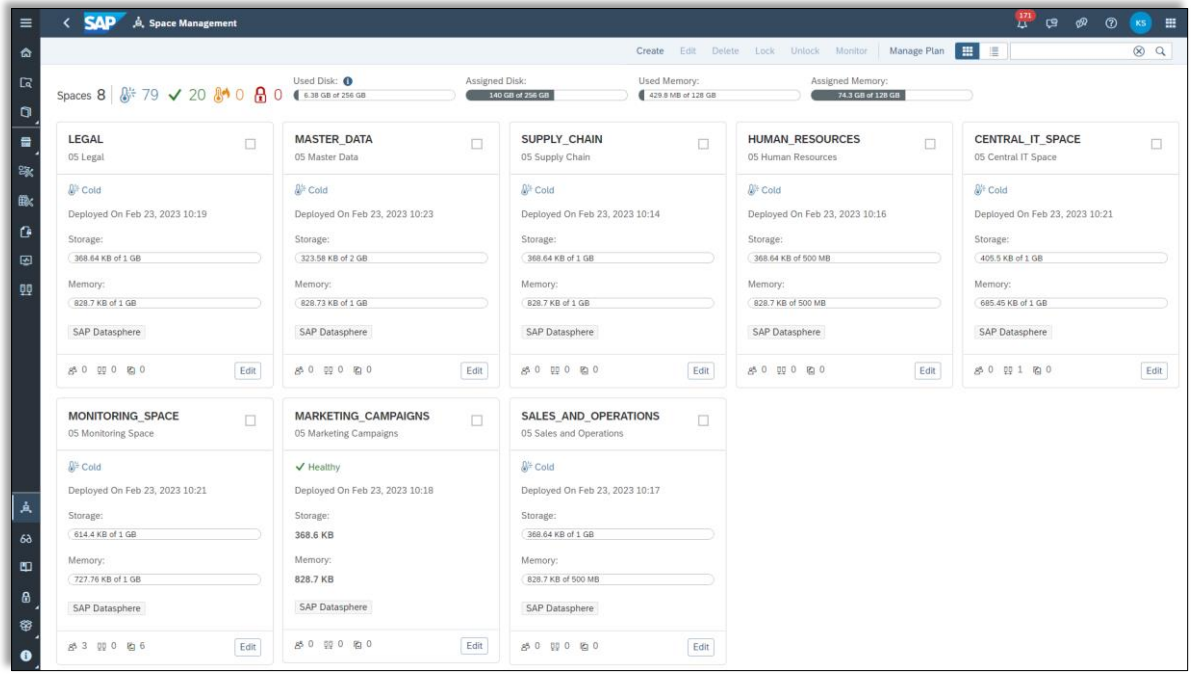


Transfer content between tenants

- 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



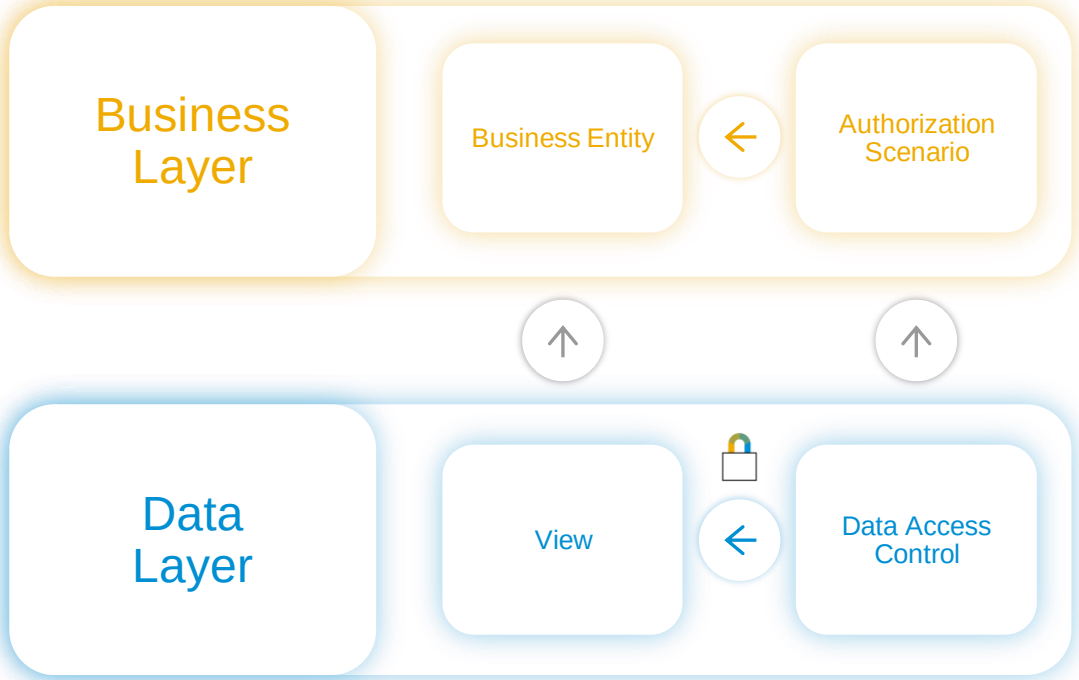
Operate. Data Access Controls & Authorization Scenarios

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

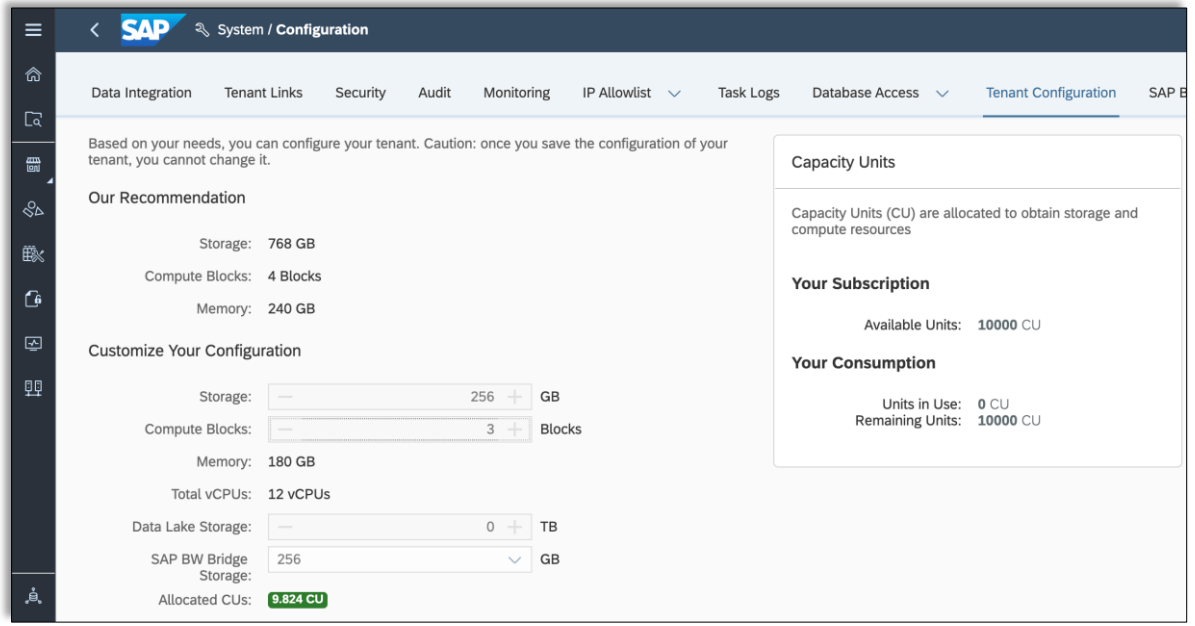
Authorization Scenarios

- 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

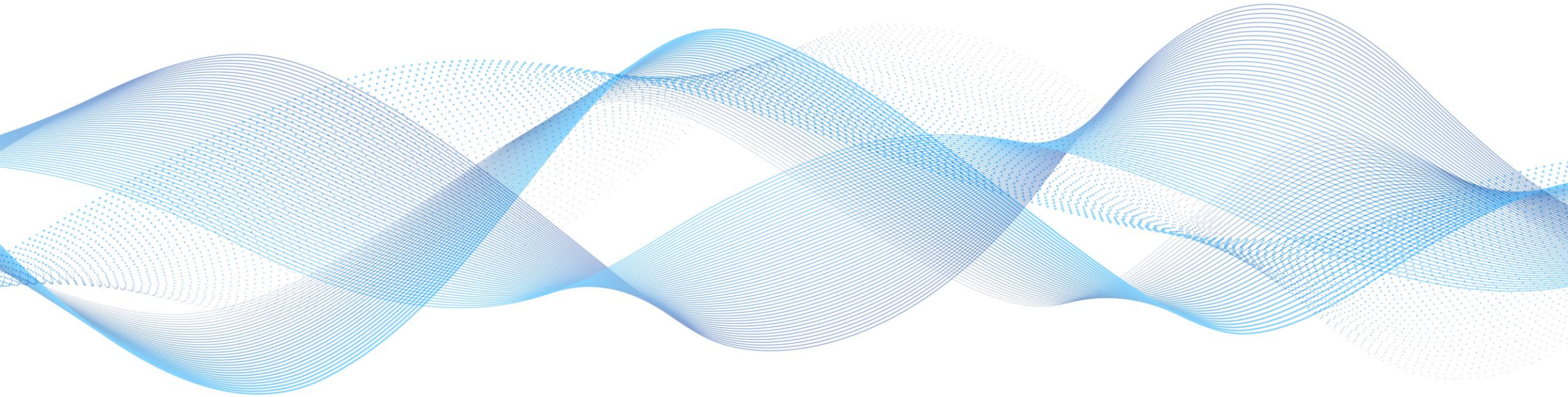


Operate. Flexible Tenant Configuration

- 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

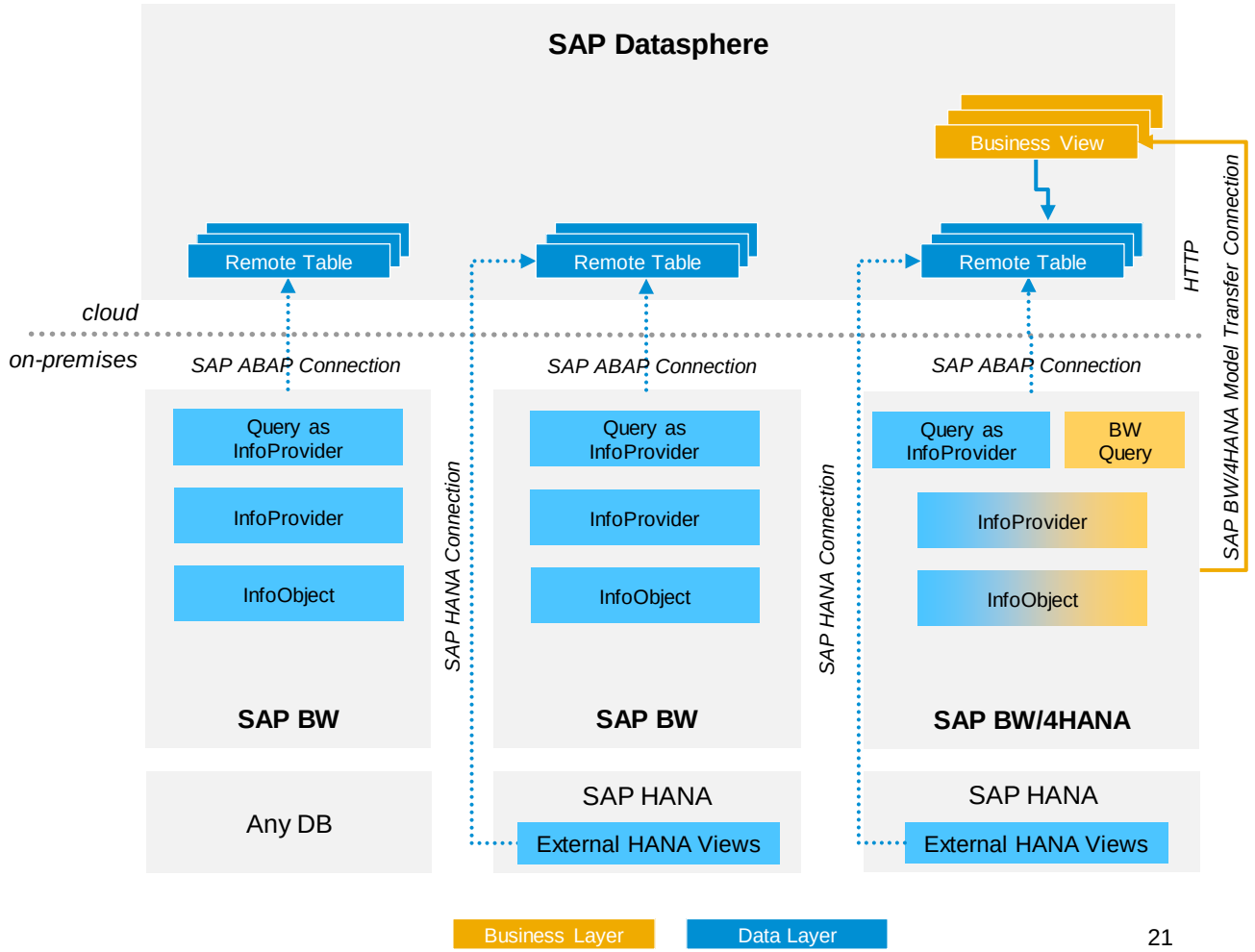


SAP BW Bridge & Hybrid.



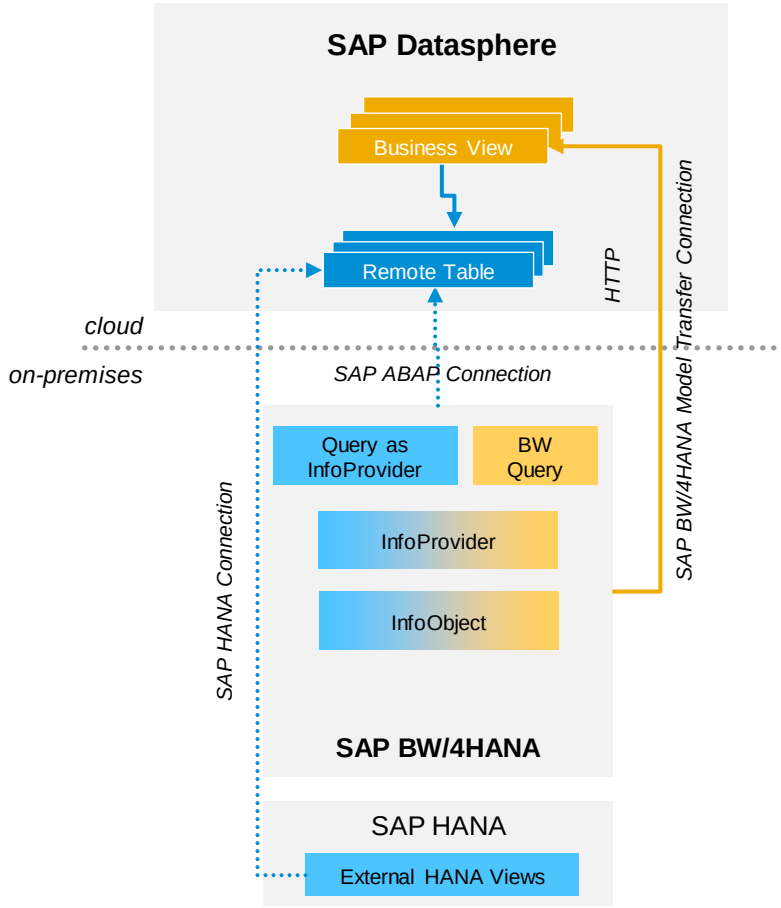
SAP BW Hybrid. Integration Overview

- 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



* According to the Roadmap.

SAP BW Bridge. Value Proposition

What is the SAP BW bridge?

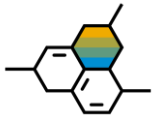
A SAP Datasphere **feature** that provides a path to the public cloud for SAP BW NetWeaver and SAP BW/4HANA customers.

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?

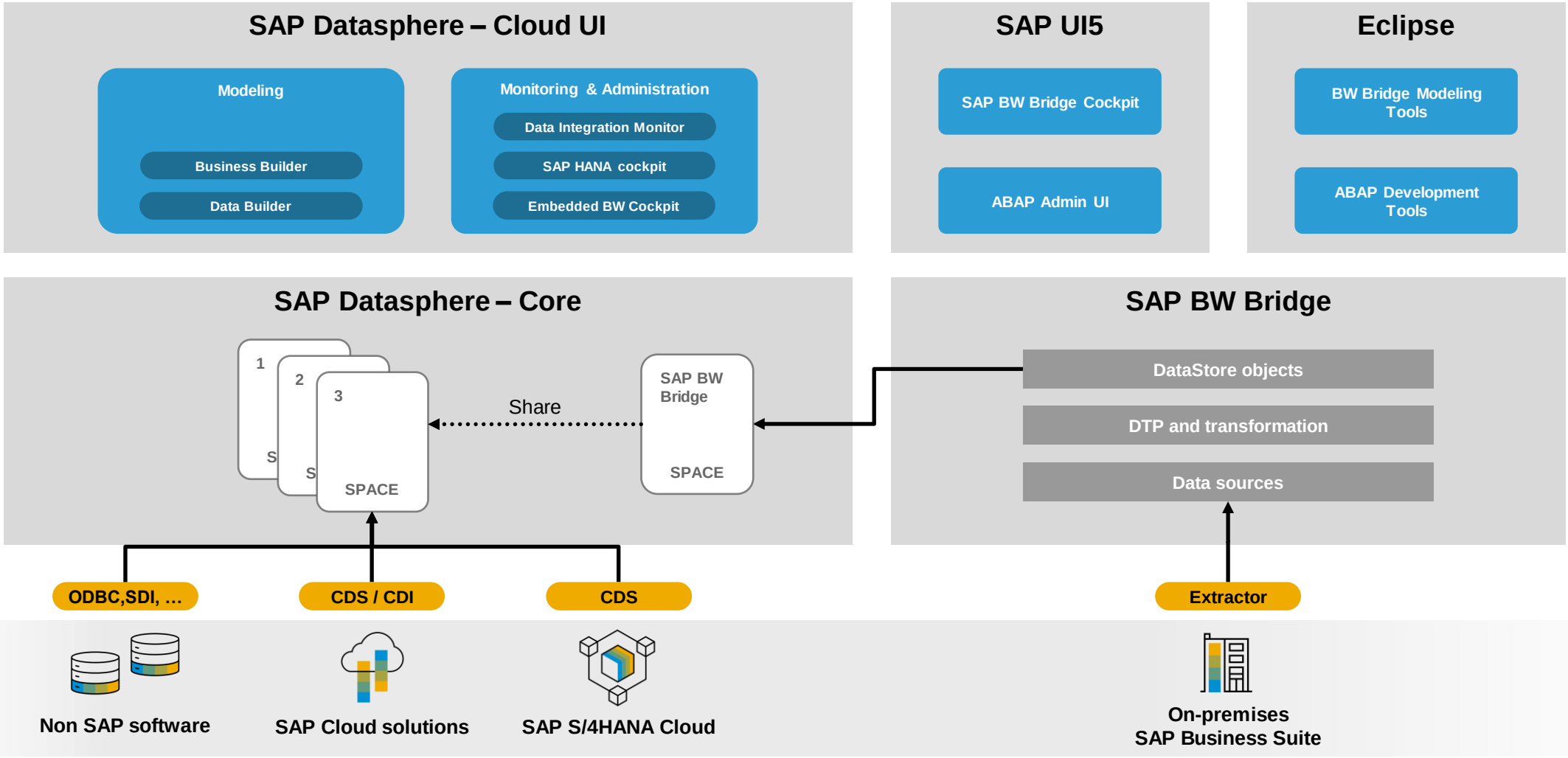
Re-use for business continuity
Leverage SAP BW data structures, transformations, customizations, and skills – quickly extending your SAP BW investments to the public cloud



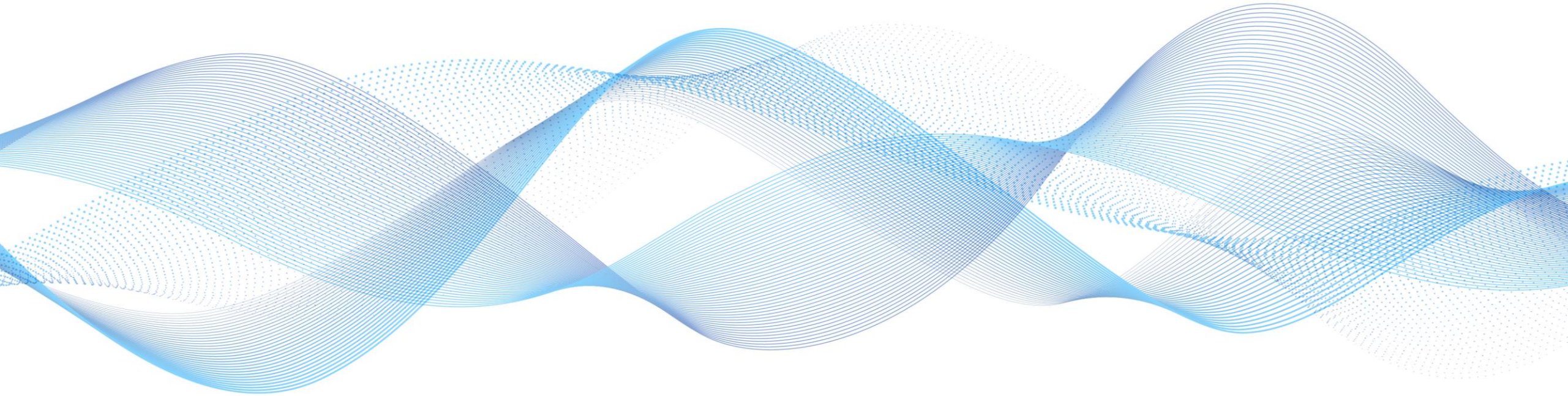
Connect with confidence
Integrate on-premises SAP Business Suite data with familiar connectivity and semantic richness – retaining instant access while expanding your analytics depth

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.



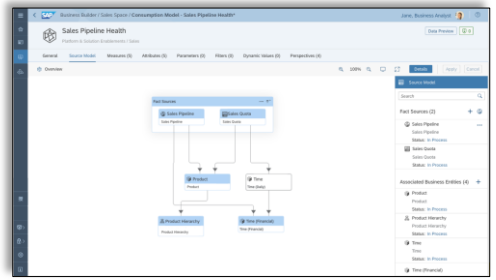
Manage. Modeling for Everybody

Business Analyst
No Code / Low Code

Developer / Power User
Pro Code

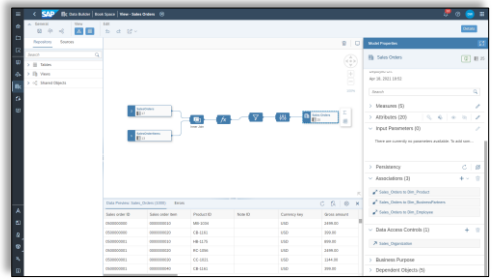
BUILT-IN EDITORS
modeling for all users

Business Modeling



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

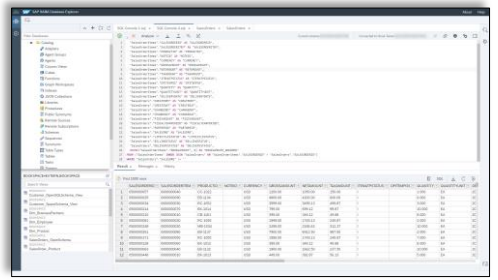
Graphical & Scripted



- 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

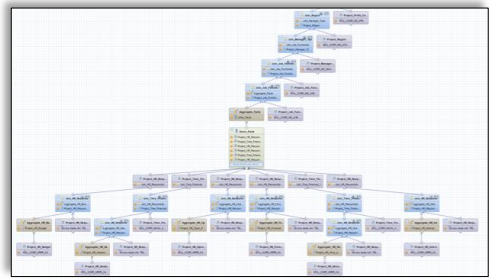
EXTERNAL EDITORS
integrated SQL Data Warehousing

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

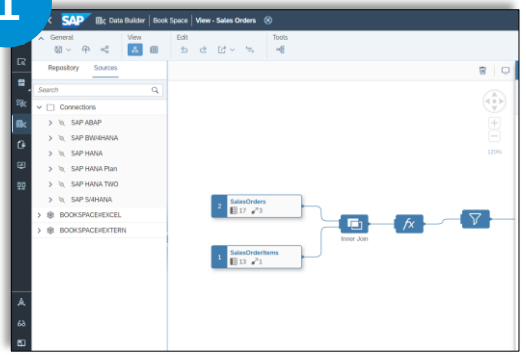


- SAP HANA Cloud Modeling capabilities leveraging Calculation View, Flowgraph, Synonym, etc.
- Simply re-use HANA based Modeling within SAP Datasphere

Manage. Create Virtual Data Models

Select Source Object

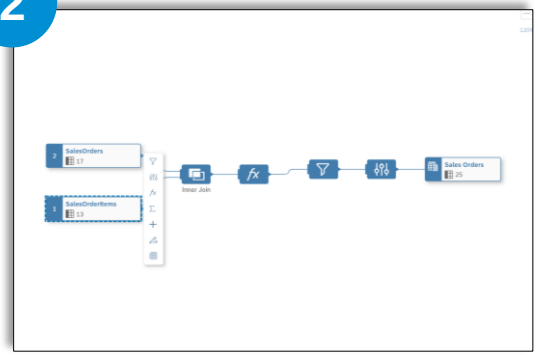
1



- 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

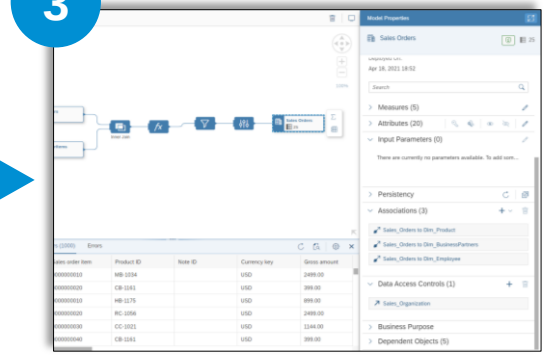
2



- 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

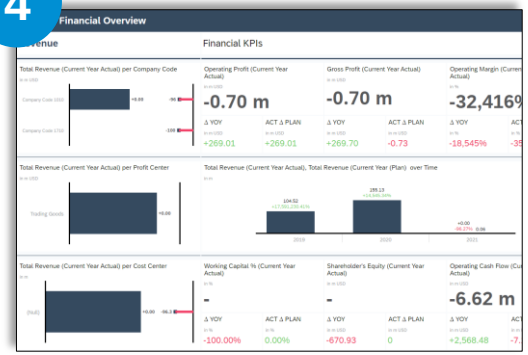
3



- 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

4

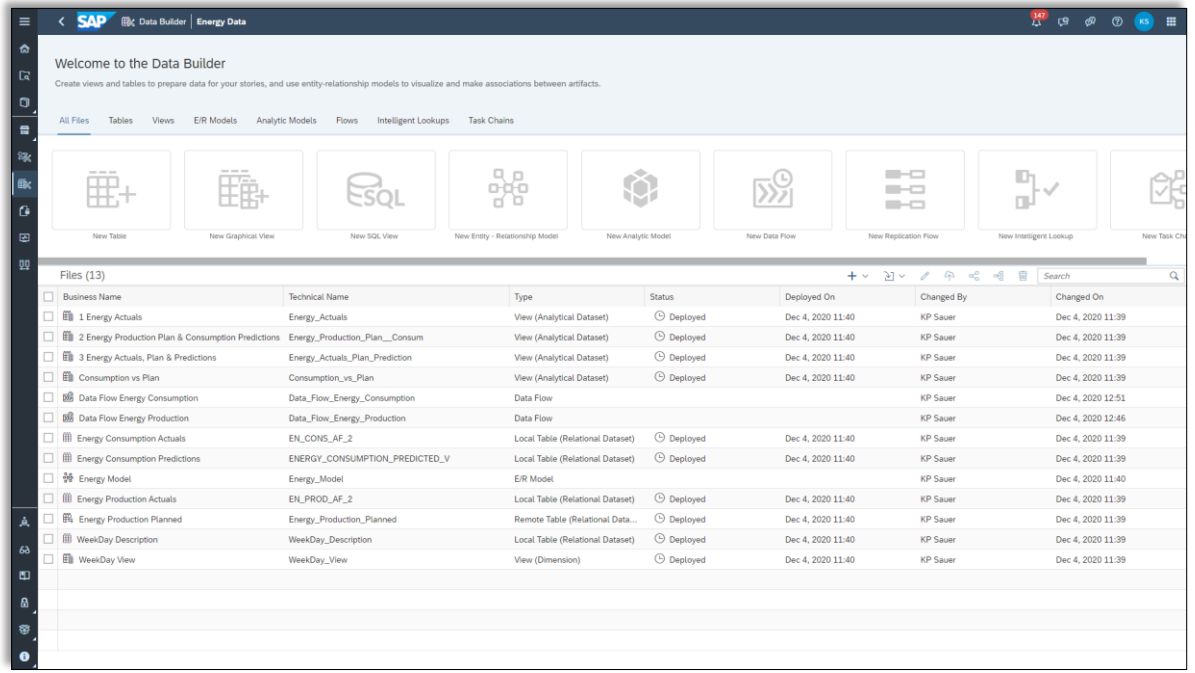


- Create a story in SAP Analytics Cloud based on the analytical view or
- Build new data models on top to integrate different data sources or associate master data views

