

SAC01

Introduction to SAP Analytics Cloud

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PARTICIPANT HANDBOOK SAP Live Class

Course Version: 24

Course Duration: 3 Day(s)

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Typographic Conventions

American English is the standard used in this handbook.

The following typographic conventions are also used.

This information is displayed in the instructor's presentation



Demonstration



Procedure



Warning or Caution



Hint



Related or Additional Information



Facilitated Discussion



User interface control

Example text

Window title

Example text

Preparing for Your SAP Live Class

Required Equipment for Your SAP Live Class

- PC or Mac
- Integrated or external web cam
- Headset with integrated mic
- Stable internet connection

You can test if your setup is working correctly by using this link: <https://sap.zoom.us/test>

We recommend that you connect two monitors to your PC so that you can manage the course content more efficiently. This will reduce the need for you to switch (alt+tab) between the applications we use in class.

Getting the Most Out of Your SAP Live Class

- Make sure you have setup and thoroughly tested the SAP Live Class environment and resolved any issues well before the class begins. Refer to the separate instructions that you were sent for setup instructions and support contact information.
- Keep your web cam activated during the training sessions. You can switch it off during breaks if you prefer.
- Use a headset with an integrated mic to ensure a high-quality audio experience for both you and the other participants. Laptop speakers and mic produce poor quality sound and introduce background noise that can disturb the class.
- Make sure you are in a quiet area where you will not be disturbed.
- Be ready to use the mute feature to ensure any background noise does not disturb the class.
- Turn off email, phones, instant messaging tools, and clear other distractions away from your training area.
- Actively participate and prepare to be called on by name.
- Be patient waiting for a response to your chat messages.
- Always ask the instructor for assistance if you need help with an exercise. Don't get left behind.
- Be ready to begin class on time so you do not delay the start of each session.
- During breaks, make sure you take the opportunity to get out of your chair and stretch.
- Please raise any concerns relating to the SAP Live Class experience with your instructor at the time they arise so that they can be quickly addressed.

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Contents

ix Course Overview

1 Unit 1: Overview and Positioning of SAP Analytics Cloud

3	Lesson: Positioning SAP Analytics Cloud
12	Lesson: Understanding Product Navigation and Fundamentals
21	Exercise 1: Log into SAP Analytics Cloud (SAC) and Explore Basic Functionality

37 Unit 2: Connections and Data Models

39	Lesson: Understanding Data Source Connections
41	Lesson: Preparing Data and Basic Modeling
46	Lesson: Performing Basic Data Modeling
57	Exercise 2: Upload Data from a File and Wrangle Data
77	Lesson: Connections and Data Models

85 Unit 3: Business Intelligence

87	Lesson: Designing Basic Story
97	Exercise 3: Create a Simple Story
115	Lesson: Storytelling: Visualization, Basic Calculation, and Formatting
120	Lesson: Integrating Data with SAP BW/4 HANA and SAP Universes
135	Exercise 4: Use Live Data Connections (SAP BW) to Create Stories
151	Lesson: Designing Advanced Story
159	Exercise 5: Create and Format Stories using Calculations, Filters, Variances, and Input Controls
179	Exercise 6: Create Stories using Advanced Functions
200	Lesson: Using Analytic Applications and Analytic Designer
207	Exercise 7: Create an Application with Online Data Access
216	Lesson: Introducing SAP Analysis for Microsoft Office, Edition for SAP Analytics Cloud
223	Exercise 8: Create an Analysis for Office document with SAC

235 Unit 4: Introducing SAP Analytics Cloud Planning

237	Lesson: Planning with SAP Analytics Cloud
240	Lesson: Creating a Planning Data Model
245	Exercise 9: Create a Story with a Planning Model

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257 Unit 5: Augmented Analytics in SAP Analytics Cloud

258	Lesson: Introduction to SAP Analytics Cloud Predictive
265	Exercise 10: Create a Forecast
274	Lesson: Exploring with Smart Assist
281	Exercise 11: Run Smart Discovery and Use Smart Insights
298	Lesson: Simplifying Predictive with Smart Predict
301	Exercise 12: Build a Predictive Model using Smart Predict

325 Unit 6: Users, Security, and Administration

326	Lesson: Defining Users, Teams, Roles, and Security
335	Exercise 13: Monitor System Performance and Usage
339	Lesson: Performing Administration Tasks

351 Unit 7: Extended Presentation and Consumption of Content

353	Lesson: Collaborating with SAP Analytics Cloud
357	Lesson: Creating Presentations with SAP Analytics Cloud Digital Boardroom
365	Lesson: Exploring SAP Analytics Hub
371	Exercise 14: Manage Content in SAP Analytics Hub
379	Lesson: Introducing SAP Analytics Cloud Mobile
385	Lesson: Managing Translation

Course Overview

TARGET AUDIENCE

This course is intended for the following audiences:

- Application Consultant
- Technology Consultant
- Business User
- Business Analyst

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UNIT 1

Overview and Positioning of SAP Analytics Cloud

Lesson 1

Positioning SAP Analytics Cloud

3

Lesson 2

Understanding Product Navigation and Fundamentals

12

Exercise 1: Log into SAP Analytics Cloud (SAC) and Explore Basic Functionality

21

UNIT OBJECTIVES

- Describe the positioning and value proposition of SAP Analytics Cloud
- Explain what is in SAP Analytics Cloud
- Explore basic functionality
- Prepare, share, and collaborate on stories

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Unit 1

Lesson 1

Positioning SAP Analytics Cloud



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe the positioning and value proposition of SAP Analytics Cloud
- Explain what is in SAP Analytics Cloud

Overview and Positioning of SAP Analytics Cloud



SAP Analytics Cloud enables the intelligent enterprise by providing everyone with the insights to make confident decisions and take action in the moment.



COMPLETE

Make end-to-end decisions with all analytics capabilities in one place



CONTEXTUAL

Gain enterprise-ready insight and take action within your business processes



CONFIDENT

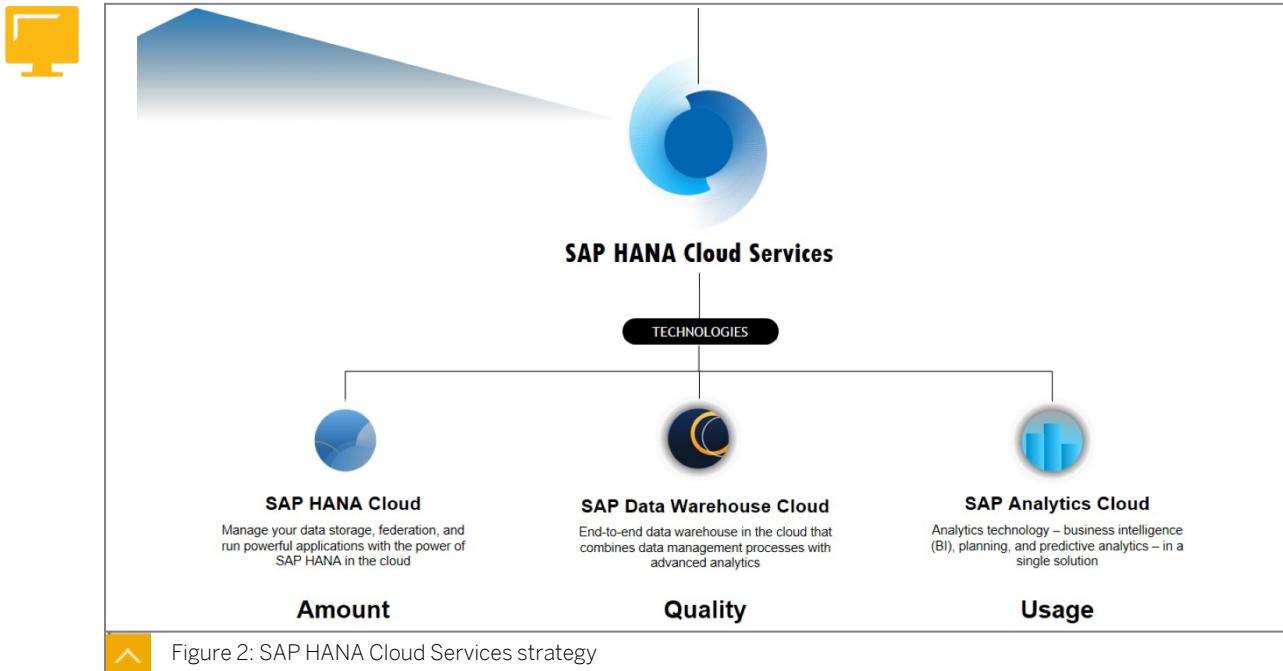
Make smarter decisions with AI-driven insights delivered to you naturally



Figure 1: SAP Analytics Cloud

SAP Analytics Cloud is a single solution for business intelligence and enterprise planning, augmented with the power of predictive analytics and machine learning technology. It helps everyone in your organization make fast, confident decisions for better business outcomes.

The SAP Analytics Cloud solution helps all types of decision makers by combining business intelligence, enterprise planning, and augmented analytics into a single solution. You do not need to rely on standalone spreadsheets, or disparate reporting and planning tools. With SAP Analytics Cloud solution everyone has everything they need, embedded where they work, to make fast and confident decisions together, and become a more agile, intelligent enterprise.

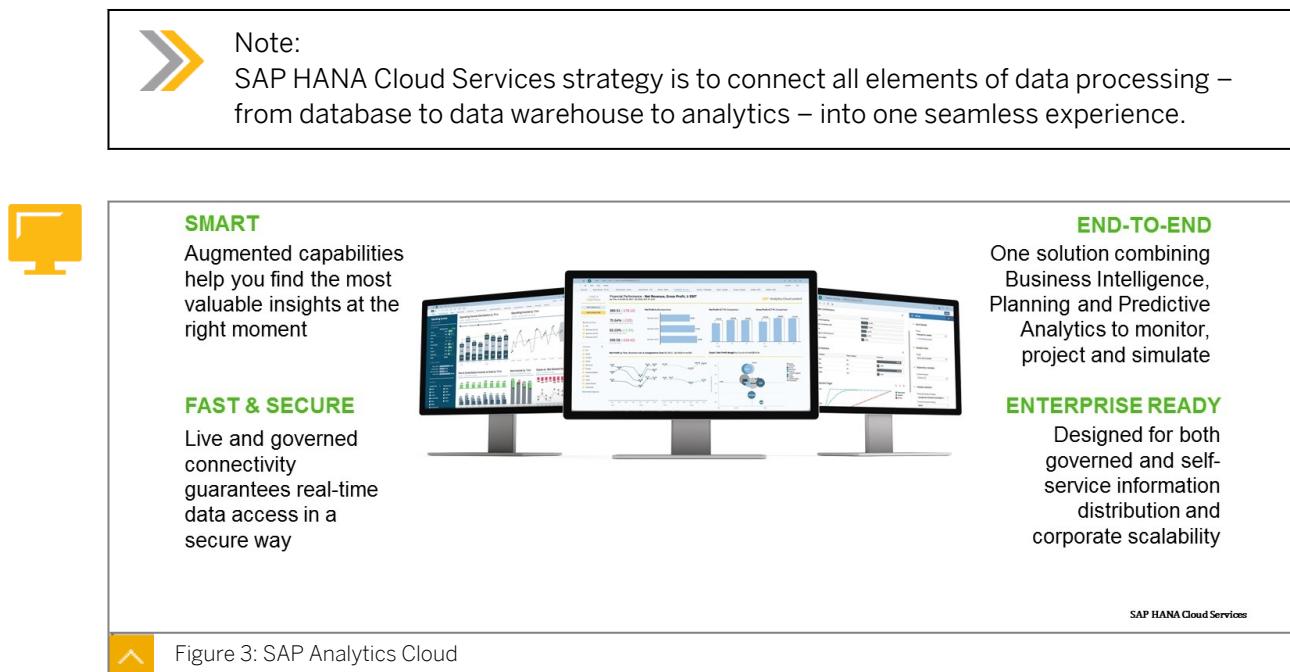


SAP's strategy to be *The Experience Company powered by the Intelligent Enterprise* aims to help customers thrive in the new economy where being a data-driven enterprise and delivering exceptional experiences is key to success.

At the heart of our strategy are both, our on-premise solutions as well as our cloud flagship solution, SAP HANA Cloud Services. With SAP HANA, SAP BW/4HANA, and SAP BI 4.3 we continue to deliver value to our on-premise customers. Adding to this, a clear focus is on enabling our on-premise customers to use cloud innovations to extend their on-premise solutions. To this end, we offer easy and compelling hybrid options. This way, customers can keep using their on-premise deployments and incrementally add cloud services, at their own pace, as and when required. Alternatively, customers can directly move to our new cloud services.

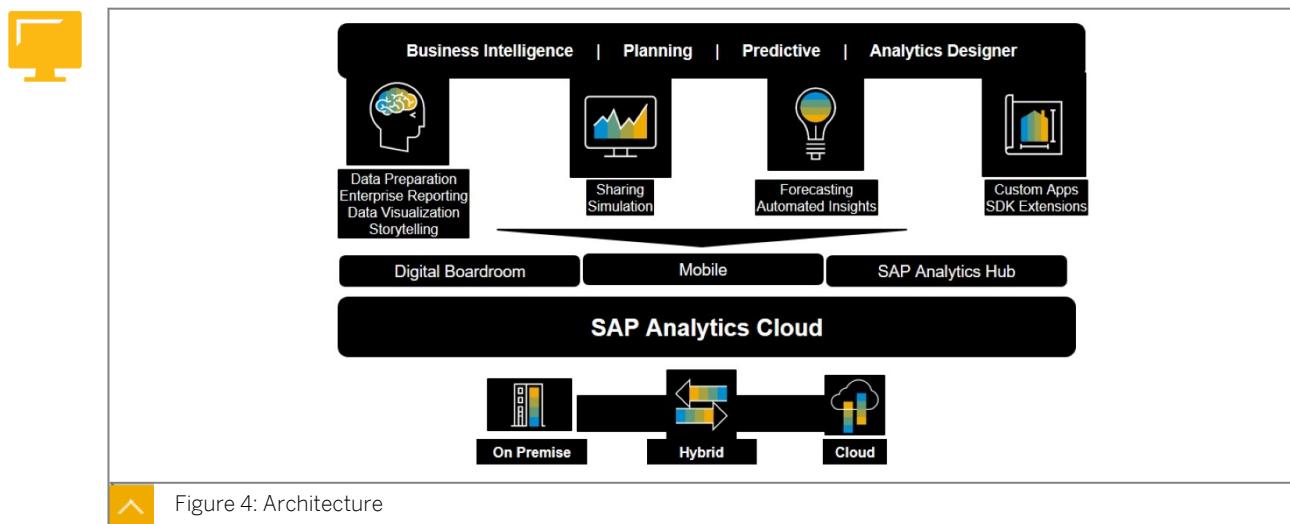
SAP HANA Cloud Services is a simple cloud solution that combines all our data and analytics capabilities as one set of interconnected services:

- SAP HANA Cloud brings the simplicity and speed of SAP HANA to the cloud. It offers one virtual interactive access layer across all data sources with a scalable query engine. Data consumption is decoupled from data management.
- SAP Data Warehouse Cloud delivers both the flexibility of SQL and model-driven data warehousing, combined in one cloud service. It offers business users a self-service to tie all business data together and put semantics, security, and governance on top.
- SAP Analytics Cloud combines Augmented BI, Planning, and Predictive into a single Analytics experience to analyze, plan, and predict business results. Embedded machine learning and predictive algorithms support users. Working with data becomes an interactive and intuitive experience.



SAP Analytics Cloud:

- The only enterprise end-to-end Analytics solution in the cloud
- Automatically receive actionable insights via Embedded Machine Learning
- Analyze a 360° view of your business in seconds, with seamless blending of multiple data sources
- Make end-to-end decisions with confidence, in one single workflow from planning to insights
- Empower business users to safely and securely work with governed data and built stunning interactive dashboards



Smart and automated features help you find intelligent insights fast and without bias

Experience how the embedded smart features find correlations and the most appropriate insights at the exact moment where they matter for your business:

- Find correlations in your data that are meaningful by leveraging embedded Machine Learning technology
- Create single-click automated dashboards with key influencer analysis and what-if simulations
- Leverage Natural Language Processing (NLP) allowing you to get instant insight by simply typing your business question
- Use integrated LOB and Industry Content which is built for your domain

Live and real-time access to key data sources guarantee lightning fast data insights

Connect securely to your data: whether your data is stored in spreadsheets, on-premise, cloud, or on all three, you'll be able to analyse it with SAP Analytics Cloud:

- Connect live to certain on-premise data sources: stories and dashboards access data in real-time even in blended scenarios
- Avoid data replication with Live connectivity; for sensitive data you can choose to keep it within your firewall
- Use over 150 import data connectors through SAP Cloud Platform
- Benefit from advanced governance and security handling

Business Intelligence extended by Collaborative Planning and Predictive Analytics in one integrated solution

Analyse, plan, and predict in one application to save time, reduce errors, and increase organizational agility. Use the powerful presentation features to consume insights on the road, in the office, or in a boardroom meeting.

- Access your actuals, forecasts, budgets and predictions in one view
- Simulate and run what-if scenarios
- Run predictive scenarios based on classification, regression and forecasting
- Leverage the Digital Boardroom experience and have your management interact with insights. Consume stories and dashboards on the go or in the office via the mobile app

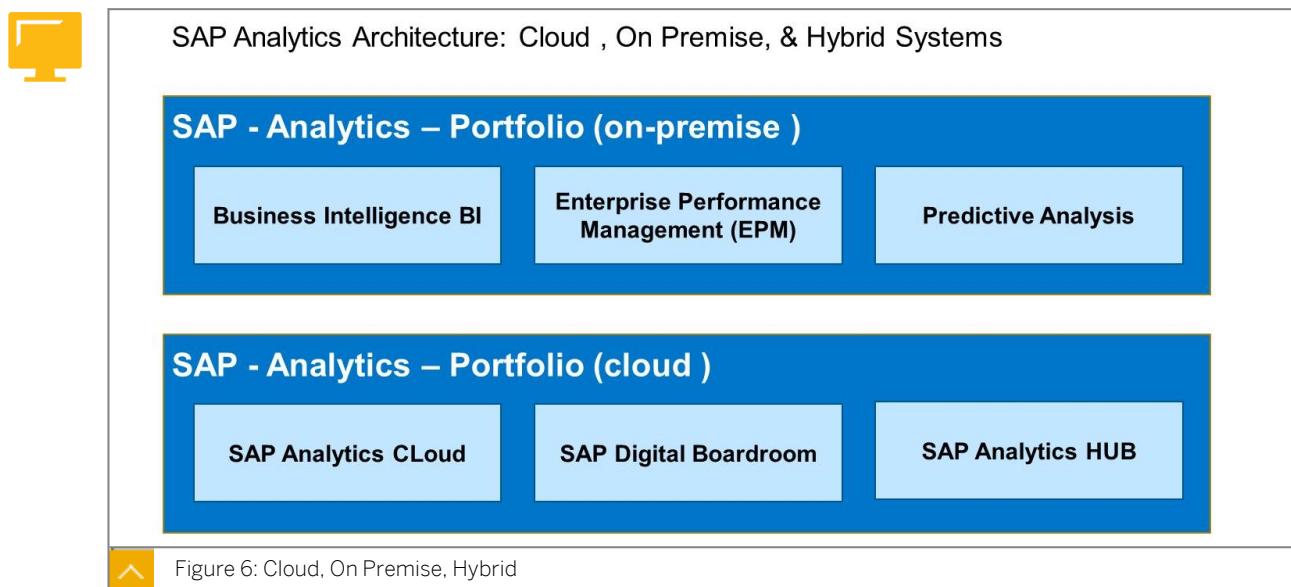
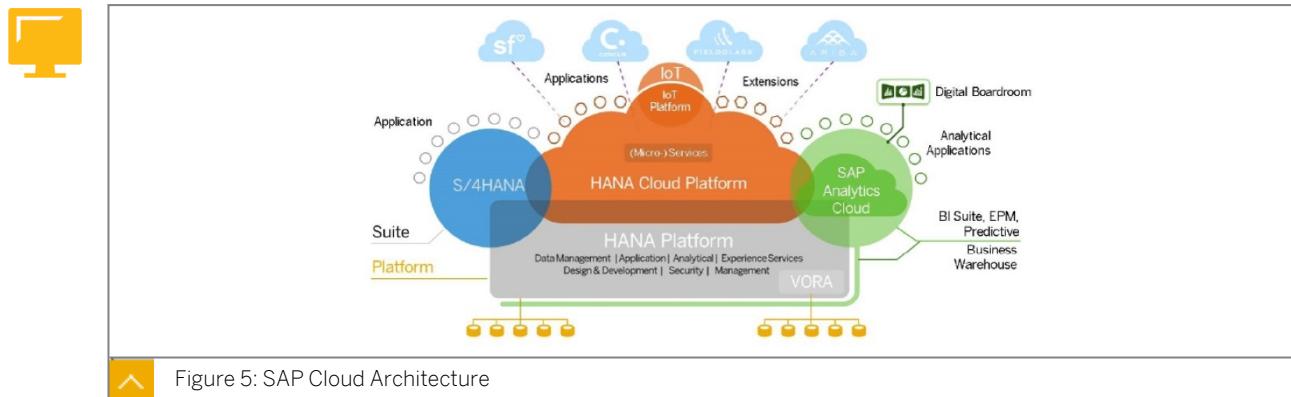
Fully scalable and governed analytics solution for corporate and enterprise data insights

Combine information from enterprise & external data sources in a secured and governed way, while allowing users to interact and collaborate with actionable insights:

- Designed for governed information distribution and corporate scalability
- Secured data access and information distribution
- Easily onboard new users & groups with advanced user management
- Delivers self-service use cases within trusted & governed boundaries

- Involve colleagues in your insights with a stunning collaborative experience
- Use Analytics Catalog to access all your insight from one single place whether on Cloud, on-premise or 3rd party

Cloud, On Premise, Hybrid



SAP Analytics offers a full system, which gives the customer the chance to analyze big data. A complete business intelligence system can be any of the following:

1. An on-premise application hosted by the customer.
2. Cloud-based applications hosted by a provider. The user gets a right of use in accordance with the ordered product.
3. A hybrid system that offers a connection to both cloud and on-premise tools.

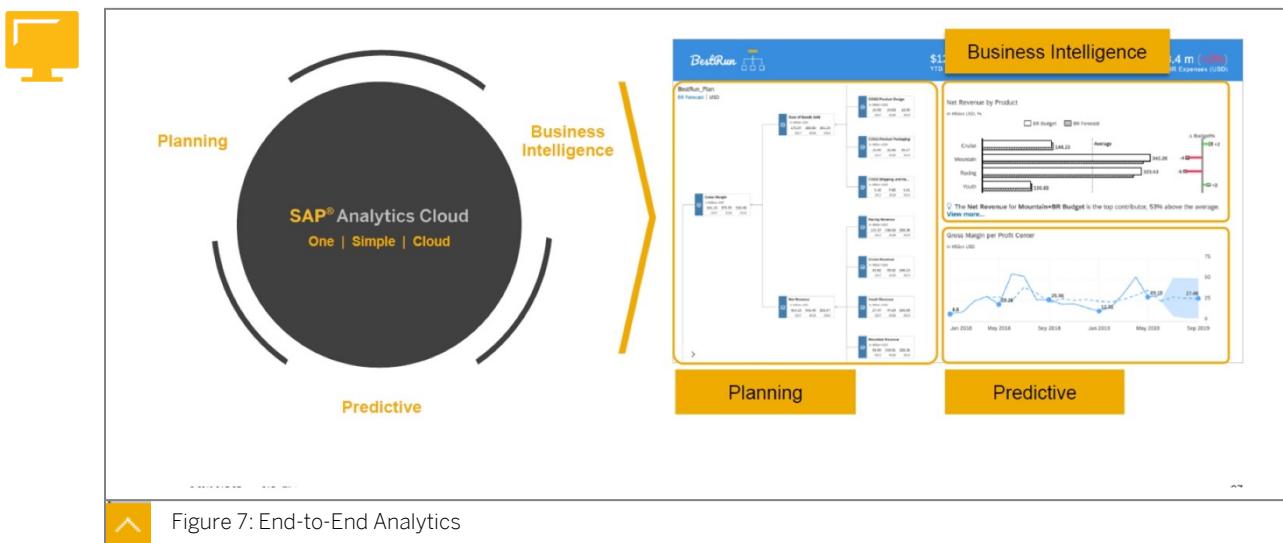


Figure 7: End-to-End Analytics

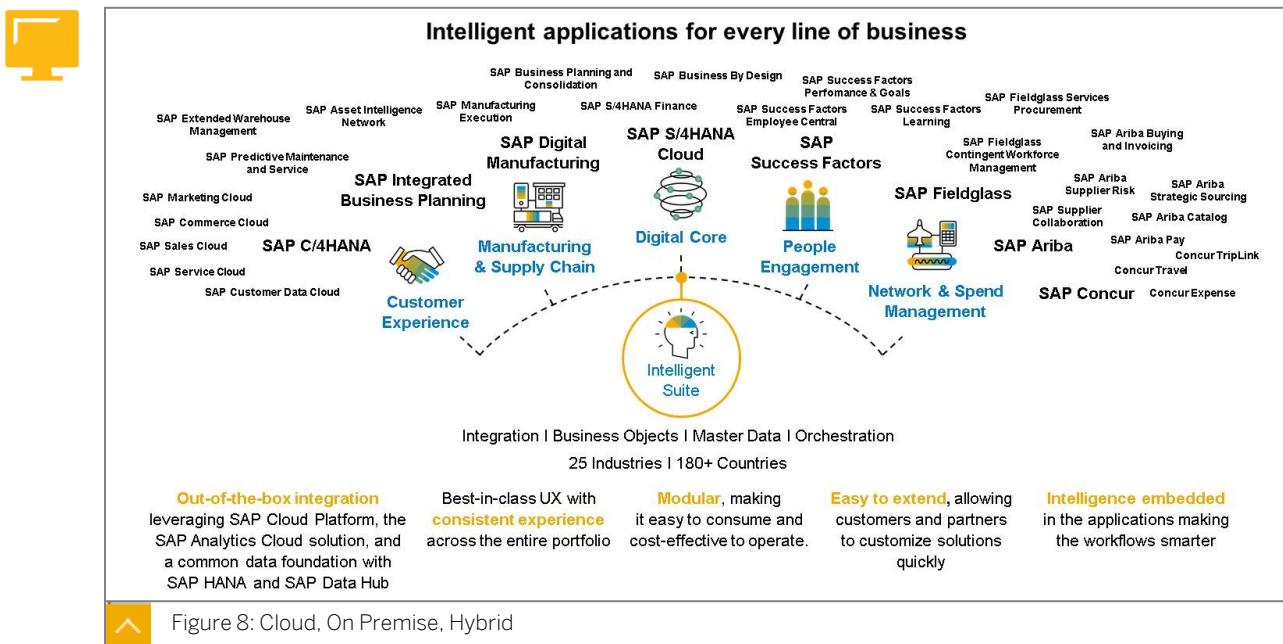


Figure 8: Cloud, On Premise, Hybrid

**Live Connection**

- No Data Replication
- Only Metadata is used
- Data Security

Data Import Connection

- Smart Data Preparation
- Data Modeling
- Data Refresh can be scheduled

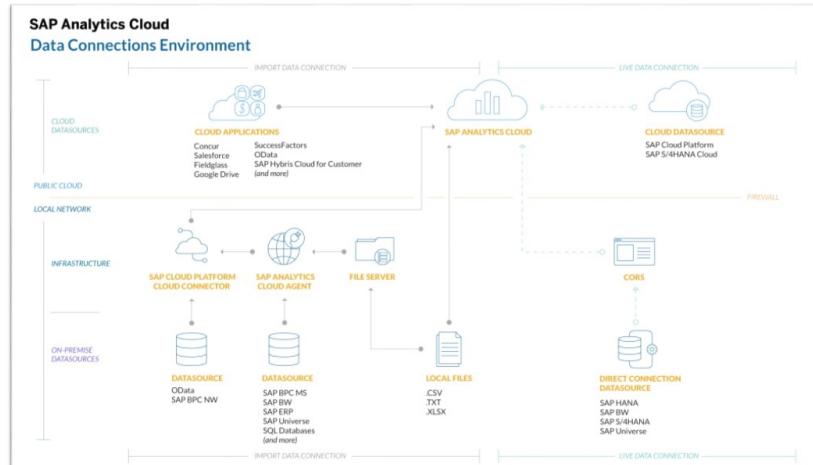


Figure 9: Data Connections Environment

**Applications****Analytic capabilities****Core capabilities****PaaS**

SAP Digital Boardroom	SAP Analytics Hub	Mobile Experience	SAP App Center
BI Discovery Charts and tables Geospatial	Planning Events and workflows Allocation Value driver tree simulation	Predictive Smart Assist Build & deploy predictive models	Application Design Scripting Composites UI theme & stylesheet
Data connectivity Wrangling Modeling	Administration Auditing	Visualizations Collaboration	Mobile APIs

SAP Cloud Platform

SAP Data Center

Cloud data sources and applications

On-premise data sources and applications

Figure 10: Cloud, On-Premise, Hybrid



Web Mobile NLP

Business Intelligence Enterprise Planning Predictive

SAP Analytics Cloud

SAP Analytics Hub

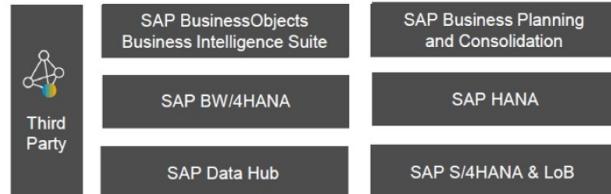
**LIVE CONNECT**

Figure 11: SAP Analytics Cloud Hybrid

SAP rents dedicated tenants (isolated and secure) on a shared hardware-software platform, based on the SAP Cloud Platform. SAP manages the hardware and software so customers can focus on analyzing their business.

Software as a Service (SaaS) redefines the concept of a classical BI system into an intelligent enterprise system, where users can determine which information is needed, and in which form the information will be delivered.

The cloud is built natively on the SAP Cloud Platform, allowing simplified access for customers and a trusted cloud experience. SAP Analytics Cloud (SAC) combines the BI, predictive, planning, and digital boardroom capabilities to analyze all data from your landscape, on-premise or in the cloud.

SAC can be a public or private SaaS, which enables access to on-premise and cloud data sources. SAC provides two methods for accessing your data located anywhere in your information system landscape:

1. Live connection (online)
2. Data acquisition (batch) connectivity

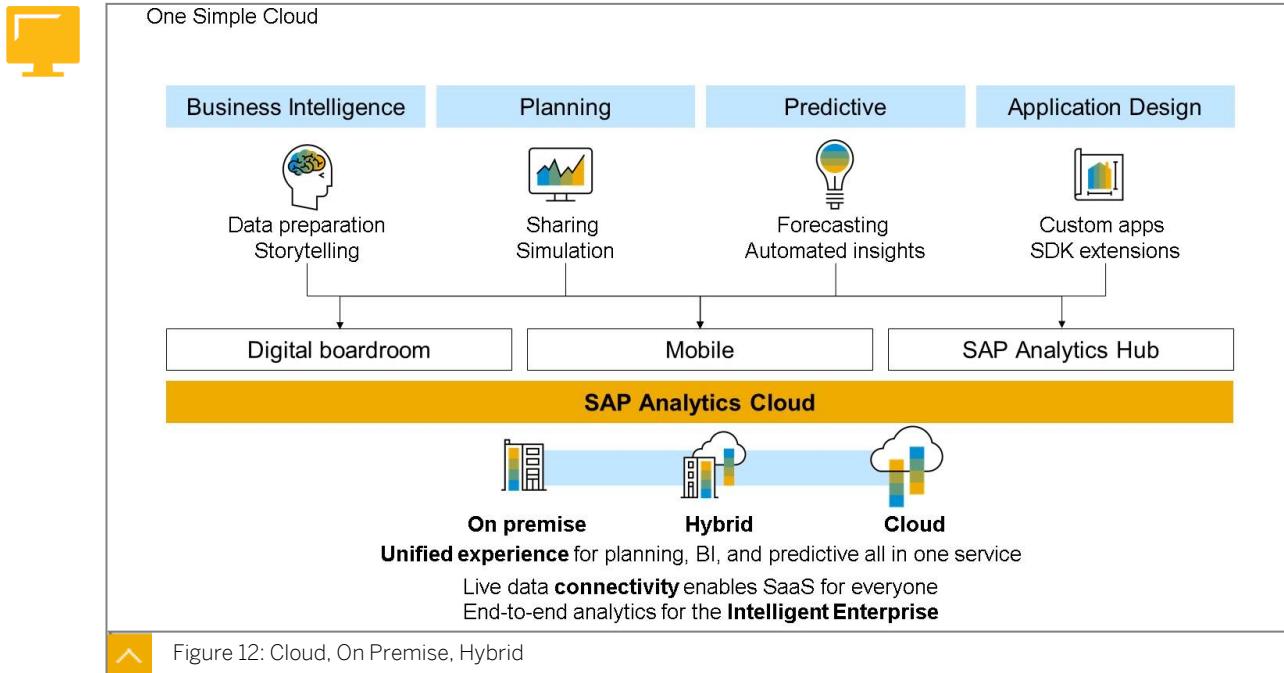
The SAP Analytics Cloud (SAC) offers core capabilities to connect to the data and model needed. The SAC also supports collaboration between users and offers a mobile presentation of your visualizations.

In SAP Analytics Cloud, you can create models from data sources in on-premise or cloud systems, build stories based on those models, and perform online analysis without any data replication. This feature allows SAC to be used in scenarios where data cannot be moved into the cloud, taking into account data which cannot be moved for security or privacy reasons, or if data already exists on a different cloud system.

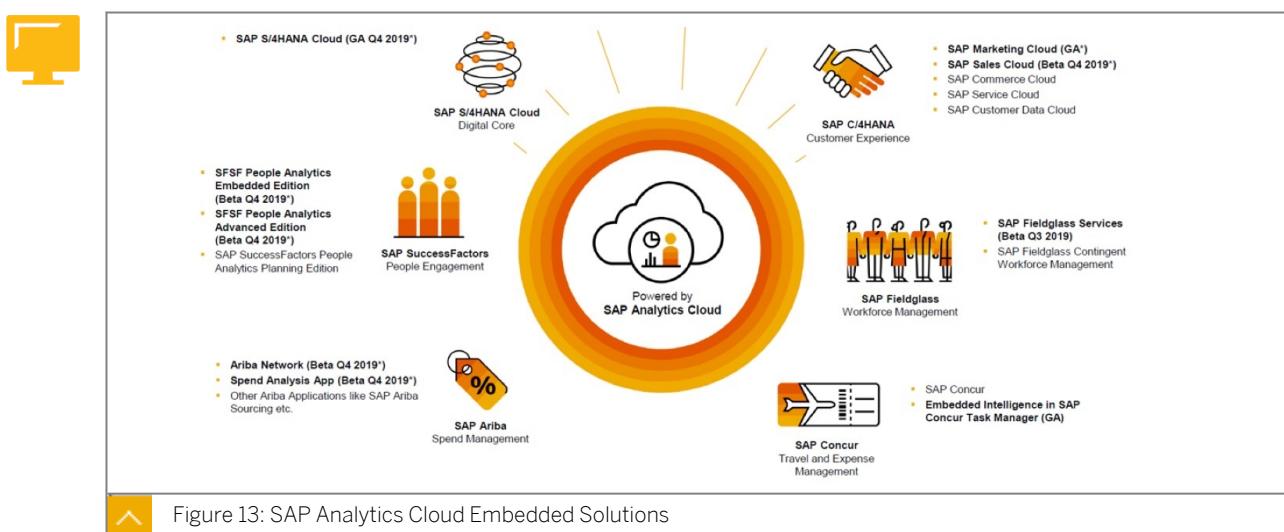
You can also create connections to remote systems to allow data acquisition by SAC. Data is imported (copied) to SAP Analytics Cloud HANA in-memory database, and changes made to the data in the source system do not affect the imported data.

Most customers want to get all the benefits of such hybrid architecture.

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Servers responsible for your internal business intelligence system are hosted by you or a dedicated provider. In this solution, the provider is responsible for all actions and must support every function of the system, such as providing data, maintenance, and reporting.



LESSON SUMMARY

You should now be able to:

- Describe the positioning and value proposition of SAP Analytics Cloud
- Explain what is in SAP Analytics Cloud

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Understanding Product Navigation and Fundamentals



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Explore basic functionality
- Prepare, share, and collaborate on stories

Product Navigation and Fundamentals

Logging In and Getting your First License

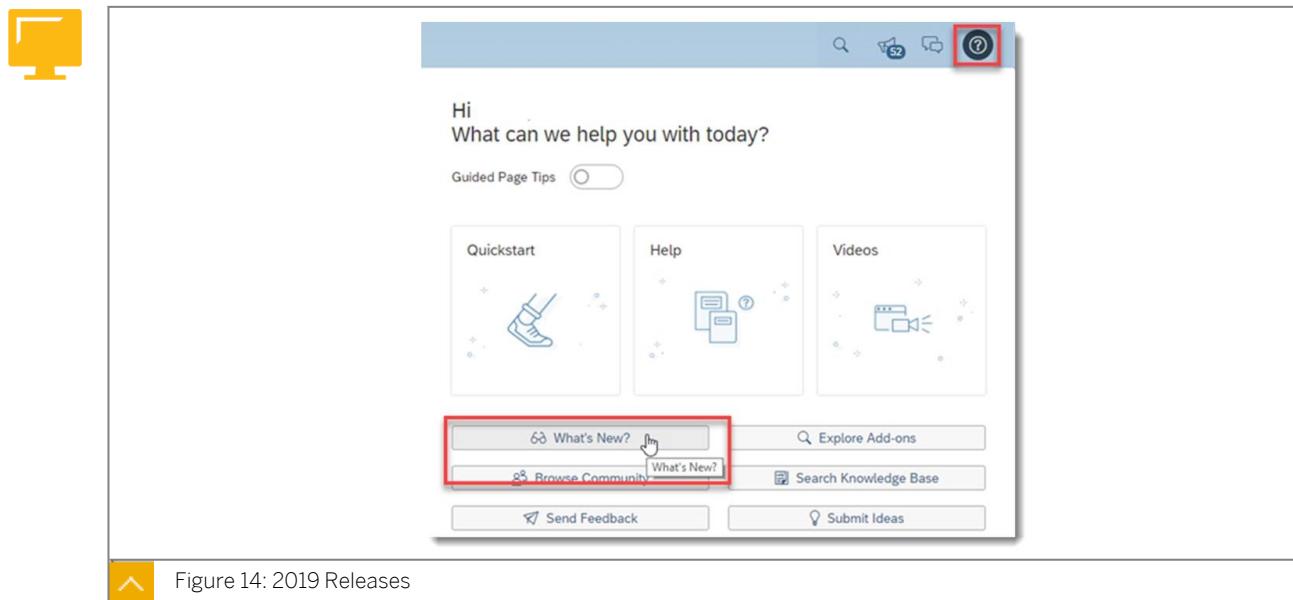
To get a trial license, you only require an email address, a specific user is not needed. After registration, you will receive an email from SAP which contains all log-on information. An email address and password to activate your account will be provided by your trainer during training.



Note:

Always use Google Chrome for working with SAP Analytics Cloud, not all functions are supported in other browsers.

After logging in you will see your personal working desktop where all permitted activities are commenced, including starting, using, and editing applications, creating data models, creating stories, browsing data, and many other actions.



Use the screen shown in the figure above to find out what is new in the latest version of SAP Analytics Cloud. You can find a complete list of updates and new changes to SAP Analytics Cloud from the application's *Help Center*.

Log on to your system and select *What's New*.

For more production information on what is new, visit the following blog: https://www.sapanalytics.cloud/product_updates

Data

To analyze business data, you must first collect data. A typical business will collect massive amounts of data from a variety of sources, such as point of sale, HR, marketing, and procurement. The data collected by your business must then be stored. You can choose to store information in a spreadsheet or in a database, depending on the complexity.

Data visualizations represent your business data in various chart types, making it easy to understand your business at a glance. Similarly, visual analytics help you to quickly answer your business questions.

Models

The first step in gaining insights from Analytics Cloud is to connect your data to the software. You can accomplish this either by importing data, for example from a .csv or Excel file, or by making a data-connection to an on-premise or cloud-based data source. Once your data is connected, you can use it to create a model. A model is a clean and defined version of your raw data, and forms the basis of your analysis.

Data appears in SAP Analytics Cloud in rows and columns, similar to a spreadsheet. Your model will define each column of data as either a dimension or a measure. The complexity of a model will depend on its purpose and how it was made. Data scientists and IT professionals will be familiar with modeling (the process of creating a model), however this does not require advanced technical knowledge. Any user can create a basic model by adding data directly to a story.

In SAP Analytics Cloud, more complex models are created using the modeler. As the modeler is a more advanced tool, many organizations appoint advanced users from employees working in IT or other data-related positions.

Stories

You can use stories to explore and visualize your data for reporting, planning, and analysis. There are two areas within stories that can be used for these purposes:

1. Data View

If you have imported data to your story, you can start in the data view. Here, you can check your data, clean any errors, and add further definitions to your model. You can switch views to explore your data in the data view. Select dimensions and measures from your model to automatically generate visualizations that you can copy to pages in your story.

2. Pages

Each story can have multiple pages that are set up as a canvas or grid.

Tiles	Every object that you add to a page is contained within a tile. You can fill your pages with tiles that contain charts and graphs, tables, and other objects.
Design Panel	Select a tile on your page to access the design panel. Here, you can use tools to adjust the content and styling of your tiles.

Start by connecting to your data and creating a model. Your model can be as simple or complex as required. You can create a model by adding data directly to a story, or when more advanced connections and models are required, use the modeler.

Next, fill the pages of your stories with tiles containing objects that give insights into your business. Use stories for reporting, planning, analysis, and more efficient data-based decision making.



Note:

You can make your canvas pages responsive to display correctly on all devices.

Analytic Application

With the new designer you can create professional applications that use the SAC Datasources.

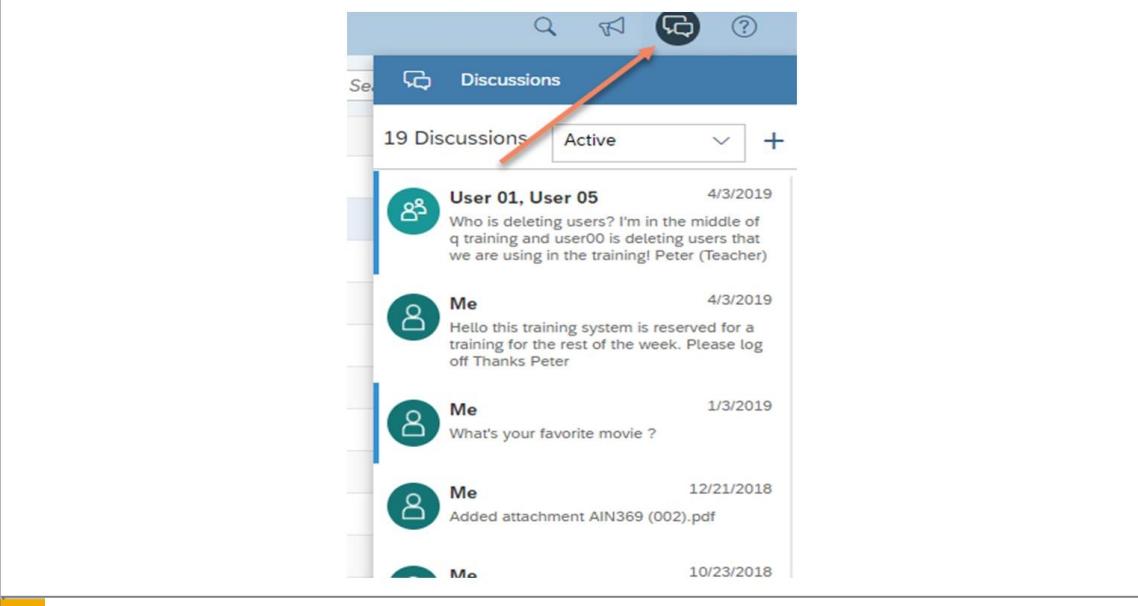
The tool gives the developer the flexibility to customize application models from the dashboard in ways the BI story does not support. It offers a rich set of capabilities for professional designers. Unlike stories, applications allow the report designer greater control over the design of the application. Applications provide custom interactivity and do not have theoretical limits. To use applications, the developer needs technical and coding skills.

Collaboration

You can collaborate on a story in two ways:

1. Discussions in Stories

All collaboration activity is grouped under discussion threads.



The screenshot shows the SAP Fiori Discussions interface. At the top, there is a search bar, a notifications icon, and a help icon. Below that, a blue header bar displays the word "Discussions". Underneath, a table lists four discussion threads:

- User 01, User 05** (4/3/2019): Who is deleting users? I'm in the middle of q training and user00 is deleting users that we are using in the training! Peter (Teacher)
- Me** (4/3/2019): Hello this training system is reserved for a training for the rest of the week. Please log off Thanks Peter
- Me** (1/3/2019): What's your favorite movie ?
- Me** (12/21/2018): Added attachment AIN369 (002).pdf

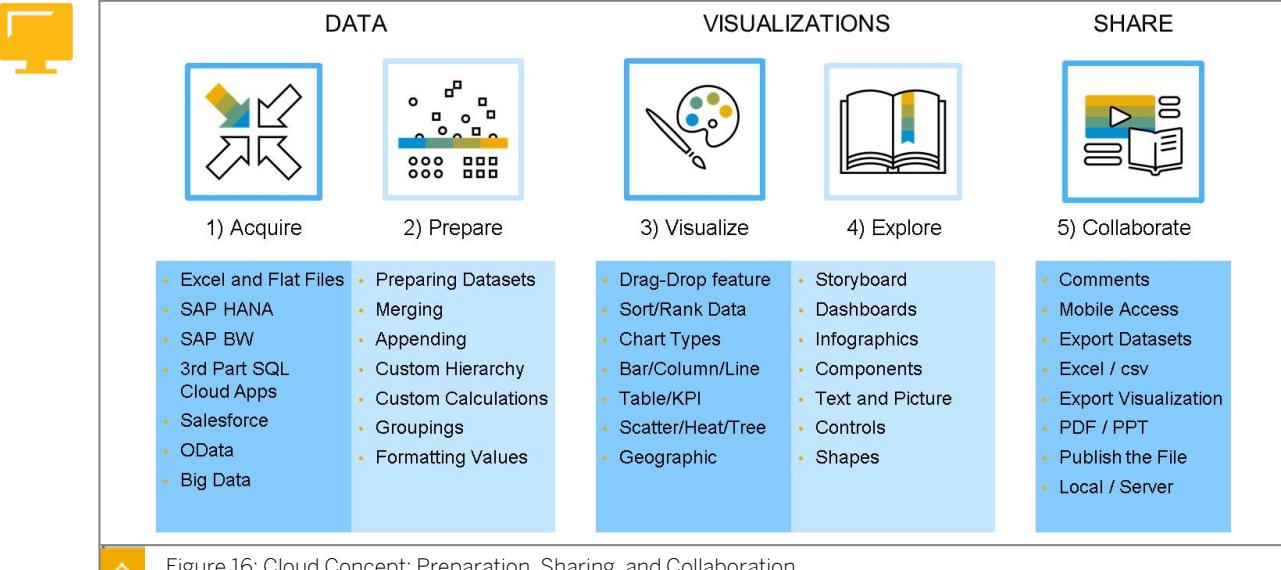
A red arrow points to the "Discussions" header at the top of the screen.

Figure 15: Discussions

2. Comments in Stories

You can add comments to a specific page or widget within a story.

Preparation, Sharing, Collaboration



The diagram illustrates the Cloud Concept, divided into three main sections: DATA, VISUALIZATIONS, and SHARE.

- DATA** (Icon: Computer monitor):
 - 1) Acquire**: Icons show a document and a database. Sub-points: Excel and Flat Files, SAP HANA, SAP BW, 3rd Part SQL, Cloud Apps, Salesforce, OData, Big Data.
 - 2) Prepare**: Icons show a scatter plot and a data grid. Sub-points: Preparing Datasets, Merging, Appending, Custom Hierarchy, Custom Calculations, Groupings, Formatting Values.
- VISUALIZATIONS** (Icon: Paint palette and brush):
 - 3) Visualize**: Icon shows a chart. Sub-points: Drag-Drop feature, Sort/Rank Data, Chart Types, Bar/Column/Line, Table/KPI, Scatter/Heat/Tree, Geographic.
 - 4) Explore**: Icon shows an open book. Sub-points: Storyboard, Dashboards, Infographics, Components, Text and Picture, Scatter/Heat/Tree, Controls, Shapes.
- SHARE** (Icon: Video camera and document):
 - 5) Collaborate**: Icons show a video camera and a document. Sub-points: Comments, Mobile Access, Export Datasets, Excel / csv, Export Visualization, PDF / PPT, Publish the File, Local / Server.

Figure 16: Cloud Concept: Preparation, Sharing, and Collaboration

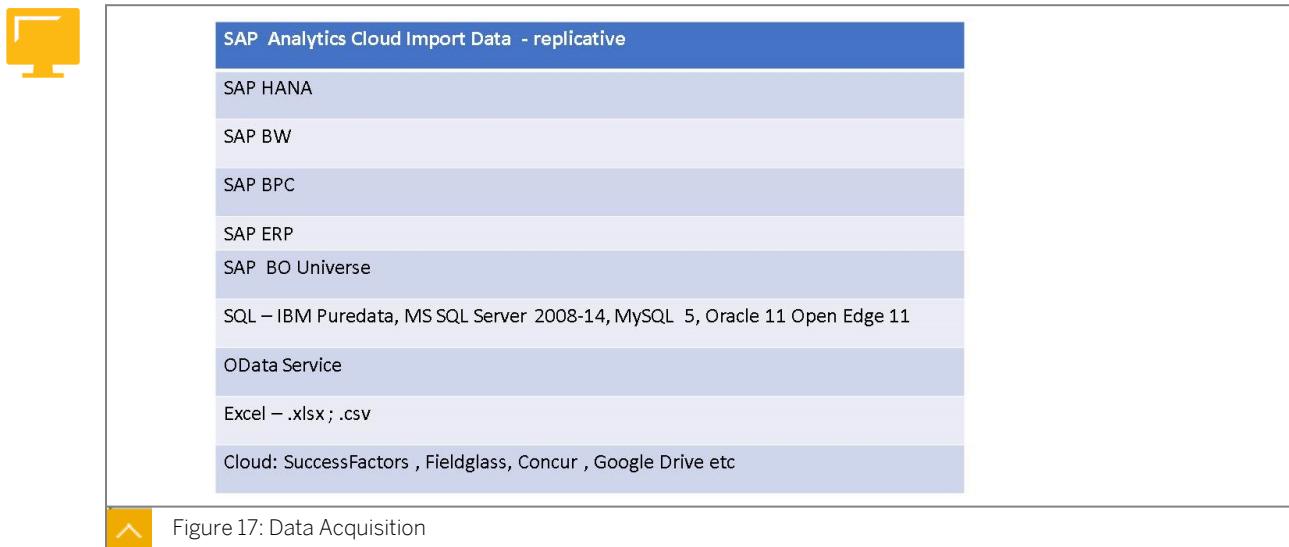
After using a predefined connection to acquire some data from one or more data sources, the data can be prepared with the help of modeler or in the report directly. Depending on how customers want to present their data, they can use different techniques to redefine data or to

visualize them in the form of a story or dashboard. After sharing the result in the cloud, users can collaborate using the story or dashboard. Data can be refreshed as many times as required.

There are two different ways to get data to the SAC:

1. Replication
2. Live connection

These methods support different data sources.



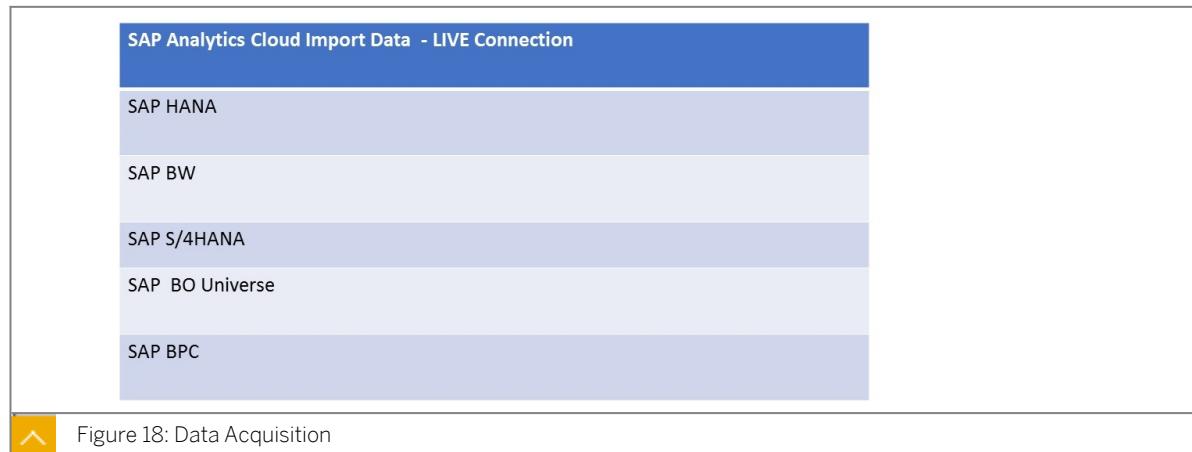
There are specific use cases based on the data size or additional enhancements of the data.

Several criteria have to be considered:

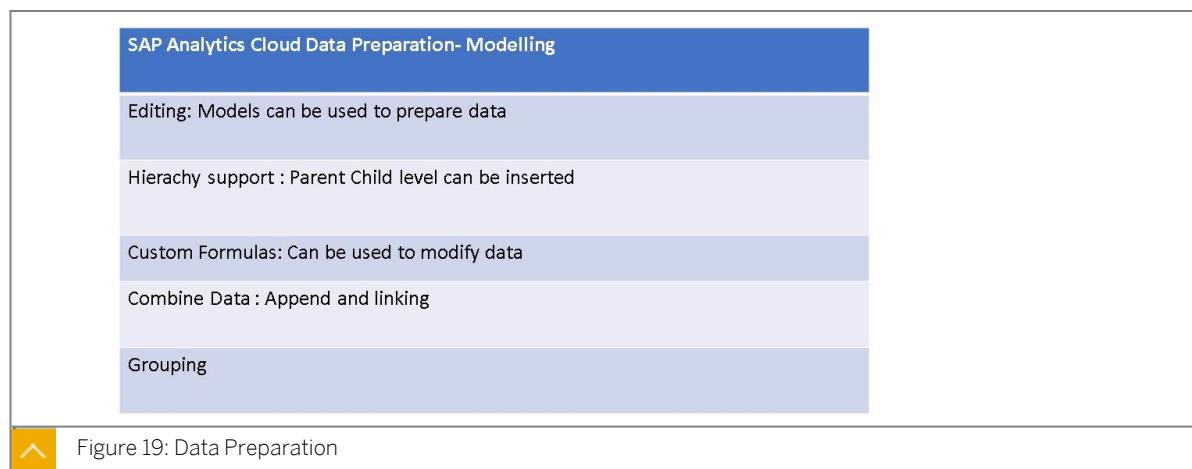
- Your functional needs.
- Data privacy constraints.
- Data volume constraints.

Prerequisites include:

- Recommended browser cache 250 MB
- Recommended connection speed >500 kbit/s
- Limit in imported data according to datasource (Excel up to 100MB etc)



Datasources are used to create data models. Data models contain information about which functions the data source must have to be used in stories. The model itself contains only metadata as an instruction on how to prepare the data for stories.



Collaboration on Stories

Collaboration is carried out on stories by:

- Having a discussion.
- Posting comments.
- Using calendar functions. For example, assigning a task.



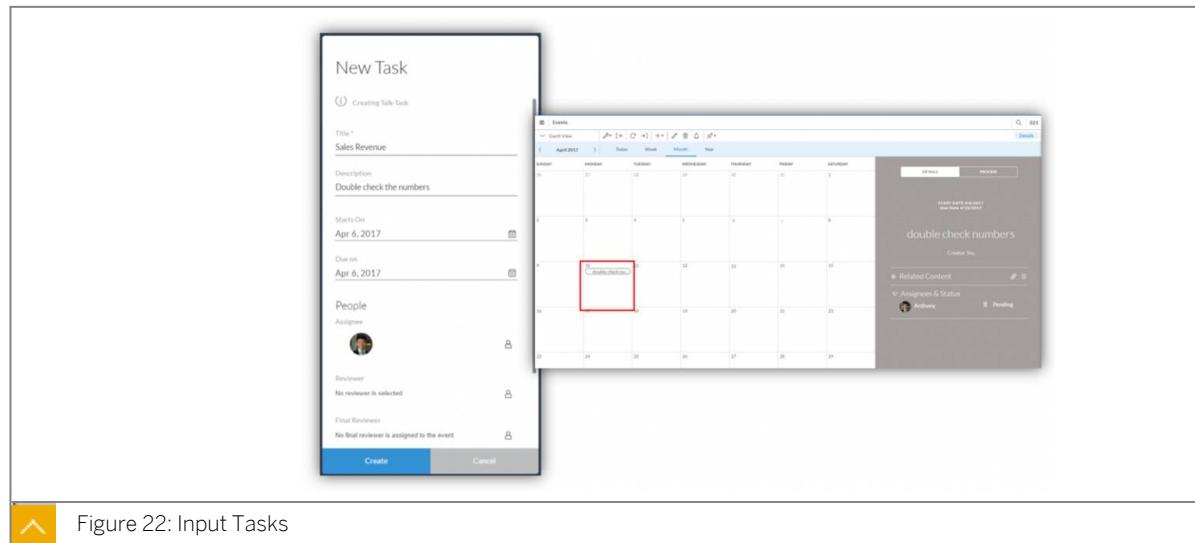
Figure 20: Discussion

To create a discussion, simply select the discussion icon, choose one or more people you wish to collaborate with, and then start a conversation. You can message, add attachments, and even link to other stories.



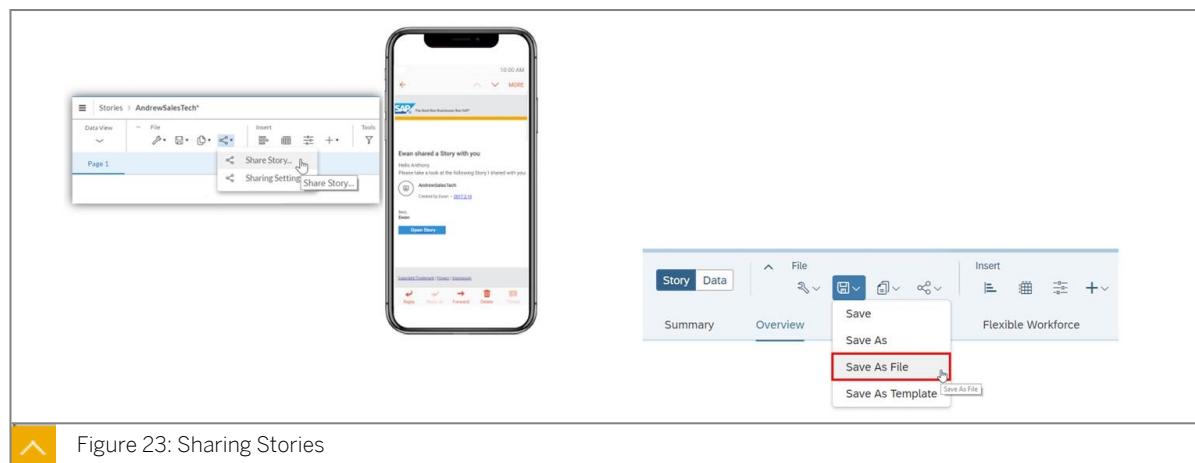
Figure 21: Commenting

Commenting is a great way to offer feedback on specific elements in a story. Simply select the element you wish to comment on, click the comment icon, and type in your message. Comments can be addressed to specific team members by tagging them with the @ symbol.



Input tasks are used to gather feedback or additional information from colleagues. A task is created and sent to the colleague, who adds the requested information and then returns the task.

You can assign tasks to one or more collaborators. When assigning a task to someone, you can include a final reviewer, attach related content, and even set a deadline and reminder. Your collaborators will receive an email notification with a link to your story. If you set a deadline, an event will be added to their calendar.



There are two ways to share your story:

1. Internally:

To share a story internally, simply select the share story icon and choose with whom you wish to share your story. Sharing a story with members in your organization who use SAC allows them to use the dynamic features, such as hierarchical drill down, input controls, and linked dimensions.

2. Externally:

To share a story externally, select the save as file option and select the file type as PDF. Sharing your story this way will remove all the dynamic functionality.

Analytics Catalog



SAP Analytics Cloud, Analytics Catalog

- Simplified analytics access through the home screen
- SAC Tenant administrators can enable Catalog in Home screen from Application Settings
 - Available on both Neo & CF
 - Available for SAC BI named & concurrent users
 - Available with Test & Demo license

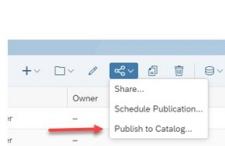


Figure 24: Sharing Application

A new Homepage component/tab is provided by the Analytics catalog. Usual SAP Analytics Cloud and external content like Stories, Applications, Digital Boardrooms or external files can be published. This should help make the content easily discoverable for SAP Analytics Cloud end-users. The Content catalog also offers the possibility to add enhanced metadata or filters. Before you are able to see this feature, you have to activate this at the administrators menu.



Note:

Do not confuse that tool with the Analytic Hub. It is the recommended solution for On-Premise and Hybrid analytics landscapes

Unit 1

Exercise 1

Log into SAP Analytics Cloud (SAC) and Explore Basic Functionality

SAP Analytics Cloud currently requires Google Chrome. In Google Chrome, you need to make the following settings:

- In the address bar in Google Chrome, enter `chrome://settings/content/cookies` and ensure that the *Block third-party Cookies* setting is off.
- **Required:** In the address bar in Google Chrome, enter `chrome://settings/content/popups?search=pop`. Assuming pop-ups are blocked (the recommended setting), choose *Add* and add `[*.]sapanalytics.cloud`
- Single-sign-on has been implemented on the training landscape, therefore you do not need to enter your password when logging onto the training system. If you are prompted to enter a password If you are unsure of the logon information, please consult your instructor.

Access the SAP Analytics Cloud system via the URL provided by the instructor, or via an SAP supplied Remote Desktop. Navigation might be slower via a remote connection.



Caution:

Do not change the password. Also DO NOT upload your photo or change any profile information. This information is not stored directly in SAP Analytics Cloud, and would require the instructor to log in to each user to fix for the next class. Please be respectful of the training environment, as the education department at SAP cannot easily refresh the system.



Note:

Where you see `##`, replace it with your assigned group number + your initials, such as **01AB**.

1. Log on and explore the SAP Analytics Cloud.
2. Copy the `SAC01_BI_XX` story to your working folder and rename the story.
3. Open your newly copied story, use filters, review some of the pages and visualizations.
4. Examine the legend for the MEE map visualization.
5. Pin the `# of Orders KPI` to your home page.

You will be able to see this metric on your Home page the next time you log in.

6. Share a story with another participant in the class.
7. Add a comment to your story requesting your manager review your material.



Hint:

Comments are saved when the story is saved. You can comment on pages or specific visualizations (widget), and view all the comments within a specific story in the comments panel. You can choose a specific comment to directly navigate to the corresponding page/widget. In the comments area, you can see the comment you just sent to the user and if they have responded.



Note:

Interactions with other users around comments require the other user to have the ability to save your story, this permission must be granted by you. Note that excessive use of comments can be distracting.

8. Allow your manager to provide additional feedback by including the manager in a discussion with your linked story.



Note:

Discussions allow you to send users a message and start a discussion. Here you can read all previous posts and make new contributions to the discussion.



Caution:

Discussions are temporary and are not saved with the story as comments.

Log into SAP Analytics Cloud (SAC) and Explore Basic Functionality

SAP Analytics Cloud currently requires Google Chrome. In Google Chrome, you need to make the following settings:

- In the address bar in Google Chrome, enter `chrome://settings/content/cookies` and ensure that the *Block third-party Cookies* setting is off.
- **Required:** In the address bar in Google Chrome, enter `chrome://settings/content/popups?search=pop`. Assuming pop-ups are blocked (the recommended setting), choose *Add* and add `[*.]sapanalytics.cloud`
- Single-sign-on has been implemented on the training landscape, therefore you do not need to enter your password when logging onto the training system. If you are prompted to enter a password If you are unsure of the logon information, please consult your instructor.

Access the SAP Analytics Cloud system via the URL provided by the instructor, or via an SAP supplied Remote Desktop. Navigation might be slower via a remote connection.



Caution:

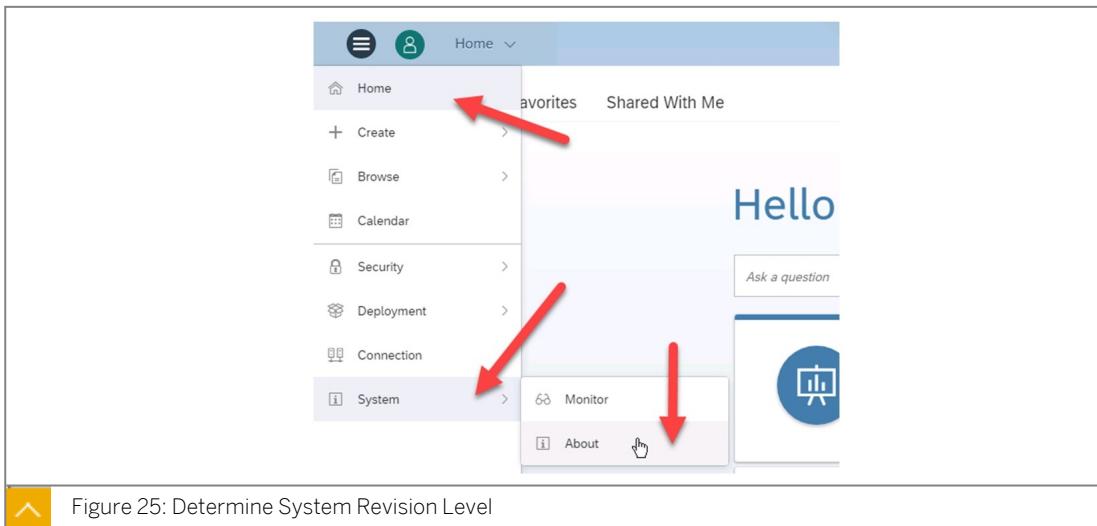
Do not change the password. Also DO NOT upload your photo or change any profile information. This information is not stored directly in SAP Analytics Cloud, and would require the instructor to log in to each user to fix for the next class. Please be respectful of the training environment, as the education department at SAP cannot easily refresh the system.



Note:

Where you see `##`, replace it with your assigned group number + your initials, such as **01AB**.

1. Log on and explore the SAP Analytics Cloud.
 - a) Log into your SAC account using the information provided by your instructor.
 - b) To explore the *Main Menu*, choose menu paths at random. Return to the *Home* screen.
 - c) To determine your system revision level, choose *Main Menu* → *System* → *About*, as shown in the following figure.



Record the system version: _____

- d) To turn on or off *Guided Page tips*, choose the ? icon, then choose *Guided page tips = on*. The tips will display after the system refreshes. Review the first tip, then toggle the page tips back to *off*.
- e) To browse processes, choose *Main Menu* → *Browse* → *Processes*. Note the types of processes you can see: _____
Note some of the other items you can browse: _____
- f) To check what types of files are visible, choose *Browse* → *Files*, then use the *Filter* icon. Record the types of files you see: _____, _____, _____, _____
- g) From the menu, choose ? → *HELP* → *Search Box* and enter **Deployment**.
- h) To find out what agenda items are used the glossary, choose the ? icon, then choose *Help*. Search for **Glossary**. Scroll down to read the definition of the term *Agenda Item*.
- i) To search help for the *Creating Tasks* icon, and read about creating tasks, you must select the appropriate help topic. Choose the ? icon, then choose *Help* and search for **Creating Tasks**. Read the help item *Creating Tasks*.



Hint:

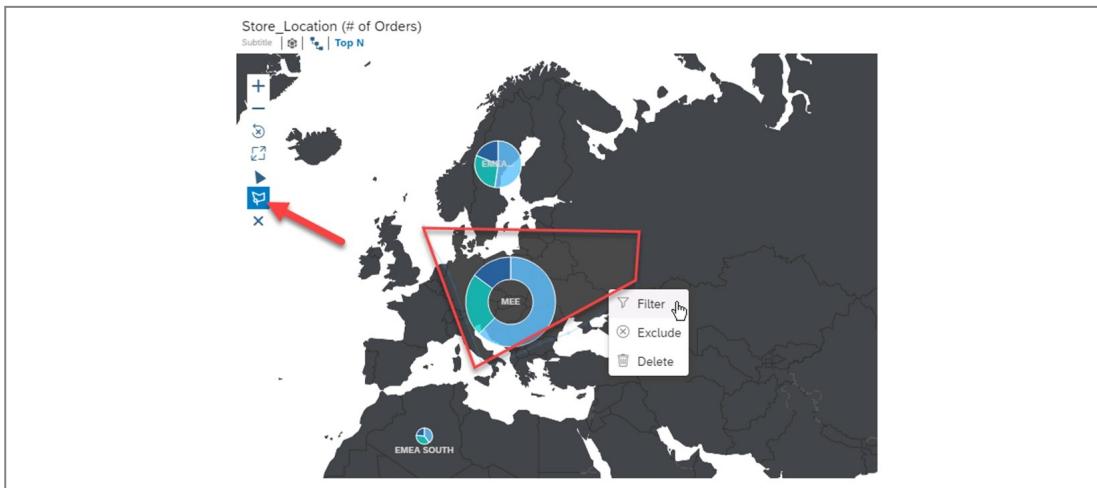
If you are already on the Search screen, change the search to **Creating Tasks**.

- j) Close the Help Center.
- k) To review the types of notifications the system can issue, choose the *Notifications* icon, then choose the drop-down arrow next to *All Types*, as shown in the following figure.



Figure 26: Review Notifications

- 1) To access the substantial help files, choose ? → *Quick Start*. Switch to the user perspective and take some time to explore the large amount of help available.
2. Copy the *SAC01_BI_XX* story to your working folder and rename the story.
 - a) Choose the *Main Menu* icon. Navigate to *Browse* → *Files* → *Public* → *SAC01_24* → *SAC01_Content*.
 - b) Choose the checkbox next to the *SAC01_BI_XX* story. Choose the *Copy to* icon.
 - c) Navigate to *My Files*. To change the *Name* and *Description*, change the *XX* to your assigned group number and add your initials. For example, ***SAC01_BI_99NF***.
-  Note:
Use this *Group##+Initials* suffix for all the objects.
- d) Choose *OK*.
 3. Open your newly copied story, use filters, review some of the pages and visualizations.
 - a) Navigate to *Main Menu* → *Browse* → *Files* and choose the story you just saved.
 - b) If prompted, enter the user and password as provided by the instructor.
 - c) To adjust the map, in *Edit* mode, drag the Geo map so that the screen matches the following figure.



- d) To filter the map, use a polygon filter around the region MEE, choose the map, select the *Polygon* filter from the context menu, draw a polygon around the MEE region (central and eastern Europe), then choose the *Filter* icon.

Notice now near the top of the page that the metric only shows data for MEE and EMEA, which includes MEE.



Note:

This indirect filtering effect on other visualizations is called Linked Analysis, you will see how it is configured later.

- e) Add a story filter to filter the data to NA. Choose the *Filter* icon to add a filter.

If no *Filter* icon found, click the *More* icon and click *Filter*.

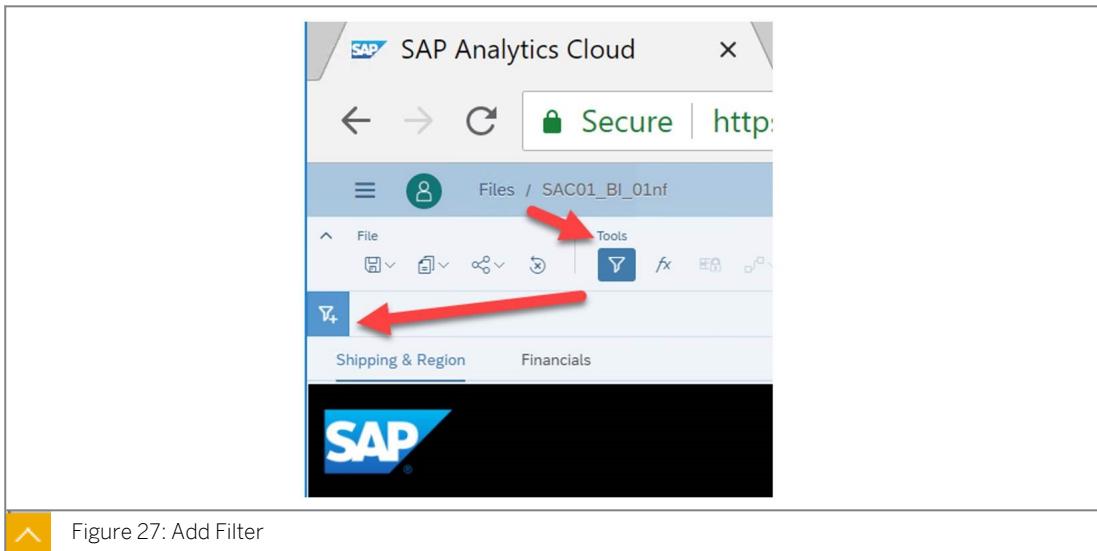


Figure 27: Add Filter

- f) Choose the *Pencil* icon to change the *data source* to *Pacifica Order Finance*.

- g) Choose *Dimensions* → *Region*. Choose the checkbox next to *NA* and choose *OK*. Applying these two filters will show no data.

- h) To delete the region story level filter, move over the *Region* filter and choose X.



Figure 28: Delete Filter

- i) To explore the filters in the *Out of Stock* reason, choose the *Out of Stock* bar chart, and from the context menu, choose the *Filter* icon.

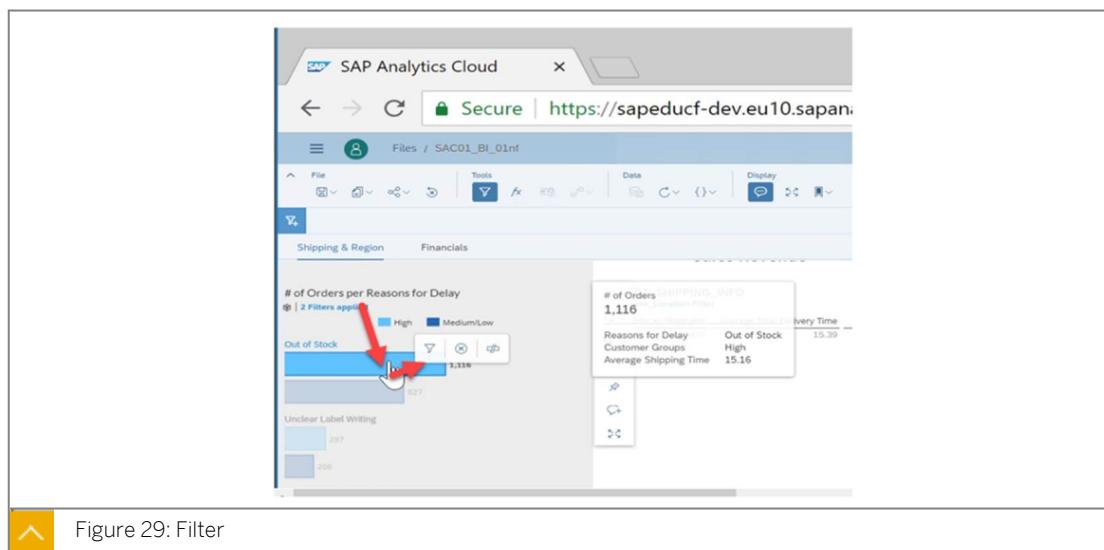
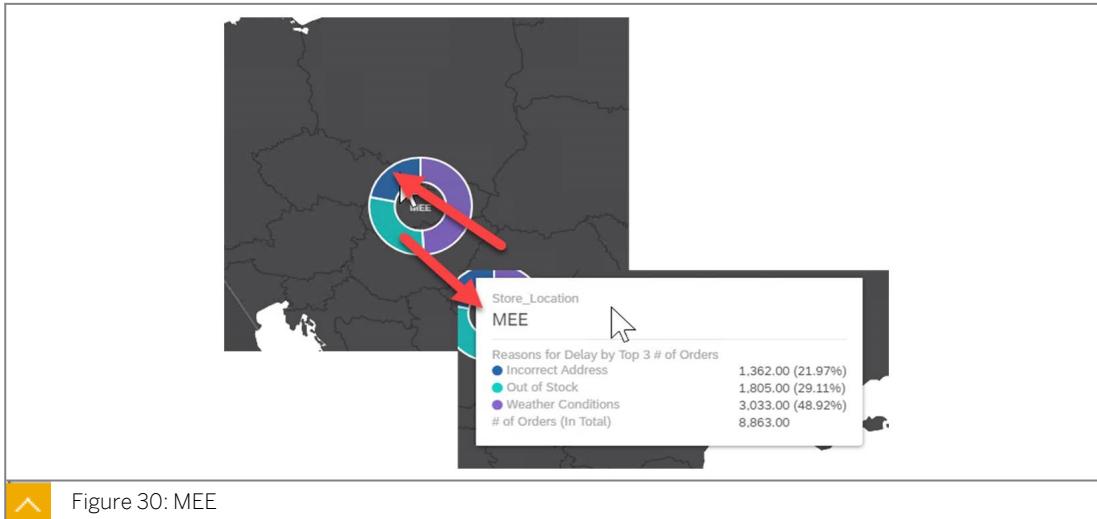


Figure 29: Filter

Now examine what filters are being applied in general. Sometimes the stories are saved by designers with filters already applied.

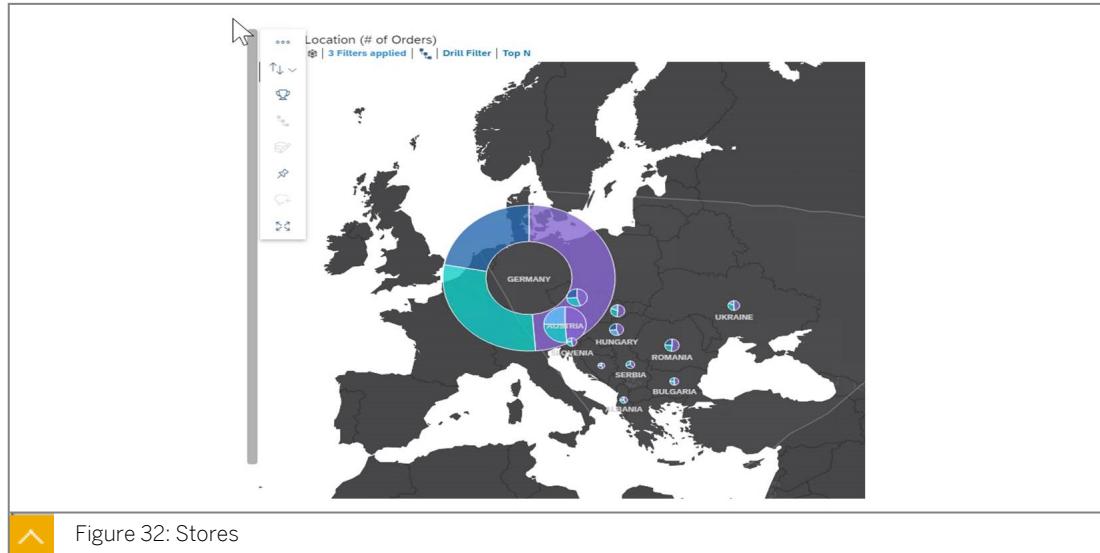
4. Examine the legend for the MEE map visualization.
 - a) Choose the blue part of the ring around MEE and wait until the legend appears.



- b) Navigate through the hierarchy to review the details for the MEE region by store. Choose the blue area of the ring again, but this time choose the down arrow icon from the context menu.

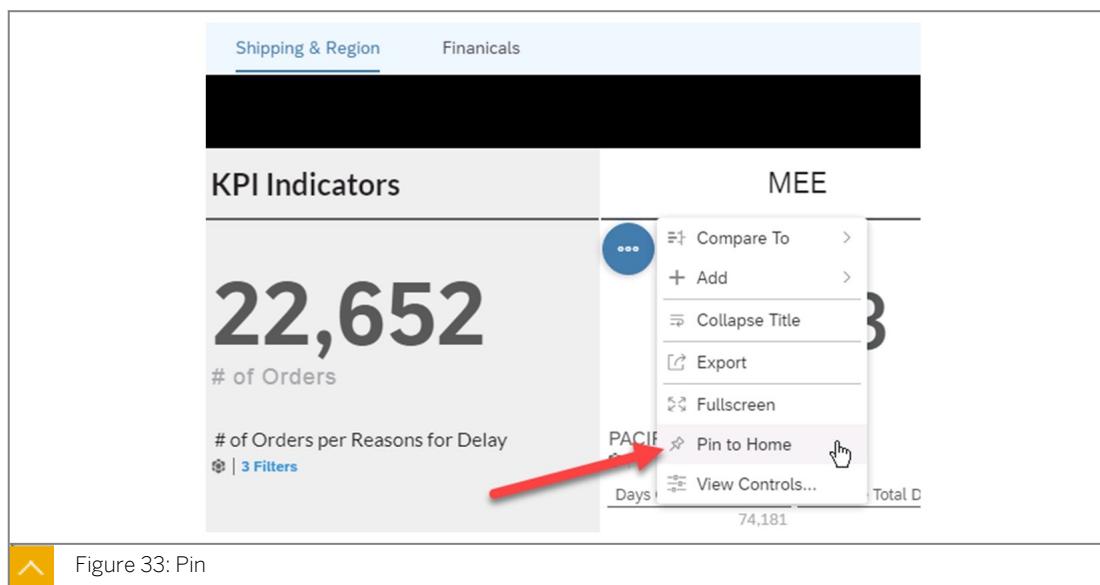


- c) Your map should now have all the stores in the MEE region.



5. Pin the # of Orders KPI to your home page.

- a) Choose the KPI and select the pin icon from the context menu.



You will be able to see this metric on your Home page the next time you log in.

6. Share a story with another participant in the class.

- a) Choose the Share icon.
b) Choose Share

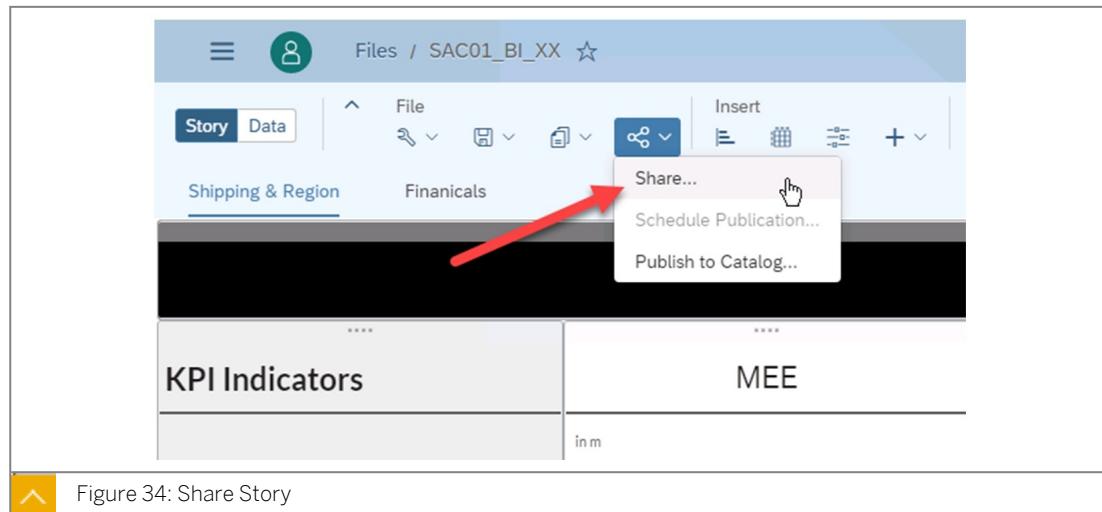


Figure 34: Share Story

- c) In the *Add Users or Teams* field, enter the student ID that is higher than your XX number.