Manage. Data Builder Overview – Editors

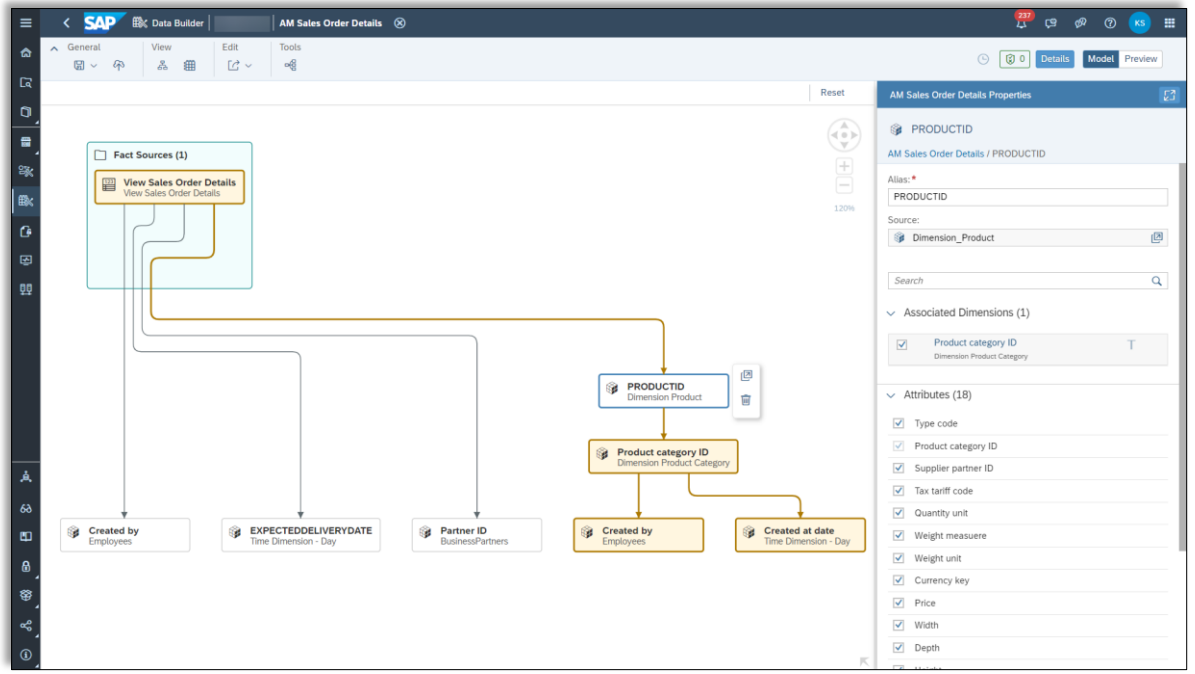
The **Data Builder** offers a collection of editors to create artifacts in the data layer like

- 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



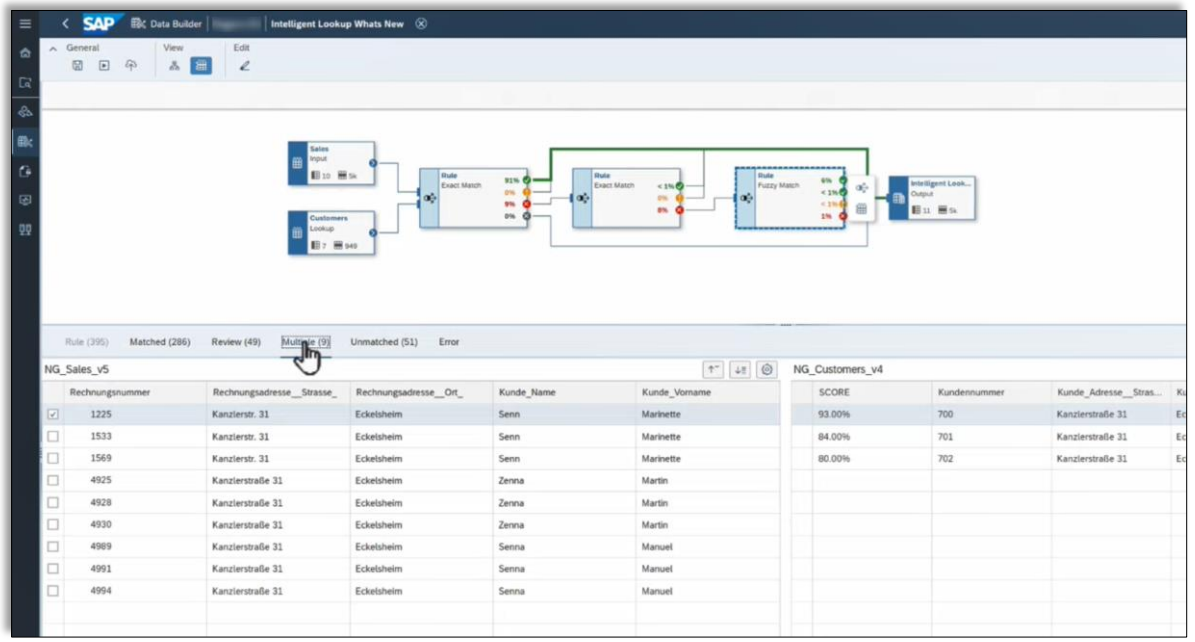
Manage. Analytic Model

- 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



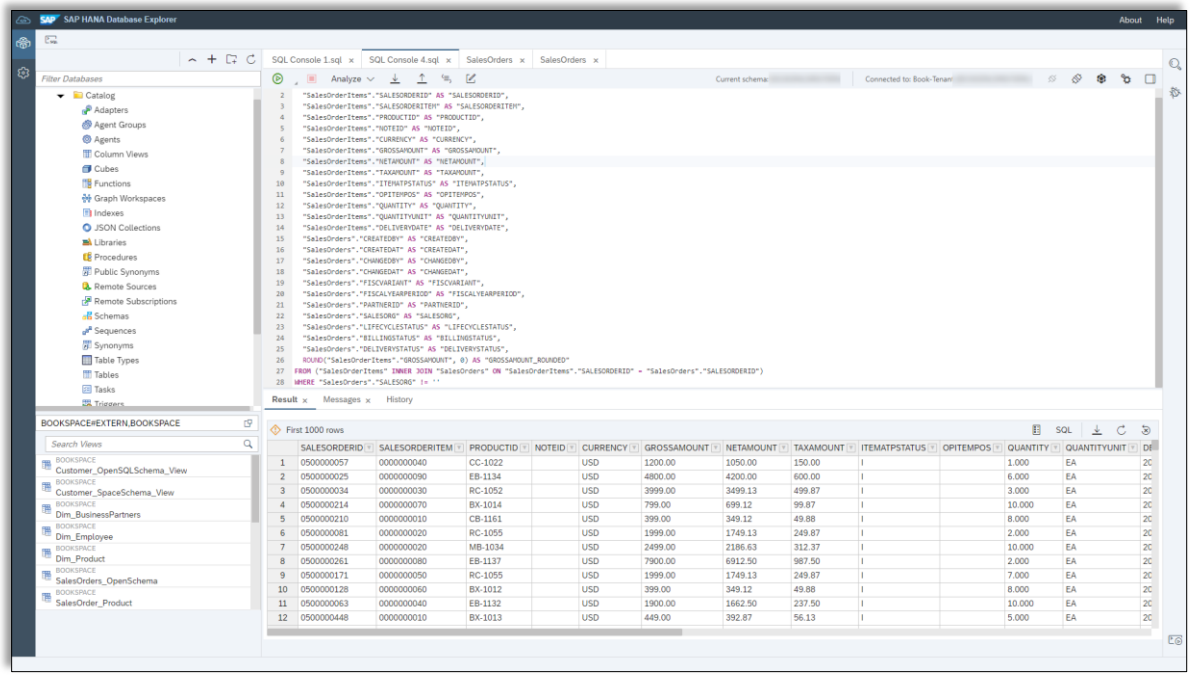
Manage. Intelligent Lookup

- 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



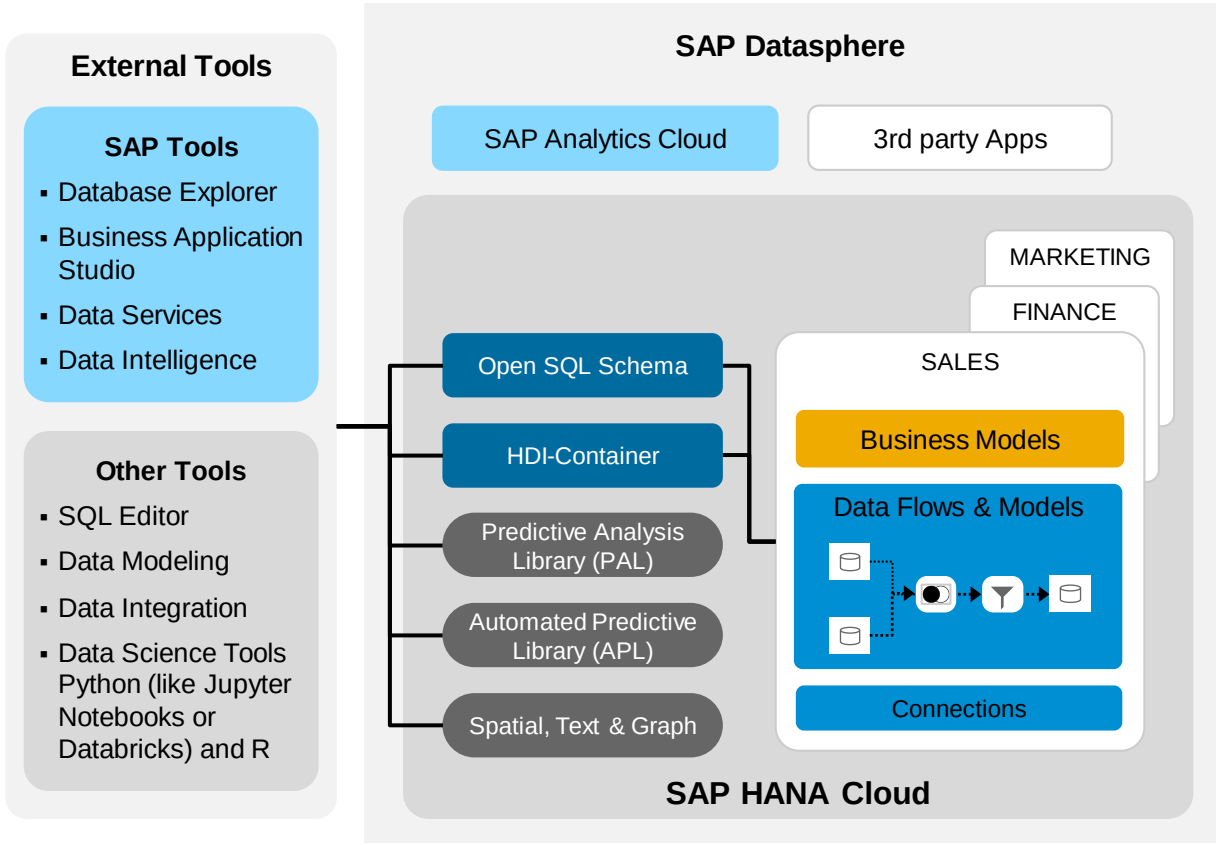
Manage. Open SQL Schema for Data Modeling via SQL API

- 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

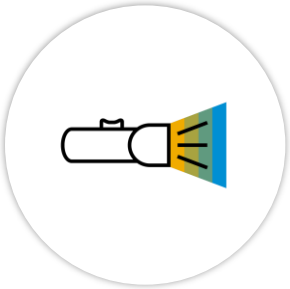


Manage. Embedded Machine Learning and Advanced Analytics

- 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

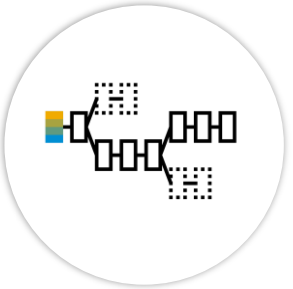
- Metadata extraction from variety of sources
- Empower users to be data driven
- Increase productivity with search and filtering capabilities

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



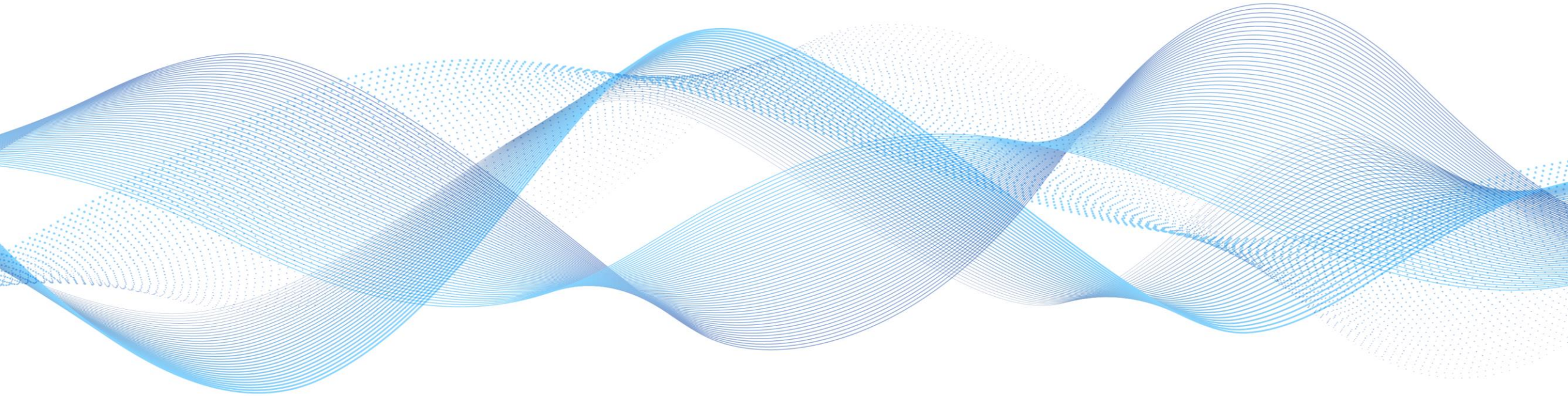
Comprehending Data with Asset Details & Lineage

- 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

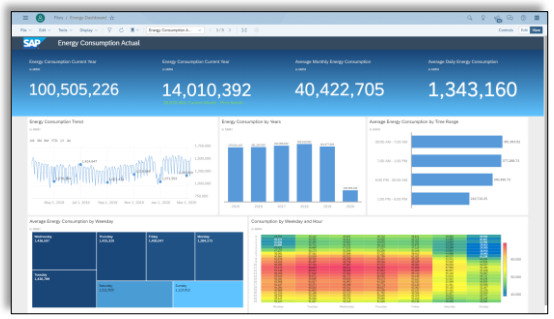
- Establish common language across enterprise
- Define KPIs for quantifiable, outcome-based strategic goals
- Save time and focus attention on what matters most

Use.



Use. Choice and openness with pre-built business content

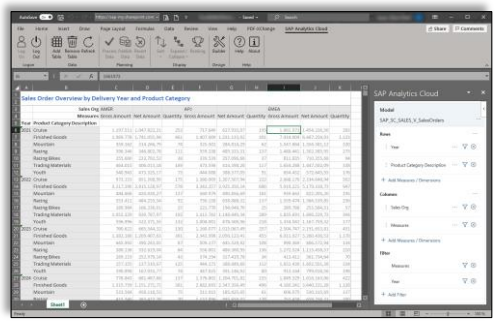
SAP Analytics Cloud



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

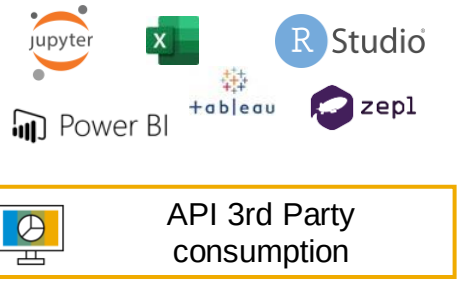
MS Office Integration



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+

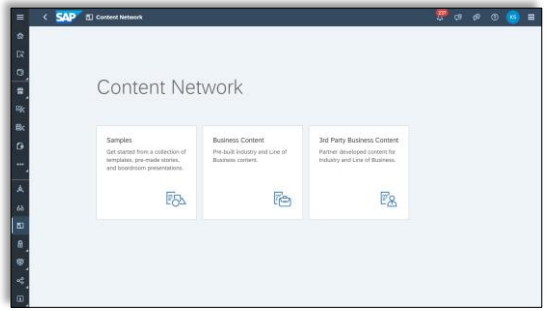
External API



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

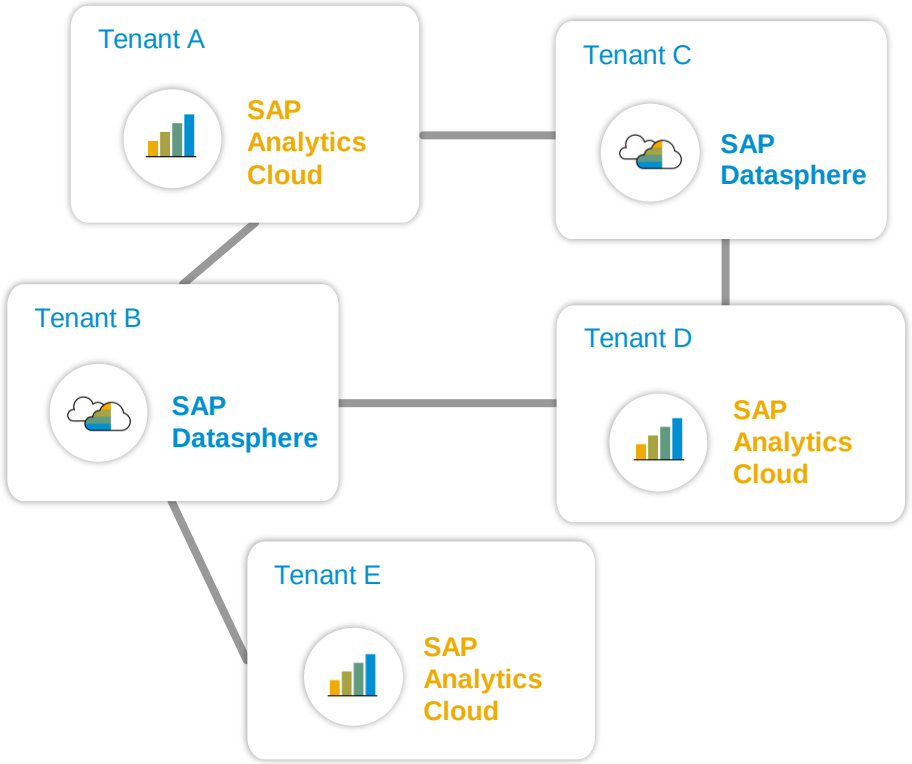


Business accelerators

- 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

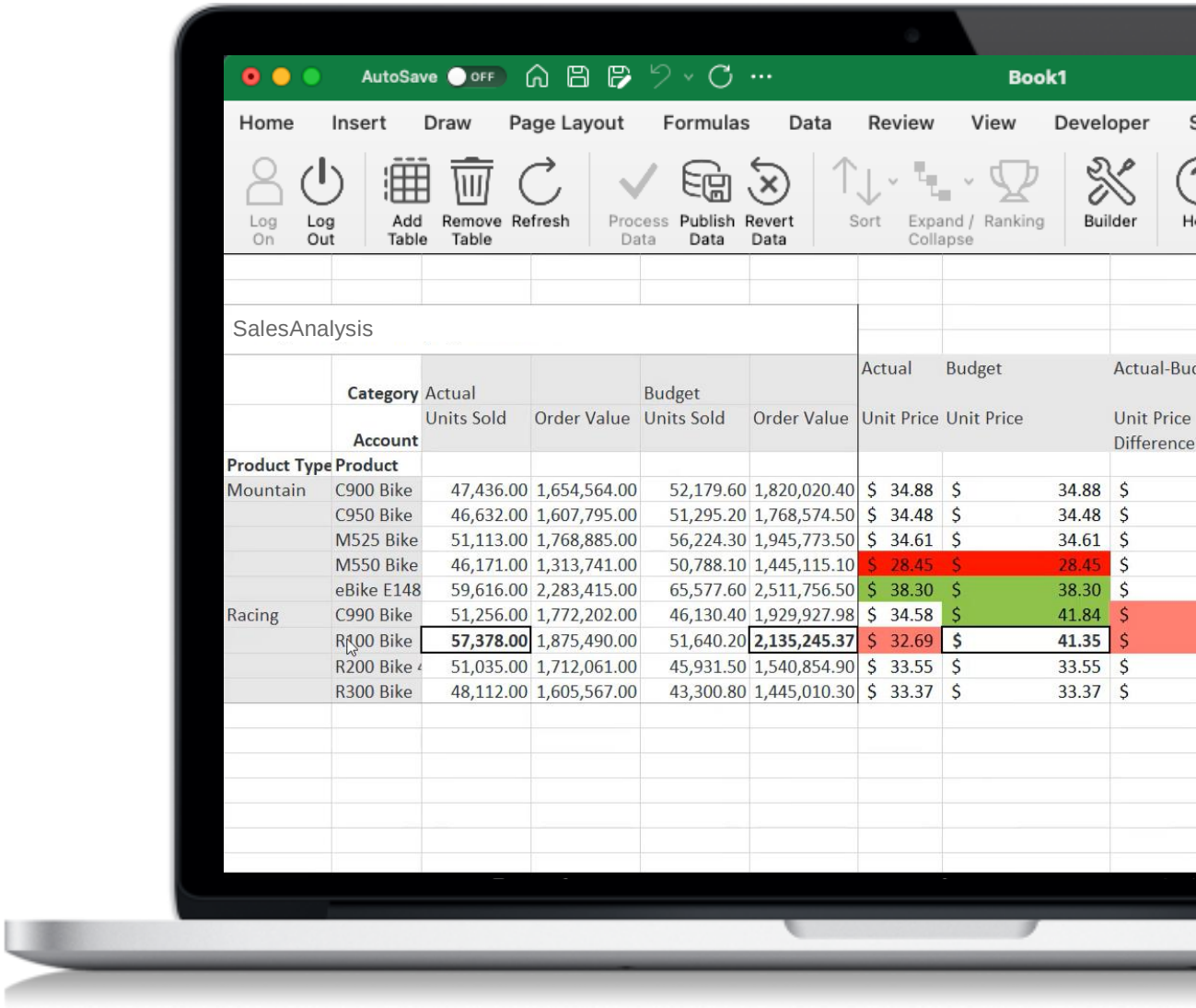


SAP Note: 2832606 - Limitations with Live Connections

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

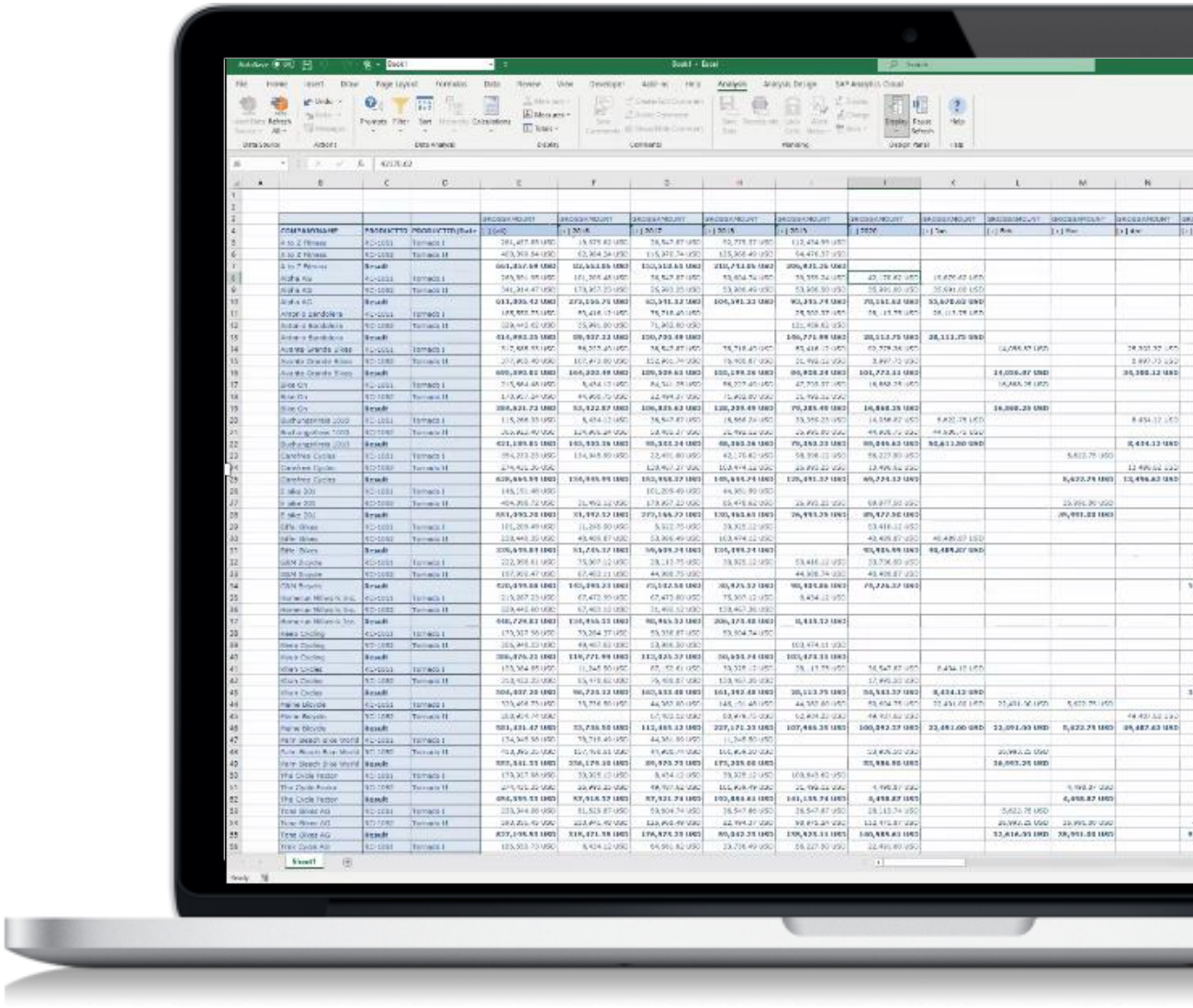


	Category	Actual		Budget		Actual	Budget	Actual-Bud
	Account	Units Sold	Order Value	Units Sold	Order Value	Unit Price	Unit Price	Unit Price Difference
Product Type	Product							
Mountain	C900 Bike	47,436.00	1,654,564.00	52,179.60	1,820,020.40	$ 34.88	$ 34.88	$
	C950 Bike	46,632.00	1,607,795.00	51,295.20	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