Note:

The highest XX user can use the instructor as the recipient.

- d) Review the options under Access. Leave it as *View*.

- e) Choose *Share*.



Note:

Normally you would also need to share access to the underlying models (with the data), but in this case all users in the class have access to the models in this story.

- f) Return to the financial page of your story. Again, do not worry if some of the visualizations show no data.

7. Add a comment to your story requesting your manager review your material.



Hint:

Comments are saved when the story is saved. You can comment on pages or specific visualizations (widget), and view all the comments within a specific story in the comments panel. You can choose a specific comment to directly navigate to the corresponding page/widget. In the comments area, you can see the comment you just sent to the user and if they have responded.

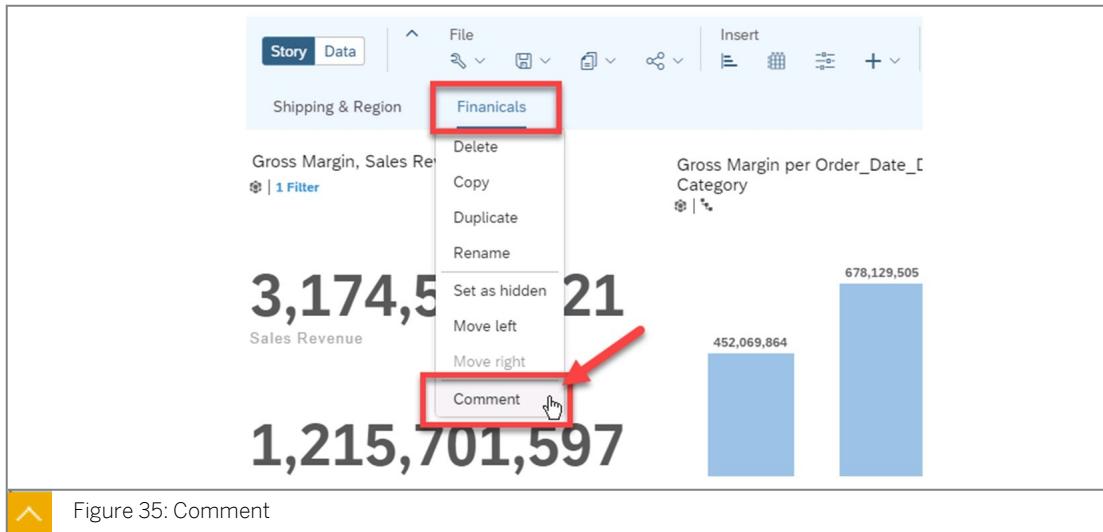
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**Note:**

Interactions with other users around comments require the other user to have the ability to save your story, this permission must be granted by you. Note that excessive use of comments can be distracting.

- a) Navigate to *Financials* → *Comment*.



All options may not be displayed in edit mode.

- b) In the *Place Comment* field, enter your comment.
- c) Link users to a collaboration around this comment. Enter @ and find the user who previously shared the story with you and select that user.
- d) Enter **`please review the financials page and help me figure out why some charts have no data.`** and send.
- e) Choose *Place Comment*.
- f) Click anywhere outside the *Comment* dialog.
8. Allow your manager to provide additional feedback by including the manager in a discussion with your linked story.

**Note:**

Discussions allow you to send users a message and start a discussion. Here you can read all previous posts and make new contributions to the discussion.

**Caution:**

Discussions are temporary and are not saved with the story as comments.

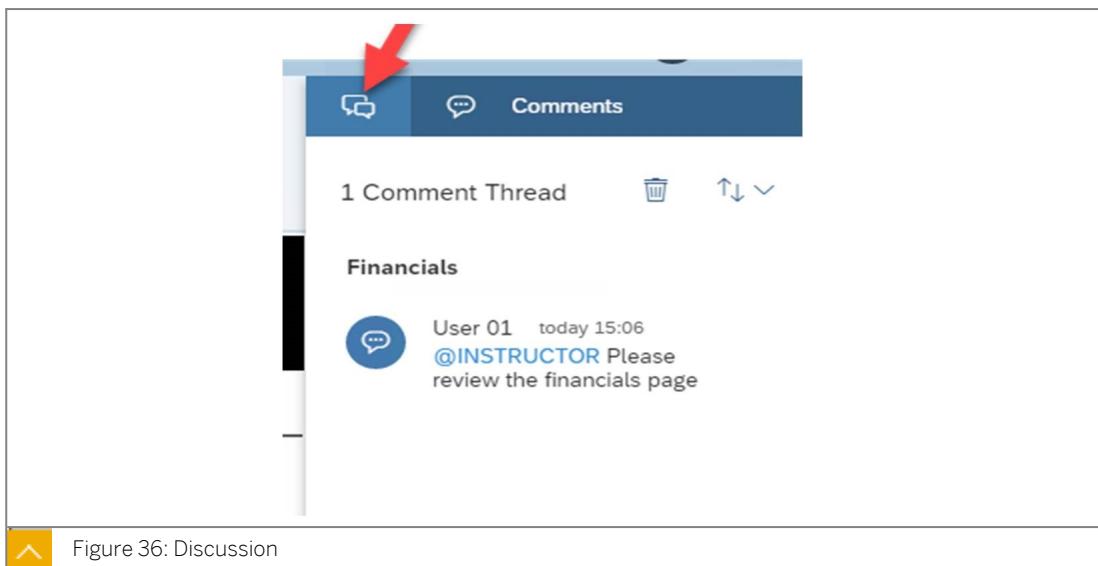
- a) Go to the *Discussion* area. Choose the  Collaboration icon.

You can collaborate on a story either by creating a discussion or by posting comments.

- b) Choose the *Comment* icon.

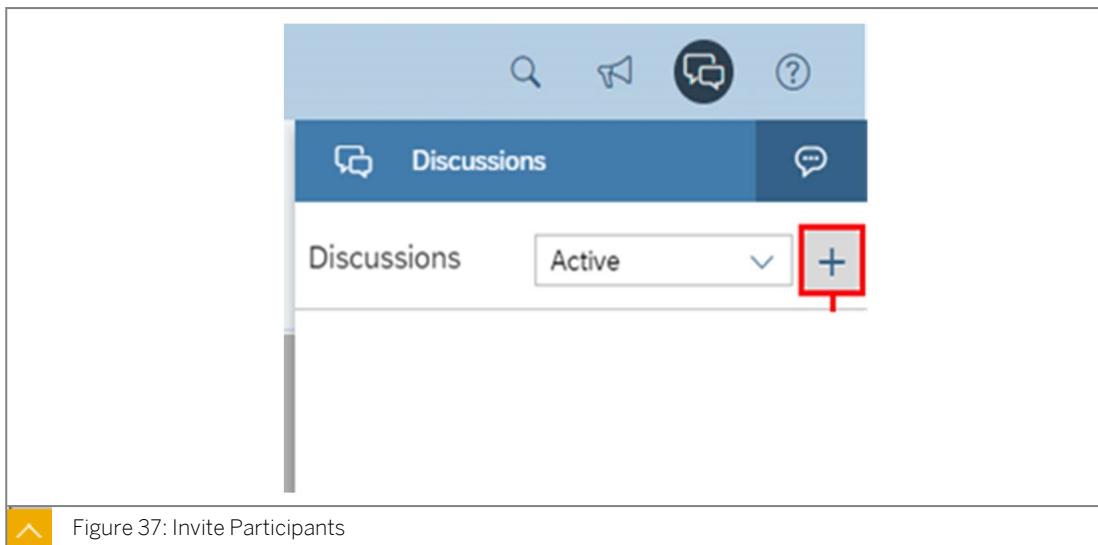
Here you can see the comment you just sent to the user and if they have responded.

- c) Choose the  Discussion icon.



- d) Choose the *New Discussions* icon.

- e) Choose the + icon beside *Discussions* to invite participants.



- f) Choose the same user you shared the story with previously. Select the checkbox next to the user ID you want.
- g) Choose *OK* and go to the *Home* screen. To start a new discussion, select the *Discussion* icon.
- h) Choose the + icon at the bottom of the *Discussions* panel.
- i) Choose *Link Story*.



- j) In the small window at the bottom, enter **Help me figure out this data** and choose *Send*.
- k) Choose the *Collaboration* icon to close the collaboration pane.
- l) Choose *Save*.
Press *CTRL + S* on the keyboard to save the story.
- m) Navigate to *Main Menu* → *Home*.

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LESSON SUMMARY

You should now be able to:

- Explore basic functionality
- Prepare, share, and collaborate on stories

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Learning Assessment

1. Does SAP Analytics Cloud include Planning, Predictive, and Business Intelligence?

Determine whether this statement is true or false.

- True
- False

2. SAP Analytics Cloud offers live chat with experts as an embedded help function. This is available via the Chat icon on the top of the screen.

Determine whether this statement is true or false.

- True
- False

3. What criteria needs to be considered if you want to connect data to and from SAP Analytics Cloud?

Choose the correct answers.

- A Data Privacy
- B Browser Cache >250 MB
- C No Data Limit
- D Connection Speed >500kbit/s

Learning Assessment - Answers

1. Does SAP Analytics Cloud include Planning, Predictive, and Business Intelligence?

Determine whether this statement is true or false.

True

False

SAC includes Planning, Predictive, and Business Intelligence.

2. SAP Analytics Cloud offers live chat with experts as an embedded help function. This is available via the Chat icon on the top of the screen.

Determine whether this statement is true or false.

True

False

The embedded help function includes guided help tutorials, videos, and classical help documents. But no live chat.

3. What criteria needs to be considered if you want to connect data to and from SAP Analytics Cloud?

Choose the correct answers.

A Data Privacy

B Browser Cache >250 MB

C No Data Limit

D Connection Speed >500kbit/s

UNIT 2

Connections and Data Models

Lesson 1

Understanding Data Source Connections

39

Lesson 2

Preparing Data and Basic Modeling

41

Lesson 3

Performing Basic Data Modeling

46

Exercise 2: Upload Data from a File and Wrangle Data

57

Lesson 4

Connections and Data Models

77

UNIT OBJECTIVES

- Explain connections
- Prepare data
- Perform Basic Data Modelling
- Explain structure view and data foundation view

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Unit 2

Lesson 1

Understanding Data Source Connections



LESSON OBJECTIVES

After completing this lesson, you will be able to:

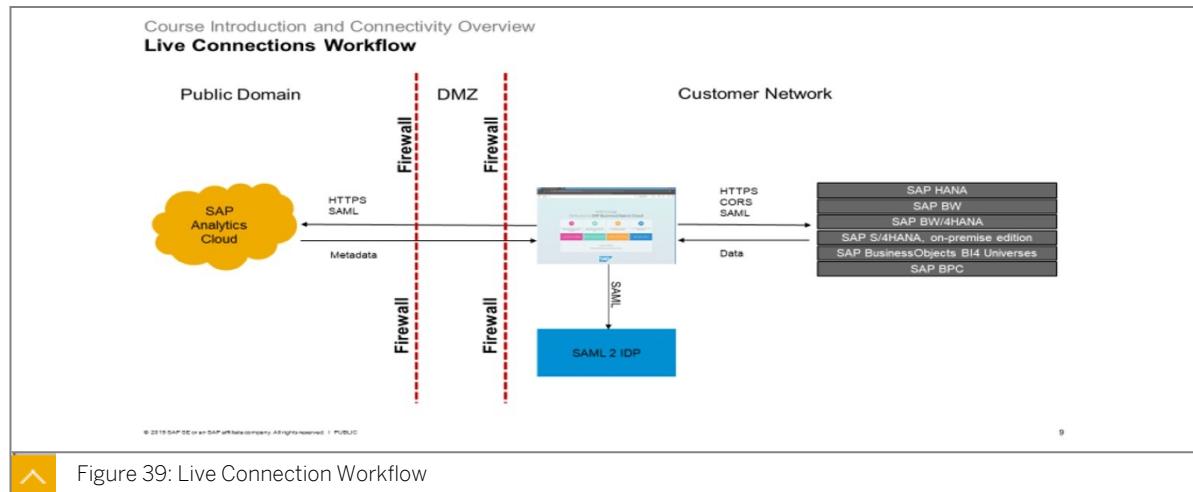
- Explain connections

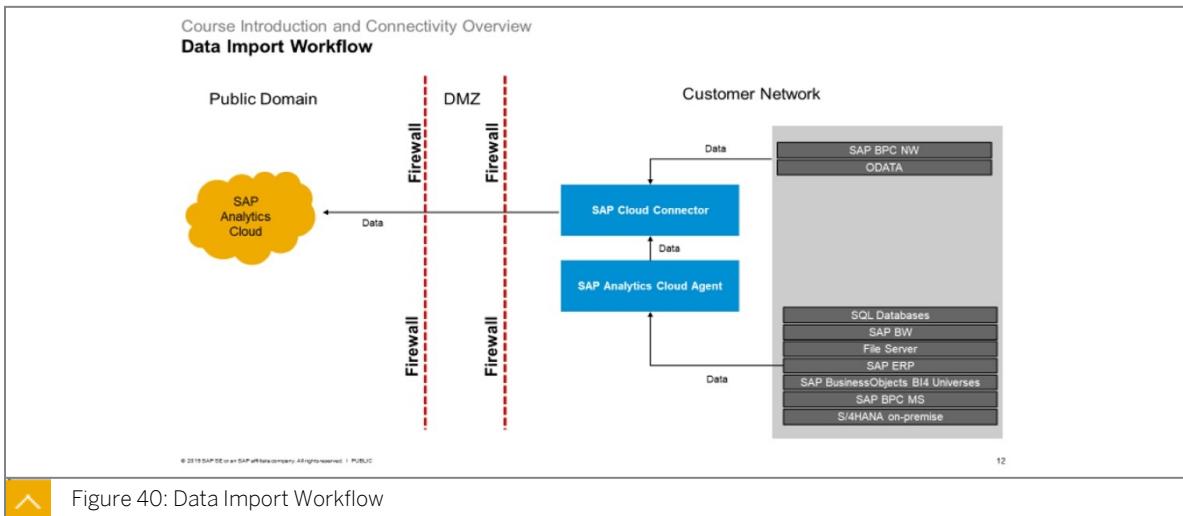
Connecting Data Sources to SAP Analytics Cloud

Connection Types

There are two types of data connections: Live Data Connections and Import Data Connections. The following table describes the differences between these:

Live Data Connections	Import Data Connections
<ul style="list-style-type: none">• Are available for cloud and on-premise data sources.• Do not replicate your data in SAP Analytics Cloud.• Use existing data models for analysis.• Update your data visualizations and stories with new data, in real-time.	<ul style="list-style-type: none">• Are available for cloud and on-premise data sources.• Replicate data within SAP Analytics Cloud.• Create new data models through the SAP Analytics Cloud Modeler.• Update your data visualizations and stories when refreshed.



**Note:**

- Depending on your environment, there are different requirements for establishing both live and import data connections to SAP Analytics Cloud. SAP recommends creating your live data connections using a direct connection type (CORS – Cross-Origin Resource Sharing). Direct connectivity does not require any additional hardware, is easy to setup, and provides superior performance.
- A video on data connections is available here: <https://www.sapanalytics.cloud/videos/connecting-data-overview/>
- For more information on live data connectivity, please refer to the SAP Analytics Cloud Connectivity Guidelines wiki: <https://wiki.scn.sap.com/wiki/display/BOC/SAP+Analytics+Cloud+Connectivity+Guidelines>

Extended Limit for Acquiring Data**Note:**

Data acquisition will now have a cell limit of 100 million cells and 100 columns per load.

Datasets will now have a cell limit of 1 billion cells and 1000 columns per load

This will be available for sources such as Business Warehouse, Business Objects Enterprises, HANA, SQL, and BigQuery.

**LESSON SUMMARY**

You should now be able to:

- Explain connections

Unit 2

Lesson 2

Preparing Data and Basic Modeling

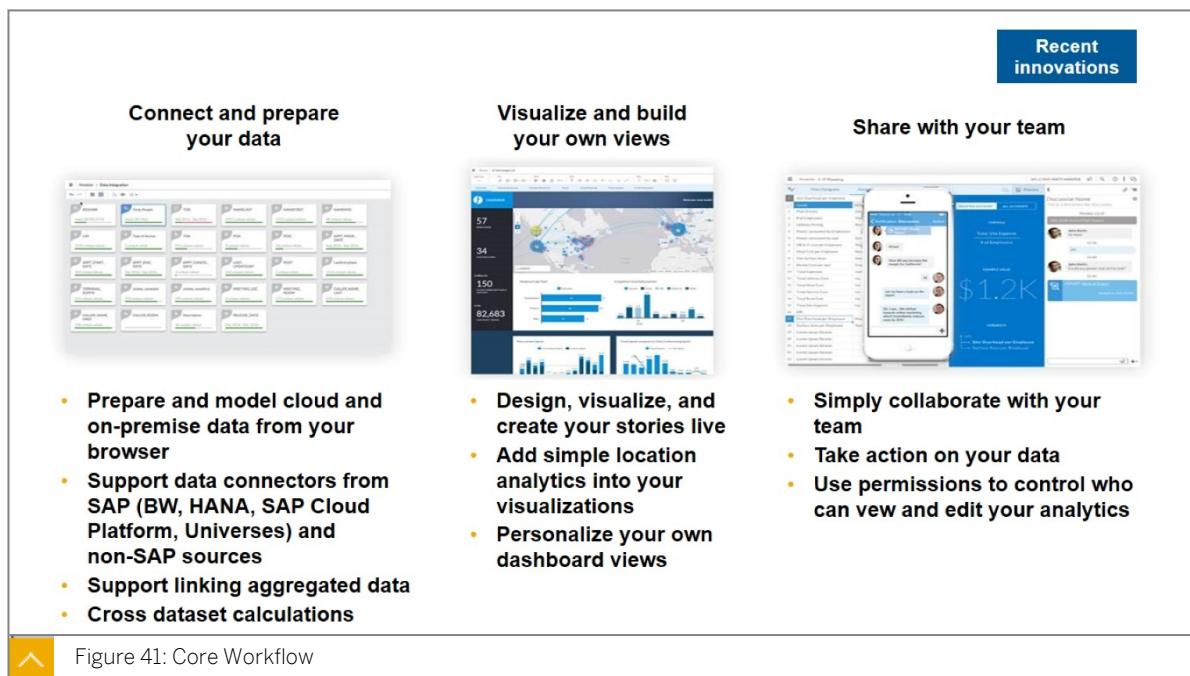


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Prepare data

Data Preparation: Basic Modeling



The figure *Core Workflow*, shows how SAP Analytics Cloud enables you to combine cloud and on-premise data to create your own stories and share them with your team.

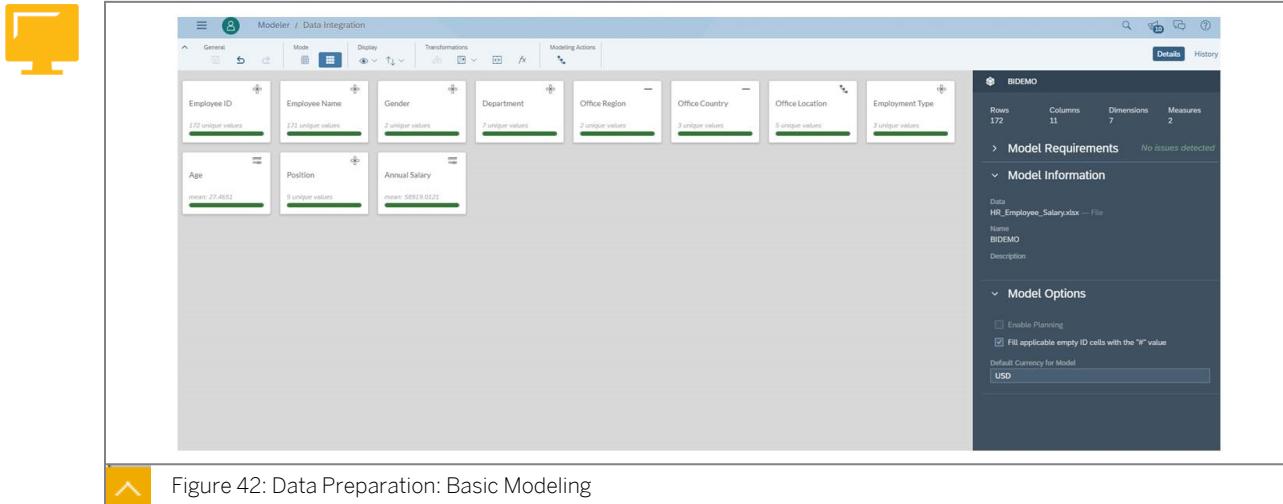


Figure 42: Data Preparation: Basic Modeling

The Data Model/Modeling is the base of all SAC Analytics activities. It describes ways data will be prepared for analysis. Also it provides structure and different functions like calculation or security. Prepare your information with the latest modeling tools. SAP's machine learning technology helps to automatically clean your data by alerting you of possible errors, and categorizing measures and dimensions. Modeling tools help you to enhance your data for geo analysis and multi-level hierarchies to gain even deeper insights.

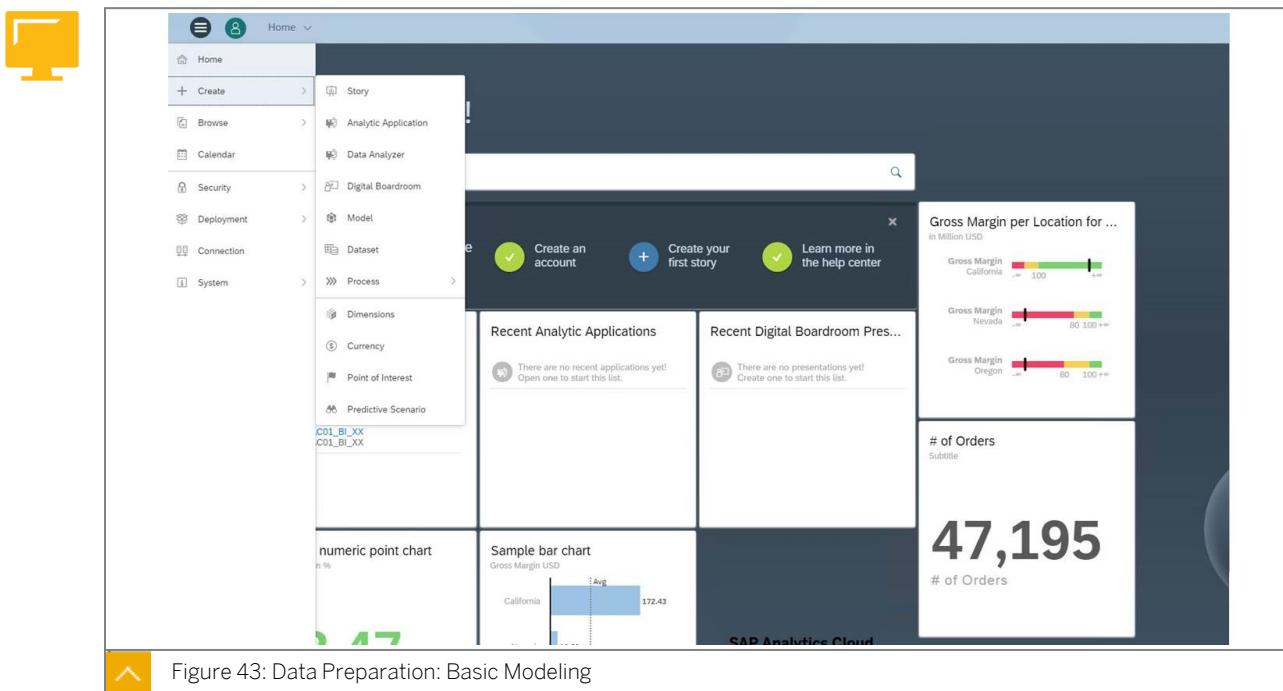


Figure 43: Data Preparation: Basic Modeling

Data modeling in SAP Analytics Cloud can enhance your data and prepare it for analysis and visualizations. You can edit your data, define categories and set hierarchical relationships, and create custom formulas.

SAP Analytics Cloud's business intelligence offers three main components:

- Models

Models are where you do all your data modeling in preparation for analysis. Data modeling entails data wrangling, or cleaning, your dataset, defining your measures and dimensions, and enhancing your data by establishing hierarchies, setting units and currencies, and adding formulas.

- Stories

Stories applications use models to visualize the prepared data coming from a model. Within stories there are many additional possibilities for different views on the data.

- SAC Applications

SAC offers two types of models:

- Analytics Model
- Planning Model



- **Using a data model:**
 - More transparency of data
 - Resusable
 - Data can be enhanced
- **Stories can be built without a prepared Data Model**
- **Depends on your data integration strategy**

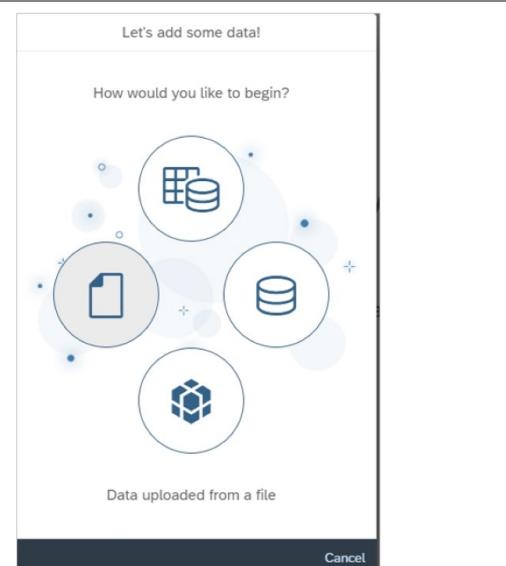


Figure 44: Data Preparation: Basic Modeling

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While you can skip data modeling altogether and head straight into story mode, there are some benefits to taking some time in modeler. If you want to quickly see what your data would look like in a chart, then you may want to go to story mode right away.

While stories can use Flatfiles or Datasources to go straight into story mode, applications need a data model.

According to your data integration strategy, you can use or redefine the data structure coming from database, or you have to create your own structure.

- Start with an empty model: no defined data integration (general Model)
- Upload an Excel or .csv file
- Live Connection or Data Import
- Cloud data

The screenshot shows the Modeler interface with several windows open. On the left, a large window displays a grid of flight data with columns like 'Flight', 'Date', 'Carrier', 'Origin_IATA', 'Destination', 'Lat_Orgin', 'Lat_Dest', and 'Distance'. A secondary window titled 'Create Calculated Column' is open, showing a formula editor with the code 'IF(1=1, 1, 1)' and a preview of the resulting data. Other tabs like 'Model Requirements' and 'Model Information' are visible at the top.

Figure 45: Data Preparation: Basic Modeling

The Modeler displays data in rows and columns, tabs, and has various tools for you to transform your data. To gain a deeper understanding of all these features, please visit *Help*.

Common uses of the Modeler include:

- Blending
- Data wrangling
- Setting units and currencies
- Creating hierarchies
- Adding formulas

The screenshot shows the Modeler interface with a large window displaying a grid of city-pair data. The columns include 'City_Pair...', 'Call', 'Unique Values', 'Sampled Rows', and 'Data Type'. Below the grid, there are sections for 'Modeling' (with a dropdown menu for 'Type' set to 'Dimension'), 'Data Quality' (showing a green bar indicating 'No data quality issues detected.'), 'Data Distribution' (with a histogram showing the number of bars and values), and a detailed list of city pairs with their counts. Buttons for 'Create Model' and 'Validate Data' are at the bottom.

Figure 46: Data Preparation: Basic Modeling



LESSON SUMMARY

You should now be able to:

- Prepare data

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Unit 2

Lesson 3

Performing Basic Data Modeling

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LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Perform Basic Data Modelling

The Basics of Modeling and Data Acquisition

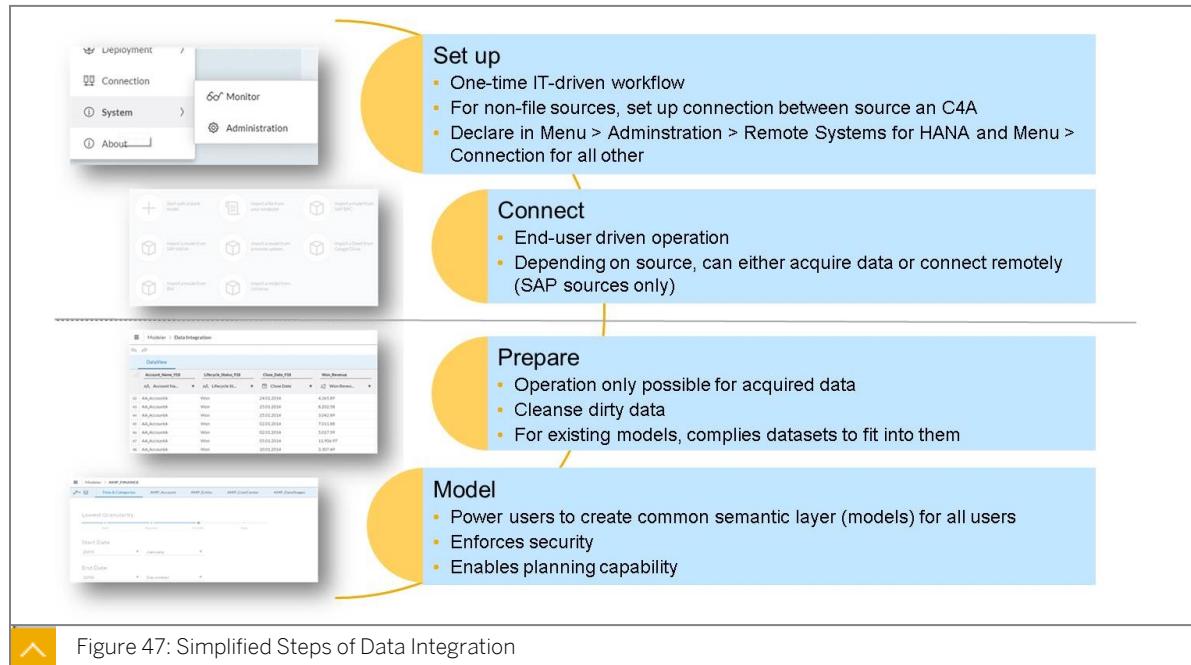
What's New in Modeling?



Note:

For production information on what's new, visit the blog here: https://www.sapanalytics.cloud/product_updates

Data modeling follows a process: set up, connection, preparation, and finally modeling the data. These steps are covered in detail in the figure, Simplified Steps of Data Integration.



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Table 1: Where to Start: Get Data into SAP Analytics Cloud

From the Home Screen	From the Modeler	From Stories
<p>A story is automatically created when you do one of the following:</p> <ul style="list-style-type: none"> • Drag and drop a Microsoft Excel file. • Connect to data (see the story). 	<ul style="list-style-type: none"> • Connect to all supported sources. • Declare connections before modeling. • Refresh, by importing data from a file. 	<ul style="list-style-type: none"> • Import a Microsoft Excel, or CSV file. • Import an existing model. • Connect to Google Drive.



- **Connect to and import data and models from Google Drive**
 - Import data from Google Drive into a story
 - Import a data model from Google Drive, and later import more data into that model

Figure 48: Google Drive Integration

With SAP Analytics Cloud, you can easily import data and data models, from Google Drive and other datasources, with a structured view, as shown in the figure above. Models from these datasources operate as a semantic layer, which forms instructions for how the system handles data from different datasources and passes it to a frontend tool like BI Story Designer or Application Designer. The data model will not contain any data.



"A semantic layer is a business representation of corporate data that helps end users access data autonomously using common business terms" – **Wikipedia**

A model is SAC's semantic layer.

- It is composed of dimensions and measures
 - Dimensions may have a description or a property
 - Measure properties (format, aggregation) are defined in models
- Security is defined at the model level
- Dimensions are shared
- Have series of **business rules**, mainly geared towards planning scenarios today
 - Importing from Excel or CSV in story has simplified modeling rules
 - Importing a model from a file benefits from a **relaxed** set of rules

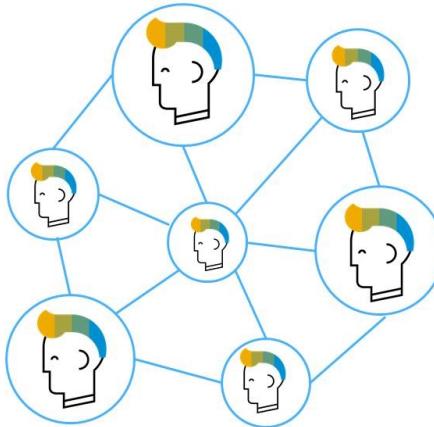


Figure 49: Models in SAP Analytics Cloud: The BI Perspective

The figure above emphasizes the importance of models in SAP Analytics Cloud. SAP Analytics Cloud recognizes the following types of model:

- A Planning-Type Model

Planning-type models are preconfigured with dimensions for time and categories. They offer support for multi-currency and security features at the level of both model and dimension. When working with a planning model in a story, users with planning privileges can create their own versions of model data. These users can also write data to the model by typing new values, copying and pasting data, and using allocations features.

- An Analytics-Type Model

Unlike the planning model, the analytics model does not support categories, and does not require a time dimension.

- An Analytics Model Based on an SAP HANA View

An Analytics model based on an SAP HANA view is a simple model with a single account dimension, but with access to other dimensions through SAP HANA. Security is inherited from SAP HANA, but can be managed further in SAP Analytics Cloud.



"Account"Dim	OrgDim	Category	GenericDim Ex "Product"	TimeDim	Measure = A number
Income Statement			ProdX	Jan16	1000
Net rev	UK	Forecast	ProdX	Jan16	1000
KPIs			Prody	Jan16	2000
Gross Margin	DE	Forecast	Prody	Jan16	2000

Figure 50: Dimensions

The data models in SAP Analytics Cloud are considered account-based models that only use one measure. The meaning of the measure is defined by the values of the dimensions, as shown in the figure, Dimensions. In financial models, the accounts are real financial accounts most companies have. However, the values of the account dimension could be non-financial also. For example, returns and sales could be accounts.

The dimensions you use in your models are saved independently of any model. When you create a new model, you can either choose an existing dimension or create a new dimension. Modeling uses several dedicated dimension types.

This section gives an overview of the types of dimension available and explains the specific purposes they are used for.

Apart from the built-in dimensions for time and category, all dimensions have three basic columns (attributes): *ID*, *Description*, and *Hierarchy*. These cannot be deleted, but additional columns can be added as required. The *Hierarchy* column is a free-format text attribute where you can enter the ID value of the parent member. By maintaining parent-child relationships in this way, you can build up a data hierarchy that is used when viewing the data to accumulate high-level values that can be analyzed at lower levels of detail.

Dimension of models are stored in their own tables. These tables can have extra fields for reporting, called a *Property*.

For planning, the category dimension is very important as it holds versions for planning scenarios.

Duplication is prohibited.



“How much is typically spent in wrestling with the data and “beating it into shape” so that the actual analytics can begin, and how can we reduce this amount of time? The most common response is **80%**”

<http://info.salford-systems.com/blog/bid/299181/How-Much-Time-Needs-to-be-Spent-Preparing-Data-for-Analysis>

“Standard data preparation is a time consuming task- it’s estimated that nearly **80% of data analysts’ time is spent preparing data**”

<http://www.datawatch.com/what-is-data-preparation/>

“Preparing and cleaning data for any kind of analysis is notoriously costly, time consuming, and prone to error, with conventional estimates holding that **80% of the total time spent on analysis** is spent on data preparation ...”

<http://www.tamr.com/whitepaper/data-preparation-in-the-big-data-era-oreilly-report/>

“Data scientists, according to interviews and expert estimates, spend 50 percent to **80 percent of their time mired in the mundane labor of collecting and preparing unruly digital data**, before it can be explored for useful nuggets.”

Steve Lohr, NY Times



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In Data Science, 80% of time spent prepare data, 20% of time spent complain about need for prepare data.

RETWEETS 427	LIKES 168	
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3:47 AM - 27 Feb 2013

Figure 51: Time Spent on Data Preparation

Duplication is prohibited.

The figure, Time Spent on Data Preparation, emphasizes the amount of time that data scientists spend on preparing data.



Focus on higher value work by having SAP Analytics Cloud infer data types and suggest the most obvious actions.

Infer datatypes

- Text, number, date, Boolean, percentage

Suggest actions

- Propose most appropriate replacement based on selected value
- Find most probable split based on selected value
- Suggest geo dimensions for lat/long data

Let the user try before committing

- Preview changes

Highlight errors for you

- Automatically detect problematic data
- Quality indicators at all levels of the dataset to help focus the attention of the user

The screenshot shows a data wrangling interface with a main grid of cards representing different data transformations like 'Split on *' and a sidebar with quality metrics and data distribution analysis.

Figure 52: SAP Analytics Cloud Smart Data-Wrangling

Wrangling data is manipulating the data to make it accurate and match your business needs. As suggested by the figure, SAP Analytics Cloud Smart Data-Wrangling, letting SAC wrangle the data frees you up to focus on higher-value work.

Data-wrangling functions make it easy to transform data in the following ways when loading data into a model:

- Split
- Convert text to number
- Duplicate columns
- Merge columns
- Edit single cells
- Add highlights for all cells with the same value when selecting a cell
- Maintaining a history of transformations with the undo/redo features



Zoom level



A screenshot of the SAP Analytics Cloud interface showing a grid of data cards, likely representing column details or transformations.

- Show values
- Suggest or define transforms
- Working with a sample



- Column detail summary
- Chart dependent on datatype
- Selection control for main view
- Data quality indicator across all levels



- Organize columns
- Show column relationships
- Conformance to a model

Figure 53: Work at the Right Level of Data

SAP Analytics Cloud's agile data preparation experience helps to ensure that you are working at the right level of data, as shown in the figure, Work at the Right Level of Data.

The figure shows a SAP Analytics Cloud interface. On the left, there's a sidebar with a yellow icon and a section titled "Show the data" containing two bullet points: "Direct display" and "Direct interactions". To its right is a section titled "Quality indicators on data" with three bullet points: "Detect problematic data", "Examine data quality at all level of the dataset", and "Take actions from insights". Below these sections is a grid of 12 data cards, each representing a column from a dataset like the Titanic dataset. The cards show metrics such as mean and number of unique values. To the right of the grid is a "Modeling" panel with a "Count" section showing "Unique Values: 1", "Sampled Rows: 2000", and "Data Type: Number". It also includes sections for "Type" (set to "Measure"), "Number Format" (set to 1,587,370.50), "Label" (with a placeholder "Type a label"), "Data Quality" (showing "No data quality issues detected"), and "Data Distribution" (with a note about a selected column not having enough data points for a histogram).

Figure 54: Data from a Fresh Perspective

The figure above, lists some of the driving principles behind SAP Analytics Cloud's agile data preparation, such as showing the data from a fresh perspective.

The figure shows a SAP Analytics Cloud interface. On the left, there's a sidebar with a yellow icon and two sections: "Let the user focus on higher-valued workflows through suggestions of most obvious actions" (listing "Infer datatypes", "Transformation suggestions based on end-user's selection", and "Suggest dimension relationships") and "Let the users play with the data" (listing "Show the different states: previous, future", "Preview transforms", "Let users decide on the result", and "Data preparation functions to transform data"). To the right is a screenshot of a dropdown menu for a "City_Pair" column. The menu includes options like "Count", "Customer...", "Split on ''", "Split on '.'", "Create a Transform...", "Convert Case", and "SDF". Red arrows point to the "Create a Transform..." option and the "Convert Case" option.

Figure 55: Increase User Creativity

Other principles of agile data preparation include letting the user focus on higher-value workflows, and letting the user manipulate the data, as shown in the figure, Increase User Creativity.



Work from a sample

Controls the amount of data running in the browser
Representative of what to expect

Transforms replayed on the entire dataset

Sample serves as a blueprint
If errors remain on the full dataset, they will be added to the current sample

Concur_Travel_XXXNF

Data uploaded: 6,462 rows; Sample size: 1,886 rows.
Any work done on the sample will be applied to the full data during model creation.

Columns: 36 Dimensions: 24 Measures: 5

Model Requirements: No issues detected

Mapping Quality: Mapping complete

Data Quality: No data quality issues detected.

Model Information: Create Model Validate Data

Figure 56: Guarantee Responsive Experience with your Data

Work from a sample for the best results, as suggested in the figure, Guarantee a Responsive Experience with your Data.



Modeler > BOC000_ACCOUNTS

BOC000_ACCOUNTS

T	D	Description	Account Type	Rate Type	Hierarchy	Units & Cu...	Aggrega...	Exce...	Scale	Dec...	Formula	Calculate on
16	I121200	Purchase Pri...	EXP	Average	H120000	Currency	SUM		Million	2		
17	I122000	Other Direct...	EXP	Average	H120000	Currency	SUM		Million	2		
18	I122100	Vendor Char...	EXP	Average	H120000	Currency	SUM		Million	2		
19	I122200	Freight	EXP	Average	H120000	Currency	SUM		Million	2		
20	I130000	Operating Ex...	EXP	Average	H100000	Currency	SUM		Million	2		
21	I131000	Sales and Ma...	EXP	Average	H120000	Currency	SUM		Million	2		
37	H135100	Other Expen...	EXP			Currency	SUM		Million	2		
38	H200000	Key Perform...				Currency	LABEL					
39	KPI0001	Gross Margin...	INC			%			Percent	1	[H105.00]/[...	
40	KPI0002	Operating Pr...	INC	Average	H200000	%			Percent	1	[H100000]/[...	

Many more accounts in some financial models!

Could be PC for non financial "accounts" like "Quantity sold"

Formula based on other accounts

Figure 57: Modeling of Account Dimension

The Account dimension includes a set of technical properties. List boxes are available to help you enter data in each cell of these properties.

Critical properties include the following:

- Account type is tied to a feature that can reverse the sign.
- Rate type is used for currency conversion.
- Units and currencies include pieces, gallons, or USD, EUR, and more.
- Formula is used to calculate the value based on other accounts and logic.
- Hierarchy determines the higher-level parent to the account, if one exists.
- Aggregation information, or label, if it is just acting as a folder for organizing the output of accounts.



Geospatial features are defined in the modeler:

- Latitude and Longitude in Dim
- Points of Interest to add to stories

Geospatial features are used in visualizations on stories in the modeler:

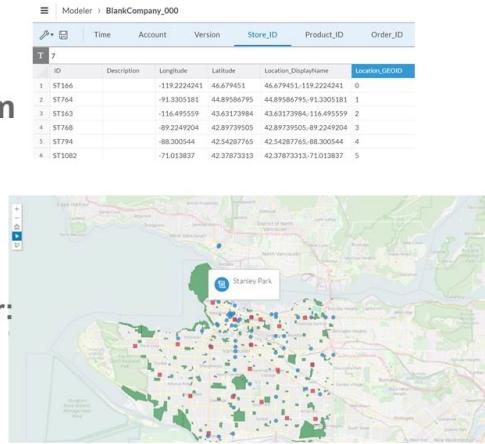


Figure 58: SAP Analytics Cloud: Geospatial Modeling

Before you perform geospatial analysis in stories, you must first import coordinate data and enrich it in the modeler. This process creates a new column in the data view with an enriched format of latitude and longitude coordinates. As a prerequisite, you must have a Microsoft Excel file .xlsx or a CSV .csv file with a location ID column that contains unique data, as well as latitude and longitude columns.

Administration and Infrastructure

For more production information on what's new, visit the blog: https://www.sapanalytics.cloud/product_updates

Hierarchies in Models

Hierarchies

Hierarchies let you structure your data. When you display data in stories in a table, the nodes of the hierarchy can be expanded or collapsed. Two types of hierarchy are available:

- Level-based hierarchies

A level-based hierarchy organizes the members of a dimension into levels, such as country, state, and city.

- Parent-child hierarchies

A parent-child hierarchy organizes the members of a dimension into a set of parent-child relationships.

A dimension can have one or more level-based hierarchies, or one or more parent-child hierarchies, but not both.

Hierarchies are visualized in the preview panel. If more than one hierarchy has been defined, you can select which one to show in the preview from the drop-down list. For parent-child hierarchies, you can also drag members in the preview panel to build the parent-child relationships visually.

The following types of dimensions do not support custom hierarchies:

- The account dimension has only a single hierarchy.

- For the date dimension, hierarchies are predefined based on the model granularity, and whether you have enabled fiscal time for the model. You can specify a default hierarchy in the settings for the date dimension.
- The version dimension does not have a hierarchy, since different versions are separate and do not have parent-child relationships.

**Note:**

When working with parent-child hierarchies for a planning model, avoid situations where data can be booked directly to a parent node. These situations include the following:

- Structuring two or more hierarchies so that a member is a leaf node in one hierarchy and a parent node in a different hierarchy.
- Updating a hierarchy so that a leaf node that has a value booked to it is changed to a parent node.



Two types of hierarchy are available:

Level-based hierarchies

A level-based hierarchy organizes the members of a dimension into levels, such as Country, State, and City.

Parent-child hierarchies

A parent-child hierarchy organizes the members of a dimension into a set of parent-child relationships.



Figure 59: Modeling Hierarchies

As mentioned in the lesson, Performing Basic Modeling and Data Acquisition, hierarchies are formed by the existence of a column in the dimension. The hierarchy column is a standard feature of all dimension types so that you can structure your data. When you display the output data in stories in a table, the nodes of the hierarchy can be expanded or collapsed. The hierarchy is defined as an interconnected set of parent-child relationships for each line in the dimension.

The *Hierarchy* column is used to store the parent ID value. The account dimension has only a single hierarchy, but you can add additional hierarchies to all other dimension types by selecting add hierarchy from the add menu (+ symbol) on the toolbar. When you choose this option, a new column is inserted in the grid, and you must enter the name of the new hierarchy in the column header row. If more than one hierarchy is defined, users can use the manage hierarchies feature, or apply filter settings to select which hierarchy to apply and to switch between hierarchies.

The hierarchy is visualized in the preview panel. You do not need to enter or edit the data in the data grid to make a hierarchy. You can use drag and drop in the preview panel to arrange the members and build the relationships. If more than one hierarchy has been defined, you can select the one you want to display in the preview from the drop-down list.

When a time-range input control is created with a fiscal year hierarchy, the title of the input control displays *Fiscal Year*.

For more production information on what's new, visit the blog: [https://www.sapanalytics.cloud/
product_updates](https://www.sapanalytics.cloud/product_updates)

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Unit 2

Exercise 2

Upload Data from a File and Wrangle Data

Business Example

Drinks Inc. is an international beverage company with a variety of alcohol, juice, and soft drink products. The company has data on cloud, on premises, and on personal computers. For example, the human resources (HR), travel, and other data all reside in the cloud on different SAP applications.

Drinks Inc. have always wanted to combine all data in a single product that provides meaningful insights - with business intelligence and predictive analytics capabilities.

Data

In this course, you will consume multiple data sources to build a single dashboard. These data sources include:

- *HR_Employee_Salary* (Acquired Data from Excel)

Containing information the HR department collects. HR have provided you with a simplified version of their data, containing basic demographic information about their employees with their associated salary.

- *PACIFICA_ORDER_FINANCIAL* (Live Data in HANA)

Containing financial information, such as gross margin, sales revenue, discount, original sales price, and more, based on the company's performance for the current year and the previous year.

- *PACIFICA_SHIPPING_INFO* (Live Data in HANA)

Containing data based on each order that the company completes. The company tracks how long it takes to ship an order from the point that its received, how long it takes the customer to receive an order once it has been shipped, and more. The company use this information to measure efficiencies.

Prior to an upcoming board meeting, the HR department handed you an Excel file to incorporate into the board presentation. You must upload the file to a story and use a series of transformations to clean up and format the data.

In this exercise you will acquire and wrangle data from an excel file in SAP Analytics Cloud. You will learn how a series of quick transformations can help clean up data in the application.

Key Tasks:

- Import data from a file.
- Explain data manipulation (grid view).
- Create quick transformations (concatenate and extract) available within data manipulation.

- Create a hierarchy to convert multiple columns into a single dimension.



Note:

If you have not run the initialization script, do the following to extract `HR_Employee_Salary.xlsx`:

- Navigate to `Start → Initialize Course → SAC Initialize_SAC`.
- `(C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Initialize Course\SAC)`
- Files are extracted to `N:\SAC\SAC01` folder.
- Choose `HR_Employee_Salary.xlsx`.

1. Based on our recent discussion with the HR department, you need to import the `HR_Employee_Salary.xlsx` dataset and use it to create a dashboard in a story.
2. Access and explore data from an Excel file `HR_Employee_Salary.xlsx`.
3. You want to combine the employees first name and last name into a single column. Based on experience, this will help when it comes to creating visualizations.
4. Check that the dataset captures all departments within the company and correct any errors.
5. As shown in the following figure, there are multiple columns related to an employee's location. These are currently represented as individual dimensions (office region, office country, and office location). Create a level-based hierarchy named **Office**, to represent this information as a single dimension.

AA Office Region	AA Office Country	AA Office Location
NA	USA	New York City
NA	USA	New York City
NA	USA	New York City
NA	USA	Seattle
NA	USA	New York City
NA	USA	Seattle
NA	USA	Chicago
EMEA	Belgium	Brussels
NA	Canada	Toronto

6. In the *Hierarchy Builder*, select the columns that are part of the office hierarchy. As mentioned earlier, you want to include office location, office country, and office region, where office location is the lowest level.
7. Annual salary is interpreted as a dimension, change it to a measure. Create a transformation to extract the numeric value between the \$ and the USD to make it a valid measure.

8. Ensure that the newly generated column, *Annual Salary_1*, does not have any invalid values. You can do this by switching the column from a dimension to a measure.
9. You have successfully extracted the numeric value you needed from the annual salary data. Delete the column as it contains no important information.
10. You have completed all the required transformations to ensure that you have the right data to create visualizations within SAP Analytics Cloud. Save the changes you have made. Save the story as **SAC01_HR_Employee_XX**.

Duplication is prohibited.

Duplication is prohibited.

Unit 2 Solution 2

Upload Data from a File and Wrangle Data

Duplication is prohibited.

Business Example

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Duplication is prohibited.

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**Note:**

If you have not run the initialization script, do the following to extract `HR_Employee_Salary.xlsx`:

- Navigate to *Start* → *Initialize Course* → *SAC Initialize_SAC*.
- (`C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Initialize Course\SAC`)
- Files are extracted to `N:\SAC\SAC01` folder.
- Choose `HR_Employee_Salary.xlsx`.

1. Based on our recent discussion with the HR department, you need to import the `HR_Employee_Salary.xlsx` dataset and use it to create a dashboard in a story.

- a) Create a new story. Navigate to *Main Menu* → *Create* → *Story*.

On this page, you can import your own data, run a smart discovery, add a canvas, responsive, or grid page, or begin creating a story through a template.

Choose how you'd like to start your story.

Custom Templates



TechED 2018

SAP Analytics Templates



Boardroom



Presentation - Responsive



Report

[See more...](#)



Access & Explore Data

Bring in data from CSV, Excel, and other datasources to explore and create visualizations.



Run a Smart Discovery NEW

Explore your data using machine learning algorithms to discover key influencers, unexpected values and more.



Add a Canvas Page

Create pixel perfect reports or presentations.



Add a Responsive Page

Create flexible dashboards that can be presented on any device or screen size.

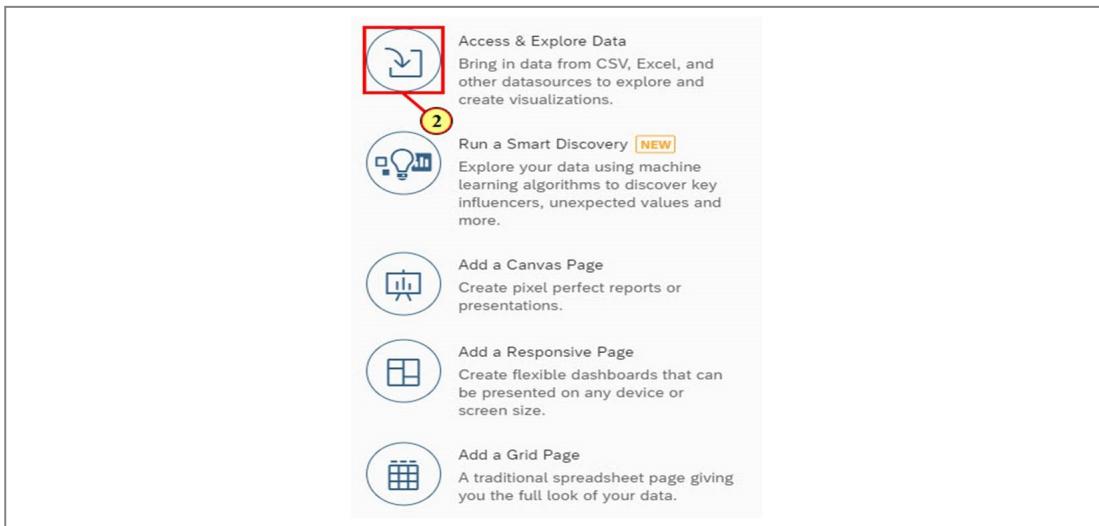


Add a Grid Page

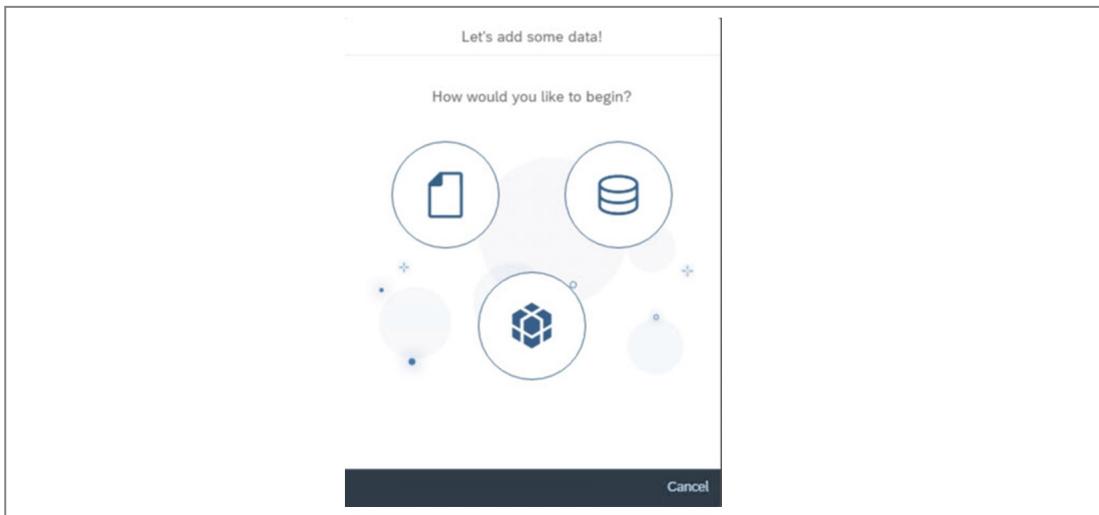
A traditional spreadsheet page giving you the full look of your data.

2. Access and explore data from an Excel file `HR_Employee_Salary.xlsx`.

- a) Choose *Access & Explore Data*.



- b) Choose the *Data Uploaded from the File* icon.



- c) Select the `HR_Employee_Salary.xlsx` file, then choose *Import*. Choose *OK*.

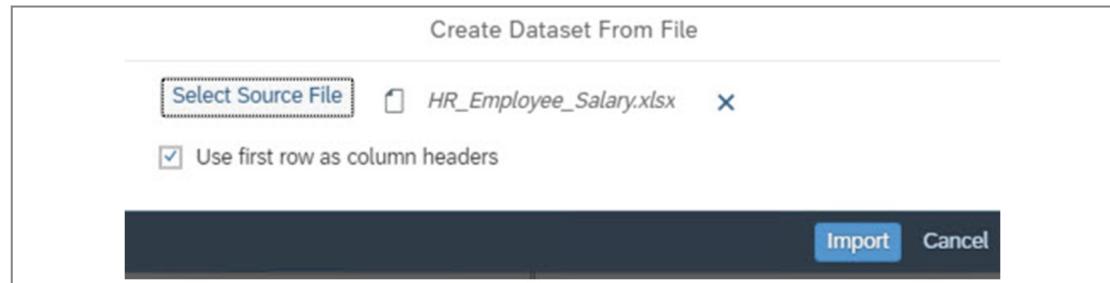


Note:

If you have not run the initialization script, do the following to extract `HR_Employee_Salary.xlsx`:

- Navigate to *Start* → *Initialize Course* → *SAC Initialize_SAC*.
- (`C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Initialize Course\SAC`)
- Files are extracted to `N:\SAC\SAC01` folder.
- Choose `HR_Employee_Salary.xlsx`.

Choose Select Source File and select Use First Row as Column Headers.



Wait for the data to import into SAP Analytics Cloud.

- The upper section of *Data Manipulation* provides a set of tools for the content creator, such as creating a hierarchy, creating a geographical dimension with latitude and longitude information, and more.
- The right section of *Data Manipulation* contains a details panel to help the content creator better understand the data within a column. It highlights any errors and displays the data distribution.

3. You want to combine the employees first name and last name into a single column. Based on experience, this will help when it comes to creating visualizations.

- a) Choose the *First Name* column.

- Press and hold CTRL.
- Choose the Last Name column.
- Choose the Transformation icon.
- Hover over Concatenate columns with " " as shown in the following figure.

First Name	Last Name	First Name_L...	Gender	Dep...
Jase	Erni			
Marshall	Michal			
Currie	Bertenshaw	Currie E...		

- Choose Concatenate columns with " ".

First Name	Last Name	First Name_L...	Gender	Dep...
Jase	Erni			
Marshall	Michal			
Currie	Bertenshaw	Currie E...		
Cull	Gilhoolie	Cull Gilhoolie	Male	Account
Gavan	Brewin	Gavan Brewin	Male	Account
Berkeley	Simonson	Berkeley Simonson	Male	Account
Nikolaos	Goad	Nikolaos Goad	Male	Account
Ode	Pawlucz	Ode Pawlucz	Male	Account
Renie	Ginty	Renie Ginty	Female	Account

- A confirmation that the two columns concatenated successfully displays.



- To rename the new column to Employee Name, double-click the First Name_Last Name header and enter **Employee Name**. Press ENTER.

The screenshot shows the SAP Data Discovery interface with a dataset titled 'HR_Employee_Sal...'. The 'Employee...' column is selected, indicated by a red box and circled with yellow number 14. A context menu is open over the 'Gender' column, showing options like 'Create Transform', 'Employee...', 'Gender', and 'Delete Column'.

- i) Delete the Columns *First_Name* and *Last_Name*. Click on them and use the contextual ... menu to delete the columns.

The screenshot shows the SAP Data Discovery interface with a dataset containing columns 'First Name', 'Last Name', 'First_Na...', and 'Gender'. The 'First_Na...' column is selected, indicated by a red box. A context menu is open over the 'Gender' column, showing options like 'Create Transform', 'Employee...', 'Gender', 'Duplicate Column', and 'Delete Column'. The 'Delete Column' option is highlighted and circled with yellow number 15.

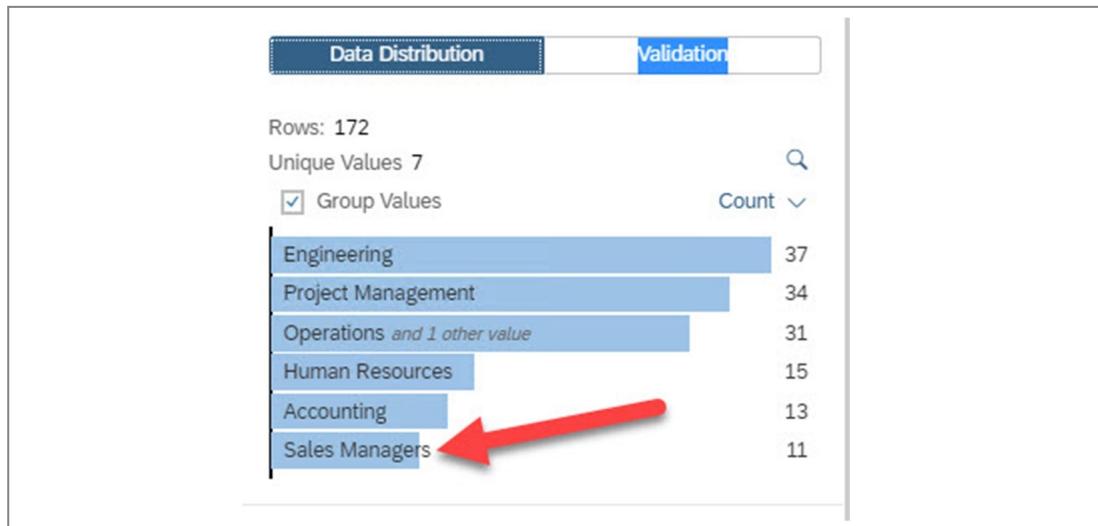
Duplication is prohibited.

Duplication is prohibited.

4. Check that the dataset captures all departments within the company and correct any errors.
a) Choose the *Department* column.

The screenshot shows the SAP Data Discovery interface with a dataset containing columns 'Employee...', 'Employee...', 'Gender', and 'Department'. The 'Department' column is selected, indicated by a red box and circled with yellow number 16. All values in the 'Department' column are 'Accounting'.

- b) On the *Details* panel, on the right-side of the screen, navigate to *Data Distribution*.
Based on the data distribution, you can see that you have a member called *Sales Managers*.



This department was entered incorrectly, this department should be called Sales.

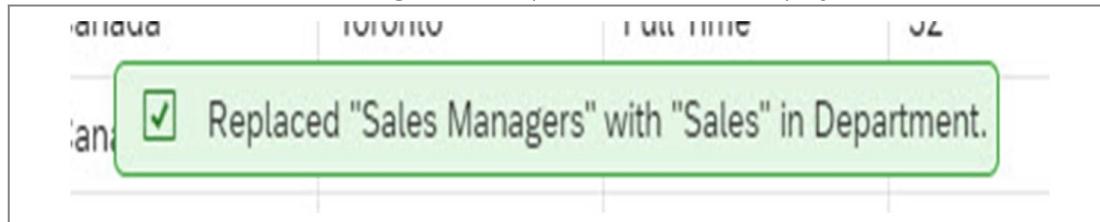
- c) Choose the *Department* column and select a member of *Sales Managers*.
- d) Choose the *Transformation* icon on the *Data Manipulation* grid.

AA Department	AA Office Re...	AA Office Co...
Sales Managers	EMEA	Belgium
		USA
		USA
Sales Managers	EMEA	Belgium
Sales Managers	NA	Canada
Sales Managers	NA	USA
Sales Managers	NA	USA
Sales Managers	NA	Canada

- e) Choose *Replace value With...* .
- f) In the *Transformation* header, replace value with **Sales**.
- g) Press ENTER.

John Minker	Male	Sales	NA
James Frank	Male	Sales	NA
Janet Bury	Female	Sales	NA
Kiran Raj	Female	Sales	EMEA

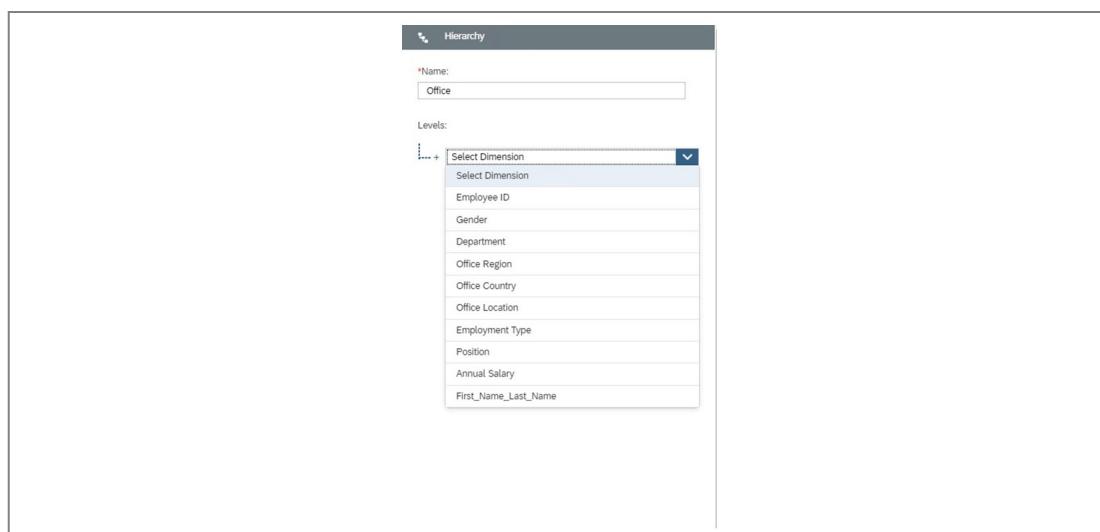
A confirmation that Sales Managers was replaced with Sales displays.



- As shown in the following figure, there are multiple columns related to an employee's location. These are currently represented as individual dimensions (office region, office country, and office location). Create a level-based hierarchy named **Office**, to represent this information as a single dimension.

Office Region	Office Country	Office Location
NA	USA	New York City
NA	USA	New York City
NA	USA	New York City
NA	USA	Seattle
NA	USA	New York City
NA	USA	Seattle
NA	USA	Chicago
EMEA	Belgium	Brussels
NA	Canada	Toronto

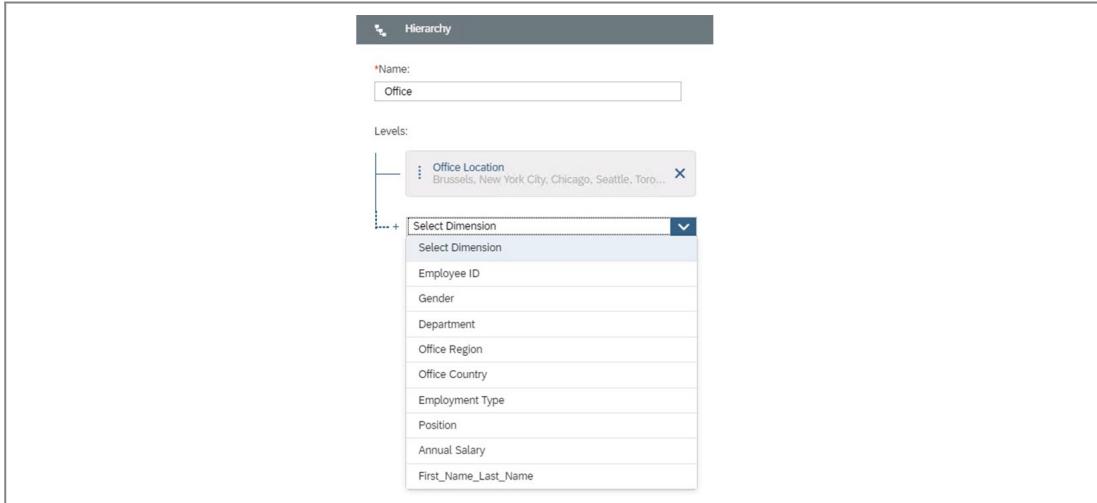
- In the *More* section of the toolbar, choose the *Level Based Hierarchy* icon as shown in the following figure.
- Name the hierarchy **Office**.



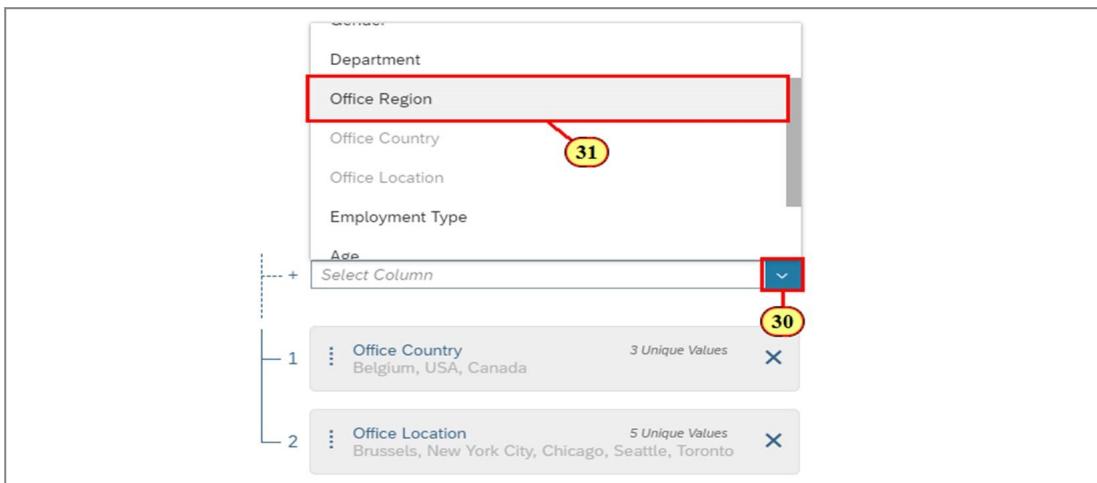
- In the *Hierarchy Builder*, select the columns that are part of the office hierarchy. As mentioned earlier, you want to include office location, office country, and office region, where office location is the lowest level.

Duplication is prohibited.

- Expand *Select Column* at the bottom of the screen.
- Scroll down and choose *Office Location*.
- Expand *Select Column*.



- Choose *Office Country*.
- Expand *Select Column*.



- Choose *Office Region*.
- Choose OK.

Duplication is prohibited.

The screenshot shows the SAP BusinessObjects Data Studio 'Dataset Overview' page. At the top, it displays 'HR_Employee_Salary (1)' with '172 rows' and '11 columns'. Below this, there are sections for 'Output' and 'Columns'. Under 'Measures (1)', there is a single item labeled 'Age'. Under 'Dimensions (4/11)', there is a section titled 'Office' which is expanded to show 'Office Location', 'Office Country', and 'Office Region' as properties of the 'Office' dimension.

On the *Dataset Overview* page see that the *Office Location* column has switched to a hierarchy. The icon for *Office Country* and *Office Region* has switched to represent that they are no longer individual dimensions, rather a property of *Office Location*.

7. Annual salary is interpreted as a dimension, change it to a measure. Create a transformation to extract the numeric value between the \$ and the USD to make it a valid measure.
 - a) Choose the *Annual Salary* column.

In the *Details* panel, see that *Annual Salary* is interpreted as a dimension. Annual salary should be a numeric value, change it into a measure to reflect this.

The screenshot shows the SAP BusinessObjects Data Studio 'Details' panel. It displays a table with three columns: 'Age', 'Position', and 'Annual Salary'. The 'Annual Salary' column is highlighted with a red box. A yellow circle with the number '34' is overlaid on the first data cell under the 'Annual Salary' column. The data in the table is as follows:

Age	Position	Annual S...
63	VP	\$115326 USD
30	Associate	\$61541.4 USD
32	Associate	\$112353 USD
35	Associate	\$139568 USD
37	Associate	\$57092.2696512 L

- b) Expand the object *Annual Salary*.

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Duplication is prohibited.

Age	Position	Annual S...
22	Associate	\$26985 USD
24	Associate	\$27895 USD
22	Associate	\$27895 USD
24	Associate	\$65626 USD
23	Director	\$89562 USD
19	Manager	\$80124 USD
24	Manager	\$81235 USD
19	VP	\$112563 USD
24	Associate	\$26985 USD
24	Associate	\$52356 USD

- c) Choose *Annual Salary* and click ... to expand the contextual menu. Click *Change to a measure* and observe what happens.

The screenshot shows the 'Dataset Overview' window for the 'HR_Employee_Salary (1)' dataset. On the left, a list of sample values for 'Annual Salary' is shown, with several entries highlighted in red. In the center, the 'Output' section displays the current state: 'Measures (2)'. Below it, the 'Dimensions (2/10)' section lists various dimensions like 'Office', 'Employee ID', 'Gender', and 'Department'. Red arrows point to the 'Measures (2)' section and the 'Annual Salary' dimension entry in the dimensions list, indicating the transformation process.

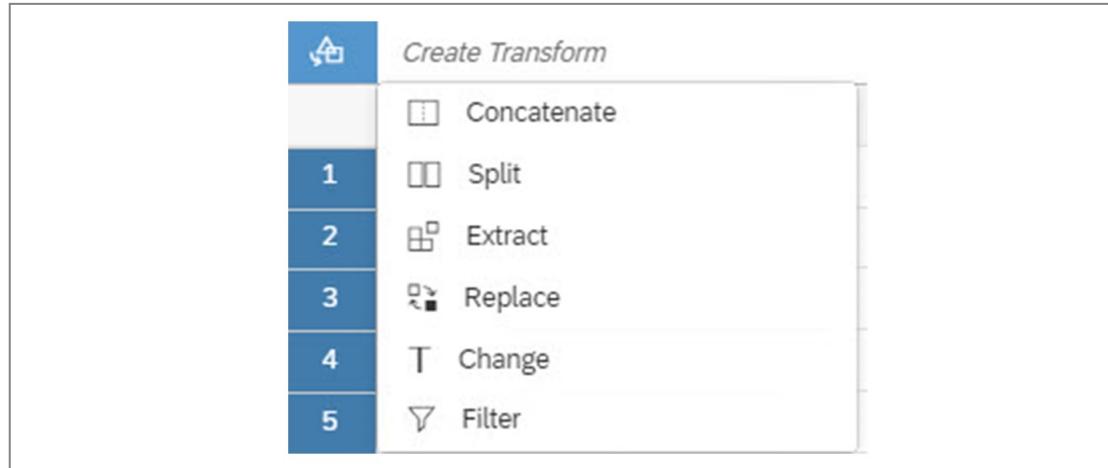
Note:

Following the switch from a dimension to a measure, the data quality changes from green to red. Check the sample values and you can see that the reason is due to invalid values.

- d) Undo the action *Change to Measure*.
e) In the Transformation bar of *Annual Salary* choose *Create Transform*.

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f) Choose Extract.

g) Choose after.

		Extract word from [Annual Salary]	after	first	"value"	exclude value
1	i002	Jase Erni	Male	before	Accounting	EMEA
2	i003	Marshall Michal	Male	between	Accounting	EMEA
3	i004	Currie Bertenshaw	Male	containing	Accounting	NA
4	i006	Cull Gilhoolie	Male	equal to	Accounting	EMEA
5	i008	Gavan Brewin	Male		Accounting	EMEA

h) Choose Between.

i) Replace the first " " with "\$".

	HR_Employee_Sal...					
	Extract word from [Annual Salary]	between	"\$" and "USD"	exclude \$	exclude USD	
1	Jase Erni	Male	Accounting	EMEA	Belgium	
2	Marshall Michal	Male	Accounting	EMEA	Belgium	
3	Currie Bertenshaw	Male	Accounting	NA	USA	
4	Cull Gilhoolie	Male	Accounting	EMEA	Belgium	

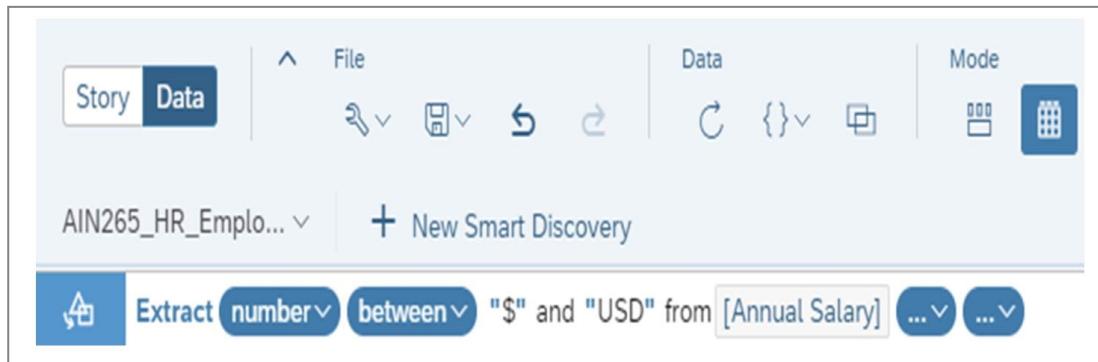
j) Replace the second " " with "USD".

k) Choose [Column].

l) Scroll to the bottom of the list.

m) Choose Annual Salary.

n) Press Enter.



You are provided with a confirmation that the numeric value was successfully extracted from annual salary.

8. Ensure that the newly generated column, *Annual Salary_1*, does not have any invalid values. You can do this by switching the column from a dimension to a measure.
- a) Choose the *Annual Salary_1* column.

- b) Expand Type.

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9. You have successfully extracted the numeric value you needed from the annual salary data. Delete the column as it contains no important information.

- a) Choose the *Annual Salary* column, as shown in the following figure.

AA Position	AA Annual S...	1 ²³ Annual S...
Associate	\$26985 USD	27895
Associate	\$27895 USD	27895
Associate	\$27895 USD	27895
Associate	\$65626 USD	65626
Director	\$89562 USD	89562
Manager	\$80124 USD	801
Manager	\$81235 USD	81235

Figure 61: Delete Column

- b) Choose *More Action*.

- c) Choose *Delete Column*.

You receive a confirmation that the column was successfully deleted.

- d) Double-click *Annual Salary_2* and rename it to **Annual Salary**.

AA Position	1 ²³ Annual S...
Associate	16556
Associate	16556
Associate	17609
Associate	18985.351

- e) Press **ENTER**.

10. You have completed all the required transformations to ensure that you have the right data to create visualizations within SAP Analytics Cloud. Save the changes you have made. Save the story as **SAC01_HR_Employee_XX**.

- a) In the toolbar, under *File*, choose the Save icon.

Duplication is prohibited.

The screenshot shows the Power BI Data view interface. The ribbon at the top has 'Story' and 'Data' tabs; 'Data' is currently selected. Below the ribbon is a toolbar with icons for search, refresh, and mode selection. A context menu is open over a table titled 'HR_Employee_Sal...'. The menu items are: Save (Ctrl+S), Save As... (Ctrl+Shift+S), and Open With Basic Data Preparation. The table below contains three rows of employee data:

	Employee ID	Name	Gender	Department	Notes
67	i068	Richart Sowrah	Male	Operations	N
68	i070	Reamonn Meaders	Male	Operations	N
70	i076	Tanny McGray	Male	Operations	N

- b) Choose Save.
- c) Rename the title from *New Document(X)* to **SAC01_HR_Employee_XX**.
- d) Choose OK and wait for the story to save.

Now that you have prepared the data, switch to story mode to begin building visualizations.



Note:

With the ability to import data from file into story, you can constantly switch between data manipulation and story mode. This will help you to catch mistakes within the dataset.

- e) Choose Story.

The screenshot shows the Power BI Story view interface. The ribbon at the top has 'Story' and 'Data' tabs; 'Story' is currently selected. Below the ribbon is a toolbar with icons for search, refresh, and mode selection. The main area is titled 'Page 1'.

- f) Choose Save.
- g) Go to Main Menu → Home.



LESSON SUMMARY

You should now be able to:

- Perform Basic Data Modelling

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Unit 2

Lesson 4

Connections and Data Models



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Explain structure view and data foundation view

Connection and Data Models



The screenshot shows the SAP Analytic Cloud interface. On the left, there's a navigation bar with 'Model' selected. The main area displays a table of dimensions with columns: Name, Description, Number of Members, Number of Hierarchies, and Other Attributes. Dimensions listed include Version, Account, Date, Generic, PRODUCT, Organization, and ENTITY. To the right, a sidebar titled 'Model Details' shows the model name 'U10M_Op_Income' and its description 'Planning (Account)'. It also includes sections for 'Preferences' (Setting, Status) and 'Data Sources' (with a note about importing data). A red arrow points from the text 'New view option : Structured view Data foundation view' to the sidebar.

Data model view:

- no view at the structure of the model
- no chance to get an information about the underlying data

New view option :

Structured view
Data foundation view

Figure 62: Improved modeling view in SAP Analytic Cloud

Improved Presentation of the data structure in SAC

To configure or to create a model inclusive structure for your data is a challenging task.

You have to handle with problems like to understand the structure of a data model because there is no hint about how your dataset or the structure of a story depends on that structure. Maybe it is easy for you to understand the story structure of a single dataset, but what about the structure of the underlying Data model ?

It is even a problem to take a look at the data which is the base of your reports .

Until now, you have had to imagine what the model structure looks like, and what the data contents are. The model consisted of a list of your dimensions, with the side panel giving you details about the model or a selected dimension.

For this reasons SAC introduces two new views to help answer this concern..

- Structure and Data Foundation view

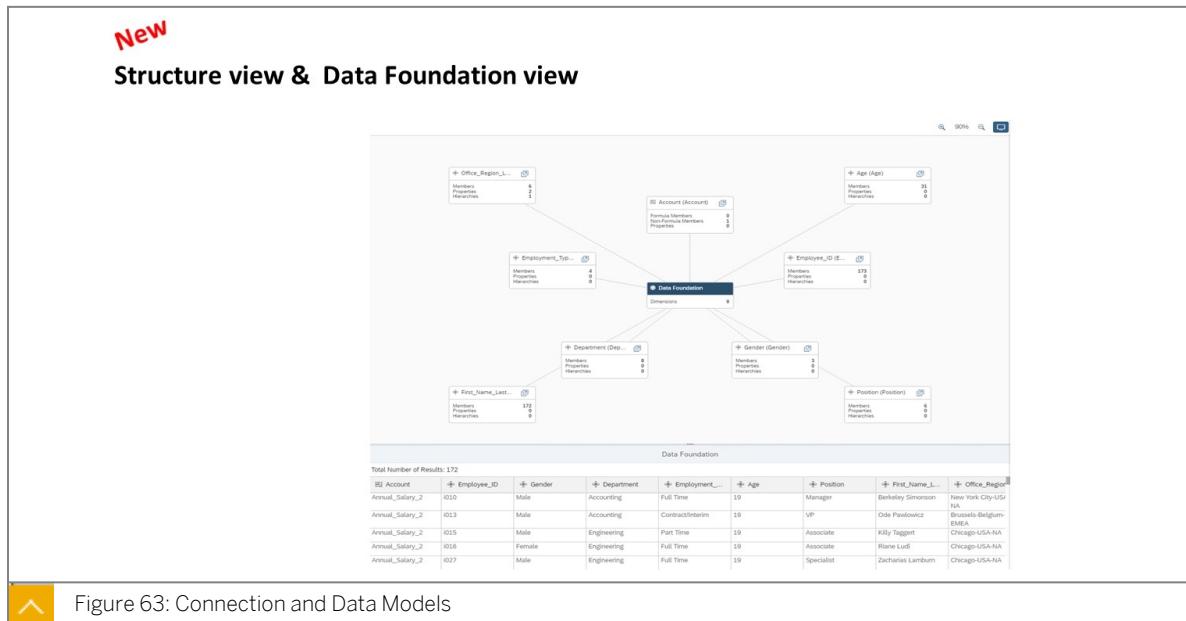


Figure 63: Connection and Data Models

Viewing Options

For every organization, it's essential to get the full picture of your data to make the most effective and meaningful business decisions. This is why two new viewing options in SAP Analytics Cloud are introduced:

- Structure View
- Data Foundation View

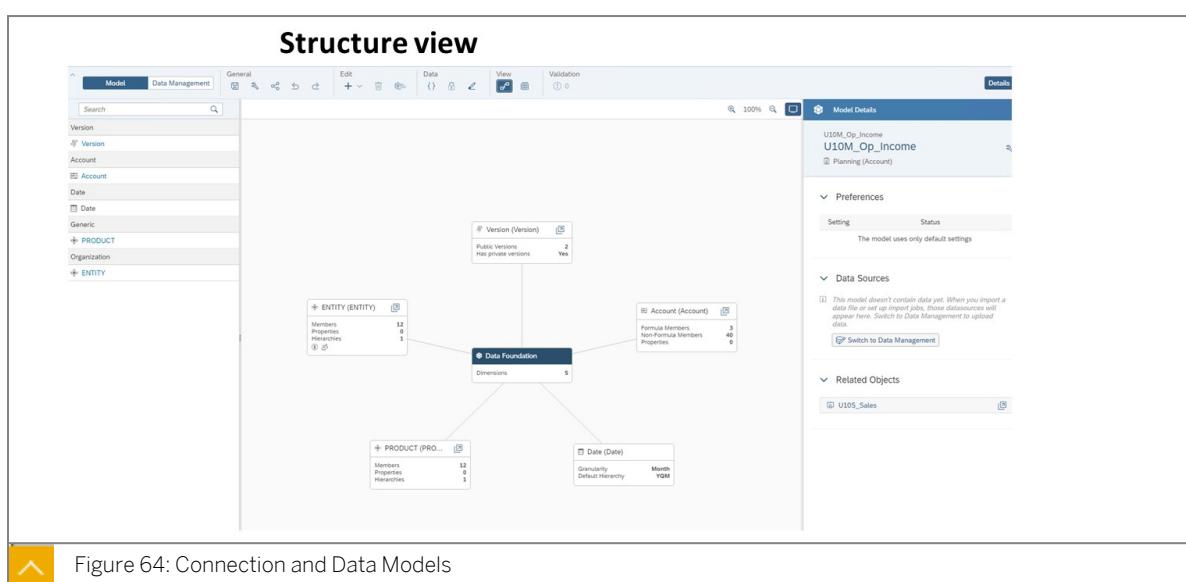


Figure 64: Connection and Data Models

Structure View

It allows you to easily look at your models in a star schema style view, providing you a graphical, diagram-based modeling experience. This view works for account-based models.

The Structure view shows you a star schema diagram representing the contents of your model. This view helps you visualize how your fact data, attributes, and properties all relate to each other.

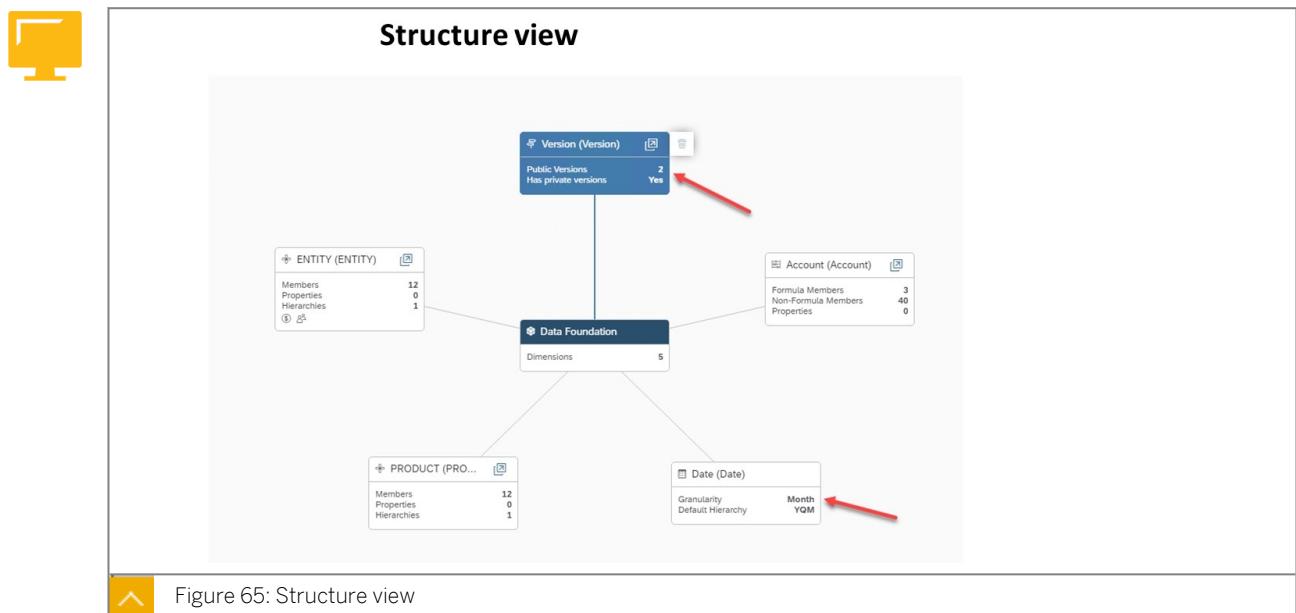


Figure 65: Structure view

At a glance, you can see model's dimensions surrounding the Data Foundation.

Additionally the dimension box shows you more information based on the dimension type. For example the Version dimensions, it shows how many public versions are there, and whether there are any private versions. For Date dimensions, the information about granularity and default hierarchy, and (if added) whether the Fiscal Year setting has been applied:

If you want to add a new dimension or existing dimension to your model, you can do that from the toolbar, or from the Schema view.

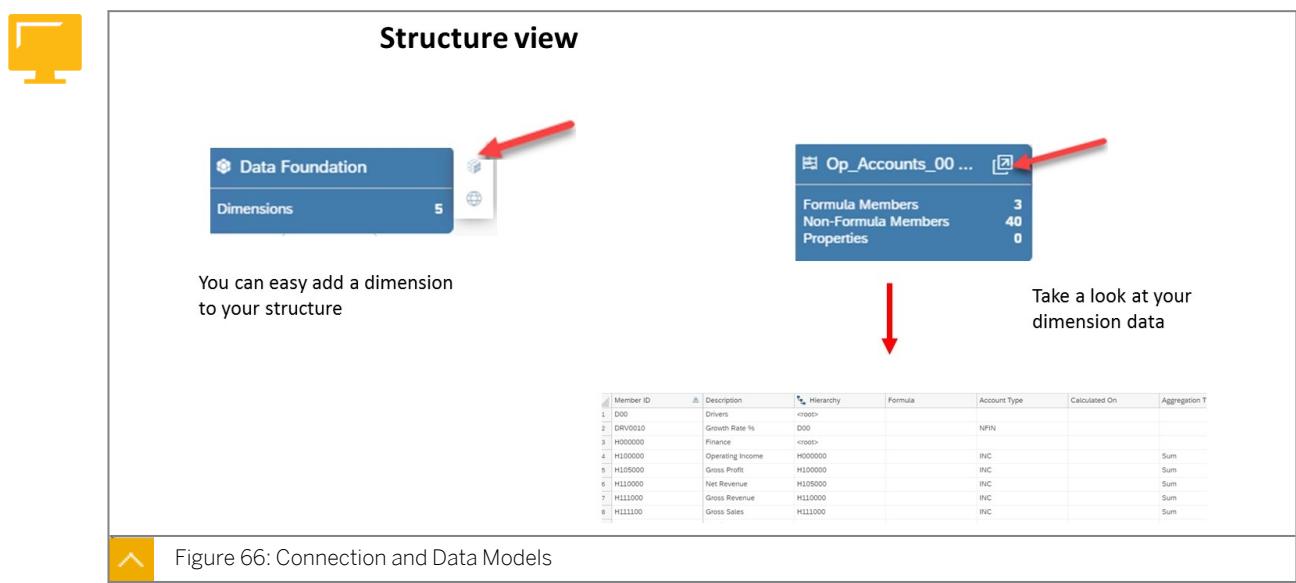


Figure 66: Connection and Data Models

Add a dimension or just see the content of a dimension.

Data foundation view

Total Number of Results: 172

Account	Employee_ID	Gender	Department	Employment_Condition	Age	Position	First_Name_Lastname	Office_Region
Annual_Salary_2	i010	Male	Accounting	Full Time	19	Manager	Berkeley Simonson	New York City-US NA
Annual_Salary_2	i013	Male	Accounting	Contract/Interim	19	VP	Ode Pawlowicz	Brussels-Belgium EMEA
Annual_Salary_2	i015	Male	Engineering	Part Time	19	Associate	Killy Taggart	Chicago-USA-NA
Annual_Salary_2	i016	Female	Engineering	Full Time	19	Associate	Riane Ludi	Chicago-USA-NA
Annual_Salary_2	i027	Male	Engineering	Full Time	19	Specialist	Zacharias Lamburn	Chicago-USA-NA
Annual_Salary_2	i028	Male	Engineering	Full Time	19	Specialist	Valdemar Gronauer	Chicago-USA-NA
Annual_Salary_2	i029	Male	Engineering	Contract/Interim	19	Specialist	Amy Scotchmer	Chicago-USA-NA
Annual_Salary_2	i046	Male	Engineering	Part Time	19	Manager	Fabio Chancelier	Chicago-USA-NA
Annual_Salary_2	i056	Male	Human Resources	Full Time	19	Associate	Hyman Jasik	New York City-US NA
Annual_Salary_2	i057	Female	Human Resources	Part Time	19	Associate	Joscelin O'Deegan	Toronto-Canada-1
Annual_Salary_2	i064	Female	Human Resources	Full Time	19	Director	Fulvia Sonley	Toronto-Canada-1
Annual_Salary_2	i067	Female	Operations	Full Time	19	Associate	Josepha Boxall	Toronto-Canada-1
Annual_Salary_2	i069	Female	Operations	Full Time	19	Associate	Christel Hardy	Toronto-Canada-1
Annual_Salary_2	i072	Female	Operations	Contract/Interim	19	Associate	Kaja Spoerl	Toronto-Canada-1
Annual_Salary_2	i073	Female	Operations	Contract/Interim	19	Specialist	Cayla Pirot	Toronto-Canada-1
Annual_Salary_2	i080	Male	Operations	Full Time	19	Associate	Marcus Matuszak	Toronto-Canada-1
Annual_Salary_2	i086	Male	Operations	Contract/Interim	19	Associate	Budd Zanussili	Brussels-Belgium EMEA
Annual_Salary_2	i017	Male	Engineering	Contract/Interim	20	Associate	Nollie Raycroft	Chicago-USA-NA

Figure 67: Data foundation view

This allows you to see the underlying fact data of your model from the *Model* tab. This view is synchronized with *List* and *Structure* views.

The Data Foundation view shows you the fact table containing the raw, non aggregated transactional data loaded into your model.

Here's an example: You can filter and sort the data to see what kind of data it is in a dimension:

The total number of results is the total number of rows of data, not including any filtering you've applied, across all versions:

In planning models, you can also switch between the different public versions of your data; for example, to see if data exists for a selected version:

The Structure and Data Foundation views work together with the dimension list and Details panel to give you a consistent picture of your data. For example, if you click a dimension in the schema diagram, the other views all focus on that dimension:

A flexible, customizable layout

Yep, that's a lot of info displayed on one screen. And imagine if you were looking at the previous image on a smartphone! Often, you'll want to hide some of the Modeler's panes, or resize them, to focus on the information you're interested in. Luckily, that's easy to do.

To switch the new views on and off, just click these toggle buttons:

Or to resize the panes, just drag or double-click the pane borders:

After you have customized the Modeler it will save your settings automatically, so that everything will look the same the next time you log on, or when you switch to another model.

Duplication is prohibited.

The screenshot shows the SAP BusinessObjects Data Foundation view. On the left, there is a small yellow computer icon. The main area displays a table titled "Data Foundation" with columns "Op_ProdGrps_00" and "Op_Region_00". The table has several rows of data. A red arrow points to the second row from the top, which contains the values "PRD0001" and "REG0002". Below the table, the text "Planning Model : Switch between versions" is visible. At the bottom, there is another small yellow computer icon followed by the caption "Figure 68: Connection and Data Models".

The screenshot shows the SAP BusinessObjects View of the Data model. On the left, there is a small yellow computer icon. The main area features a schema diagram with various dimensions and facts. A central node is labeled "Data Foundation". Below the diagram, there is a table titled "Data Foundation" with columns "Op_Accounts_00", "Date", and "Op_ProdGrps_00". The table contains several rows of data. At the bottom, there is another small yellow computer icon followed by the caption "Figure 69: Connection and Data Models".

The Structure and Data Foundation views work together with the dimension list and Details panel to give you a consistent picture of your data. For example, if you click a dimension in the schema diagram, the other views will all focus on that dimension:

Personal views will be saved and can be used for the next time you want to see your model again.

The screenshot shows the SAP BusinessObjects LESSON SUMMARY section. On the left, there is a small yellow computer icon. The main area contains the title "LESSON SUMMARY" and the text "You should now be able to:". Below this, there is a bulleted list: "• Explain structure view and data foundation view".

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Learning Assessment

1. What kind of additional installation is needed to connect SAP Analytic Cloud with an on-premise SAP BusinessObjects Universe?

Choose the correct answers.

- A Business objects driver software
- B BICS (Business Intelligence Consumer Service)
- C SAP Cloud Platform Cloud Connector
- D SAP Analytics Cloud Agent

2. After data is loaded to SAP Analytics Cloud, it can be modified. That includes transforms, such as split, edit single cells, or column merging.

Determine whether this statement is true or false.

- True
- False

3. The only option to create a model in a hierarchy in SAP Analytics Cloud is the use of parent-child hierarchies.

Determine whether this statement is true or false.

- True
- False

Learning Assessment - Answers

Duplication is prohibited.

- What kind of additional installation is needed to connect SAP Analytic Cloud with an on-premise SAP BusinessObjects Universe?

Choose the correct answers.

- A Business objects driver software
- B BICS (Business Intelligence Consumer Service)
- C SAP Cloud Platform Cloud Connector
- D SAP Analytics Cloud Agent

- After data is loaded to SAP Analytics Cloud, it can be modified. That includes transforms, such as split, edit single cells, or column merging.

Determine whether this statement is true or false.

- True
- False

All of the mentioned functionality can be used to manipulate the data.

- The only option to create a model in a hierarchy in SAP Analytics Cloud is the use of parent-child hierarchies.

Determine whether this statement is true or false.

- True
- False

Level based hierarchies are also a valid option.

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UNIT 3

Business Intelligence

Lesson 1

Designing Basic Story	87
Exercise 3: Create a Simple Story	97

Lesson 2

Storytelling: Visualization, Basic Calculation, and Formatting	115
--	-----

Lesson 3

Integrating Data with SAP BW/4 HANA and SAP Universes	120
Exercise 4: Use Live Data Connections (SAP BW) to Create Stories	135

Lesson 4

Designing Advanced Story	151
Exercise 5: Create and Format Stories using Calculations, Filters, Variances, and Input Controls	159
Exercise 6: Create Stories using Advanced Functions	179

Lesson 5

Using Analytic Applications and Analytic Designer	200
Exercise 7: Create an Application with Online Data Access	207

Lesson 6

Introducing SAP Analysis for Microsoft Office, Edition for SAP Analytics Cloud	216
Exercise 8: Create an Analysis for Office document with SAC	223

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UNIT OBJECTIVES

- Design basic stories
- Create visualization and perform basic calculation and formatting on visualizations

- Describe how SAP Analytics Cloud integrates with SAP BW
- Perform advanced story design
- Use the Analytic Applications/Analytic Designer
- Describe SAP Analysis for Microsoft Office, edition for SAP Analytics Cloud

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Unit 3

Lesson 1

Designing Basic Story



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Design basic stories

Basic Story Design Concepts

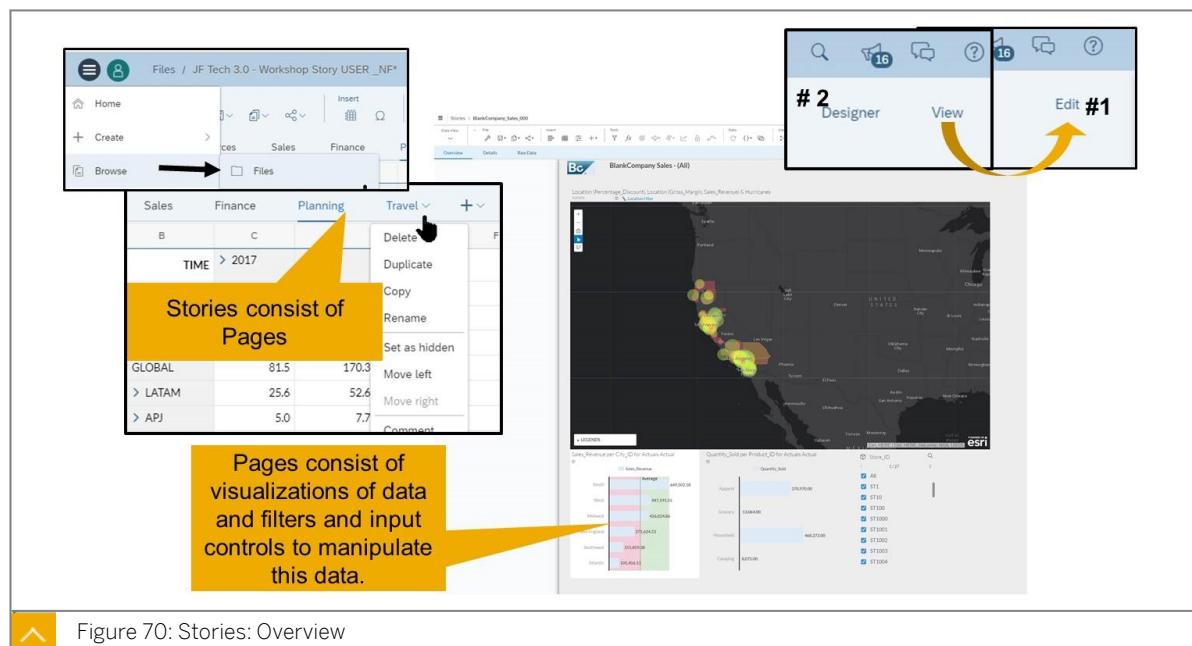
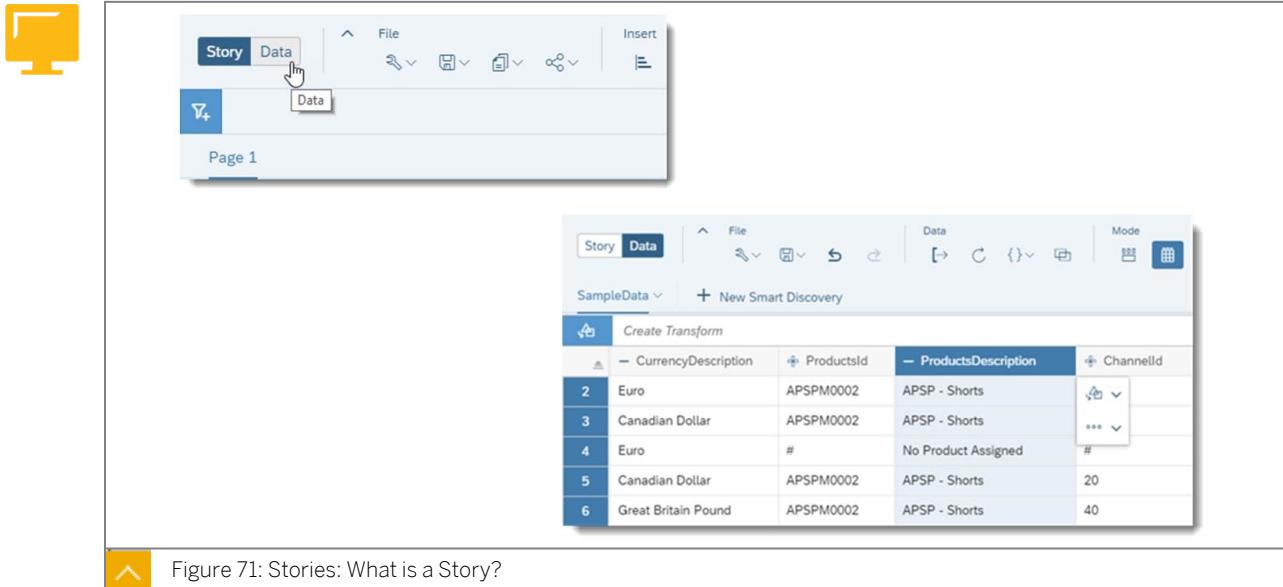


Figure 70: Stories: Overview

Duplication is prohibited.

A story is a presentation-style document that uses charts, visualizations, text, images, and pictograms to describe data. Once you create or open a story, you can add and edit pages, sections, and elements as you like. The story toolbar is divided into different categories such as file, insert, data, and tools to help you find options and perform tasks more efficiently.

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What Is a Story?

Stories are at the center of the SAP Analytics Cloud experience. They let you explore data interactively to find insights, visualize information with charts and tables, and share, present, and comment on your findings with colleagues. Before you get started, it is helpful to know a few basic things. Stories have two main views:

- A Data view where you can explore data in real-time, with dynamic visualizations changing .
- A Story view where you can design interactive dashboards for yourself or others.

What are models, dimensions, and measures?

Whichever view of a story you are using, the key to the underlying data lies in the measures and dimensions defined in the model of your data. Measures represent quantities that provide meaning to your data. For example, sales revenue, salary, or number of employees. Dimensions represent categories that provide perspective on your data. For example, product category, date, or location. Together, they are the framework for viewing data in interesting ways, whether it be a trend line of revenue over time, or a comparison of gross margin across different regions. Dimensions can contain attributes that describe the properties of a dimension. For example, you can use the month part of a date in number form, or you can describe it by a month name (attribute).

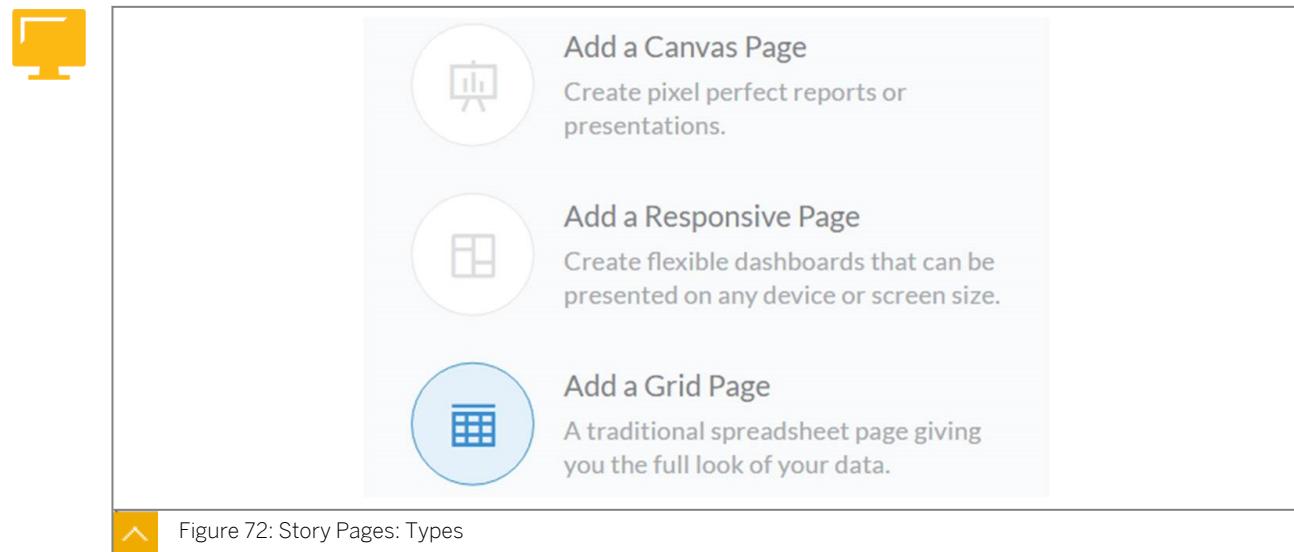


Figure 72: Story Pages: Types

You can add multiple pages to your story to help you explore and present your data.

A story page can be a blank canvas, a responsive page, or a grid. Use a blank canvas or responsive pages to lay out tables and charts, or use a grid to work with numbers and formulas on a sheet. Responsive pages let you create lanes to section the page content into groups. Tiles within a lane stay together when the responsive page is resized. Each story can contain a number of pages.

On each page, you can create your own object to visualize and obtain your individual style. You can use many predefined objects of the tool, including:

- Charts
- Tables
- Maps
- Filters
- Drop down menus
- Hiding functions
- Interactive objects
- Pictures

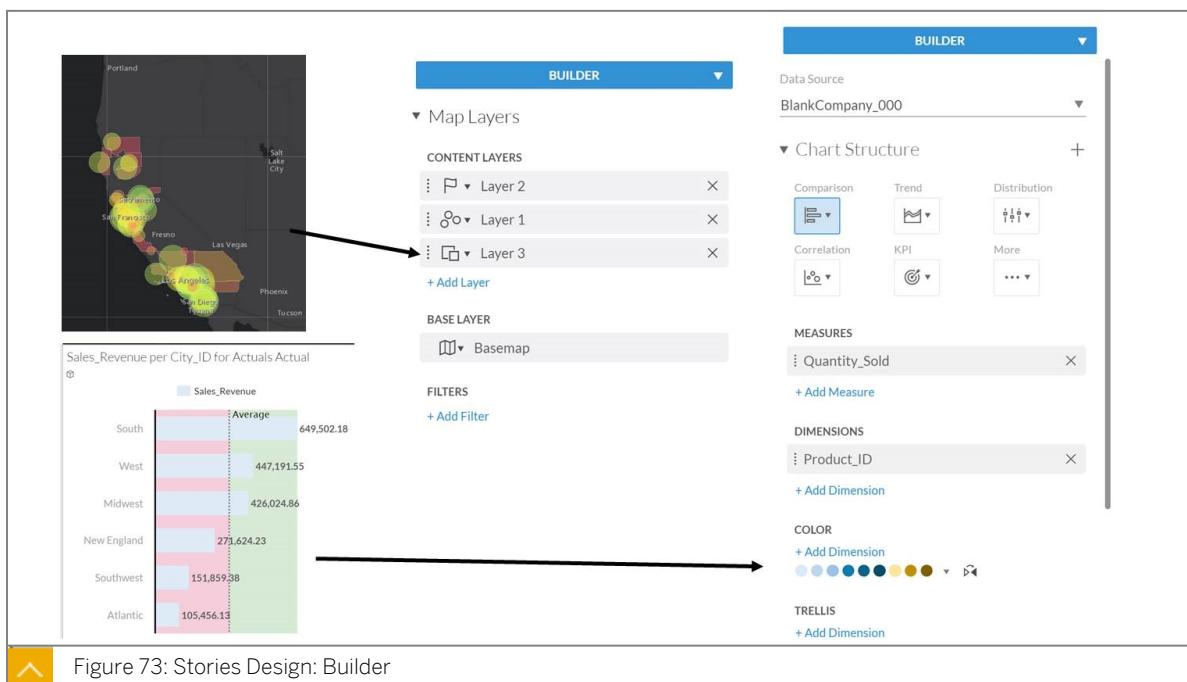


Figure 73: Stories Design: Builder

You can change the data setting of the stories using builder. The builder options can change depending on your visualization.

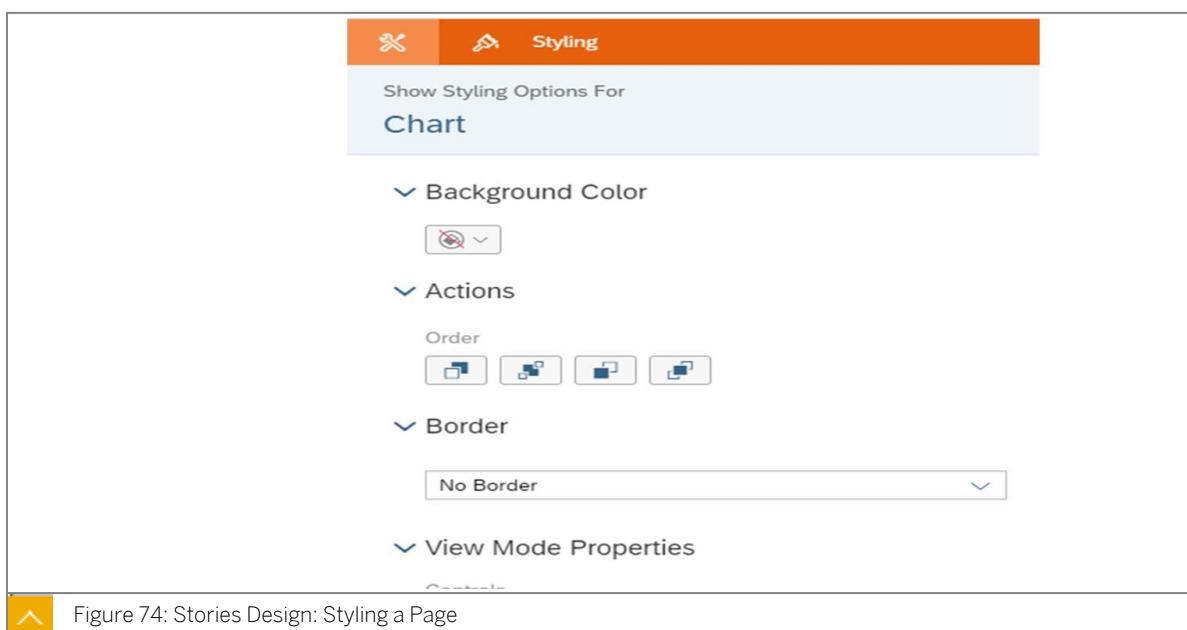


Figure 74: Stories Design: Styling a Page

You can format the general appearance of a page in a story.

Styling Option	Description
Background Color	Select a background color for the page.
Show Grid	Select ON to display grid lines on the page, or OFF to hide grid lines.

Styling Option	Description
Fix Page Size	Select On to set the page size. You can select a predetermined size from the list (Letter, Legal, Tabloid, A3, A4, B4, B5), or set a custom size by entering the page width and height in pixels.



Note:

Before you can change the page size, you may need to rearrange tiles in your canvas to fit the new size.

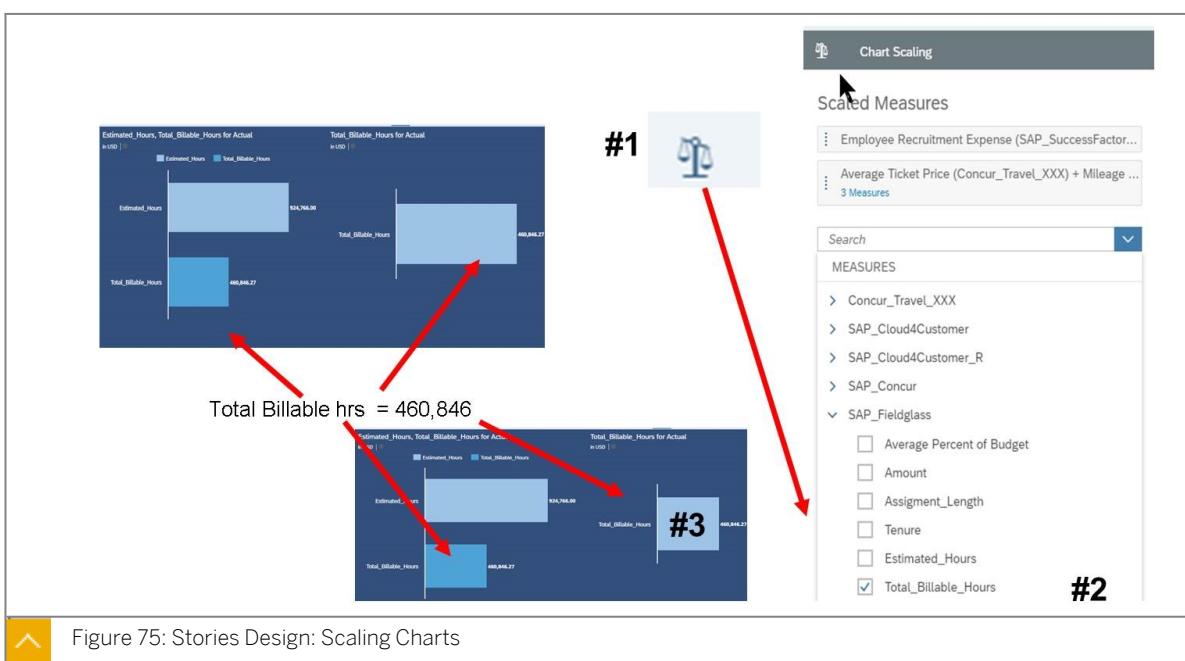
Chart

Create charts in a story to display your data. The data in your chart is based on the model you selected when creating the chart.

From the builder, you can select a chart type and then pick the measures and dimensions to show in your chart. Once you have defined the structure of your chart, you can add reference lines or filters to it. You can also customize color palettes.

Charts are divided into the following categories:

- Comparison
- Trend
- Correlation
- Distribution
- Indicator
- International Business Communication Standards (IBCS)



If multiple charts in a story contain the same measure, the measure values may be scaled differently in different charts, which can make comparisons difficult. You can scale the charts so that measures have the same scale across multiple charts.

**Note:**

- Chart scaling is applied to all of the pages in a story, but the scaling may be different for the same measure on different pages, because the scaling factor is calculated separately for each page.
- You can exclude charts from the scaling. For example, if a chart contains data that is much larger than the data in other charts, making the other charts look small.

Tables

Tables can be used to view and analyze data. Tables are added to either canvas or grid pages in stories.

For tables that are based on models, the set of features and options available depends on the model type (planning, analytics, or a model based on a remote SAP HANA system). Only the features and options that are supported by the model type are visible. For example, tables based on planning models allow users to make changes to the model data using version management, data entry, and allocations.

When you add a table to a story, a data grid is created with the basic dimensions and categories of the model aligned along the axes of the grid. You can change this basic layout using the designer tools.

- Use the Builder Expert to select the measures and dimensions to include in the rows and columns of your table.
- Use the Styling tools to enhance the presentation.
- Use the Examine panel to create charts and visualizations based on selected areas of the data in your table.

You can add multiple measures and multiple dimensions to your table. When measures or dimensions are part of a hierarchy or when a dimension has attributes, you can expand them and select their level or expand a dimension and select its attributes. You can also apply filters to your measures and dimensions. The table is updated as you make your choices in the builder.

Map

Geo Map

Geo maps can add a lot of value and context to your data analysis. SAP Analytics Cloud offers a variety of geographical mapping options to display your regional data, trends, flow, and so much more.

Geo enriching your data by coordinates enables you to use longitude and latitude coordinates. Your data may already include this information, but you could also enter it manually. These coordinates are used to create a map anywhere in the world.

Geo enriching your data by area name enables you to create geo maps without the need for exact longitude and latitude coordinates, but it is limited to United States. This option is great if your company does business in America and the transactional data does not include latitude and longitude coordinates. Be aware that geo enriching by area name does not allow for drilling down past the city level.

Story Filter, Page Filter, Widget Filter

Use story and page filters to narrow the scope of your analysis.

- The story filter allows you to apply filters for all charts in a story that are based on the same model.
- The page filter is the same as a story filter, but applies to just one page in a story.



Note:

Page and story filters are enabled only after you have added at least one chart to your story.

Prompts

A data source for a chart or table may prompt you to add variables before data can be displayed. If the data source you select to create a chart or table requires variables to be set, a prompt will appear when you create the first chart or table that uses the data source. After the variables are set, the information you provide will be used by all tables and charts that use the same data source.

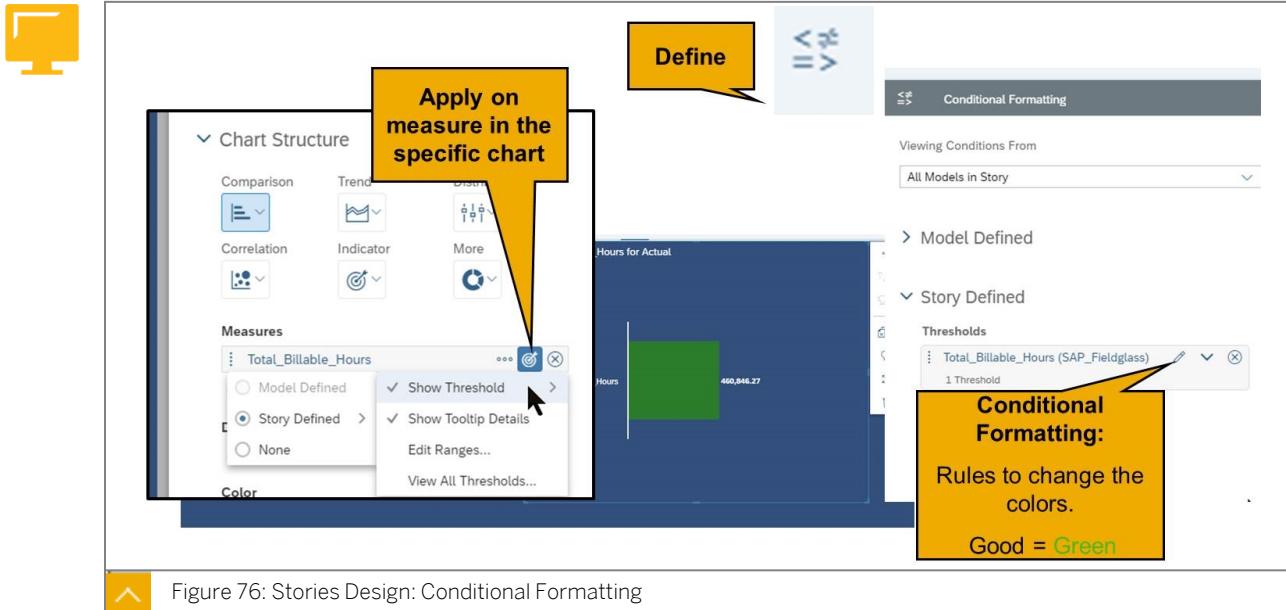
Thresholds

You can apply conditional formatting by defining thresholds in a story, or you can apply the formatting to all stories based on a model by defining thresholds in that model. For example, in your model you could define a threshold for revenue at \$1,000,000, so that all stories based on the model would have a revenue threshold of \$1,000,000.



Note:

Thresholds can be defined only on account dimensions.



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Conditional formatting covers several options, including thresholds in models and stories, and assigned colors in stories.

Linked Dimension

You can create links between dimensions in multiple models. You can use linked dimensions to create blended charts or tables that display data from multiple models. Linked dimensions also allow you to create filters that simultaneously update all charts that include linked data. Filters on linked dimensions can be used at the story, page, and linked analysis level.

Explorer

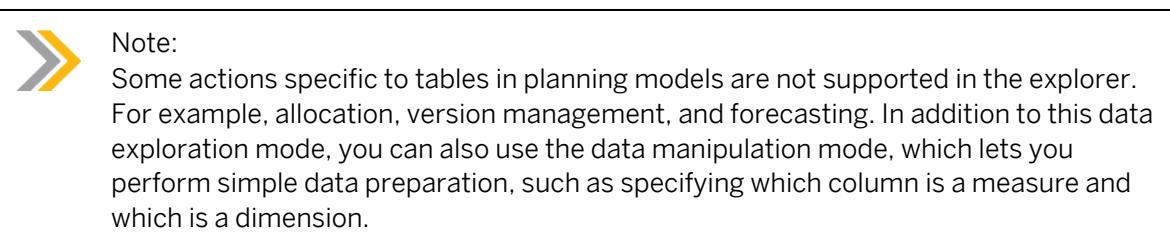
Explore Your Data

You can start creating a story for your data by experimenting with filters and charts in the explorer.

In the explorer, you see a faceted view of your data, which you can manipulate to generate charts for your story pages. When you select measures and dimensions in the upper-pane, the visualization in the lower-pane updates in real time. You can filter dimensions by selecting individual members, and the visualization changes immediately to show you the filtered result.

Initially, the visualization type is chosen automatically based on the selected data, but you can change it to any of the types supported for your data. When using the table visualization, the behavior is the same as when using tables in stories, with the following exceptions. For more information about tables, see *Tables*.

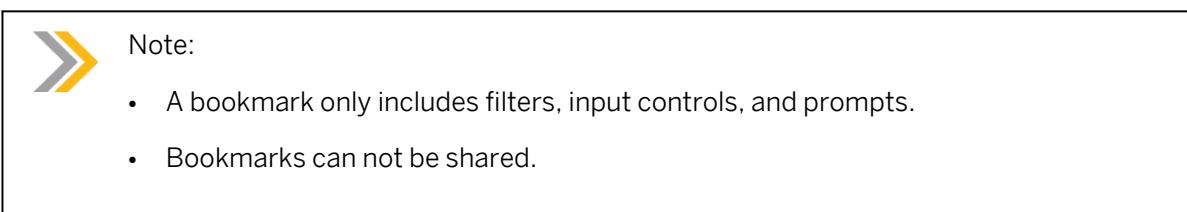
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Bookmarking

Bookmarking Story Views

Create bookmarks to save different states of a story. When viewing a story, you may want to come back to the same view of the data every time, or you may want to set up different states or scenarios. For example, you have several pages in your story that have filters, input controls, or prompts applied to them. You do not want to spend time resetting all of them each time you want to see a different scenario. You would like to open the story, see one scenario, and then quickly switch to another scenario.



Bookmarking Explorer Views

You can create different explorer views and add them to your story bookmarks. You may want to create different explorer views and come back to them later. You can do that by creating the views and then creating story bookmarks.

Duplication is prohibited.

Duplication is prohibited.

Unit 3

Exercise 3

Create a Simple Story

Business Example

Based on the human resource data you have uploaded and analyzed, you are wondering why the company has been paying the sales department significantly more than the other departments. To understand this better you need to analyze the financial data. However, before creating advance visualizations, you want to get an understanding of what data is available to you.

Key Task:

- Consume an existing responsive template for quick content creator.
- Use placeholder widgets to create visualizations quickly.
- Understand the basics between the builder panel and styling panel.
- Interact with explorer to create dynamic visualizations.
- Copy and paste widgets from explorer to existing pages.
- Place comments on a widget.

Task 1: Create Your First Visualization

Create a story based on the financial data.

1. Create a new page in your SAC01_HR_Employee_XX story with a responsive page.



Note:

If you did not create the SAC01_HR_Employee_XX story successfully earlier, ask your instructor for a copy of this solution story file.



Note:

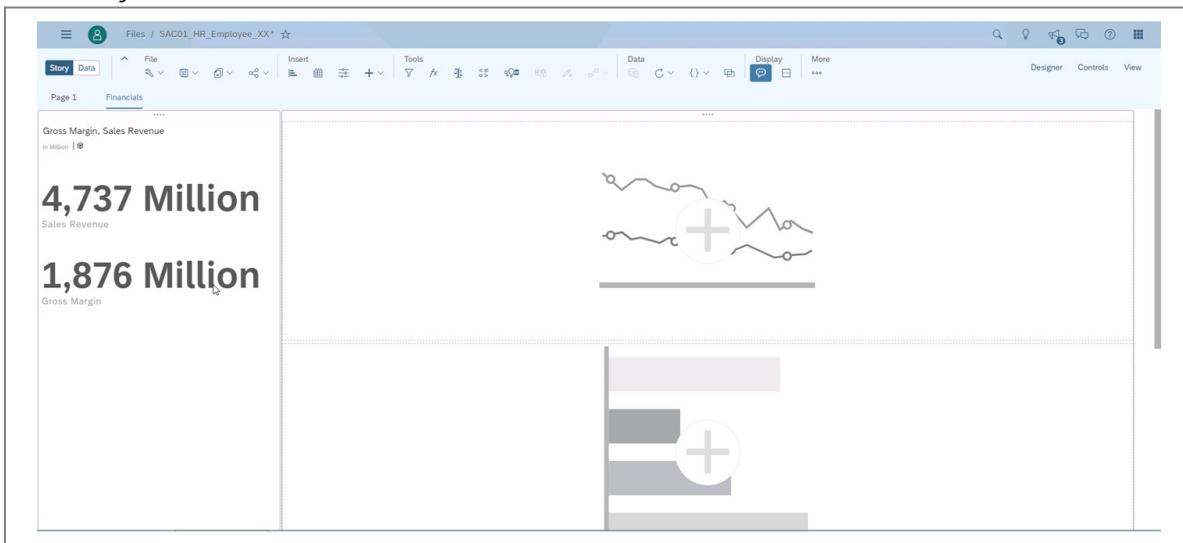
You may need to use credentials as shown in the following table:

Table 2: Logon information

Field	Value
Data Model	PACIFICA_ORDER_FINANCE
User	wshana
Password	Welcome1

2. You are new to SAP Analytics Cloud and need help to design your dashboard. Thus, leverage one of the templates that was created for you.
3. Create a numeric chart that will help monitor the sales revenue and gross margin. Use the `PACIFICA_ORDER_FINANCE` model.
4. Switch to the financial dataset, as it contains information on the company's sales revenue and gross margin.
5. Add sales revenue and gross margin measures.
6. The data in the numeric chart does not have a scale set. Set it to *Auto-formatted* so that the scale updates automatically depending on the value.
7. Clean up the numeric chart by hiding information that is not needed, hide the chart title and chart details.
8. Ensure that users of the dashboard understand what content they are focusing on. Rename the dashboard to Financials.

Your story now looks like this:



Task 2: Explore Data in Explorer

You want to continue the dashboard creation. Before doing this you need to explore the data that is available. You created a numeric chart that displayed the company's overall sales revenue and gross margin. You want to continue the analysis of gross margin by seeing which factors contribute to Pacifica's gross margin.



Note:

In the explorer you see a faceted view of your data, which you can manipulate to generate charts for your story pages. When you select measures and dimensions in the upper-pane, the visualization in the lower-pane updates in real time. You can filter dimensions by selecting individual members, and the visualization changes immediately to show you the filtered result.

1. Prior to creating the dashboard, explore the data that is available to you.
2. Include more dimensions in your exploration, to help you better understand the breakdown of gross margin.
3. You do not want to focus on all products, focus on a few juices.
4. Analyze how an individual product contributes to this total value of sales.
5. Continue your analysis of gross margin. You want to focus on the breakdown of gross margin per product category and region. You first need to clear the *Product* filter.
6. The data is represented as a bar and column chart, check if it is better represented as a stacked bar and column chart.
7. You want to see the product categories per region instead of the regions per product category.
8. However, you would rather see how many percentage points each product category contributes to the total gross margin. Switch the Stacked Bar/Column Chart into a 100% Stacked Bar/Column Chart.
9. Copy the visualization to include it in our financial page.
10. Replace the Stacked Bar/Column placeholder widget with the chart you created.
11. Highlight *alcohol* to focus on those data points.
12. Juice is the highest contributor for MEE, add juice to the selection to see how it compares to other regions.
13. Add a comment to your visualization and mention someone to follow up with the sales department to see why juice is the highest contributor in MEE.
14. Save your story as *SAC01_XX_SimpleStory*.

Unit 3

Solution 3

Create a Simple Story

Business Example

Based on the human resource data you have uploaded and analyzed, you are wondering why the company has been paying the sales department significantly more than the other departments. To understand this better you need to analyze the financial data. However, before creating advance visualizations, you want to get an understanding of what data is available to you.

Key Task:

- Consume an existing responsive template for quick content creator.
- Use placeholder widgets to create visualizations quickly.
- Understand the basics between the builder panel and styling panel.
- Interact with explorer to create dynamic visualizations.
- Copy and paste widgets from explorer to existing pages.
- Place comments on a widget.

Task 1: Create Your First Visualization

Create a story based on the financial data.

1. Create a new page in your SAC01_HR_Employee_XX story with a responsive page.



Note:

If you did not create the SAC01_HR_Employee_XX story successfully earlier, ask your instructor for a copy of this solution story file.



Note:

You may need to use credentials as shown in the following table:

Table 2: Logon information

Field	Value
Data Model	PACIFICA_ORDER_FINANCE
User	Wshana
Password	Welcome1

- a) Open the SAC01_HR_Employee_XX story.
- b) Choose *Edit*.
- c) Hover over the page header and choose the *Add New Page* icon.

Grid

It is primarily used for individuals who deal with large tables or those who use SAC for planning.

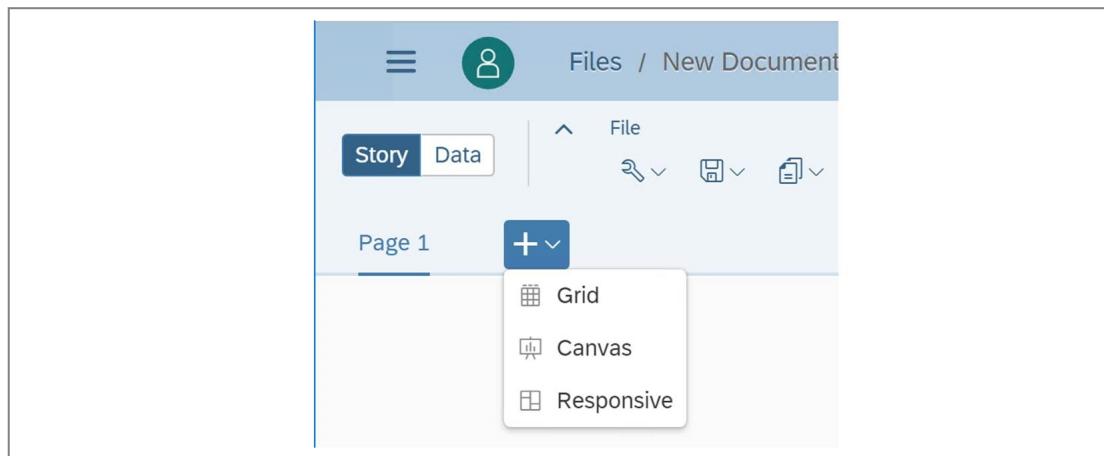
Canvas

It is primarily used to create a static dashboard that consumes multiple visualizations. It gives the content creator more granular control over the placement and layout of widgets they create (i.e. overlay widgets, widget placement on the dashboard, and so on).

Responsive

It is primarily used when creating a dashboard that is consumed on multiple devices as widgets that dynamically resize. It is also used when creating a digital boardroom presentation.

- d) Choose *Responsive*.



2. You are new to SAP Analytics Cloud and need help to design your dashboard. Thus, leverage one of the templates that was created for you.

- a) Under *Format*, choose the *Layouts* icon.

If no *Layouts* icon found, click the *More* icon and click *Layouts*.

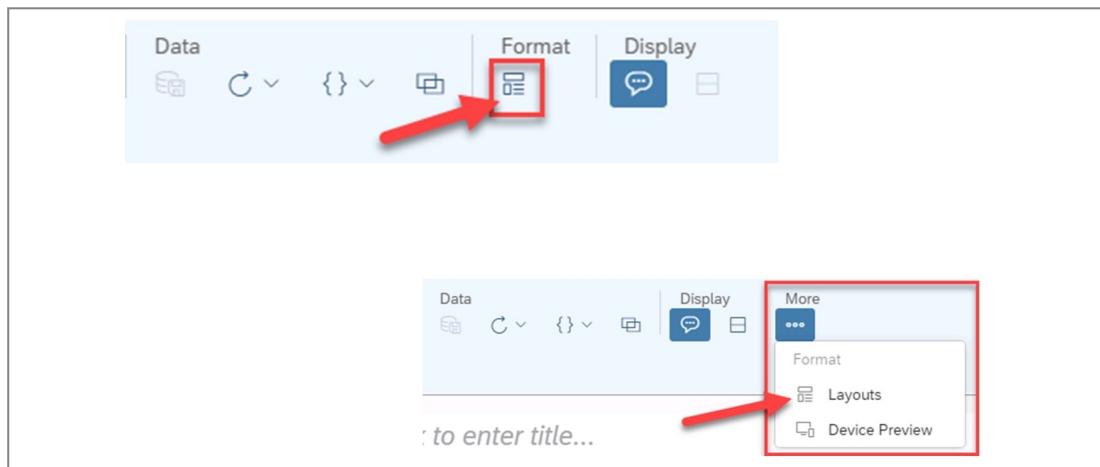


Note:

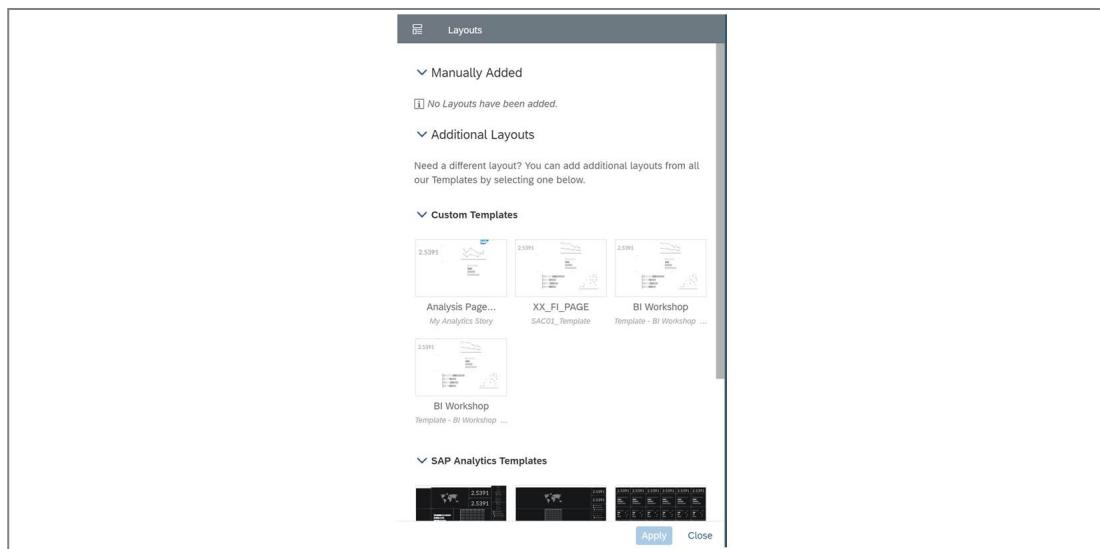
If you do not get a response after your first attempt, try clicking it a second time.

SAP Analytics Cloud helps the end user to get started by providing a set of predefined templates depending on their intent. Furthermore, a content creator can consume templates that they or their colleagues have created and shared with them. It allows you to

collaborate by providing one another a story that has been designed for your corporation. You will continue to build your dashboard by choosing a simple layout.



- b) Under *Custom Templates*, choose **XX_FI_PAGE (SAC01_Template)**.



- c) Choose *Apply*.

You receive confirmation that the layout was successfully applied.

- d) Choose *Close*.

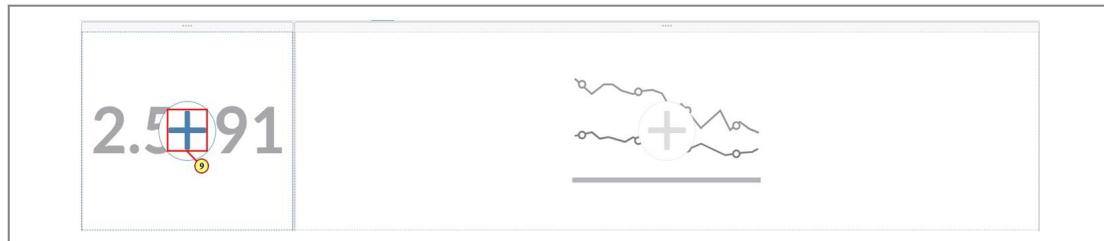
3. Create a numeric chart that will help monitor the sales revenue and gross margin. Use the *PACIFICA_ORDER_FINANCE* model.

- a) Scroll to the top.

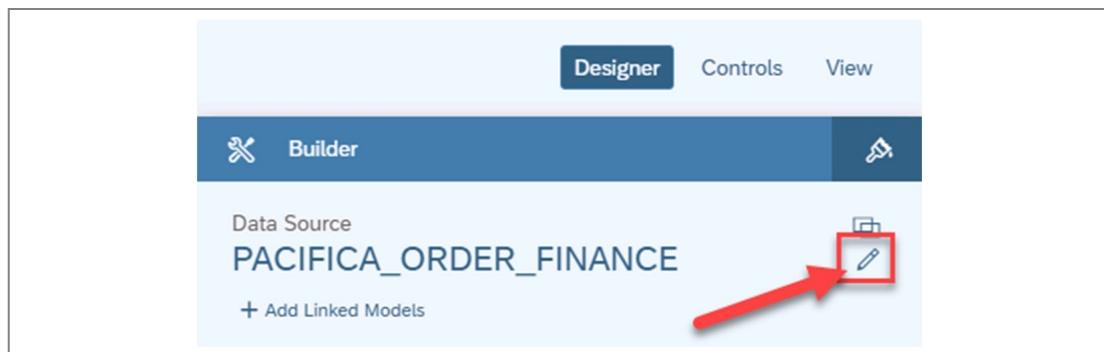
- b) To create a numeric chart from the placeholder widget, choose **+**.

**Note:**

The builder panel is a place where you can create visualizations. The chart area on your responsive page will remain empty until a measure and dimension are selected from the builder panel. It will dynamically update depending on the visualization that you are trying to create.



4. Switch to the financial dataset, as it contains information on the company's sales revenue and gross margin.
 - a) Under *Data Source*, choose the *Change Primary Data Source* icon as shown in the following figure.

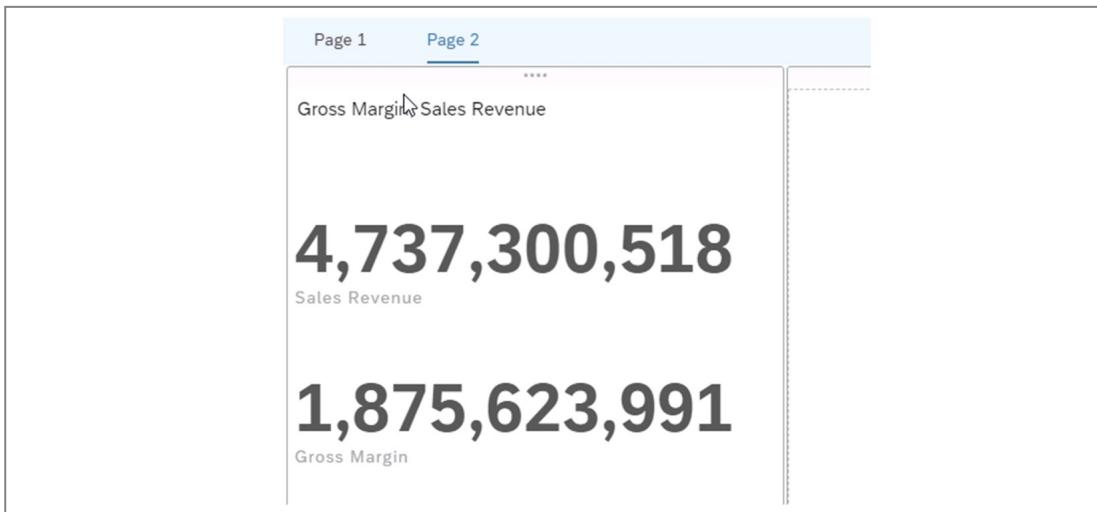


- b) Choose *PACIFICA_ORDER_FINANCE*.

**Note:**

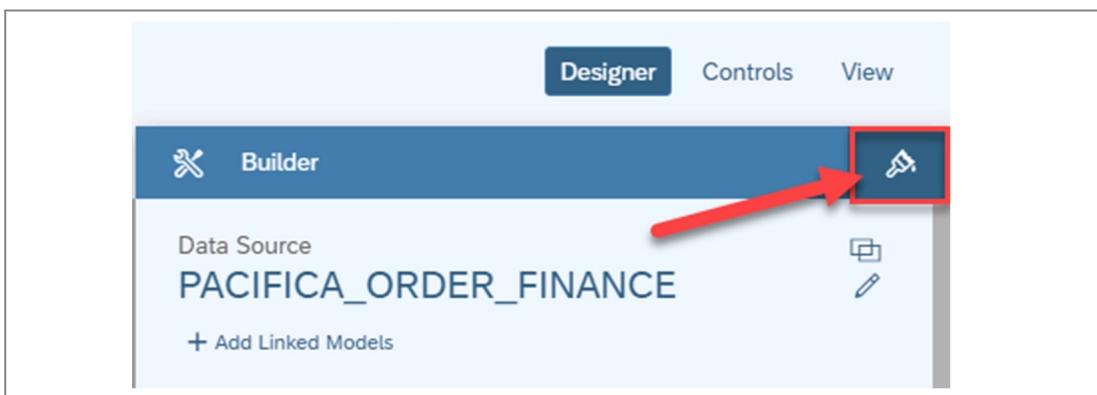
You may also find *PACIFICA_ORDER_FINANCE* under *Browse/Files/Public/SAC01_24/SAC01_Content/*.

- c) Choose *OK*.
5. Add sales revenue and gross margin measures.
 - a) Under *Primary Values*, choose *+ Add Measure*.
 - b) Scroll to the bottom and choose *Sales Revenue*.
 - c) Choose *Gross Margin*.
 - d) Click outside the *Measure Selection* drop-down menu.



6. The data in the numeric chart does not have a scale set. Set it to *Auto-formatted* so that the scale updates automatically depending on the value.

- a) Choose the *Styling Panel* icon.

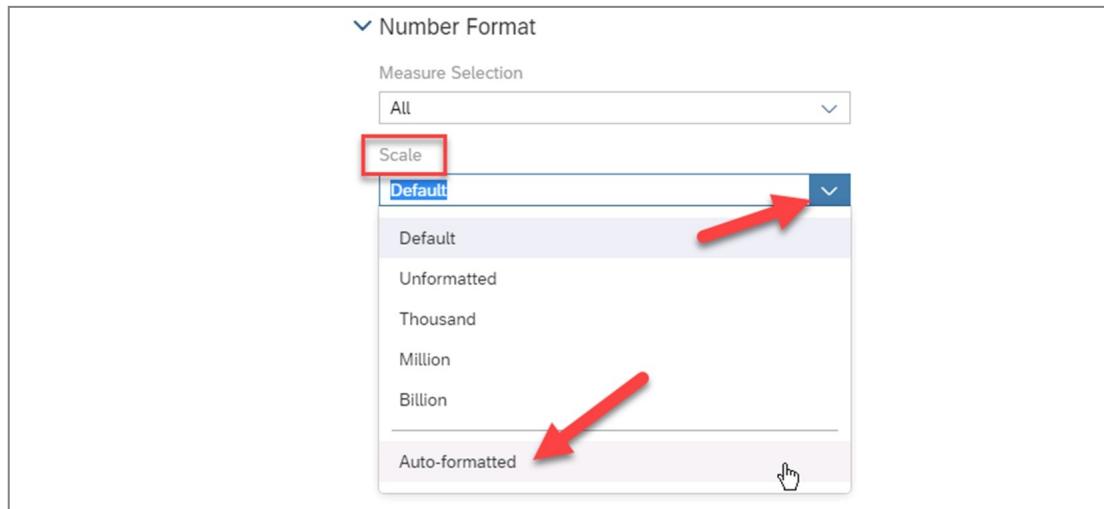


Note:

The styling panel displays options available for the selected tile type. Some options may not be available to all users. For widgets, you see only the styling options for the specific area that you have highlighted. The heading in the styling panel identifies the area. For example, it may show title, data cell, or axis label. Selecting a different part of the widget changes the heading and the styling options.

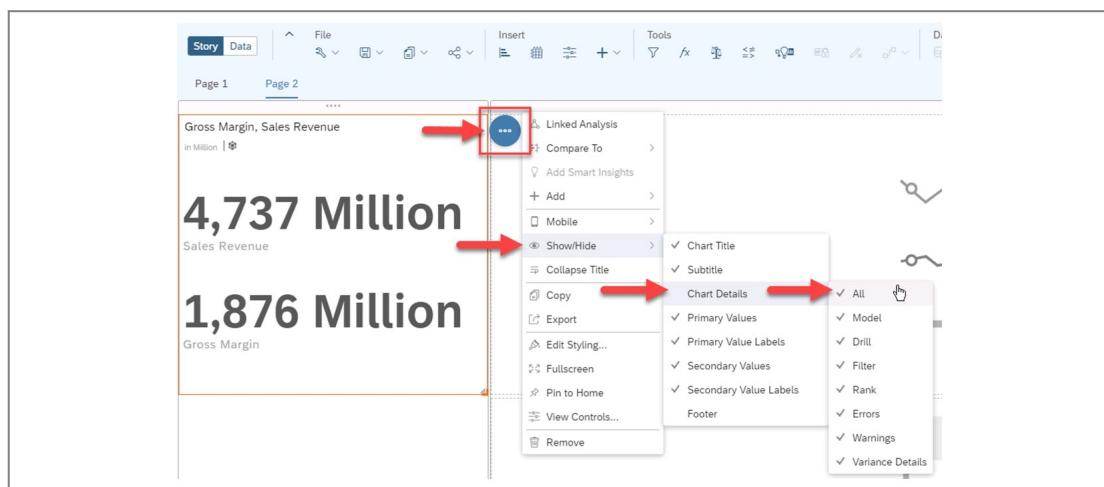
- b) Navigate to *Number Format*.
c) Expand *Scale*.
d) Choose *Auto-formatted*, as shown in the following figure.

Duplication is prohibited.



7. Clean up the numeric chart by hiding information that is not needed, hide the chart title and chart details.

- a) Choose the More Action icon.



- b) Hover over Show/Hide and deselect Chart Title and Chart Details.

- c) Click outside the Show/Hide options.

8. Ensure that users of the dashboard understand what content they are focusing on. Rename the dashboard to Financials.

- a) Expand Page 2 and rename it.

- b) Choose Rename.

- c) Enter **Financials**.

- d) Choose OK.

- e) Under File, choose Save.

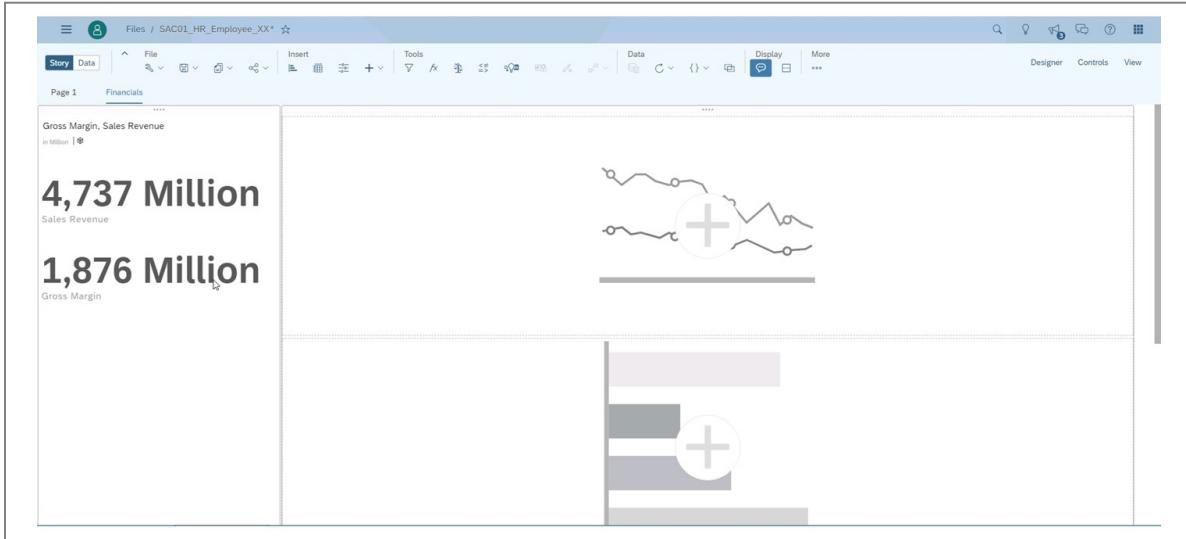
Duplication is prohibited.



Hint:

You can also press CTRL + S on your keyboard to save your story.

Your story now looks like this:



Task 2: Explore Data in Explorer

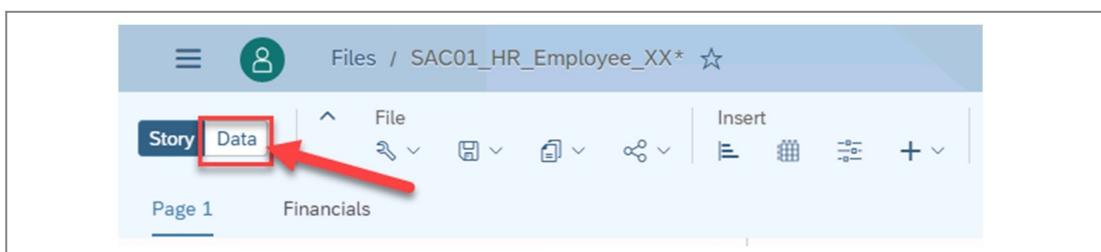
You want to continue the dashboard creation. Before doing this you need to explore the data that is available. You created a numeric chart that displayed the company's overall sales revenue and gross margin. You want to continue the analysis of gross margin by seeing which factors contribute to Pacifica's gross margin.



Note:

In the explorer you see a faceted view of your data, which you can manipulate to generate charts for your story pages. When you select measures and dimensions in the upper-pane, the visualization in the lower-pane updates in real time. You can filter dimensions by selecting individual members, and the visualization changes immediately to show you the filtered result.

1. Prior to creating the dashboard, explore the data that is available to you.
 - a) Return to the *Financials* tab.
 - b) Choose *Data* to switch to explorer mode.



- c) Choose *Gross Margin* as shown in the following figure.

The screenshot shows the SAP Analytics Cloud interface in 'Data' mode. On the left, there's a list of measures: Discount, Discount_%, Gross Margin, Number_of_Orders, Original Sales Price, Price, and Product Count. The 'Gross Margin' item is highlighted with a red box and has a red arrow pointing to it from the left. To the right of the list is a circular button with a plus sign and the text 'Show Dimensions'.

2. Include more dimensions in your exploration, to help you better understand the breakdown of gross margin.

- a) Choose + to expand the *Show Dimensions* drop-down menu.

The screenshot shows the SAP Analytics Cloud interface in 'Data' mode. On the left, there's a list of measures: Discount, Discount_%, Gross Margin, Number_of_Orders, Original Sales Price, Price, and Product Count. The 'Show Dimensions' button, which is a circular button with a plus sign, is highlighted with a red box and has a red arrow pointing to it from the left.

- b) Choose *Product Category*, *Product*, and *Region*.

- c) Click outside the *Show/Hide Data* drop-down menu.

3. You do not want to focus on all products, focus on a few juices.

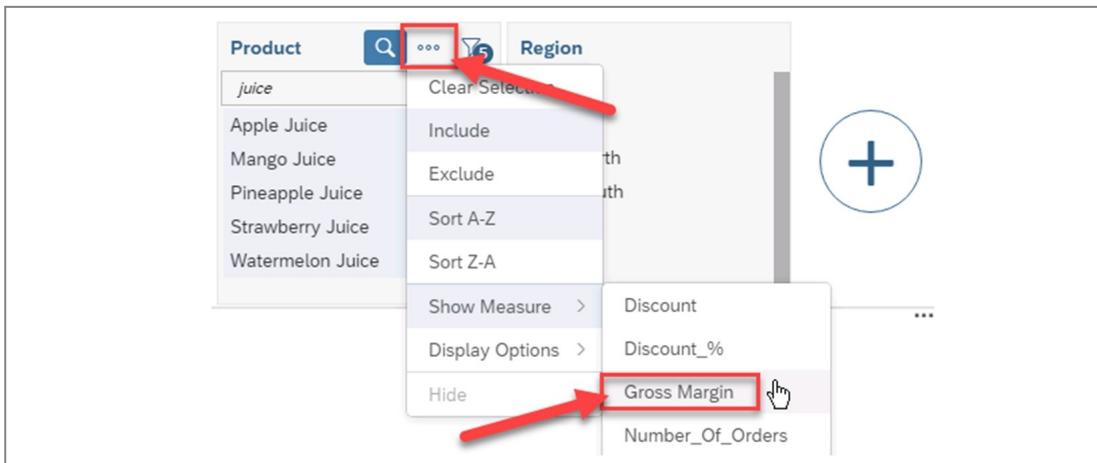
- a) Hover over the *Product Facet* and choose *Search*.

- b) Search for **Juice**, and choose *Apple Juice* and *Mango Juice*.

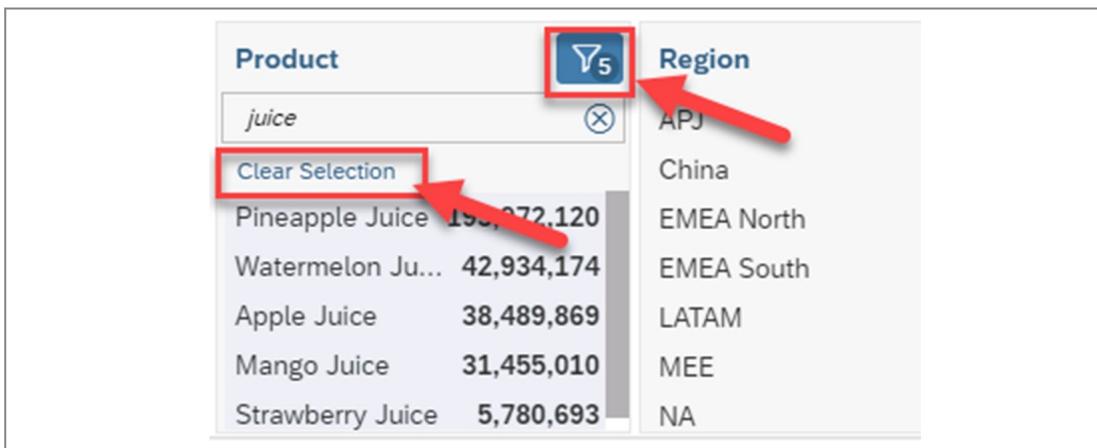
- c) Repeat this for other juice products.

4. Analyze how an individual product contributes to this total value of sales.

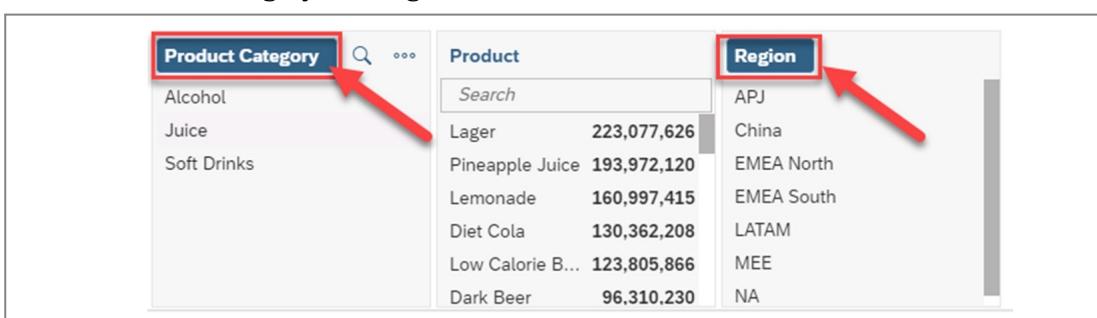
- a) In the *Product* facet, choose *More Action*.



- b) Hover over *Show Measures* and choose *Gross Margin*.
 You can see that based on the juices we filtered on, Strawberry Juice is the lowest contributor while Pineapple Juice is the highest contributor.
- c) Filter *Clear Selection* as shown in the following figure.



5. Continue your analysis of gross margin. You want to focus on the breakdown of gross margin per product category and region. You first need to clear the *Product* filter.
- a) Navigate to *Product* → *Clear Selection*.
- b) Choose *Product Category* and *Region*.



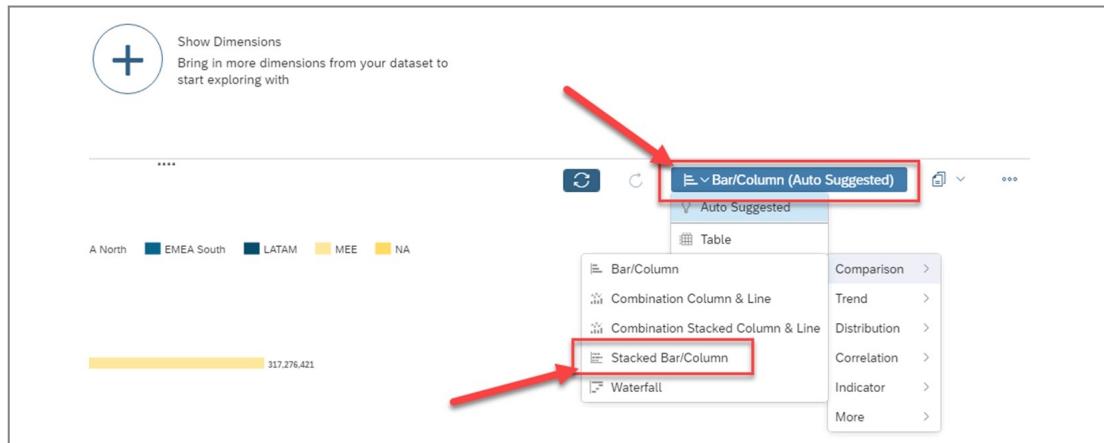
You can see that once you select dimensions, the visualization automatically updates to best reflect the data.

Duplication is prohibited.

Duplication is prohibited.

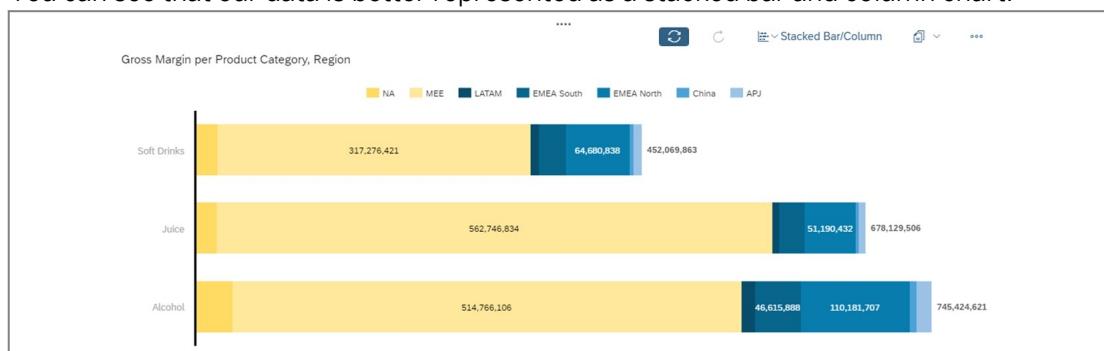
6. The data is represented as a bar and column chart, check if it is better represented as a stacked bar and column chart.

- a) On the upper-right hand side of the visualization plane, choose *Bar/Column (Auto Suggested)*.



- b) Hover over *Charts Comparison* and choose *Stacked Bar/Column Chart*.

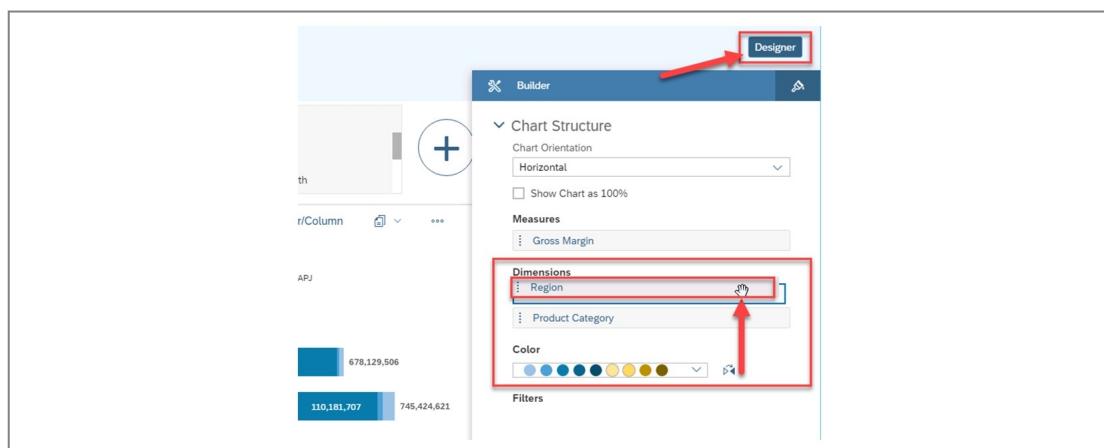
You can see that our data is better represented as a stacked bar and column chart.



7. You want to see the product categories per region instead of the regions per product category.

- a) Choose *Designer* to open the *Designer* panel.

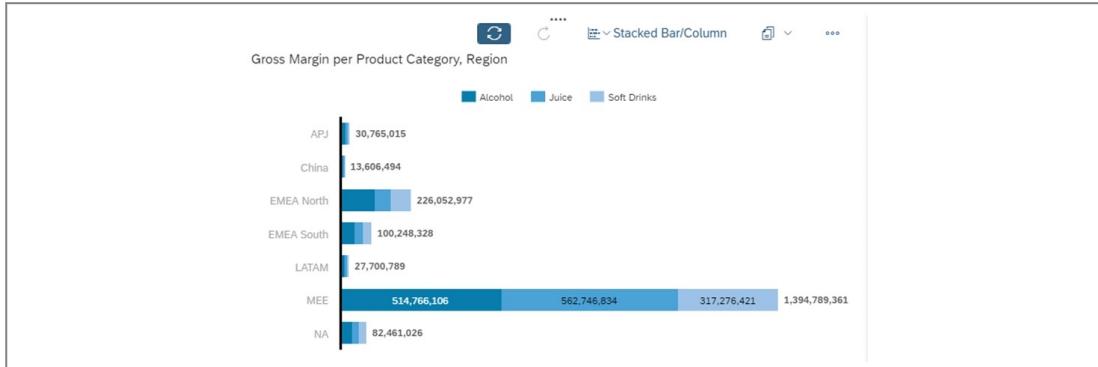
- b) Move *Region* from *Color* to *Dimensions*.



c) Move Product Category from Dimensions to Color.

The screenshot shows the Power BI Builder interface with the 'Chart Structure' tab selected. In the 'Color' section, there is a dropdown menu with options: 'Measures', 'Member', 'Gross Margin', and 'Product Category'. The 'Product Category' option is highlighted with a red box. Below the dropdown are color swatches for 'Alcohol' (dark blue), 'Juice' (light blue), and 'Soft Drinks' (medium blue).

We can see how each product category contributes to the total gross margin per region.



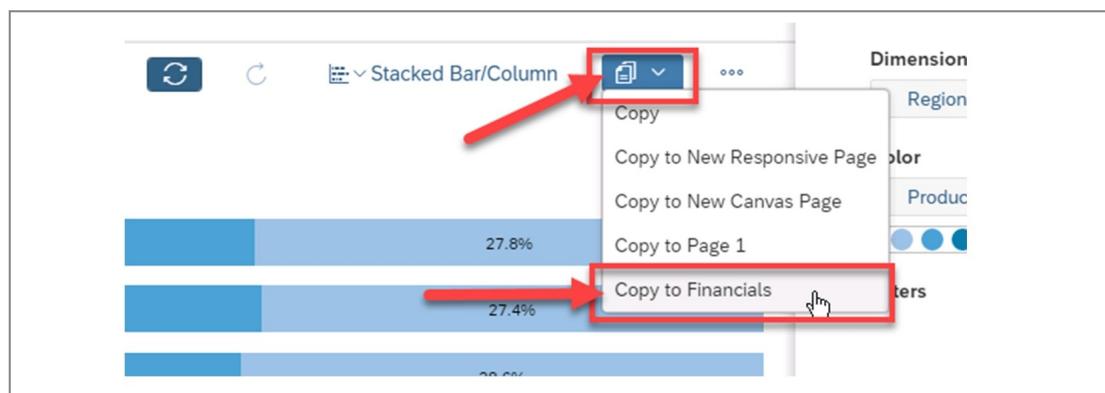
8. However, you would rather see how many percentage points each product category contributes to the total gross margin. Switch the Stacked Bar/Column Chart into a 100% Stacked Bar/Column Chart.

a) Choose Show Chart as 100%.