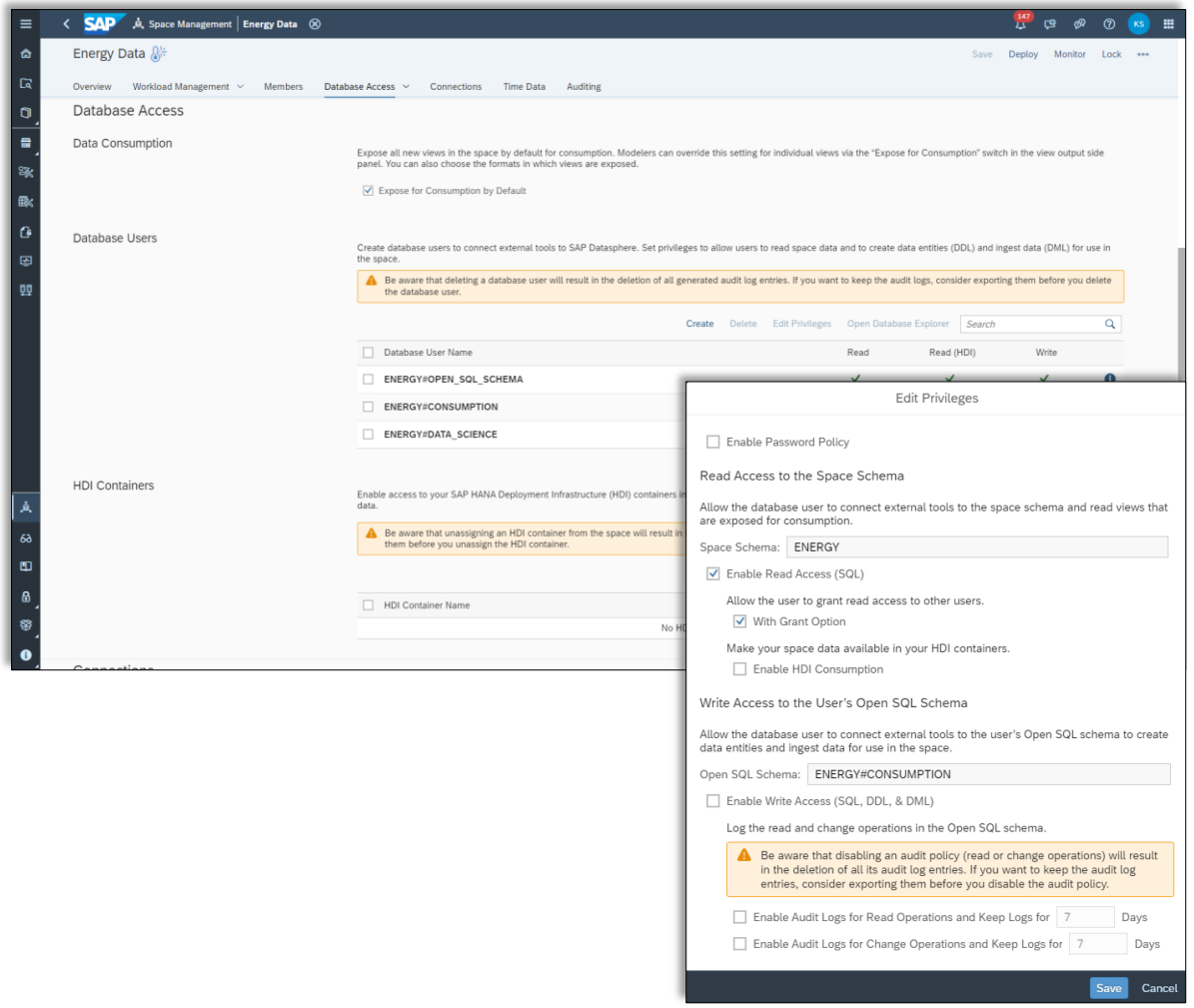
- Live connection support for SAP Datasphere via the Excel Plug-In
- Support SAP Datasphere as data source for the SAP Analysis for Office (AfO) Excel plug-in 2.8 SP14+
- Provide your business users with flexibility by extending the AfO support to cloud sources

- Find more information
  - SAP Community for the SAP Analysis for Microsoft Office
  - Learn how to use it in this Blog



Use. 3rd Party Data Consumption API SQL Access

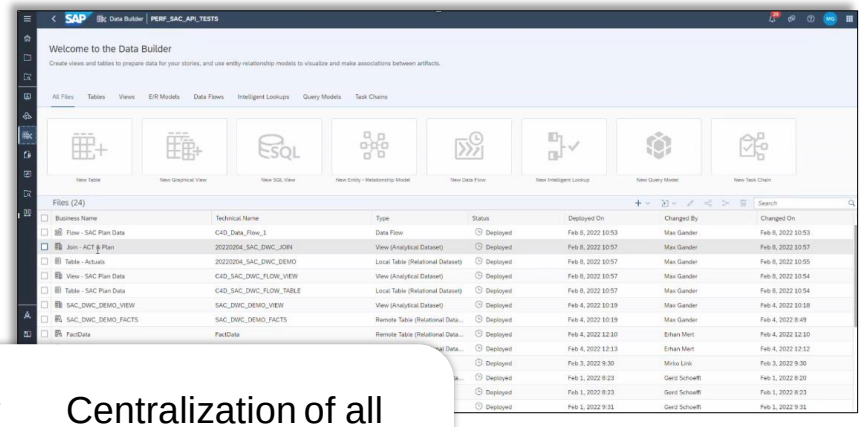
- Enabling read access for external consumption tools or applications via a database user with read privileges
- Consume exposed data models from your space
- Provide SQL endpoint to dedicated space schema
- Connect with 3rd party SQL client



Use. 3rd Party Data Consumption API OData

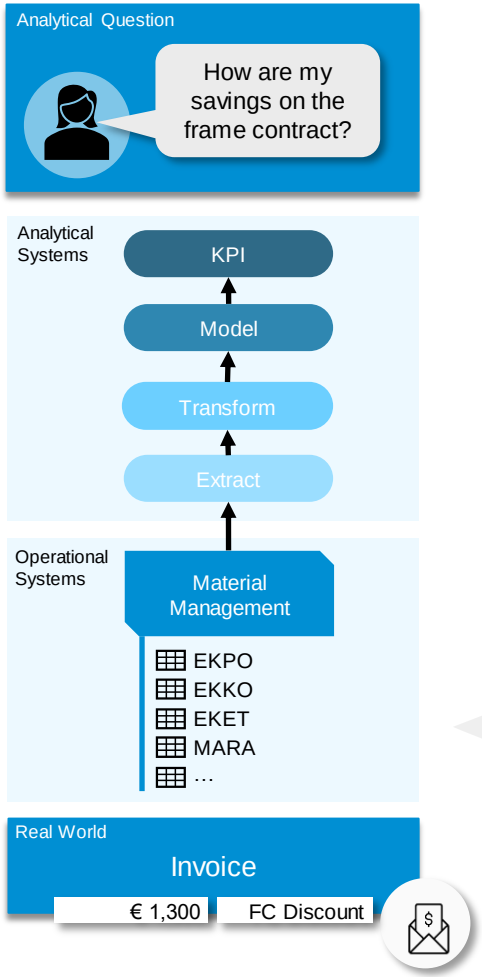
- Support bi-directional integration with SAP Analytics Cloud for planning purposes
- Enable consumption through 3rd party BI tools & apps
- Supports deployed Data Builder artefacts that are marked as “Expose for Consumption”
- Supports standard OData v4 query parameters ($select, $filter, $top, etc.)
- 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



Centralization of all Reporting and Planning Data in SAP Datasphere

Use. Business Content Overview

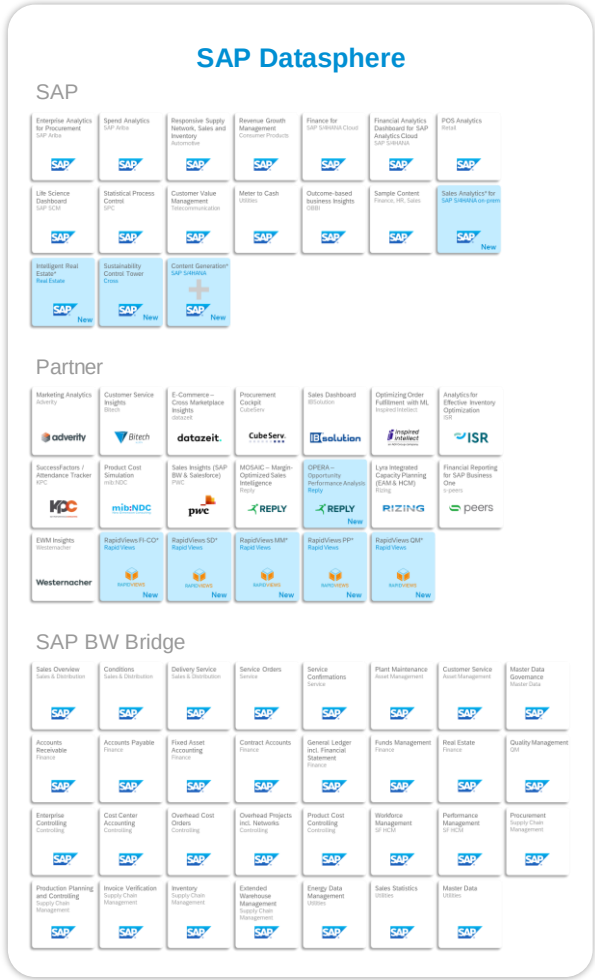


Business Content Collection

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 — New
- Business Network Value Analytics — Cross Supply Chain — New
- Service Contract Anaysis — SAP S/4HANA — New

SAP Generator

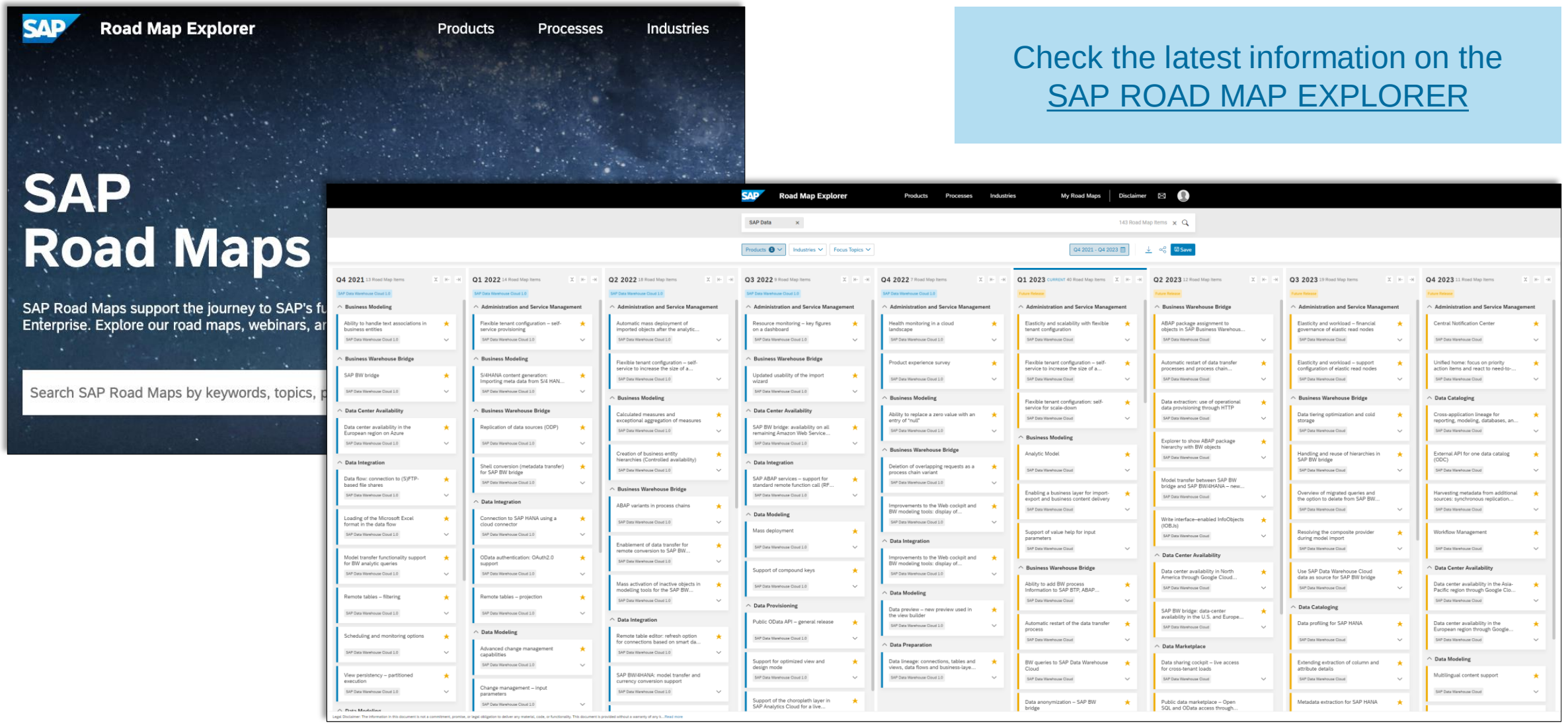
- Content Generation — SAP S/4HANA Cloud

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

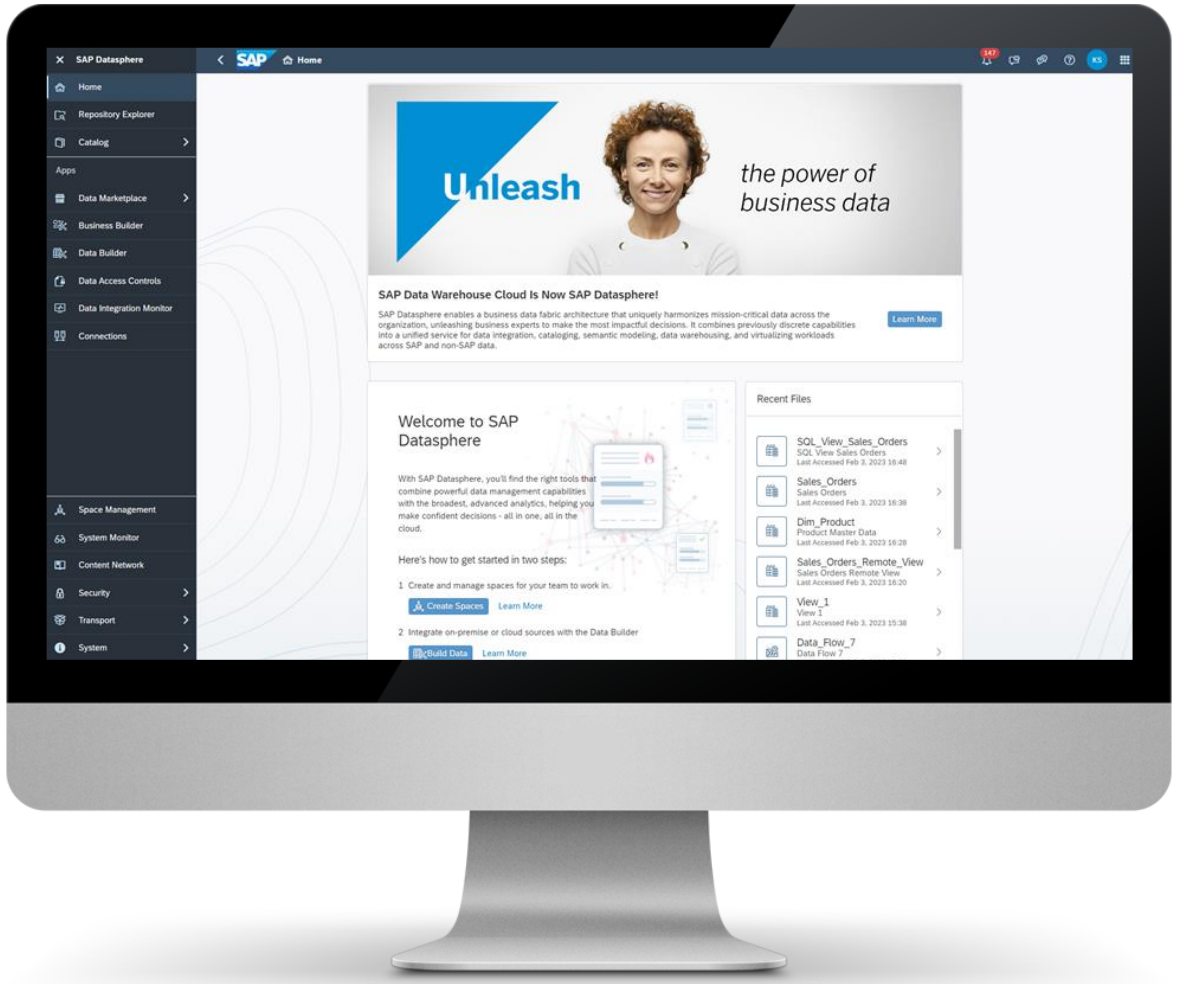
Find more information about the Business Content on the SAP Community. Partner Content also listed on SAP Store.

SAP Datasphere. SAP Road Map Explorer



Check the latest information on the
SAP ROAD MAP EXPLORER

More information



- Check out the product page on 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_DATASPHERE/c8a54ee704e94e15926551293243fd1d/a9950b0a7bc04fd1b9827800e67b26f1.html?q=analytical%20model&locale=en-US

SAP Datasphere – Analytical Model

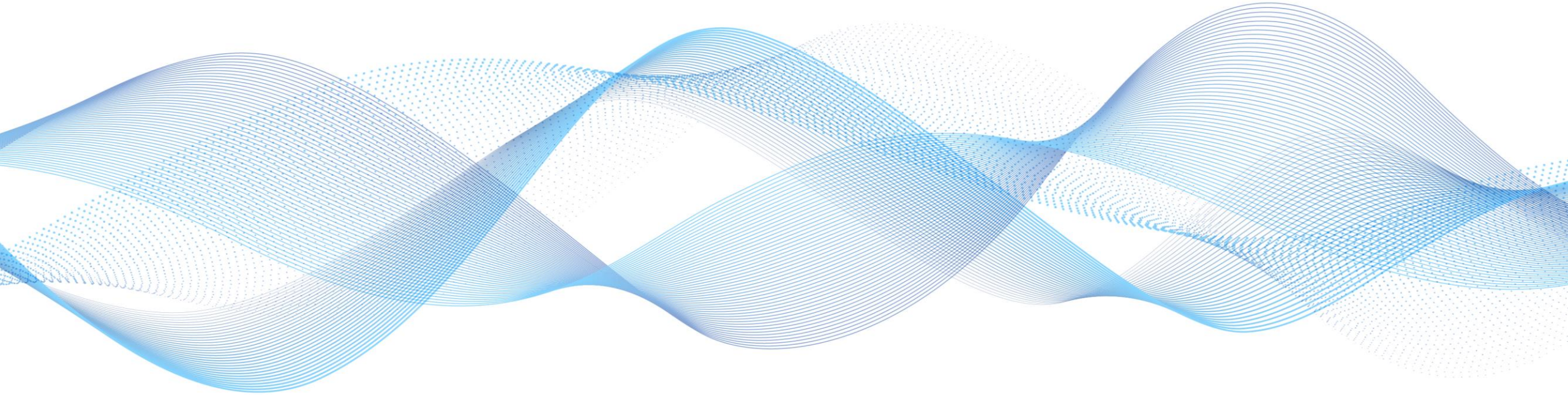
- Rich measure modelling: With calculation **after aggregation**, restricted measures & exception aggregation as well as the possibility to stack all of these, users can build very complex calculation models and even refine them in SAC stories
- Careful design how analytics users see the data: modelers 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

https://blogs.sap.com/2023/03/13/introducing-the-analytic-model-in-sap-datasphere/

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.

https://blogs.sap.com/2023/03/13/introducing-the-analytic-model-in-sap-datasphere/