The screenshot shows the Power BI interface with a 100% stacked bar chart. On the left, the 'Measures' pane lists 'Discount', 'Discount %', 'Gross Margin', 'Number_of_Orders', and 'Original Sales Price'. The 'Product Category' pane shows categories: Alcohol, Juice, and Soft Drinks. The 'Product' pane shows a search bar and results for Lager, Pineapple Juice, Lemonade, and Diet Cola. The 'Region' pane lists APJ, China, EMEA North, EMEA South, and LATAM. The 'Chart Structure' pane has a checked 'Show Chart as 100%' checkbox. The chart itself displays the percentage contribution of each product category to the total gross margin for each region.

9. Copy the visualization to include it in our financial page.

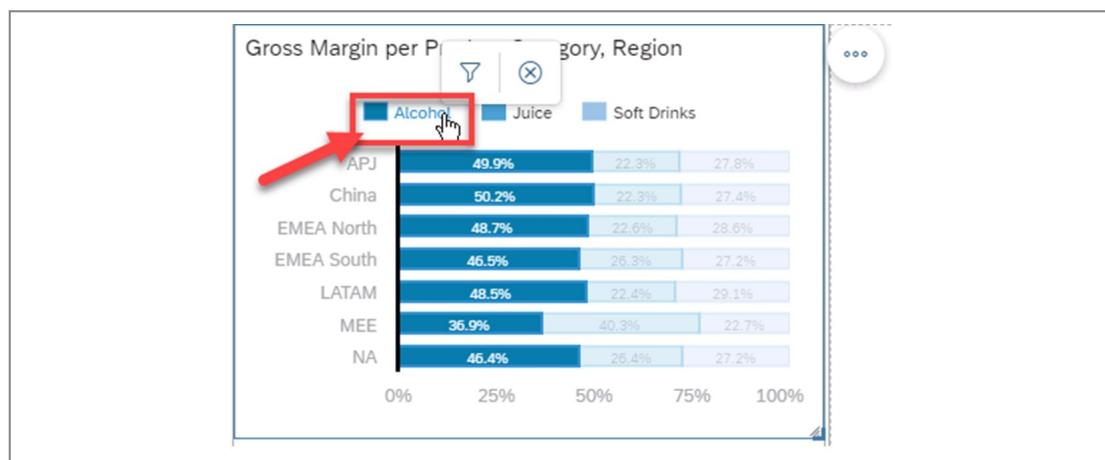
- a) Choose *Copy* → *Copy to Financials*, as shown in the following figure.



You will see confirmation that the visualization was successfully copied over.

10. Replace the Stacked Bar/Column placeholder widget with the chart you created.

- Navigate to the bottom of the responsive page.
- Choose the *Stacked Bar/Column* placeholder widget and choose *Remove*.
- Choose the *Stacked Bar/Column Chart*.
- Click and hold the chart's border. The cursor will switch from a pointer to a move icon.
- Move the chart into the space to the left of the *Scatterplot* placeholder widget.

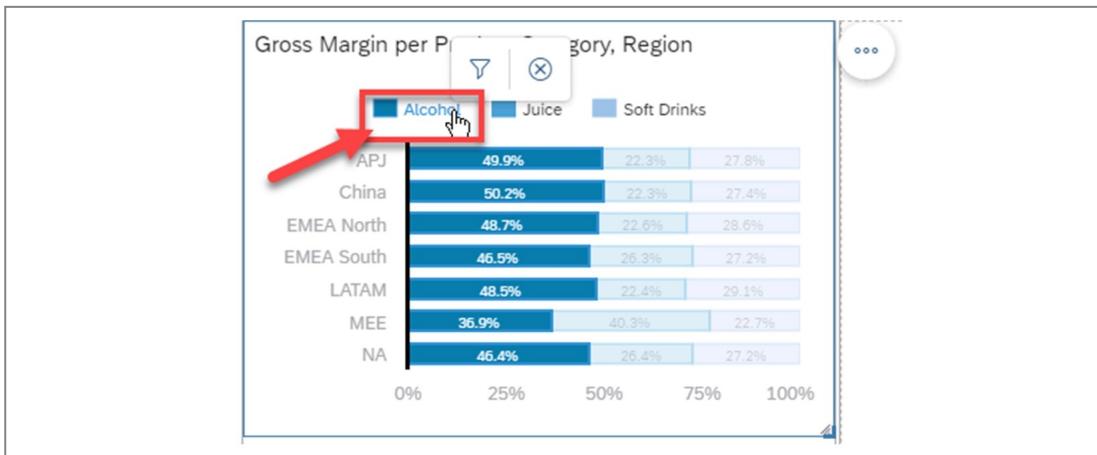


- f) Resize the chart to fit the empty space. The cursor will switch from a pointer to a resize icon. We can see how each product category contributes to a region.

11. Highlight *alcohol* to focus on those data points.

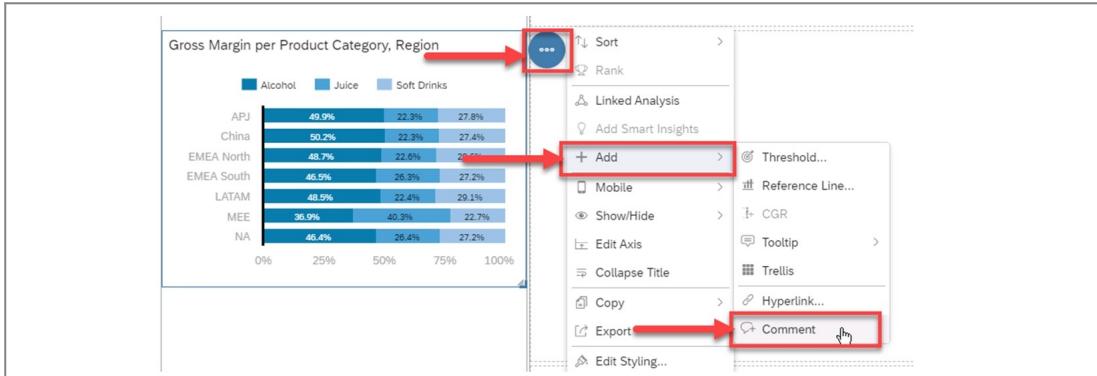
- a) Choose *Alcohol*.

We can see that based on the contribution of alcohol for each region, MEE has 10% points lower in comparison to other regions.



- b) Click anywhere (except a data point) to deselect alcohol. Take a closer look at MEE's product category breakdown.
12. Juice is the highest contributor for MEE, add juice to the selection to see how it compares to other regions.
- a) Choose Juice.
- We can see the contribution of juice for MEE is significantly larger in comparison to the other regions.
- b) Click anywhere (except a data point) to deselect MEE and juice.
13. Add a comment to your visualization and mention someone to follow up with the sales department to see why juice is the highest contributor in MEE.

- a) Choose Add → Comment, as shown in the following figure.



Note:

You can place comments on a widget or page. In addition, if the story is shared with a set of users, you can mention the user by using the @ symbol before typing the users name.

- b) In the Comment box enter, **Follow up with the Sales Department to see why Juice is the highest contributor in MEE.**

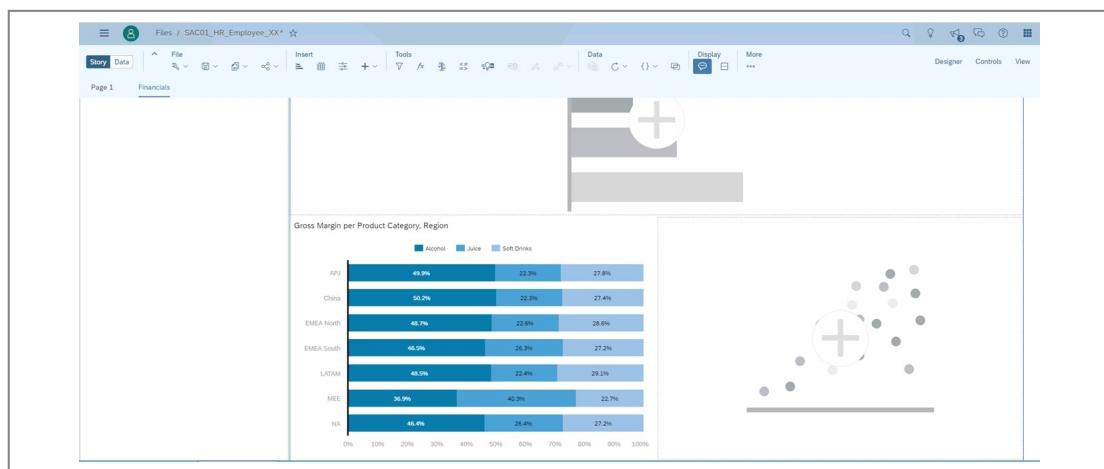
c) Choose Place Comment.



d) Click outside the comment box.

14. Save your story as **SAC01_XX_SimpleStory**.

a) Under *File*, choose **Save As** and name your story **SAC01_xx_SimpleStory**. You can also save your story by pressing **CTRL + S** on the keyboard.





LESSON SUMMARY

You should now be able to:

- Design basic stories

Duplication is prohibited.

Duplication is prohibited.

Unit 3

Lesson 2

Storytelling: Visualization, Basic Calculation, and Formatting



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Create visualization and perform basic calculation and formatting on visualizations

Storytelling



The screenshot shows the SAP Analytics Cloud interface. At the top, it says "Choose how you'd like to start your story." Below this, there are two sections: "Custom Templates" and "SAP Analytics Templates". Under "Custom Templates", there are three options: "Advanced Planning Template", "Current Forecast", and "JF Tech 3.0 - Workshop Story Tr...". Under "SAP Analytics Templates", there are three options: "Dashboards", "Presentation - Responsive", and "Report". To the right of these sections, there are five circular icons with corresponding descriptions: "Access & Explore Data", "Run a Smart Discovery", "Add a Canvas Page", "Add a Responsive Page", and "Add a Grid Page". On the far right, there is a large preview window showing a world map with red circles of varying sizes, a bar chart titled "Headcount per Team" with categories like Sales, Marketing, Product, etc., and a line chart titled "Profitability Forecast" showing data from Q3 2016 to Q3 2017.

Figure 77: Storytelling: Visualization , Basic Calculation and Formatting

Duplication is prohibited.

Duplication is prohibited.

To start a story, first define the story structure:

- Visualize the story within a canvas
- Use a grid
- Use a responsive page
- Run a smart discovery (data analysis)

When creating a new story, you have the option to start with a blank canvas or choose from one of our pre-formatted templates. These templates can be used from content predefined by SAP, or created by your company.

The user has the choice to implement:

- New design

- Templates provided by SAP
 - Templates customized by your business

Choose the right data visualization :

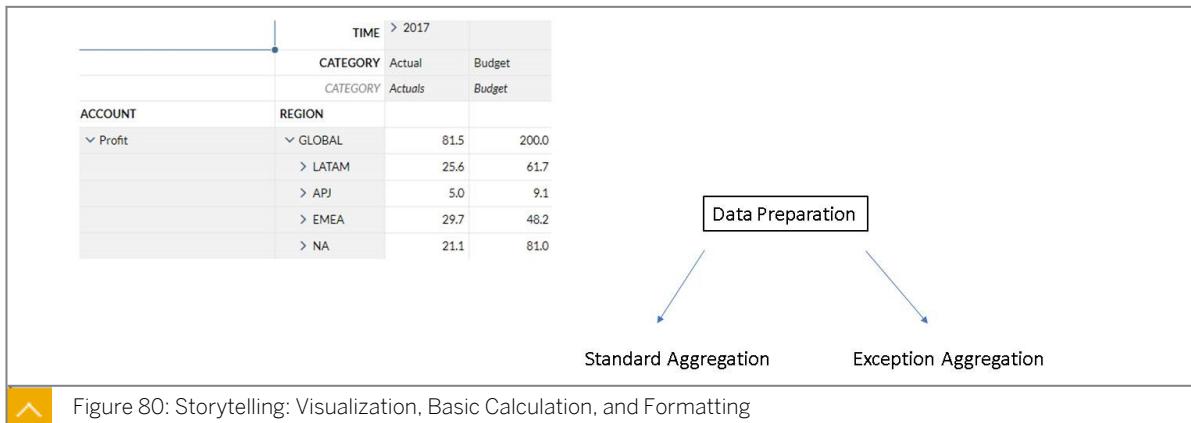
- Charts
- Tables
- Maps
- Value Tree
- Picture
- Pictogramm
- Symbols
- Interactivity

Choose the Right Data Visualizations

There is no right or wrong way to tell a story, that is entirely up to you. There is only a wrong way in ordering graphical elements and visualizations.

For example, pie and donut charts have a particular use and are good for visualizing parts of a whole. Whereas, a time-series chart is ideal for analyzing trends over time.

The figure consists of two main parts. On the left is a screenshot of a dashboard titled 'SALES' showing YTD Sales Revenue (209.2 million USD) and Expected Revenue (3,087 million USD). It includes a legend for Region (All, NA, APJ, EMEA, LATAM) and Product (All, Platform, Cloud Software, Mobile). Below this is a bar chart of Expected Revenue by Segment in millions USD, with segments including Fortune 500, Enterprise, SMB, and SME. On the right is a funnel diagram representing the sales process. The top section shows 'Identify Opportunity' (Probability 10%) and 'Quality Opportunity' (Probability 30%). The middle section shows 'Develop Value Proposition' (Probability 50%) and 'Quotation' (Probability 70%). The bottom section shows 'Won' (59) and 'Number Opportunities' (585, 1,071, 666, 246). A note box in the bottom-left corner says 'Create your own story format'.

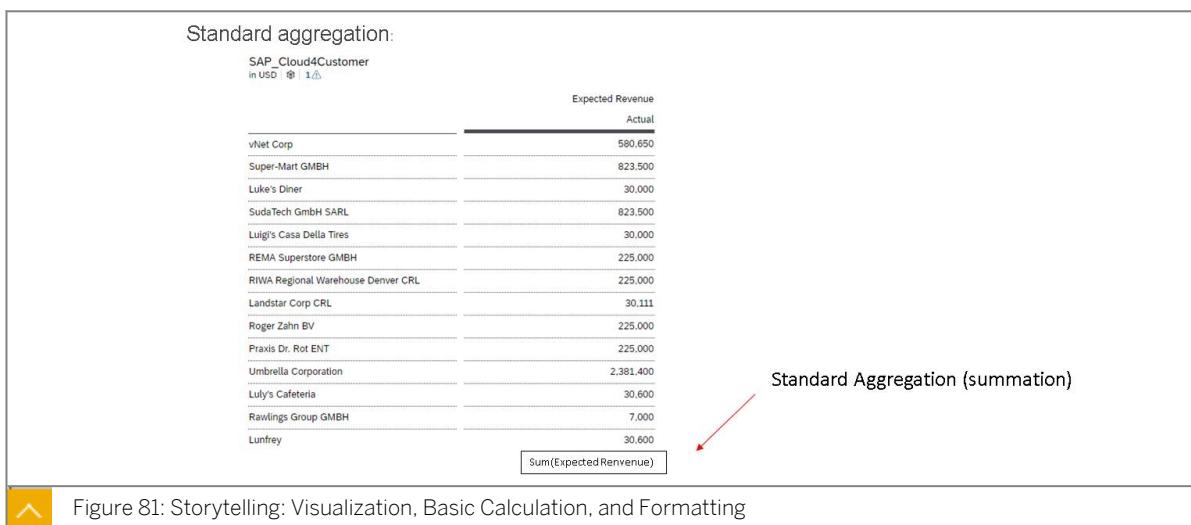


Calculation, aggregation, and general data preparation of the SAP Analytics Cloud story begins in the modeler. The modeler enables you to prepare your data in various ways prior to analysis. According to the needs of the analyst, it is also possible to do some data calculations within the story.

If there are specific aggregation requirements, you can apply these to multiple stories based on one model, rather than creating your calculations at the story level. Applying aggregation rules at the story level becomes less efficient if you have more than one story.

There are two types of aggregation in SAP Analytics Cloud:

- Standard Aggregation
- Exception Aggregation



In accounting, aggregation is when you add up the total of two or more figures.

For example, the total number of expected revenue over all customers should be shown. Usually, or with the help of the standard aggregation, there would be a standard summation from the beginning of the expected revenue column to the end.

Standard aggregations are predefined in the data source of your data model.

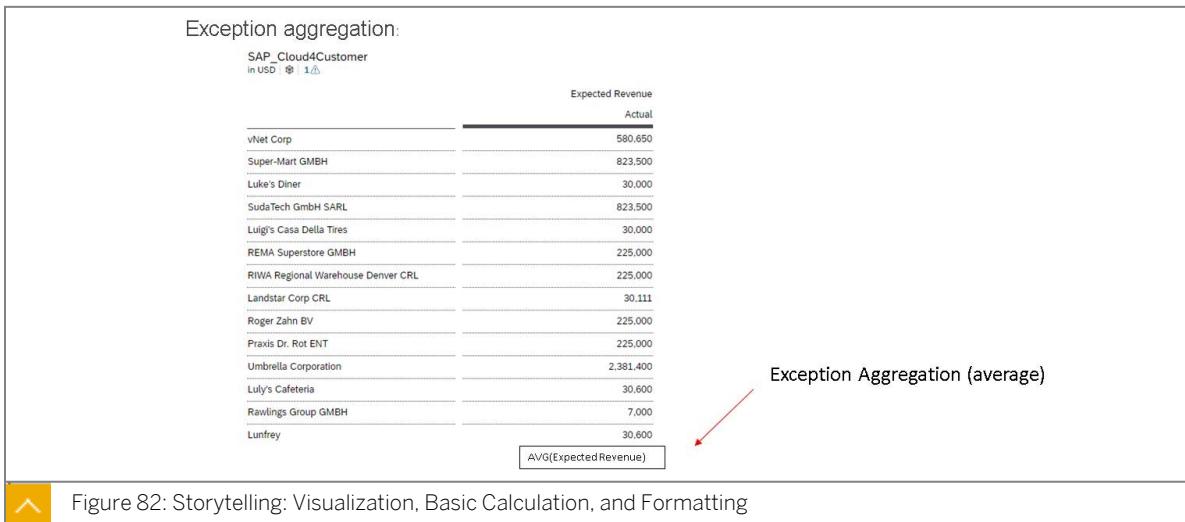


Figure 82: Storytelling: Visualization, Basic Calculation, and Formatting

Exception aggregation allows the use of another calculation type that was not part of the datasource your model connected to.

For example, if an average calculation is needed, and it is not part of the data connection or datasource, an exception aggregation can be implemented.

Exception aggregation can be applied from:

- A Model
- A Story

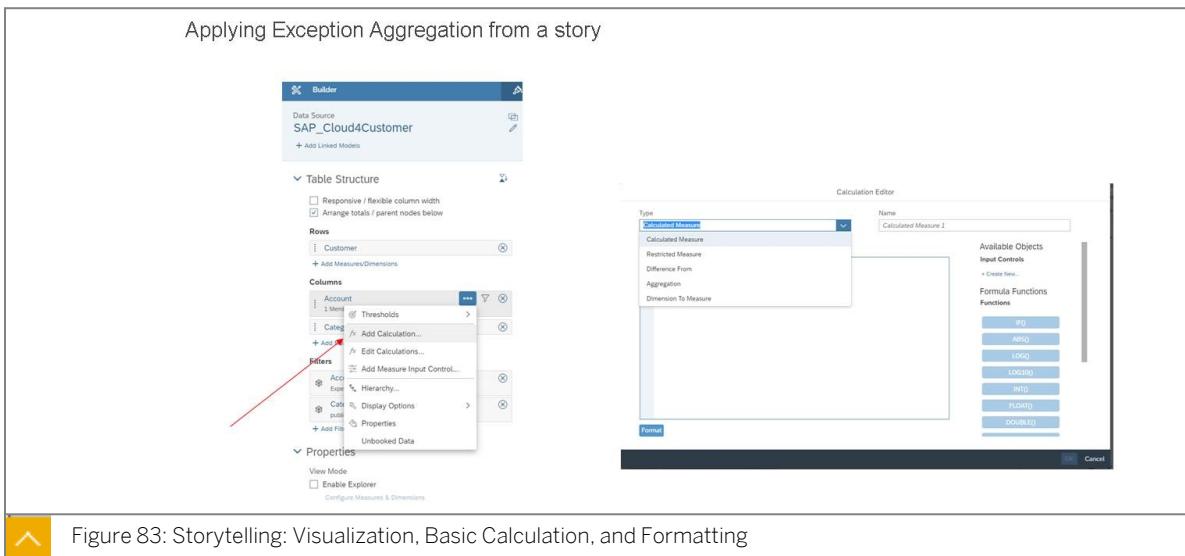


Figure 83: Storytelling: Visualization, Basic Calculation, and Formatting

Exception Aggregation

Exception aggregation by a model is a convenient way to allow calculations to be available for others who may build stories based on your model.

Exception aggregation from a story is useful for when you do not plan on creating multiple stories based on one model, or if you forgot to include a particular calculation in your model. In these

scenarios, SAP Analytics Cloud enables you to create a one-time exception aggregation that can be used for that one story.

Exception aggregation type examples:

- SUM
- MIN
- MAX
- AVG
- AVG excl. 0
- FIRST
- LAST

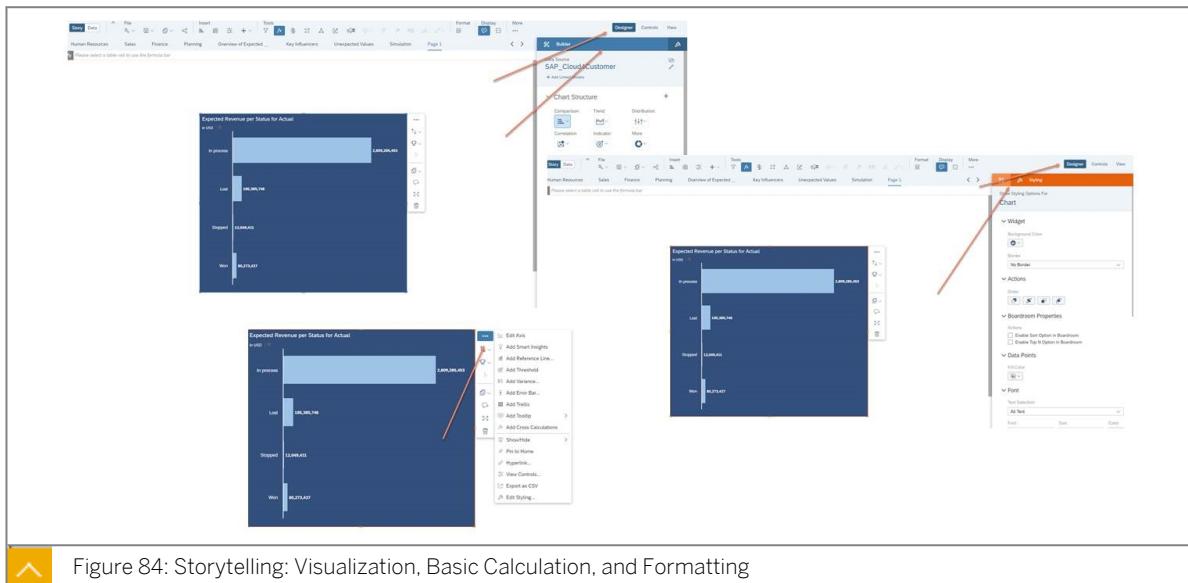


Figure 84: Storytelling: Visualization, Basic Calculation, and Formatting

The two main areas that impact the view of a specific object are as follows:

- Builder blue area handles data presentation, such as decimals, filters, and so on.
- Styling red area handles formatting, such as colors, forms, and so on.

Alternatively, there are several menus that can change the formatting of an object. For example, the context menu of a specific object or menu border.



LESSON SUMMARY

You should now be able to:

- Create visualization and perform basic calculation and formatting on visualizations

Integrating Data with SAP BW/4 HANA and SAP Universes



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe how SAP Analytics Cloud integrates with SAP BW

Data Integration with SAP Analytics Cloud

The following table compares live data connections to import data connections.

Live Data Connections	Import Data Connections
<ul style="list-style-type: none">• Available for cloud and on-premise data sources.• Do not replicate your data in SAP Analytics Cloud.• Use existing data models for analysis.• Update your data visualizations and stories with new data in real-time.	<ul style="list-style-type: none">• Available for cloud and on-premise data sources.• Replicate data within SAP Analytics Cloud.• Create new data models through the SAP Analytics Cloud Modeler.• Update your data visualizations and stories when refreshed.

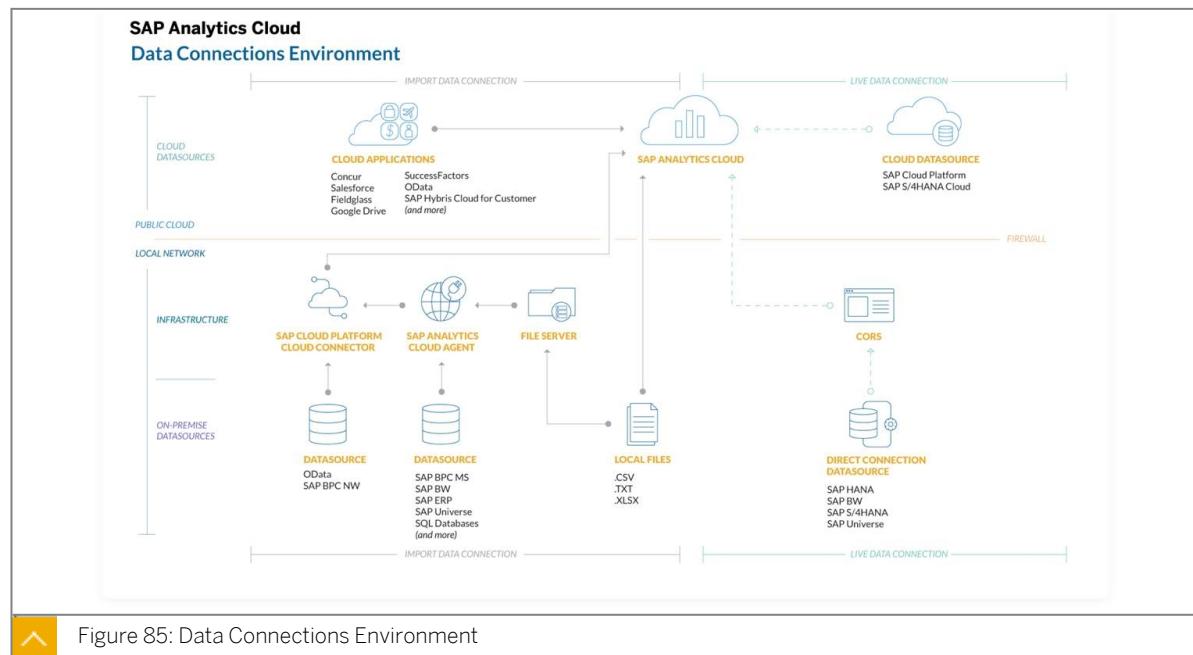


Figure 85: Data Connections Environment

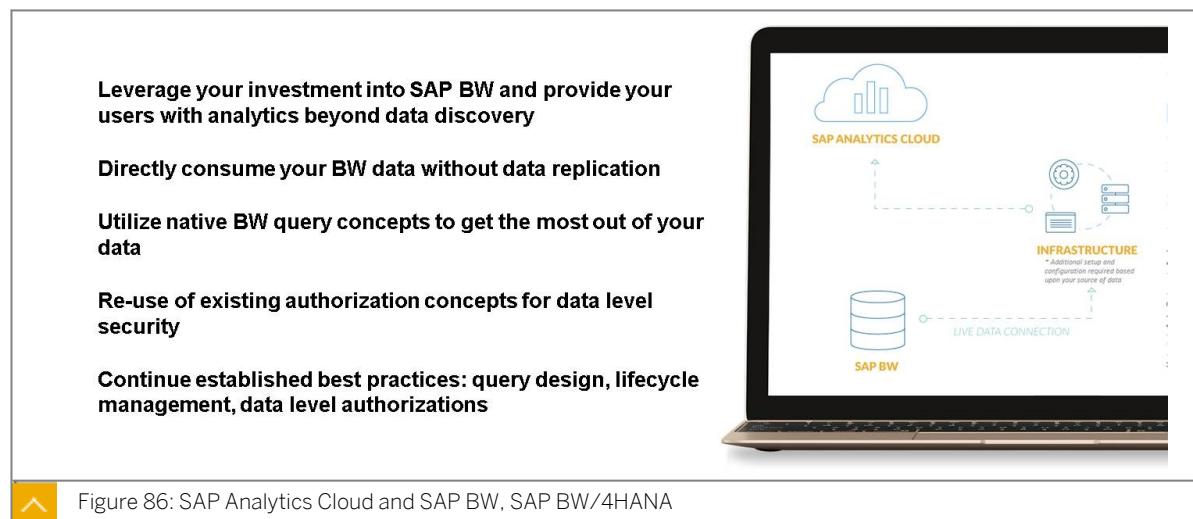


Figure 86: SAP Analytics Cloud and SAP BW, SAP BW/4HANA

SAP Analytics Cloud integrates seamlessly with SAP Business Warehouse (SAP BW) to make the most of your data without replication. The following figure, SAP Analytics Cloud and SAP BW, lists some of the advantages of this integration.

Figure 87: SAP Analytics Cloud and SAP BW: Pre-Defined Business Content

The figure illustrates the kind of content on SAP Analytics Cloud that originates in SAP BW.

The following table compares SAP Analytics Cloud and SAP BW data connectivity options.

Live Connectivity	Data Import
Uses best-in-class query interface to SAP BW.	Uses existing BW queries to securely import your data into the cloud.
Accesses SAP BW features that cannot be accessed through standard SQL or MDX query interfaces.	Models imported data directly within the application.
Leverages the SAP BW metadata without additional modeling.	Applies SAP Analytics Cloud native data security concepts.
Avoids data replication through direct query consumption.	Leverages the calculation engine of SAP HANA to allow for additional analytic use cases.
Keeps your data safe behind your firewall, and prevents sensitive data from exposure to the internet.	Limited support for advanced SAP BW metadata.
Re-uses existing authorization concepts.	
Accesses data in near real-time, including archived data in near line storage.	
Connects to SAP BW, as well as generated SAP HANA views.	

Direct, Secure, Simple

- Simply connect to SAP BW queries or generated SAP HANA views in your on-premise SAP BW systems.
- No additional modeling is required.
- No data replication into SAP Analytics Cloud.
- Data remains behind your corporate firewall when running queries and displaying results.

- No authorization replication needed. SAP BW authorizations are fully respected.

End-to-End Integration

- Ability to access SAP BW and SAP HANA features that cannot be accessed through standard query interfaces (SQL, MDX) normally leveraged by 3rd party BI clients.
- Use of unique best-in-class query interface to SAP BW and SAP HANA engines.
- Query interface is continuously enhanced alongside SAP BW and SAP HANA engine enhancements.



Summary at a glance:

- Chart to chart filtering
- BW Variable prompt enhancements
- BW Variant and Personalization consumption
- BW Structures
 - Query with 2 Structures, Cell Editor calculated values
- New Table calculations
- Integration with BW query concepts
 - Show Nodes Above (hierarchy presentation)
 - Universal Display Hierarchy (hierarchy presentation)
 - Support of BEx Conditions (Top/bottom N, threshold, mixed)
- Parallel execution of BW queries

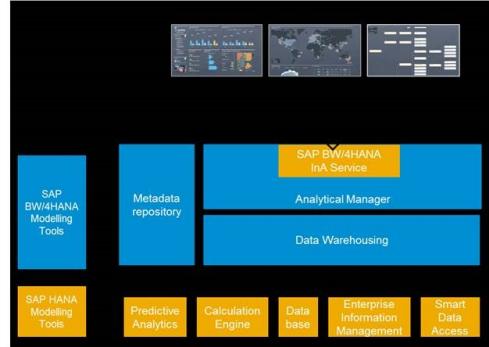


Figure 88: Integration with SAP BW



The Canvas is a flexible space that allows data exploration and presentation

Add data
Or try these datasets:
BW_ModeIQRY
OBCVSDQ1
OBIC5009BICTESTQ0007

Select Datasource
Existing Model
Import File
Connect to Google Drive
Name
CCF_2CZZ1ZSK_FIN2_1
CCF_BASICTEST
CCF_HierarchyQuery

Add an object to the canvas
Chart
Pinned Visualizations
Table
Image
Text

Set Variables for KIW_OBOC_TEST_VARIABLE_TYP...
The underlying model contains variables. Please enter the details for these variables.
OBC_CUST_HIERARCHY_INPUT
Member
Enter Member
OBC_CUST_NODE
Member
Enter Member
OBICS_TYPE_HIER_NODE_VAR_S
Member
Enter Member
Set Cancel

Data Source
2CZZ1ZSK_G03_1
Chart Structure
CHART TYPE
Comparison
Trend
Correlation
KPI
Distribution
More
MEASURES
Amount2015
Variance (ABS)
Add Another Measure
DIMENSIONS
Search
Business Process
Company Code
Company Code Crcy
Fiscal Period
Fiscal Year Period
G/L Account
Profit Center
Project Definition
Select Dimension
FILTERS
Add Filter
REFERENCE LINE
Add Reference Line

Today

Figure 89: Live Data Connectivity to SAP BW: Select the Metadata

Currently, SAP Analytics Cloud offers a range of impressive options for working with SAP BW on a live connectivity basis.

 Today

Time dependent hierarchies

Easily visualize different data views of a hierarchy, valid for a specific time period

- Entire hierarchy as time dependent

Easily visualize data model relationships that change time-dependently

- Hierarchy structure as time dependent

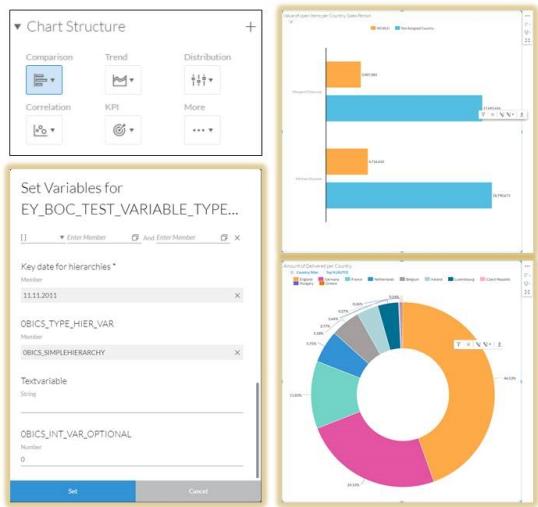


Figure 90: Live Data Connectivity to SAP BW: Enhanced BW Hierarchy Handling

As the figure, Live Data Connectivity to SAP BW: Enhanced BW Hierarchy, illustrates, you can visualize time-dependent hierarchies easily.

 Today

BW Structures

Easily visualize line of business data from BW Structure concepts

- Leverage BW queries with two structures
- Calculated value of cell definitions created with the Cell Editor in BEx Query Designer is supported

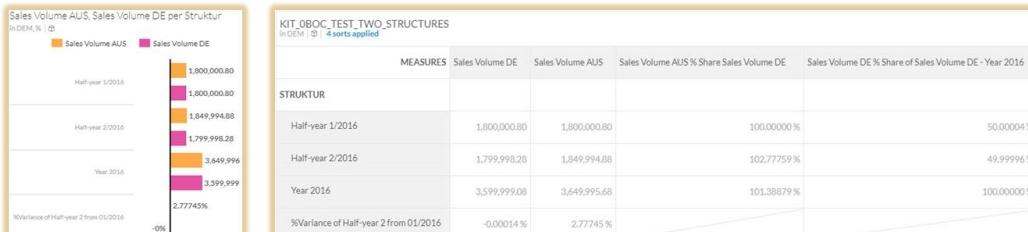


Figure 91: Live Data Connectivity to SAP BW: BW Structures Support

In addition, live connectivity makes it easy to visualize line-of-business data from BW structure concepts, as shown in the figure above.



Today

Merge / Un-merge of Prompts

Define merge of prompts from different models based on SAP BW queries

Prompt once to select the values from a merged prompt

Merge is done based upon the prompt technical ID

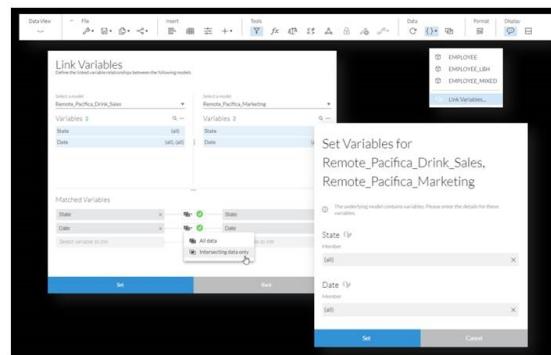


Figure 92: Live Data Connectivity to SAP BW: Merging of Prompts

The figure, Live Data Connectivity to SAP BW: Merging of Prompts, illustrates how to merge or un-merge prompts from different models based on SAP BW queries.



Today

BW Variants

Save time by using Variants to specify the values for several BW prompts simultaneously

- Use existing Variants stored in SAP BW
- Private and public Variants can be chosen
- Consumption only

Personalization

User-specific personalized values assigned to BW prompts are leveraged

- Consumption only

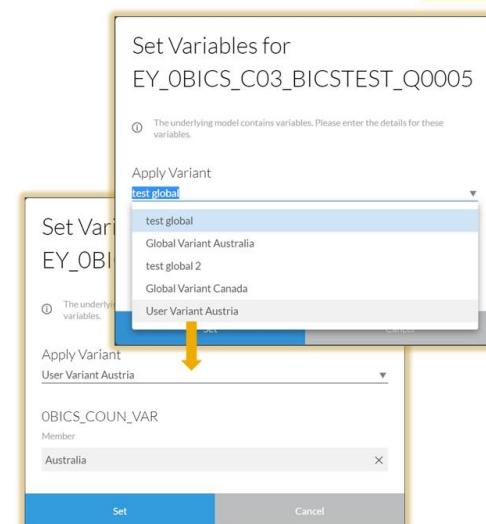


Figure 93: Live Data Connectivity to SAP BW: BW Variants and Personalization Support

Live data connectivity also supports BW variants and personalization, as shown in the figure above.



Today

New enhancements for BW variable support

- Support for Exit/Authorization variables defined as input-ready
- New operators: Ability to define range exclusions on Dimension members
- Value Help: Ability to show booked values based on defined setting in the BW Query

Set Variables for KIT_OBOC_TEST_VARIABLE_TYP...

OEM Meyer

[]	
=	Gender
>=	
>	
<=	
<	
#	SE
![]	

Enter Member And Enter Member

OWQ_NUM3_HIER_KEYDATE *

Member

11.11.2011

Set Cancel



Figure 94: Live Data Connectivity to SAP BW: Enhanced BW Variable Support

Enhancements for BW variable support are also available, as listed in the figure, Live Data Connectivity to SAP BW: Enhanced BW Variable Support.



Today

Familiar look and feel for BW customers

Settings defined in the BW query are respected in Table visualizations

- Initial BW query layout
- Default sorting: Key / Text ascending and descending
- Default presentation display: Key, Key and Text, Text
- Result rows display: show/suppress

Table			
Kundennummer	Hinrich AG	Betrag	Anz. Best.
21	Hinrich AG	17,770,68 DM	3
21	Buy & Fly Supermarkt	6,770,54 DM	2
20	P.S.G. GmbH	4,663,16 DM	2
19	PhundiX KG	9,046,07 DM	1
18	Becker AG	23,452,01 DM	3
17	Karsson High Tech Ma	168,15 DM	1
16	Institut fuer Umwelt	4,551,06 DM	2
15	Becker Berlin (Lager)	6,714,49 DM	2

Table			
Land	Kundennummer	Betrag	Anz. Best.
AUS	22	Hinrich AG	224,20 DM
	21	Buy & Fly Supermarkt	112,10 DM
	21	P.S.G. GmbH	224,00 DM
	19	PhundiX KG	168,15 DM
	18	Becker AG	58,05 DM
	17	Karsson High Tech Ma	168,15 DM
	16	Institut fuer Umwelt	112,10 DM
	15	Becker Berlin (Lager)	224,00 DM
		Ergoebnis	1,121,69 DM
DE	22	Hinrich AG	17,245,68 DM
	21	Buy & Fly Supermarkt	11,245,68 DM
	21	P.S.G. GmbH	4,438,96 DM
	19	PhundiX KG	8,877,92 DM
	18	Becker AG	22,452,01 DM
	17	Institut fuer Umwelt	4,438,96 DM
	16	Becker Berlin (Lager)	6,058,44 DM
		Gesamtergebnis	72,836,36 DM

KIT_OBICS_C03_QDEFUALT		
KENNZAHLEN	BETRAG	ANZ. BEST.
KUNDENNUMMER		
22 Hinrich AG	17,470,88 DM	3
21 Buy & Fly Supermarkt	6,770,54 DM	2
20 P.S.G. GmbH	4,663,16 DM	2
19 PhundiX KG	9,046,07 DM	1
18 Becker AG	23,452,01 DM	3
17 Karsson High Tech Ma	168,15 DM	1
16 Institut fuer Umwelt	4,551,06 DM	2
15 Becker Berlin (Lager)	6,714,49 DM	2

KIT_OBICS_C03_SHOW_RESULTS		
LAND	KUNDENNUMMER	KENNZAHLEN BETRAG ANZ. BEST.
SUMMEN		72,836,36 DM
Australien		1,121,69 DM
		Hinrich AG 224,20 DM
		Buy & Fly Supermarkt 112,10 DM
		P.S.G. GmbH 224,00 DM
		PhundiX KG 168,15 DM
		Becker AG 58,05 DM
		Karsson High Tech Ma 168,15 DM
		Institut fuer Umwelt 112,10 DM
		Becker Berlin (Lager) 224,00 DM
		Ergoebnis 1,121,69 DM
Deutschland		72,836,36 DM
		Hinrich AG 17,245,68 DM
		Buy & Fly Supermarkt 11,245,68 DM
		P.S.G. GmbH 4,438,96 DM
		PhundiX KG 8,877,92 DM
		Becker AG 22,452,01 DM
		Institut fuer Umwelt 4,438,96 DM
		Becker Berlin (Lager) 6,058,44 DM
		Gesamtergebnis 72,836,36 DM



Figure 95: Live Data Connectivity to SAP BW: BW Query Default Presentation

Despite all the new features and options, SAC's integration with SAP BW retains a familiar look and feel for BW customers, as shown in the figure, Live Data Connectivity to SAP BW: BW Query Default Presentation.



Today

Calculation Editor

Business users save time by creating new KPI calculations without dependence on IT

- Create custom calculations for use in Charts or Table
- Custom calculated and restricted measures are supported
- Custom calculations are delegated down to SAP BW

Leverage custom calculations as part of visualization input controls

- Provide variable input for a calculation
- Influence calculation result without modifying underlying data or formula

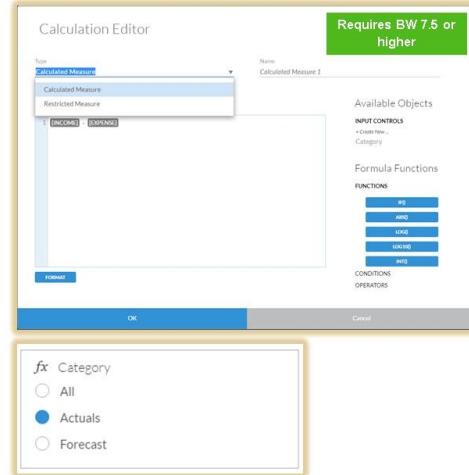


Figure 96: Live Data Connectivity to SAP BW: Create Custom KPI

The calculation editor allows you to create new KPI calculations without depending on IT.



Today

Dimension and Measure Settings in Model

BI Administrators can organize, and harmonize business metadata without dependence on IT

- Dimension grouping
- Dimension rename
- Dimension hide / show
- Measure rename
- Measure scale and decimal configuration

Facilitate business users need for easy downstream development of BI content

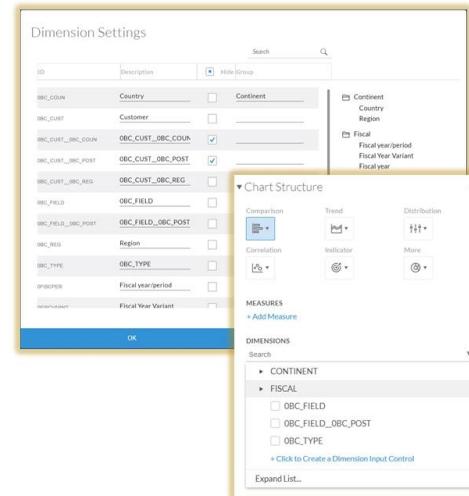


Figure 97: Live Data Connectivity to SAP BW: Enhanced Model Management

As the figure, Live Data Connectivity to SAP BW: Enhanced Model Management, shows, it is now even easier to organize business metadata independently of IT.



Parallel processing of BW queries

BI administrators can configure the number of parallel sessions allowed on your SAP BW system. Stories containing multiple BW queries will be executed in parallel.

Recommended guidelines

Parallel sessions will introduce additional overhead on SAP BW server resources. Ensure BW server is properly sized to handle increase in session processing. Only use this option where performance improvement is absolutely required. Manage your server resources judiciously.

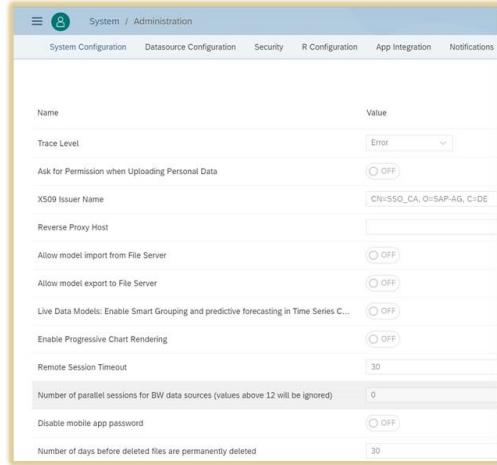


Figure 98: Live Data Connectivity to SAP BW: Enhance Story Performance

You can enhance story performance with parallel processing of queries. The figure, Live Data Connectivity to SAP BW: Enhance Story Performance, lists some of the guidelines for using parallel sessions.

Live Data Connectivity to SAP BW

Data replication is not required for live data connectivity to SAP BW. The benefits of this include:

- Leverage the SAP BW metadata directly without additional modeling.
- Avoid the cost of data replication.
- Data never leaves the corporate firewall.
- Access data in near real-time, including archived data in near line storage.

Data is provisioned into the SAP BW system by IT, therefore IT maintains governance of data, and security and data level authorizations will be leveraged via basic authentication or SSO.

Live Data Connectivity to SAP BW: BW Query Integration

- SAP Analytics Cloud provides strong product integration with core BW query features, including the following:
 - Leveraging SAP BW-specific concepts, including hierarchies, time dependency, structures, cell editor calculations, and data authorizations.
 - Leveraging logic concepts, such as variable prompting and filtering.
 - Investments in key presentation concepts.
 In many cases, SAP Analytics Cloud offers equivalent or similar presentation concepts as native functionality.
- SAP BW query consumption guidelines include the following:

- Continue to leverage existing SAP BW query assets with SAP Analytics Cloud. No query redesign is needed.
- Continue to follow existing best practices with SAP BW query design: minimize downstream development.



Supported SAP BW Releases

SAP BW 7.5 SP8+

SAP BW 7.4 SP17+

SAP BW/4HANA SP4+

SAP BW 7.5 support is recommended over SAP BW 7.4 support.

Latest correction notes [must be applied](#) for the versions listed above. See SAP Note 2541557.

[SAP Note 2541557](#) also contains information on how to run the BW Note Analyzer report

Supported deployments

- SAP BW running on any DB
- SAP BW running on SAP HANA
- SAP BW/4HANA

Figure 99: Live Data Connectivity to SAP BW: Technical Prerequisites

The figure, Live Data Connectivity to SAP BW: Technical Prerequisites, lists the technical specifications you must meet before initiating the live data connection to SAP BW.

System Data Integration

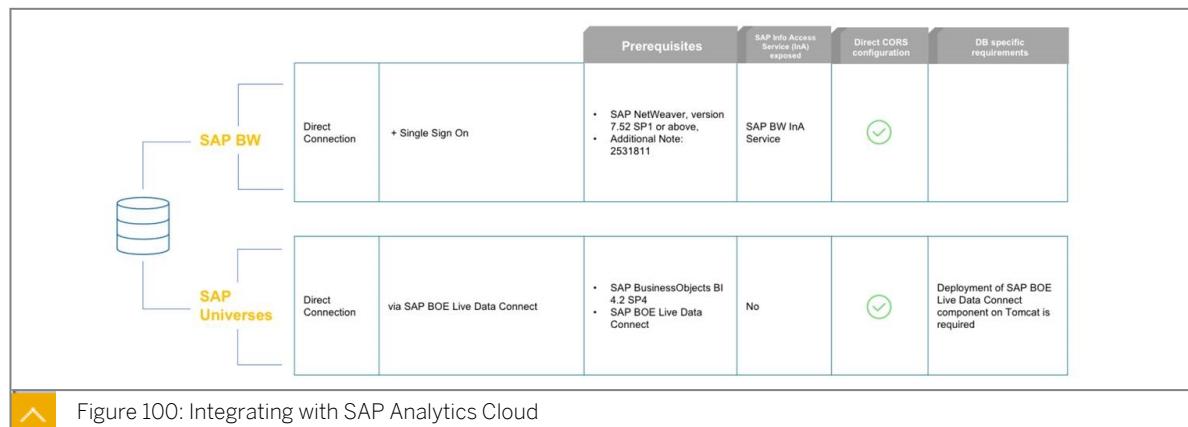
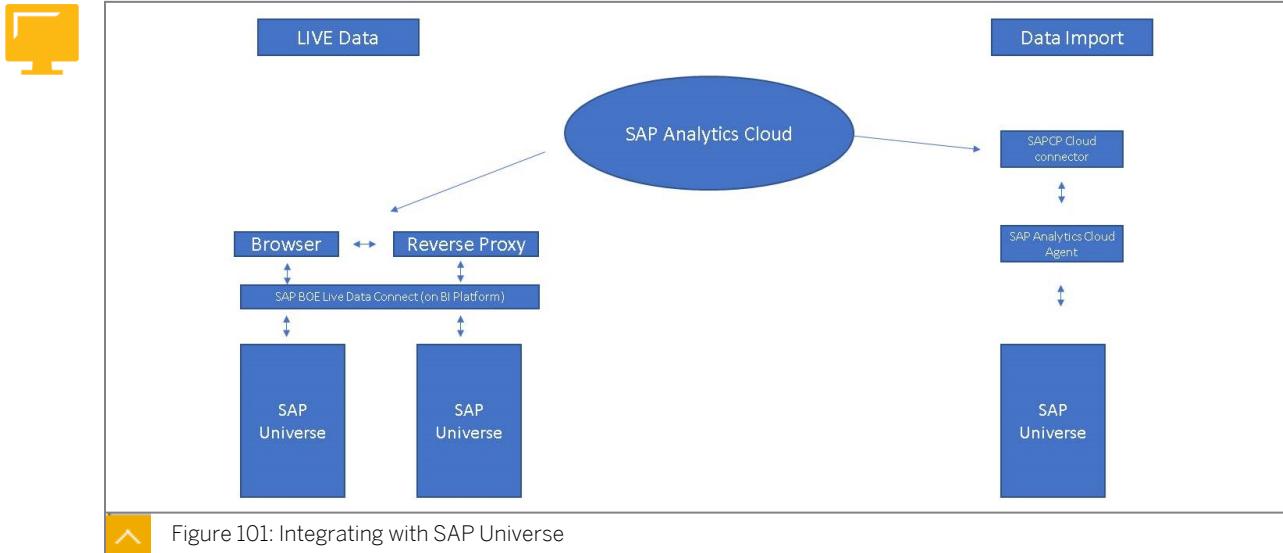


Figure 100: Integrating with SAP Analytics Cloud



SAP Analytics Cloud - SAP Universe Connections

The Integration of an SAP universe can be done in two ways:

- As a live data connection: no data will be stored on the cloud. This is known as on demand connection.
- As a replicative data import connection: data will be stored in the cloud and updated within intervals.

Requirement Live Data Connection

The live universe connector has already been set up and configured. A sample *boe.properties* file is available to help.

The *BOE PropertieFile* should have the following content:

- *boe.temporaryDocumentFolder* holds the name of the folder that is created inside each users favorites folder when they use a live universe connection.

Requirements for data import (replicative connection):

1. SAP Cloud Connector
2. SAP Analytics Cloud Agent



Supported Universe functions

Live Universe Support

SAP Analytics Cloud Wave and Live Universe Connector Support Matrix

Live Universe Connector Version	SAP Analytics Cloud Wave 2018.14 onwards
Version 1.04 (v1 SP4)	✗
Version 1.05 (v1 SP5)	✓
Version 1.06 (v1 SP6)	✓
Version 1.07 (v1 SP7)	✓
Version 2.00 (v2)	✓

General Features

Stories, Pages, Table and Charts

This section applies to tables and charts, subsequent sections may break out individual features by table or chart types.

	Live connection		Import connection		+ (D) require					
	HANA	HANA Cloud Platform	BW	S/4		EPIC	Universes	BW	SP	Universes
Measures	✓	✓	✓	✓	✓	✓	✓	✓	✓	+ (D) SAP H.
Create Measure / Calculated Measure / Dimensional Measures	✓	✓	✓	✓	✓	✓	✓	✓	✓	+ (D) require
Create Measures Difference from	✓	✓	✓	✓	✓	✓	✓	✓	✓	+ (D) require
Create Measures Aggregation	✓ (P)	✓ (P)	✓	✓	✓	✓	✓	✓	✓	+ (D) SAP H.
Filter on Measures (in Stories, Page, Widget)	✓ (D)	✓ (D)	✓	✓	✓	✓	✓	✓	✓	+ (D) require
Dimensions	✓	✓	✓	✓	✓	✓	✓	✓	✓	+ Dimension
Hierarchies and drill	✓	✓	✓	✓	✓	✓	✓	✓	✓	+ Dimension
Filter on Dimensions	✓	✓	✓	✓	✓	✓	✓	✓	✓	+ Dimension
Dimension Linking	✓	✓	✓	✓	✓	✓	✓	✓	✓	+ Dimension

Universe Support Matrix

General Support for Universes

Feature	Live (1.05, 1.06, 1.07)	Live (2.0) (not yet available)	Import Data	Comments
Build-in SAP Analytics Cloud Model off ...	UNV Universes	✓	✓	✗
Relational UNV Universes (Single and Multi Source)	✓	✓	✓	
Store Procedure Universe	✓	✓	✗	
JavaBeans Universe			✗	
Multi-dimension Universes based off OLAP connection	✗	✗	✗	
Minimum BI Platform Version	BI 4.2 Support Pack 4 (B)	BI 4.1 Support Pack 5	Tomcat 7	
Web Application Server	Tomcat 7 and 8+	Tomcat 7		
Model enrichment	✗ (E)	✗	✓	+ (E) Planned
Define Universe Query as a data source for model definition	✓	✓	✓	
Create a model off a Web Intelligence document	✗	✗	✗	
Multi-language support	✗ (E)	✗	✗	+ (D) The connection to the BI Platform specifies the language used to connect to it and it does not change dynamically. The most common language and this is why a single language is correctly imported. @variable@{PREFERRED_LANGUAGE} will not change.
BI Platform authentication	Enterprise	✓	✓	+ (E) Planned feature that will require an update to the BI Platform
SAP	✓	✓	✓	
Windows Active Directory	✓	✓	✓	
Others	✓	✓	✓	

Figure 102: Integrating with SAP Universe

Integration Check

Check if the integration of a universe meets your expectations: <https://wiki.scn.sap.com/wiki/display/BOC/SAP+Analytics+Cloud+Support+Matrix#SAPAnalyticsCloudSupportMatrix-LiveUniverseSupport>



Note:

Most data preparation should be done within the universe and with the help of the information designer. Data optimization and data enhancement should be done before using in the cloud



1. Install a Universe (Live) Connection

2. Add a Universe (Live) Connection

Figure 103: Integrating with SAP Universe

**Note:**

Be sure to log in with a user that has administration rights to create connections and models.



3. Install a Universe (Live) Connection

4. Create a Data Model (Universe)

Figure 104: Integrating with SAP Universe

**Note:**

According to the connection type, decide if you need direct (browser) or path (reverse proxy).

If using a reverse proxy, the name of the path prefix must match that of the path statement as defined in the Apache *httpd.conf* file.



5. Creating a Model based on a SAP Universe

Figure 105: Integrating with SAP Universe

Duplication is prohibited.

Duplication is prohibited.



Note:

According to the connection type, decide if you need direct (browser) or path (reverse proxy).

If using a reverse proxy, the name of the path prefix must match that of the path statement as defined in the Apache httpd.conf file.

Duplication is prohibited.

Duplication is prohibited.

Unit 3

Exercise 4

Use Live Data Connections (SAP BW) to Create Stories

1. Create a model for SAP BW Live Query.
2. Build a story with live SAP BW connections.

Task 1: Create a Model for BW Live Query

1. Create a model using the first query SACDEMO_CP_Q01.

Field	Value
System Type	SAP BW
Connection	A4H
Data Source	SACDEMO_CP_Q01
User	Wsbw
Password	Welcome1

A modeler screen displays with the following two tabs:

- All Dimensions
- Measures

The *Measure* tab will display all measures that are part of the query, in this case, *Quantity* and *Sales Value*.

For measures, you can change the following:

- Descriptions of the measures
- Scale to be displayed as default (thousands, millions etc.)
- The decimal place defaults



Note:

This is preferable at the model level if measure reporting has a specific format universally (as in financial reporting), as opposed to always changing scale and decimals at the story and visualization level.

2. Choose *All Dimensions*.

You will see various dimensions listed, as well as the SAP BW structure that will be part of the model.



Note:

For dimensions, you can change the following:

- Descriptions of the dimensions.
- Choose to hide the dimension(s) so it is not an option at the story level.
- Group specific dimensions so that they appear under a subheading for easier navigation during story creation. This is advantageous in the case of SAP BW queries that have 20+ dimensions to choose from.

3. To save the model, choose the Save icon.

4. Repeat the same steps for the SAP BW query SACDEMO_CP_Q02.

Task 2: Build a Story with Live BW Connections

Create a story in SAP Analytics Cloud with charts and variables.

1. Create a story using a responsive page.
2. Work with one lane.
3. Add the title **Sales Overview** and center it on the page.
4. Add a chart to display quantity and sales value based on product dimension.
The Set Variables screen displays.
5. Enable the *Automatically open prompt when story opens* option and enter all members in *Location* and *Product*.
6. Change the chart structure to Combination Column & Line Chart and add Quantity as a measure.
A chart depicting quantity and sales value based on product dimension is created.
7. Drill up and down the hierarchy.

Task 3: Use Table and Calculations

Use table and calculations to analyze the product hierarchy and sales values.

1. Add a table to the story.
2. Choose *Hierarchy* as the dimension and set the hierarchy to *Product Hierarchy*.
3. Save your story with a name of your choice.
4. Choose the arrow next to *DS80 Juices* to expand the hierarchy.

Notice that the hierarchy is expanded upwards. To change this default behavior, deselect *Arrange totals/ parent nodes below*. Notice that the hierarchy expands downwards.

5. Add a calculated measure called *Calculated Sales Values* and an input control to be displayed on the page.
6. Check how the *Calculated Sales Value* changes based on the value passed from slider input control.
7. Add a column to display the percentage difference between the sales value and the calculated sales value.
8. Add a column to highlight the rank for sales values for each category.
9. Use the add in-cell chart to display sales values in each row of table.
10. Save your story.

Duplication is prohibited.

Duplication is prohibited.

Use Live Data Connections (SAP BW) to Create Stories

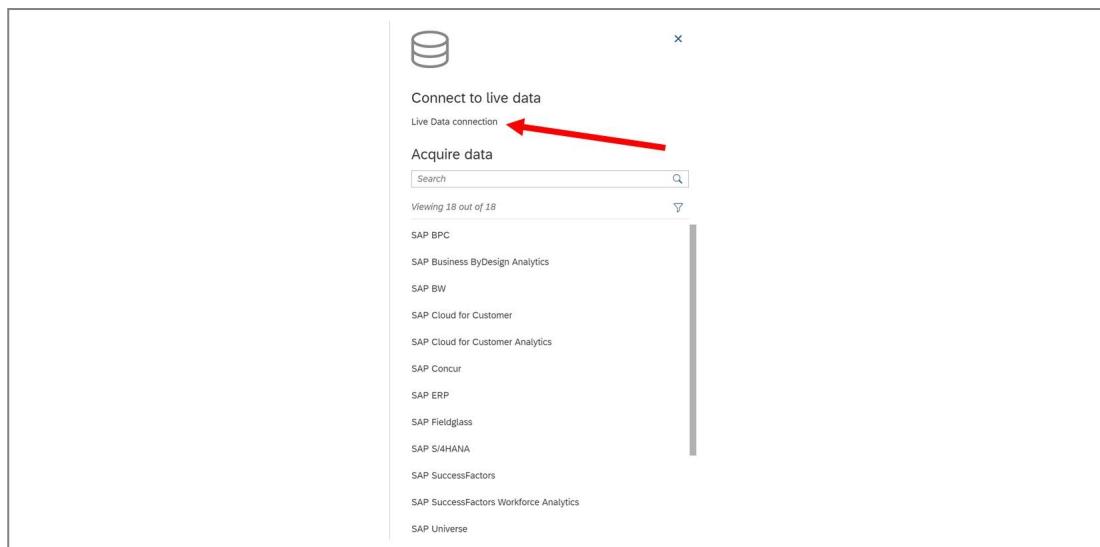
1. Create a model for SAP BW Live Query.
2. Build a story with live SAP BW connections.

Task 1: Create a Model for BW Live Query

1. Create a model using the first query SACDEMO_CP_Q01.

Field	Value
System Type	SAP BW
Connection	A4H
Data Source	SACDEMO_CP_Q01
User	wsbw
Password	Welcome1

- a) In SAP Analytics Cloud, choose *Main Menu* → *Create* → *Model*.
- b) Choose *Get data from a datasource*.
- c) Choose *Live Data connection*.



- d) Choose the predefined SAP BW connection.

As the *System Type*, choose *SAP BW* and as the *Connection*, choose *A4H*.

Enter the credentials supplied by your instructor.

- e) To see a list of available SAP BW queries, a search string is required. In the *Data Source* field, enter **SAC (no*)**.

A list of queries starting with SAC displays.

Choose the right search icon for a full list.



Note:

You can also use * to see all objects. However, there is a limit to the number of objects you can see at one time, enter a string to further filter objects.

- f) From the *Select/Filter* data sources list, choose the *SACDEMO_CP_Q01 Query with Variables and Hierarchy* query, and press **ENTER**.

- g) Choose **OK**.

A modeler screen displays with the following two tabs:

- All Dimensions
- Measures

The *Measure* tab will display all measures that are part of the query, in this case, *Quantity* and *Sales Value*.

For measures, you can change the following:

- Descriptions of the measures
- Scale to be displayed as default (thousands, millions etc.)
- The decimal place defaults



Note:

This is preferable at the model level if measure reporting has a specific format universally (as in financial reporting), as opposed to always changing scale and decimals at the story and visualization level.

2. Choose *All Dimensions*.

You will see various dimensions listed, as well as the SAP BW structure that will be part of the model.

**Note:**

For dimensions, you can change the following:

- Descriptions of the dimensions.
- Choose to hide the dimension(s) so it is not an option at the story level.
- Group specific dimensions so that they appear under a subheading for easier navigation during story creation. This is advantageous in the case of SAP BW queries that have 20+ dimensions to choose from.

3. To save the model, choose the Save icon.
 - a) Enter the name **BWHXXX_SACDEMO_CP_Q01** and the description **BWHXXX Query with Variables and Hierarchy** (where XXX is your user number and initials).
4. Repeat the same steps for the SAP BW query SACDEMO_CP_Q02.
 - a) Enter the model name **B4HXXX_SACDEMO_CP_Q02**.

Task 2: Build a Story with Live BW Connections

Create a story in SAP Analytics Cloud with charts and variables.

1. Create a story using a responsive page.
 - a) Choose *Main Menu* → *Create* → *Story*.
 - b) Choose *Add a Responsive Page*.

**Note:**

To support mobile format, use a responsive page over a canvas page.

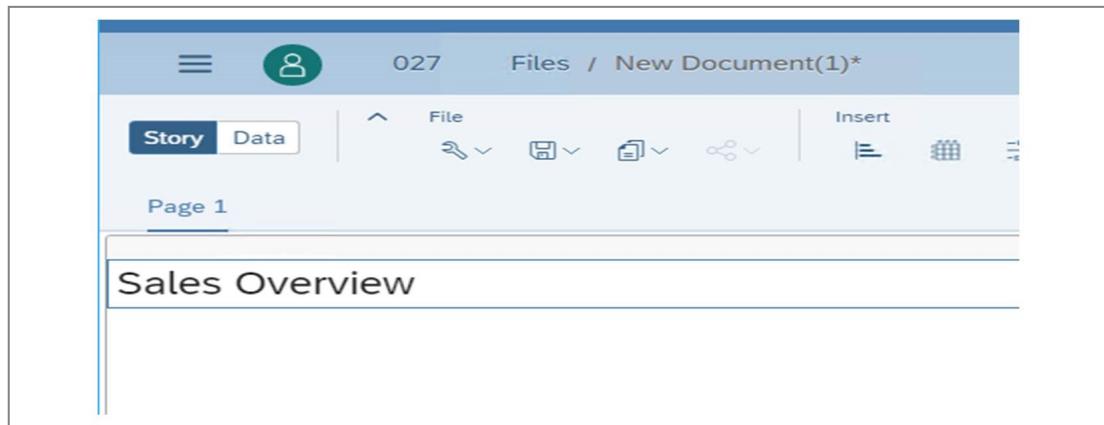
2. Work with one lane.
 - a) Delete the right lane so that you are only working with one lane, as shown in the following figure.



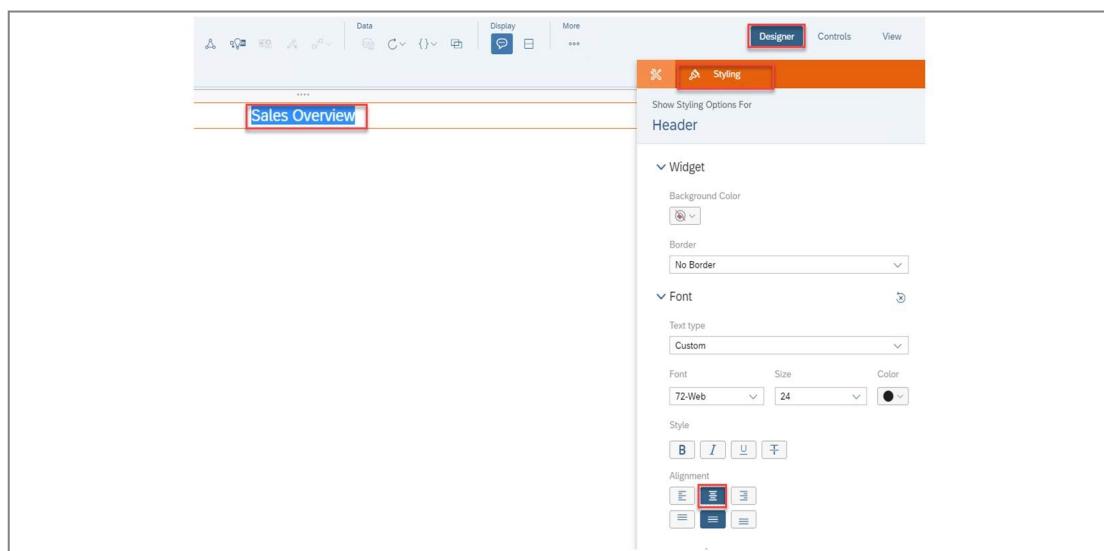
3. Add the title **Sales Overview** and center it on the page.
 - a) Add the title **Sales Overview** to the page, as shown in the following figure.

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Duplication is prohibited.



- b) Choose *Designer*. From the *Styling* panel. Format the title so that it is centered on the page by setting the *Alignment* to *Center*.



4. Add a chart to display quantity and sales value based on product dimension.
 a) Choose the *Chart* icon to add a chart.
 b) Select *BWHXX_SACDEMO_CP_Q01*, this is the model you created.

Enter your SAP BW user credentials. A pop-up displays to set credentials, choose *OK*.



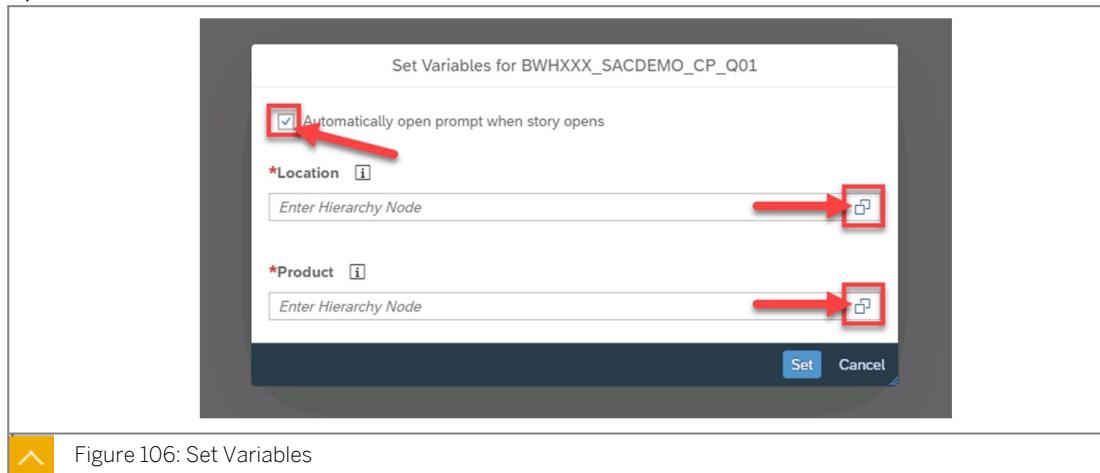
Note:

The data retrieved from SAP BW using a live connection is based on the authorizations of the credentials used when connecting.

The *Set Variables* screen displays.

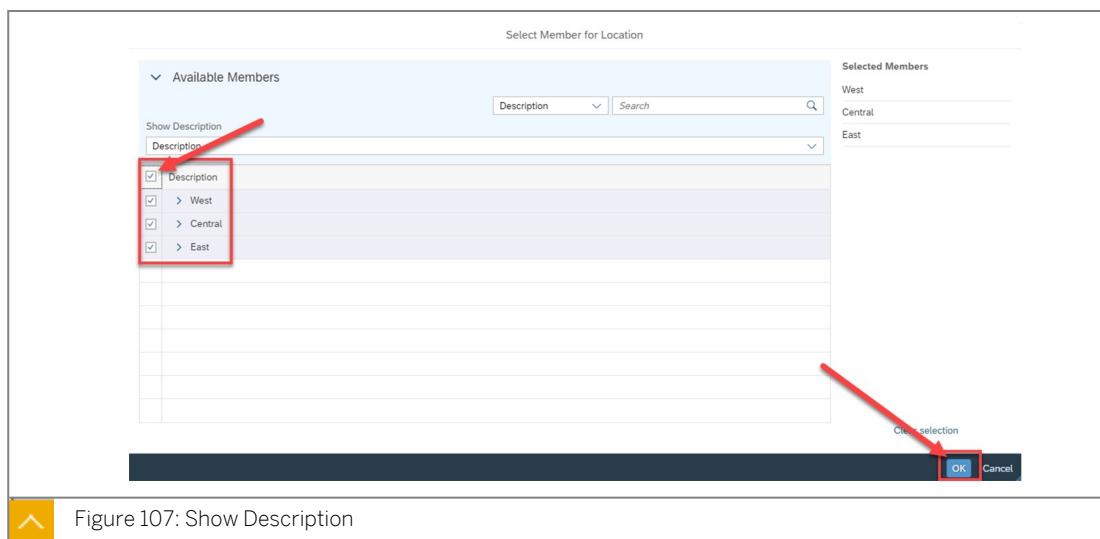
5. Enable the *Automatically open prompt when story opens* option and enter all members in *Location* and *Product*.
 a) Select the checkbox *Automatically open prompt when story opens*.

This ensures end users have the option to select values for variables for the story upon open.



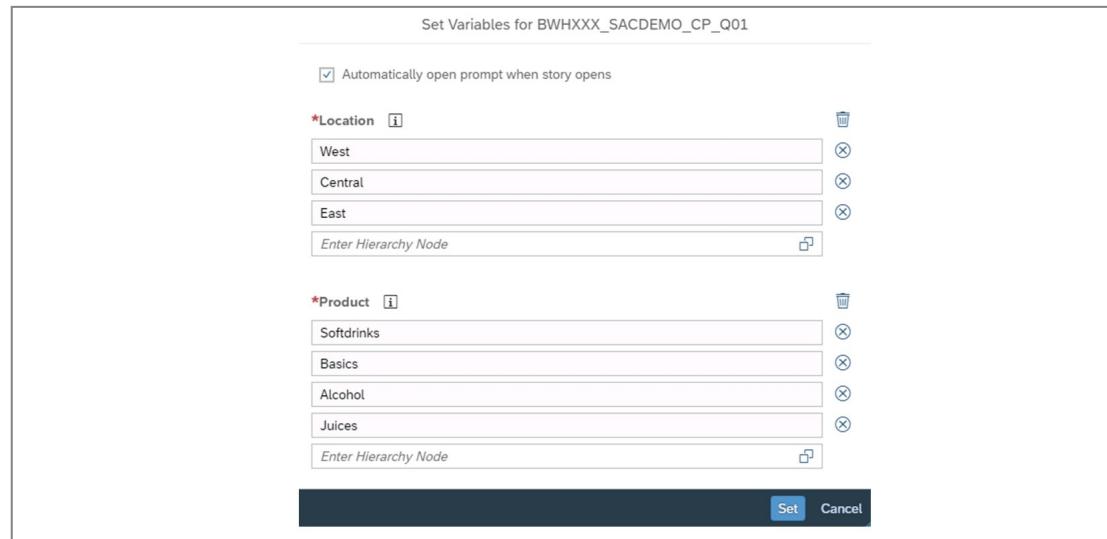
To choose the location and product members to include, choose the Selection icon.

- b) In the Select Member window, you have the option to see members based on ID, Description, or ID and Description under the Show Description field.



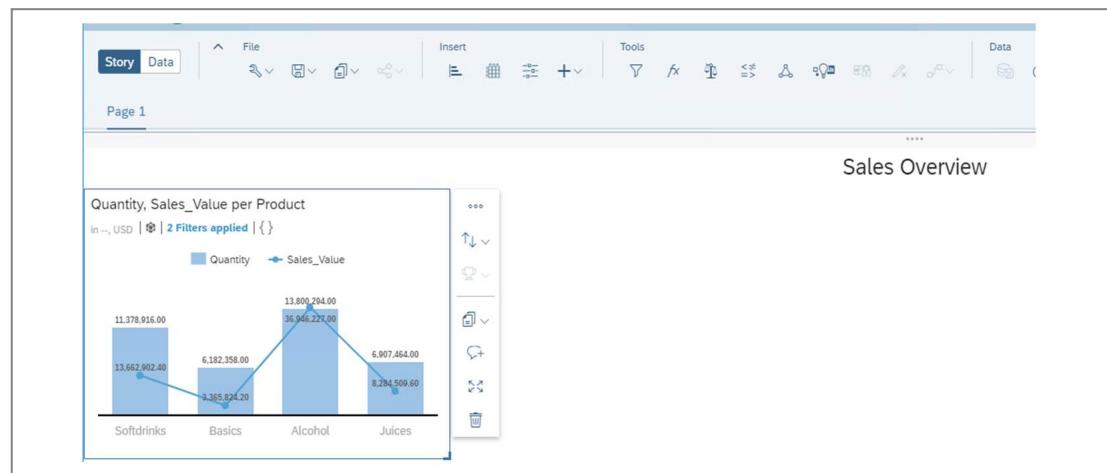
Choose All Members to include all values for location.

- c) Repeat the process for product.



d) Choose Set.

6. Change the chart structure to Combination Column & Line Chart and add Quantity as a measure.
 - a) Choose *Comparison* and choose *Combination Column & Line Chart*.
 - b) For the column axis, choose + *Add Measure*.
 - c) Choose *Quantity*.
 - d) For the line axis, choose *Sales_Value*.
 - e) Under *Dimensions*, choose *Product*.



f) Remove all filters.

A chart depicting quantity and sales value based on product dimension is created.

7. Drill up and down the hierarchy.
 - a) Choose one of the bars in the chart to drill up or down the hierarchy, as shown in the following figure.



Task 3: Use Table and Calculations

Use table and calculations to analyze the product hierarchy and sales values.

- Add a table to the story.

- a) From the menu, choose the *Table* icon to add a table.
- b) In the *Builder* panel, under *Rows*, add *Measures/Dimensions*. Choose *Product* and click outside the box.

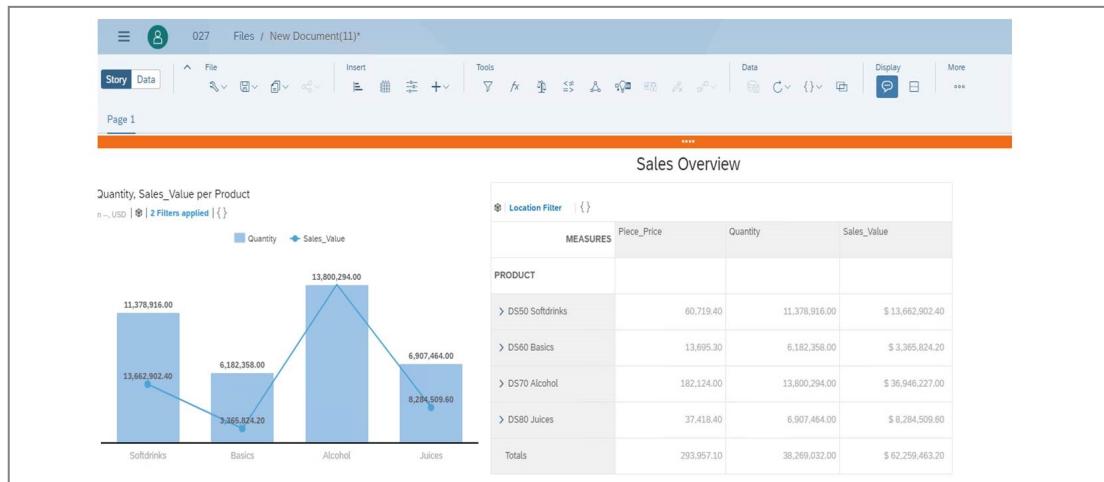
The screenshot shows the Tableau interface with a 'Sales Overview' table and the 'Builder' panel open. The 'Builder' panel has the 'Rows' section expanded, showing a list of dimensions and measures. The 'Product' dimension is selected, indicated by a red box around the checkbox in the 'Rows' section of the panel.

PRODUCT	MEASURES	Price_Price	Quantity	Sales_Value
P0551 Lemonade		18,612.00	3,808,452.00	\$ 4,139,297.20
P0554 Nonalcoholic B...		19,526.40	3,879,080.00	\$ 4,415,976.00
P0556 Coke		22,581.00	3,890,484.00	\$ 5,057,429.20
P05628 Water		7,150.50	3,436,906.00	\$ 1,717,953.00
P0564 Sparkling Water		6,544.80	2,746,452.00	\$ 1,847,871.20
P0572 Champaign		95,805.00	3,723,108.00	\$ 18,615,540.00
P0573 Alcoholic Mix ...		19,953.00	2,888,714.00	\$ 4,303,071.00
P0577 Beer		22,410.00	4,231,000.00	\$ 5,065,700.00
P0588 Orange Juice		22,415.40	3,442,014.00	\$ 4,819,659.40
P0599 Apple Juice		15,001.00	2,804,800.00	\$ 4,004,800.00
Totals		293,897.10	36,399,032.00	\$ 62,359,483.20

- Choose *Hierarchy* as the dimension and set the hierarchy to *Product Hierarchy*.

- a) Choose the ellipsis (...) for *Product Dimension* and choose *Hierarchy*.
- b) Change from *Flat* presentation to *Product Hierarchy*, and choose *Set*.

Your page will display as shown in the following figure. Notice the table now displays the product hierarchy instead of a flat list.



c) Remove all filters.

3. Save your story with a name of your choice.

4. Choose the arrow next to *DS80 Juices* to expand the hierarchy.

Notice that the hierarchy is expanded upwards. To change this default behavior, deselect *Arrange totals/ parent nodes below*. Notice that the hierarchy expands downwards.

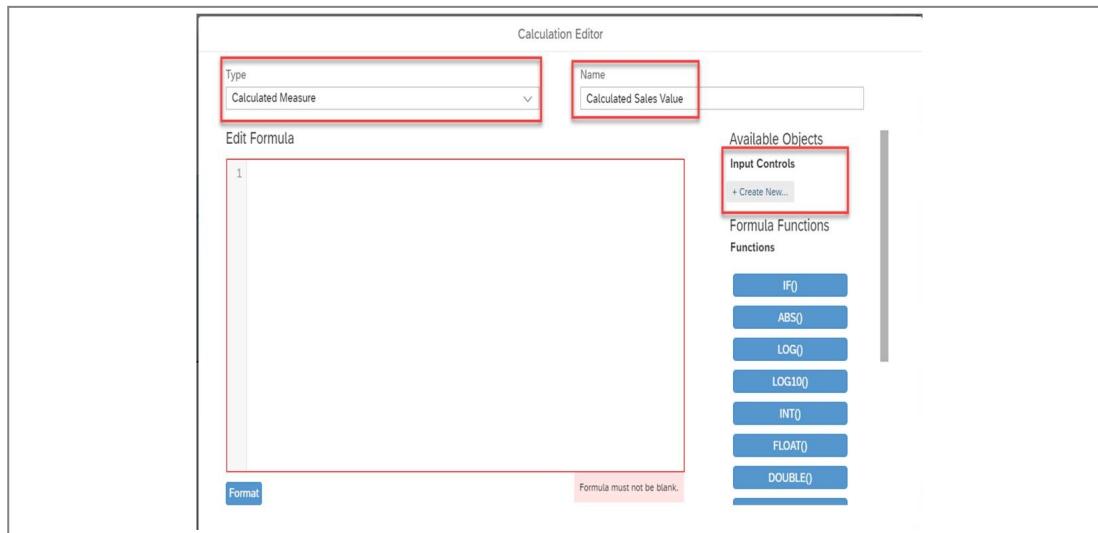
a) Choose the arrow next to *DS80 Juices* and notice the hierarchy expands upwards. To change this default behavior, deselect *Arrange totals/ parent nodes below*. Notice that the hierarchy expands downwards.

The screenshot shows the "Table Structure" settings in the SAP Story Data interface. Under "Rows", there is a checkbox for "Responsive / flexible column width" and another for "Arrange totals / parent nodes below", which is highlighted with a red box. Under "Columns", there are sections for "Measures" and "Add Measures/Dimensions".

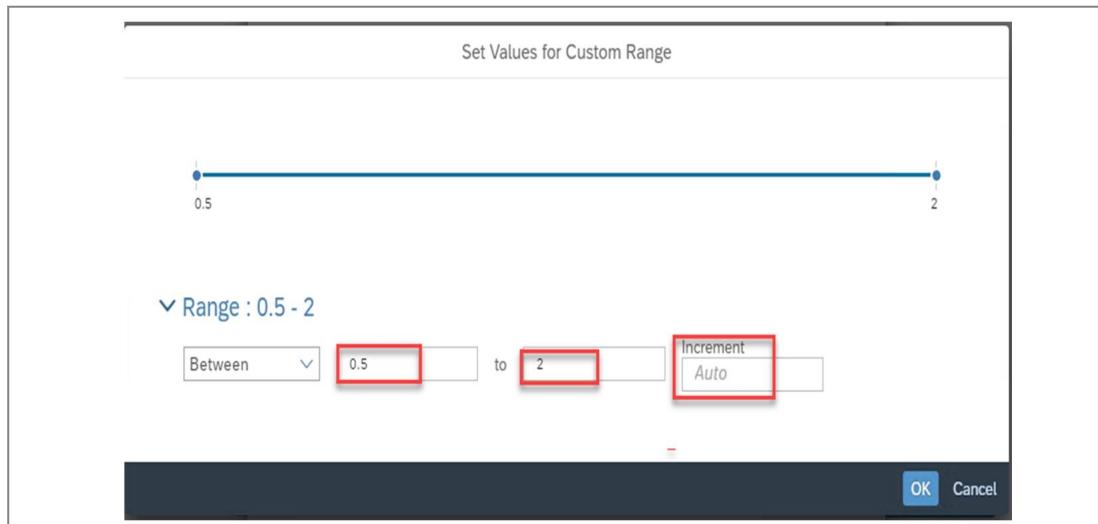
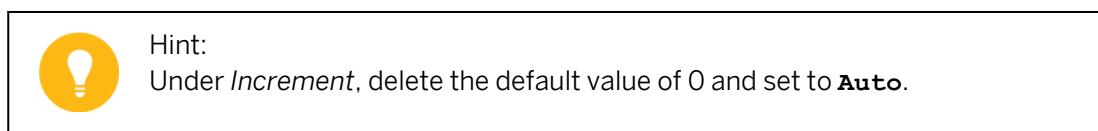
5. Add a calculated measure called *Calculated Sales Values* and an input control to be displayed on the page.

a) Choose ... next to *Measures* and choose *Add Calculation...*

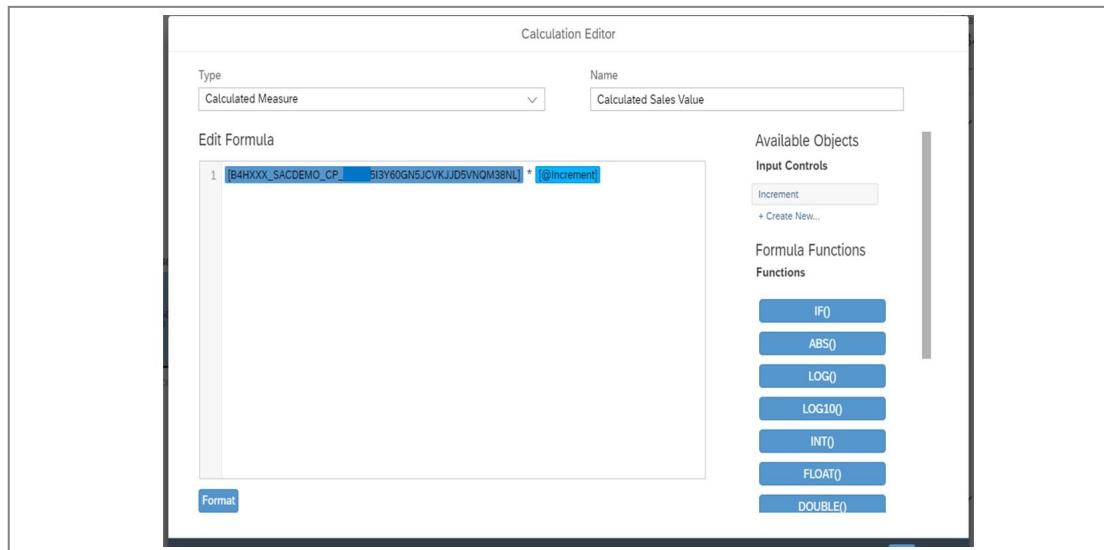
b) In the *Type* field, choose *Calculated Measure* and enter the name **Calculated Sales Value** as shown in the following figure.



- c) Choose + Create New to create a new input control, which we will use later in the formula.
- d) Enter the name **Increment**, and choose *Static List*.
- e) Under *Input Values*, choose *Select by Range...*
- f) Specify the range from **0 . 5** to **2**, with **Auto** in the *Increment* field. Choose **OK** twice.



- g) In the *Calculation Editor*, enter **[** to see the list of available measures that can be used in the calculation. Select the *Sales_Value* measure.
- h) Multiply the *Sales_Value* by the **[@Increment]** input control. Use the * symbol as shown in the following figure.



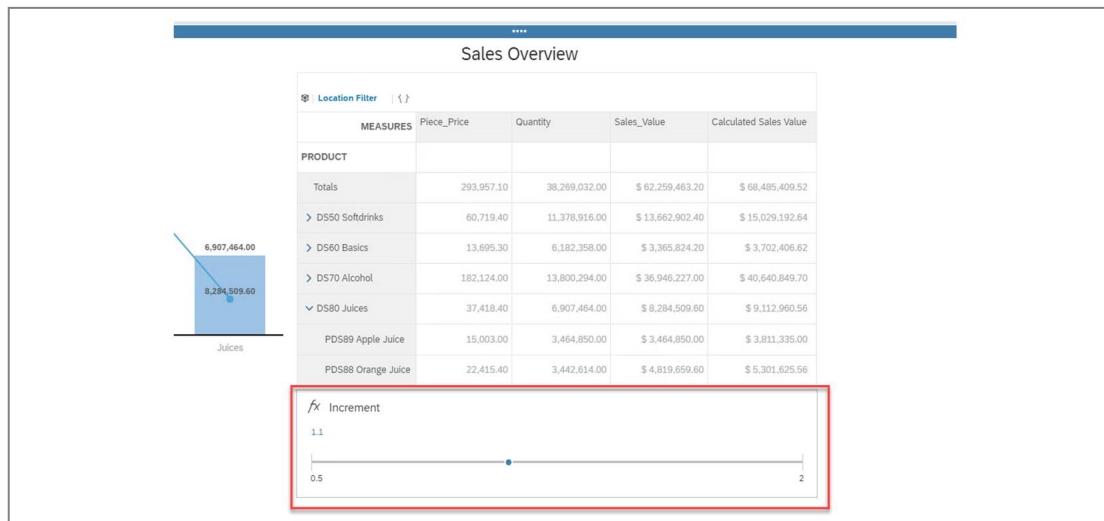
i) Choose OK.

The new *Calculated Measure* is added to the table and *Input Control* is also visible on the page.

j) Drag the *Input Control* below the table and expand its size so that slider is visible.

6. Check how the *Calculated Sales Value* changes based on the value passed from slider input control.

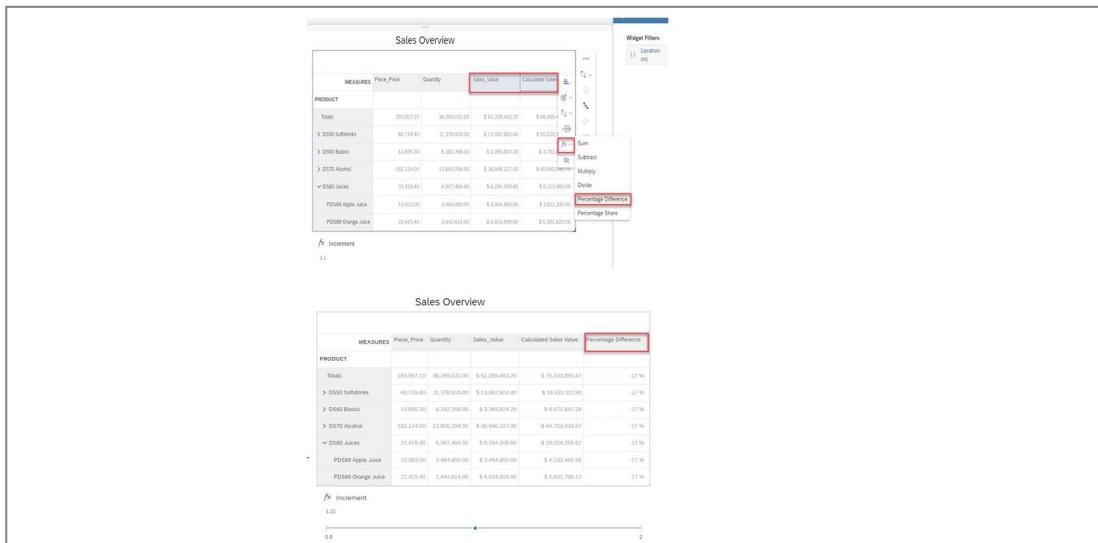
a) Move the slider between 0.5 and 2 and notice how the *Calculated Sales Value* change based on the value passed from slider input control.



7. Add a column to display the percentage difference between the sales value and the calculated sales value.

a) In *Edit* mode, click inside the *Sales_Value* column header. Hold the left mouse button to also select the *Calculated Sales* measure you created earlier.

Right-click on the column headers → *Add Calculation* → *Percentage Difference* → *Single*.



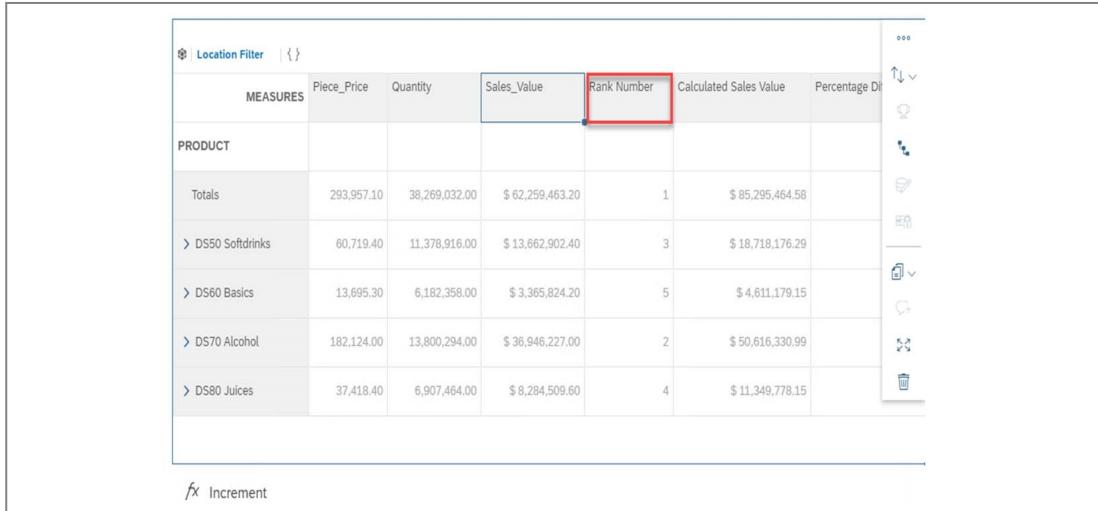
The screenshot shows a Sales Overview table with columns: MEASURES, Piece_Price, Quantity, Sales_Value, Calculated Sales Value, and Percentage Difference. A context menu is open over the Sales_Value column header, with 'Percentage Difference' highlighted. The table data includes categories like Total, DS50 Softdrinks, DS60 Basics, DS70 Alcohol, and DS80 Juices, with corresponding sales values and calculated totals.

A new column is added to the table showing the percentage difference between the sales value and the calculated sales value.

- Use the *Input Control* slider at the bottom of the table to change the values. Notice how the values in the table are updated.
- Add a column to highlight the rank for sales values for each category.

- Right-click on *Sales_Value* column header → *Add Calculation* → *Rank Number* → *Single*.

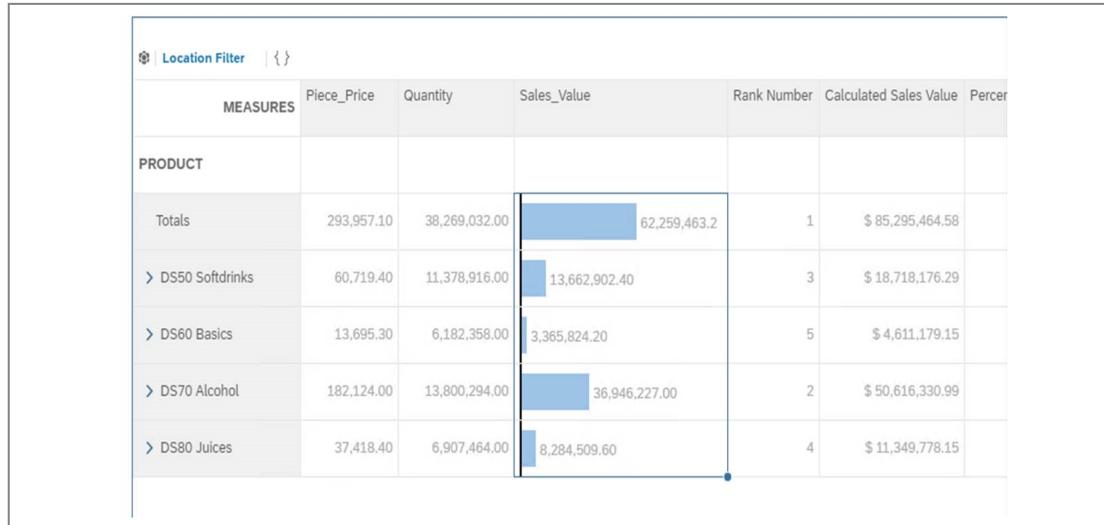
A new *Rank Number* column is added, highlighting the rank for sales values for each category.



The screenshot shows the same Sales Overview table with the newly added *Rank Number* column. The table now includes a column header for *Rank Number*, which is highlighted with a red box. The data rows show the rank for each category: Total (1), DS50 Softdrinks (3), DS60 Basics (5), DS70 Alcohol (2), and DS80 Juices (4).

- Select the *Sales_Value* column. Right-click and add an in-cell chart.

The *Sales Values* column displays a bar graph representing the sales values in each row of the table.



10. Save your story.



LESSON SUMMARY

You should now be able to:

- Describe how SAP Analytics Cloud integrates with SAP BW

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Designing Advanced Story



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Perform advanced story design

Blending, Calculations, Cross Calculations, Input Controls

Blending

Blending Data

You can create stories with visualizations using data from multiple models and datasets. Blending models enables you to join a primary data source with secondary data sources that contain common linked dimensions. For example, you can blend data from a corporate data source with data from a local spreadsheet, or blend data from a public model with data from a private model derived from a dataset's integration into a story. Blending can be done within individual tables and charts.



Note:

A new model is not created when you blend models, and the original models are not modified. Links between models that are blended only occur within a story.

Some common uses for blending are as follows:

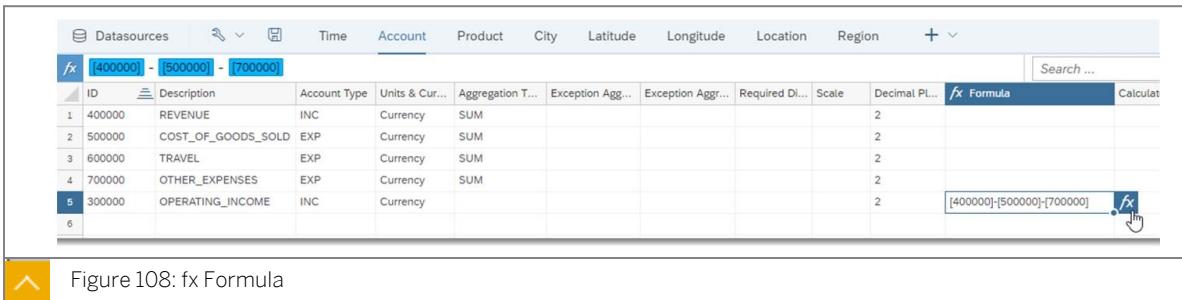
- Comparing data of actuals from a corporate SAP source with plans stored from a non-SAP source.
- Comparing sales results against market benchmarks, or marketing campaign results available in .csv files, or data provided by a third party consulting firm.
- Creating custom calculations based on key performance indicators from different data models, such as public census data.
- Using smart predict to output predictions in a dataset, and blend these predictions with other data sources, in the context of a story.

Formulas

Formulas perform calculations on either constant values or members of the account dimension. References to members are enclosed in square brackets (see the following figure). Some formulas are designed for use in models and others are designed for use in tables in stories.

In the Modeler, when you create a new account dimension, the formula column is automatically added. You can enter a formula in the formula bar, or select the fx button next to the formula cell to open the advanced formula editor. In the Modeler, formulas apply to individual account members (rows).

The following figure shows an example of a formula using basic arithmetic syntax to perform a calculation referring to other members of the account dimension:



A screenshot of the SAP BusinessObjects Modeler interface. The top navigation bar includes 'Datasources', 'Time', 'Account' (selected), 'Product', 'City', 'Latitude', 'Longitude', 'Location', 'Region', and a search bar. Below the navigation is a table with columns: ID, Description, Account Type, Units & Curr..., Aggregation T..., Exception Aggr..., Exception Aggr..., Required Di..., Scale, Decimal Pl..., Formula, and Calculate. Row 5 contains the formula '[400000]-[500000]-[700000]' in the 'Formula' column. A cursor is hovering over the 'fx' button in the 'Formula' column of row 5.

Figure 108: fx Formula



Note:

In stories, you can create calculations in tables using the calculation editor, or you can type formulas in grid cells outside of a table using the formula bar.

Calculations

Calculation Editor

The calculation editor allows you to create calculations for use in a chart or table. In a table, you apply calculations either to the account or to the cross calculations dimension. For each type of calculation, a new calculated or restricted member is created for the dimension that you used to create it. You can also use dimension attributes as part of a calculation.

You can display the calculation in a table by adding the account or cross calculations dimension to the table, or by selecting it in the filter applied to the dimension.

In a chart, calculations based on the account dimension can be added as new measures. The following calculation types are supported:

- Calculated Measures

Perform a calculation on one or more members of either the account dimension or the cross calculations dimension. A new calculated member of the selected dimension is created as a result.

- Restricted Measures

Restrict the data from a member of either the account dimension or the cross calculations dimension, so that it excludes certain members of one or more dimensions. For the date dimension, you can pick dynamic values, such as year-to-date or previous quarter. A new restricted member of the selected dimension is created as a result.

- Difference From

Find the difference in an account's value between two dates. A new calculated account member is created as a result.

- Currency Conversions

For planning models with currency conversion enabled, add a new currency conversion to the cross calculations dimension.

Cross Calculations

In SAP Analytics Cloud, you can create cross calculations for a variety of scenarios. For example, rolling forecast, or currency conversion. Cross calculations are best used when you have two measures and you want to compare the difference between the data.



Note:

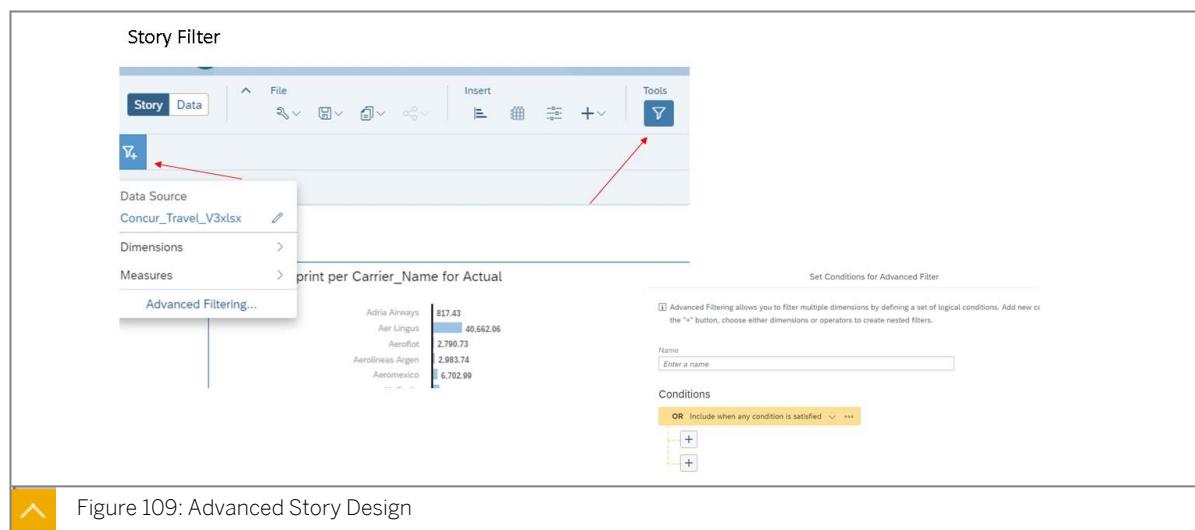
Watch this tutorial on how to work with forecast and rolling forecast cross calculations:<https://help.sap.com/doc/00f68c2e08b941f081002fd3691d86a7/release/en-US/c355f8590fe84d6a848a78264df0fcbb2.html>

Input Controls

As you create your story, you may want certain information to be readily accessible, but not always displayed. Input controls allow you to do just this. They allow you to filter data, compare figures, and explore relationships. Essentially, input controls allow you to optimize the space on your dashboard and condense a lot of storytelling potential cleanly and more concisely.

Dimension Input Controls	Use the dimension input control to change the dimension that is represented on a chart or table at view time.
Measure Input Controls	Use the measure input control to change the measure that is represented on a chart or table at view time.

Story Filter, Component Filter, Linked Analysis, Geographical Visualization



Filters

- Story filters are used for specific dimensions or measures.
- Story filters apply to all components of a story.
- You can also use linked filters, with advanced filter options.

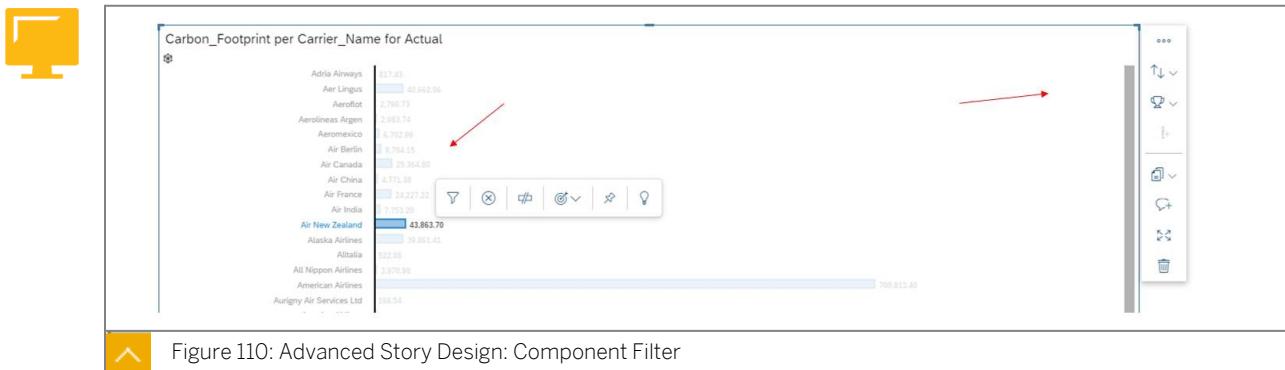


Figure 110: Advanced Story Design: Component Filter

Component Filters

Component filters are used to filter data visualized in a component, and can be a single filter or a predefined filter like a ranking.

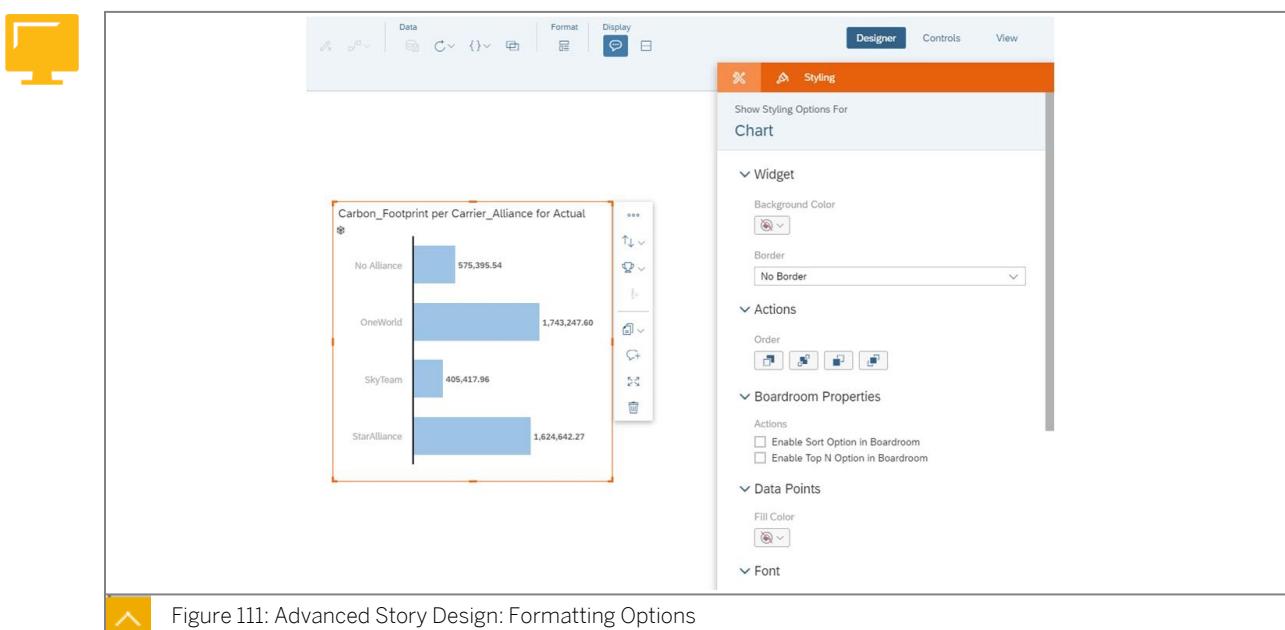
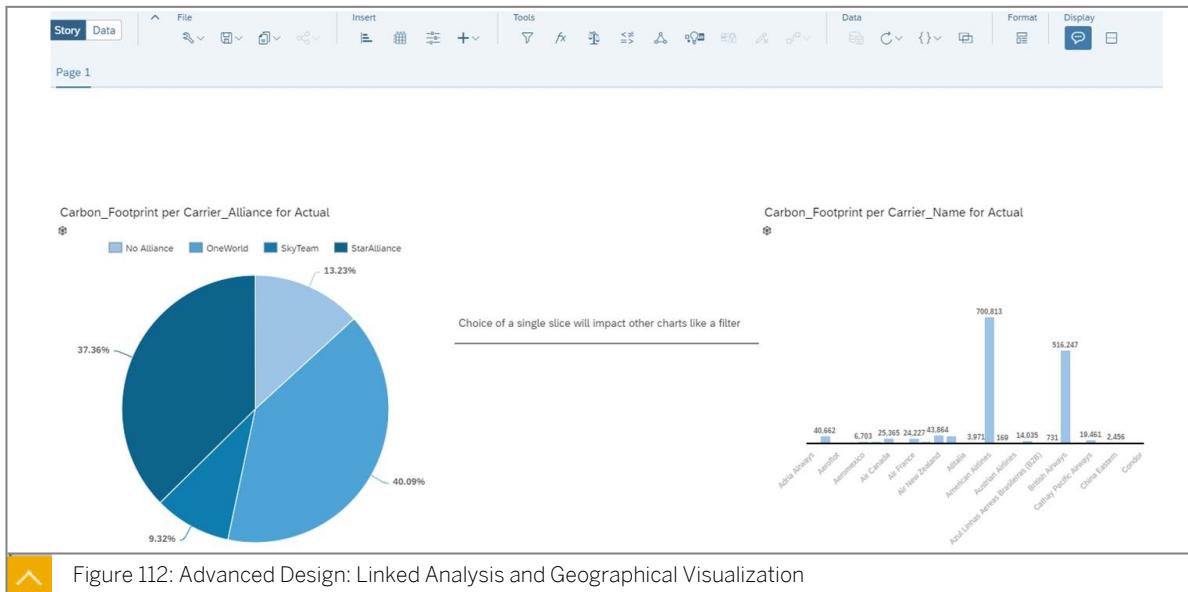
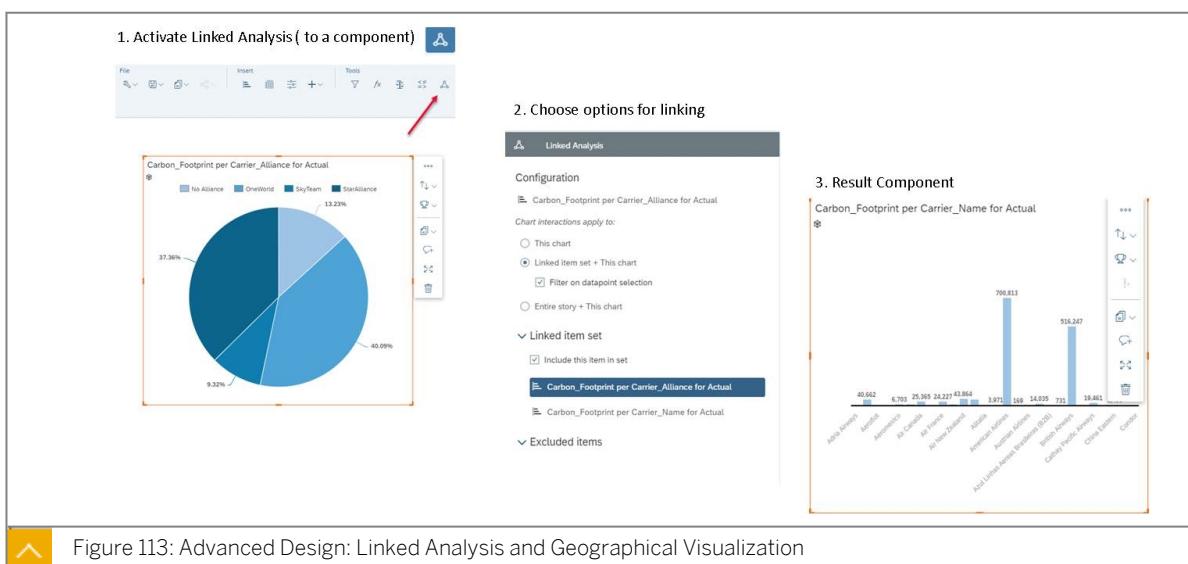


Figure 111: Advanced Story Design: Formatting Options

The formatting options available depend on the components of the story. All options can be found in the styling panel in edit mode.



Most components can be used as a filter input, with selectable options such as columns and fields. Selected values can be used as filter values for other components.



Linked Analysis

Linked analysis allows you to set filters on different charts of one story. This requires that all charts involved are based on the same data model, or that the filter was created on a linked dimension.

Linked analysis is carried out using the following steps:

1. Define the source or activate the linked analysis by marking the source component.
2. Choose the chart interaction.

This chart is the default chart, and acts as the source and destination.

3. Linked item set + this chart:

Data is actualized on source and destination component based on the same data model.

4. Entire story + this chart:

Data of all components within one story based on the same data model will be filtered.

5. Decide whether or not the source chart should be excluded or included in the position set.

6. Set the option by choosing *Done*

GEO Map

SAP Analytics Cloud offers visualization of data on a world map. To use the map, enhance a data model with Geo dimensions.

The following Geo models are supported:

- 1. Local models using a manual upload.**
- 2. Models by live data connection using SAP HANA as a datasource.**

Geo enriching the data by Coordinates

Geo by Coordinates

*Dimension Name
Location → Locationname / Layersname

Identifiers

Location ID
Select column with location identifiers → Location ID according to your data , ex: Store id

Location Description
Select column with location descriptions → Location description according to your data , ex: Storename

Coordinates

*Latitude
LAT_Origin → Latitude according to the Location id and – description.

*Longitude
LONG_Origin → Longitude according to the Location id and – description.

Create Cancel

Figure 114: Advanced Design: Linked Analysis and Geographical Visualization

Geo maps are created in the Modeler using location data. This acts as the foundation for the map in your story. There are two ways to Geo enrich your data:

- By Coordinates
- By Area Name

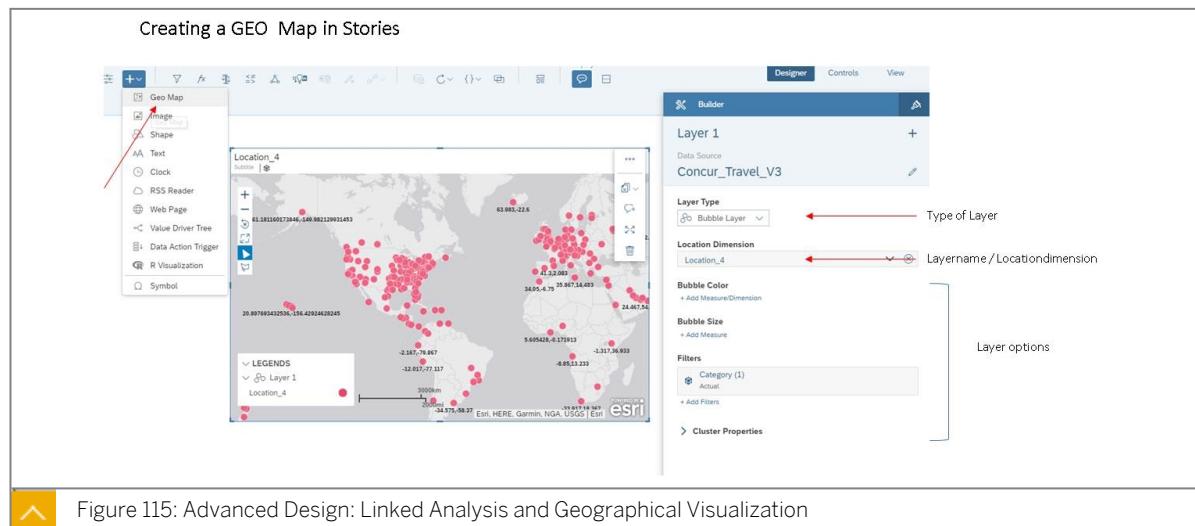


Figure 115: Advanced Design: Linked Analysis and Geographical Visualization

A Geo map can be created in stories using layer types:

- Bubble Layer
Shows data as points on the map where you can control the color, opacity, and size of the bubbles.
- Heat Map Layer
Uses color to visualize the data density of the selected measure.
- Choropleth Layer
Applies blocks of shading to different geographical locations.
- Points of Interest Layer
Does not rely on measures or dimensions, instead it pins relevant location points to your map.
- Feature Layer
Uses external data from valid service URLs. This data is layered on top of your existing geo-map to provide additional context.
- Flow Layer
Shows the connection between two locations, such as shipping routes or flight paths.

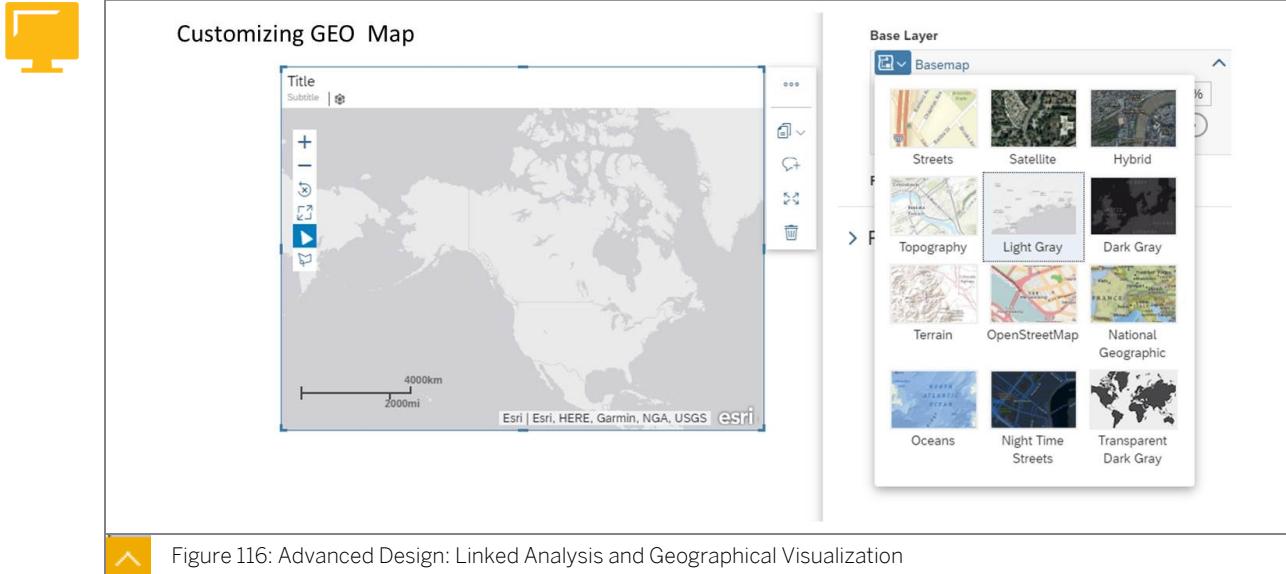


Figure 116: Advanced Design: Linked Analysis and Geographical Visualization

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Unit 3

Exercise 5

Create and Format Stories using Calculations, Filters, Variances, and Input Controls

In this exercise you will use time dimensions within SAP Analytics Cloud to create visualizations that compare different periods in time.

You want to enhance your understanding of the company's performance over time. To do this, you create several visualizations that compare key KPIs from one period to another.

Key tasks:

- Create a variance calculation to understand the company's performance in comparison to the previous periods
- Use dynamic time filters to have charts update automatically over time
- Use a compound growth rate to view the growth over the first and last period in the chart
- Consume a timestamp within visualizations
- Use a measure input control to switch the KPI analyzed
- Configure an input control to impact a set of visualizations
- Create a date difference calculation to calculate the difference between two dates
- Create a calculated dimension
- Create Excel-like calculation within a table
- Use In-cell charts within a table to see data as a bar/column chart
- Use conditional formatting to highlight the high performing regions

Task 1: Create a Scatterplot and Basic Arithmetic Calculations

1. Open your SAC01_XX_SimpleStory story. Open the *Financials* tab, and access *Edit* mode. Create a new Scatterplot.

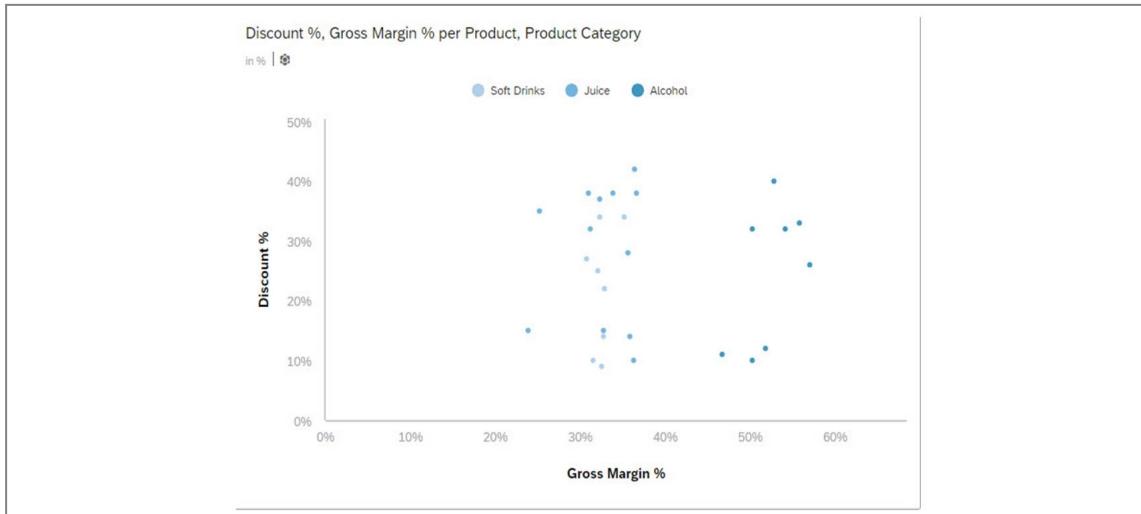


Note:

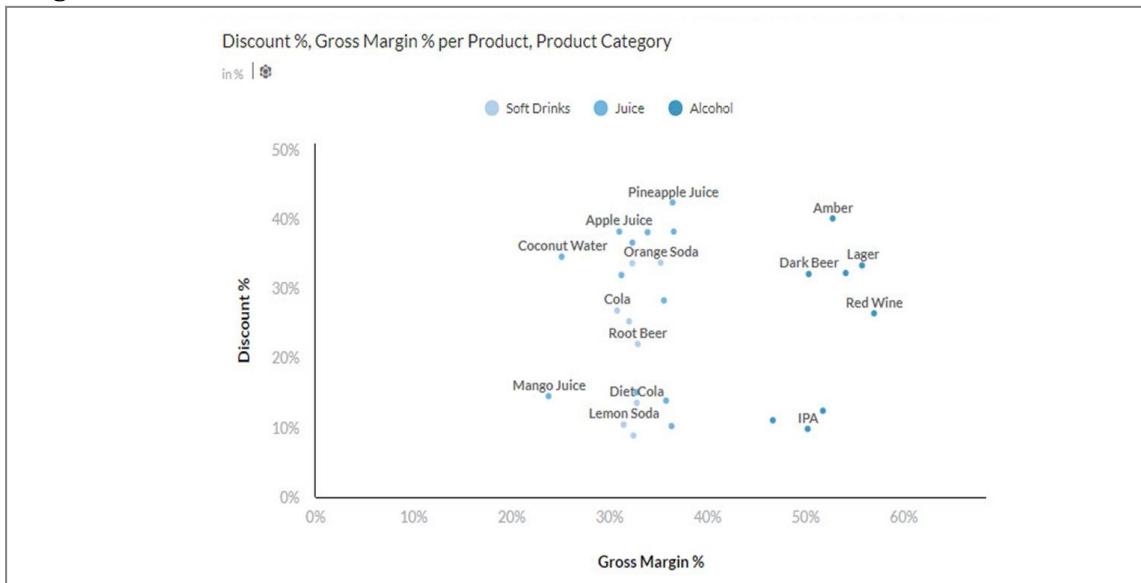
If you did not build SAC01_XX_SimpleStory prior to this exercise, ask your instructor for a copy of this solution story file.

2. Build a calculation called GRXX Gross Margin % as a calculation of the Gross Margin/Revenue.

3. Ensure that *Gross Margin %* is being interpreted as a percentage. Format the *Calculated Measure*.
4. There is already a measure for *Discount_%*, consume it within your visualization.
5. You have your desired visualization. However, it is difficult to see which bubble corresponds to which product, to make it clearer display the *Dimension Labels*.



Note that it is much easier to see where Products are positioned on the *Discount_%* and *Gross Margin %*.



6. As it is difficult to differentiate between the Product Categories, switch to the *Color Palette*.

Task 2: Consume Timestamps, Input Controls, and Group Filters

You want to create a few visualizations that help understand how the company has been doing over time. However, instead of focusing on a single measure, you want to be able to switch between the measure of focus within the visualization.

1. Create a new time series chart in the *Financials* tab.

**Note:**

If you did not build *SAC01_XX_SimpleStory* prior to this exercise, ask your instructor for a copy of this solution story file.

2. Move the *Measure Input Control* to the top of the page.
3. Gross Margin has been increasing over time, switch the *Measure Input Control* into *Gross Margin %* to see if there is a similar trend.
4. Add a *Page Input Control* to filter the data up to today (or a date provided by your instructor).
5. Create a *Page Input Control* that filters down the Order Date and Time for the last 60 days or more if instructed by the instructor to do so.
6. Ensure that the data does not exceed today's date.
7. Resize the *Page Input Control* for easier reading.
8. Fine tune the *Page Input Control* to apply to a specific set of visualizations.
9. Examine how the Product Count has changed over the past 30 days. Begin filtering down data to 30 days.
10. You want to see the percentage change for all values on the time series chart in comparison to the first-time period. You must *normalize* the time series chart. This is a term used to allow you to get more meaning than from raw numbers.
11. Save the story as **SAC01_XX_StoryWithCalculations**.

You have completed the Timestamp, Input Controls, and Group Filters exercise.

Task 3: Copy an Existing Story Page and Edit the Page to Add a Customer Sort

One of your colleagues has been working on a story using a secondary data source. You don't want to lose all the work so you want to copy over your colleague's story and add it to your story.

1. Copy the *Shipping and Region* page from your colleague's story and delete some visualizations on the page.
2. In the *# of Orders per Reasons for Delay*, experiment with the sort order.
3. Check the *Custom Order* you created within the chart.
4. Name the Custom Order **Pacifica Order XX**.

Create and Format Stories using Calculations, Filters, Variances, and Input Controls

In this exercise you will use time dimensions within SAP Analytics Cloud to create visualizations that compare different periods in time.

You want to enhance your understanding of the company's performance over time. To do this, you create several visualizations that compare key KPIs from one period to another.

Key tasks:

- Create a variance calculation to understand the company's performance in comparison to the previous periods
- Use dynamic time filters to have charts update automatically over time
- Use a compound growth rate to view the growth over the first and last period in the chart
- Consume a timestamp within visualizations
- Use a measure input control to switch the KPI analyzed
- Configure an input control to impact a set of visualizations
- Create a date difference calculation to calculate the difference between two dates
- Create a calculated dimension
- Create Excel-like calculation within a table
- Use In-cell charts within a table to see data as a bar/column chart
- Use conditional formatting to highlight the high performing regions

Task 1: Create a Scatterplot and Basic Arithmetic Calculations

1. Open your SAC01_XX_SimpleStory story. Open the *Financials* tab, and access *Edit* mode. Create a new Scatterplot.



Note:

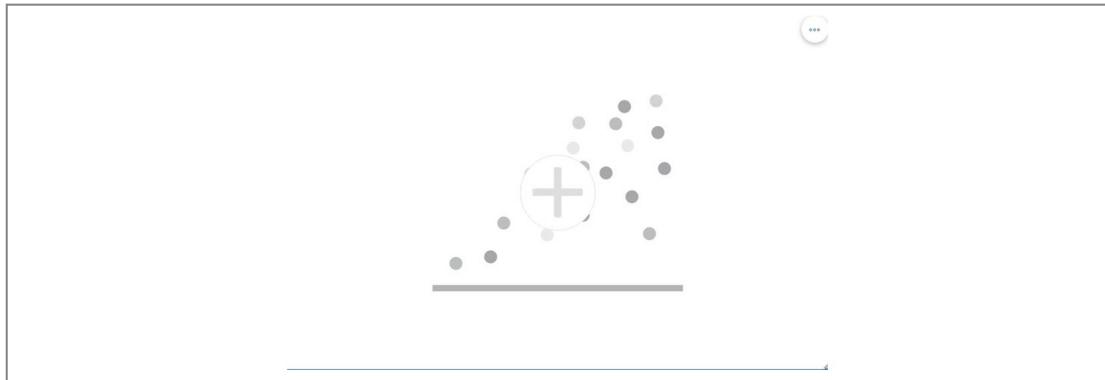
If you did not build SAC01_XX_SimpleStory prior to this exercise, ask your instructor for a copy of this solution story file.

- a) Navigate to your SAC01_XX_SimpleStory.

**Note:**

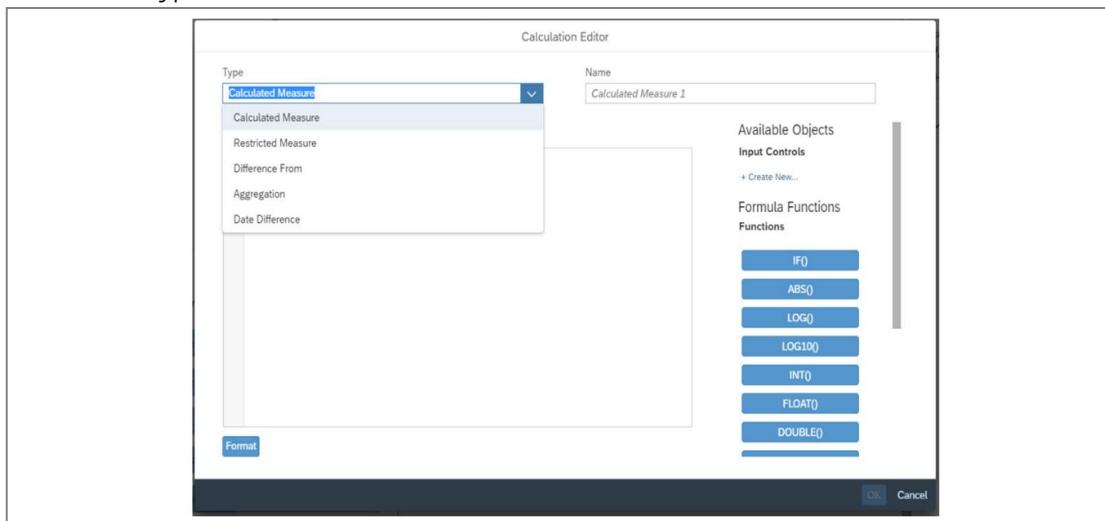
This is your story created in the previous exercise. If you did not build SAC01_XX_SimpleStory prior to this exercise, ask your instructor for a copy of this solution story file.

- b)** Select *Edit*. Choose + on the placeholder widget on the top of the *Financials* lane to create a new Scatterplot Chart. This opens the *Designer* pane on the right.



- c)** Under *Chart Structure*, ensure *Scatterplot* in *Correlation* is selected.
- d)** Verify that the *Data Source* is set to *Pacifica_Order_Finance*. If not use the pencil icon to select it.
- 2.** Build a calculation called *GRXX Gross Margin %* as a calculation of the Gross Margin/Revenue.
- a)** Under *X-Axis*, choose + *Add Measure*.
- b)** Under *Calculations*, choose + *Create Calculation*.

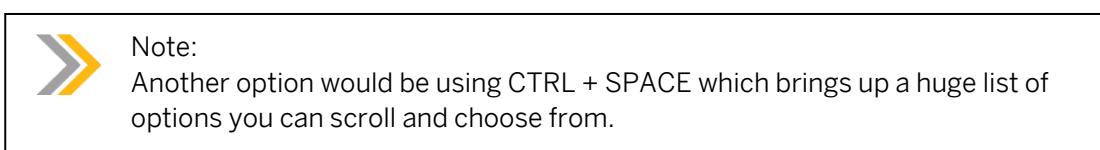
The *Calculation Editor* allows you to create calculations for use in a chart or table. There are various types of calculations that a user can create which include:



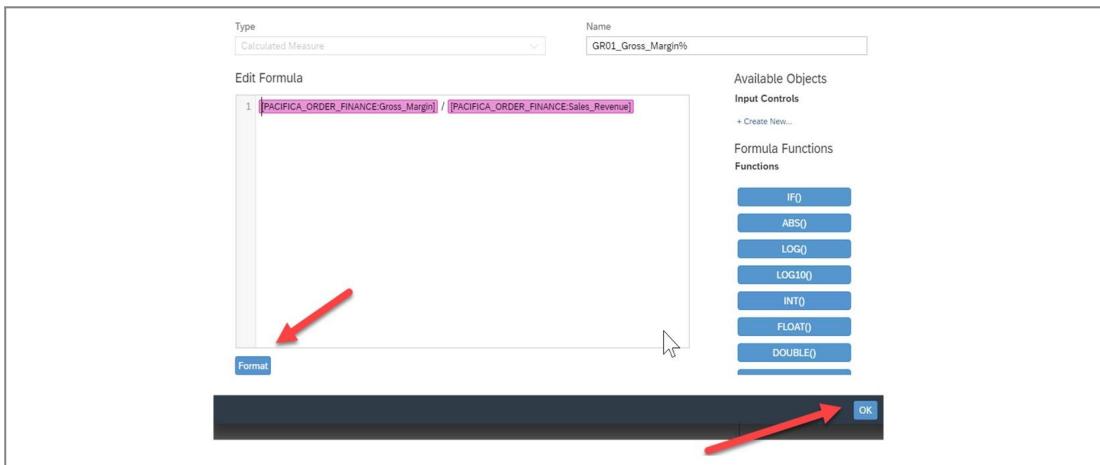
- c) Under Type, choose Calculated Measure from the drop down.
- d) Name the Calculation **GRXX Gross Margin %**.
- e) In *Edit Formula* pane, enter **Gro**.



- f) Choose Gross Margin.
- g) Add the division sign and the sales revenue measure to complete the calculation. In the *Edit Formula*, enter / then enter **Sales**.
- h) Choose Sales Revenue.

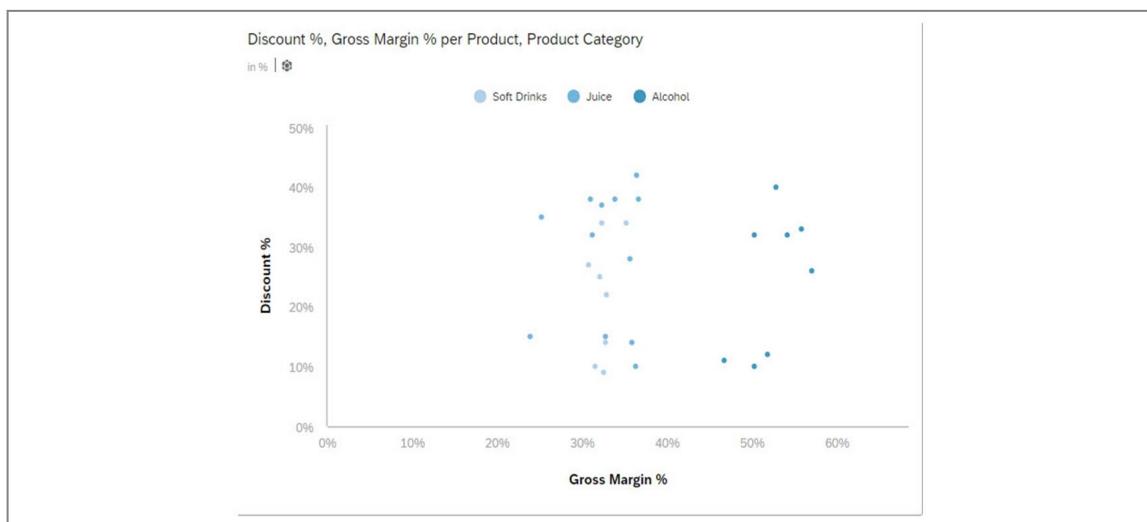


- i) Choose Format to validate the calculation.



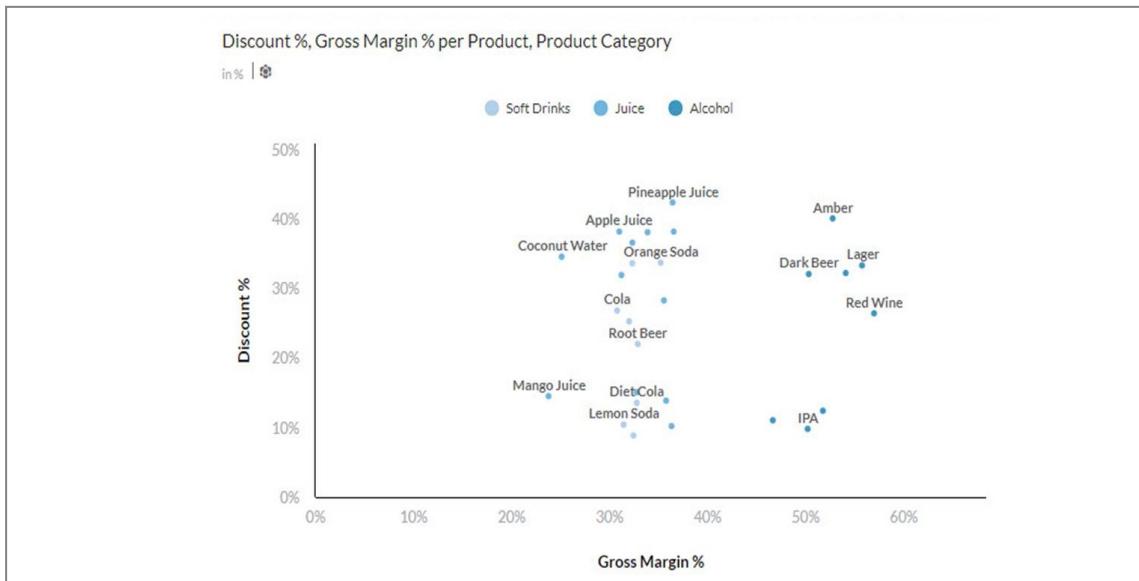
- j) Choose OK.
3. Ensure that Gross Margin % is being interpreted as a percentage. Format the Calculated Measure.
- a) Choose the More Action icon on the Gross Margin % token.
 - b) Choose Format.
 - c) Deselect Use Unit of Underlying Measures.
 - d) Expand Scale.
 - e) Choose Percentage → OK.

4. There is already a measure for *Discount_%*, consume it within your visualization.
- Under Y-Axis, choose + Add Measure.
 - Choose *Discount_%*.
 - Under Dimension, choose + Add Dimension.
 - Scroll down and choose *Product*.
 - Under Color, choose + Add Dimension.
 - Scroll down and choose *Product Category*.
 - Click outside the Dimension drop-down menu.
 - Close the Designer by clicking it.
5. You have your desired visualization. However, it is difficult to see which bubble corresponds to which product, to make it clearer display the *Dimension Labels*.



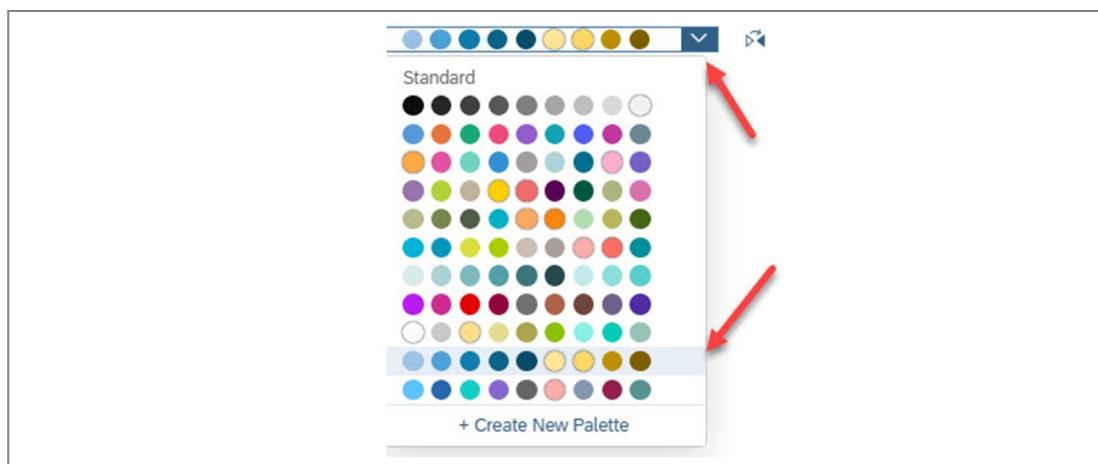
- Choose the More Action "..." icon. In the Quick Action Menu mouse over Show/Hide and choose Dimension Labels.
- Choose outside the Quick Action Menu to close it.

Note that it is much easier to see where Products are positioned on the *Discount_%* and *Gross Margin %*.



6. As it is difficult to differentiate between the Product Categories, switch to the Color Palette.

a) Access the designer and expand the *Color Palette*.



b) Explore the *Colour Palette* and choose one you like.

Task 2: Consume Timestamps, Input Controls, and Group Filters

You want to create a few visualizations that help understand how the company has been doing over time. However, instead of focusing on a single measure, you want to be able to switch between the measure of focus within the visualization.

1. Create a new time series chart in the *Financials* tab.



Note:

If you did not build SAC01_XX_SimpleStory prior to this exercise, ask your instructor for a copy of this solution story file.

- a) Choose + on the placeholder widget on the top of the *Financials* lane to create a new time series chart (found under *Trend*). This opens the *Designer* pane on the right.



Note:
Check that trend chart has been selected.

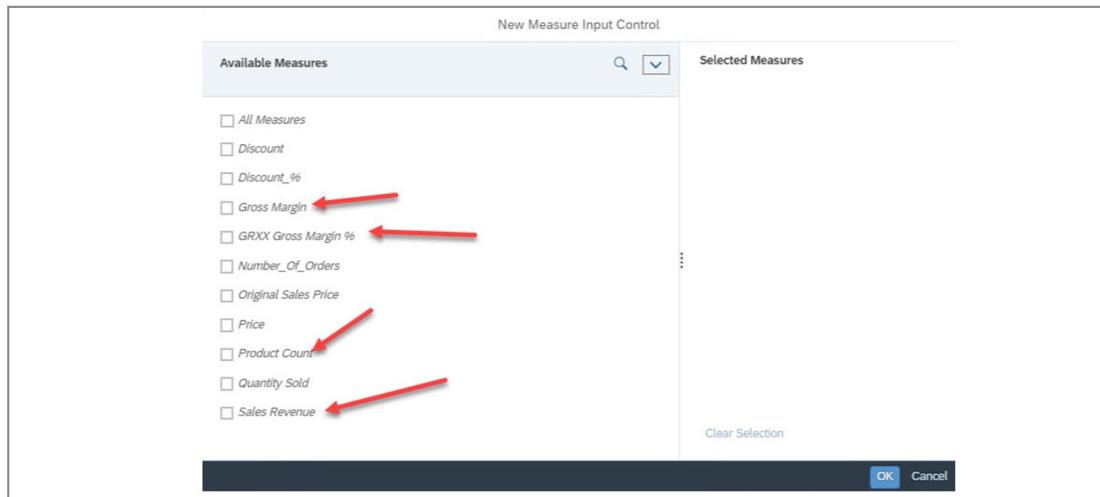
- b) Under *Time*, choose + *Add Dimension*.
- c) Choose *Order Date and Time*.
- d) Under *Measures*, choose + *Add Measure*.
- e) Scroll to the bottom and choose + *Create Measure Input Control*.



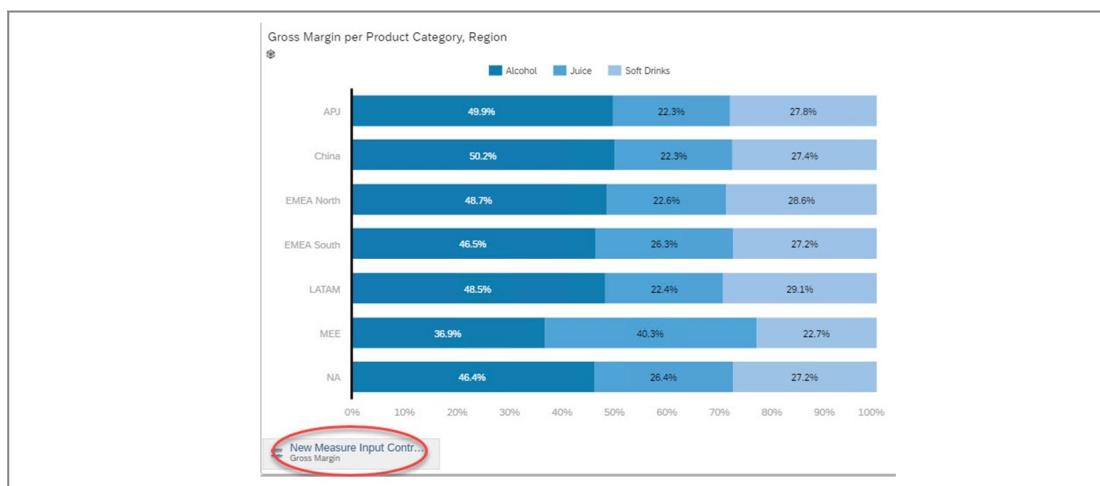
Note:
An input control allows you to let the end user of the Story decide which *Dimension* or in this case *Measure* will be displayed on a chart. For example, a person using the Story can easily alternate between showing revenue or profit, or any other measure while they are looking at the Story.

The screenshot shows the 'Measures' pane in the SAP Story Designer. At the top, it says 'At least 1 Measure required'. Below that is a search bar with 'Gross Margin' typed in. Underneath is a list of measures with checkboxes next to them. The list includes: Discount, Discount %, Gross Margin, Measure Selection, Number of Orders, Original Sales Price, Price, Product Count, Quantity Sold, and Sales Revenue. At the bottom of the list is a button labeled '+ Create Measure Input Control...'. A red arrow points to this button.

- f) Select the check boxes for *Gross Margin*, *GRXX Gross Margin %*, *Product Count*, and *Sales Revenue*, as shown in the following figure.

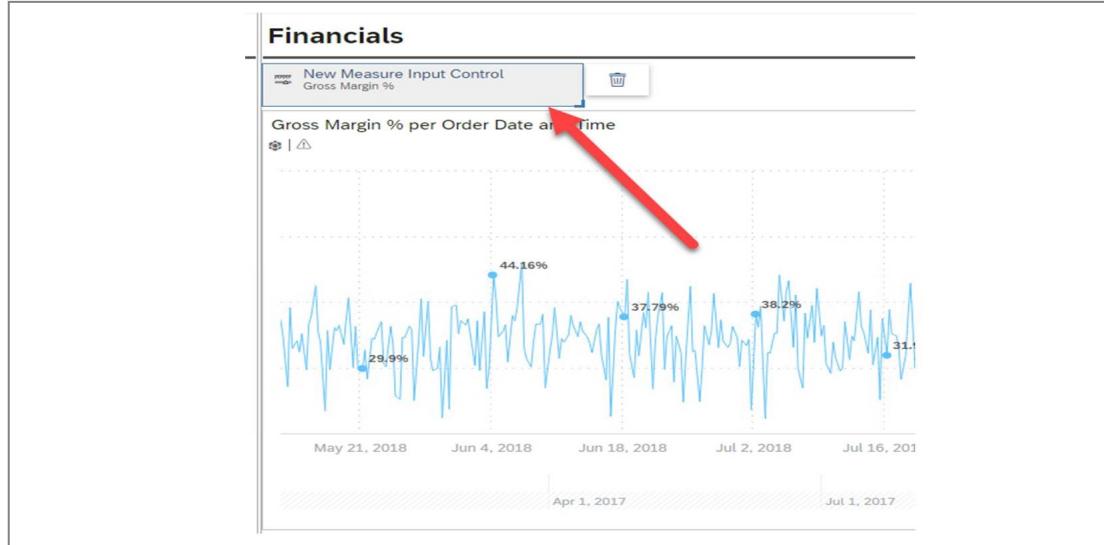


- g) Choose OK. The *Measure Input Control* is created and added to the bottom of the page, as shown in the following figure.

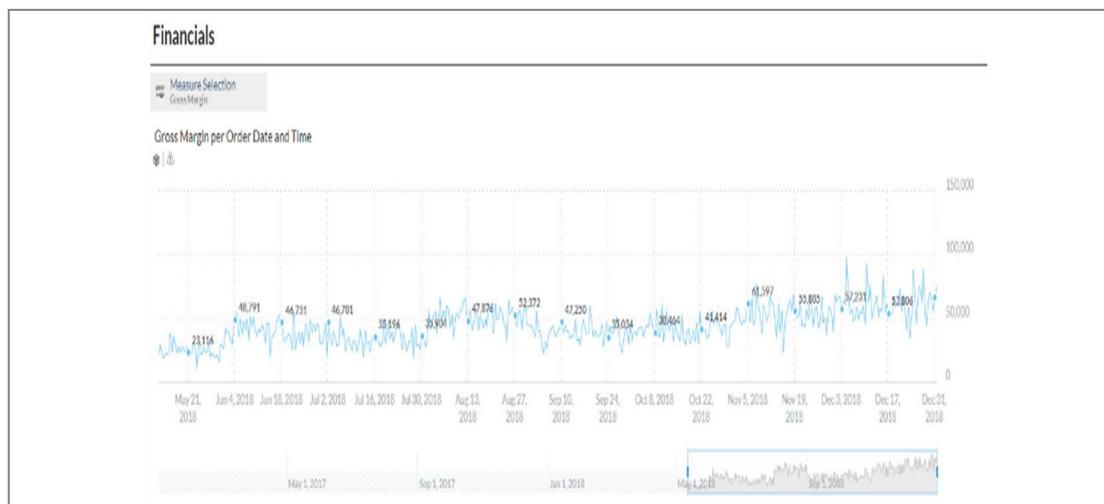


2. Move the *Measure Input Control* to the top of the page.
- Click the border and hold. The cursor will switch from a Pointer to a Move icon.
 - Move the *New Measure Input Control* above the time series chart.

Duplication is prohibited.



- c) Double-click directly on the text *New Measure Input Control...* and rename the *Measure Input Control* to **Measure Selection#####**, where ##### is your group number.



See that Gross Margin has been increasing over time.

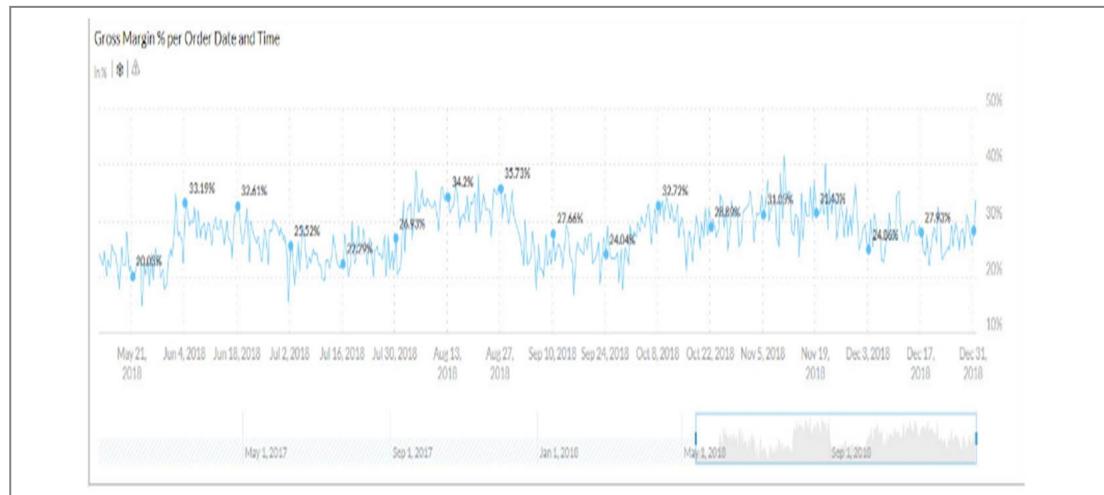
3. Gross Margin has been increasing over time, switch the *Measure Input Control* into *Gross Margin %* to see if there is a similar trend.

a) Choose the *Measure Input Control*.

b) Choose *Gross Margin %*.

See that the Chart Title and Data within the visualization has dynamically changed to Gross Margin %. Unlike Gross Margin, it is hard to see a general trend for Gross Margin %. It seems that often times there is a dip within the Gross Margin %.

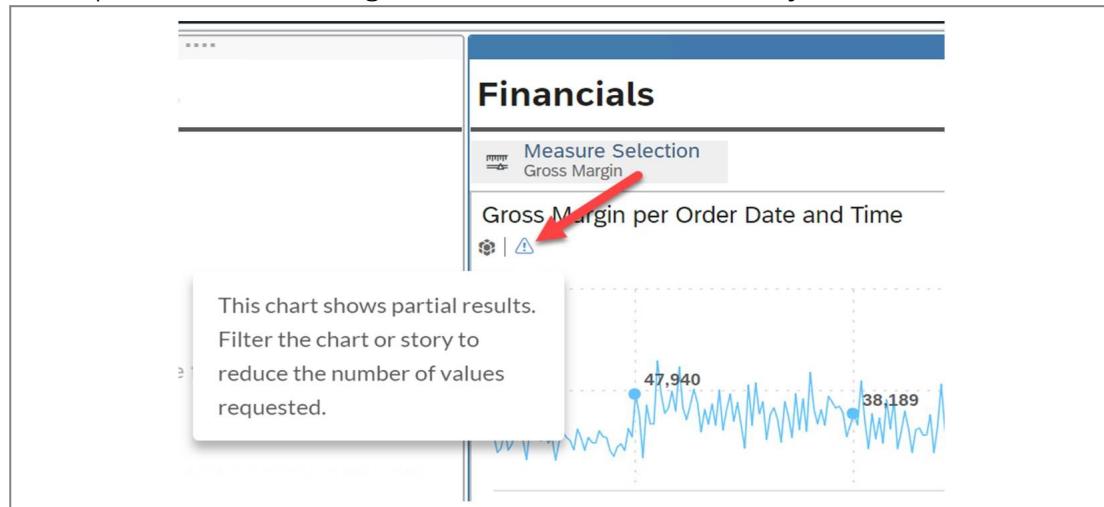
Duplication is prohibited.



However, most of your data is being focused on the most recent days. Thus, the data tends to fall into the future.

- c) Focus on data that is up to today.

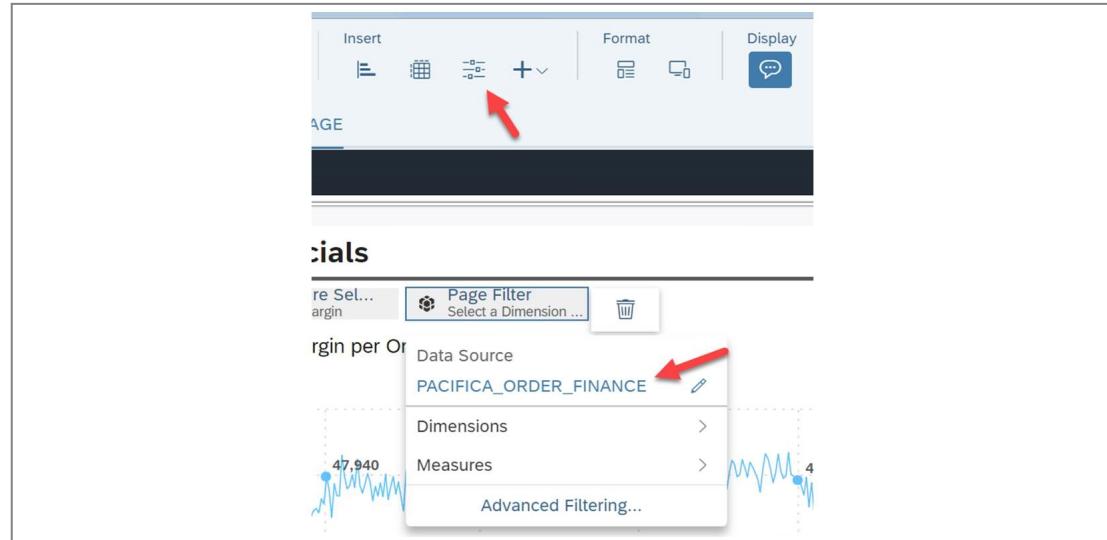
See that there is a warning within the Chart Details to indicate that the time series chart shows partial results, focusing on the 10000 last date values only.



4. Add a *Page Input Control* to filter the data up to today (or a date provided by your instructor).
- Under the *Insert* menu, choose the *Input Control* icon.
 - Choose the pencil to change the source from HR_Employee_XX to Pacifica_Order_Finance.

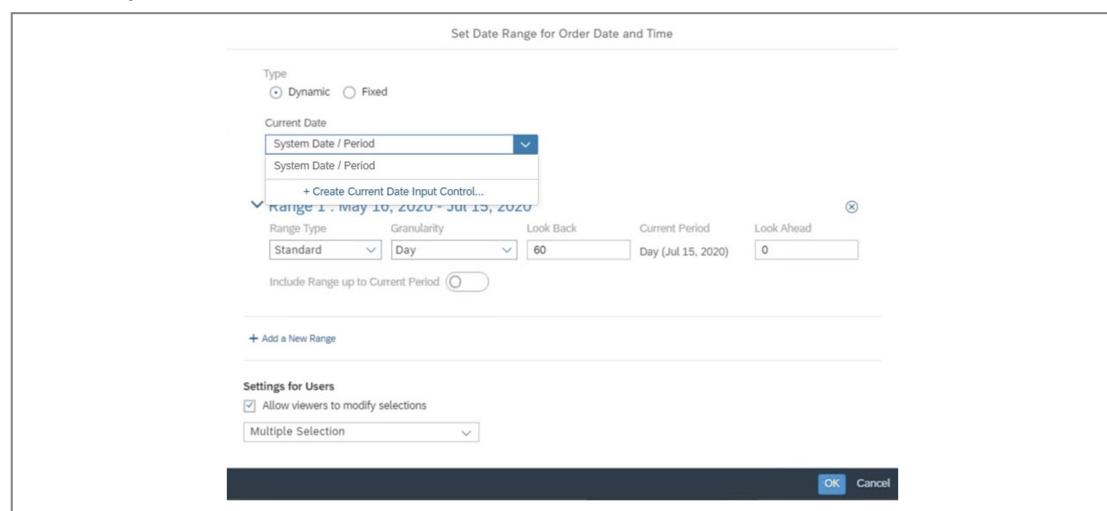
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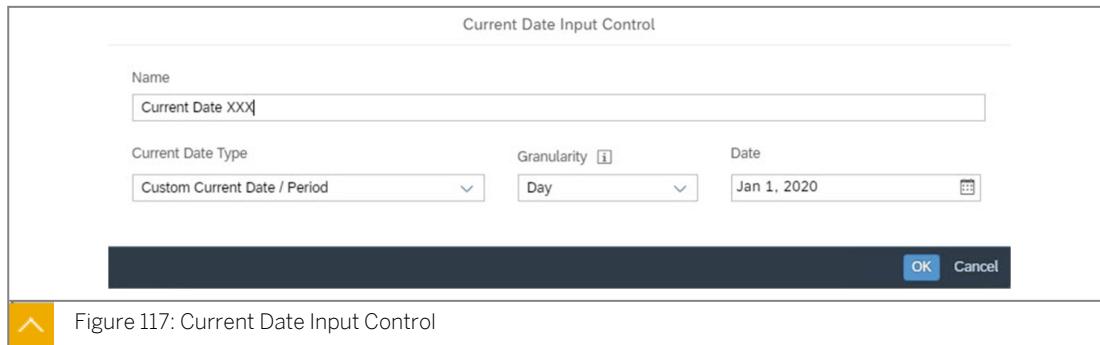


c) Choose Dimensions.

5. Create a *Page Input Control* that filters down the Order Date and Time for the last 60 days or more if instructed by the instructor to do so.
 - a) Choose Order Date and Time.
 - b) Choose Filter by Range....
 - c) Choose Dynamic.



- d) Expand *Current Date* option and create a *Current Date Input Control*. Expand *Granularity* and choose *Day*. Name it **Current Date xxx** and use the option *Custom Current Date / Period*.

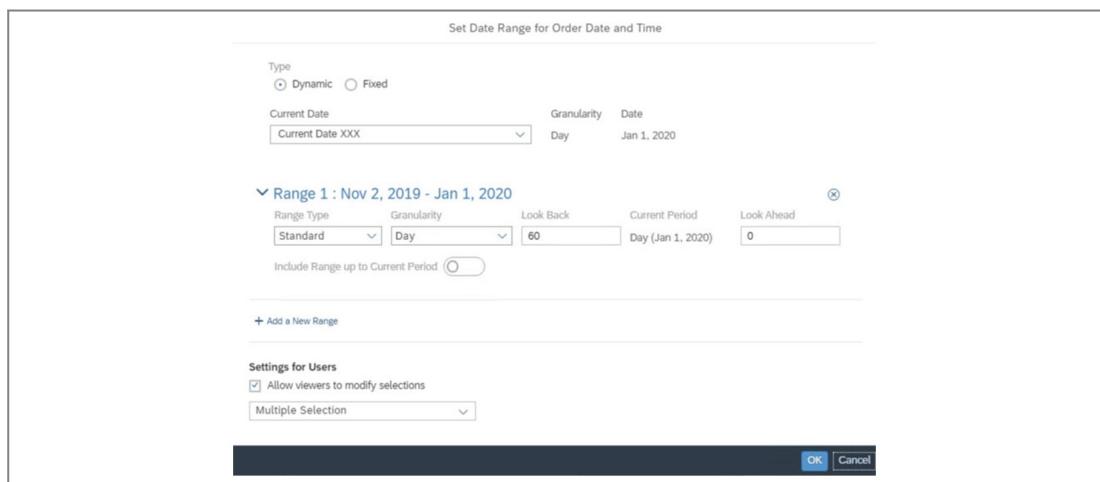


- e) In *Look Back* enter the value for the number of days that will make the range start at Jan. 01.2019.

For example, if today's date is Dec 31. If your data set has been extended entering **30** would be fine.

6. Ensure that the data does not exceed today's date.

- a) Enable *Include Range up to Current Period*.



- b) If the prior step yields too much data, remove the current period toggle and enter 30 as the *Look Ahead* days.

- c) Choose OK.

7. Resize the Page Input Control for easier reading.

- a) Click the corner of the *Page Input Control* and resize it for easier reading.

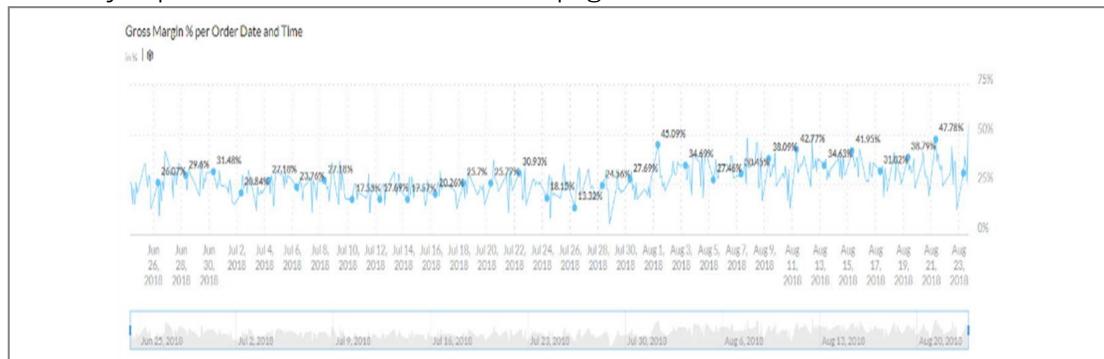


Note:

If there is no data please ask your instructor, you might need to adjust this input control.

The screenshot shows a SAP Analytics Cloud dashboard interface. At the top, there are two input controls: 'Measure Selection 000 (1)' which is set to 'GRXX Gross Margin %' and 'Order Date and Time (1)' which is set to 'Nov 2, 2019 - Jan 1, 2020'. Below these, a main visualization displays 'GRXX Gross Margin % per Order Date and Time' over time, with values ranging from 25% to 50%.

See that the data has filtered down. However, this input control is tied to the page and currently impacts other visualizations on the page.



8. Fine tune the *Page Input Control* to apply to a specific set of visualizations.

- Choose *Order Date and Time Input Control*.
- Choose *Linked Analysis* from the advanced menu.

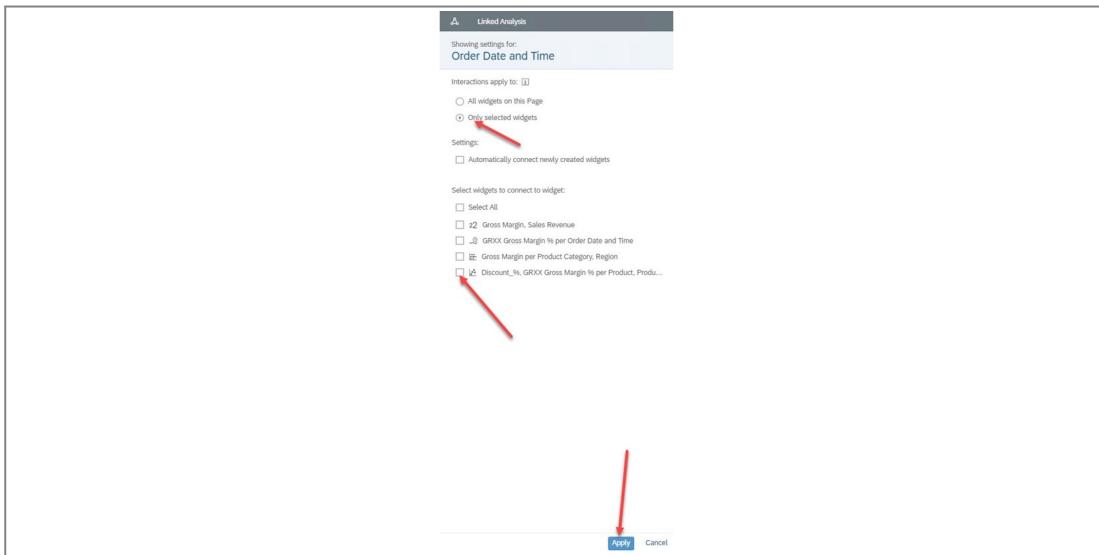
The screenshot shows the 'Linked Analysis' settings dialog box. It is titled 'Showing settings for: Order Date and Time'. Under 'Interactions apply to:', the radio button 'Only selected widgets' is selected. Under 'Settings:', the checkbox 'Automatically connect newly created widgets' is unchecked. In the 'Select widgets to connect to widget:' section, several checkboxes are listed, including 'Select All', '2 Gross Margin, Sales Revenue', '3 GRXX Gross Margin % per Order Date and Time', '4E Gross Margin per Product Category, Region', and '5 Discount_%, GRXX Gross Margin % per Product, Prod.'