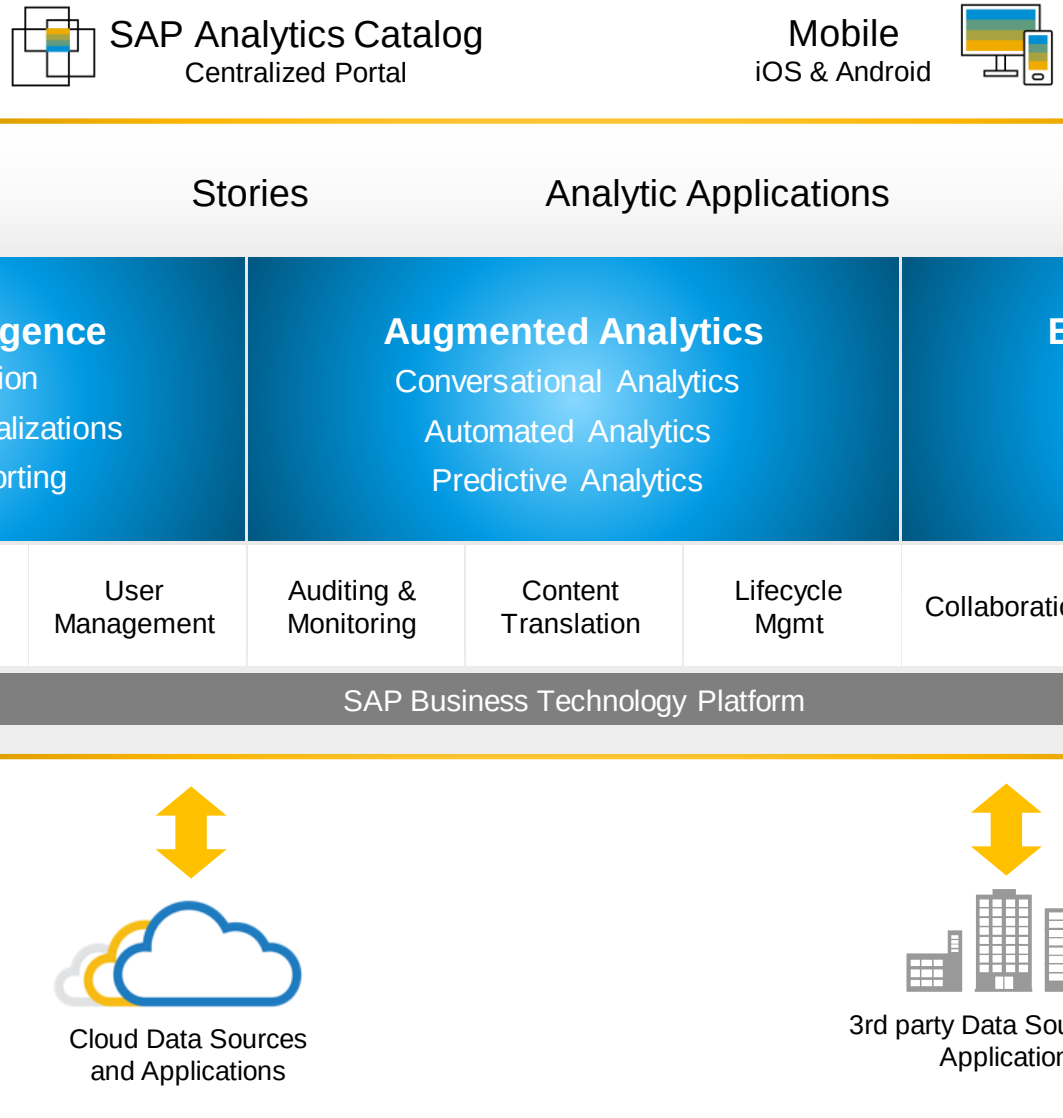


SAP Analytics Cloud

Unleash the power of business data

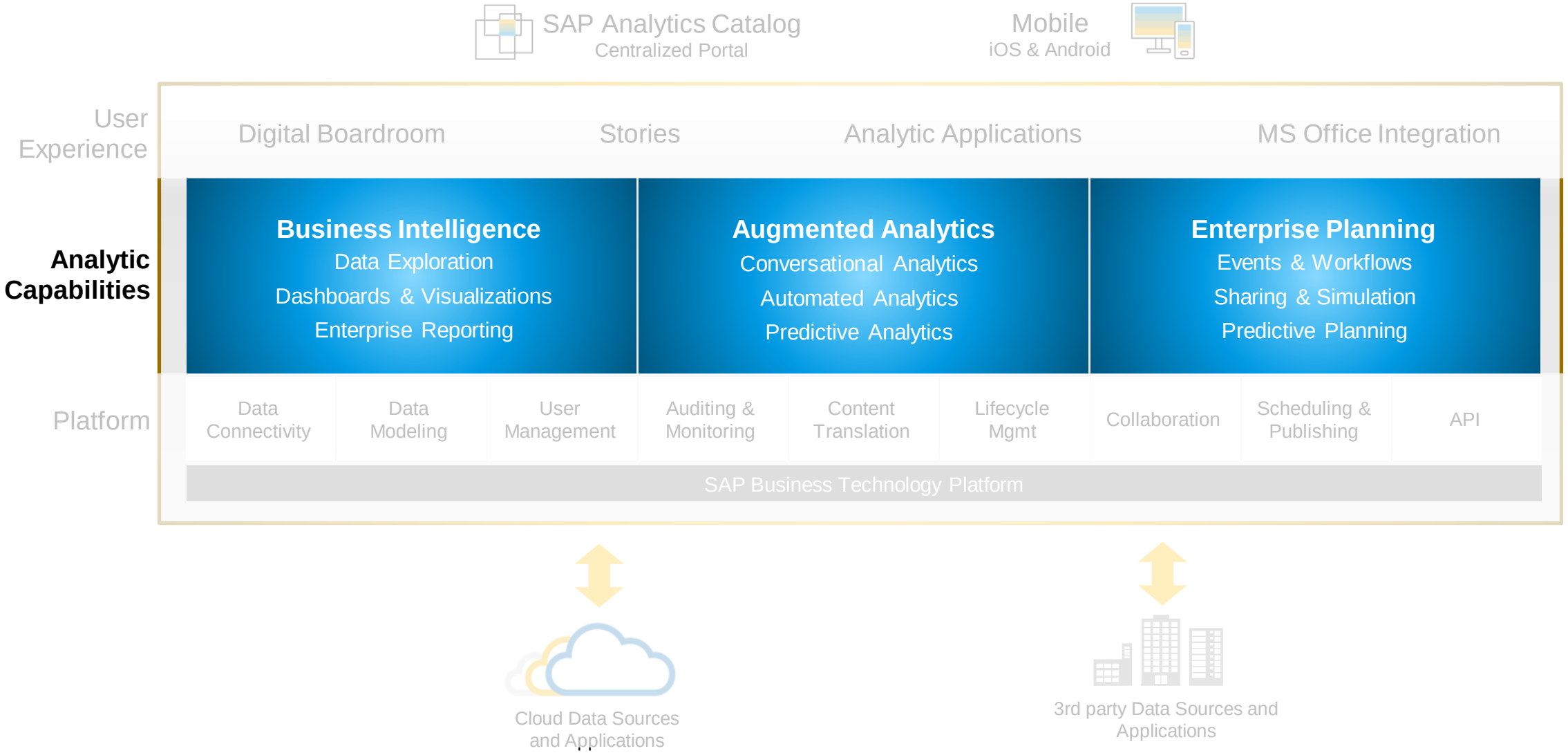
Speaker, SAP

SAP Analytics Cloud



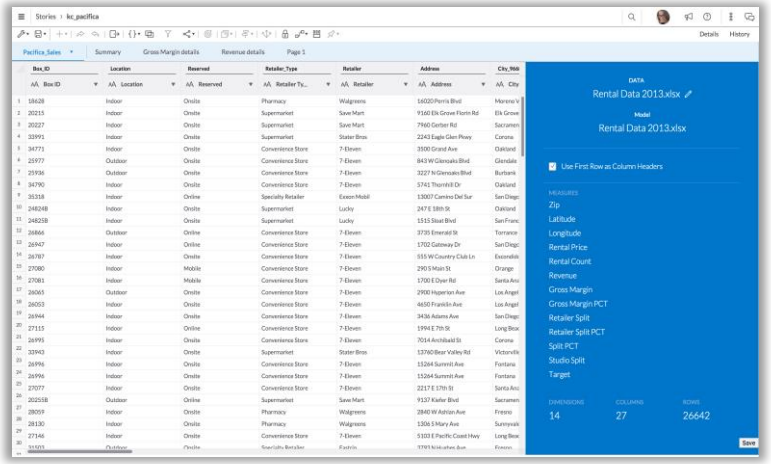
SAP Analytics Cloud

Analytic Capabilities



Analytics and Business Intelligence

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

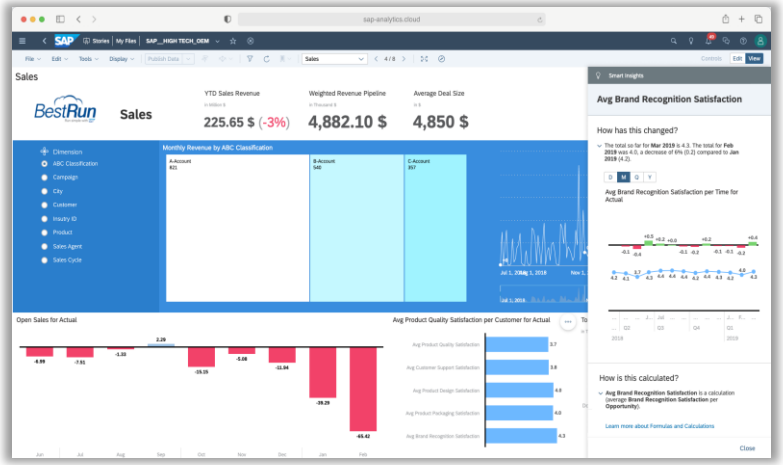


Data Modeling & Preparation

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.



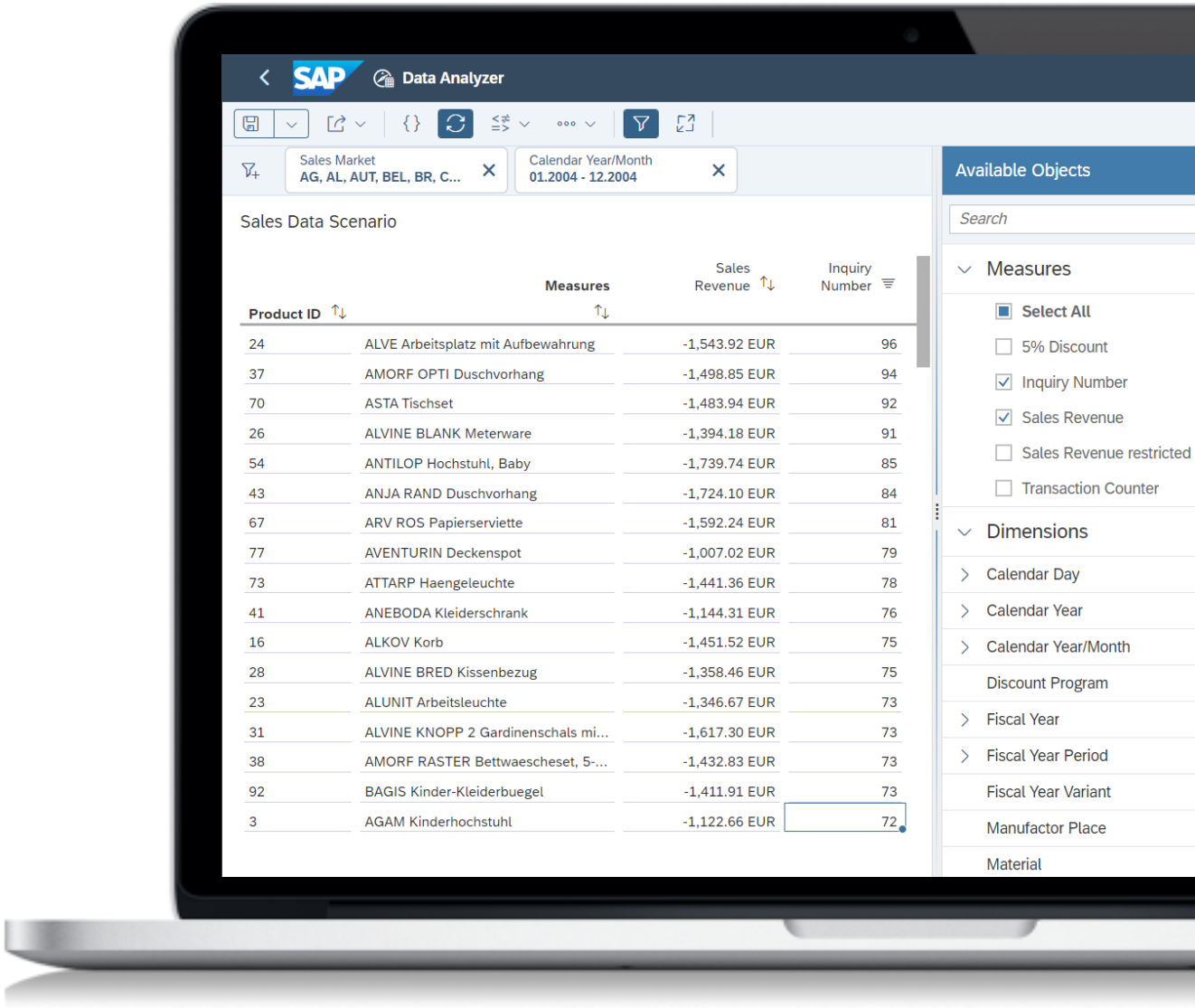
Augmented Analytics

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



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

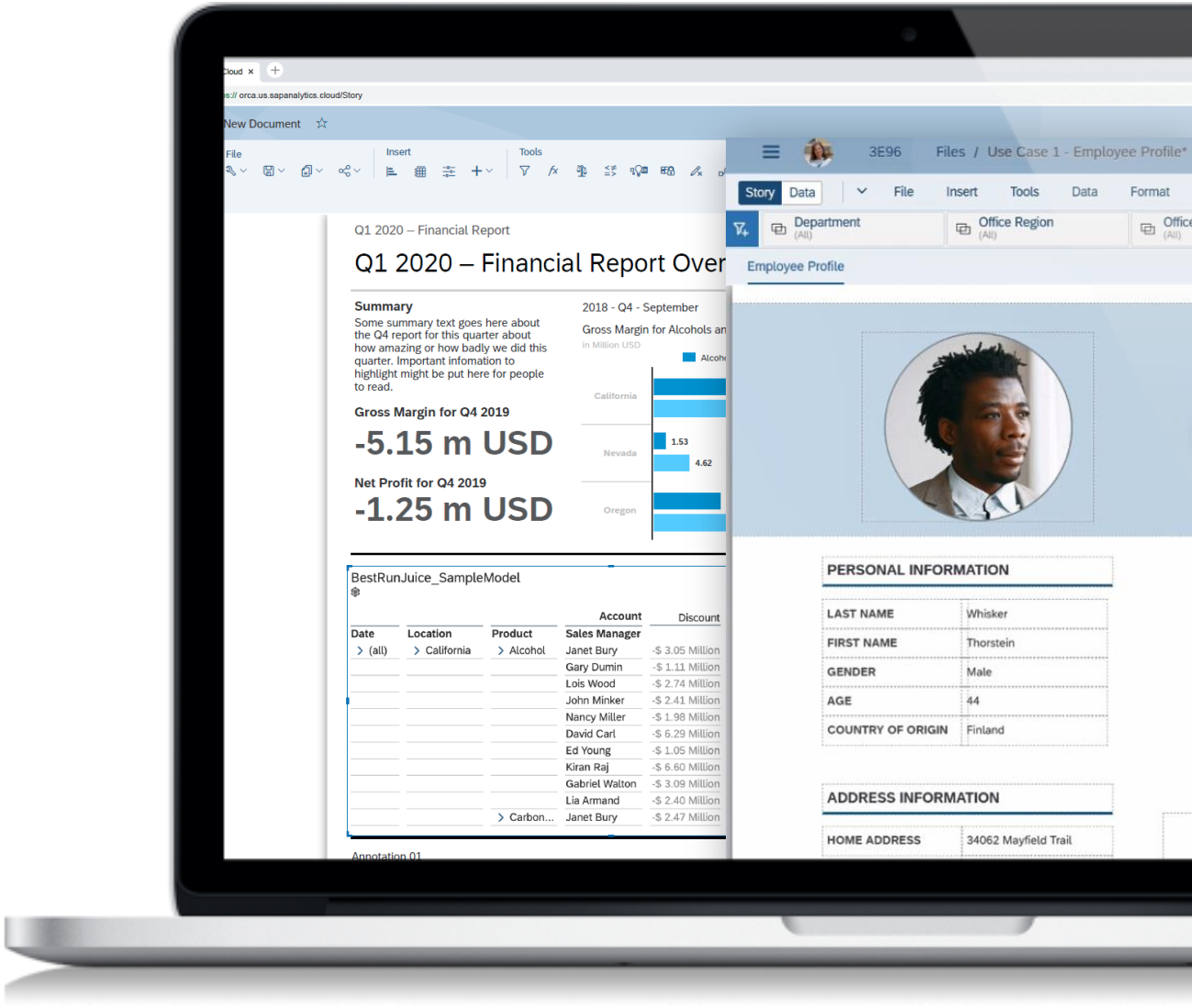
Design reports and distribute to the workforce on-demand or scheduled

Report Formatting

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

Report Delivery

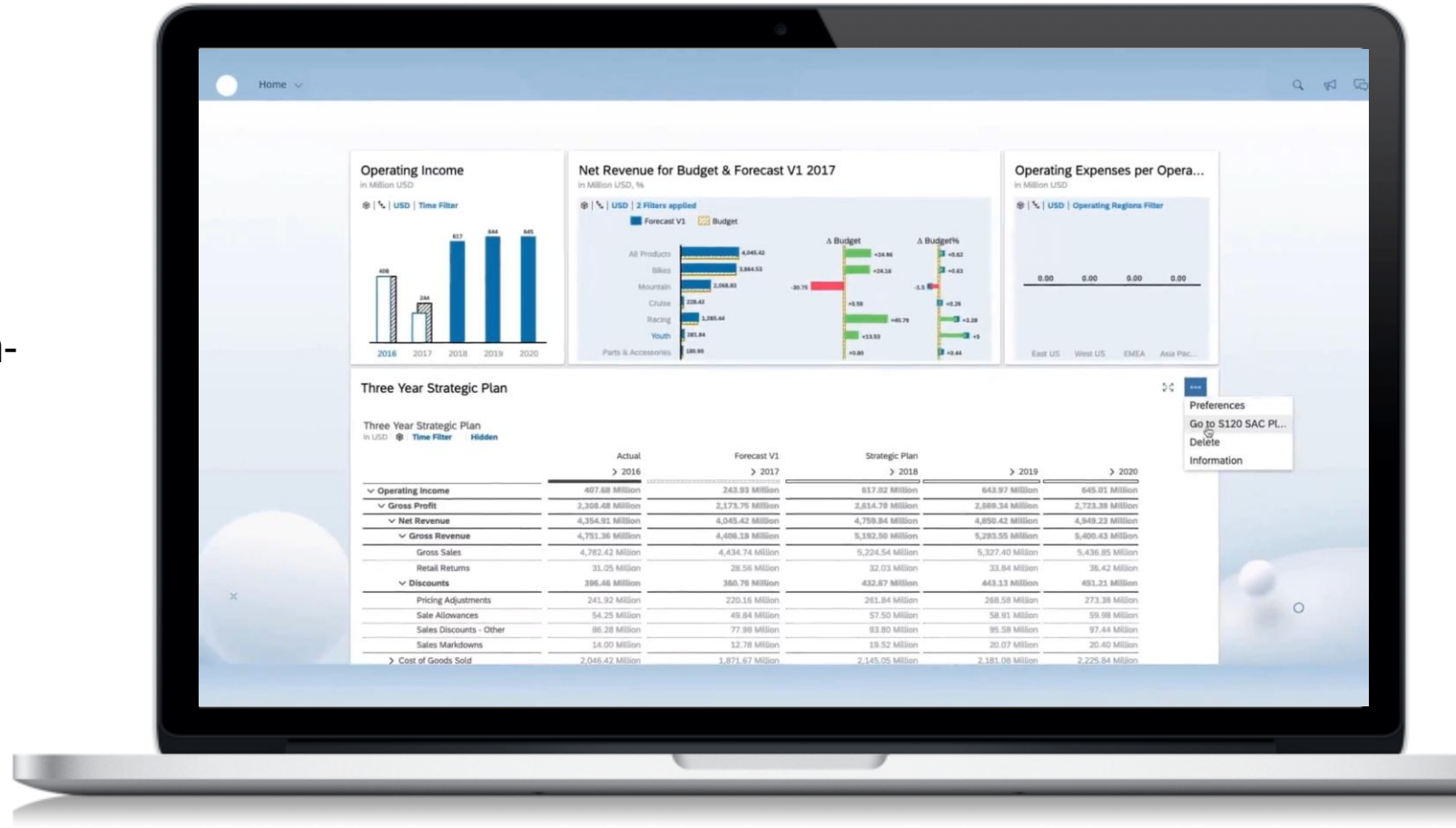
- Schedule and distribute reports to SAP Analytics Cloud and non-SAP Analytics Cloud recipients
- Burst personalized content to SAP Analytics Cloud recipients based on recipient authorization



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]

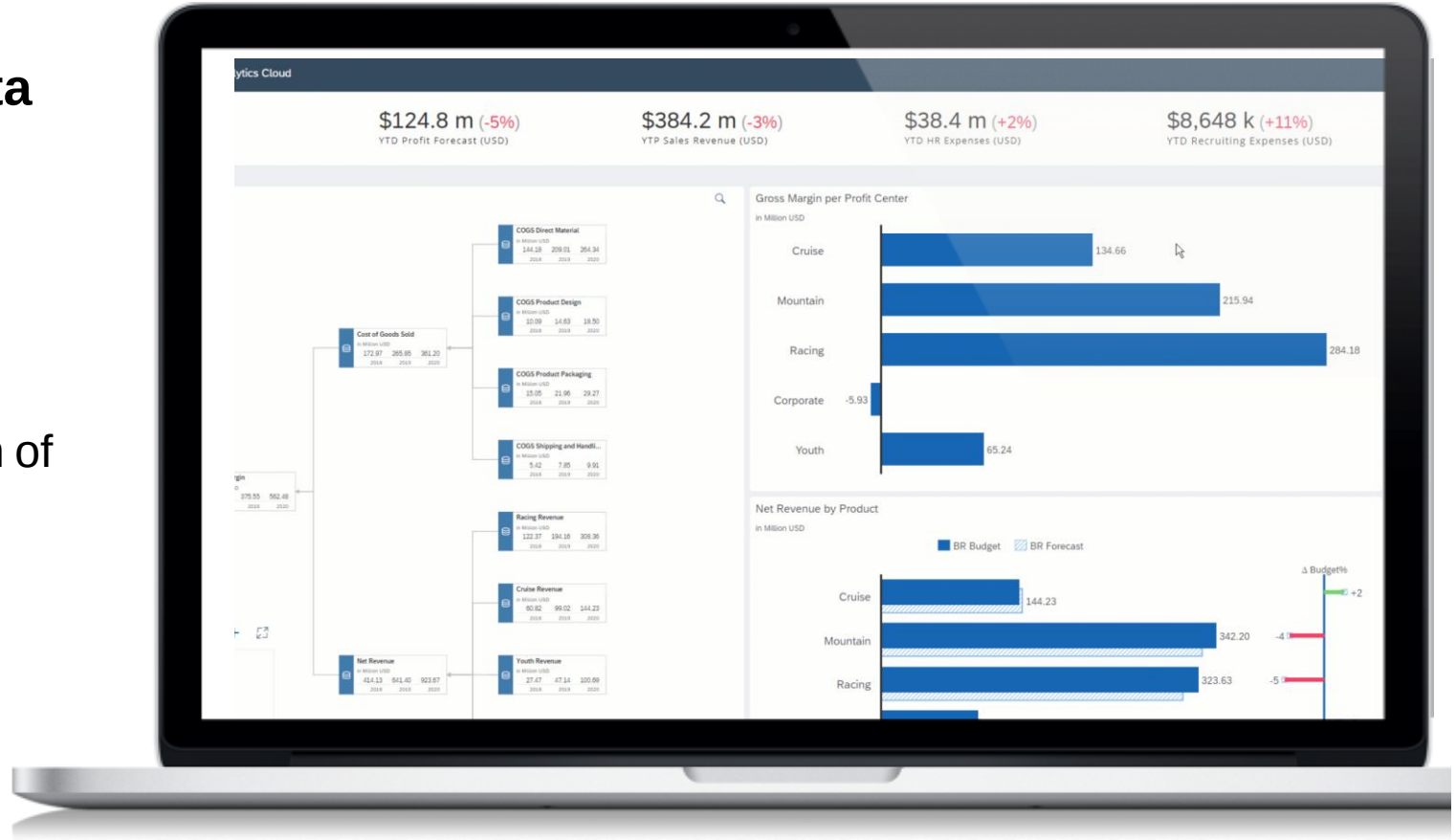


Smart Insights

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

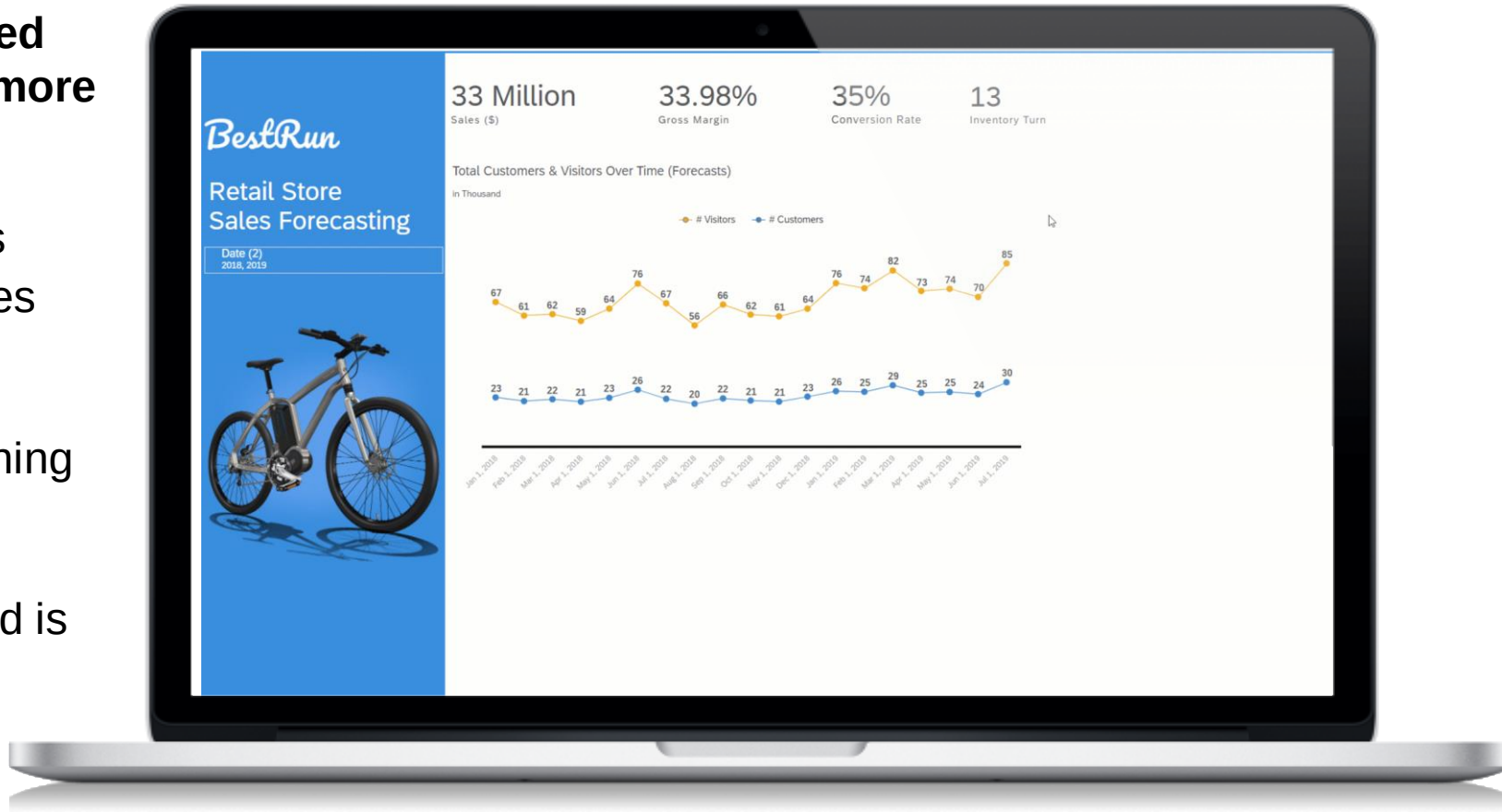


Smart Insights

Time Series Forecasting

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

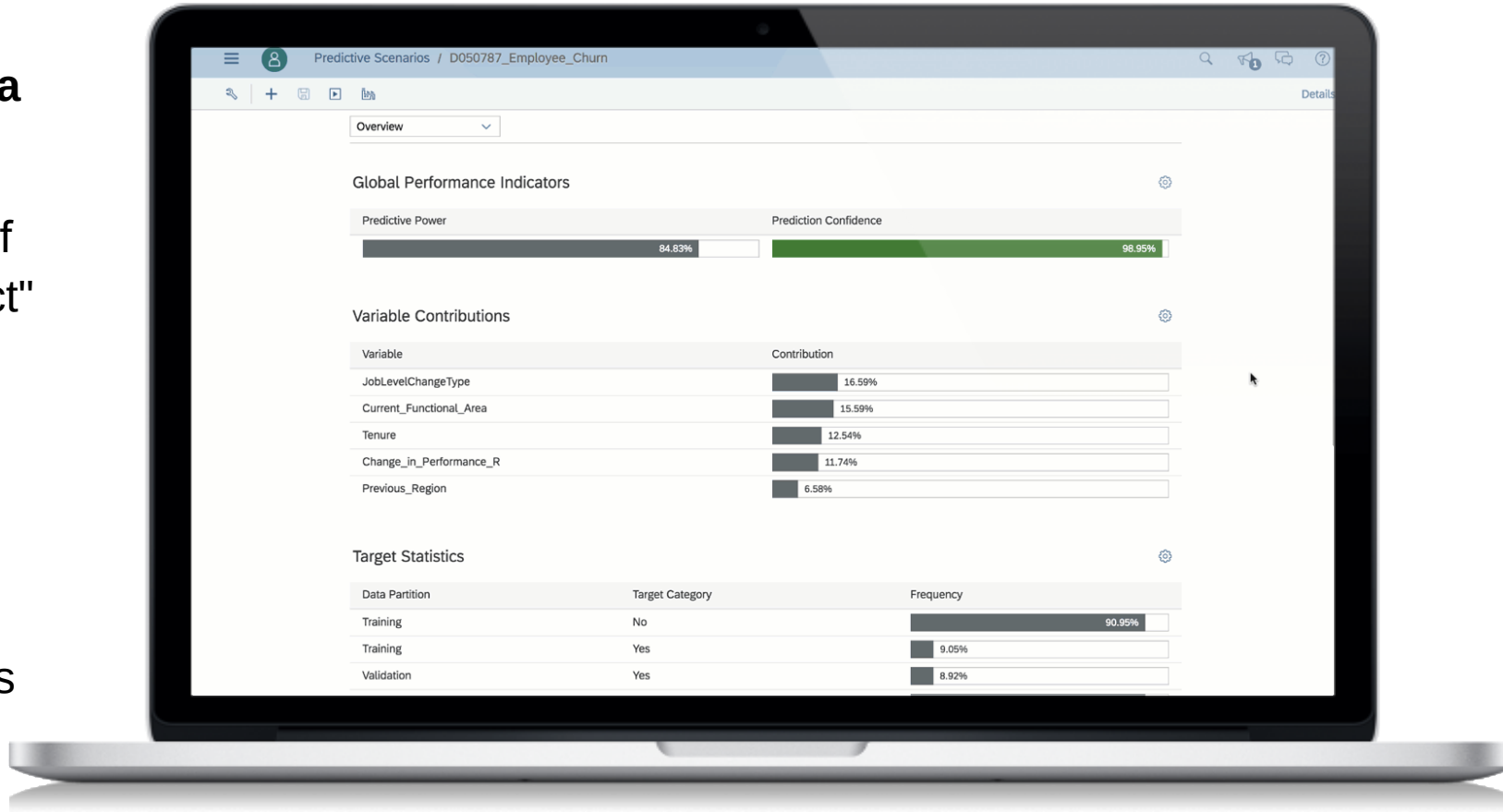
- Automatic forecasting on time series charts, line charts and planning tables
- Apply advanced options like linear regression, triple exponential smoothing and include additional inputs
- Forecast quality based on MAPE and is displayed as 0-5 rating