Hint:

Grouped Input Controls are a great way to modify the data within a set of visualizations. For example, if you are creating a dashboard where you want to provide an overview of sales for the year as well as focus on a specific time period that you can change, you can use a scoped filter to impact the set of visualizations you want to modify.

- c) Under *Interactions apply to*, choose *Only selected widgets*.



- d) Choose *Gross Margin per Order Date and Time* and choose *Apply*.

9. Examine how the Product Count has changed over the past 30 days. Begin filtering down data to 30 days.

- a) Choose the *Page Input Control, Order Date and Time*.
 b) Set the *Look Back* value to **30**, or a higher number if required to see the data. Ask the instructor if you needed.



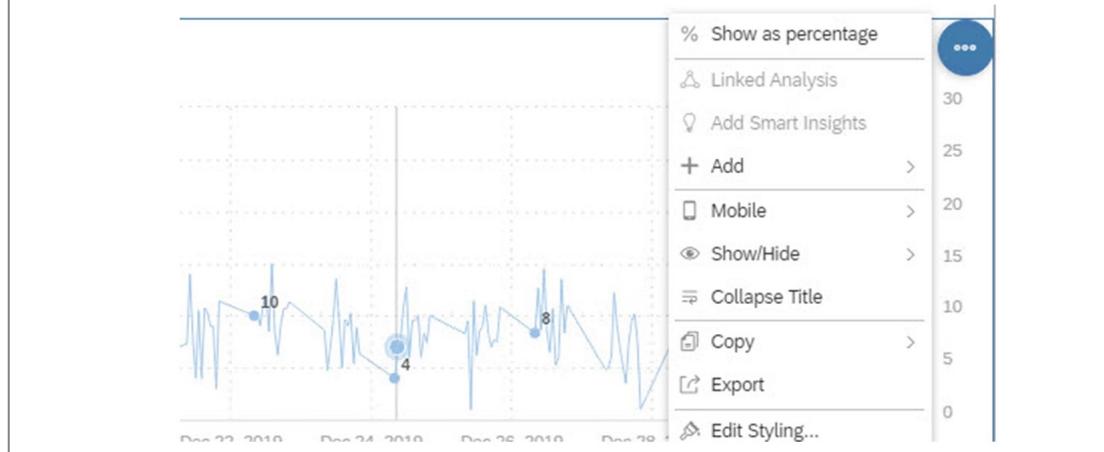
Caution:
 Your data might end in 2018, as the source BW is not being updated.

- c) Press **ENTER** on the keyboard.
 d) Click outside the *Page Input Control*, switch the *Measure Selection Input Control* to *Product Count*.
 e) Choose the *Measure Input Control*.
 f) Choose *Product Count*.



You can see how the Product Count has fluctuated over the past 30 days.

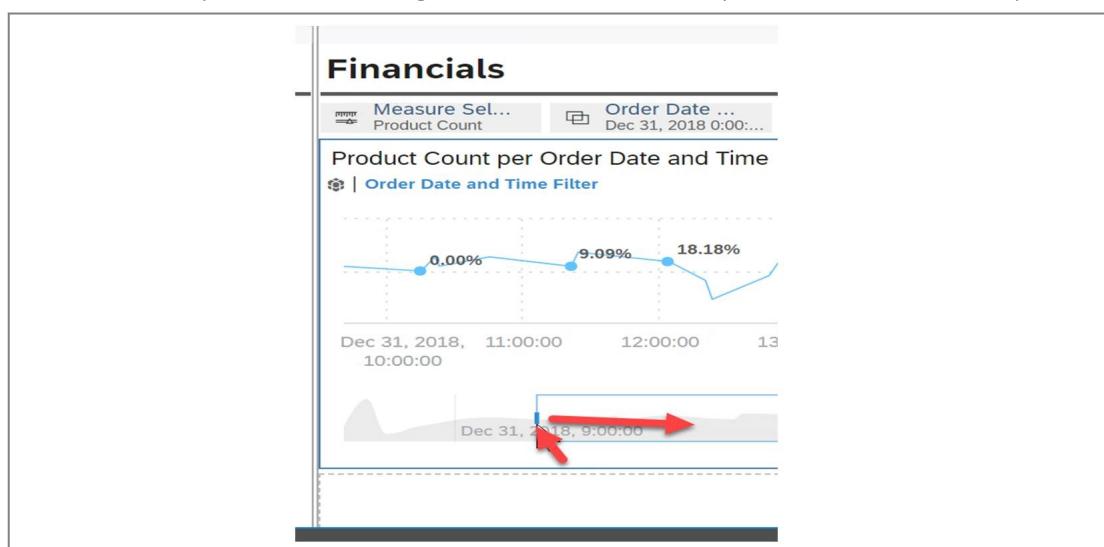
10. You want to see the percentage change for all values on the time series chart in comparison to the first-time period. You must *normalize* the time series chart. This is a term used to allow you to get more meaning than from raw numbers.
 - a) From the quick action menu in the time series chart, choose % to show as %.



See the first date as the base line, and other numbers as an increase.

11. b) Reduce the Slider.

As you modify the slide, see that the values in the time series chart are modified. This is because, it compares the % change between the first data point with all other data points.



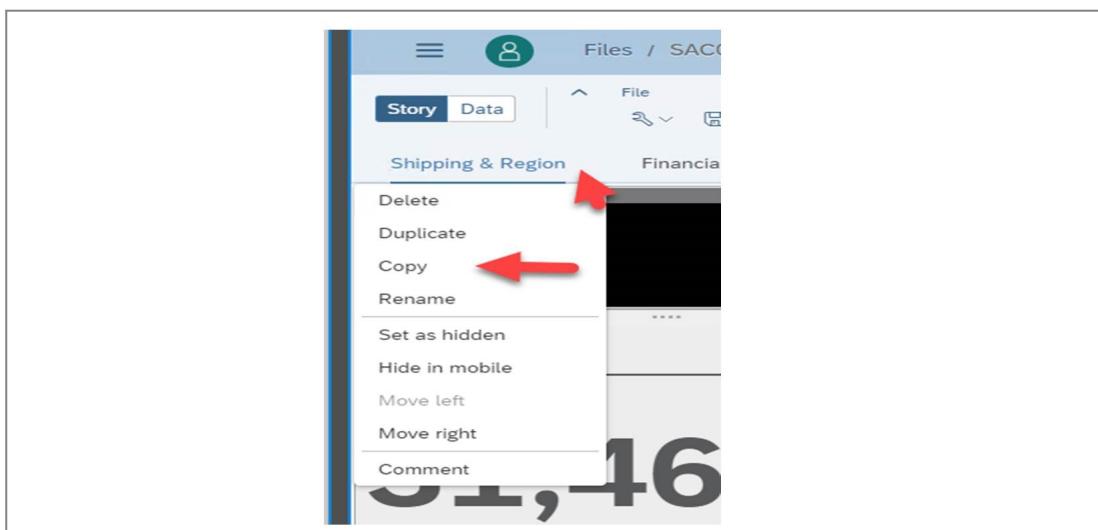
11. Save the story as **SAC01_xx_StoryWithCalculations**.
 - a) Under *File*, choose the Save icon.
 - b) Click Save as or **Ctrl + Shift + S**.
 - c) Enter **SAC01_xx_StoryWithCalculations** in the Name field.
 - d) Click OK.

You have completed the Timestamp, Input Controls, and Group Filters exercise.

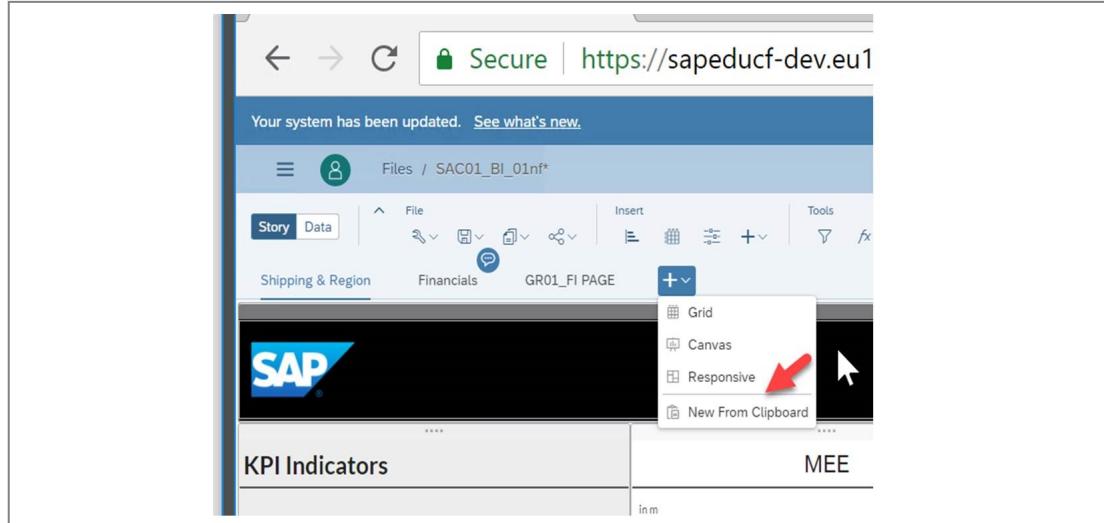
Task 3: Copy an Existing Story Page and Edit the Page to Add a Customer Sort

One of your colleagues has been working on a story using a secondary data source. You don't want to lose all the work so you want to copy over your colleague's story and add it to your story.

1. Copy the *Shipping and Region* page from your colleague's story and delete some visualizations on the page.
 - a) Choose *Main Menu* → *Browse* → *Files* → *Public* → *SAC01_24* → *SAC01_CONTENT* → *SAC01_BI_XX_StoryWithCalculation*.
 - b) Check the box for *SAC01_BI_XX_StoryWithCalculation* and select *Copy To*. Change the value XX to your number and initials, then choose *OK*.
 - c) Navigate to *My Files* and select your *SAC01_BI_XX_StoryWithCalculation*. Choose *Edit*.
 - d) Access the *Shipping & Region* page, use the drop-down menu and choose *Copy*.



- e) Return to the Home screen. Under the *Recent Stories* area, open your *SAC01_XX_StoryWithCalculations* and select *EDIT*.
- f) Navigate to the right of the page and choose *New From Clipboard*.

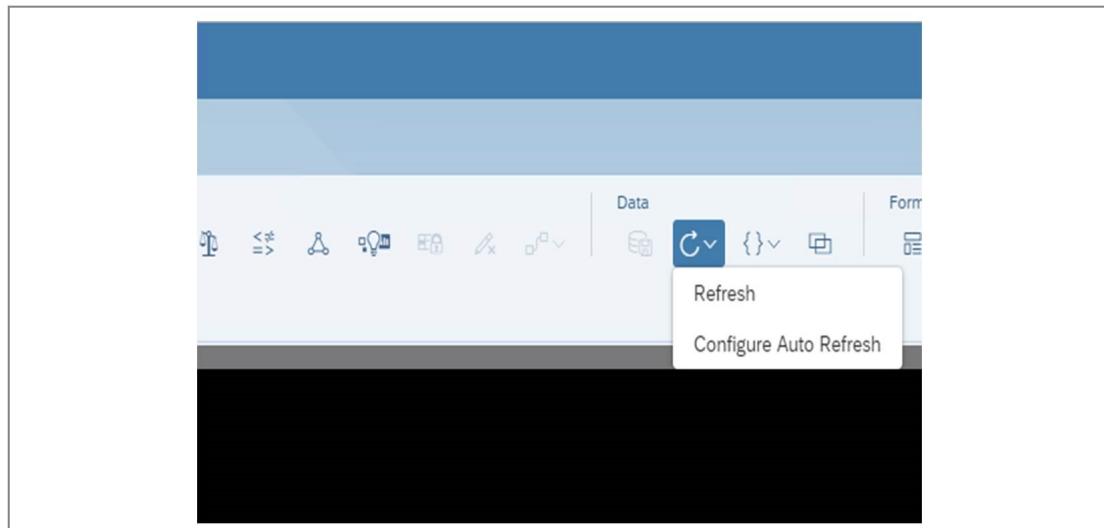


- g) Click in the cell under *MEE* and choose *Refresh*.



Note:

Notice in the same path the *Configure Auto Refresh* option. Using this setting for your Story fetches updated data from the underlying sources. This may have advantages or disadvantages, as a constantly changing data set is hard to analyze.

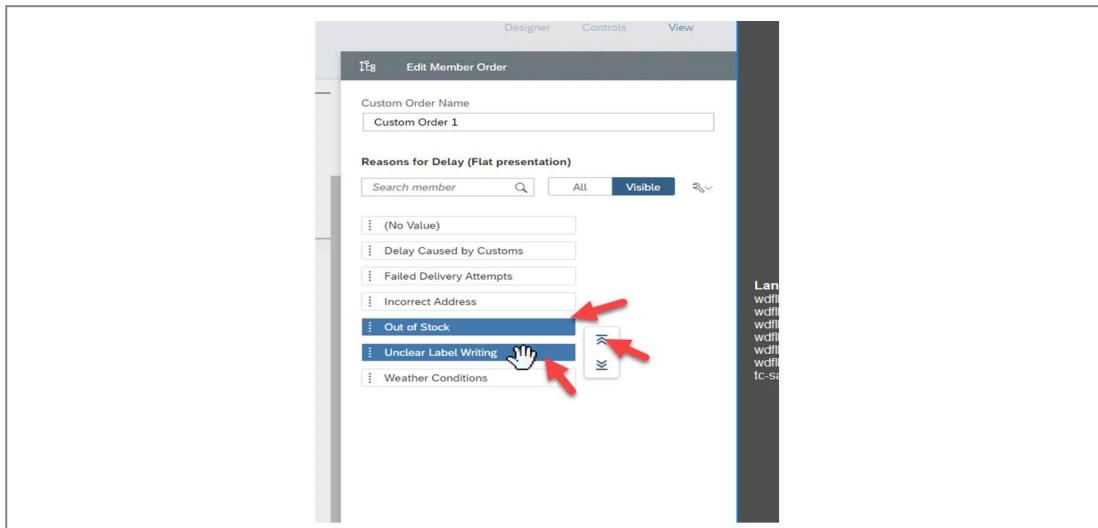


Note:

If no *Refresh* icon found, click the *More* icon and choose *Refresh*.

2. In the # of Orders per Reasons for Delay, experiment with the sort order.
 - a) Select the # of Orders per Reasons for Delay widget.

- b) Choose the Sort icon in the quick action menu and follow the path in the figure to chose the Sort Ascending.
- c) Select the Sort option and # of Delay, choose Add Custom Order.
- d) Choose Out of Stock.
- e) Choose Unclear Label Writing.
- f) Choose the Move to Top icon.



- g) Drag and drop the field *Incorrect Address* to below *Weather Conditions*.
 - h) Drag and drop the field *Delay Caused by Customs* to below *Failed Delivery Attempts*.
If the field *No value* appears in your list, move the field *No value* to the bottom.
Check that the Custom Sort Order is similar to the following figure. *Out Of Stock* can be filtered out as it is not critical to the order.
3. Check the *Custom Order* you created within the chart.
 - a) At the bottom of the *Custom Sort Order* pane, choose *Preview* and notice the order in the chart changes.
 4. Name the Custom Order **Pacifica Order XX**.
 - a) At the bottom of the *Custom Sort Order* pane, choose *Save* to save your Story. You can also use **CTRL + S** on the Keyboard to save the Story.
 - b) Save the story as **Custom Order Pacifica Order XX**.

Unit 3

Exercise 6

Create Stories using Advanced Functions

In this exercise you will create stories using geographical visualizations with location data. Then you will create a blended visualization and use filters across models to gain insights from data sources.

Key tasks:

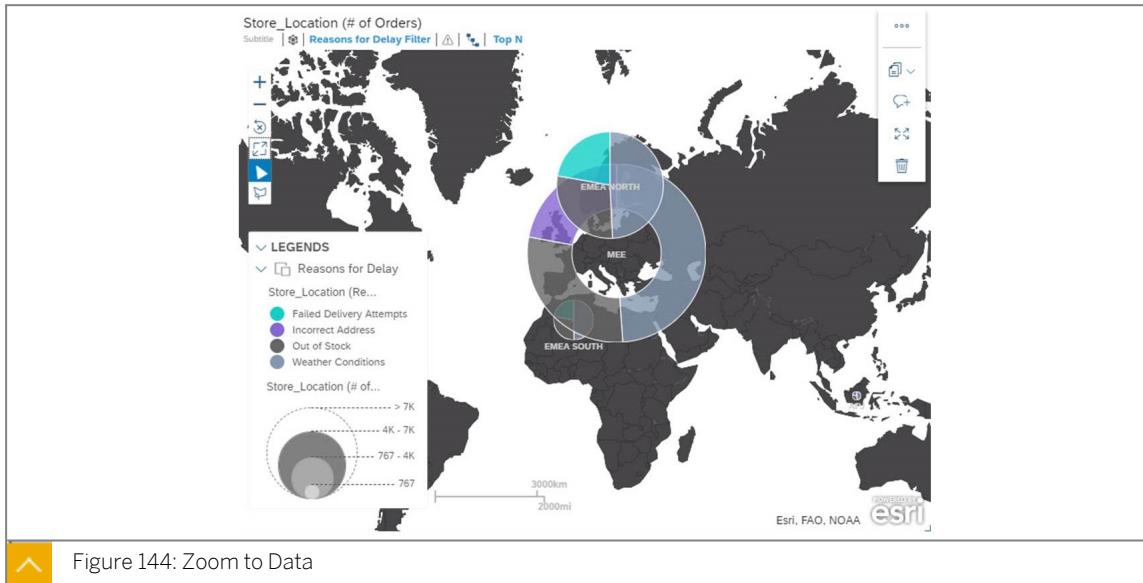
- Use a custom shape to view geographical data based on corporate guidelines
- Add a dimension to color to view the breakdown of the dimension per geographical location
- Set ranges to identify outliers
- Create a blended visualization between a Live HANA model and acquired data
- Use Linked Analysis to filter across models

Task 1: Map Basics and Custom Shapes, Outliers, and Geo Color by Dimension

You want to see how the company has been performing in multiple regions. Specifically, you want to see whether the shipping time to your customers is good or not.

1. Open your *SAC01_BI_XX_StoryWithCalculation* story from *My Files* → *Public* → *SAC01_24* → *SAC01_CONTENT*, navigate to the *Shipping & Region* tab and access the *Edit* mode.
2. Add a Geo Map that displays your various customer locations.
You can see the various customer locations that you sell to.
3. Since there are many customers, switch the Base Layer to a *Choropleth / Drill Layer* so that you can see the aggregated data for the regions.
See that data is better represented in a choropleth layer as you can see the aggregated value across all regions.
4. However, you can only see the countries that you ship to. From a business perspective, group the countries into your sales regions. Consume your custom Pacifica Regions.
5. You do not want to be distracted by the other visualizations on the dashboard as you create and analyze the geo visualizations. Enter full screen mode.
6. You want to have a visual indicator that shows up what regions are performing well. Color the locations based on the average shipping time.
7. Change the *Style* from *Choropleth* to *Bubble*.
8. Adjust the map a bit so that the huge number of orders in the MEE region does not make the rest of the world's scale so similar in size. Add a range to your data so that the MEE region is considered an outlier and it is easier to differentiate the other regions.

- Duplication is prohibited.
9. Since MEE is an outlier, take a closer look at which countries are contributing to the large number of orders.
 10. Due to the large number of orders in Germany, it is difficult to differentiate between Czech Republic, Slovakia, Hungary, and Romania. Adjust the range once again to exclude Germany from the scale to better differentiate your data.
 11. Drill into Germany. The level *country* is the last hierarchy level. Drilling into Germany will drill into the data points of Germany showing the individual store locations.
 12. See that Germany contains multiple stores that you supply to. However, due to the large number of stores, it is very hard to see the various stores. Increase the range to spread out the number of orders you are looking at.
It is much easier to differentiate the various stores.
 13. Give the stores a custom pin so that you know you are looking at your various customers instead of an aggregation of multiple customers on higher levels.
 14. You can see the average shipping time based on the color, it would be interesting to see the correlation between the number of orders, and what the reasons of delay were based on the total number of orders that were shipped to a store.
 15. You are only interested in the top three reasons to better tackle the issues within each region
 16. See that there are several stores that share the same latitude and longitude and therefore have been grouped together. Investigate to see if stores in the same location share the same reasons of delay.
 17. Remove the layer from the drill filter and resize the geo map. Name the layer as **Reasons for Delay**.



See that based on the change in the visualization size, there are some bubbles that are overlapping.

18. Reduce the size to better differentiate the bubbles.
See that it is easier to differentiate the different bubbles on the geo map.

19. Collapse the legend if it is expanded to save some space.
20. Save the Story as **SAC01_XX_AdvancedFunctions**.

You have completed the Geographical Visualizations section!

Task 2: Optional: Use Linked Analysis to Filter Cross Models

You want to be able to use visualizations to drive the analysis for all the visualizations on the page. To do this, you will have to set up linked analysis on a few visualizations.

1. Navigate to the *Financials* tab and use the tree map to set up the linked analysis.
2. Continue the linked analysis by region and the regions the sales managers operate in.
3. Save the story.

Create Stories using Advanced Functions

In this exercise you will create stories using geographical visualizations with location data. Then you will create a blended visualization and use filters across models to gain insights from data sources.

Key tasks:

- Use a custom shape to view geographical data based on corporate guidelines
- Add a dimension to color to view the breakdown of the dimension per geographical location
- Set ranges to identify outliers
- Create a blended visualization between a Live HANA model and acquired data
- Use Linked Analysis to filter across models

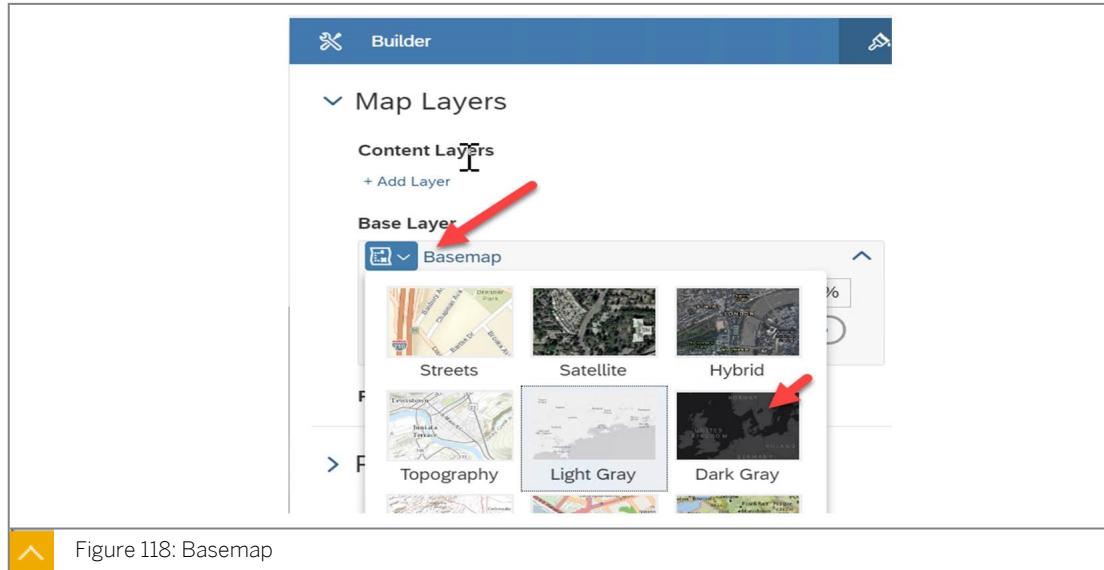
Task 1: Map Basics and Custom Shapes, Outliers, and Geo Color by Dimension

You want to see how the company has been performing in multiple regions. Specifically, you want to see whether the shipping time to your customers is good or not.

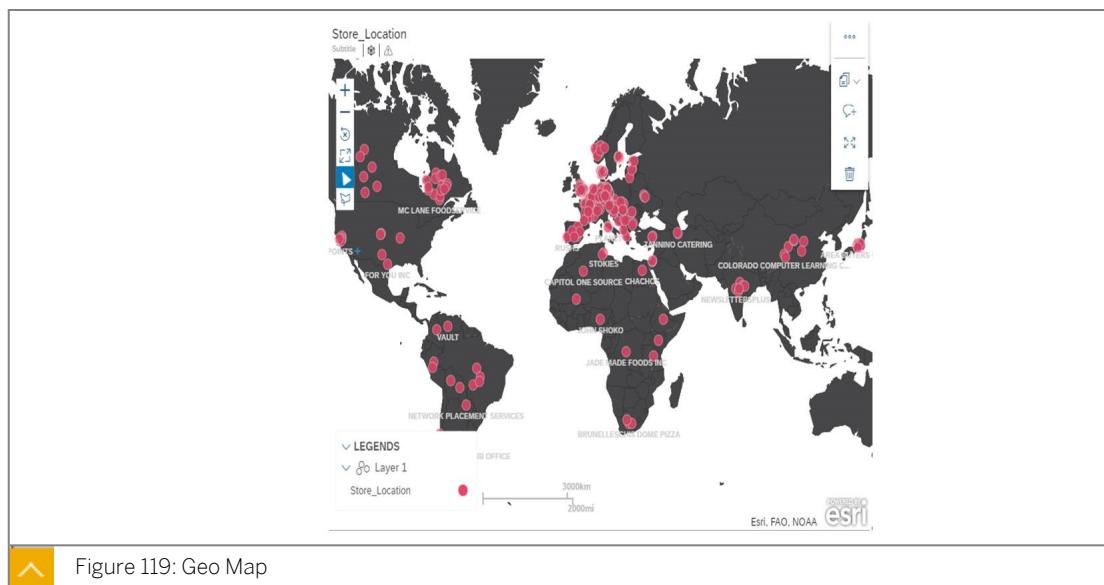
1. Open your SAC01_BI_XX_StoryWithCalculation story from My Files → Public → SAC01_24 → SAC01_CONTENT, navigate to the *Shipping & Region* tab and access the *Edit* mode.
2. Add a Geo Map that displays your various customer locations.
 - a) Click in the white space to the right of the *Pacifica Shipping Info* chart.
 - b) Under the *Insert* section of the toolbar, click the + icon and choose *Geo Map*.
 - c) Change the basemap to the transparent dark gray image. Click the *Basemap* icon.

Duplication is prohibited.

Duplication is prohibited.



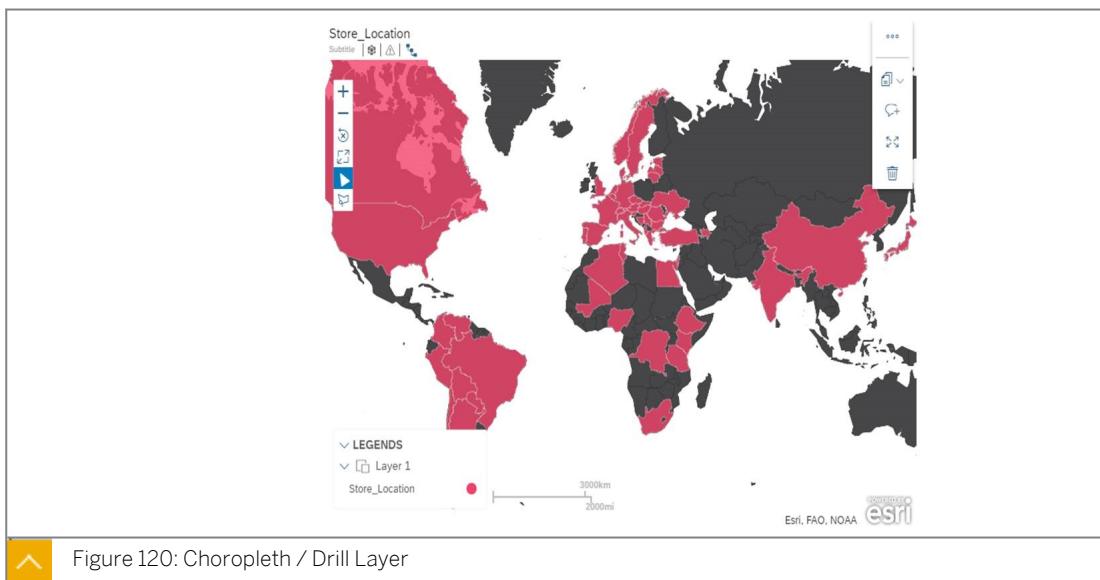
- d) Choose the transparent *Dark Gray*.
- e) Choose *+ Add Layer*.
- f) Choose the *Select Model* icon.
- g) Choose *PACIFICA_SHIPPING_INFO* and choose *OK*.
- h) Choose *+ Add Location Dimension*.
- i) Choose *Store_Location*.



You can see the various customer locations that you sell to.

3. Since there are many customers, switch the Base Layer to a *Choropleth / Drill Layer* so that you can see the aggregated data for the regions.

- a) Expand Layer Type.
- b) Choose Choropleth / Drill Layer.



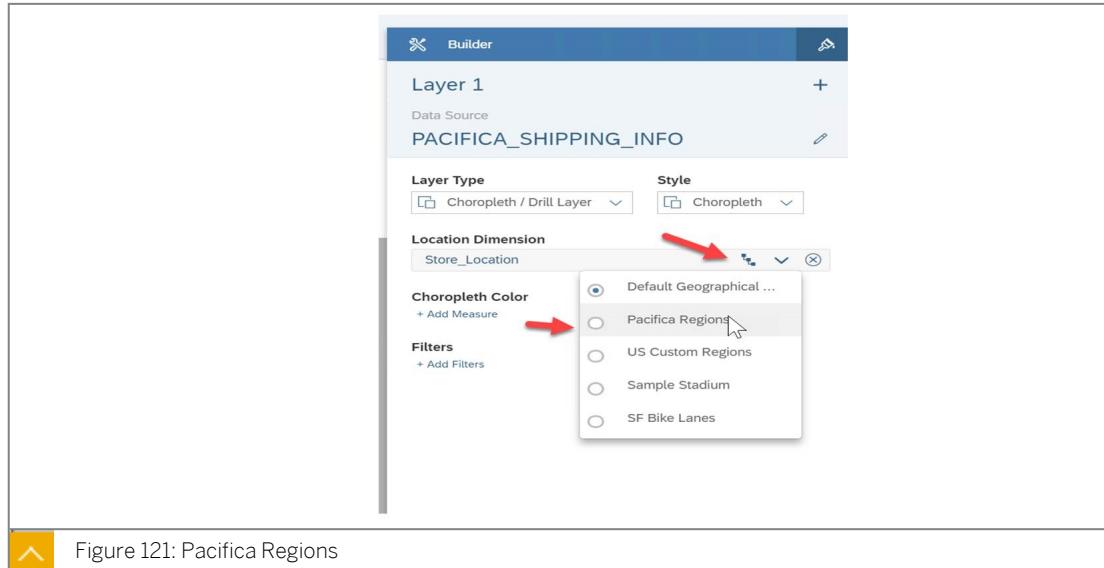
See that data is better represented in a choropleth layer as you can see the aggregated value across all regions.

4. However, you can only see the countries that you ship to. From a business perspective, group the countries into your sales regions. Consume your custom Pacifica Regions.
 - a) Hover over *Store_Location* and choose the *Hierarchy* icon.
 - b) Choose *Pacifica Regions*.

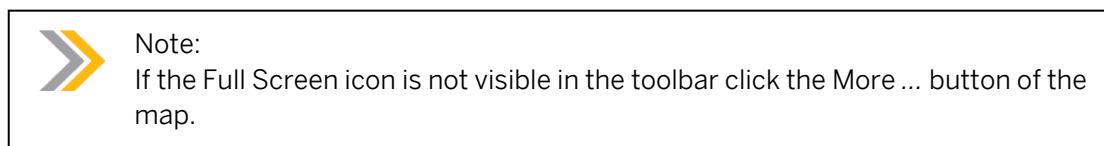


Note:

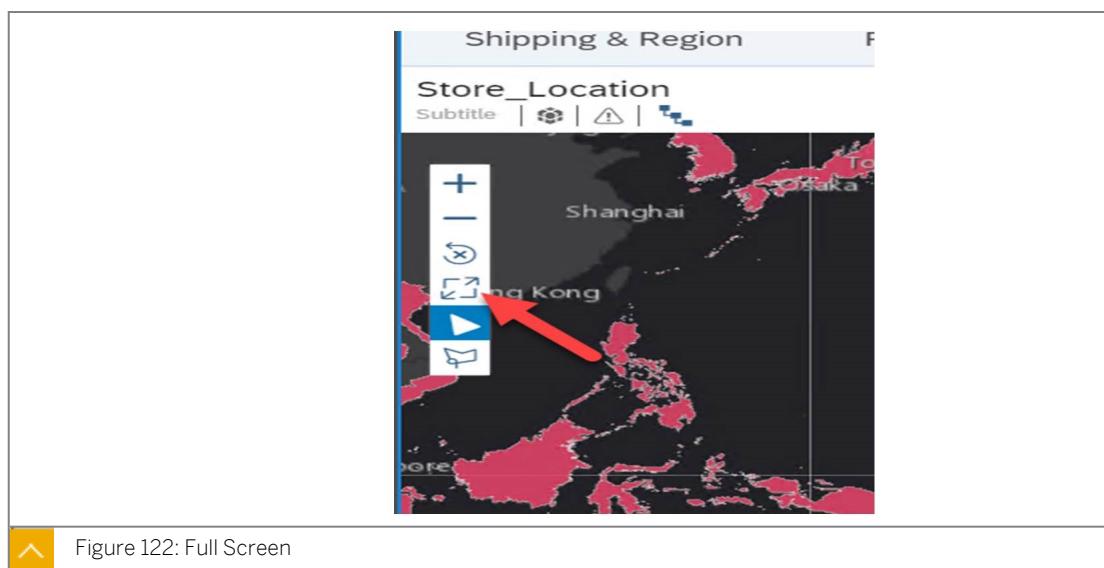
The Pacifica Regions is a Custom Shape that was built in the SAP HANA Data Base as a Calculation View, this custom shape feature is currently only available for live HANA models. In addition, the hierarchies also need to be created in HANA.



5. You do not want to be distracted by the other visualizations on the dashboard as you create and analyze the geo visualizations. Enter full screen mode.
 - a) Choose the *Full Screen* icon.



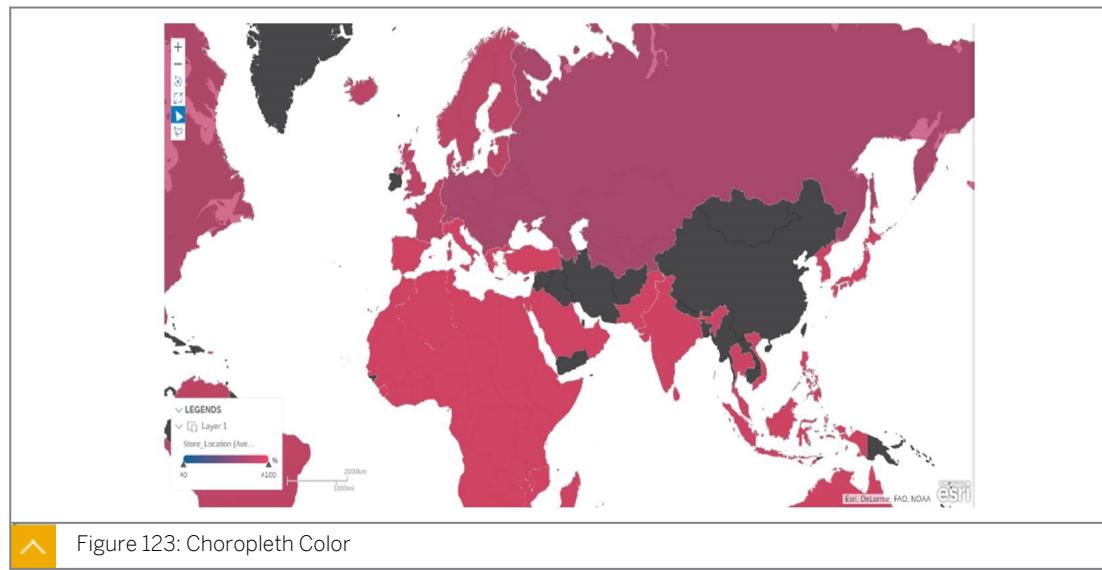
- b) Click on the left side of the map and click the *Zoom to Data* icon.



- c) Choose *OK*.

6. You want to have a visual indicator that shows up what regions are performing well. Color the locations based on the average shipping time.

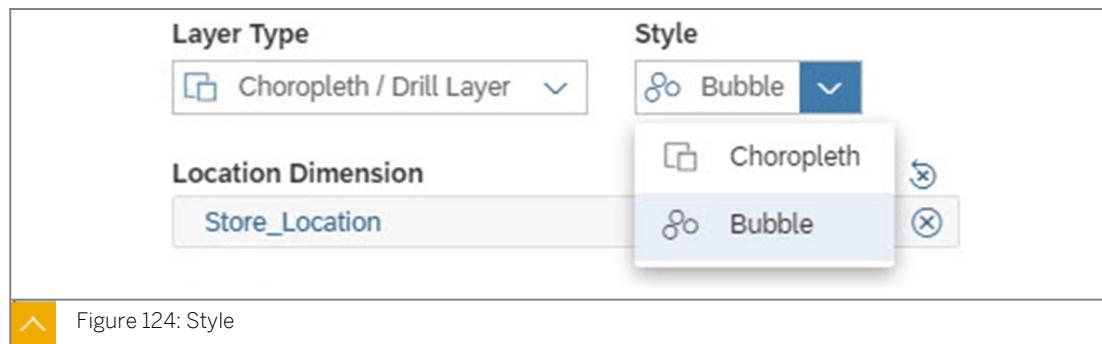
- Under *Choropleth Color*, choose + Add Measure.
- Choose Average Shipping Time.



Note:

Even though you can see that EMEA tends to have a lower average shipping time in comparison to the other regions, focus on the correlation between the average shipping time and the number of orders. This can be done by using a bubble representation where a measure can be used for color and another for size.

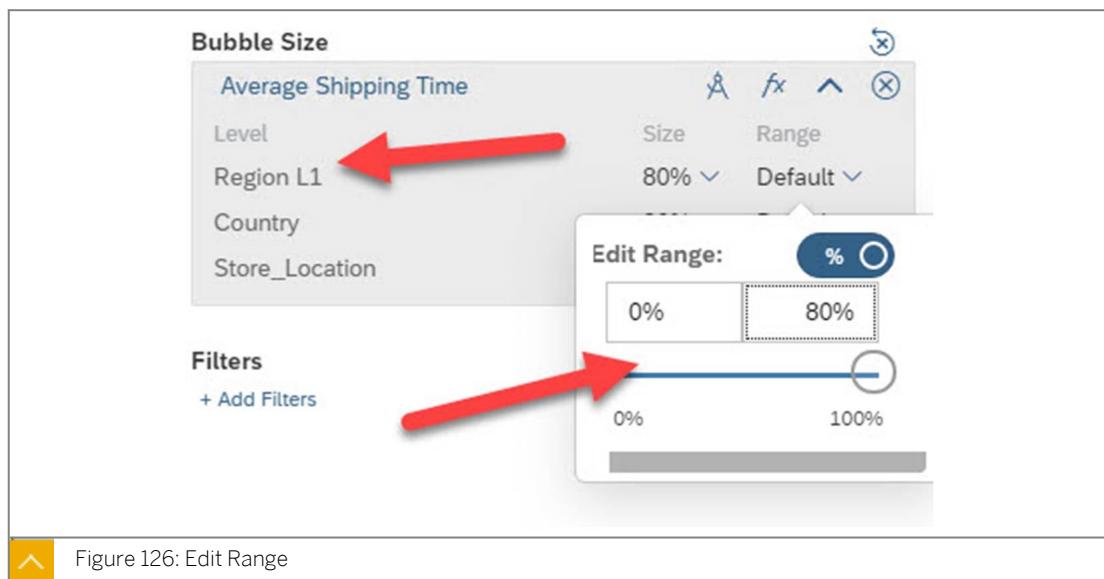
- Click OK.
7. Change the Style from *Choropleth* to *Bubble*.
- In the *Builder*, hover over *Layer 1* under *Content Layers* and choose the pencil (edit) icon.
 - Expand *Style* and choose *Bubble*.



- Under *Bubble Size*, choose + Add Measure.
- Choose # of Orders.



8. Adjust the map a bit so that the huge number of orders in the MEE region does not make the rest of the world's scale so similar in size. Add a range to your data so that the MEE region is considered an outlier and it is easier to differentiate the other regions.
- From the *Bubble Size* option, choose *Default for the Region Level 1*.
 - Reduce the *Max Range* to 80%.
- Either use the Slider or keyboard for entry.
- Click outside the *Edit Range* dialog.



What this did was exclude the regions with over 80% of the total orders, from the scaling of the bubble size. You should notice that this will identify MEE as an outlier (--- line) and make the other regions relatively larger.

9. Since MEE is an outlier, take a closer look at which countries are contributing to the large number of orders.

- Choose the *Outlier Ring* of MEE.
- Choose the *Drill Down* icon.

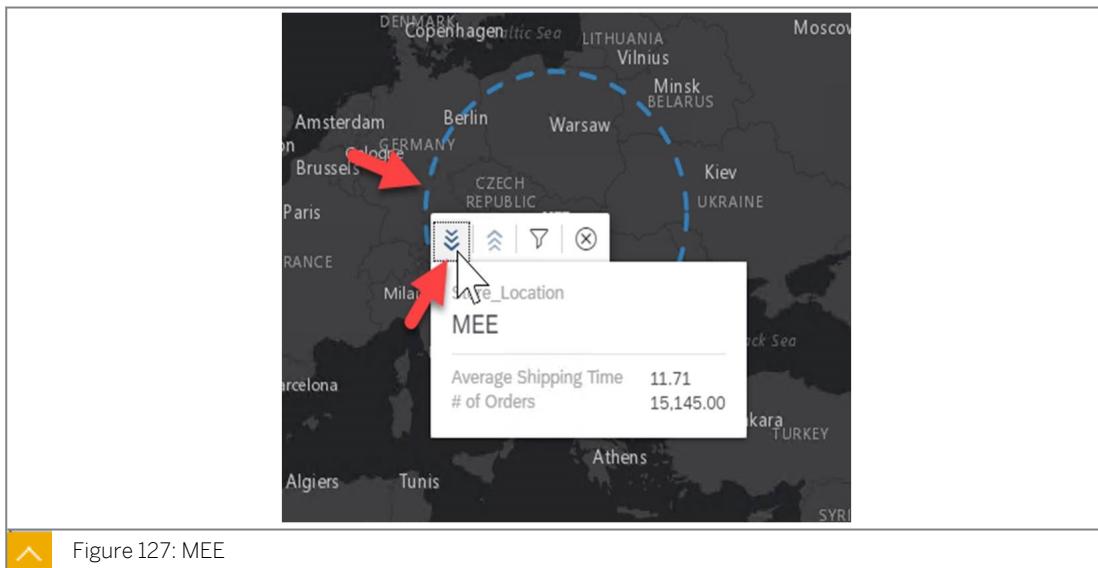


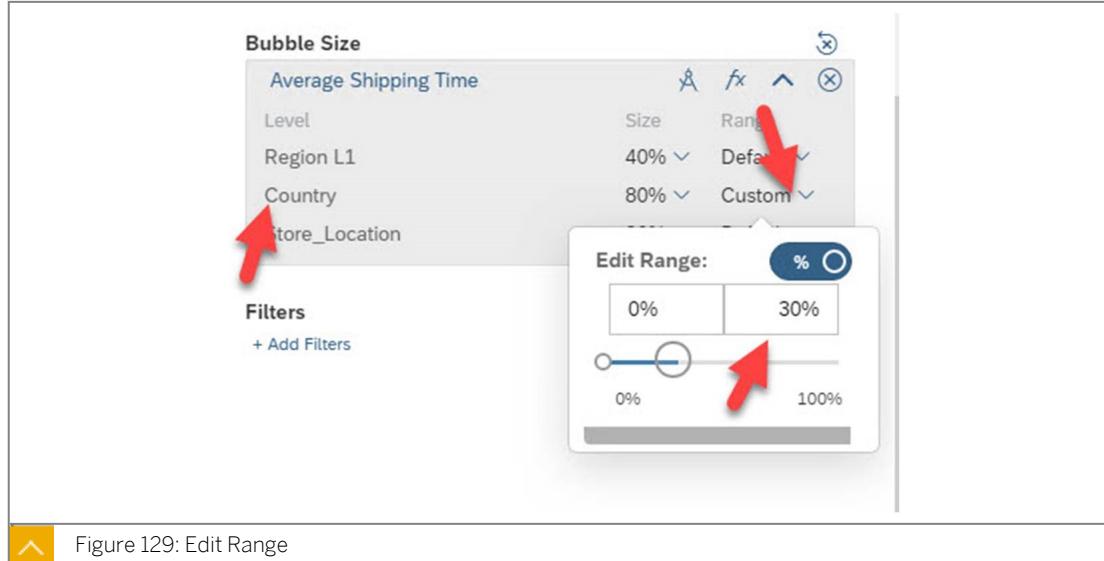
Figure 127: MEE



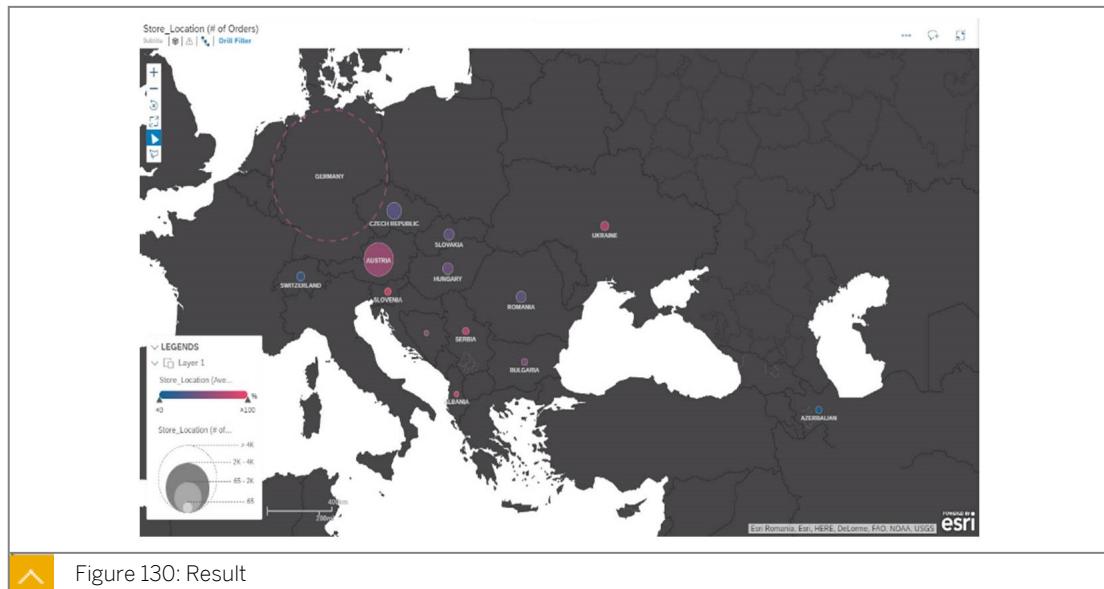
Figure 128: Result

- Due to the large number of orders in Germany, it is difficult to differentiate between Czech Republic, Slovakia, Hungary, and Romania. Adjust the range once again to exclude Germany from the scale to better differentiate your data.
 - On the *Bubble Size* screen, choose *Default for the Country Level*.
 - Reduce the *Max Range* to 30%. Either use the Slider or keyboard for entry.

Duplication is prohibited.

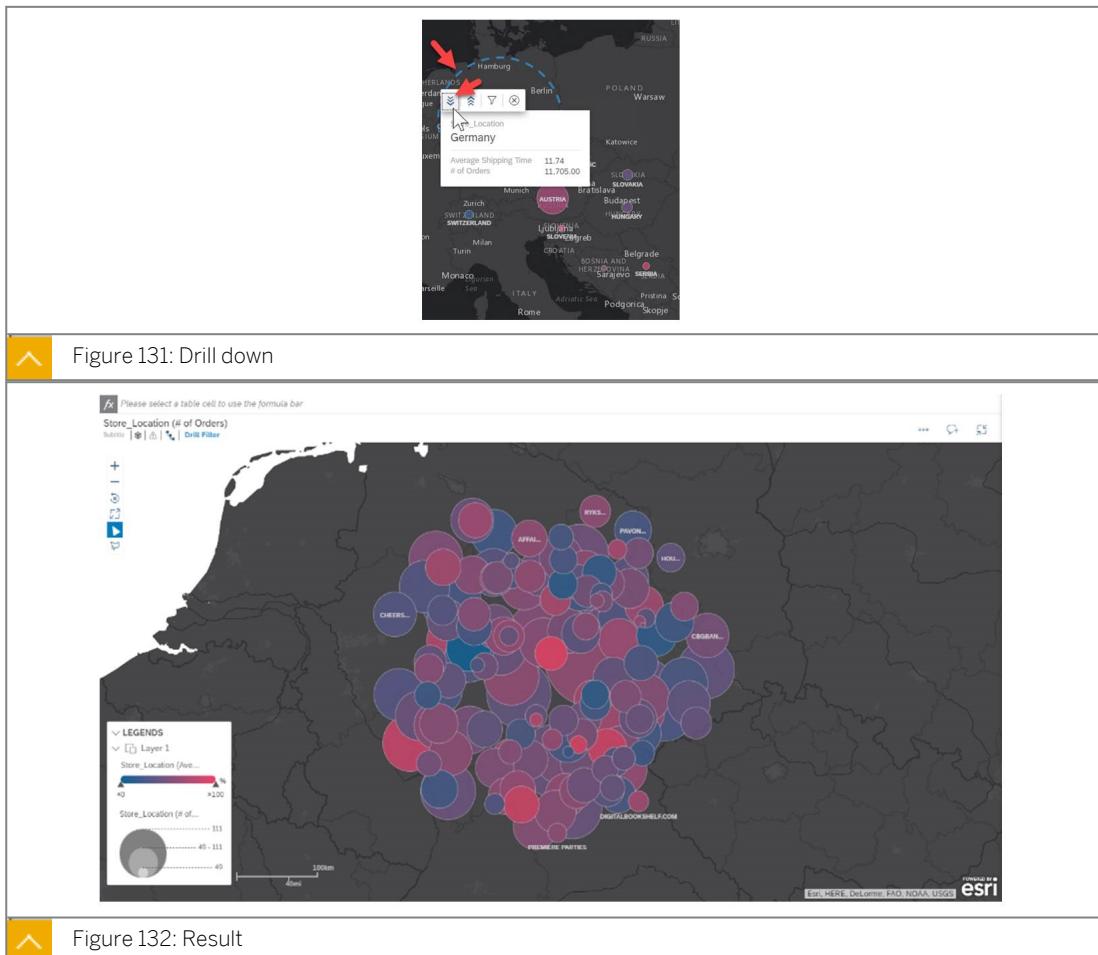


- c) Click outside the *Edit Range* dialog.

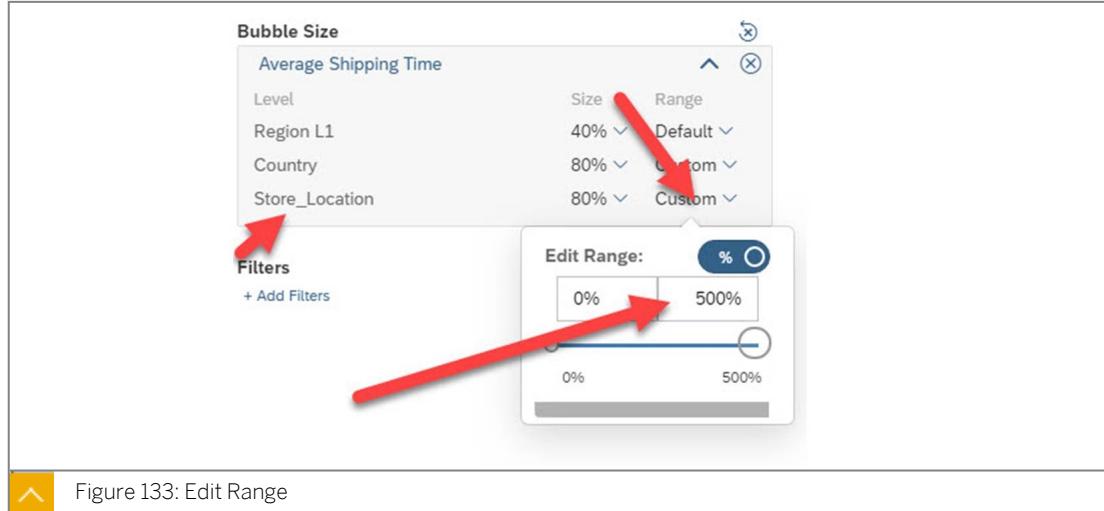


11. Drill into Germany. The level *country* is the last hierarchy level. Drilling into Germany will drill into the data points of Germany showing the individual store locations.
- Choose the *Outlier Ring* of Germany.
 - Choose the *Drill Down* icon.

Duplication is prohibited.



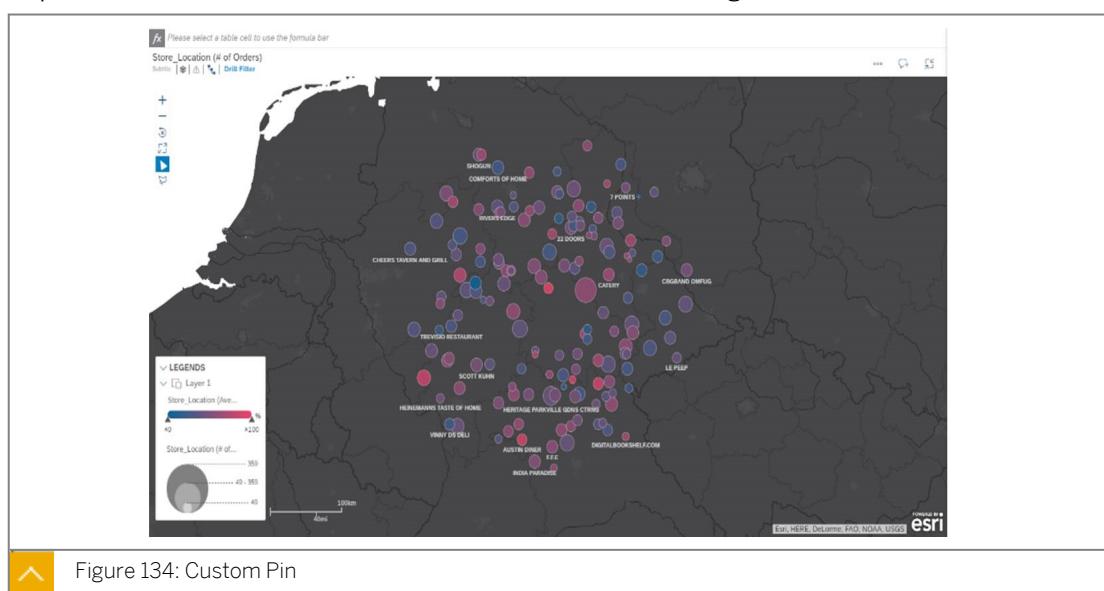
12. See that Germany contains multiple stores that you supply to. However, due to the large number of stores, it is very hard to see the various stores. Increase the range to spread out the number of orders you are looking at.
- Choose *Default* for the *Store_Location* Level.
 - Increase the *Max Range* to 200%.



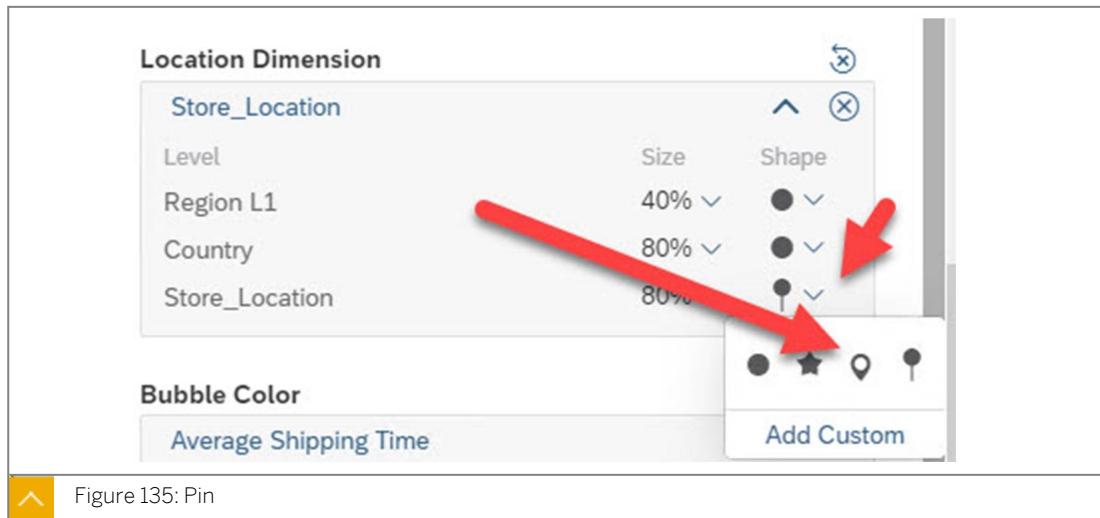
Note:

This will make each store in Germany look much smaller.

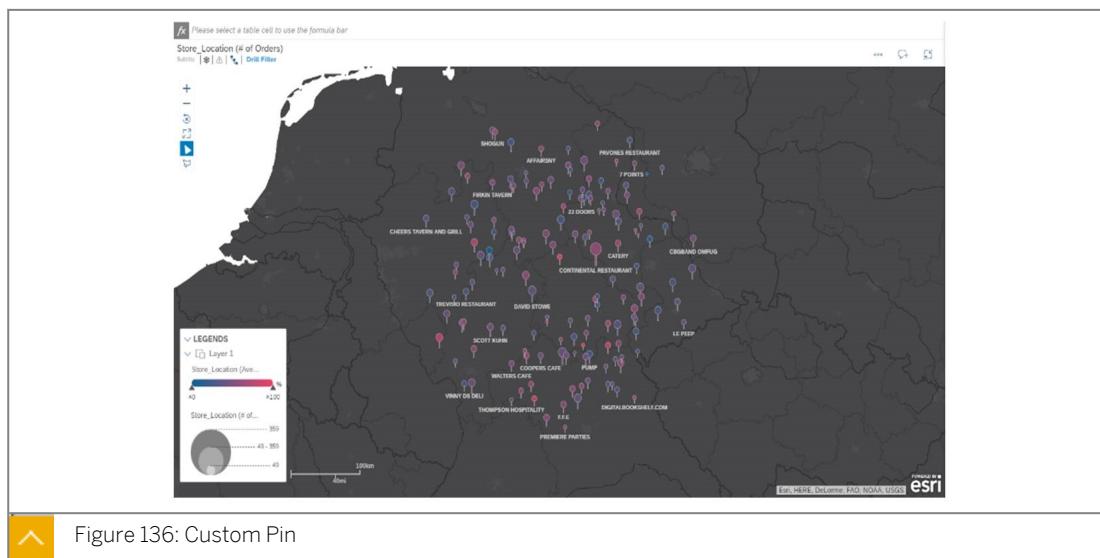
- c) Click outside the *Edit Range*: dialog.
 - It is much easier to differentiate the various stores.
13. Give the stores a custom pin so that you know you are looking at your various customers instead of an aggregation of multiple customers on higher levels.
- a) Expand *Store_Location*, under *Location Dimension* on the right.



- b) Expand the *Store_Location* shape.



c) Choose the *Pin* icon.



14. You can see the average shipping time based on the color, it would be interesting to see the correlation between the number of orders, and what the reasons of delay were based on the total number of orders that were shipped to a store.

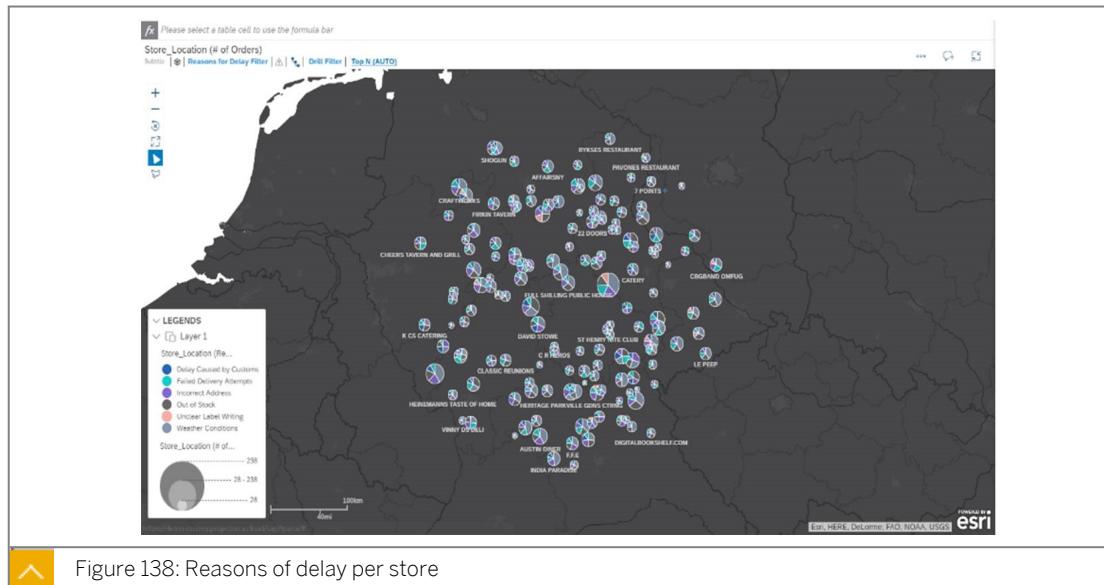
a) Delete the *Average Shipping Time* measure.



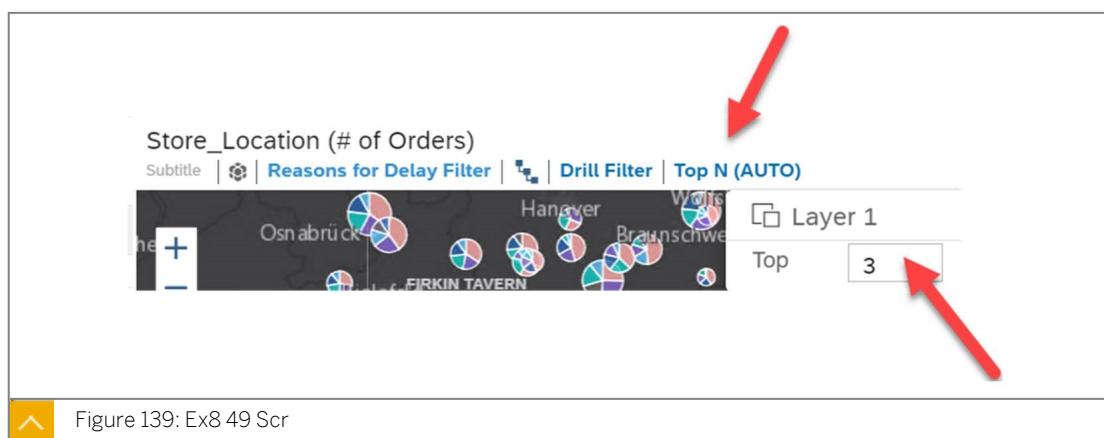
b) Under *Bubble Color*, click + Add Measure/Dimension.

c) Scroll to the bottom.

d) Choose Reasons for Delay... and choose OK.



15. You are only interested in the top three reasons to better tackle the issues within each region
- Choose Top N (AUTO) at the top left of the visualization.
 - In the Top field, enter 3.



c) Press **Enter** on the keyboard.

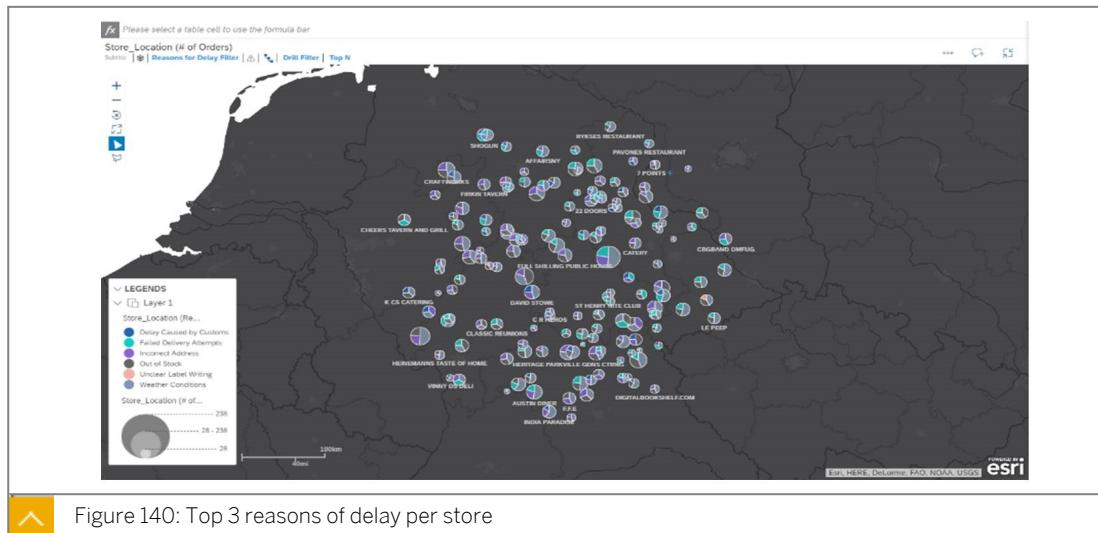


Figure 140: Top 3 reasons of delay per store

In general, you can see that the primary reason for delay for each store is the weather conditions and failed delivery attempts. At times it is due to customs.

16. See that there are several stores that share the same latitude and longitude and therefore have been grouped together. Investigate to see if stores in the same location share the same reasons of delay.

- a) Randomly select seven bubble charts and see what the reason of delay is.

See that based on most of the stores, they share the same reasons for delay. You may want to follow up with the restaurant to see if they would be willing to have one of the other stores in the same location accept deliveries on their behalf in the event that they are not there.

17. Remove the layer from the drill filter and resize the geo map. Name the layer as **Reasons for Delay**.

- a) Choose *Drill Filter* and remove *Layer 1* by choosing X.

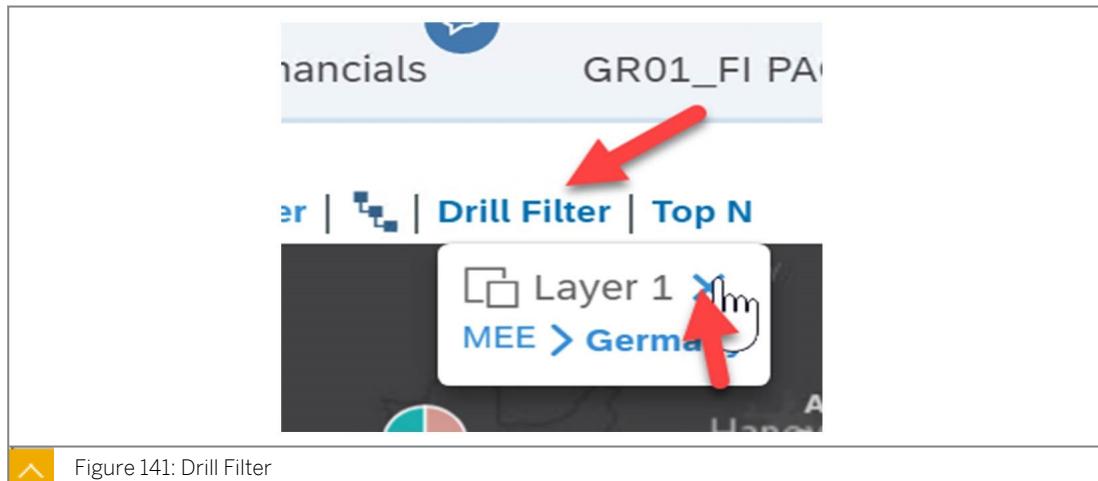
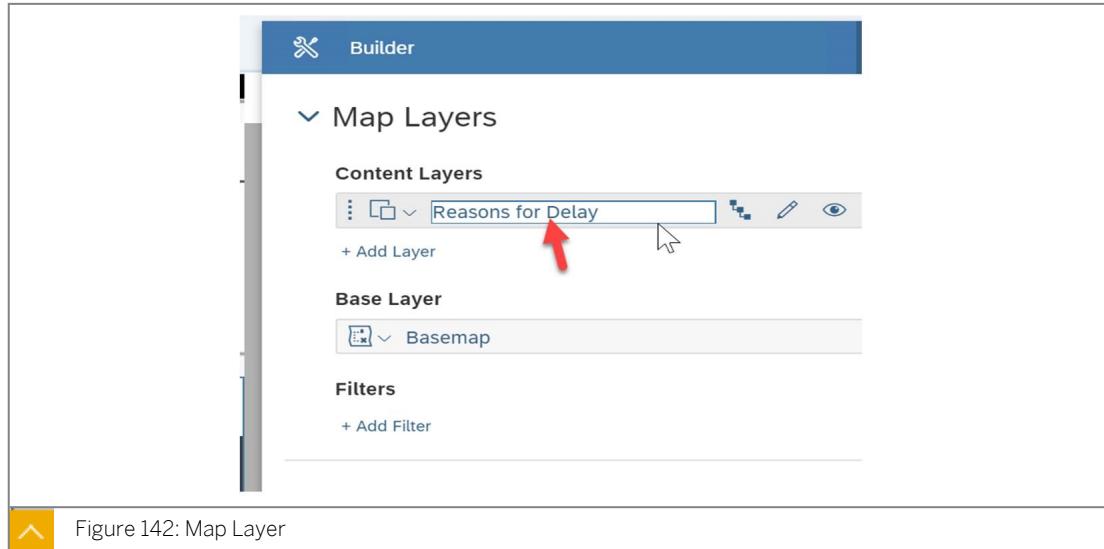
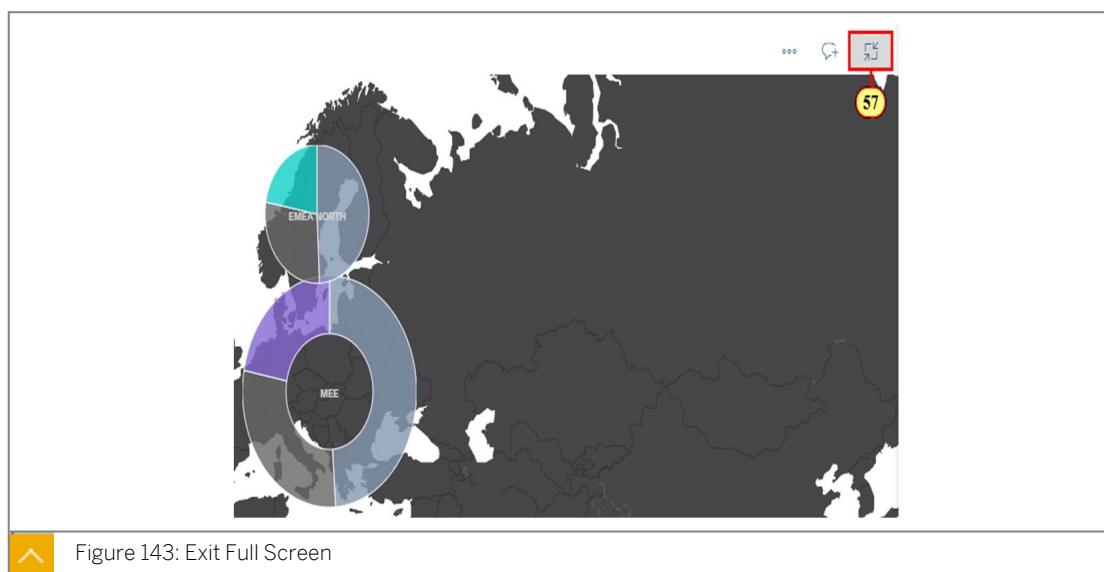


Figure 141: Drill Filter

- b) From the *Builder* pane, rename *Layer 1* to **Reasons for Delay**.



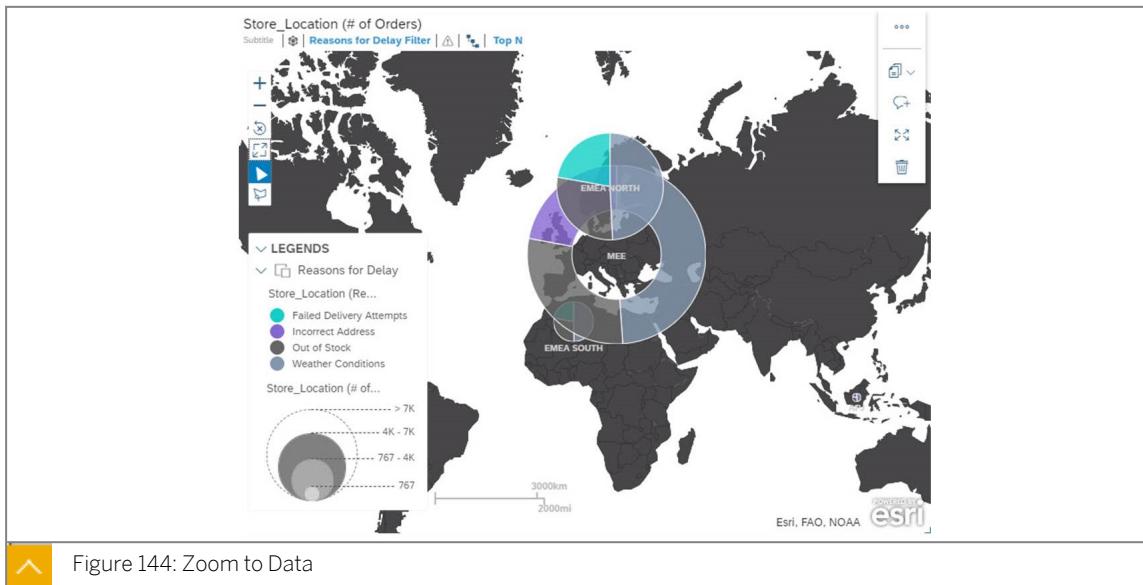
- c) Press **Enter** on the keyboard.
- d) Choose the *Exit Full Screen mode* icon.



- e) Choose the *Zoom to Data* icon.

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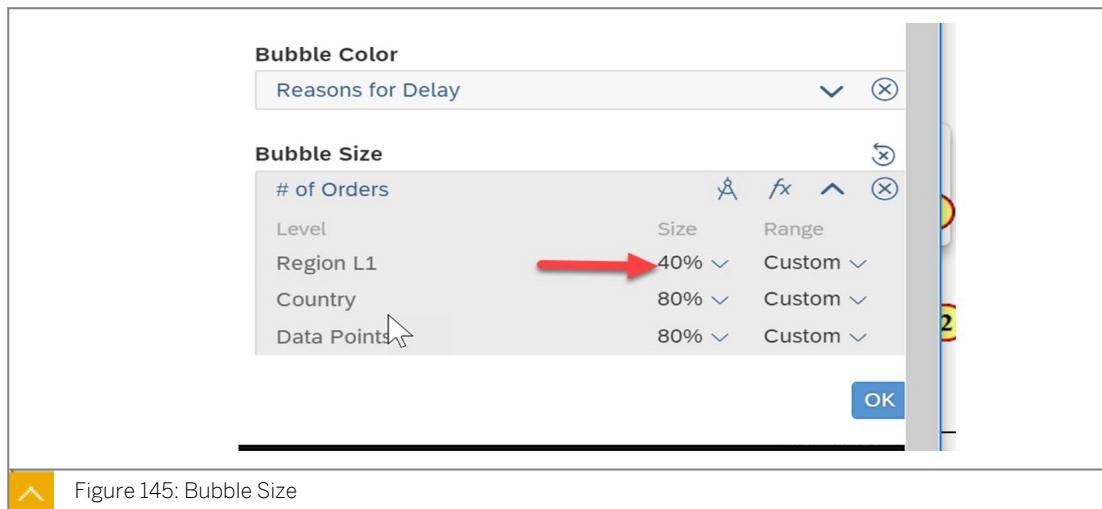
Duplication is prohibited.



See that based on the change in the visualization size, there are some bubbles that are overlapping.

18. Reduce the size to better differentiate the bubbles.

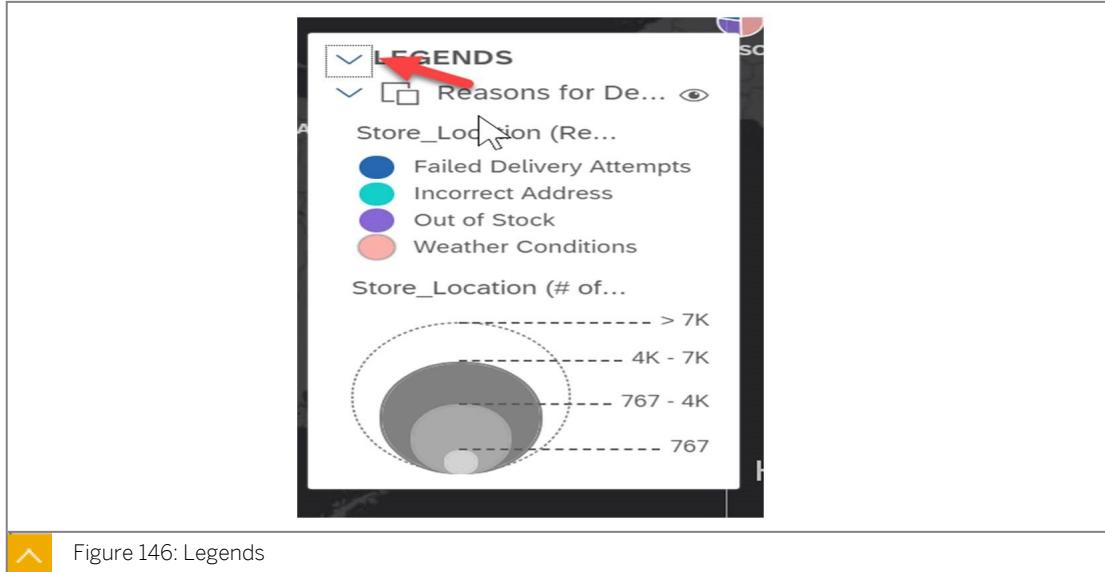
- Choose 80% for Region L1's size.
- Reduce the value to 40%.



- Click outside the Size dialog.
- Choose OK.

See that it is easier to differentiate the different bubbles on the geo map.

19. Collapse the legend if it is expanded to save some space.
- Collapse the Legend.



20. Save the Story as `SAC01_XX_AdvancedFunctions`.

- Under *File*, choose the Save icon. Choose *Save As*. Name the story `SAC01_XX_AdvancedFunctions`.

Alternatively, press **CTRL + Shift + S** on the keyboard to save the story.

You have completed the Geographical Visualizations section!

Task 2: Optional: Use Linked Analysis to Filter Cross Models

You want to be able to use visualizations to drive the analysis for all the visualizations on the page. To do this, you will have to set up linked analysis on a few visualizations.

1. Navigate to the *Financials* tab and use the tree map to set up the linked analysis.

- a) Navigate to the *Financials* tab.
- b) Scroll to the bottom.
- c) Choose the *Sales Revenue per Sales Manager* tree map.
- d) Choose the *Linked Analysis* icon.
If the *Linked Analysis* icon is not visible in the toolbar, choose the *More* icon.
- e) Choose *all Widgets* on this page.
- f) Choose *Filter on Datapoint Selection*.
- g) Choose *Apply*.
- h) Choose *Gabriel Walton* inside the tree map chart.

- i) Scroll to the top.

You can see that based on the selection Gabriel Watson, his sales revenue and gross margin in comparison to last month has been positive. Furthermore, you can see that in comparison to the overall sales revenue for each product category, Gabriel has a positive compound growth rate for juices.

- j) Scroll to the bottom and click anywhere to deselect Gabriel Walton
2. Continue the linked analysis by region and the regions the sales managers operate in.
- a) Choose the *Shipping & Region* tab.
 - b) Choose the table. Go to the *Builder* menu of the table and add an additional row by clicking *Add Measures /Dimensions* Choose *Sales manager*.
 - c) Choose the *Linked Analysis* icon. If the *Linked Analysis* icon is not visible in the toolbar, click the *More* icon.
 - d) Under *Interactions apply to*, choose *Only selected widgets*.
 - e) Under *Settings*, click *Filter on data point selection*.
 - f) Choose *Apply*.
 - g) Choose *Janet Bury*.
You can see that as soon as you chose Janet Bury, all the visualizations on the dashboard get updated. In the geo visualization we can see that LATAM disappeared as she does not have any customers within that region. Furthermore, the reasons for delay for EMEA North has changed.
 - h) Click *Gabriel Walton* once again. Based on your selection, you can see that the size of EMEA North is very small in comparison to what we saw for Janet. It is evident through this, that most of Gabriel's customers are between MEE and EMEA South. We should consider transferring over some of Gabriel's EMEA North customers over to another sales manager as it does not make sense for Gabriel to travel to EMEA North for only a small subset of orders.
 - i) Click the table header to deselect *Gabriel Walton*.
3. Save the story.
- a) Under *File*, choose the *Save* icon.
 - b) Choose *Save*.



LESSON SUMMARY

You should now be able to:

- Perform advanced story design

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Unit 3

Lesson 5

Using Analytic Applications and Analytic Designer



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Use the Analytic Applications/Analytic Designer

SAP Analytic Application and Analytics Design



Analytics Designer completes SAP Analytics Cloud

One Analytics Platform

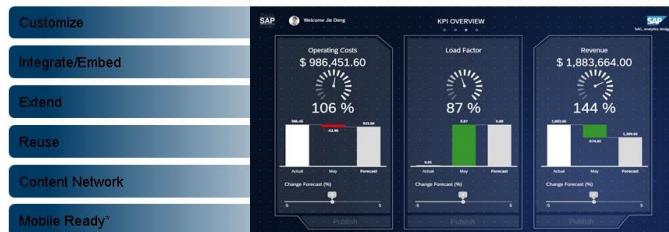
Develop analytic applications that bring together BI, Planning, and Predictive capabilities

Agile Development

Start from existing content, templates* or user stories, and customize, integrate and extend

Delight your users

Guide the users and adjust the widgets behavior based on their expectations



* Planned for the future releases



Figure 147: Analytics Designer

Duplication is prohibited.

Duplication is prohibited.