Smart Predict

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

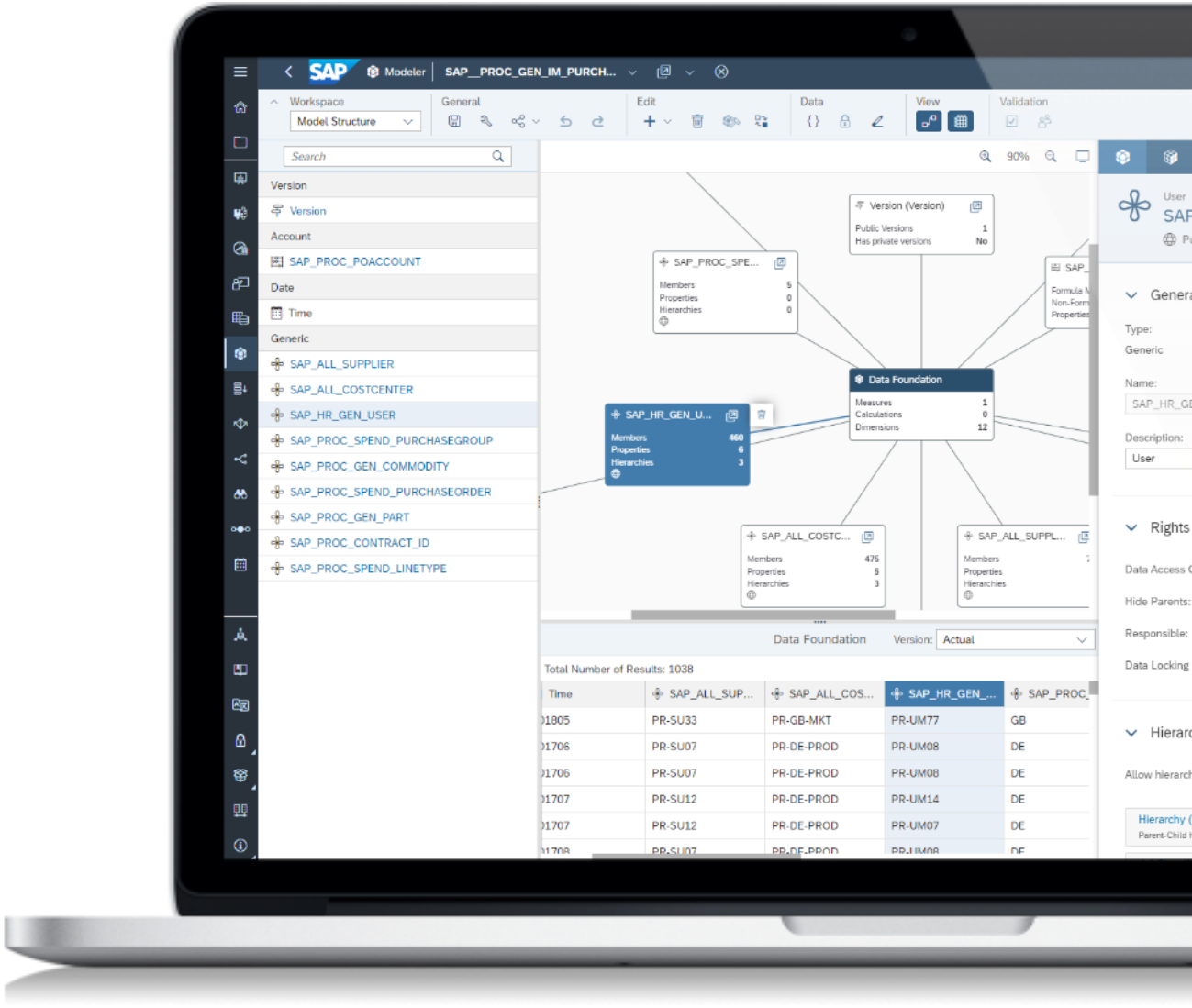
- Classification: “Create a sorted list of prospects to focus on for this product"
- Regression: "Give me revenue estimates for each customer for the next 6 months"
- Time Series: "Forecast revenue for each product and each point of sales daily for the next 30 days"



Data Modeling

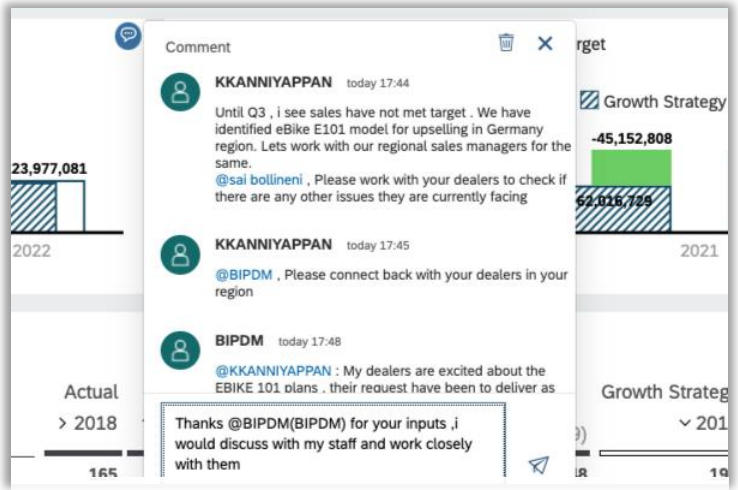
Model your imported data and define dimensions, measures, hierarchies and more, in preparation for analysis and planning

- 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



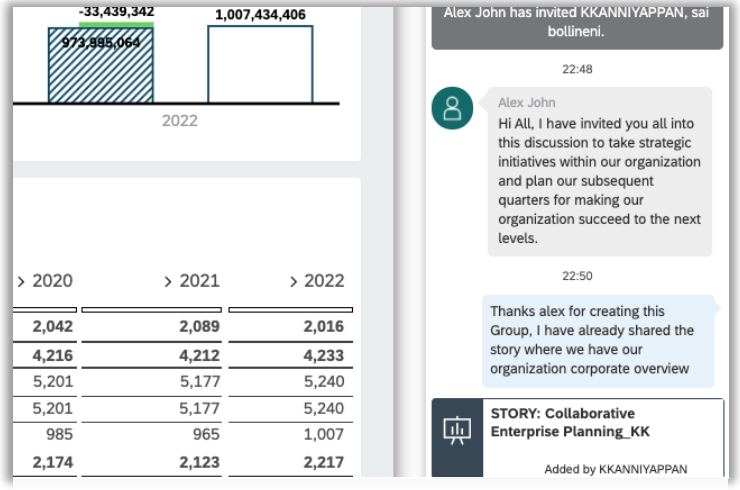
Collaboration

Increase engagement, and accountability with built in collaboration capabilities



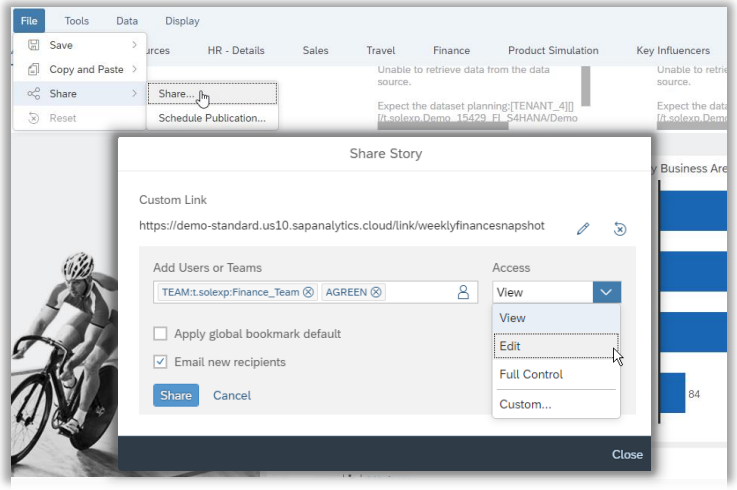
Commenting

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.

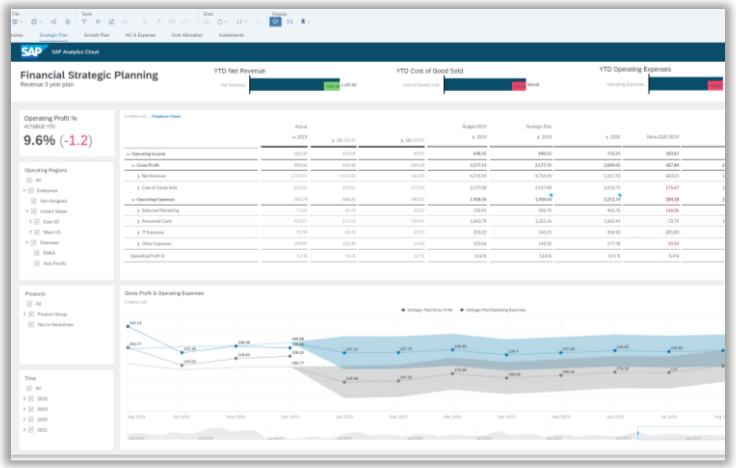


Sharing

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

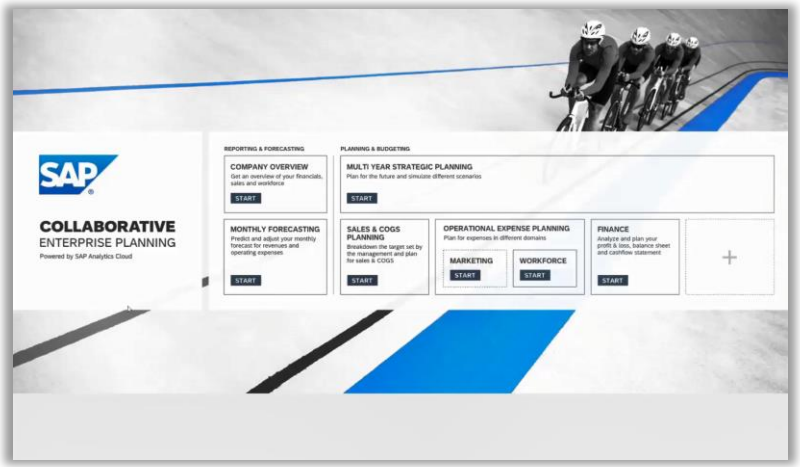
Enterprise Planning

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



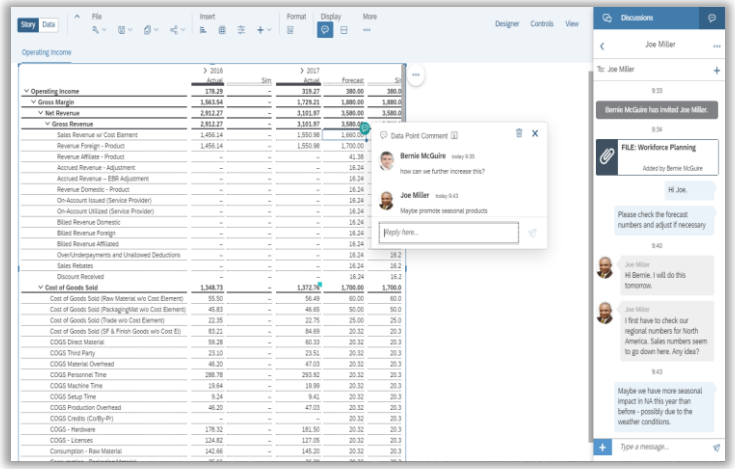
Budgeting and forecasting

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



Predictive planning

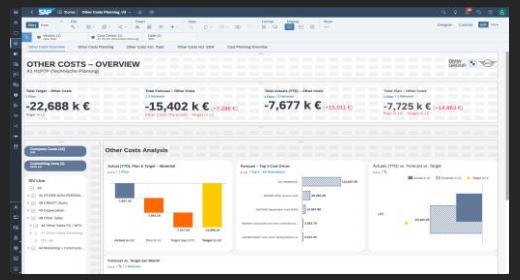
Automate data-driven enterprise planning and accelerate planning cycles with time series forecasting thanks to a tight integration between Smart Predict and Planning



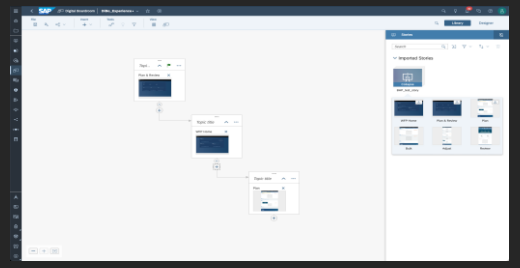
Collaborative planning

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

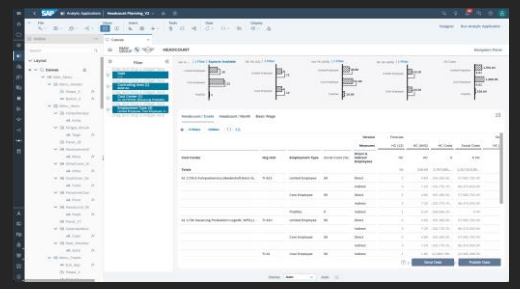
“Story 2.0” - One Tool For All



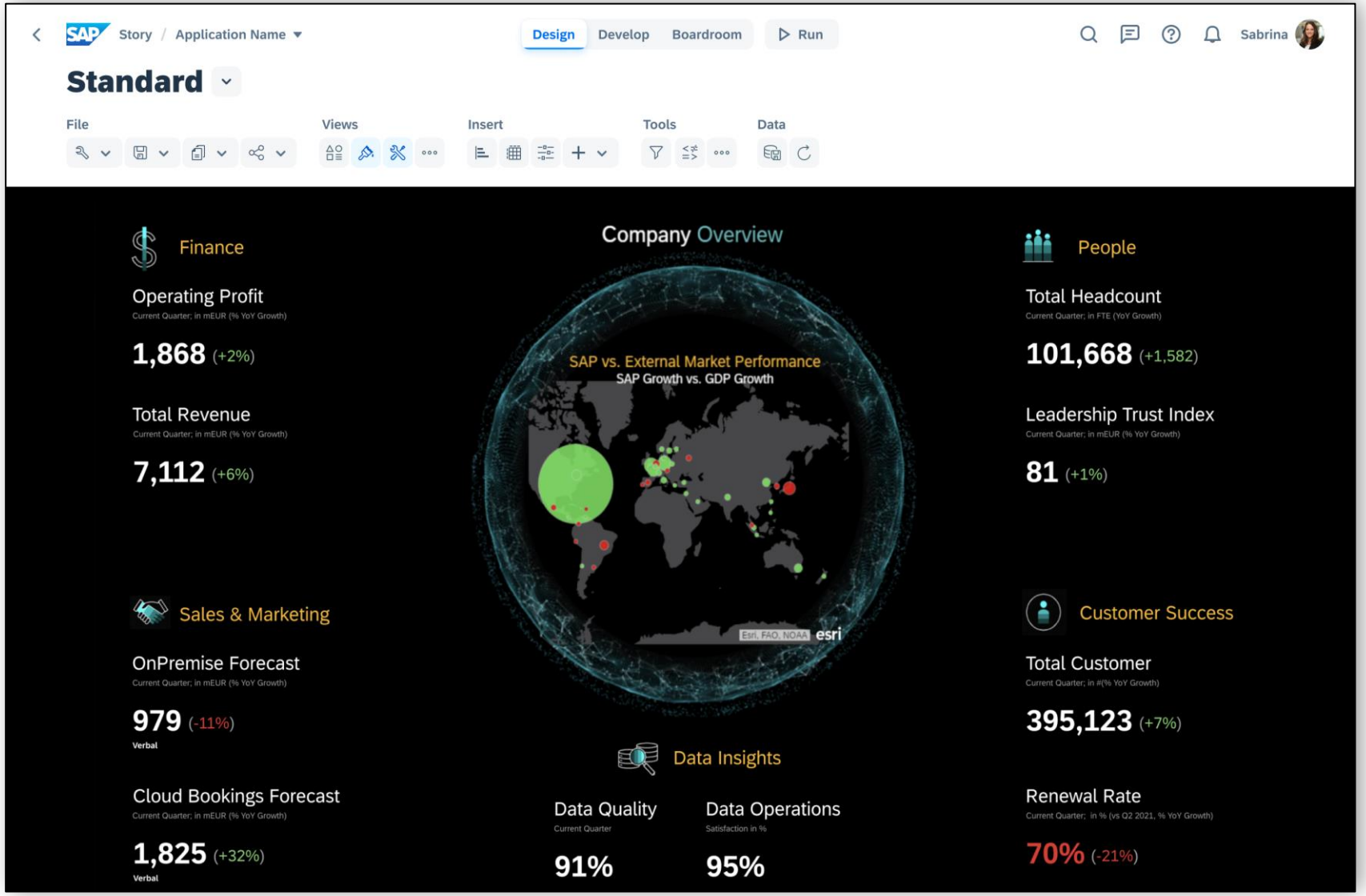
Story Builder



Digital Boardroom

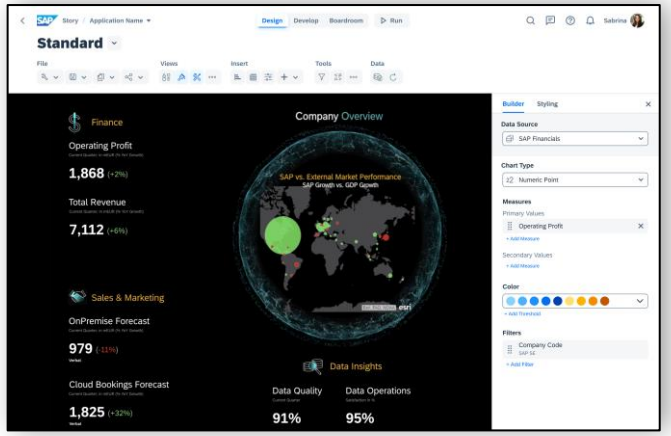


Analytic Application



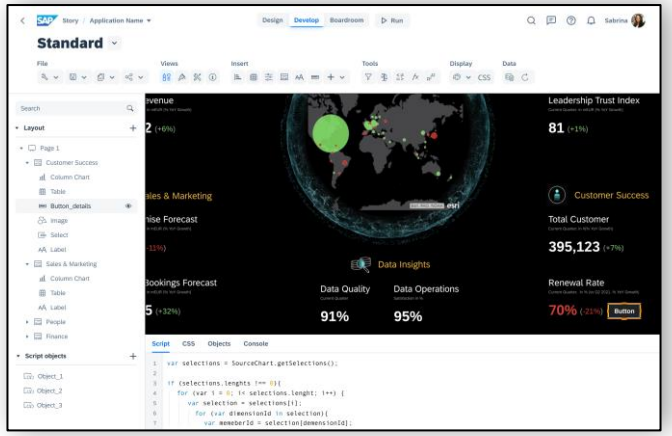
One Tool For All - Story, Analytics Designer & Digital Boardroom

Simplicity, Consistency and Extensibility



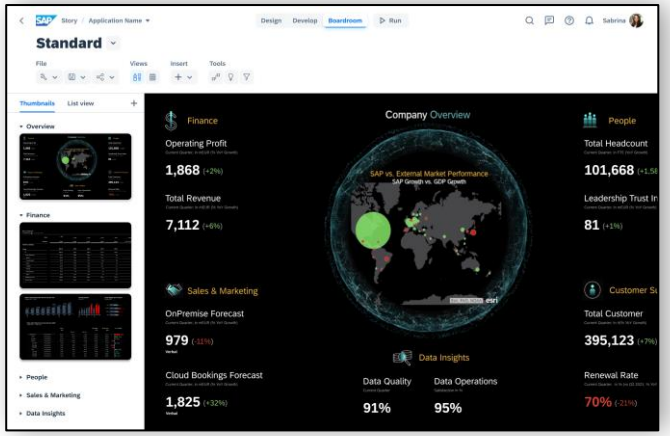
DESIGN

- Simple mode
- Define the layout
- Add data visualizations



DEVELOP

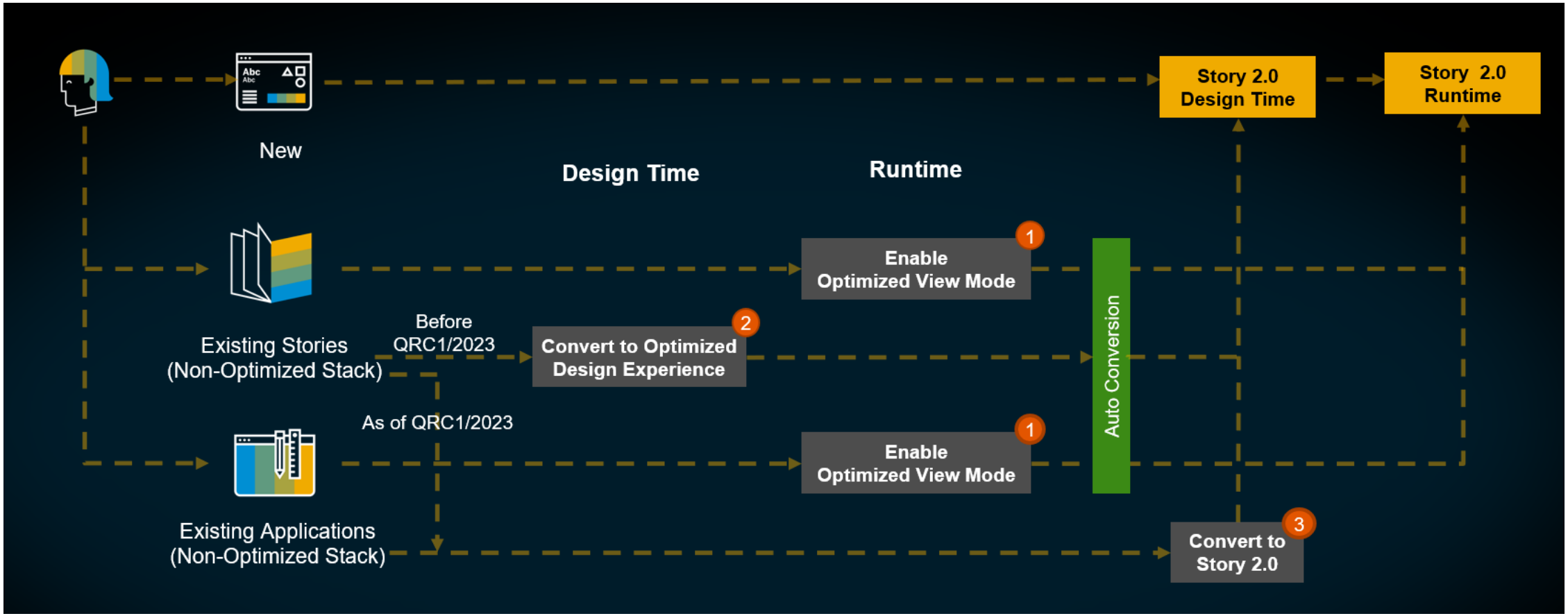
- Advanced mode
- CSS and pixel perfect
- Enhance with code/logic



BOARDROOM

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

Migration Path



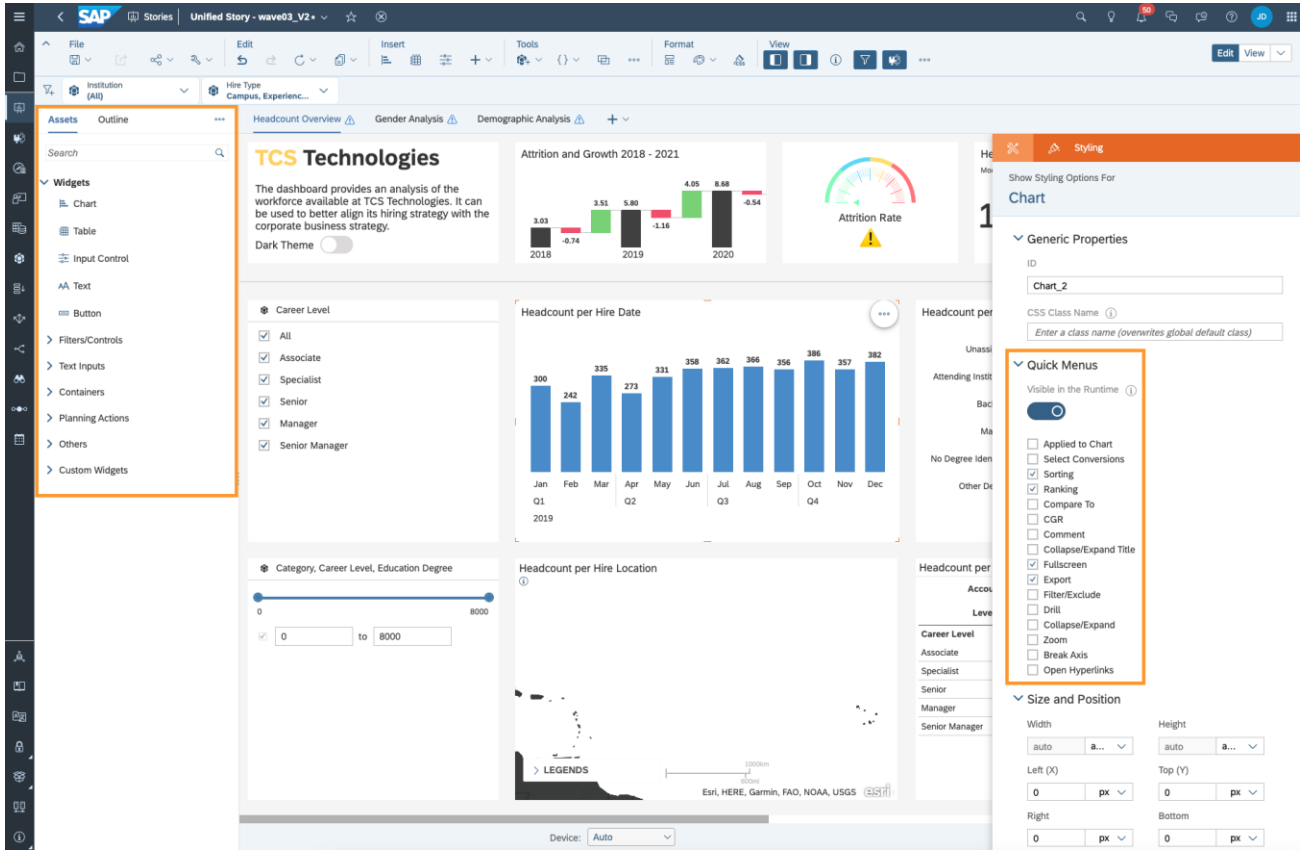
1. Stories or Applications that have been **enabled for Optimized View Mode** (OVM) will be **directly opened in Story 2.0 runtime.**
2. Stories that have been converted to **Optimized Design Experience** (ODE) will be **automatically converted** to the Story 2.0 artifact.
3. Starting from Story 2.0 GA with QRC1/2023, Stories or Applications on the non-optimized stack can be **manually converted** to the Story 2.0 artifact.

“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

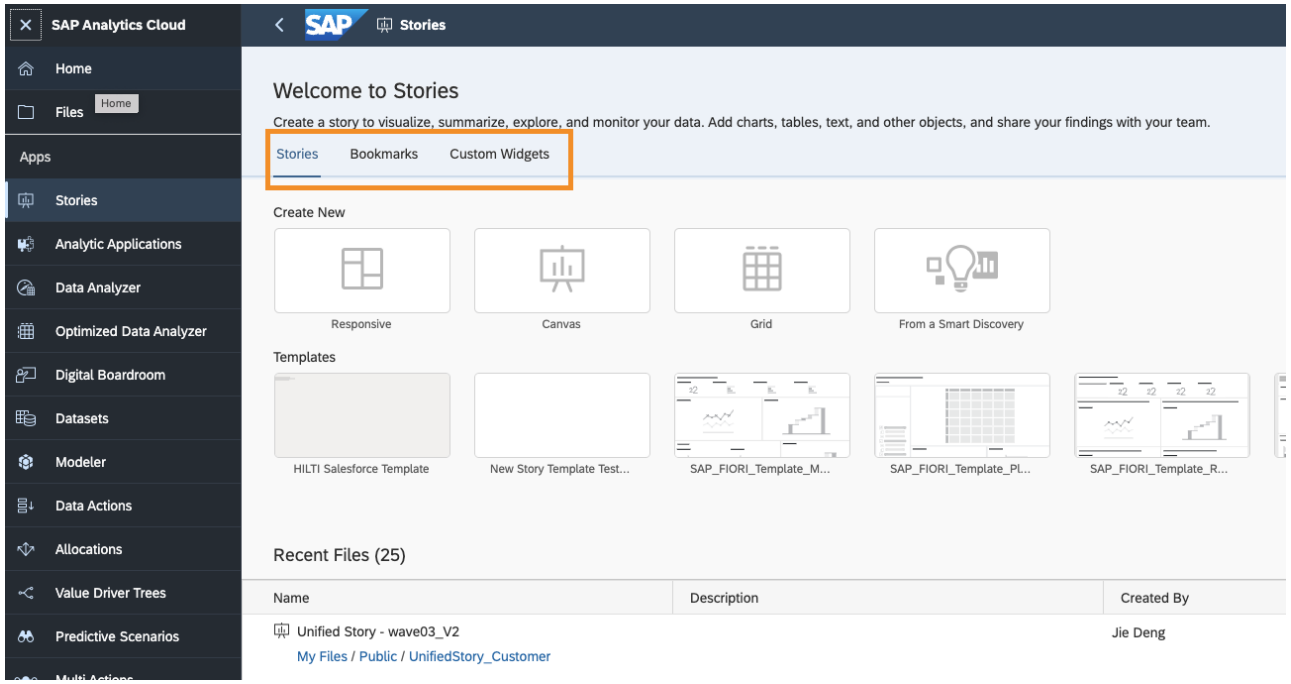


“Story 2.0” – Feature Highlight

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.



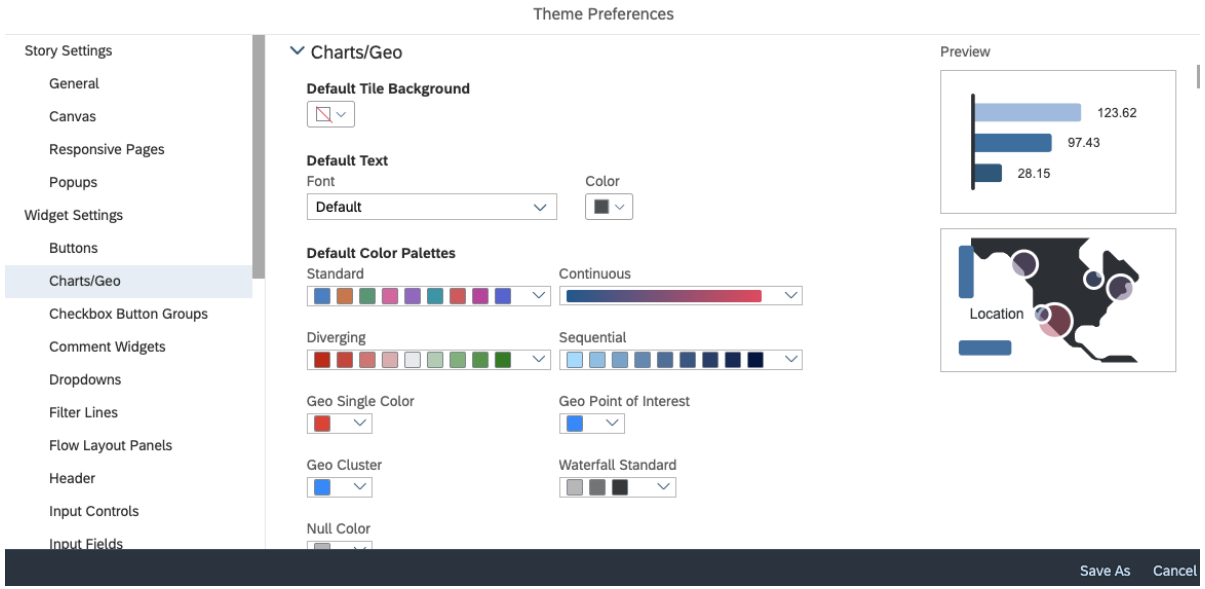
“Story 2.0” – Feature Highlight

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.



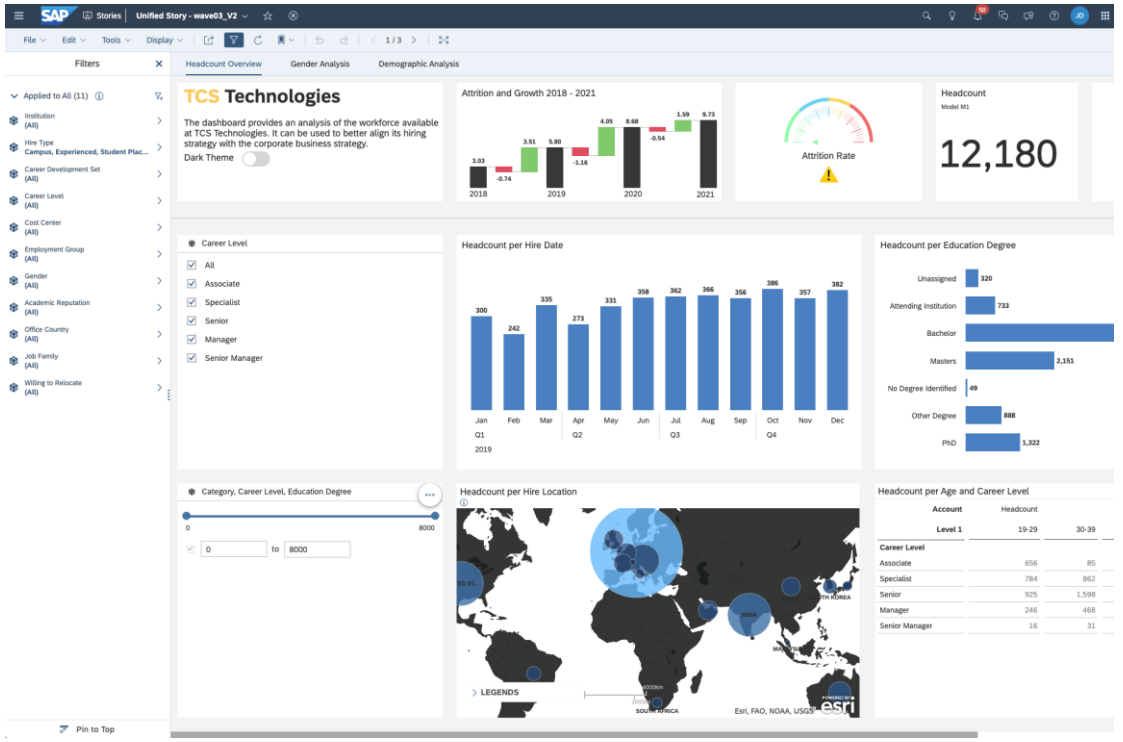
“Story 2.0” – Feature Highlight

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.



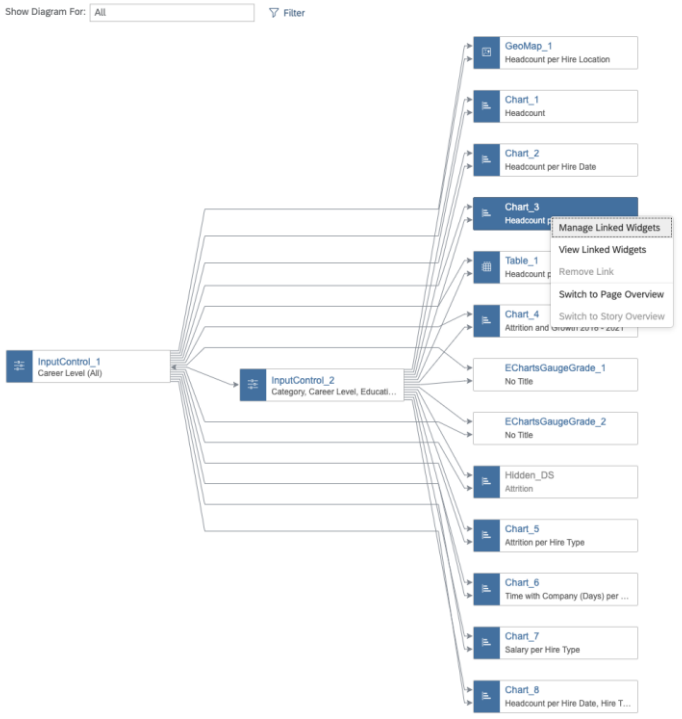
“Story 2.0” – Feature Highlight

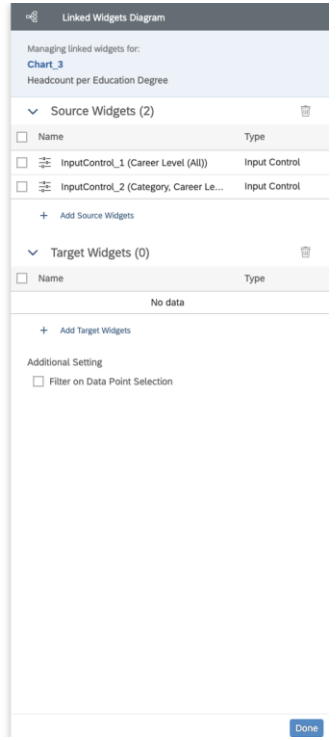
Linked Widgets Diagram

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.



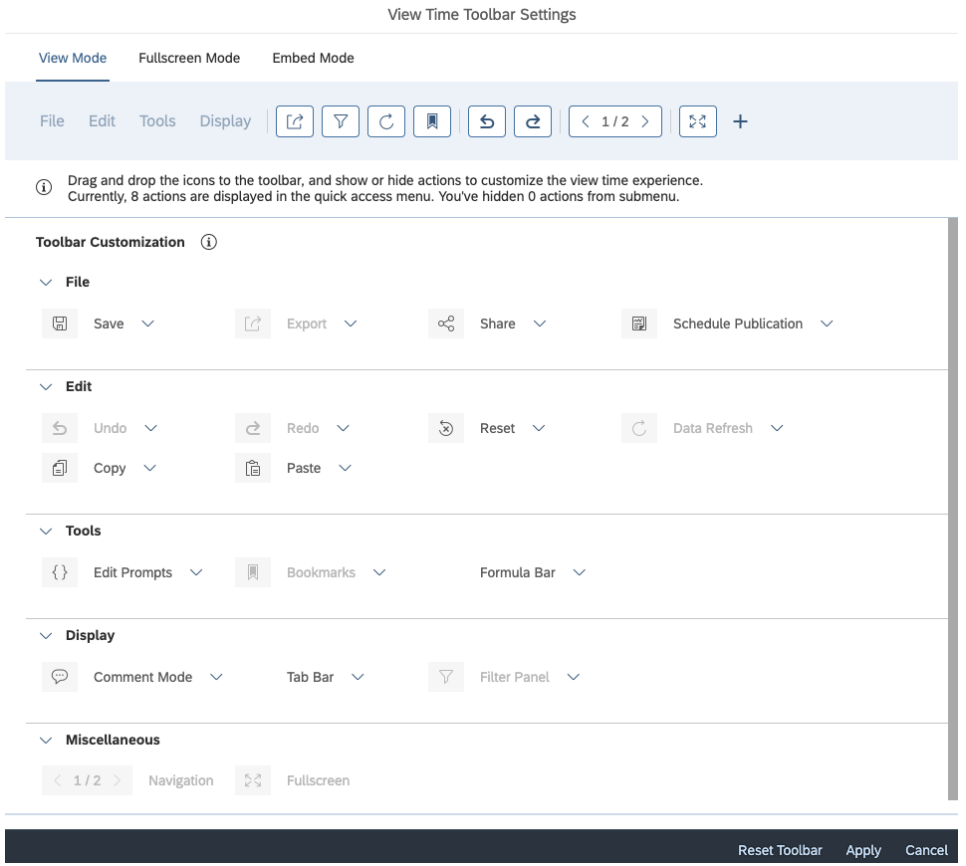


“Story 2.0” – Feature Highlight

Configurable View Time Toolbar

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

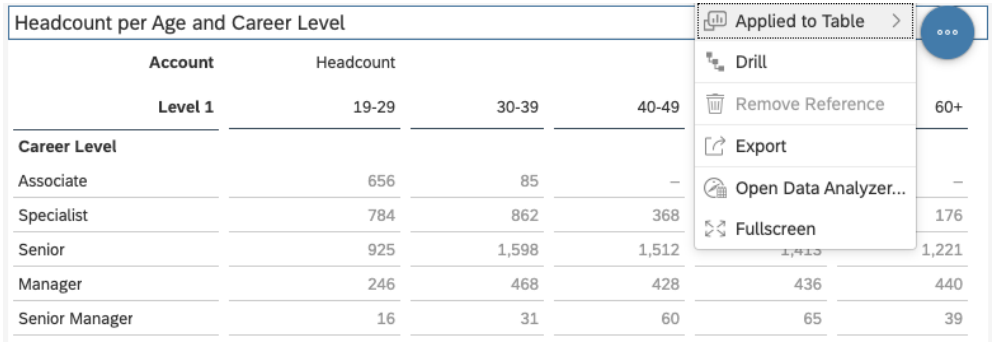
Story designer or developers can configure the tool bar to best match the needs to story viewers. E.g., if the story does not contain any variable value, then the prompt icon in toolbar can be removed and replaced by another icon via drag and drop.



“Story 2.0” – Feature Highlight

Integration with Data Analyzer

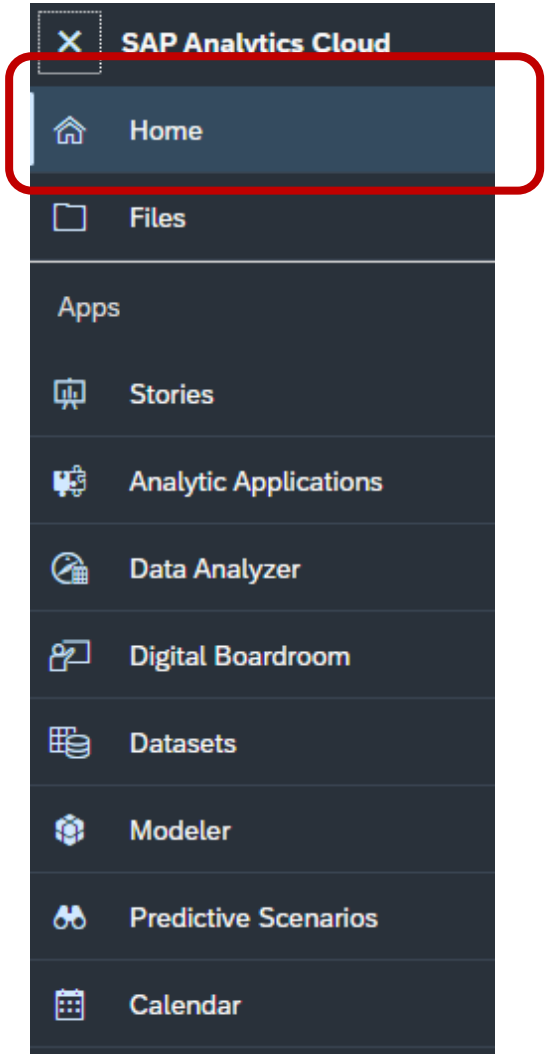
Here story viewers can jump to Data Analyzer from a story table for further data exploration purpose and the entire table state (like filter, drill down etc.) can be completely taken over.



Account	Headcount				
Level 1	19-29	30-39	40-49		60+
Career Level					
Associate	656	85	–		–
Specialist	784	862	368		176
Senior	925	1,598	1,512		1,221
Manager	246	468	428	436	440
Senior Manager	16	31	60	65	39