An analytic application presents data in various forms. The analytic application allows you to navigate data and enables planning. Analytic applications can range from simple static dashboards, showing static numbers, to highly customized applications. These customized applications can contain many options for browsing and navigating data, changing visualizations, and navigating across multiple pages or areas. They can have a customized look and feel that align with customer branding.

The Tool Analytics Designer is the functionality in SAP Analytics Cloud that allows you to create analytic applications. There is a dedicated design environment in SAP Analytics Cloud to create such applications. The term design doesn't refer specifically to the UX or UI design aspect of the application. It is the entire process of creating an analytic application, which includes:

- Defining the data model

- Laying out the screen
- Configuring widgets
- Wiring it all up with the help of custom scripts

Therefore, Analytics Designer is another way to create analytical content in SAP Analytics Cloud.



Tailored for Application Designers

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 user stories

Standardization of analytics content

- Use of the same UI elements provides a consistent user experience
- Create composites, packaging UI elements and application logic (such as headers, footers, toolbars)
- Drive standardization by reusing centrally maintained composites

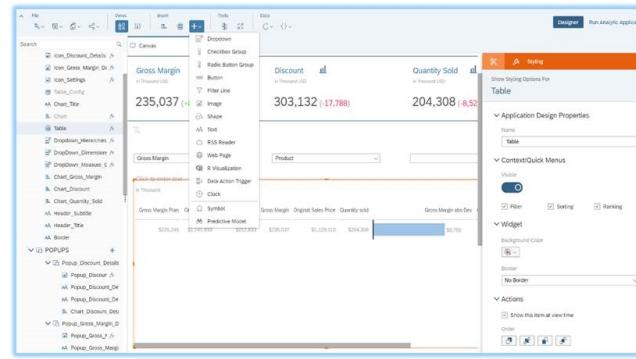


Figure 148: Tailored for Application Designers

An analytic application is always data driven. The foundation of an analytic application is one or more underlying SAP Analytics Cloud models or a direct data access to an OData Service. As a first step, you need to decide whether you want to visualize your data in a table or in a chart. You may choose to add a table or a chart to your analytic application. This triggers another step for picking a model. A model is a representation of the business data of an organization, organized into dimensions and measures. You can add widgets that control data, such as filters, arrange and configure them, and wire them up. Almost all widgets expose events. To add custom logic to the analytic application, you can implement event handlers with the help of the scripting language.

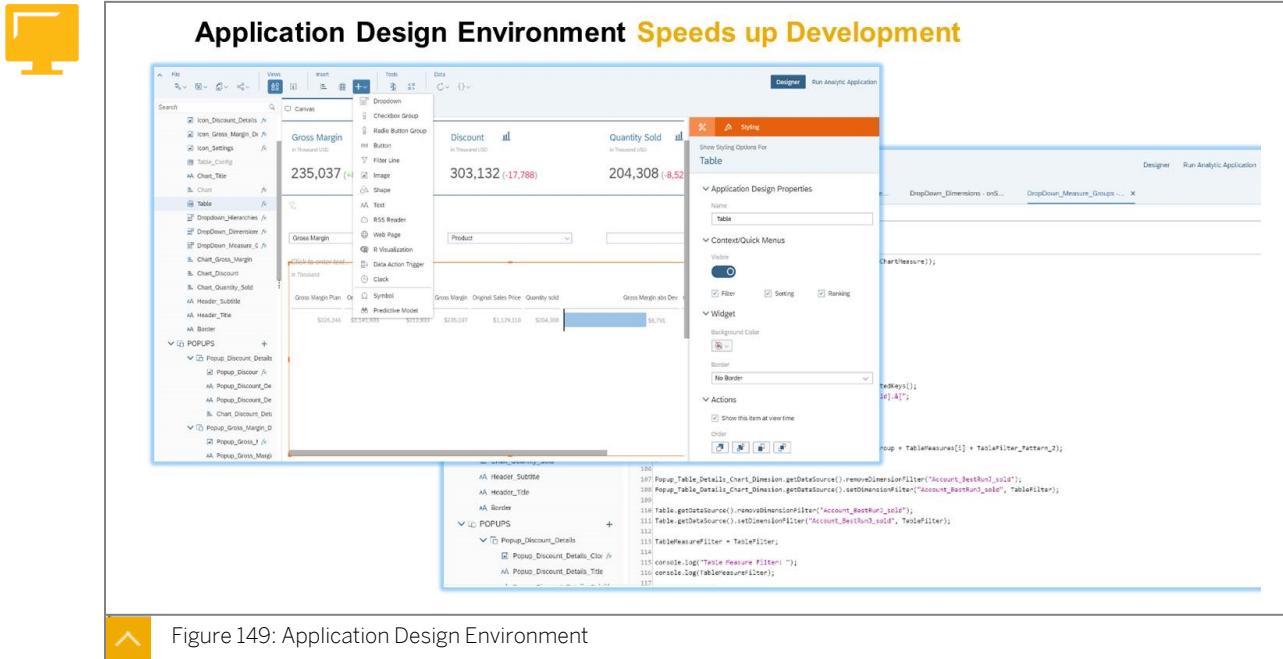


Figure 149: Application Design Environment

Graphical Design

Graphical design allows you to:

- Organize the widgets on the canvas
- Build applications with a rich library of widgets
- Controlled interactions via scripting, for example:
 - Display a pop-up dialog
 - Implement a cascading filter behavior
 - Dynamic switch between chart and table at run time

Advanced Scripting Capabilities

Advanced scripting capabilities include:

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



Customize and Integrate

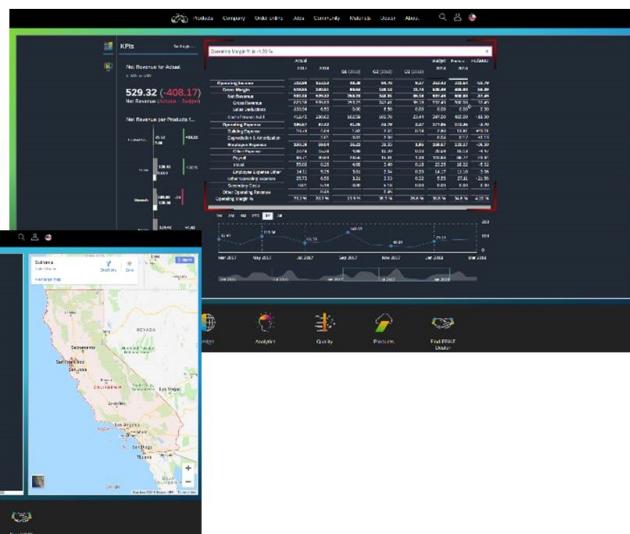


Figure 150: Customization and Integration

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Customize existing capabilities of SAP Analytics Cloud:

- Support Explorer via context menu and with additional scripting capabilities (for example, set default dimensions)
- Create story from Application
- Smart Assist features are scriptable:
 - Time Series Forecasting
 - Smart Grouping
 - Smart Insights
 - Smart Discovery

Seamless Integration with Business Applications:

- Support bi-directional communications via scripting APIs
- Navigation between different applications passing parameters
- App Design Applications embedded into other Business Applications
- App Design Applications can host and communicate with other web pages



Integration with Story, Explorer, and smart capabilities

Integration with stories

Figure 151: Integration with Stories

Integration with stories:

- Stories can be integrated into analytical applications via widget web page
- You can navigate to story via the hyperlink of the widget image, shape, and text
 - Configured at design time like stories
 - Configured by scripting API
 - Parameter can be taken over via scripting API
- Stories can be generated from a chart or table:
 - New stories generated
 - Charts and tables taken over into the generated stories

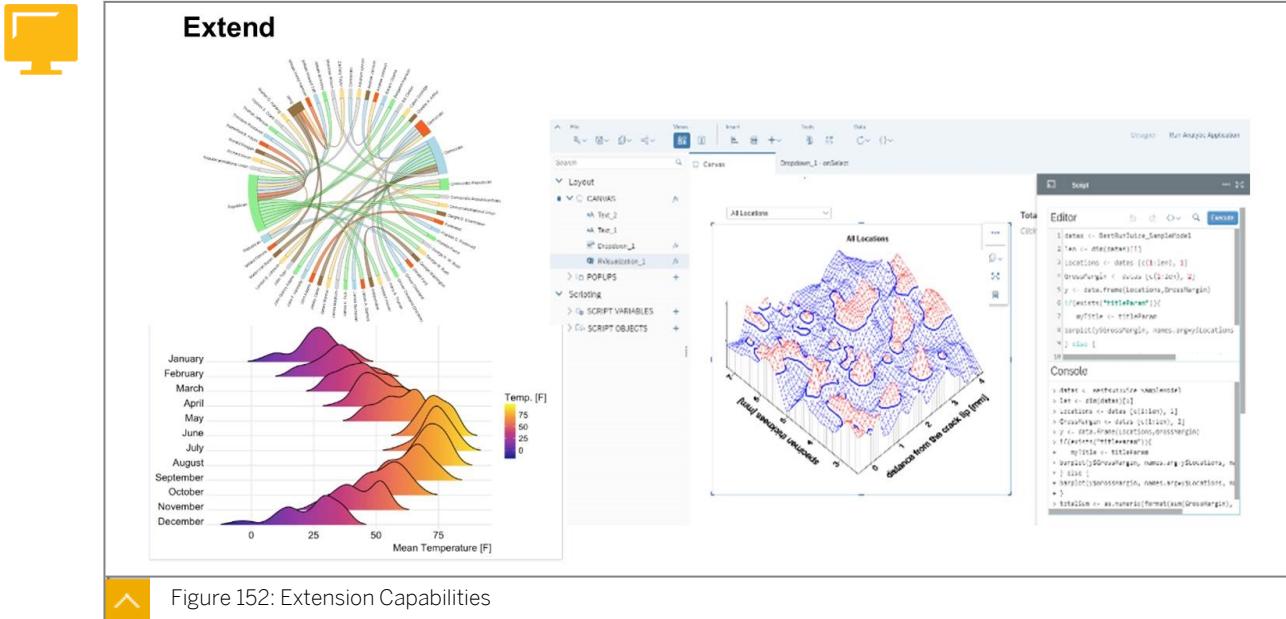


Figure 152: Extension Capabilities

Extension capabilities enable customers and partners to extend the tool.

- **Custom Widgets**
 - Developers can create sophisticated custom widgets
 - Custom functionality
- **Composites**
 - Designers can create a collection of widgets to make a composite
 - Format by drag and drop of standard widgets, logic definition by data binding and scripting
 - Re-usable across applications
 - Decompose complex applications into smaller, manageable parts
- **R Widgets**
 - With scripting access



Complete

- Lets you reuse, customize and extend Analytics Cloud capabilities
- All story widgets and functionality available



Fast

- Connect to existing data
- Graphical design and assisted scripting
- Package and reuse standard components

Integrated

- Planning and predictive capabilities available to be scripted
- OData calls provide easy integration with external systems



Figure 153: Analytical Application: Application Designer

Unit 3

Exercise 7

Create an Application with Online Data Access

Business Example

You are a business user of SAP Analytic Cloud, Application Designer edition. You want to create a dashboard to provide management with an overview of the sales revenue for different regions. You want to analyze the data in a chart or a table format and filter the results based on different product categories.

1. Use Google Chrome to start the SAP Analytics Cloud client.
2. Use the credentials supplied by the instructor to log into SAC.
3. Open the Home screen.
4. Go to the  menu and create an Analytic Application.
5. Insert a Clock widget to the Canvas and resize it.
6. Insert a table and connect it to *Pacifica Order Finance*. In Rows, use a *Region* dimension. In Columns, use a *Sales Revenue* measure.
7. Insert a column chart using the *Pacifica Order Finance* model. Use *Region* as the Dimension. Use *Sales Revenue* as the Measure.
8. Save your first application under *MyFiles* and choose Save. Use the name: **First_APP_XX** (XX is your assigned user number).
9. Run *Analytical Application* and edit the run mode.
10. Add a radio button component and use it to dynamically control the visibility of either the chart or table.
11. Add a drop-down component, populate it with product categories from the data source on application initialization. Use the drop-down to filter the chart and table on selected product category.

Unit 3

Solution 7

Create an Application with Online Data Access

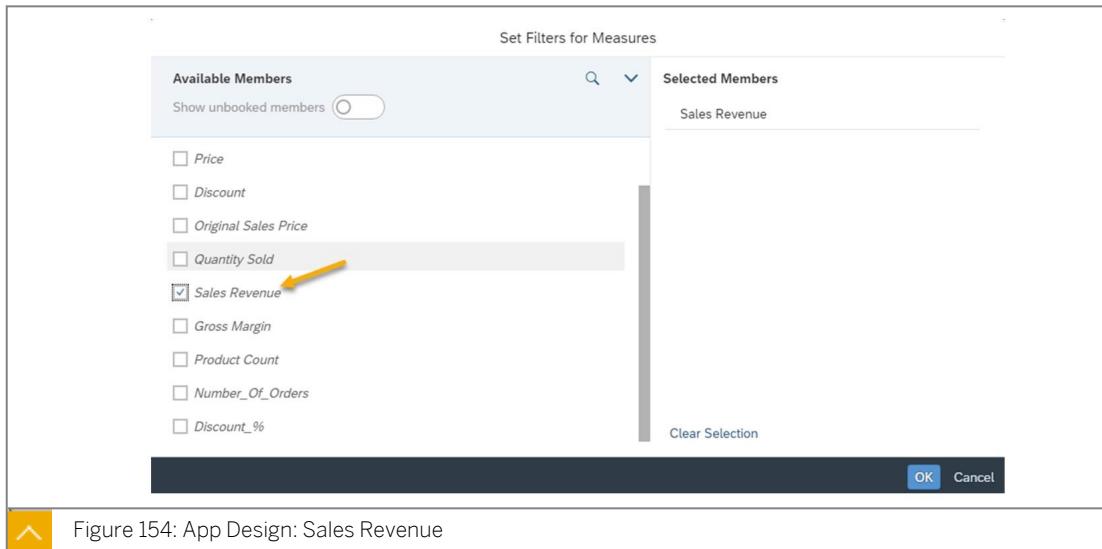
Business Example

You are a business user of SAP Analytic Cloud, Application Designer edition. You want to create a dashboard to provide management with an overview of the sales revenue for different regions. You want to analyze the data in a chart or a table format and filter the results based on different product categories.

1. Use Google Chrome to start the SAP Analytics Cloud client.
2. Use the credentials supplied by the instructor to log into SAC.
3. Open the Home screen.
4. Go to the  menu and create an Analytic Application.
5. Insert a Clock widget to the Canvas and resize it.
 - a) From the menu bar, choose  and More Widgets → Clock
 - b) Choose Designer and toggle off the Show Logo property.
 - c) Resize the Clock to make it smaller and position it on the top-left of the Canvas page.
6. Insert a table and connect it to *Pacifica Order Finance*. In Rows, use a *Region* dimension. In Columns, use a *Sales Revenue* measure.
 - a) From the menu bar, choose .
 - b) In the Select Data Source box, choose *Select other model*.
 - c) Go to *Public* → *SAC01_24* → *SAC01_CONTENT* and choose the *Pacifica Order Finance* model.
 - d) If asked, use the credentials to connect to the SAP HANA system as shown in the following table:

Field	Value
Username	wshana
Password	Welcome1

- e) From the *Builder* panel, add the *Region* dimension to Rows.
- f) Under *Columns*, choose the  icon next to *Measures* and choose the *Sales Revenue* measure.



g) Position the table below the clock.

7. Insert a column chart using the *Pacifica Order Finance* model. Use *Region* as the *Dimension*. Use *Sales Revenue* as the *Measure*.

- a) In the menu bar, choose .
- b) From the *Builder* panel, choose *Add Measure* and choose *Sales Revenue*.
- c) Choose *Add Dimension* and choose *Region*.
- d) Position the chart next to the table.
Your application should look like the following figure:

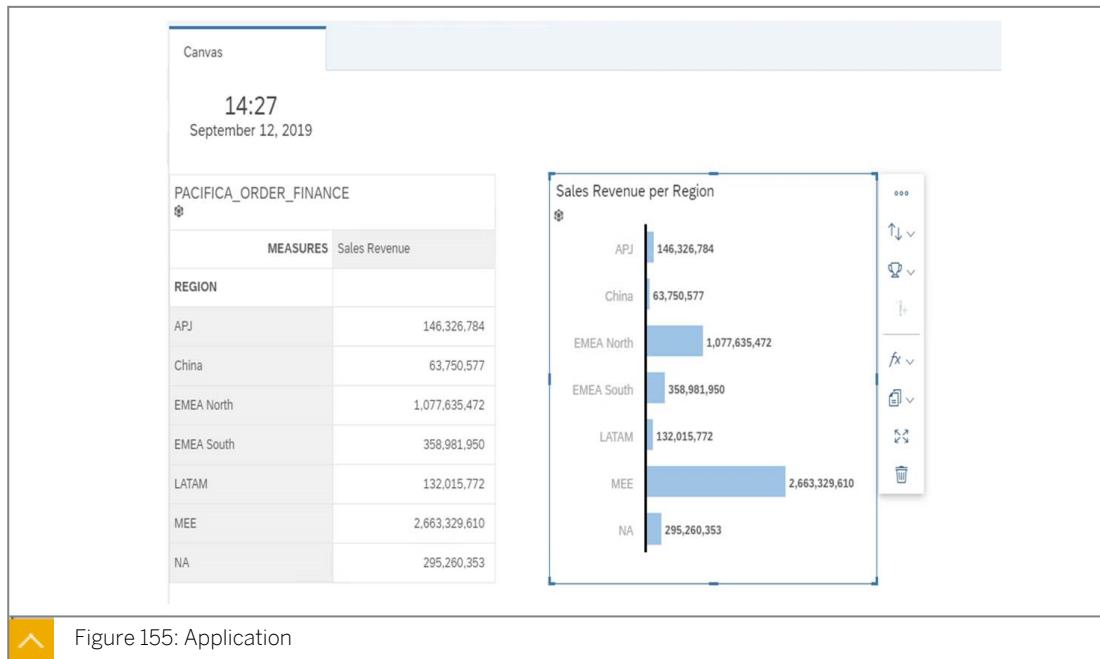


Figure 155: Application

8. Save your first application under *MyFiles* and choose *Save*. Use the name: **First_APP_xx** (XX is your assigned user number).

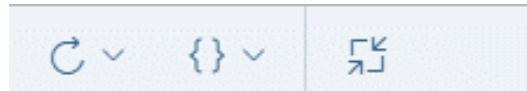
9. Run *Analytical Application* and edit the run mode.

a) From the menu, choose *Run Analytical Application*.

b) Enter the SAP HANA system credentials as shown in the following table:

Field	Value
Username	wshana
Password	Welcome1

c) By default, the application runs in *Present* mode. In the *Present* mode, a toolbar



is visible. Use the toolbar to refresh the

application, edit prompts, or switch to full screen.

To change the run mode of the application, edit the URL in the browser and change the run mode from *Present* to *Embed*. The toolbar is not available in *Embed* mode.



Figure 156: URL

d) Close the *Runtime Browser* tab.

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10. Add a radio button component and use it to dynamically control the visibility of either the chart or table.

a) Choose  and insert a *Radio Button Group*.

b) In the *Builder* panel, edit the *Radio Button* group values to *Chart* and *Table*. Select *Chart* as the default value and choose *Apply*.

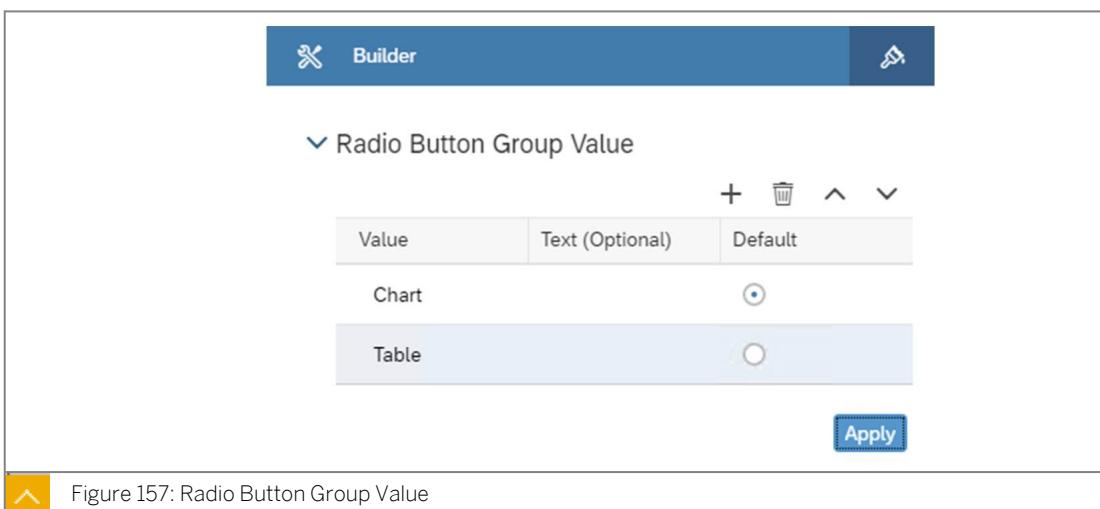


Figure 157: Radio Button Group Value

c) Position the radio button group to the right of the clock, and resize if necessary.

d) Select the table and in the *Styling* panel, deselect the *Show this item at view time* option.

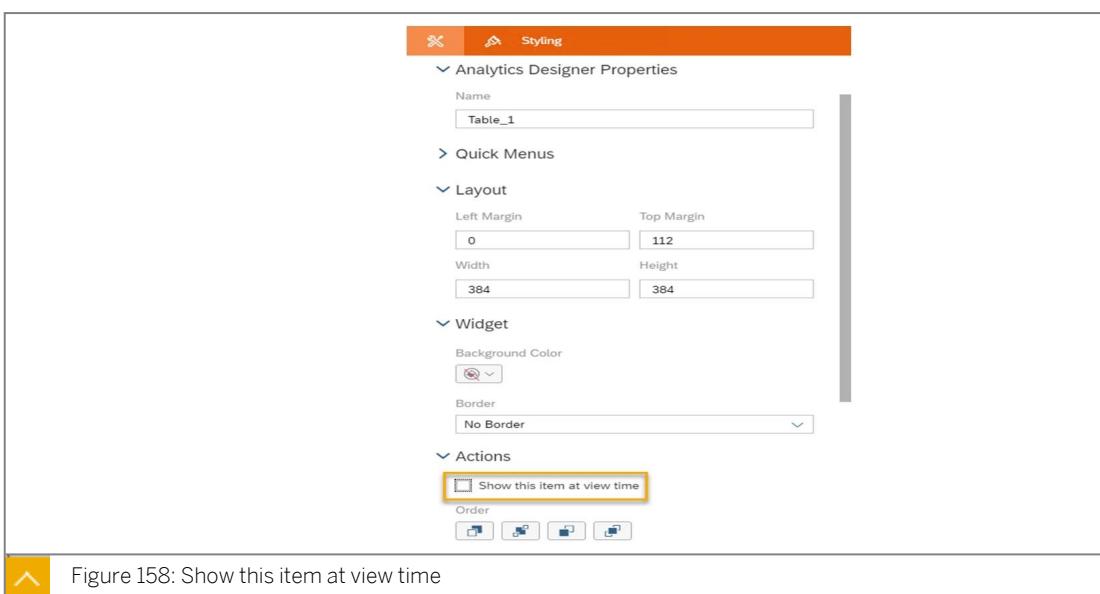


Figure 158: Show this item at view time

e) Position the chart so that it is directly on top of the table. Resize the table and chart if necessary to ensure they are the same size.

f) From the *Layout* panel, select the *Radio Button Group* and choose  to open the script editor.

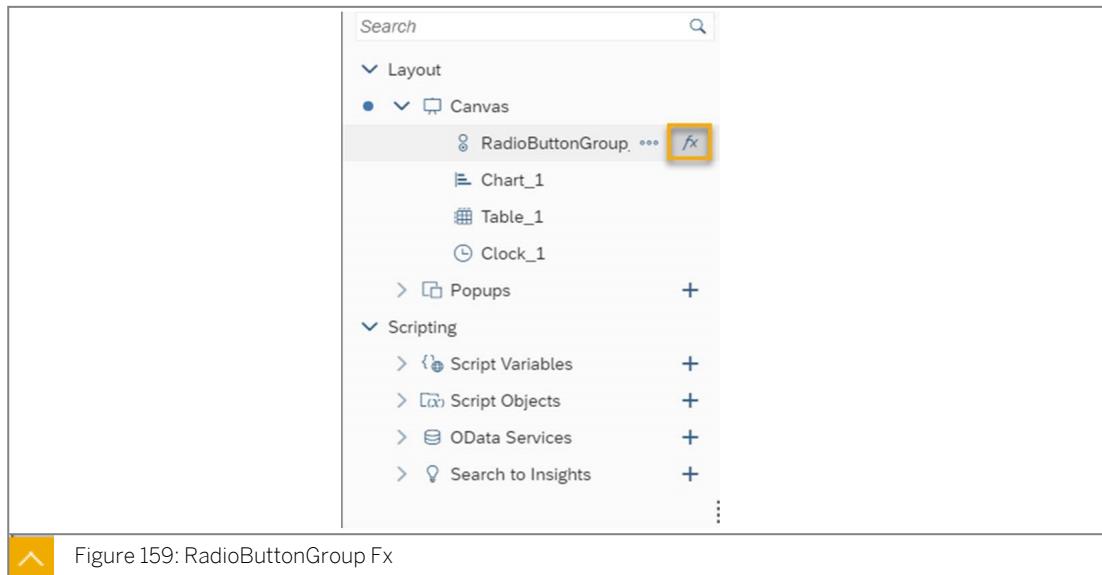


Figure 159: RadioButtonGroup Fx

- g) Add the following script to the `onSelect()` function of the radio button group.

```
/* We use triple equals "===" for comparison because SAP Analytics Cloud
Analytics Designer has no automatic type casting. With triple equals,
both the value and type must be the same for the result to be # true. The
triple equals is known as the strict equality comparison operator.*/

if (RadioButtonGroup_1.getSelectedKey() === "Chart") {
    Chart_1.setVisible(true);
    Table_1.setVisible(false);
} else {
    Chart_1.setVisible(false);
    Table_1.setVisible(true);
}
```

- h) Save the changes to your application.
 i) From the menu, choose *Run Analytical Application*.
 j) Enter the SAP HANA system credentials as shown in the following table:

Field	Value
Username	wshana
Password	Welcome1

- k) Use the radio button to dynamically switch between *table* or *chart*.
 At runtime, your application will look like the following figure:

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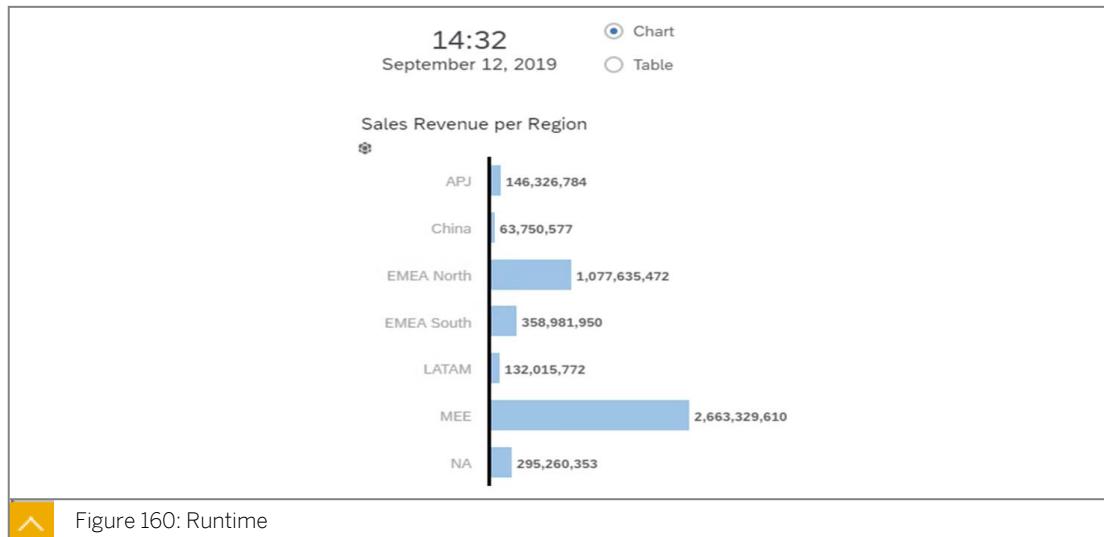


Figure 160: Runtime

11. Add a drop-down component, populate it with product categories from the data source on application initialization. Use the drop-down to filter the chart and table on selected product category.
 - a) Choose and insert a drop-down.
 - b) Choose and insert a text.
 - c) Position the drop-down next to the radio button group, and place the text box directly above the drop-down box.
 - d) Place the cursor inside the text box and enter **Category**, which will serve as a label for the drop-down.
 - e) Choose next to Canvas and choose the **onInitialization** event.

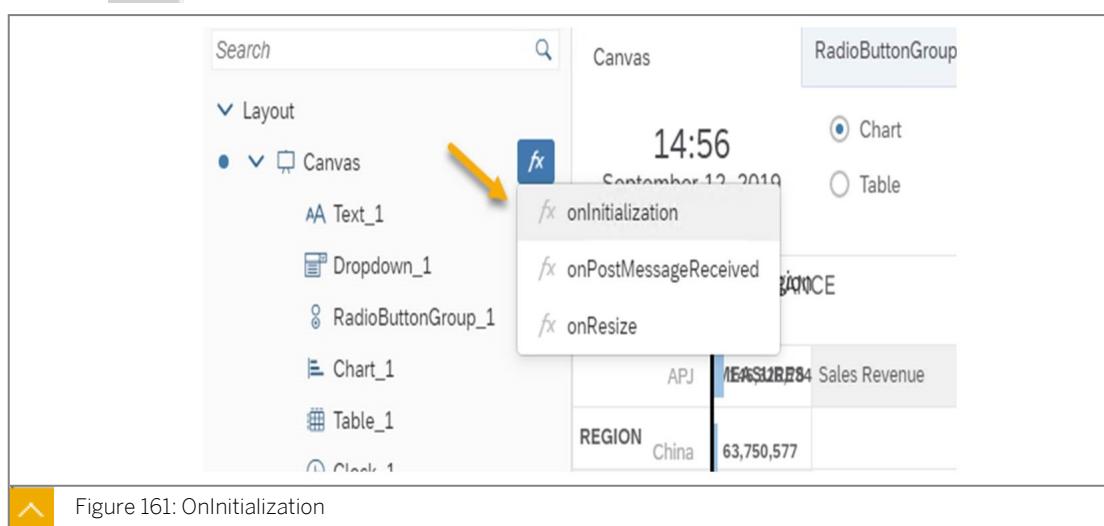


Figure 161: OnInitialization

- f) Add the following script in the application *onInitialization* event:

```
/* The script uses the datasource of the Table and reads the members of
the Product Category dimension and adds them to an array. We later loop
through the array, read the dimension members and populate the Dropdown */

var categories = Table_1.getDataSource().getMembers("Product_Category");
for (var counter = 0; counter < categories.length; ++counter) {
    Dropdown_1.addItem(categories[counter].id,
categories[counter].description);
}
```

- g) Choose  next to *Dropdown_1*. Add the following code to the *onSelect* event of the drop-down component:

```
/* The value from the dropdown is read and used to set a dimension filter
for both the chart and the table. */

var selected_category = Dropdown_1.getSelectedKey();
Chart_1.getDataSource().setDimensionFilter("Product_Category",
selected_category);
Table_1.getDataSource().setDimensionFilter("Product_Category",
selected_category);
```

- h) Save the changes to your application.
i) From the menu, choose *Run Analytical Application*.
j) Use the drop-down to filter the table or the chart for different product categories.

Your application will look like the following figure:

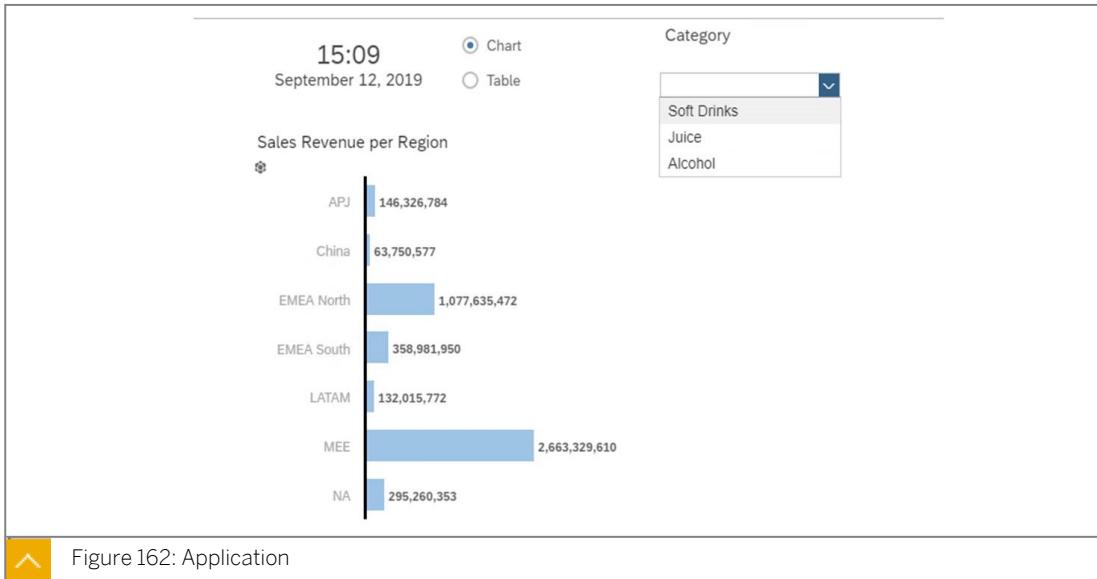


 Figure 162: Application



LESSON SUMMARY

You should now be able to:

- Use the Analytic Applications/Analytic Designer

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Unit 3

Lesson 6

Introducing SAP Analysis for Microsoft Office, Edition for SAP Analytics Cloud

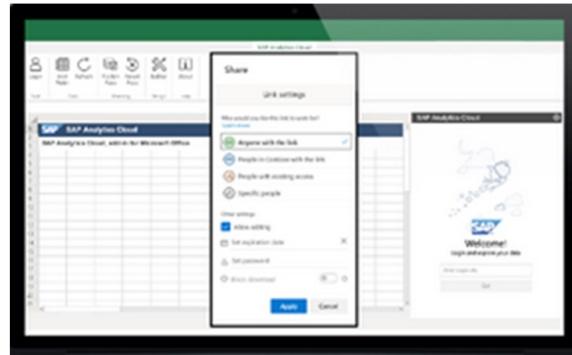


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe SAP Analysis for Microsoft Office, edition for SAP Analytics Cloud

Analysis for Office



Cloud based edition, by Microsoft Store

SAP Analytics Cloud, add-in for
Microsoft Office

Desktop Edition, by SAP Support

SAP Analysis for Microsoft Office



Figure 163: Two Complementary Add-ins for Microsoft Excel

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New Microsoft Client for SAP Analytics Cloud

The screenshot shows the SAP Analytics Cloud interface within the Microsoft Office 365 environment. On the left, there's a grid-based data view. In the center, a 'Share' dialog box is open, allowing users to share the document with 'Anyone with the link', 'People in this office', or 'Specific people'. Below the share dialog is a 'SAP Analytics Cloud' welcome screen with a 'Log in and explore your data' button.

Figure 164: SAP Analytics Cloud: Add-in for Microsoft Office 365

- Extend SAC with Excel
- Leverage MS office technology further
- Support all devices; some users on Mac, mobile, and can't offer solution
- Deploy – make it easy, integrate to MS store and roll out to company
- Focus on strength
- Can use Analysis Office and add in on same desktop
- Not a replacement but an enhancement



Prerequisites

- **SAP Analytics Cloud deployment on Cloud Foundry only with the domain sapanalytics.cloud**
- **Access to MS Office store or**
- **Get MS Office 365 license**
- **Get Data-acquired in SAP Analytics Cloud models**
- **Supported browsers: Chrome, Firefox, Safari, Edge**

The screenshot displays an 'Operating Income Plan' table within the SAP Analytics Cloud add-in. The table has columns for ENTITY, ACCOUNT, Version, Budget, Actual, Forecast, and Model. The data includes financial details like Gross Profit, Net Revenue, and Operating Expenses. To the right of the table, there are filtering and column selection tools, such as 'Rows' (set to 'ENTITY'), 'Columns' (set to 'Version'), and a 'Filter' dropdown set to 'ACCOUNT'.

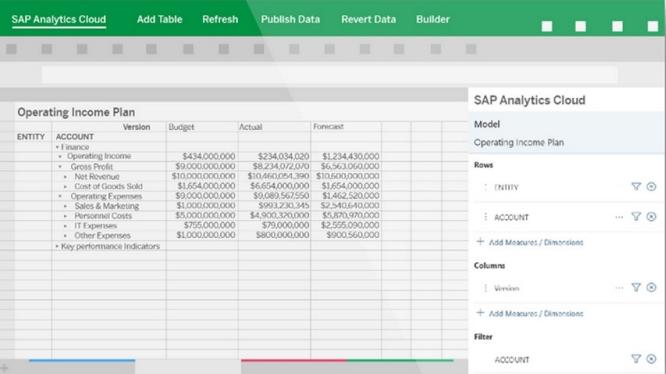
Figure 165: SAP Analytics Cloud : Add-in for Microsoft Office 365

This new add-in will enable you to integrate SAP Analytics Cloud with Microsoft Excel. This means that you can leverage the familiar functionality of Microsoft Excel, allowing you to get even more out of the SAP Analytics Cloud's analytics and planning capabilities.

The new Analysis for Office Excel component provides an integration of SAP Analytics Cloud with the web-based option as well as the desktop-based option of Microsoft Excel. You can now use

the full flexibility to further analyze your native SAP Analytics Cloud models in combination with Microsoft Office Excel 365.

The Installation will be accessible directly from the Microsoft Store as an application, and it is suited for all SAP Analytics Cloud customers looking for agility and flexibility in regards to the deployment, as it does not require any setup or installation. It is also ready for multi-device/platform usage. SAP Analytics Cloud, add-in for Microsoft Office is supported on any Windows or Apple device.



Key Features

- Report on SAP Analytics Cloud models
- Write back data into different versions
- Pivoting and filter features
- Add any calculations
- Use formulas
- Collaborate

Figure 166: SAP Analytics Cloud : Web Add-in for Microsoft Office 365

The SAP Analytics Add-in can be directly integrated into Microsoft Office, unlike other products (e.g., SAP Analysis for MS Office), the new add-in is based on Microsoft's latest Javascript API. This enables the add-in to run virtually on all available Microsoft platforms, particularly on Excel online and the Excel desktop apps on Windows and MacOS.

Also, it is very easy to deploy. It does not require any installation or packaging of software as it's a cloud-based deployment. The admin will be able to activate and easily distribute the add-in to their users. The users will automatically see the add-in with the new ribbon tab in their Excel environment. All updates will be automatically pushed to users and no further action required.

As an new tool of SAP Analytics Cloud the Add-in will be continuously updated.

As a Application you will find the download at the Microsoft Office Store

Analysis for Office

The screenshot shows a Microsoft Excel spreadsheet titled 'Book1' with data about product sales. The columns include Product, Gross Margin, Discount, Original Sales Price, Price (fixed), and Quantity sold. A formula in column E calculates the original sales price based on gross margin and discount. The 'Analysis' ribbon tab is selected, and a 'Design Panel' is open on the right side. A 'Select Data Source' dialog box is overlaid on the spreadsheet, listing available connections such as C4SPACE, HTTP_HANA, and SACDEV_Uve Data Connections.

Figure 167: Analysis for Office

SAP Analysis for Microsoft Office, edition for SAP Analytics Cloud, is a Microsoft Office Add-In that allows multidimensional analysis of SAP Analytic Cloud models as data sources.

Analysis allows multidimensional analysis of data sources in Microsoft Excel and MS Excel workbook application design. It is available for the following Microsoft Office versions:

- Microsoft Office 2016 (Excel and PowerPoint)

Using the design panel, you can analyze the data and change the view on the displayed data. You can add and remove dimensions and measures from A SAC Connection to be displayed easily with drag and drop.

You can refine your analysis using conditional formatting, filter, prompting, calculations and display hierarchies. You can also add charts to your analysis.

For more sophisticated workbook design, the Analysis plug-in contains a dedicated set of functions in Microsoft Excel to access data and meta data of connected systems. There are also several API functions available that you can use with the Visual Basic Editor, to filter data and set values for variables.

You can also plan business data based on the current data in your data source. You can enter the planning data manually in existing data cells and you can work with public and private versions in the design panel for planning.

Analysis must be installed on your local machine. You can connect directly to an SAP Analytics Cloud system.



Note:

The following restrictions apply for the SAP Analytics Cloud models in Analysis:

Analysis only supports the usage of the default currency (similar to cloud chart behavior).

You cannot access non-converted currencies (similar to a cloud table).

You cannot consume defined thresholds from the model definition.

Analysis cannot visualize SAP Analytics Cloud data locking. Therefore, you can change the data in locked cells in Analysis, but you cannot recalculate and save the changed data. Comments added to SAP Analytics Cloud models are not displayed in Analysis.



- Using preconfigured user accounts of SAP Analytics Cloud
- User must set on connected SAC Analytics Cloud
- SAC Analytics Cloud users are used for local usage of AFO



Figure 168: User Management and Authentication

Using the SAC Account to get data from SAC Analytics Cloud to Analysis for SAC.



A	B	C	D	E	F	G	H	I	J	K	L
Product	Gross Margin	Discount	Original Sales Price	Price (fixed)	Quantity sold						
2	= 1,000,000 USD	* 1,000,000 USD	* 1,000,000 USD	* 1,000,000 USD	* 1,000,000						
3	(+) Alcohol	34.03	52.31	211.82	0.05	57.90					
4	(+) Carbonated Drinks	62.08	26.89	172.82	0.05	48.60					
5	(-) Juice	137.51	222.13	737.19	0.10	95.59					
6	Orange with pulp	112.06	192.20	612.05	0.02	66.24					
7	Orange no pulp	0.64	1.04	3.39	0.01	0.92					
8	Lemonade	7.00	7.00	31.33	0.01	9.11					
9	Apple Cider	6.70	11.72	35.59	0.02	3.85					
10	Mango juice	0.48	0.20	2.04	0.01	0.44					
11	Pineapple Juice	1.99	0.76	7.59	0.01	2.66					
12	Watermelon Juice	3.31	6.30	19.65	0.01	5.41					
13	Pomegranate	3.56	4.65	17.89	0.01	4.92					
14	Strawberry Juice	0.79	0.23	3.48	0.00	1.14					
15	Apple Juice	0.79	1.00	4.20	0.01	1.00					
16	(+) Others	1.42	1.80	7.28	0.01	2.22					
17	Overall Result	235.04	303.13	1,129.11	0.21	204.31					
18											
19											
20											
21											
22											
23											
24											
25											

Figure 169: Analysis for Office

After connecting to the cloud you are able to use Analysis for office. It utilizes the same analytic and planning functionalities that so many users are familiar with when using with other datasources such as BW and S/4 HANA. There have been only a few noticed limitations:

- Filter on attributes: Filter per member is not available

- No Flat Hierarchy display in change mode
- No singular leaves while the workbook is in change mode (input-ready)
- Attribute on Account Dimension Limitation. The individual (Design Panel) inserted attribute in the Account dimension cannot be seen in Analysis for Office

The screenshot shows a Microsoft Excel window titled "Book1 - Excel". The ribbon is visible at the top with tabs like FILE, HOME, INSERT, PAGE LAYOUT, FORMULAS, DATA, REVIEW, VIEW, LIVE OFFICE, EPM, Data Manager, ANALYSIS, and ANALYSIS DESIGN. The ANALYSIS tab is selected. On the left, there's a sidebar with options like Insert Data Refresh, Source +, All+, Data Source, Actions, Data Analysis, and Display. The main area shows a table with columns A through M. Row 1 has headers Version, Actual, Forecast. Rows 2 through 6 show data for Finance, Key Performance Indicators, Operating Income, Gross Profit, and Operating Expenses. The "Version" column contains entries like NOT_EXIST, NOT_EXIST, * 1,000,000 USD, * 1,000,000 USD, and * 1,000,000 USD respectively. The "Actual" and "Forecast" columns show numerical values. To the right of the table, an "Analysis" dialog box is open. It displays "Versions for: LU0 Model for Operating Income" and "Category: All". It has sections for "Public Versions" (Actual, Forecast) and "PROPERTIES" (General, History). Below the properties, it says "No Properties Available". At the bottom of the dialog, there are tabs for General, Components, Design Rules, Versions, and Comments.

Figure 170: Analysis for Office

SAP Analysis for Microsoft Office, edition for SAP Analytics Cloud, is a Microsoft Office Add-In that allows exclusively multidimensional analysis of SAP Analytics Cloud models. With Analysis for Microsoft Office, you can create your own private versions, add planning data, and publish your planning data back to the SAC model.

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Duplication is prohibited.

Unit 3

Exercise 8

Create an Analysis for Office document with SAC

To demonstrate how SAC data can be used in Analysis for office, you want to create a simple Analysis for Office Document. In this exercise you will use the Analysis for Office calculation function. You want to use the Analysis for Office Style formatting options All Data for the task should be imported from SAC Data Model.

1. Launch Analysis for Office SAC.
2. Insert Data from the SAC Model.
3. Use Analysis for Office Function.
4. Use Analysis for Office calculation function.
5. Save the Workbook.

Task 1: Launch Analysis for Office SAC

Launch Analysis for Microsoft Excel

1. On the lower left, click the Microsoft Windows Start menu.
2. On the upper right, enter **Analysis** in the search field.
3. Select *Analysis for Microsoft Excel*.
4. If prompted, choose *Blank Workbook*.
If a *Login to BusinessObjects* dialog displays, press *skip*.
5. Place your cursor in cell A5.

Task 2: Insert Data from the SAC Model

Connect to SAC.

1. Go to the *Analysis* tab.
2. On the upper left, choose the drop down next to *Insert Data Source* and choose *OK* if prompted.
3. On the upper left, choose *Select Data Source for Analysis*.
4. During the logon, a *SAP BusinessObjects BI Platform* dialog box displays, choose *Skip*.
5. In the *Select Data Source* dialog box, right-click in the area where you see existing connections and select *Create New SAC Connection....*
6. Choose *OK*.
7. Ensure that your connection is selected and click *Next*.

8. Log on using your SAC class credentials.

Table 4:

Field	Value
User	A## or B##
Password	Welcome1

9. In the search field, enter **SACAD1_Model002** and press *Enter*.
10. Select the Model **SACAD01_Model002**. The Initial view of the Datasource displays, begin in cell A5.
11. Go to the *Analysis Design* panel and insert the product dimension to the Rows using drag and drop.
 The *Analysis Design* panel on the right shows you the Data and also enables you to choose different data to be used in the Analysis for Office Workbook.

Task 3: Use Analysis for Office Function

1. Go to cell **A1** and mark it.
2. Go to the *Analysis Design* panel. On the upper left use the drop down menu for *Filter* and select *Product*.
 You find the *Analysis Design* panel on the upper right side at the ribbon menu of *Analysis for Office*.
3. Click cell **B1** to access the associated Filter.
4. Click *Filter* and select *Juice and Alcohol*.

Task 4: Use Analysis for Office Calculation Function

1. Go to table on the left part of the tool.
2. To expand the values for *Juices*, choose the + icon.
3. Go to the upper right of the *Analysis Designer* panel and click *Analysis*.
4. Click on **B5**.
5. Go to *Calculation*, and choose *Add Advanced Calculation*.
6. Name the calculation **GM incl Taxes**.
7. Insert the value, `**Gross Margin**` * **1.19**.

Task 5: Save the Workbook

1. Navigate to the *File* menu.
2. Use *Save as* to save the file to your computer / Desktop.

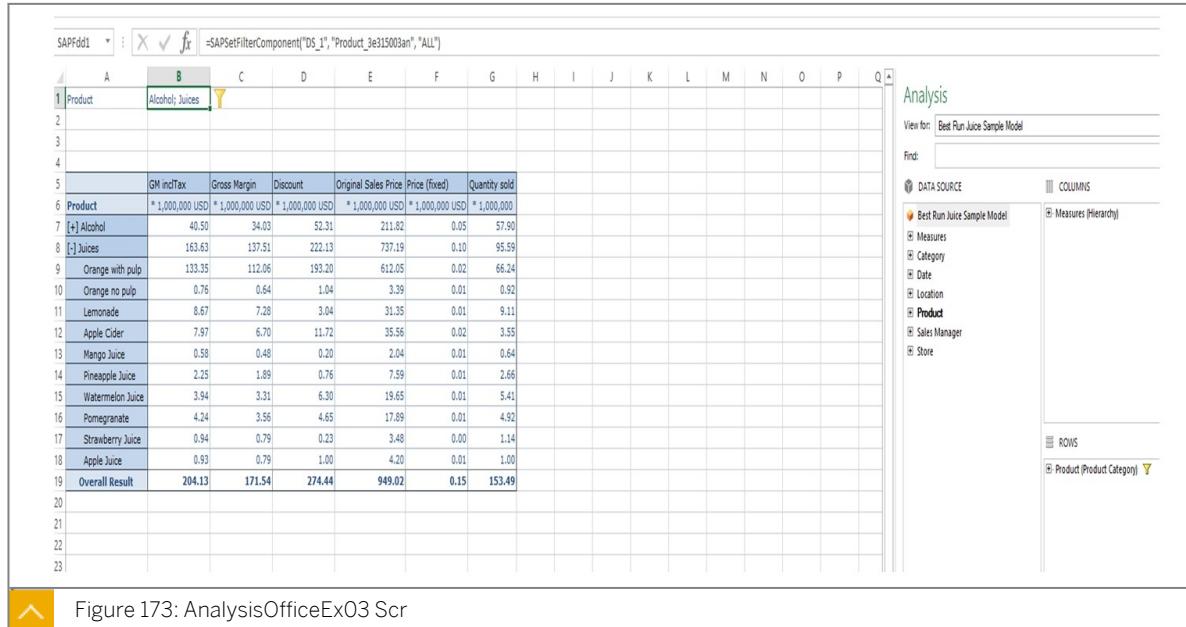


Figure 173: AnalysisOfficeEx03 Scr

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Duplication is prohibited.

Unit 3

Solution 8

Create an Analysis for Office document with SAC

To demonstrate how SAC data can be used in Analysis for office, you want to create a simple Analysis for Office Document. In this exercise you will use the Analysis for Office calculation function. You want to use the Analysis for Office Style formatting options All Data for the task should be imported from SAC Data Model.

1. Launch Analysis for Office SAC.
2. Insert Data from the SAC Model.
3. Use Analysis for Office Function.
4. Use Analysis for Office calculation function.
5. Save the Workbook.

Task 1: Launch Analysis for Office SAC

Launch Analysis for Microsoft Excel

1. On the lower left, click the Microsoft Windows Start menu.
2. On the upper right, enter **Analysis** in the search field.
 - a) Enter **Analysis**, press the magnifying glass symbol.
3. Select *Analysis for Microsoft Excel*.
 - a) Choose *Analysis for Microsoft Excel*.
4. If prompted, choose *Blank Workbook*.
If a *Login to BusinessObjects* dialog displays, press *skip*.
5. Place your cursor in cell A5.

Task 2: Insert Data from the SAC Model

Connect to SAC.

1. Go to the *Analysis* tab.
 - a) On the upper right, choose the *Analysis* ribbon.
2. On the upper left, choose the drop down next to *Insert Data Source* and choose *OK* if prompted.
3. On the upper left, choose *Select Data Source for Analysis*.
4. During the logon, a *SAP BusinessObjects BI Platform* dialog box displays, choose *Skip*.

5. In the *Select Data Source* dialog box, right-click in the area where you see existing connections and select *Create New SAC Connection....*
 - a) Look for a free space with in the assistant area and right-click so a small pop up opens.
 - b) Choose *SAC connection* in the expert.
 - c) In the *New SAC Connection* dialog, enter the details as shown in the following table.

Table 3:

Field	Value
Description	U##SAC
Log on URL	URL for the SAC Tenant you are using for this class

6. Choose *OK*.
7. Ensure that your connection is selected and click *Next*.
8. Log on using your SAC class credentials.

Table 4:

Field	Value
User	A## or B##
Password	Welcome1

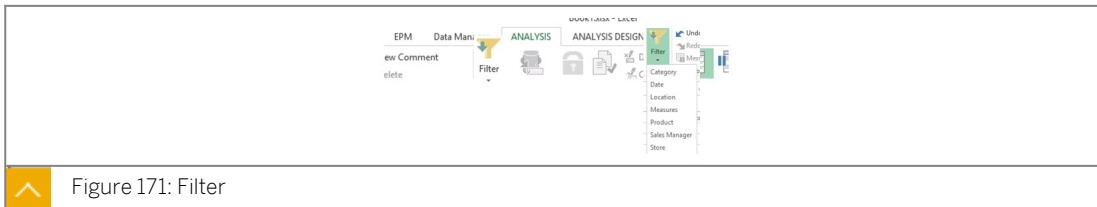
9. In the search field, enter **SACAD1_Model002** and press *Enter*.
10. Select the Model **SACAD01_Model002**. The Initial view of the Datasource displays, begin in cell A5.
 - a) Select the *Model* and press *OK*.
11. Go to the *Analysis Design* panel and insert the product dimension to the Rows using drag and drop.
The *Analysis Design* panel on the right shows you the Data and also enables you to choose different data to been used in the Analysis for Office Workbook.
 - a) If you want to position Data Measures or Dimensions in your Analysis for Office Workbook, click it and drag it to the right of the design panel and drop it as a new Row – or a new column member.

Task 3: Use Analysis for Office Function

1. Go to cell A1 and mark it.
 - a) You can mark the cell A1 with a single click.
2. Go to the *Analysis Design* panel. On the upper left use the drop down menu for *Filter* and select *Product*.

You find the *Analysis Design* panel on the upper right side at the ribbon menu of *Analysis for Office*.

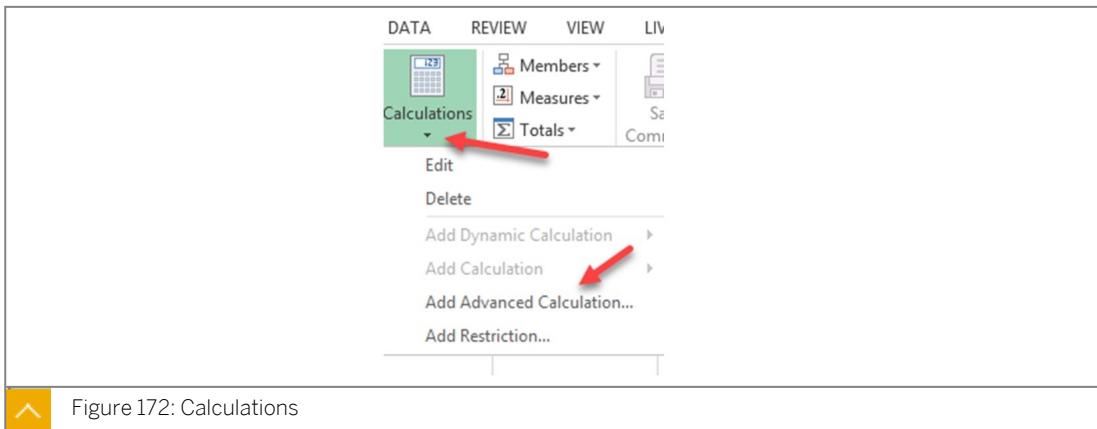
- Mark the cell A1 at the Workbook of Analysis for Office.



- Navigate to the *Filter*. On the left side you find the Filter icon, use the drop down menu to choose *Product* as *Filter Dimension*.
- Click cell *B1* to access the associated Filter.
- Click the cell *B1*, a small Filter icon displays on the right side of the cell. Use this icon to choose a *Filter value*.
- Click *Filter* and select *Juice and Alcohol*.
- Use the member selector to select *Juice and alcohol* as *Filter values* and click *OK*. Observe the results.

Task 4: Use Analysis for Office Calculation Function

- Go to table on the left part of the tool.
- To expand the values for *Juices*, choose the + icon.
 - You will find the + in front of the Product value Juices
- Go to the upper right of the *Analysis Designer* panel and click *Analysis*.
- Click on *B5*.
- Select the cell *B5*.
- Go to *Calculation*, and choose *Add Advanced Calculation*.
 - Go to the upper ribbon menu of analysis for office to find the calculation assistant.
 - Choose on the drop down menu of *Calculations* and choose *Add Advanced Calculation*.



6. Name the calculation **GM incl Taxes**.

a) Delete the content of the first row and enter **GM incl.Taxes** in the empty space.

7. Insert the value, `**Gross Margin` * 1.19.**

a) Go to the *Formula* area of the Assistant.

b) Left click in the free area.

c) Enter `**Gross Margin`* 1.19 .**

d) Press **OK**.

A new row with your calculation is added

Task 5: Save the Workbook

1. Navigate to the *File* menu.

a) On the upper left, choose the *File* menu.

2. Use *Save as* to save the file to your computer / Desktop.

a) Click *Save as* to save the Analysis for Office Workbook onto the Desktop of the Computer.

The screenshot shows the SAP Analysis for Microsoft Office interface. The main area displays a data grid with columns: Product, GM inclTax, Gross Margin, Discount, Original Sales Price, Price (fixed), and Quantity sold. The data includes various juice products like Alcohol, Juices, Orange with pulp, etc., with their respective values. Row 19 shows an Overall Result. The analysis pane on the right shows the data source is 'Best Run Juice Sample Model' and the rows are categorized by 'Product (Product Category)'. The title bar indicates the file is 'SAPfd1'.

Product	GM inclTax	Gross Margin	Discount	Original Sales Price	Price (fixed)	Quantity sold
Product	= 1,000,000 USD	* 1,000,000 USD	* 1,000,000 USD	* 1,000,000 USD	* 1,000,000 USD	* 1,000,000
Alcohol	40.50	34.03	52.31	211.82	0.05	57.90
Juices	163.63	137.51	222.13	737.19	0.10	95.59
Orange with pulp	133.35	112.06	193.20	612.05	0.02	66.24
Orange no pulp	0.76	0.64	1.04	3.39	0.01	0.92
Lemonade	8.67	7.28	3.04	31.35	0.01	9.11
Apple Cider	7.97	6.70	11.72	35.56	0.02	3.55
Mango Juice	0.58	0.48	0.20	2.04	0.01	0.64
Pineapple Juice	2.25	1.89	0.76	7.59	0.01	2.66
Watermelon Juice	3.94	3.31	6.30	19.65	0.01	5.41
Pomegranate	4.24	3.56	4.65	17.89	0.01	4.92
Strawberry Juice	0.94	0.79	0.23	3.48	0.00	1.14
Apple Juice	0.93	0.79	1.00	4.20	0.01	1.00
Overall Result	204.13	171.54	274.44	949.02	0.15	153.49

Figure 173: AnalysisOfficeEx03 Scr



LESSON SUMMARY

You should now be able to:

- Describe SAP Analysis for Microsoft Office, edition for SAP Analytics Cloud

Learning Assessment

1. With the feature Linked Analysis you can create links from a story to the underlying source.

Determine whether this statement is true or false.

- True
- False

2. What types of aggregation are available in SAP Analytics Cloud?

Choose the correct answers.

- A Standard Aggregation
- B Formula Aggregation
- C Exception Aggregation
- D Data Aggregation

3. SAP Analytics Cloud can be connected in both ways, Live Connection and Data Import.

Determine whether this statement is true or false.

- True
- False

4. What kind of filter can be used in a story?

Choose the correct answers.

- A Query Filter
- B Dimension Filter
- C Linked Filter
- D Predefined Filter

5. Which programming language can be used to enhance the Application Designer and its functions?

Choose the correct answer.

- A C++
- B ABAP
- C VBA
- D Java script

Learning Assessment - Answers

1. With the feature Linked Analysis you can create links from a story to the underlying source.

Determine whether this statement is true or false.

- True
 False

Linked Analysis is the ability to filter on one chart and have the filter apply to many charts or the whole story, and not to underlying sources.

2. What types of aggregation are available in SAP Analytics Cloud?

Choose the correct answers.

- A Standard Aggregation
 B Formula Aggregation
 C Exception Aggregation
 D Data Aggregation

3. SAP Analytics Cloud can be connected in both ways, Live Connection and Data Import.

Determine whether this statement is true or false.

- True
 False

SAP Analytics Cloud can include two or more models, each model containing a different connection type.

4. What kind of filter can be used in a story?

Choose the correct answers.

- A Query Filter
- B Dimension Filter
- C Linked Filter
- D Predefined Filter

5. Which programming language can be used to enhance the Application Designer and its functions?

Choose the correct answer.

- A C++
- B ABAP
- C VBA
- D Java script

UNIT 4

Introducing SAP Analytics Cloud Planning

Lesson 1

Planning with SAP Analytics Cloud

237

Lesson 2

Creating a Planning Data Model

240

Exercise 9: Create a Story with a Planning Model

245

UNIT OBJECTIVES

- Position SAP Analytics Cloud as a planning tool
- Create a Planning Data Model

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Unit 4

Lesson 1

Planning with SAP Analytics Cloud

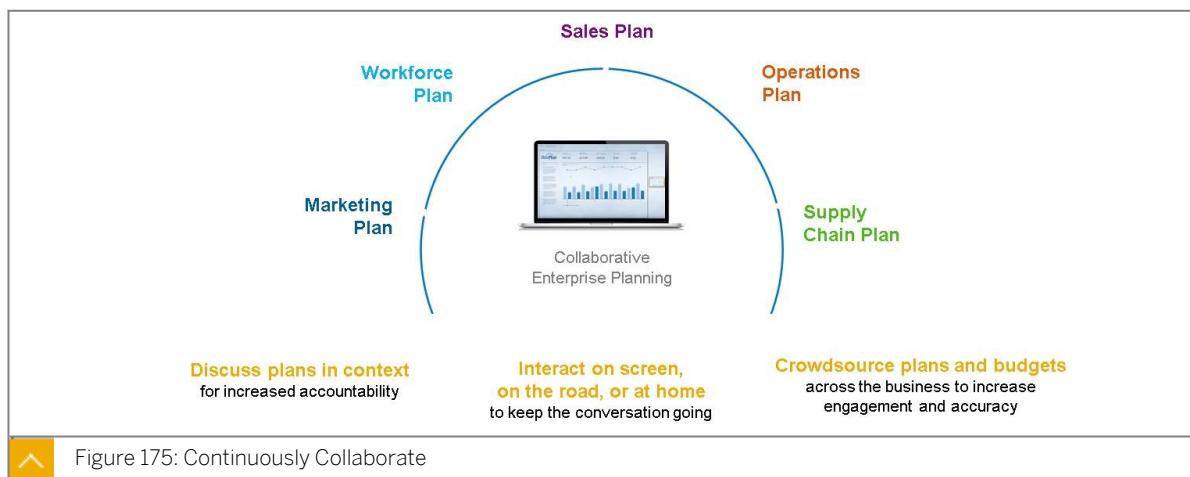
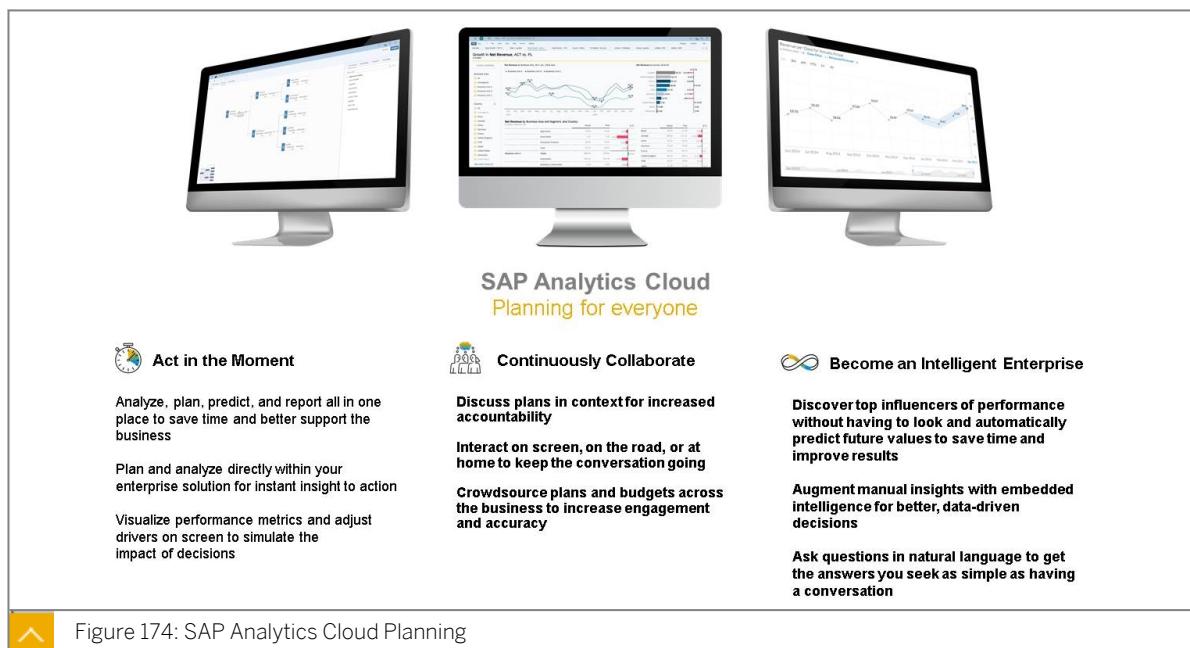


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Position SAP Analytics Cloud as a planning tool

SAP Analytics Cloud as a Planning Tool



Become an Intelligent Enterprise

Planning

Provides the overall process for starting the direction and financial objectives of an organization:

- Strategic plans - set overall goals and objectives
- Long-range plans - financial targets over 3-10 year horizon
- Annual plans - first year of long range plan

Budgeting

Provides an execution path for the plan. Planning refers to 'what is possible' and budgeting refers to 'what is expected', based on an approved annual plan. Budgeting includes:

- Sales/gross margin budgets
- Capital expenditure budgets
- Headcount budgets
- Operating expense budget

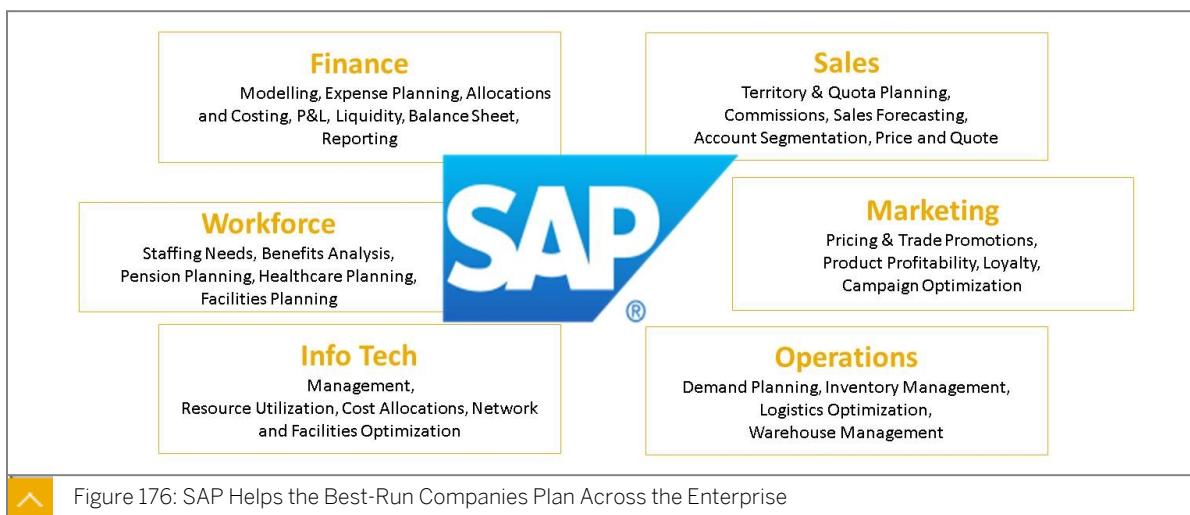
Forecasting

Uses actual performance data to project the remainder of the current year performance:

- Rolling forecast - reset expectations for some predefined future period (generally 12-18 months)

Planning is performed for various functions of a company, such as sales planning, expense or cost center planning, and core financial planning. Planning is also carried out at different levels of an organization. Managers plan, and people at all levels suggest changes to the plan, or vice versa. Coordinating planning functions is an onerous task at any company.

All planning operations and functions are based on a specific type of data model. Therefore, the creation of a planning model is essential.



In many of the areas shown in the figure, SAP Helps the Best-Run Companies Plan Across the Enterprise, SAP Analytics Cloud help the planning process, but may not totally replace existing tools.

Commonly Used Terms in Planning



- Types of planning:
 - Strategic, financial, operational
 - Centralized, decentralized
 - Departmental
- Planning methods:
 - Top-down, bottom-up, hybrid
 - Driver-based
 - Scenario planning, or what-if analysis

For analytics people, if you hear these terms being discussed, it will be planning related. You do not have to be an expert in planning, just recognize the opportunity and bring in planning experts to further the discussion and you will ramp up on planning quickly.

Cloud-First Strategy



Cloud first strategy

SAP is committed to delivering innovative applications in the Cloud. Consistent with this, our strategic direction for planning follows on and aligns with our broader Analytics strategy.

Standalone planning and with SAP S/4HANA and other cloud apps

SAP Analytics Cloud

Customers requiring an on-premise solution



BPC

- SAP Analytics Cloud is SAP's primary strategic Planning solution moving forward.
- The majority of new enhancements for planning will be delivered via SAP Analytics Cloud for Planning, and this includes enhanced value for BPC via hybrid planning and analysis scenarios.

Figure 177: Planning Strategy

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LESSON SUMMARY

You should now be able to:

- Position SAP Analytics Cloud as a planning tool

Creating a Planning Data Model

Duplication is prohibited.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Create a Planning Data Model

Creating a Planning Data Model



The screenshot shows the SAP Analytics Cloud interface. On the left is a navigation sidebar with links like Home, Create, Browse, Calendar, Security, Deployment, Connection, and System. The main area displays a "Hello, AOO!" message and a "Explore a sample story" button. Below that are sections for "Recent Stories" and "Recent Analytics". A sidebar on the right offers options to "Create account" and "Ask a question".

Figure 178: Creating a Planning Data Model

It is possible to use two different types of data modeling in SAP Analytics Cloud. This lesson describes the use of a planning model and its advantages.

The planning model supports the following functions (requires account, category, and time dimensions):

- Different categories, such as budget, plan, forecast, or actuals time are offered
- Adjust or extend data by using planning functions:
 - Spreading
 - Distribution
 - Allocations
 - Value Driver Trees
 - Predictive Forecasting

Duplication is prohibited.

- Private version while scenario planning
- Import and export to SAP BPC standard model

The planning model offers the same content and possibilities as the analytics model, but additionally it can be used for sales forecasting, budget allocation, and what if analysis.

In a planning scenario, the planning model allows you to create a public, private, or shared version of the data which can be changed temporally. This data will not overwrite or delete a public version until you want it. This gives you the chance to change values without overwriting the (original) values, and allows you to try different values with different scenarios to make final decisions.



Note:

The planning model requires a special planning license.

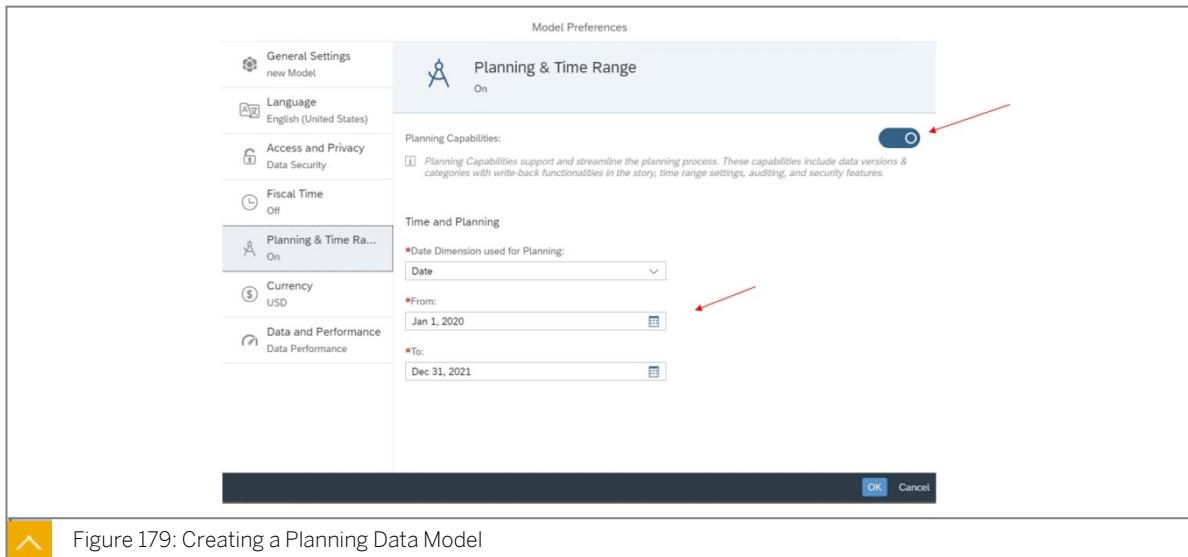


Figure 179: Creating a Planning Data Model

To create a planning model means to define a model planning structure using the general settings. This means enabling the planning function and inserting a date interval for the time (of the data) you want to use for planning. This automatically defines the time (how far into the past and how far into the future you can plan).

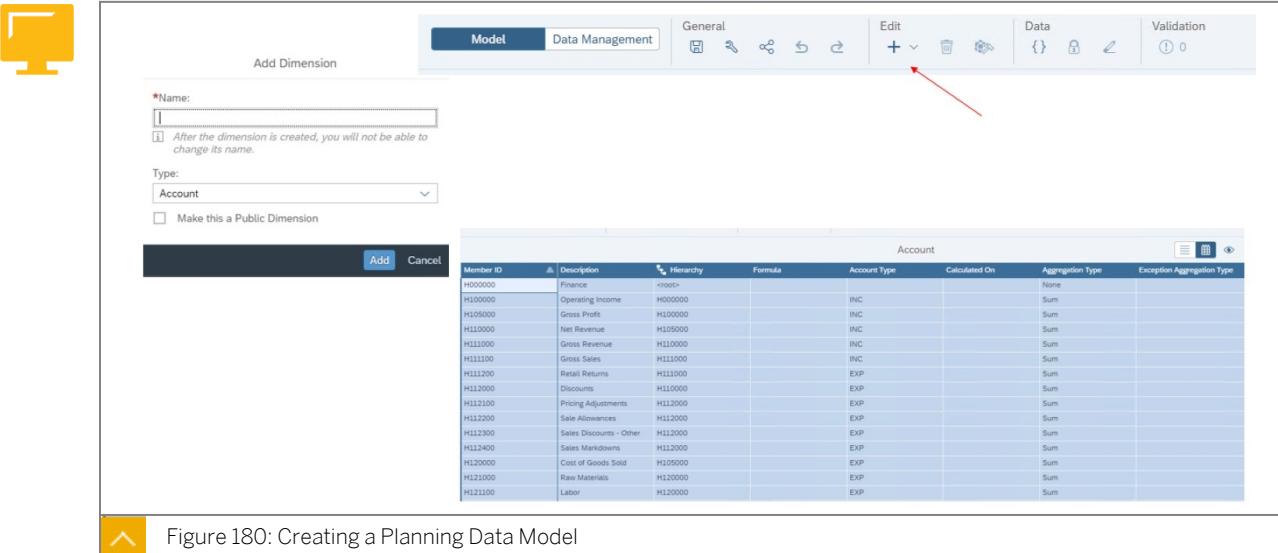


Figure 180: Creating a Planning Data Model

The next step is to create the dimensions you need. For example, this could be to use different accounts.

The planning model with SAP Analytics Cloud allows you to define the granularity of the dimension and accounts you need.

You can also define what types of data you can manage in your model, and which information should be used in the model. Different categories can be used for this. For example, the money you actually made (actual), the money you are going to make (forecast), and the money you are going to spend (budget). SAP Analytics Cloud allows you to choose the granularity of each of these categories.

In this manner, origin values can be separated from calculated values, such as budget or forecast, but can be used together in one story to show differences, or to create an interactive planning story.

Standard categories available for planning models are as follows:

1. Actual

Actual values, or money you made.

2. Budget

How much you are allowed to spend.

3. Planning

What the goal is (financial or non-financial) that you are trying to achieve.

4. Forecast

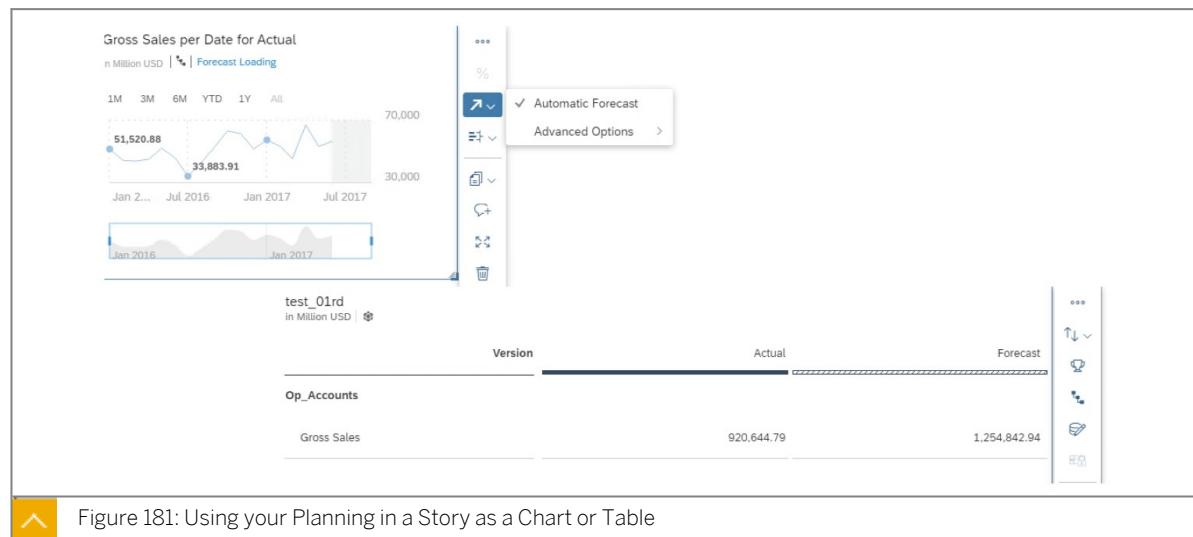
What your expectation is of the financial data.

5. Rolling Forecast

The range for how far back and forward you look.

Set your model preferences as follows:

- Description
Insert a name for your model.
- Default Currency
The currency your company uses to report their results at the corporate level.
- Data Audit
Allows you to track when changes are made to your data.
- Privacy
Provides a way for the user to define who can access the model data.
- Currency Conversion
Allows you to see the values in your model in different currencies.
- Preconverted Actuals
When importing actual data from data sources into SAP Analytics Cloud, currencies will remain as is and will not be converted.



Duplication is prohibited.

Duplication is prohibited.



Planning Model Creation

Analytics vs. Planning Model

Analytics Model	Planning Model
Live or imported data can be used	Requires data to be acquired
Category or Time Dimension are not required	Account, Category and Time Dimension are required
No additional categories required	Additional categories required
Calculation of measures by formulas	Adjust or extend data by planning functions
Share Dimension	Can use private version
Data loaded by scheduling, refresh or mapping	Import and/or export data to SAP BPC Standard



Figure 182: Creating a Planning Data Model

Analytic Model

Analytic models are great for visualizing data. For example, visualizations of data can be used to show the development of sales revenue for a long period or sales trends. Data can be re-calculated, filtered and shown in customized reports. Visualizations work for prepared data.

Planning Model

Planning models offer the same supports as analytics models, and can also be used to calculate sales forecasting, budget allocation, 'what-if' analysis, and so on.

Unit 4 Exercise 9

Create a Story with a Planning Model

In this exercise you will spread, distribute, and create plan data in the process of updating a Q3 for a new product your company is selling. These are tasks typically carried out by planners.

Note:

Many more planning functions, including allocations, value driver trees, planning events, and input tasks, are the subject of an upcoming planning class.

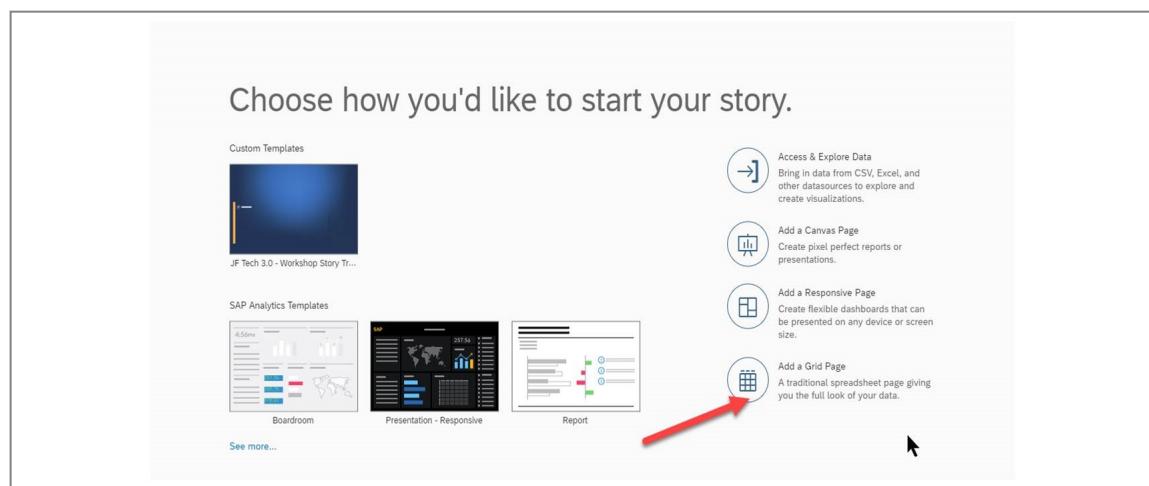
Item or Data Reused in this Exercise

The planning model *Operating_Income_PlanXXX* and its associated dimensions, measures, and data.

Note:

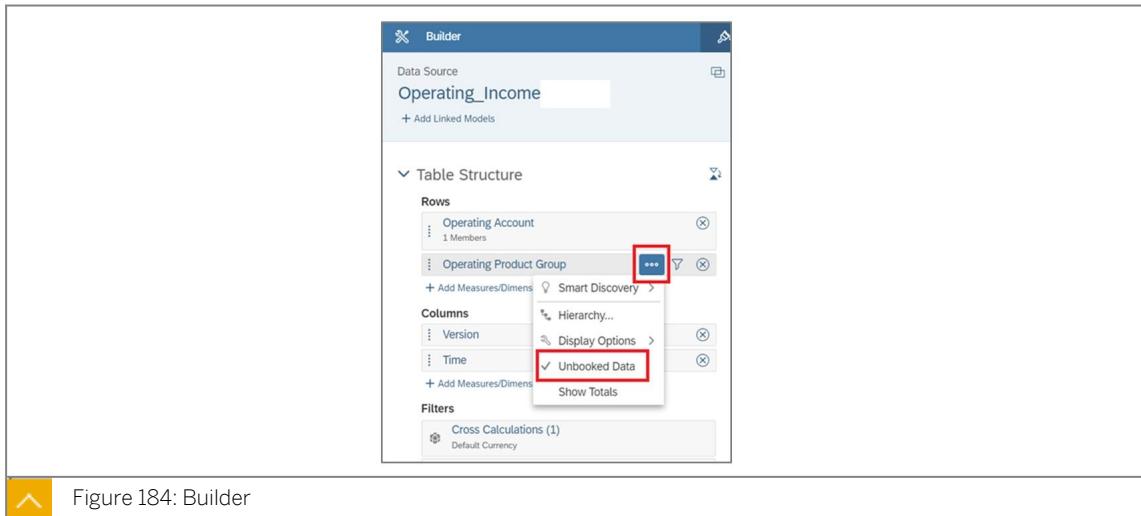
In this exercise, **###** is used as a placeholder. Where you see **###**, replace it with the group number that your instructor assigned you, and your initials. For example, **10AB**.