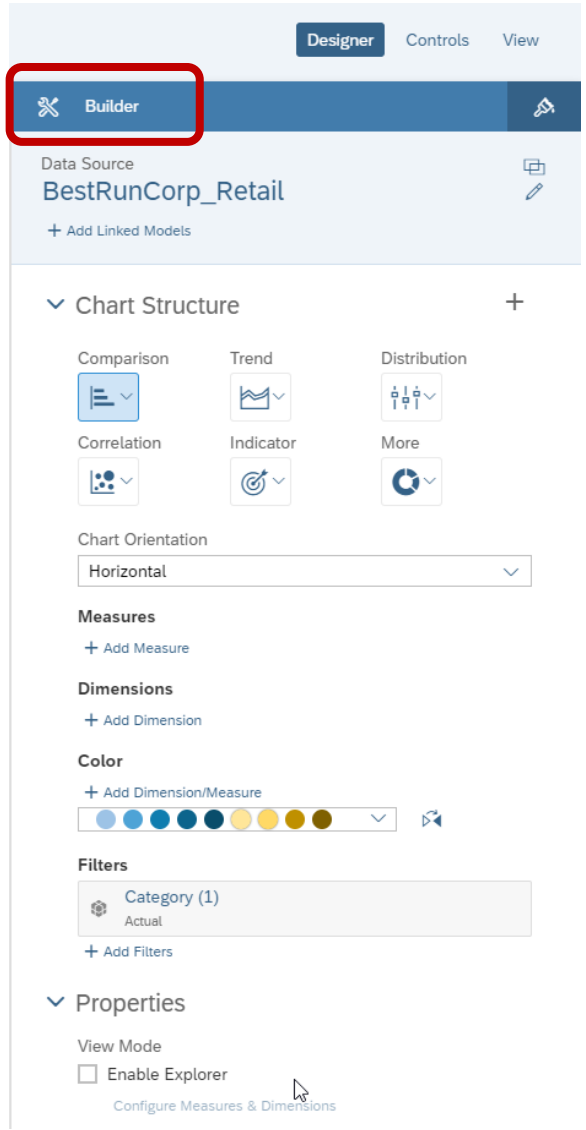
SAP Analytics Cloud
Exercises

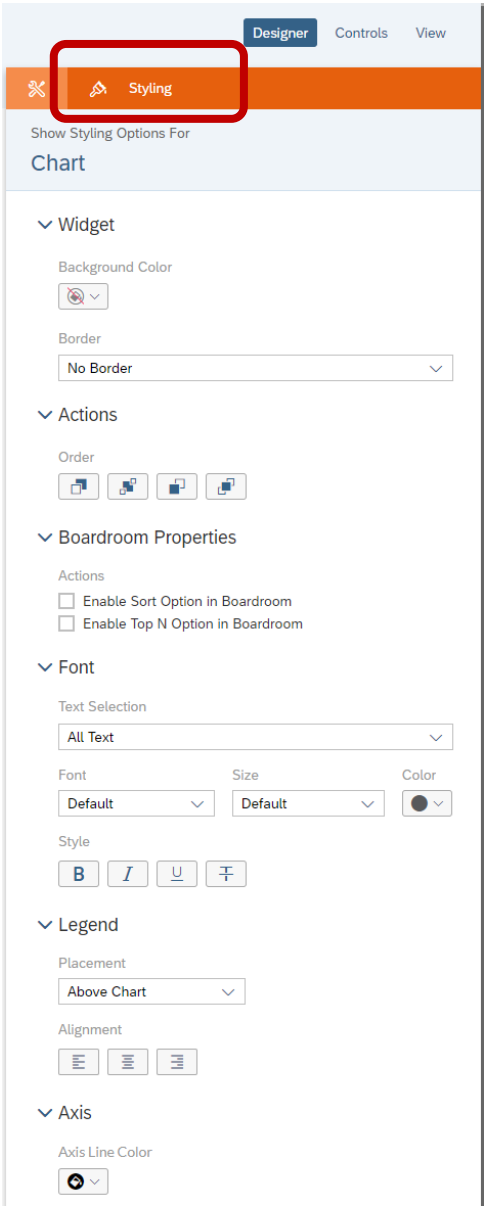
SAP Analytics Cloud – Exercise Details



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

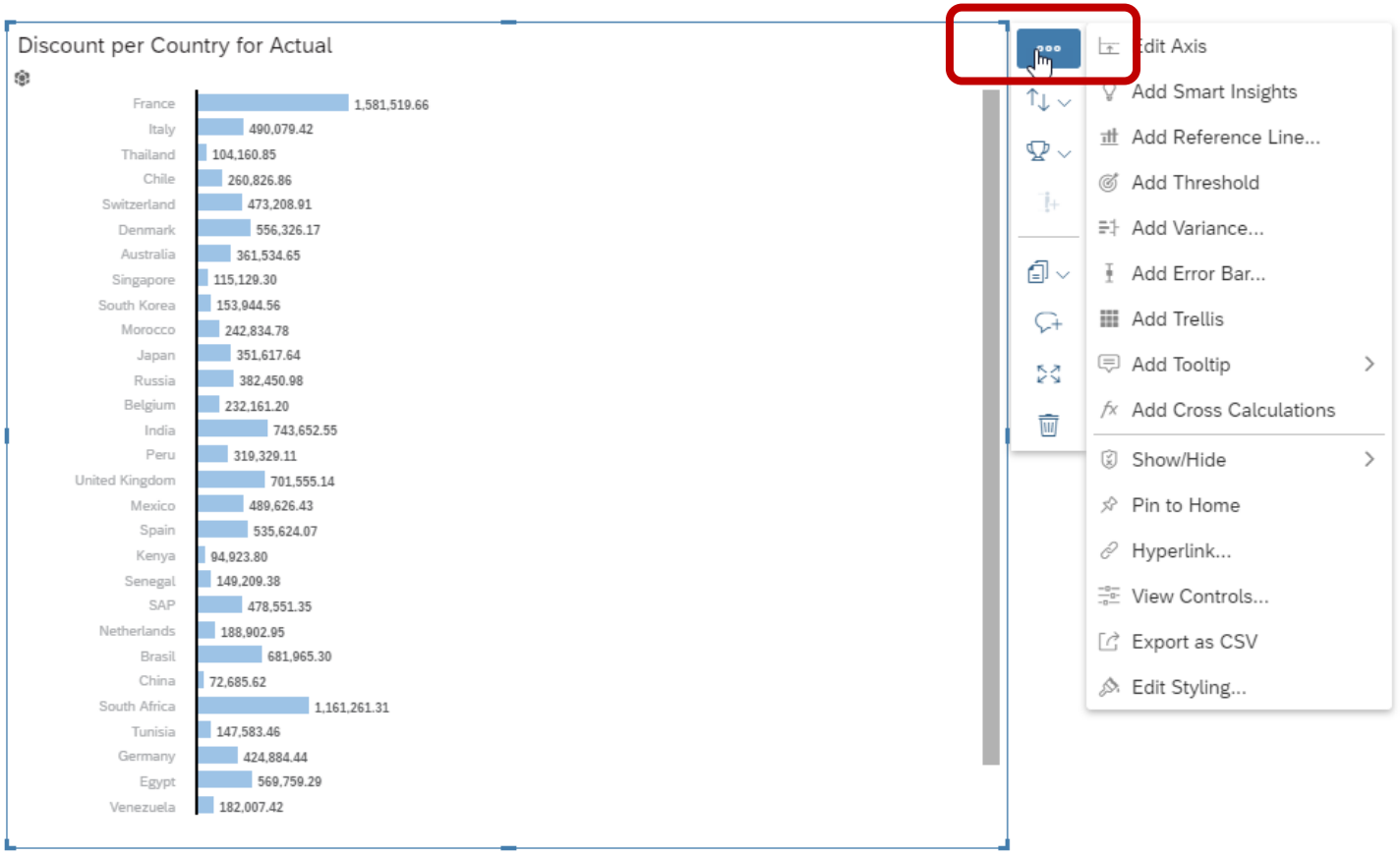
SAP Analytics Cloud – Exercise Details





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

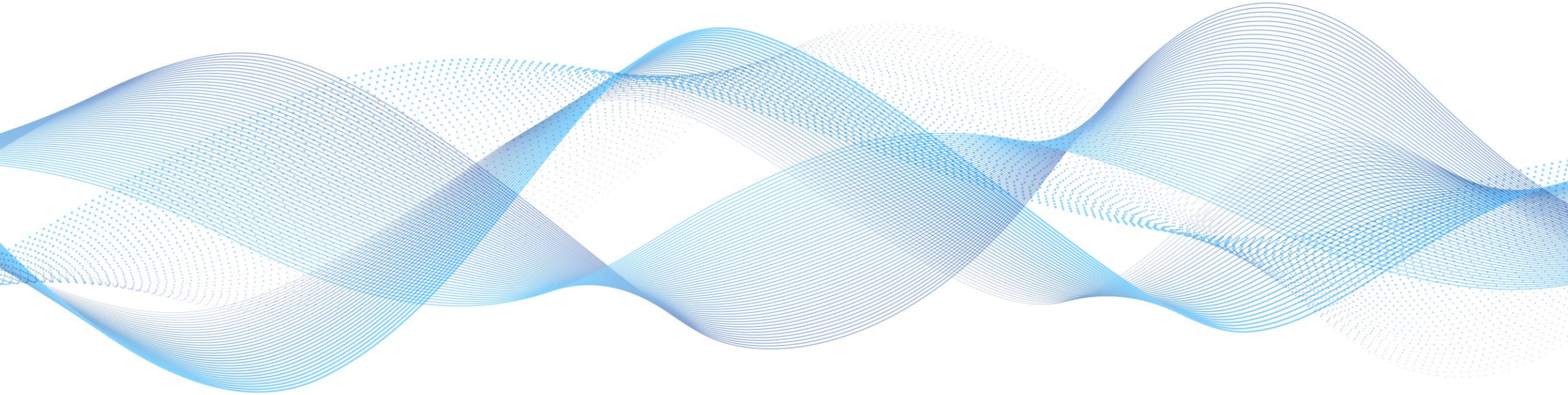
SAP Analytics Cloud – Exercise Details



- 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



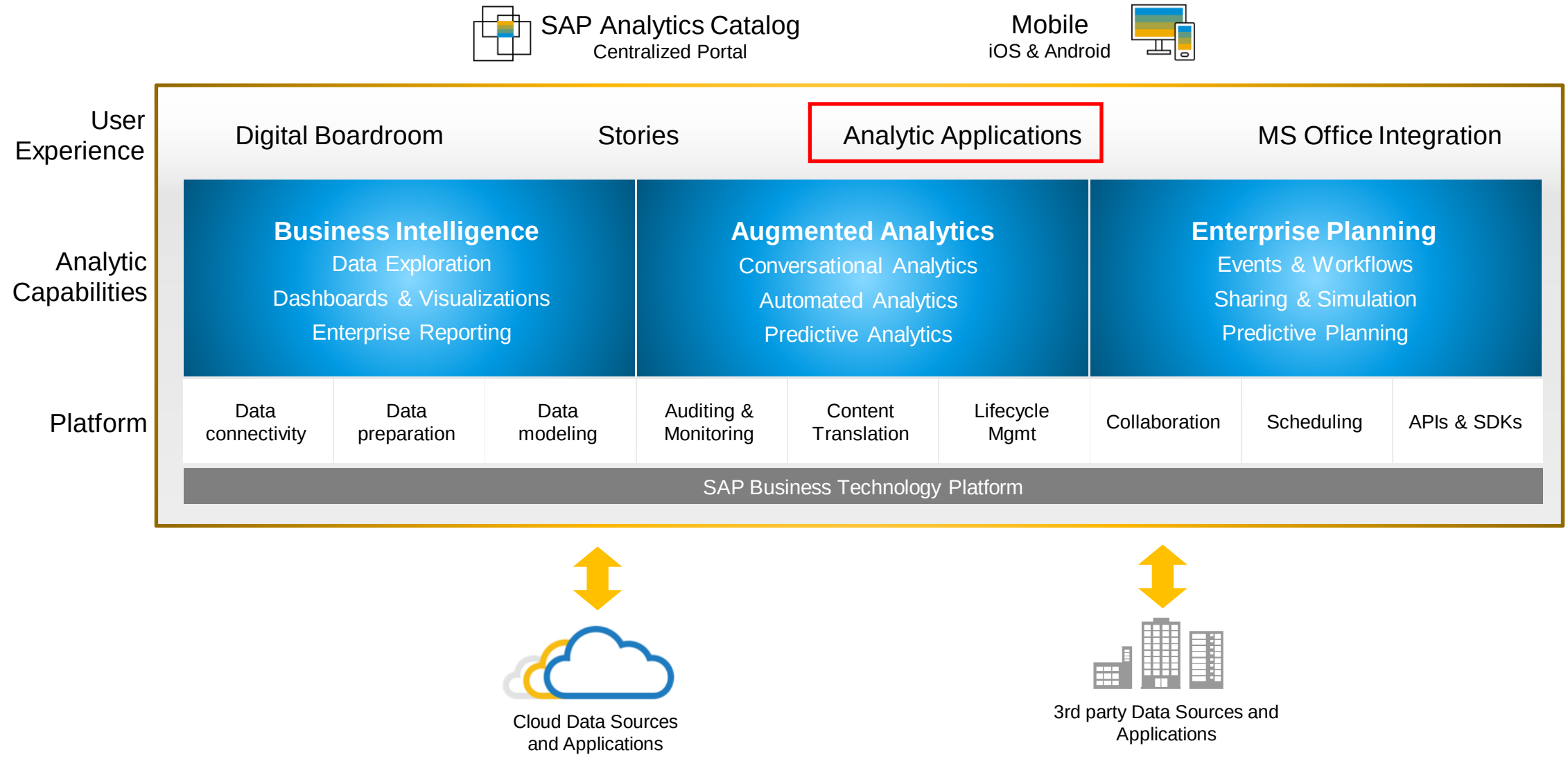
SAP Analytics Cloud, Analytics Designer

Unleash the power of business data

Speaker, SAP

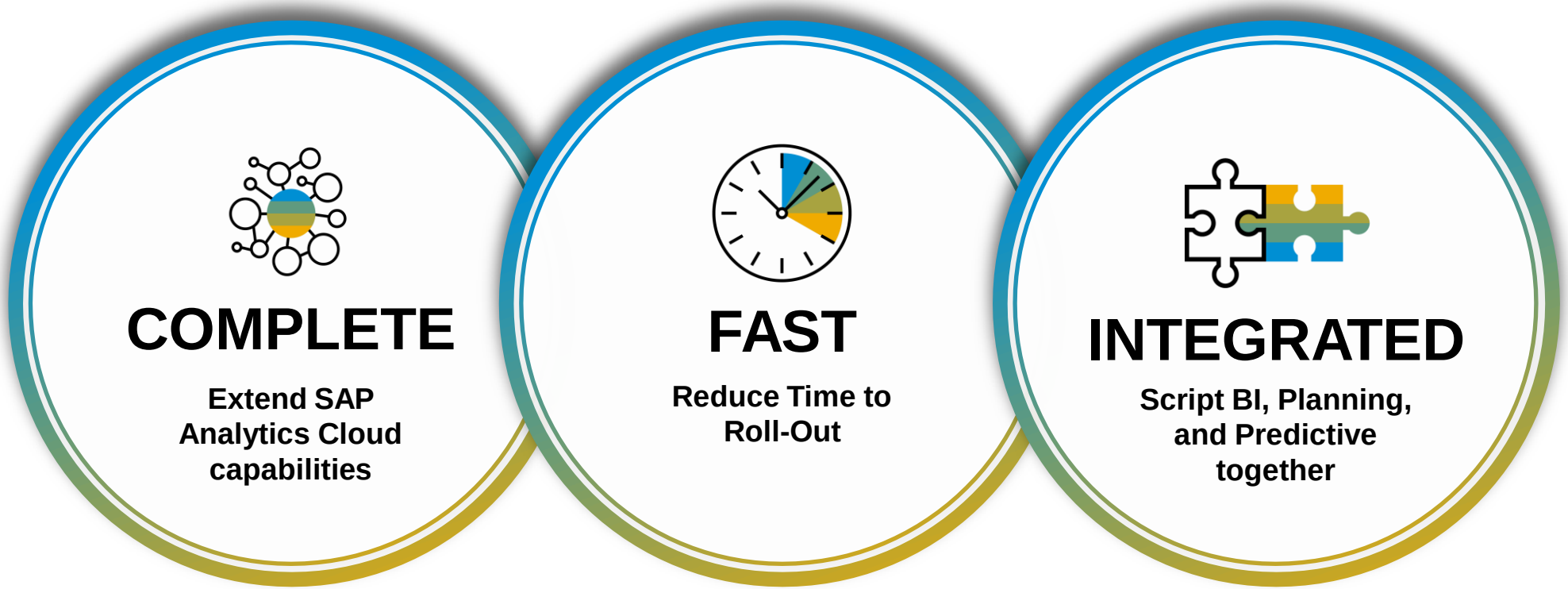
SAP Analytics Cloud, Analytics Designer

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

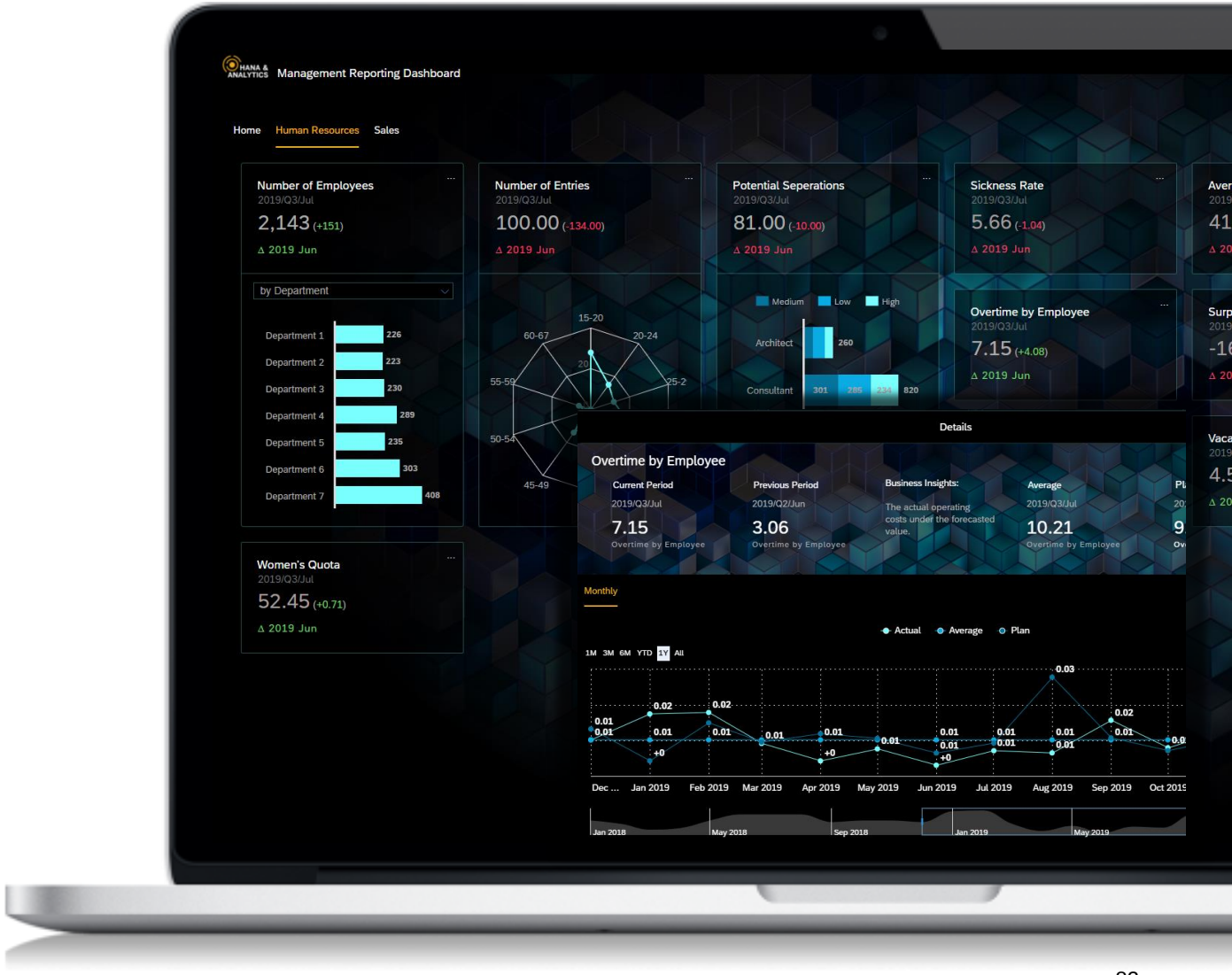
- Bring together BI, Planning, and Predictive
- Reuse existing datasets, models, connections…
- Create sophisticated custom widgets

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

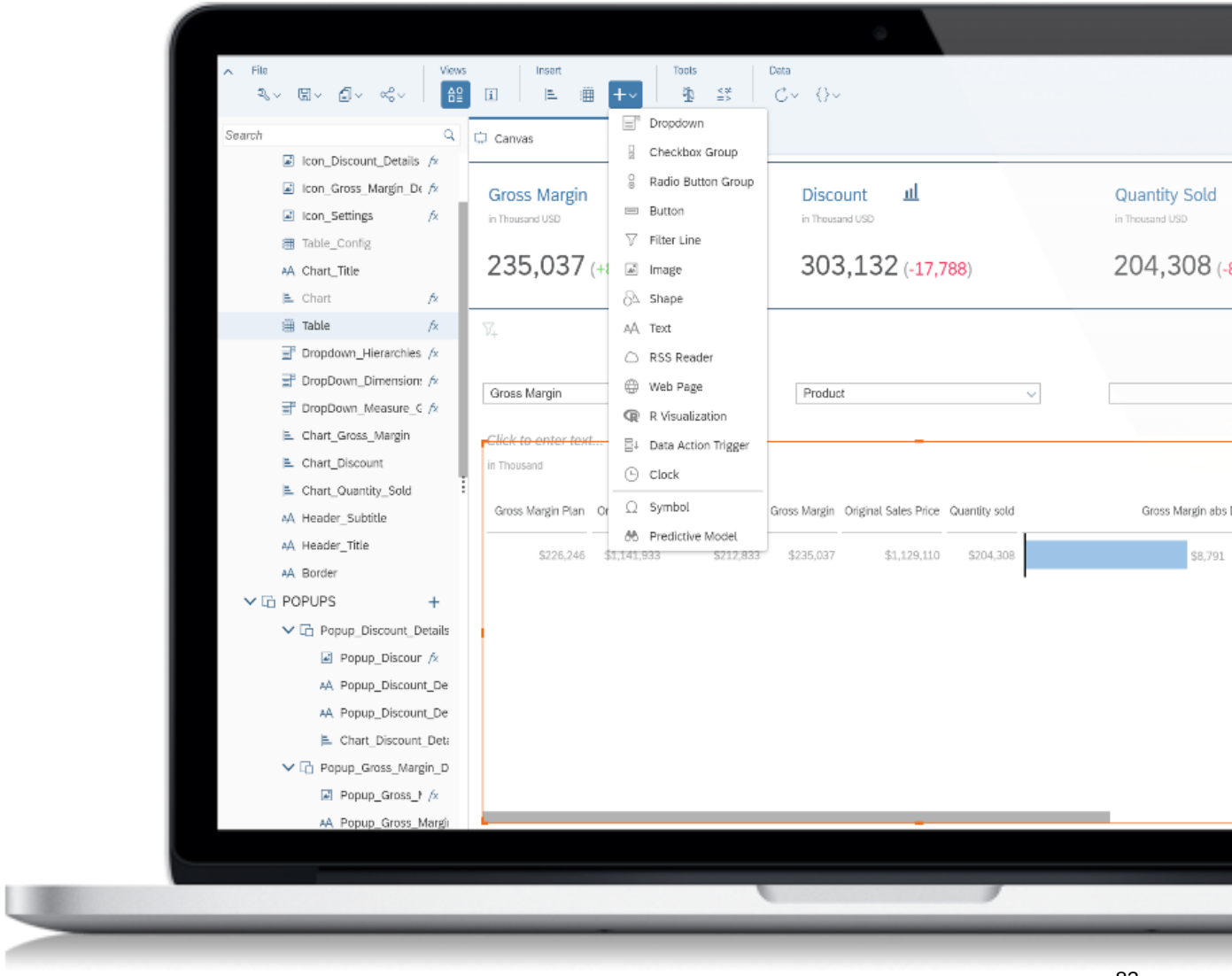
- Exposes SAP Analytics Cloud capabilities in a powerful environment geared for professional designers of analytical applications

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



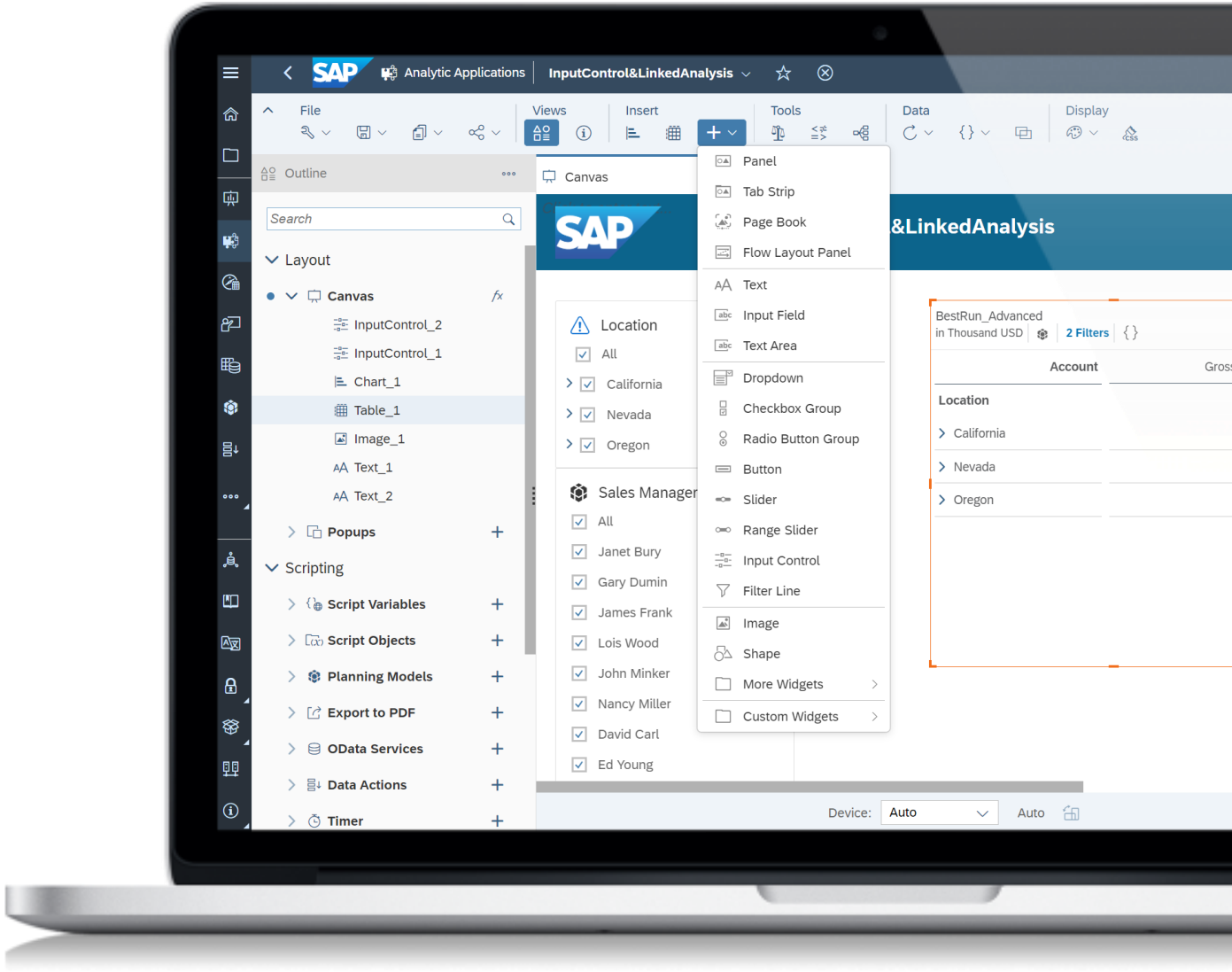
FAST: Reduce Time to Roll-Out

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 applicatior
- 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

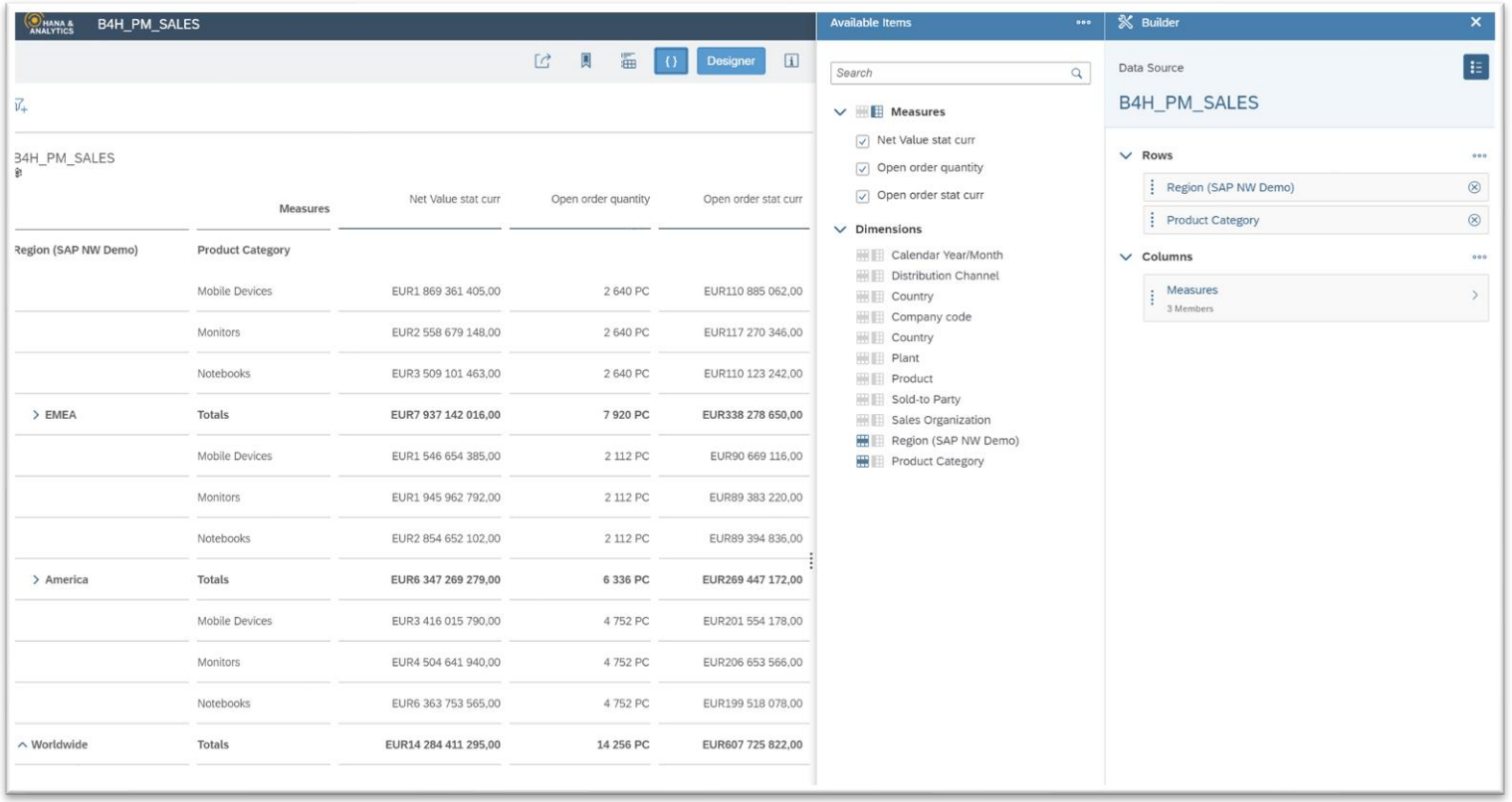
Extend SAC capabilities with **custom widgets**

Implement **non-standard** scenario

Partner extension

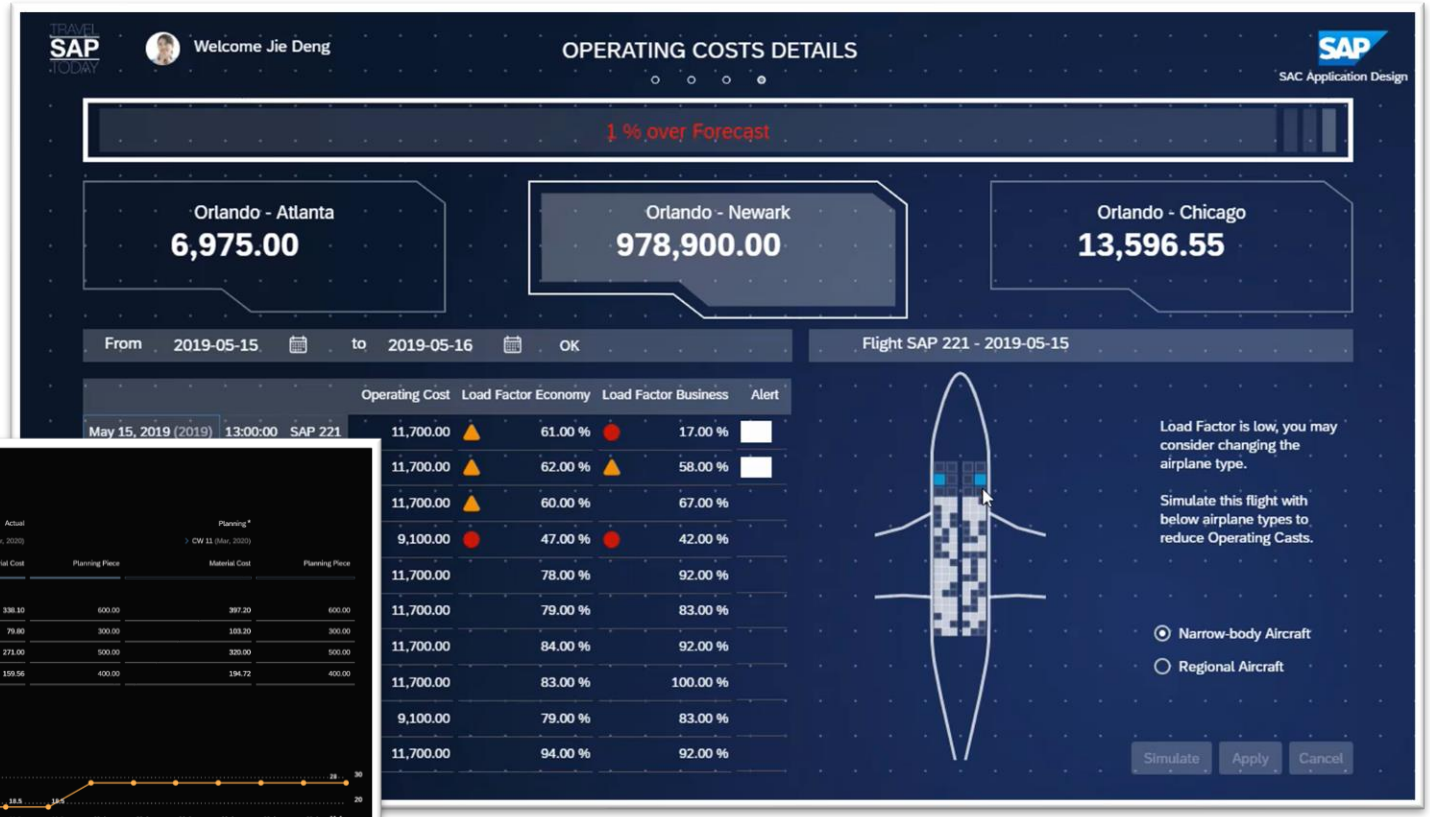
Typical Analytics Designer Use Cases

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



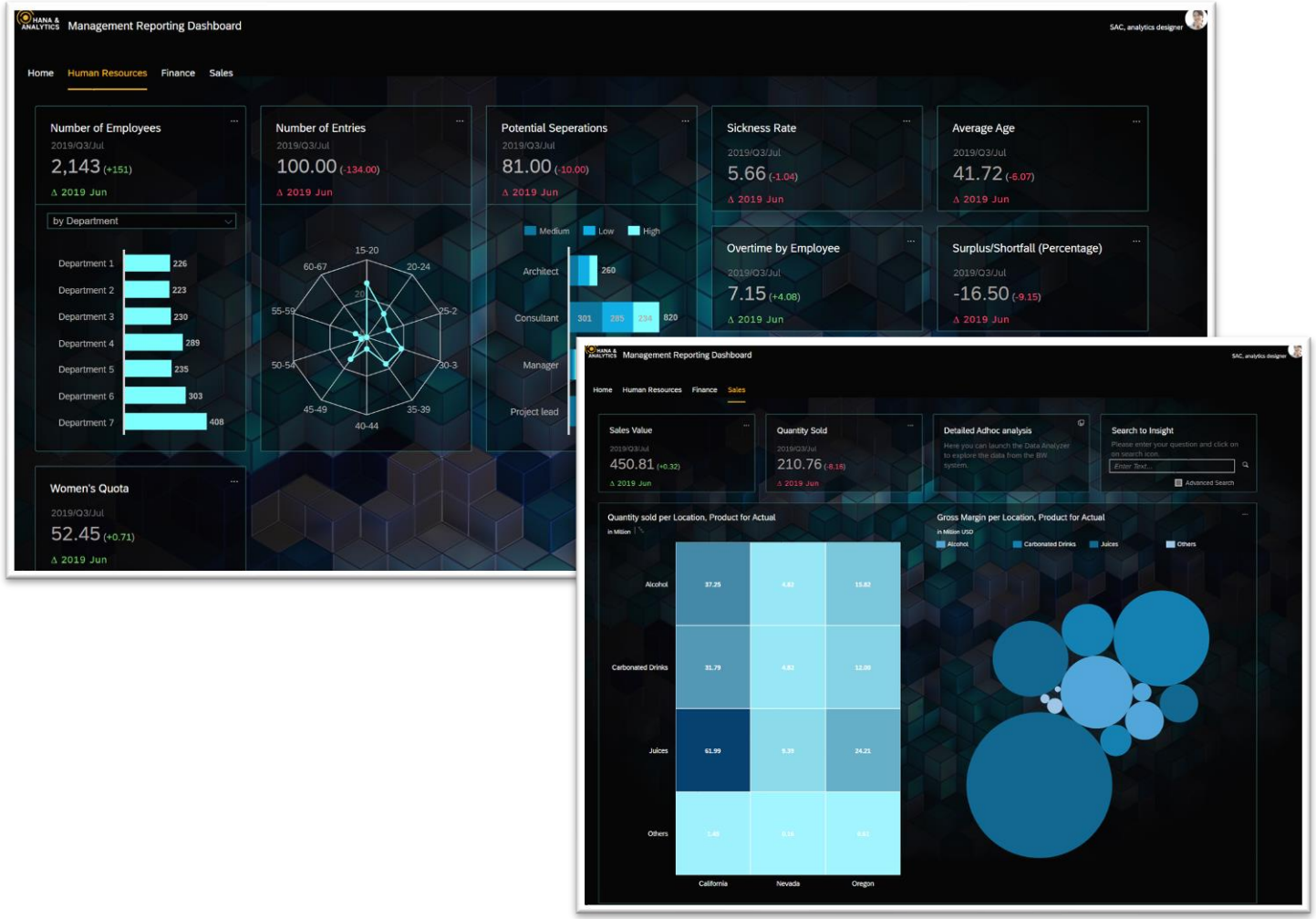
Typical Analytics Designer Use Cases

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



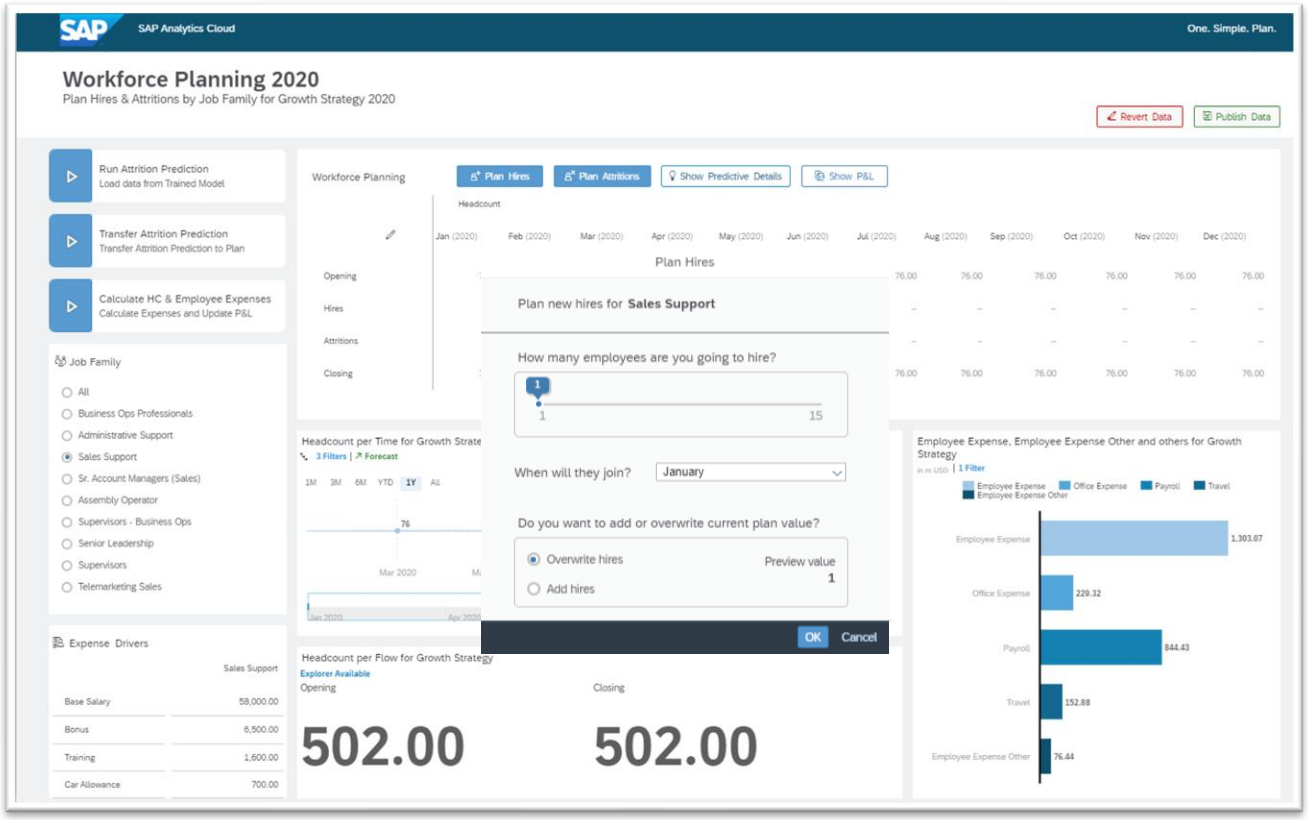
Typical Analytics Designer Use Cases

- 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

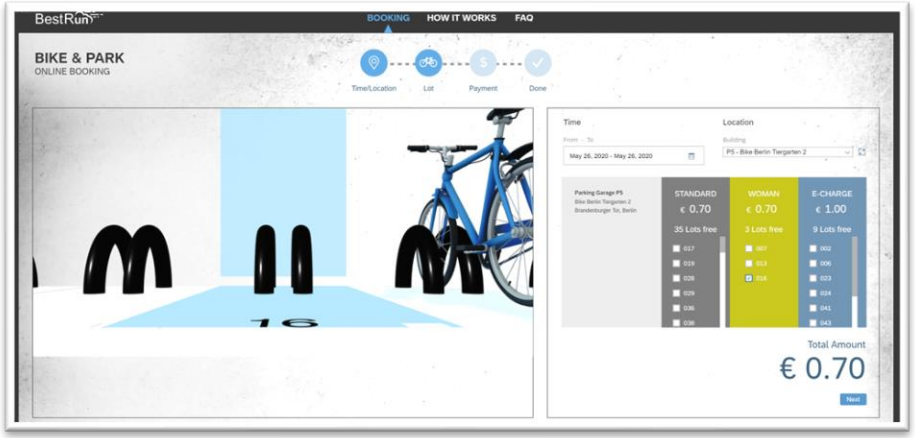


Typical Analytics Designer Use Cases

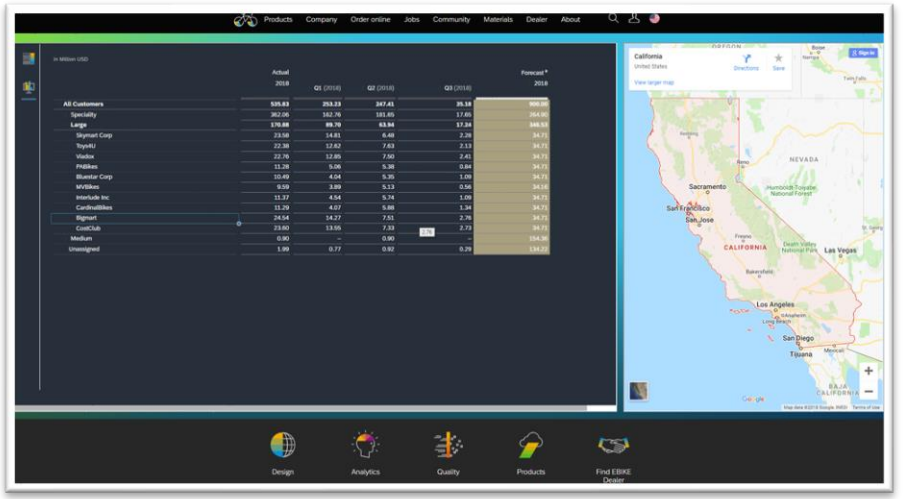
Embedding/Extending applications

- Any external page can be embeded into analytic applications
- Or analytic applications can be embede 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

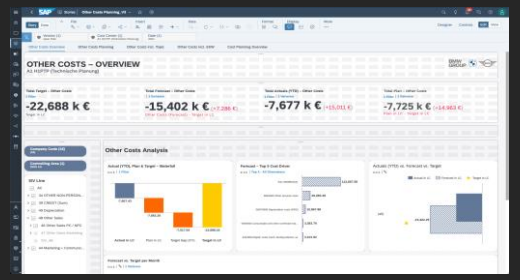


3D custom widgets integrated into analytic application

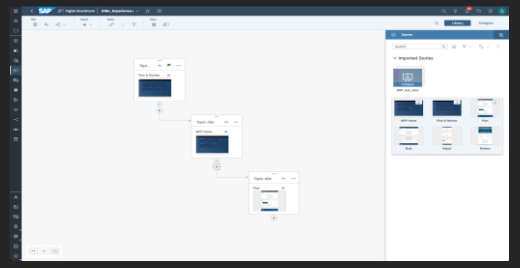


Communicating with other web pages

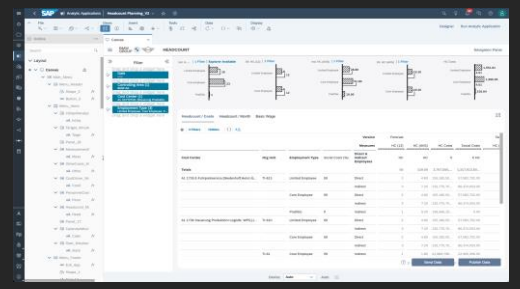
“Story 2.0” - One Tool For All



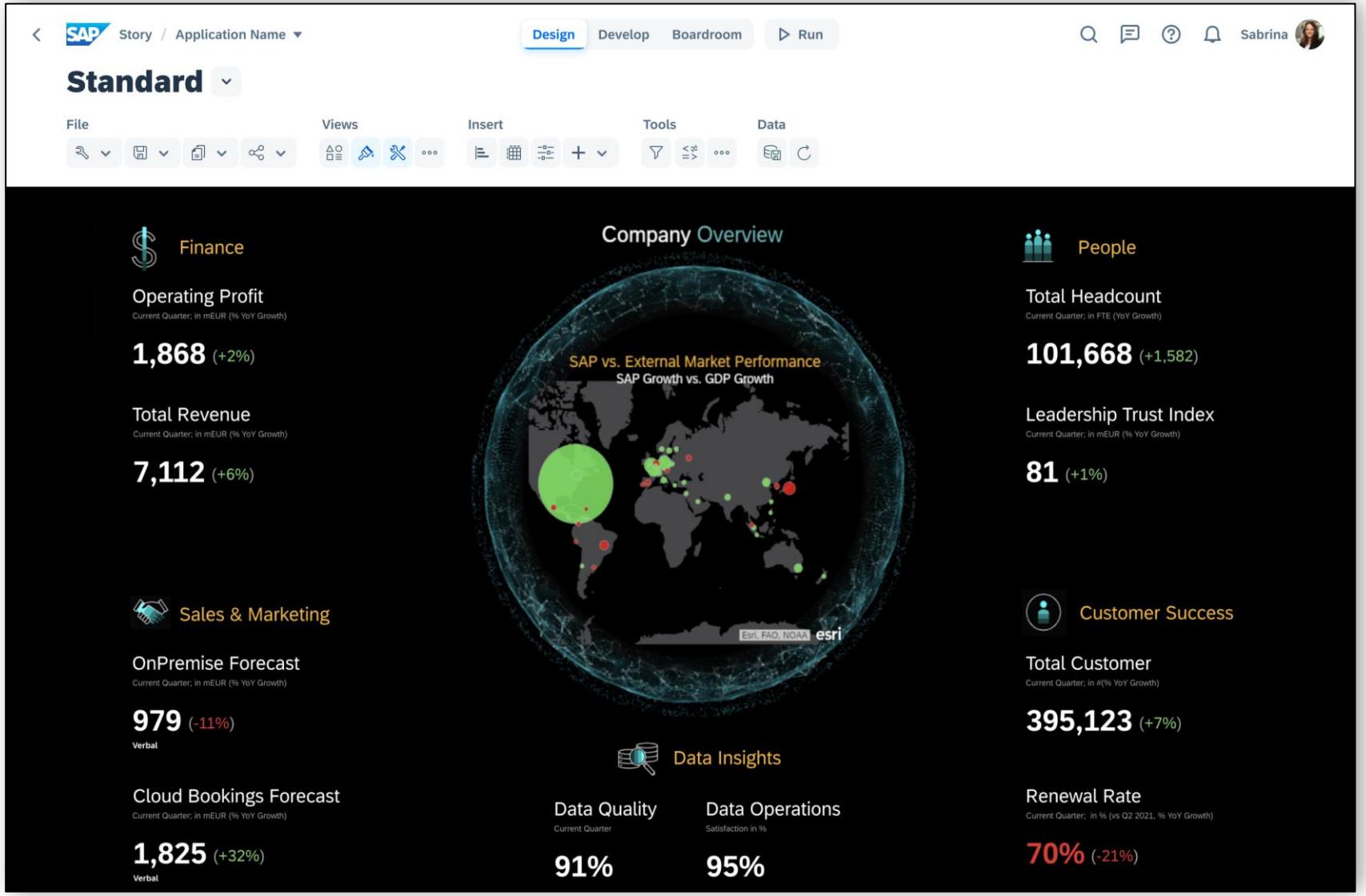
Story Builder



Digital Boardroom

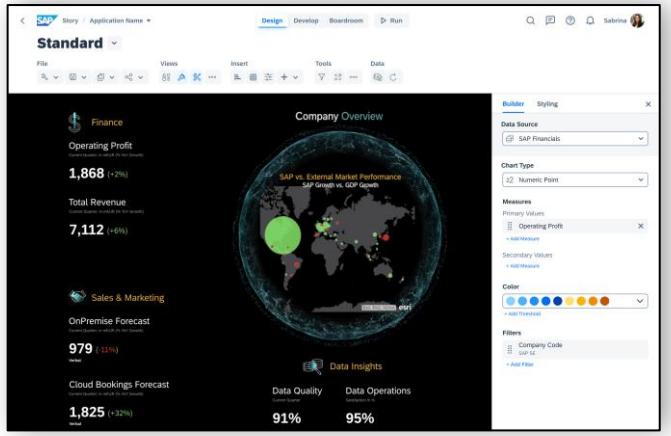


Analytic Application



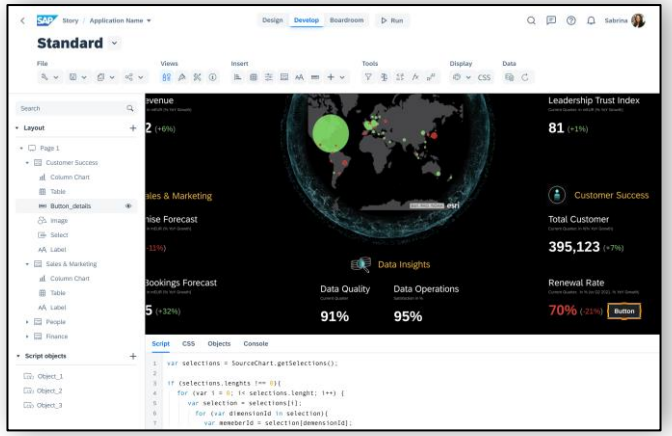
One Tool For All - Story, Analytics Designer & Digital Boardroom

Simplicity, Consistency and Extensibility



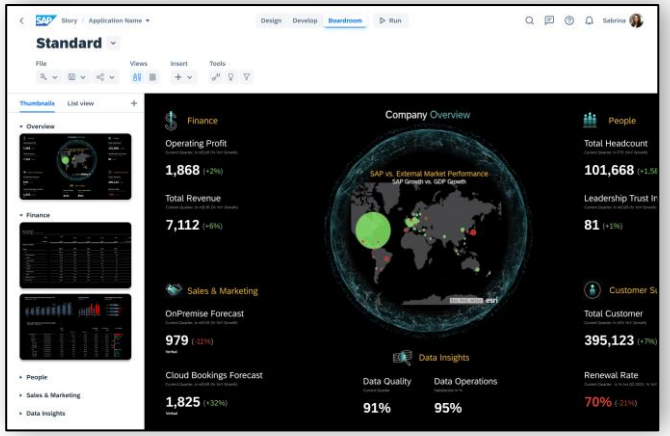
DESIGN

- Simple mode
- Define the layout
- Add data visualizations



DEVELOP

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



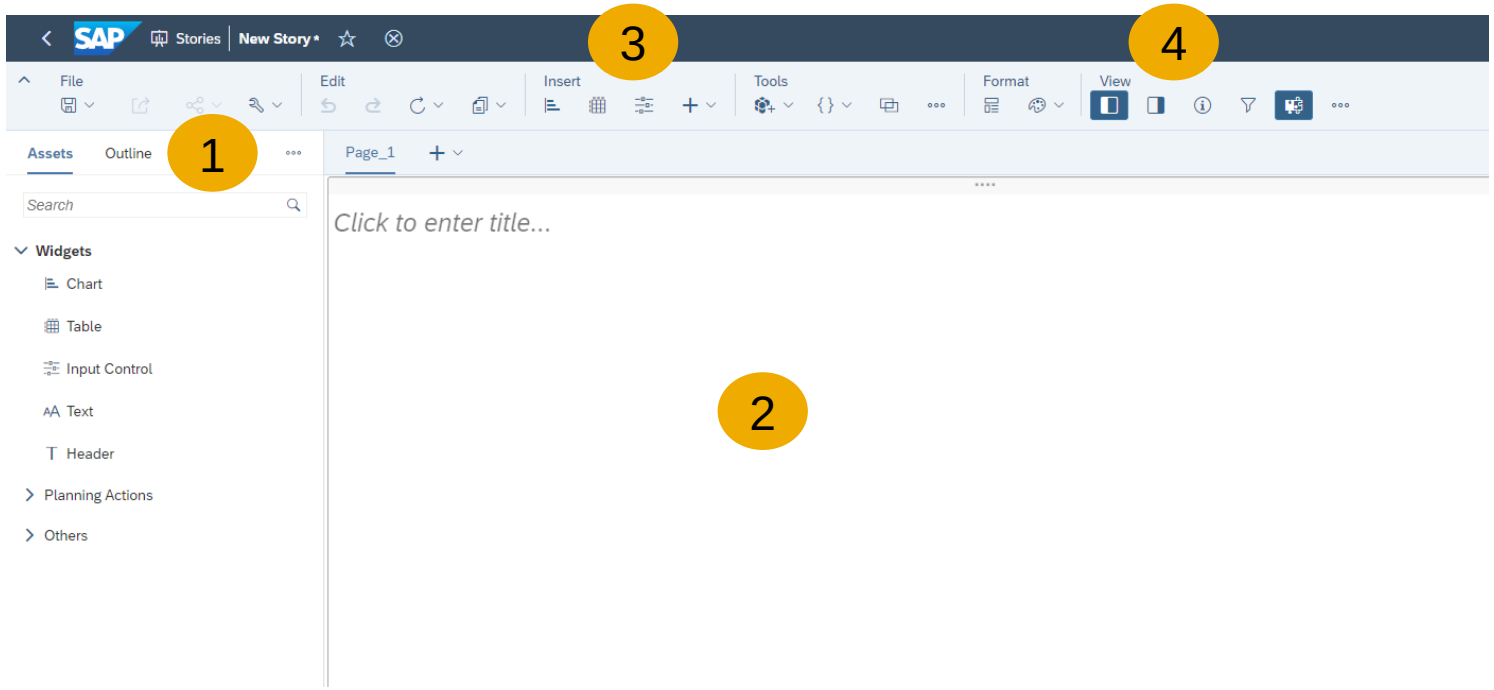
BOARDROOM

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

SAP Analytics Cloud – Analytics Designer

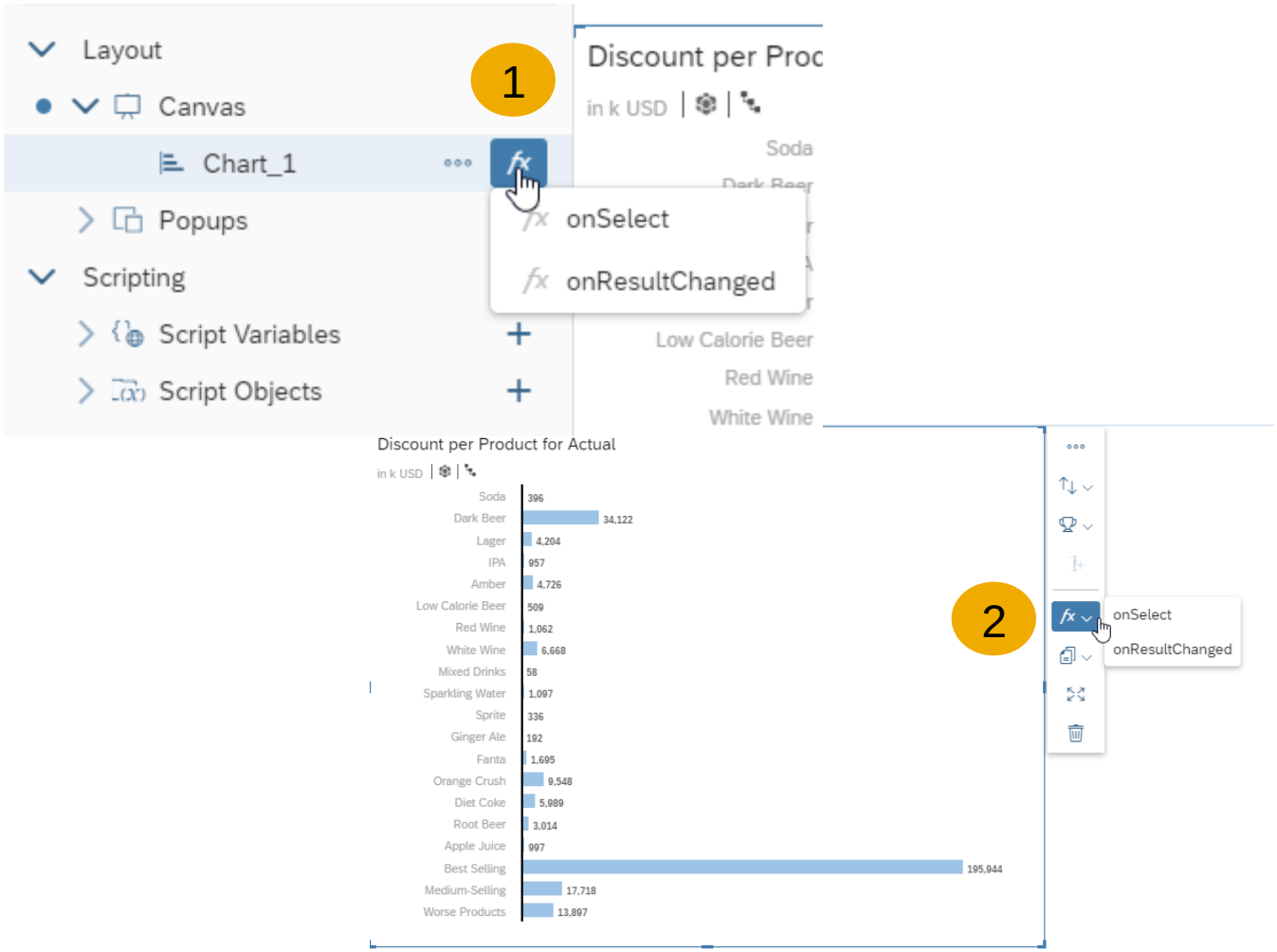
Exercises

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

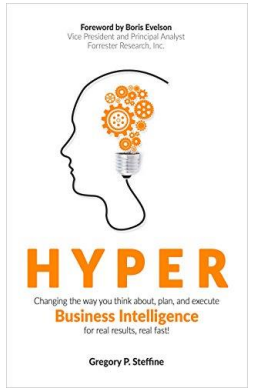


- Scripting
  - Can be opened up as part of the menu in the Outline (1) or as part of the context menu per component (2)

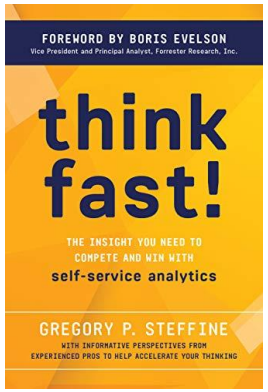
SAP Analytics Cloud, Analytics Designer– Exercise Details

- 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

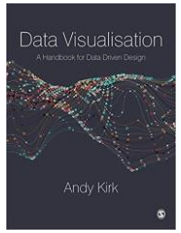


Hyper: Changing the way you think about, plan, and execute business intelligence for real results, real fast!
by Gregory P. Steffine, Boris Evelson

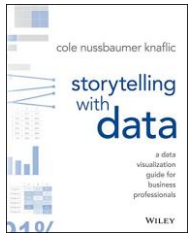


Think Fast!: The insight you need to compete and win with self-service analytics
by Gregory P. Steffine, Boris Evelson

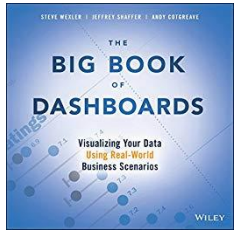
Resources



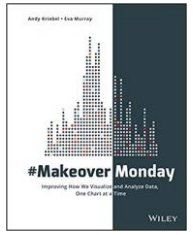
[Data Visualisation: A Handbook for Data Driven Design]
Andy Kirk



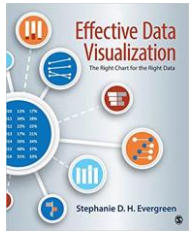
[Storytelling with Data: A Data Visualization Guide for Business Professionals]
Cole Nussbaumer Knaflic



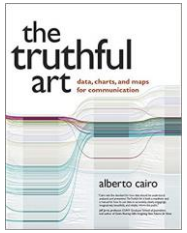
[The Big Book of Dashboards: Visualizing Your Data Using Real-World Business Scenarios]
Steve Wexler, Jeffrey Shaffer, Andy Cotgreave



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

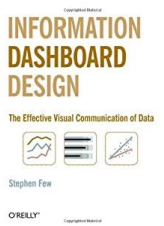


[Effective Data Visualization: The Right Chart for the Right Data]
Stephanie Evergreen

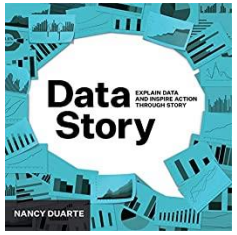


[The Truthful Art: Data, Charts, and Maps for Communication]
Alberto Cairo

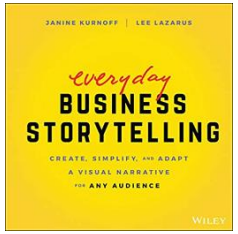
[Solid, outlined, hatched: How visual consistency helps better understand reports, presentations and dashboards]
by Rolf Hichert , Jürgen Faisst



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



[DataStory: Explain Data and Inspire Action Through Story]
By Nancy Durate



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

Workshop Resources

https://ingohilgefort.box.com/v/SAPInsiderPreConference

Thank you.

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