1. Log in as your assigned user and choose the *Main Menu* icon. From the drop-down menu, choose *Create → Stories*.
2. Choose **+** to add a new story.
3. Choose *Add a Grid Page*, as shown in the following figure.

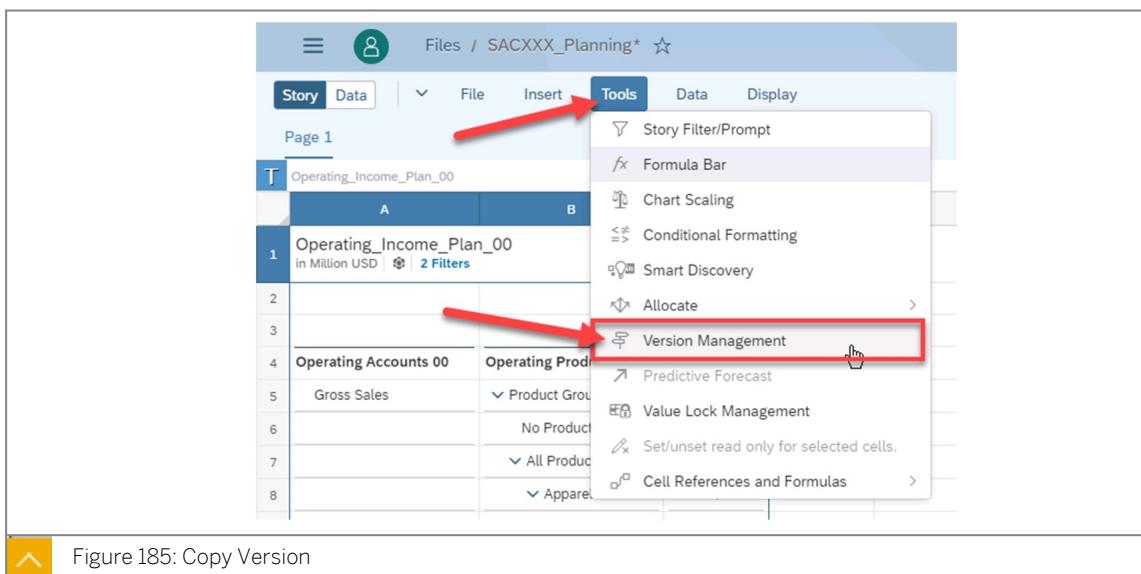


4. Choose Save. Name your new story **sac###_planning** in the default *My Files* path.

5. Add Crosstab to the grid. In the *Insert* section, select *Add* and the *Select Model* dialog appears, choose your **Operating_Income_PlanXXX** model.
6. Use the *Builder* panel on the right side to display the imported data in a report.
7. Following the recommendation that display with the new member step you just completed, switch the *Unbooked Data* member toggle to *On* for *Product Groups*. This will make your new member available for planning.



8. Make a new version of the forecast to store planning for your product. Select the *Version Management* menu item and copy the **Forecast** version to a version called **NoData**.



Note:

If no *Tools* menu is found, click the *More* icon and then choose *Tools*.

9. Although you can also directly plan on a public version, you decide to create a private version so it will be easier to create multiple scenarios based on the forecast versions, rather than editing the forecast version directly. Choose *Close*.

You have successfully created a blank private version of the Forecast

10. Access the *Designer*, then the *Builder* and ensure the *NoData* version and the *Forecast* version are shown via the filtering option the *Version* dimension.



Note:

If the filter is set correctly but NoData shows in your table, save your story and re-open it from *Browse* → *Files*

11. Enable the *Mass Data Entry* option, which allows you to change more than one data set. Enter **50,000** (Million) for *Apparel* and **7,500** (Million) for *Footwear*.



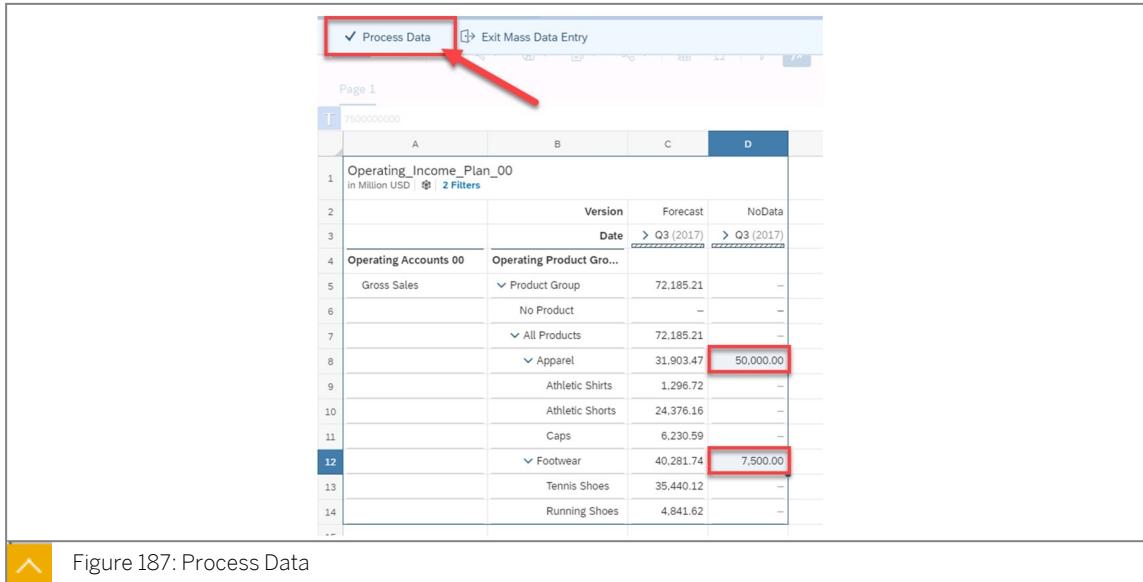
Note:

Million will appear automatically, if not enter the full million value.

The screenshot shows a table in the SAP Planning Data Model Builder. The table has columns labeled A, B, C, D, E, F, G. Row 1 contains the header 'Operating_Income_Plan_00' and 'in Million USD'. Row 2 contains 'Gross Sales' and 'Operating Product Gro...'. Row 3 contains 'No Product'. Row 4 contains 'All Products'. Row 5 contains 'Apparel'. Row 6 contains 'Athletic Shirts'. Row 7 contains 'Athletic Shorts'. Row 8 contains 'Caps'. Row 9 contains 'Footwear'. Row 10 contains 'Tennis Shoes'. Row 11 contains 'Running Shoes'. The 'D' column has two entries: 'Forecast' and 'NoData'. A red arrow points to the 'NoData' entry. Another red arrow points to the 'Mass Data Entry' option in the context menu, which is highlighted with a red box. The context menu also includes options like Drill, Freeze, Ignore Data Locks, Swap Axis, Distribute Values, Manage Data Locks, Linked Analysis, Add, Show/Hide, Export, Pin to Home, and Remove.

Figure 186: Mass Data Entry

Choose *Process Data* and close the mass data entry option and copy the information to your planning story.

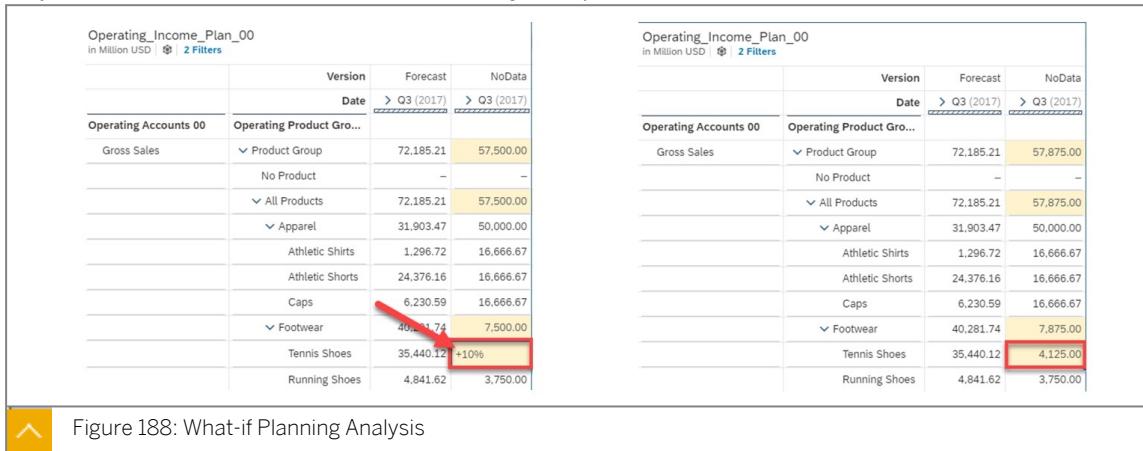


The screenshot shows a planning grid for 'Operating_Income_Plan_00'. The top bar has a red box around the 'Process Data' button. The grid shows data for Gross Sales across various product categories like Apparel, Footwear, and Tennis Shoes. A red box highlights the 'Tennis Shoes' row, specifically the 'Forecast' column value '35,440.12'.

	A	B	C	D
1	Operating_Income_Plan_00 in Million USD 2 Filters			
2		Version	Forecast	NoData
3	Date	> Q3 (2017)	> Q3 (2017)	
4	Operating Accounts 00	Operating Product Gro...		
5	Gross Sales	▼ Product Group	72,185.21	—
6		No Product	—	—
7		▼ All Products	72,185.21	—
8		▼ Apparel	31,903.47	50,000.00
9		Athletic Shirts	1,296.72	—
10		Athletic Shorts	24,376.16	—
11		Caps	6,230.59	—
12		▼ Footwear	40,281.74	7,500.00
13		Tennis Shoes	35,440.12	—
14		Running Shoes	4,841.62	—

Figure 187: Process Data

12. Adjust the Q3 forecast for *Tennis Shoes* by +10 percent.



The screenshot shows two side-by-side planning grids for 'Operating_Income_Plan_00'. The left grid shows the original data, and the right grid shows the data after a 10% increase. A red box highlights the 'Tennis Shoes' row in both grids, specifically the 'Forecast' column values '35,440.12' and '41,250.00' respectively.

	A	B	C	D
1	Operating_Income_Plan_00 in Million USD 2 Filters			
2		Version	Forecast	NoData
3	Date	> Q3 (2017)	> Q3 (2017)	
4	Operating Accounts 00	Operating Product Gro...		
5	Gross Sales	▼ Product Group	72,185.21	57,875.00
6		No Product	—	—
7		▼ All Products	72,185.21	57,875.00
8		▼ Apparel	31,903.47	50,000.00
9		Athletic Shirts	1,296.72	16,666.67
10		Athletic Shorts	24,376.16	16,666.67
11		Caps	6,230.59	16,666.67
12		▼ Footwear	40,281.74	7,875.00
13		Tennis Shoes	35,440.12	41,250.00
14		Running Shoes	4,841.62	3,750.00

Figure 188: What-if Planning Analysis

The planning model will now show what happens if you change a value. You created a *what-if* planning analysis.

13. Save your story as **Operating_Income_planXXXX**.

Unit 4

Solution 9

Create a Story with a Planning Model

In this exercise you will spread, distribute, and create plan data in the process of updating a Q3 for a new product your company is selling. These are tasks typically carried out by planners.

Note:

Many more planning functions, including allocations, value driver trees, planning events, and input tasks, are the subject of an upcoming planning class.

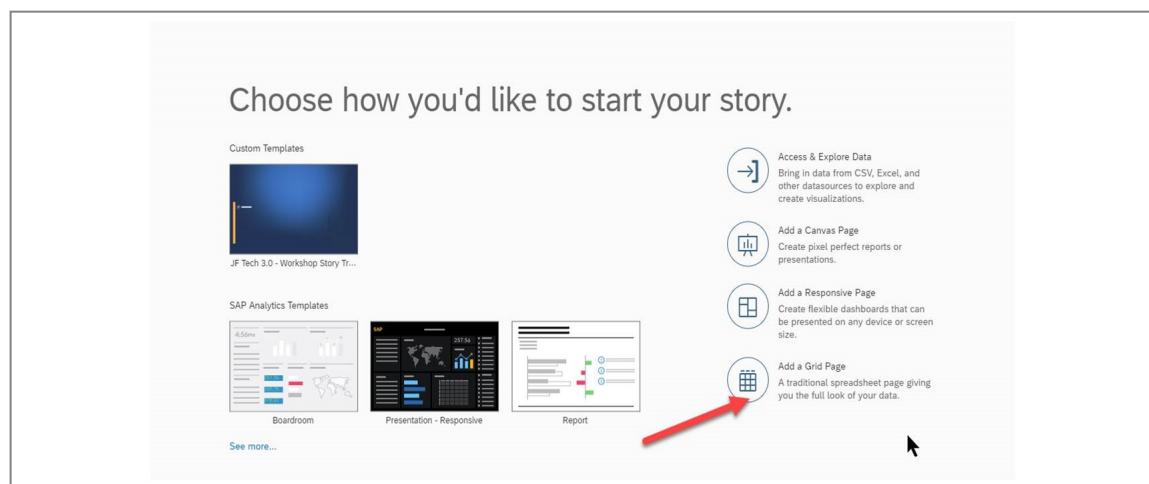
Item or Data Reused in this Exercise

The planning model *Operating_Income_PlanXXX* and its associated dimensions, measures, and data.

Note:

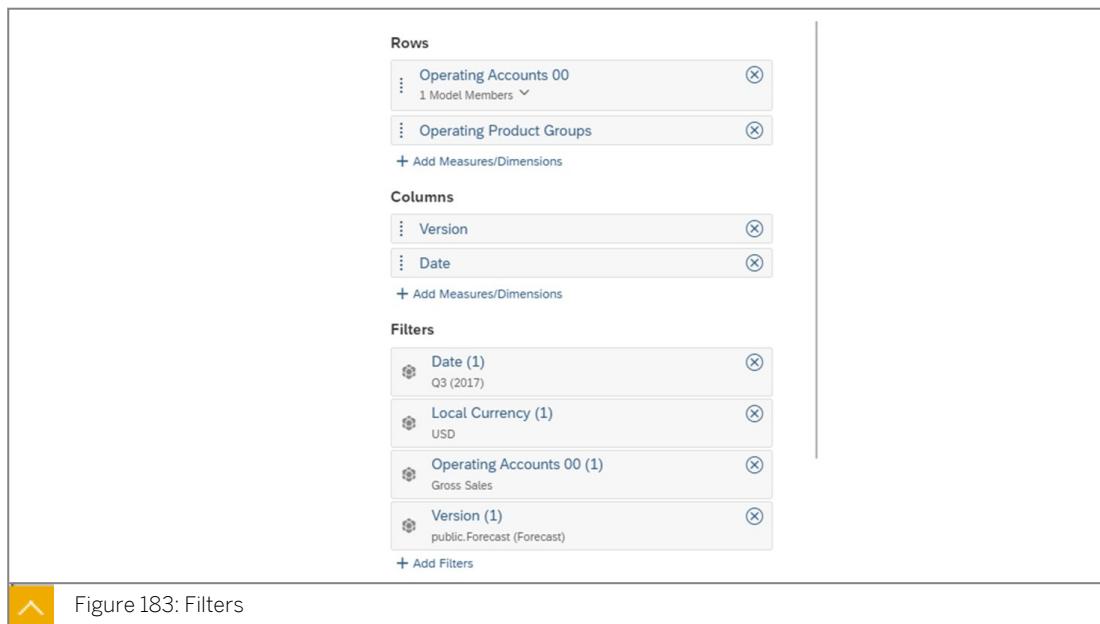
In this exercise, **###** is used as a placeholder. Where you see **###**, replace it with the group number that your instructor assigned you, and your initials. For example, **10AB**.

1. Log in as your assigned user and choose the *Main Menu* icon. From the drop-down menu, choose *Create → Stories*.
2. Choose **+** to add a new story.
3. Choose *Add a Grid Page*, as shown in the following figure.



4. Choose Save. Name your new story **sac###_planning** in the default *My Files* path.

5. Add Crosstab to the grid. In the *Insert* section, select *Add* and the *Select Model* dialog appears, choose your **Operating_Income_PlanXXX** model.
6. Use the *Builder* panel on the right side to display the imported data in a report.
 - a) Choose the *Designer* to open the *Builder* panel.
 - b) Add a *Operating Product Groups* row.
 - c) Expand the *Product Group* hierarchy to drill to *Level 4*. Choose *Operating Product Groups* and choose the *Hierarchy* icon. Choose *Level 4*.
 - d) Change the filter to *Gross Sales* in the *Set Filters for Operating Accounts 00*. Click the box beside *Gross Sales* found under *Finance → Operating Income → Gross Profit → Net Revenue → Gross Revenue*, then click *OK*.
 - e) Click *Date (Member)*. In the *Set Filters for Date* dialog, click the box beside *Q3* under *2017*, and click *OK*.
 - f) Click *Version*. In the *Set Filters for Version* dialog, click the box beside *public.Forecast*, and click *OK*.
If *public.Actual* was already selected, deselect it.
 - g) Upon clicking *Add Filters*, click the arrow down next to *Operating Regions* to select *Local Currency*. In *Set Filters for Local Currency*, click the box beside *USD*, then click *OK*.
 - h) Add the *Dimension Date* as the column.



7. Following the recommendation that display with the new member step you just completed, switch the *Unbooked Data* member toggle to *On* for *Product Groups*. This will make your new member available for planning.

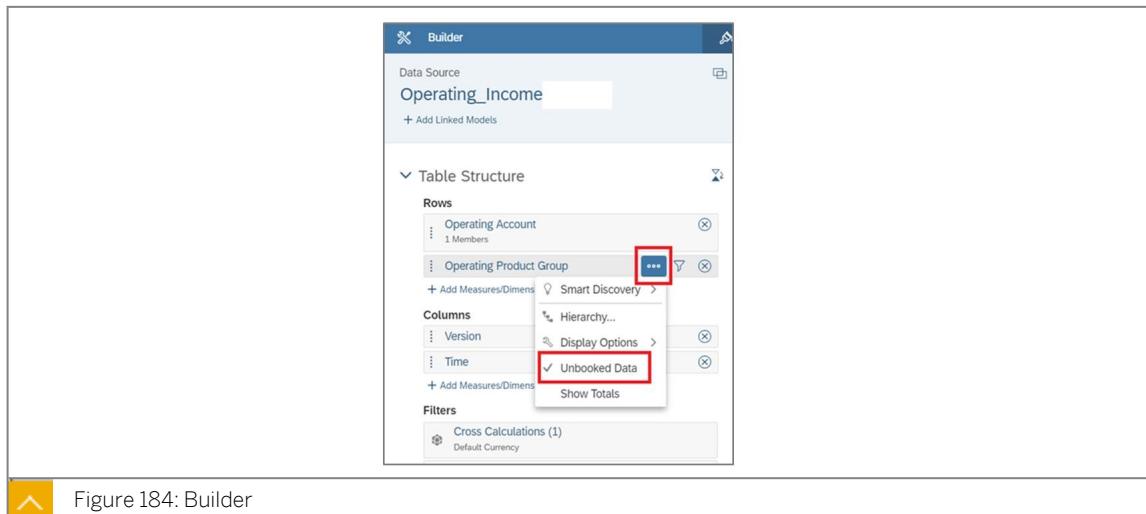


Figure 184: Builder

- a) Select the *Unbooked Data* member for *Product Groups*.

You will see the *No Product* member in the grid, which is a member without any value data.

8. Make a new version of the forecast to store planning for your product. Select the *Version Management* menu item and copy the **Forecast** version to a version called **NoData**.

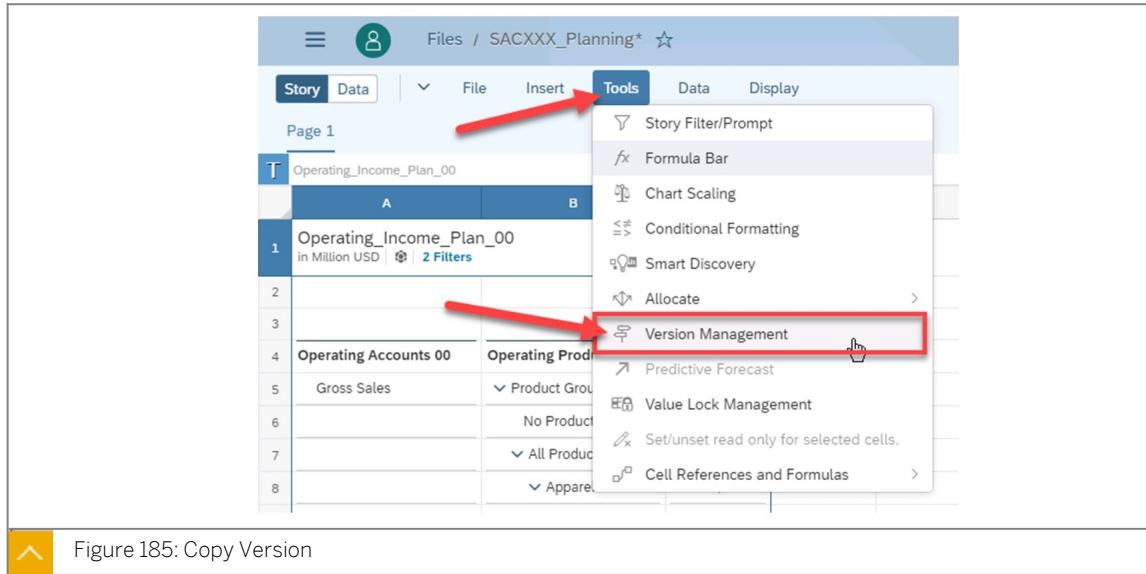
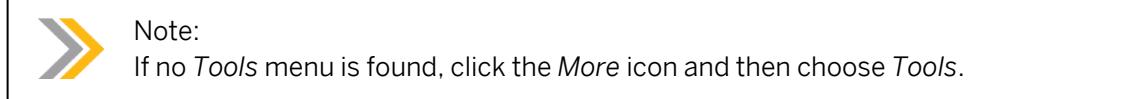


Figure 185: Copy Version



9. Although you can also directly plan on a public version, you decide to create a private version so it will be easier to create multiple scenarios based on the forecast versions, rather than editing the forecast version directly. Choose *Close*.

- a) Click the *Copy* symbol and copy the *public Forecast* version.

- b) In the *Copy Data to Private Version* window enter **NoData** for *Version Name*.

c) Keep the Forecast category and choose *Create a blank version*.

d) Click *OK*.

You have successfully created a blank private version of the Forecast

10. Access the *Designer*, then the *Builder* and ensure the *NoData* version and the *Forecast* version are shown via the filtering option the *Version* dimension.

Note:

If the filter is set correctly but NoData shows in your table, save your story and re-open it from *Browse* → *Files*

11. Enable the *Mass Data Entry* option, which allows you to change more than one data set. Enter **50,000** (Million) for *Apparel* and **7,500** (Million) for *Footwear*.

Note:

Million will appear automatically, if not enter the full million value.

The screenshot shows a table titled "Operating_Income_Plan_00 in Million USD" with two filters applied. The context menu is open over the "NoData" cell in column D. A red arrow points to the "Mass Data Entry" option in the menu, which is highlighted with a cursor. The menu also includes other options like Drill, Freeze, and Ignore Data Locks.

Operating_Income_Plan_00 in Million USD			
		Version	Forecast
1	Operating Accounts 00	Date	> Q3 (2017)
2	Gross Sales	Product Group	72,185.21
3	No Product		-
4	All Products		72,185.21
5	Apparel		31,903.47
6	Athletic Shirts		1,296.72
7	Athletic Shorts		24,376.16
8	Caps		6,230.59
9	Footwear		40,281.74
10	Tennis Shoes		35,440.12
11	Running Shoes		4,841.62

Figure 186: Mass Data Entry

Choose *Process Data* and close the mass data entry option and copy the information to your planning story.

Duplication is prohibited.

Duplication is prohibited.

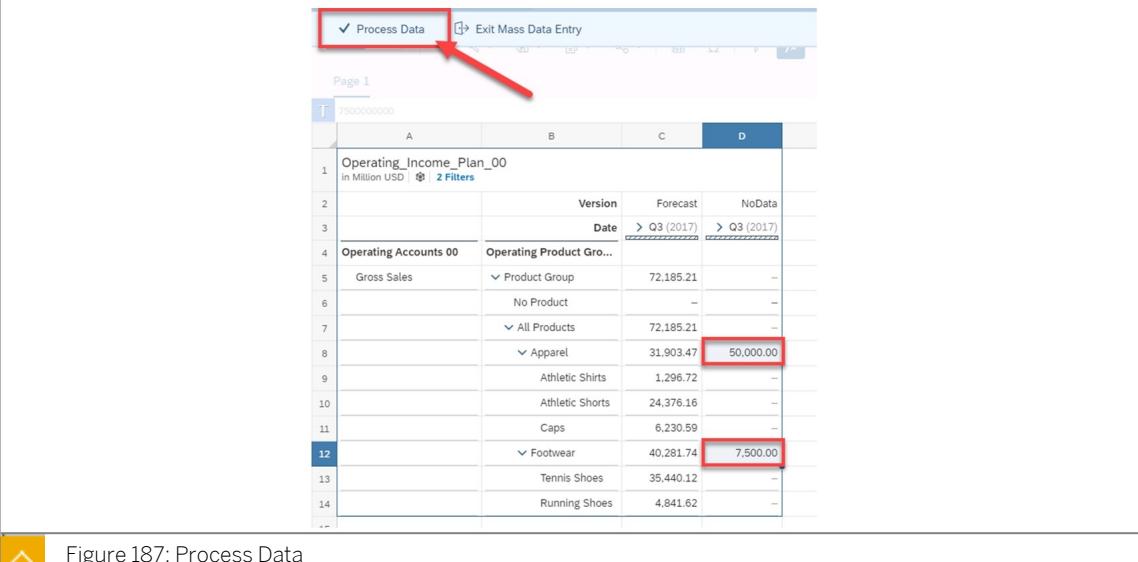


Figure 187: Process Data

Operating_Income_Plan_00 in Million USD 2 Filters			
	Version	Forecast	NoData
	Date	> Q3 (2017)	> Q3 (2017)
Operating Accounts 00	Operating Product Gro...		
Gross Sales	▼ Product Group	72,185.21	—
	No Product	—	—
	▼ All Products	72,185.21	—
	▼ Apparel	31,903.47	50,000.00
	Athletic Shirts	1,296.72	—
	Athletic Shorts	24,376.16	—
	Caps	6,230.59	—
	▼ Footwear	40,281.74	7,500.00
	Tennis Shoes	35,440.12	—
	Running Shoes	4,841.62	—

12. Adjust the Q3 forecast for *Tennis Shoes* by +10 percent.

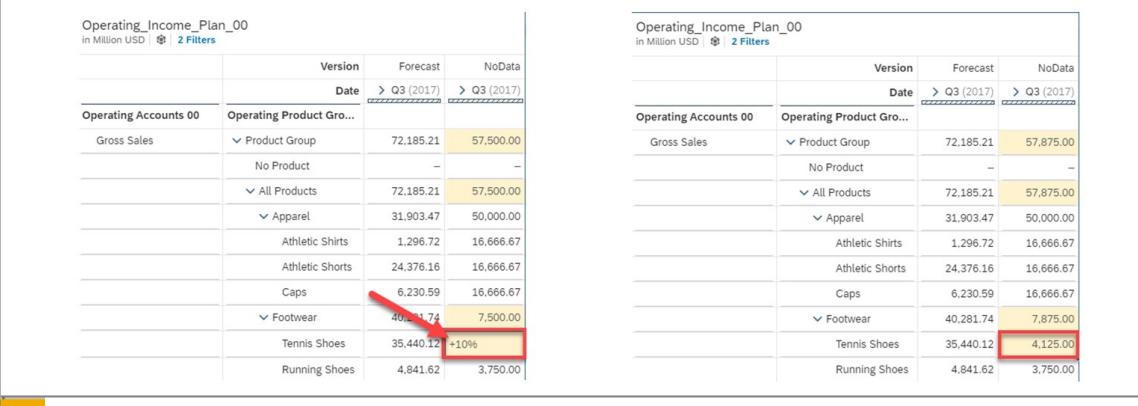


Figure 188: What-if Planning Analysis

Operating_Income_Plan_00 in Million USD 2 Filters			
	Version	Forecast	NoData
	Date	> Q3 (2017)	> Q3 (2017)
Operating Accounts 00	Operating Product Gro...		
Gross Sales	▼ Product Group	72,185.21	57,500.00
	No Product	—	—
	▼ All Products	72,185.21	57,500.00
	▼ Apparel	31,903.47	50,000.00
	Athletic Shirts	1,296.72	16,666.67
	Athletic Shorts	24,376.16	16,666.67
	Caps	6,230.59	16,666.67
	▼ Footwear	40,281.74	7,500.00
	Tennis Shoes	35,440.12	+10%
	Running Shoes	4,841.62	3,750.00

Operating_Income_Plan_00 in Million USD 2 Filters			
	Version	Forecast	NoData
	Date	> Q3 (2017)	> Q3 (2017)
Operating Accounts 00	Operating Product Gro...		
Gross Sales	▼ Product Group	72,185.21	57,875.00
	No Product	—	—
	▼ All Products	72,185.21	57,875.00
	▼ Apparel	31,903.47	50,000.00
	Athletic Shirts	1,296.72	16,666.67
	Athletic Shorts	24,376.16	16,666.67
	Caps	6,230.59	16,666.67
	▼ Footwear	40,281.74	7,875.00
	Tennis Shoes	35,440.12	4,125.00
	Running Shoes	4,841.62	3,750.00

The planning model will now show what happens if you change a value. You created a *what-if* planning analysis.

13. Save your story as **Operating_Income_planXXXX**.



LESSON SUMMARY

You should now be able to:

- Create a Planning Data Model

Duplication is prohibited.

Duplication is prohibited.

Learning Assessment

- SAP Analysis for Microsoft Office offers an integration not only to consume SAC data models, but also to contribute to SAC planning models.

Determine whether this statement is true or false.

True

False

- Value driver trees in SAC require a separate data model that needs to be created in the modeler perspective.

Determine whether this statement is true or false.

True

False

- What must always be defined in a planning model?

Choose the correct answers.

A Version

B Date

C Aggregation type

D Geospatial

Learning Assessment - Answers

- SAP Analysis for Microsoft Office offers an integration not only to consume SAC data models, but also to contribute to SAC planning models.

Determine whether this statement is true or false.

True

False

Correct. SAP Analysis for Microsoft Office offers an integration for SAC planning models.

- Value driver trees in SAC require a separate data model that needs to be created in the modeler perspective.

Determine whether this statement is true or false.

True

False

Correct. Value driver trees can be used on existing models. There is no need to create a separate model.

- What must always be defined in a planning model?

Choose the correct answers.

A Version

B Date

C Aggregation type

D Geospatial

UNIT 5

Augmented Analytics in SAP Analytics Cloud

Lesson 1

Introduction to SAP Analytics Cloud Predictive	258
Exercise 10: Create a Forecast	265

Lesson 2

Exploring with Smart Assist	274
Exercise 11: Run Smart Discovery and Use Smart Insights	281

Lesson 3

Simplifying Predictive with Smart Predict	298
Exercise 12: Build a Predictive Model using Smart Predict	301

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UNIT OBJECTIVES

- Explain SAP Analytics Cloud Predictive
- Describe how Smart Assist offers new insights into data
- Describe how Smart Predict helps businesses to answer questions about the future

Unit 5

Lesson 1

Introduction to SAP Analytics Cloud Predictive

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LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Explain SAP Analytics Cloud Predictive

SAP Analytics Cloud Predictive

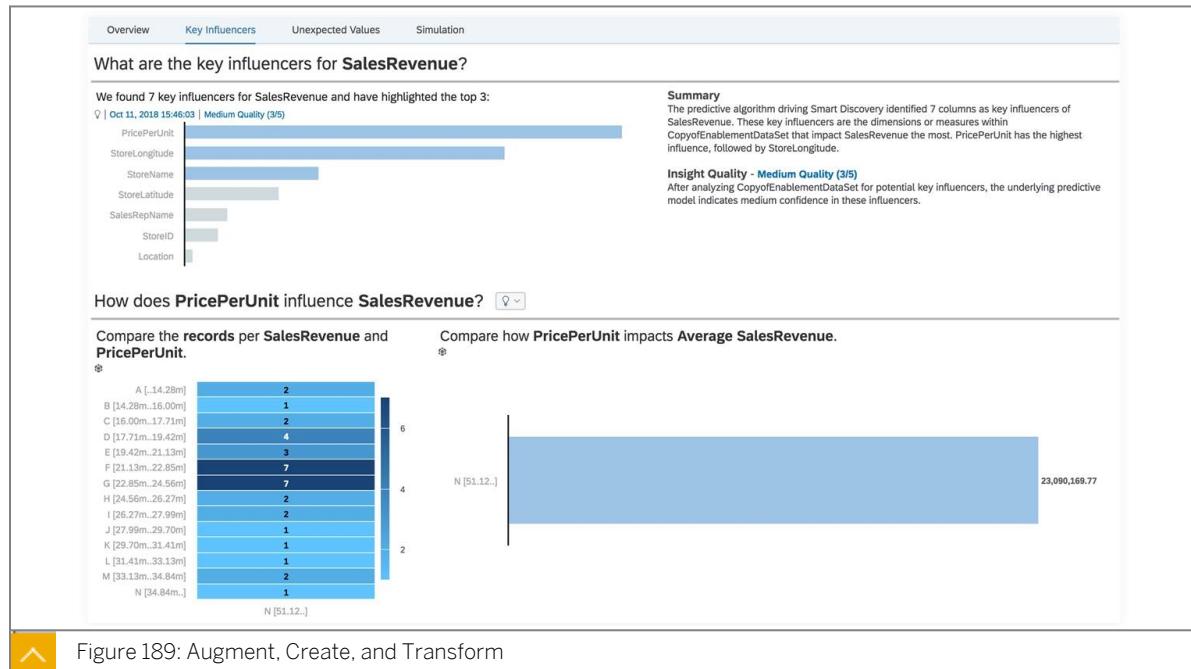


Figure 189: Augment, Create, and Transform

Duplication is prohibited.

Instant explanations.

Understand the top contributors of specific data points without having to manually pivot, slice or dice your data. Machine learning technology saves you time so you can focus on more high-value activities.

Insights around the top contributing factors behind historical performance can be added to your story with ease, and visualizations can be enhanced with context relevant explanations.

Smart Discovery

Easily reveal insights.

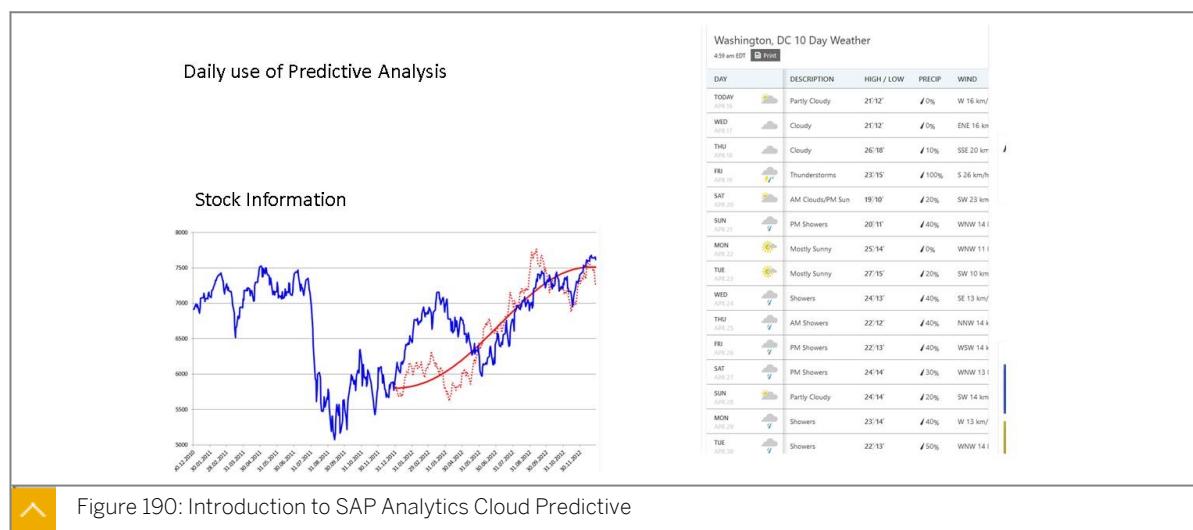
Identify key influencers and relationships in your data to discover how business factors influence performance. Automatically detect anomalies so you can take corrective action. Simulate the impact of strategic business decisions with machine learning projection.

Predictive Forecasting

Your early warning system.

Forecast future performance with a single click. Time-series forecasts are automatically updated as new information becomes available.

You can enhance visualizations and planning forecasts with future projections to detect if, and when, there is a risk of missing established targets.



Predictive analytics uses multiple mathematical techniques, such as data mining, statistics, machine learning, and artificial intelligence to predict the future based on historical data.

Many of these techniques are part of our daily business.

Simplify

- Simply create and modify calculations and planning models
- Take action anytime, anywhere on the desktop or on the go
- Align plans across Finance and Business units with direct integration into SAP Business Planning and Consolidation

Experience

- Analyze, plan and visualize in the same application
- Personalize your KPIs, dashboard, processes and stories
- Collaborate and make faster decisions

Trust

- Create time series forecasts
- Plan and simulate at any level of detail, with any number of users, at any time
- Drive high performance planning and forecasting process with the SAP HANA Cloud Platform

Today

Figure 191: SAP Analytics Cloud Predictive

Predictive Analysis in a Story

Carbon_Footprint per Travel_Date for Actual

Time series chart

Time series chart configuration:

- Data Source: Concur_Travel_V31
- Chart Structure:
 - Comparison: Trend
 - Trend: Line
 - Distribution: Stacked Area
- Measures: Carbon_Footprint
- Cross Calculations: Measure Values
- Time: Travel_Date

Figure 192: Introduction to SAP Analytics Cloud Predictive

Using Predictive Analysis

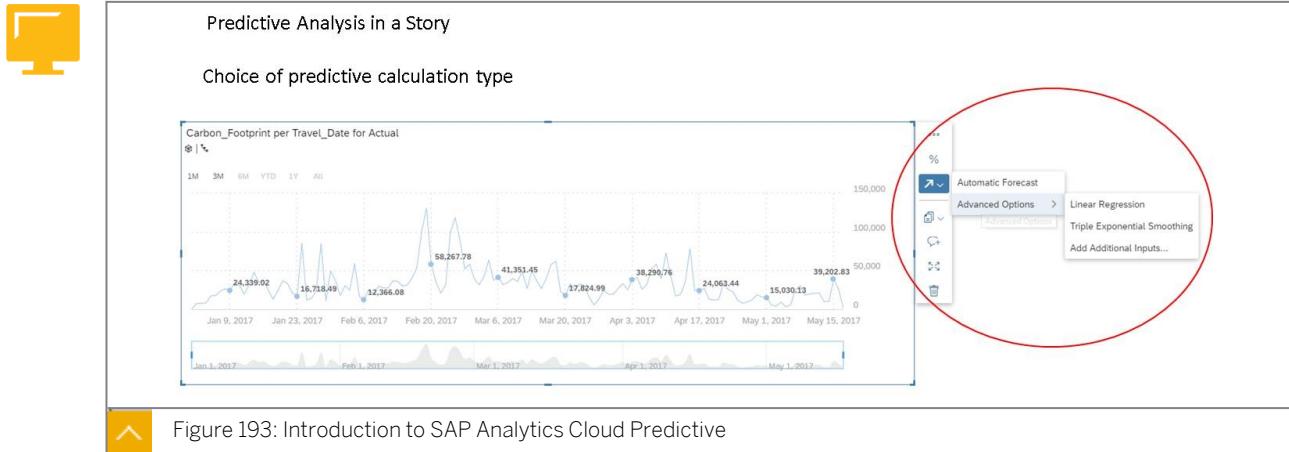
Performing predictive analysis within a story is the easiest way to make predictions. Predictive forecasting looks at historical data to find patterns, and uses the information to create a view on the future based on historical data.

Predictive forecasting takes into account different values, trends, cycles, and fluctuations in your data to make predictions. This is a powerful data-driven approach that can be leveraged to aid your planning process.

SAP Analytics Cloud predictive forecasting gives you an unbiased understanding of your key business influencers, and allows you to dive deeper into your data with interactive visuals. You can then use these findings to influence business decisions.

If there is enough historical data coming from your data model, for example, SAP Predictive Analytics Cloud can use a predictive technique, such as forecasting.

Once you create a chart, you can apply predictive forecasting, but only if the chart supports a time series.



There are two ways to use the automatic calculation function for the data for a predictive story:

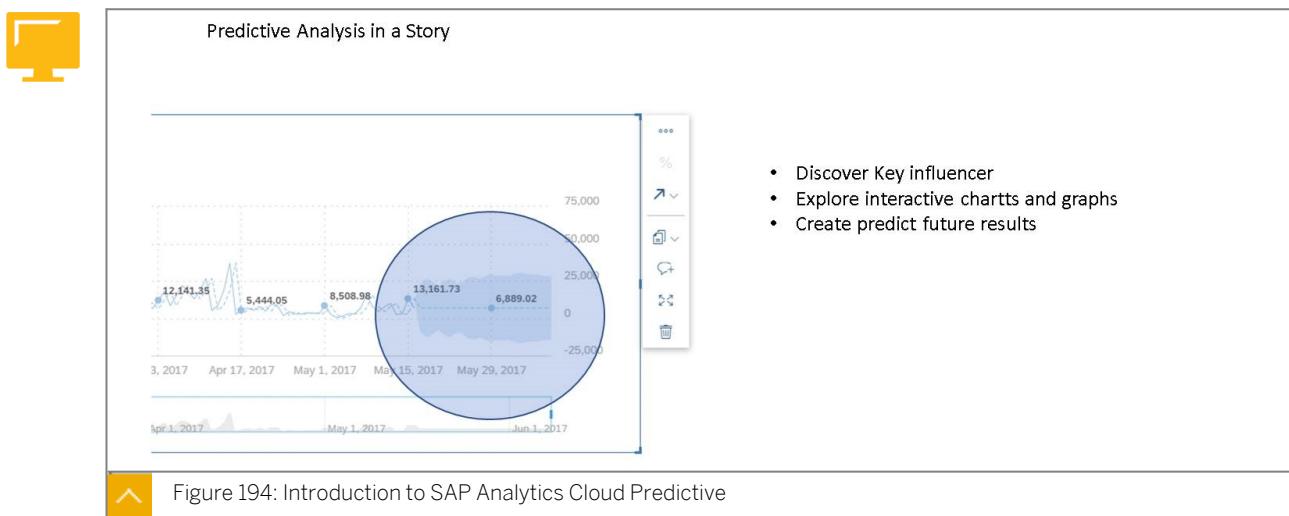
- Automatic Forecast

Forecasts future values based on historical data within the chart.

- Advanced Options

Allows you to include additional data as a potential forecast influence.

The forecast is added and is indicated by the highlighted area with the dotted line. When you select a data point, you can see the upper and lower confidence bounds (probability of accuracy in the prediction). You can also edit the forecast, such as change the color or add another variable.



SAP Analytics Cloud predictive forecasting helps you to understand past data trends to predict any metric in the future. The predictive algorithm classifies existing information, identifies outliers, and surfaces relationships within your data to help you see and understand your business' key influencers.

**Note:**

You need planning rights and a planning license to run a predictive time series forecast.

Predictive Model

If a predictive calculation should be used again, it might make sense to develop a predictive model.

Within the predictive model, it is possible to create different calculation types to get the right data about your usual data model. This could be an outlier detection, a regression, and so on.

The predictive model can be used as the data source for a new story, so that the BI tool can also be used for showing trends, visualizing regressions, or forecasting.

Within the additional predictive assist, you have more functionality to create your own predictive modulation.



SAP Analytics Cloud for predictive analytics

Automated, Guided and Trusted Experience

- Guided Analysis designed for Business Users, featuring the power of Exploratory Analytics

Today

New Discoveries

- Uncover key influencers, outliers, groupings, and other insights
- Interact with the insights and explore hidden structures and relationships
- Find the answer to business questions using intuitive charts and natural language.

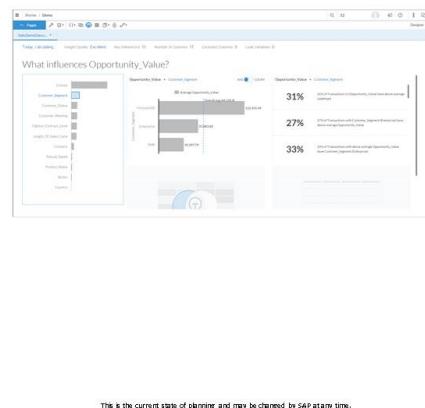


Figure 195: SAP Analytics Cloud Predictive

Duplication is prohibited.

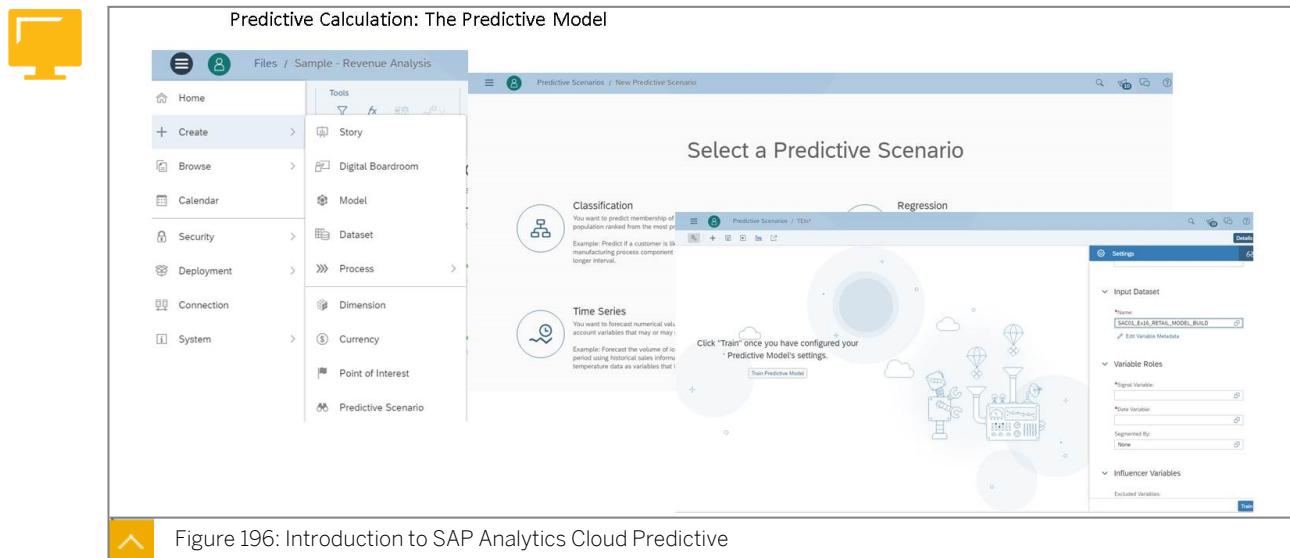
Duplication is prohibited.

Predictive Model Consumption

Business Users

Interact with predictive content and complex simulations using filters and parameters.

Retrain the predictive model in real-time - allowing data generation with support for generating scores, probabilities, and estimates.



Zero Code Deployment

Seamlessly deploy predictive models from SAP BusinessObjects Predictive Analytics to SAP BusinessObjects Cloud without coding. Manage the complete model lifecycle in SAP BusinessObjects Cloud, including scheduled retraining.

- Business Users
Make faster decisions with higher confidence by interacting with predictive content.
- Everyone
Share your insights with the larger team to better understand your business and rely on data-driven decision making.
- Data Scientists
Control the business user experience by allowing them to use and interpret predictive workflow.
- IT
Manage with less effort by zero code deployment from data scientist to business user and reduce TCO.

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Unit 5

Exercise 10

Create a Forecast

Create a Time-Series Forecasting Chart

In this exercise, create a predictive time-series forecast to predict and display how expected revenue will trend next year based on historical data.

Note:

In this exercise, XXX is used as a placeholder. Where you see XXX, replace it with the number that your instructor assigned you, and your initials. For example, O1AB.

Table 5: Dependency Information

Data or Item Used in this Exercise

Planning model: *Operating_Income_PlanXXXX*

Duplication is prohibited.

Duplication is prohibited.

1. Choose the *Canvas* page as a template to create a new story with a time-series chart, and name it, **Simple Forecast_XXXX**. Change the data source to *Operating_Income_Plan*.

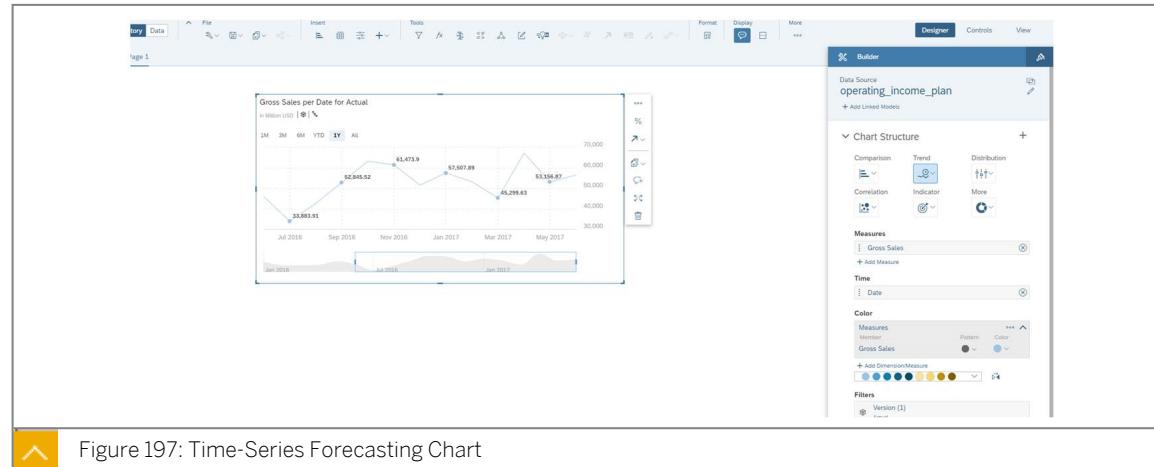


Figure 197: Time-Series Forecasting Chart

2. In the time-series chart, add *Gross Sales* as a measure, and add *Date* as a dimension measure. Add a filter by *Date (member)* to Q1,2,3 of 2017.

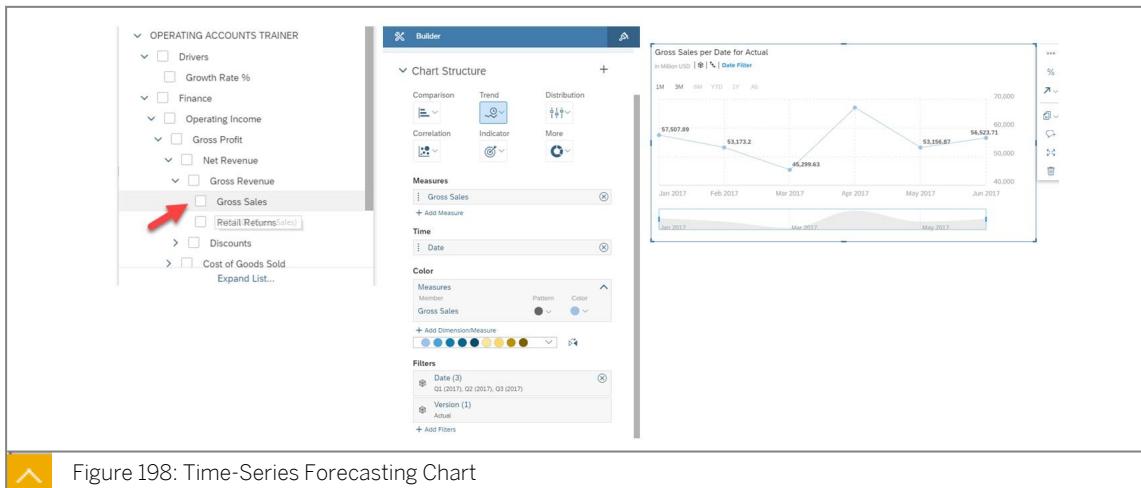


Figure 198: Time-Series Forecasting Chart

3. Choose Add, then Forecast and choose Automatic Forecast.

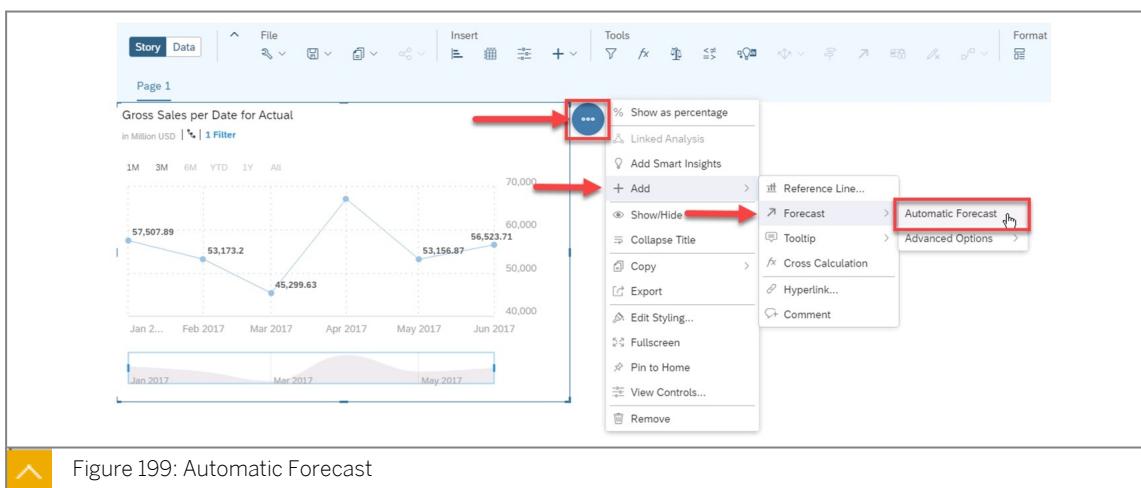
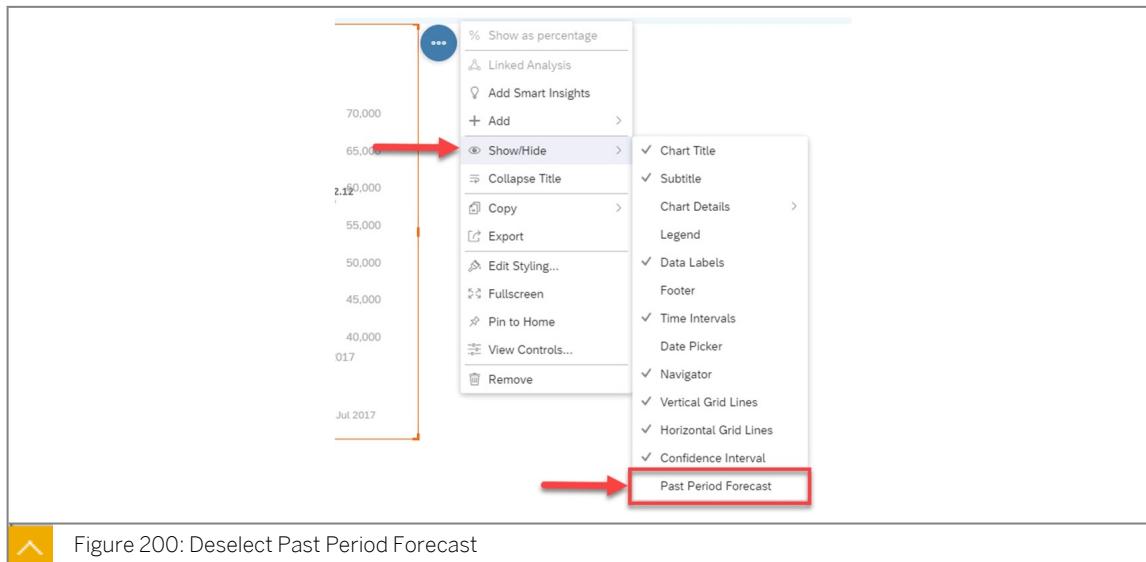


Figure 199: Automatic Forecast

4. The auto forecast shows the data for the future and a part of the past. You want to show the past periods to get an idea of how the math would compare to actual numbers of a previous period.

Duplication is prohibited.

Duplication is prohibited.



Your time series should look like the following figure *Expected Revenue Time for Actual*.



5. Access *Styling* again for the chart, and change the background to green so that you can see the icons on the next step more easily. Adjust the color of the font to white and the color of the data points to yellow.
6. Select the full-screen option to see the details of your chart more easily, as shown in the following figure, *Select Full Screen*.

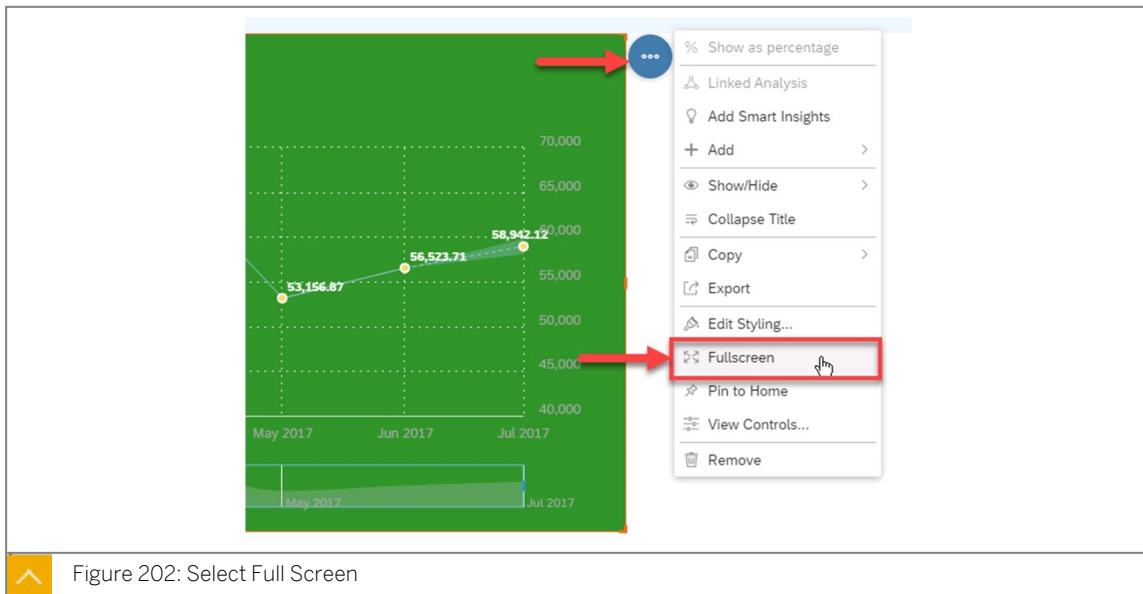


Figure 202: Select Full Screen

7. Add the following comment to the chart, **This Forecast is machine generated without human interaction and insight**, as shown in the following figure, Add Comment to Chart.

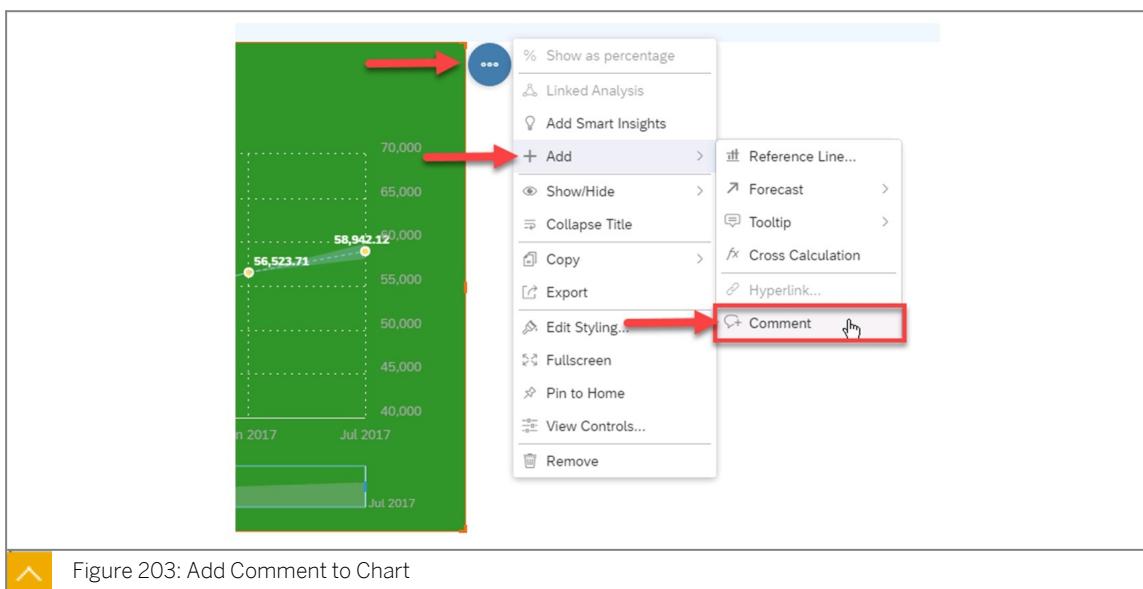


Figure 203: Add Comment to Chart

Unit 5

Solution 10

Create a Forecast

Create a Time-Series Forecasting Chart

In this exercise, create a predictive time-series forecast to predict and display how expected revenue will trend next year based on historical data.

Note:

In this exercise, XXX is used as a placeholder. Where you see XXX, replace it with the number that your instructor assigned you, and your initials. For example, O1AB.

Table 5: Dependency Information

Data or Item Used in this Exercise

Planning model: *Operating_Income_PlanXXXX*

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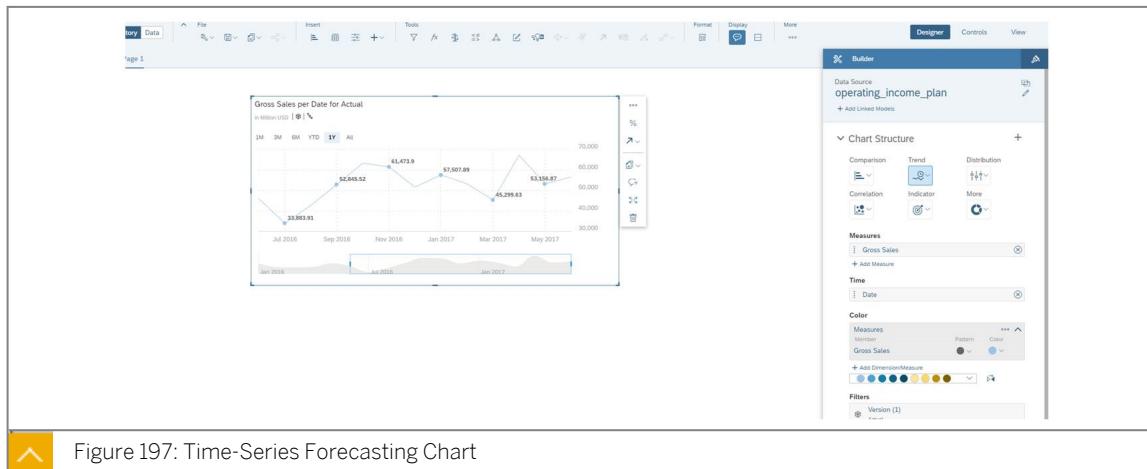


Figure 197: Time-Series Forecasting Chart

2. In the time-series chart, add *Gross Sales* as a measure, and add *Date* as a dimension measure. Add a filter by *Date (member)* to Q1,2,3 of 2017.

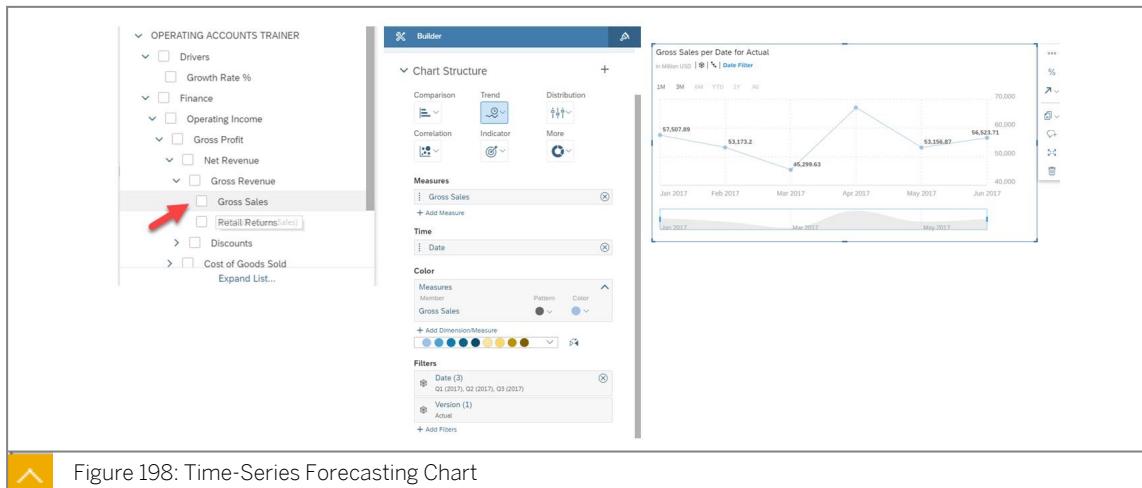


Figure 198: Time-Series Forecasting Chart

3. Choose Add, then Forecast and choose Automatic Forecast.

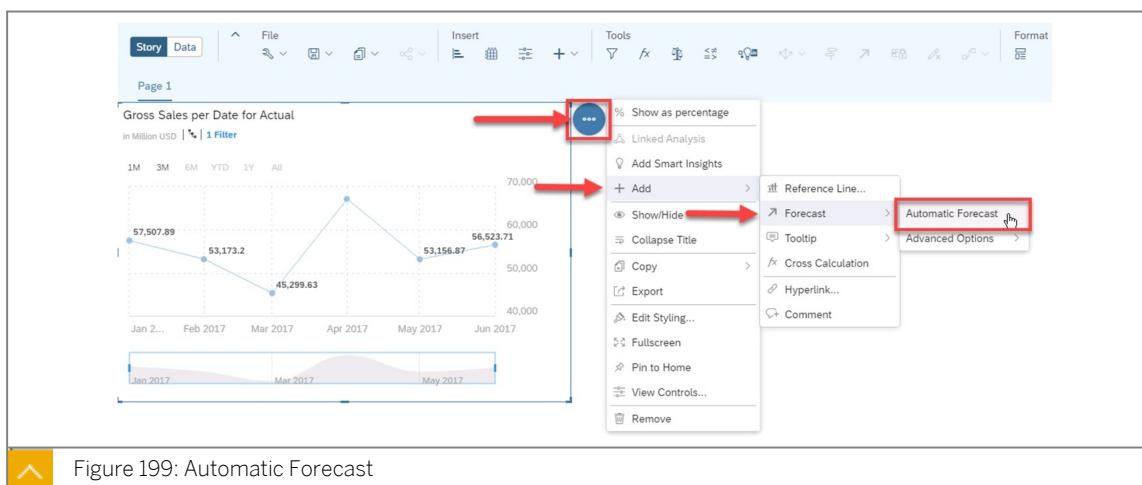
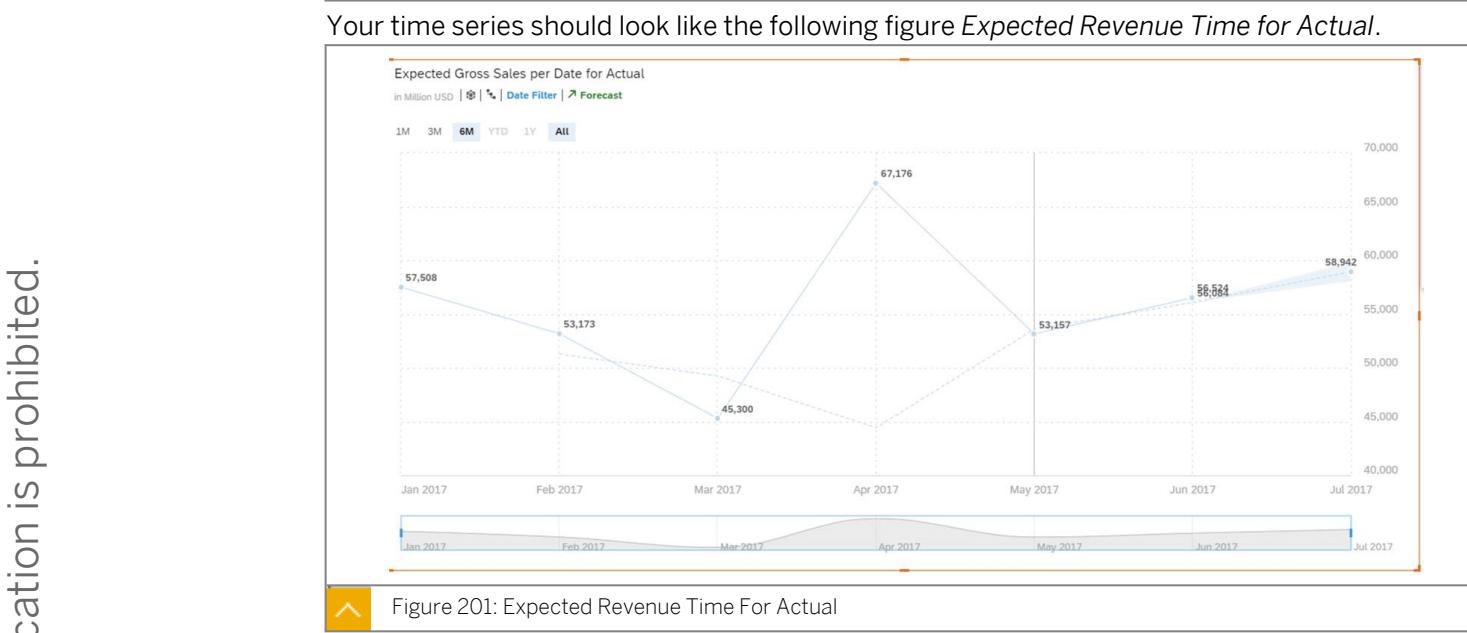
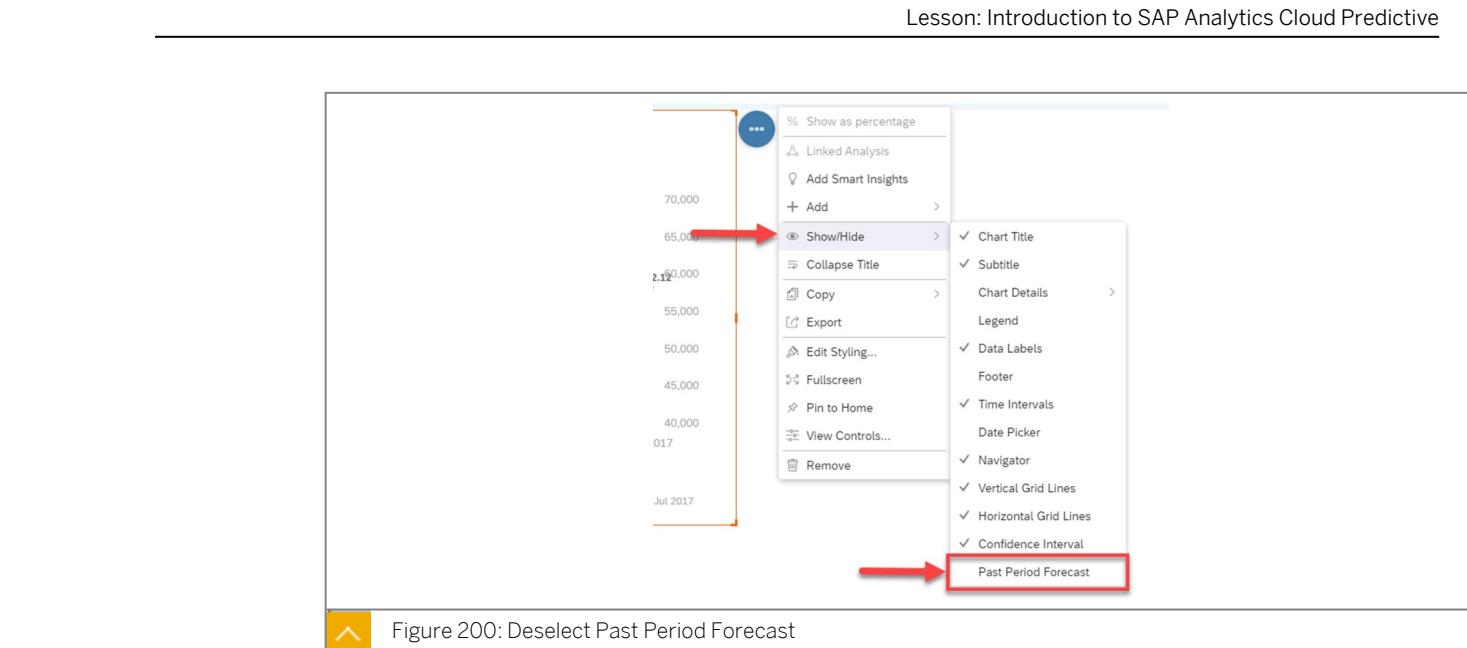


Figure 199: Automatic Forecast

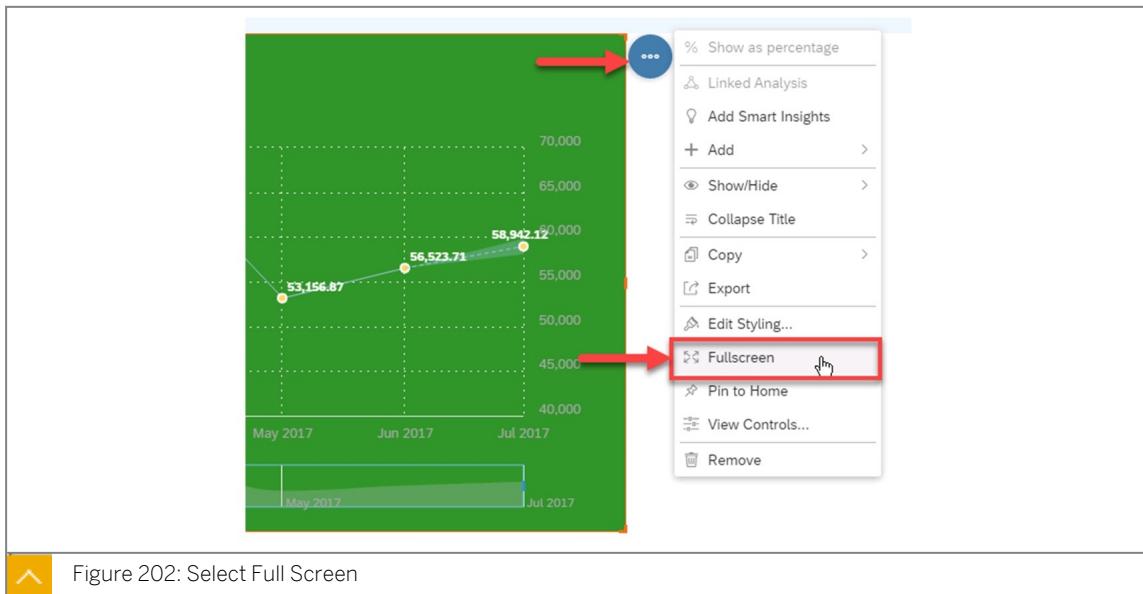
4. The auto forecast shows the data for the future and a part of the past. You want to show the past periods to get an idea of how the math would compare to actual numbers of a previous period.

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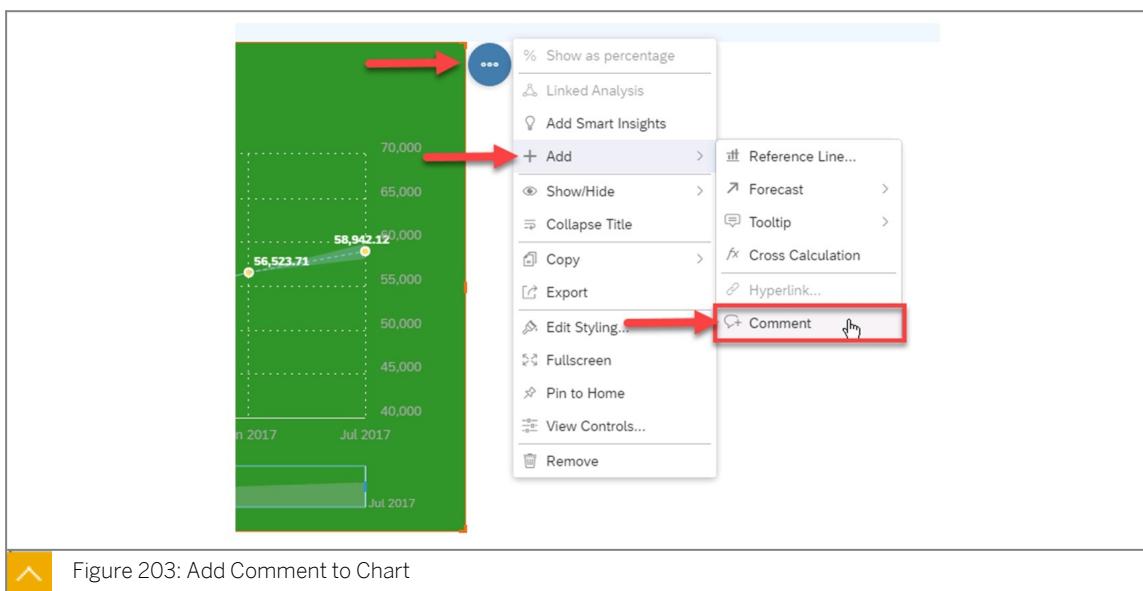


Duplication is prohibited.

5. Access *Styling* again for the chart, and change the background to green so that you can see the icons on the next step more easily. Adjust the color of the font to white and the color of the data points to yellow.
6. Select the full-screen option to see the details of your chart more easily, as shown in the following figure, *Select Full Screen*.



7. Add the following comment to the chart, **This Forecast is machine generated without human interaction and insight**, as shown in the following figure, Add Comment to Chart.





LESSON SUMMARY

You should now be able to:

- Explain SAP Analytics Cloud Predictive

Duplication is prohibited.

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Exploring with Smart Assist

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LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe how Smart Assist offers new insights into data

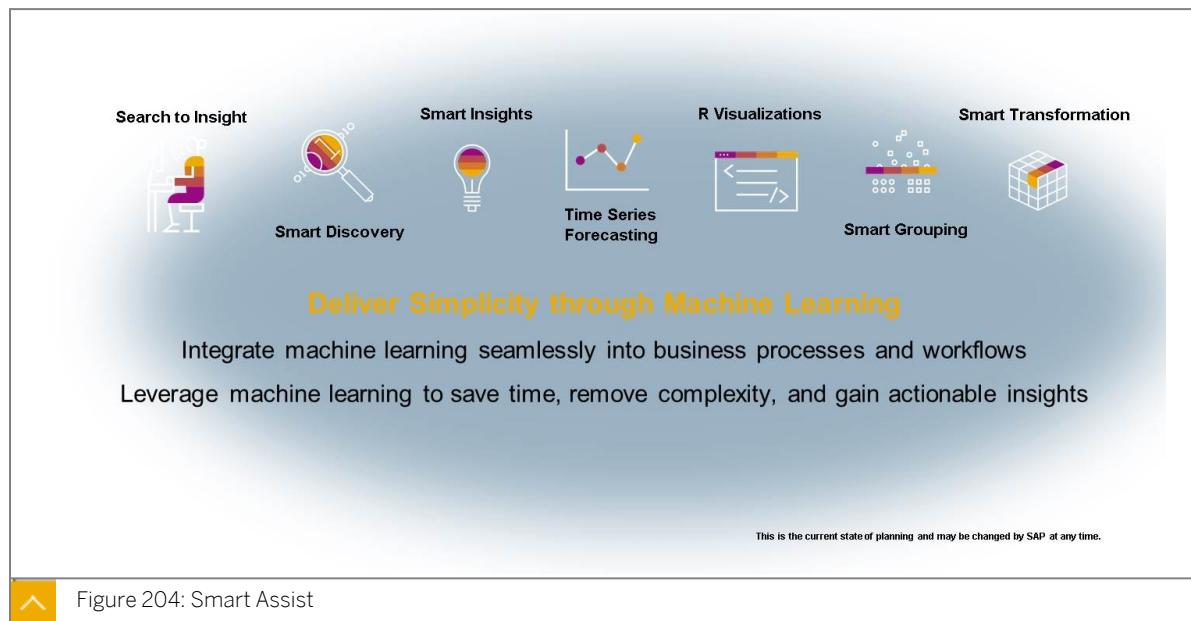
Smart Assist

What is SAP Smart Assist?

Gartner's Definition of Smart Data Discovery



- Smart data discovery is a next-generation data discovery capability that provides business users or citizen data scientists with insights from advanced analytics. Business intelligence and analytics leaders should plan for adoption as capabilities mature.



Duplication is prohibited.



- Auto-generate fully populated, multi-tabbed stories with Overview, Key Influencers, Unexpected Values and Simulation tabs
- Identify actionable insights powered by Machine Learning
- Expose key influencers driving business-critical KPIs
- Analyze outliers to identify impactful decisions
- Predict future outcomes with interactive

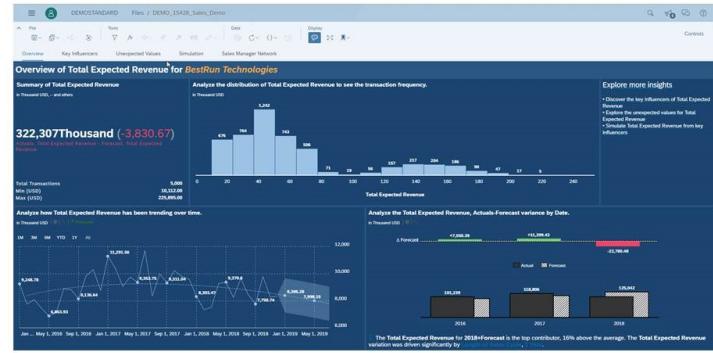


Figure 205: Smart Discovery in Stories: Surface Hidden Patterns



Project expected values in future time periods in planning and charting use cases

Validate the quality by looking at the confidence interval, hindcast and quality indicators

Include additional factors (such as weather information) to simulate expected values in future time periods

Create forecasts with time series trend charts and line charts

Example: Forecast future sales or margin

Recent Innovation

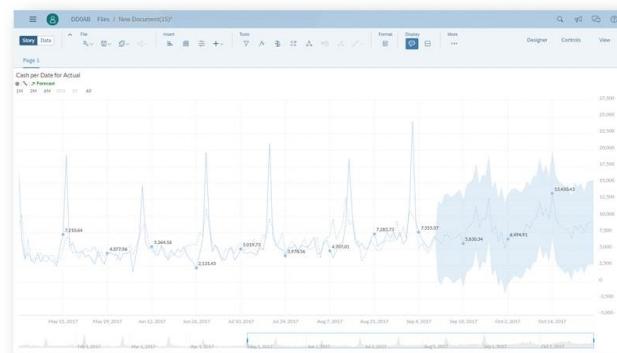


Figure 206: Time Series Forecasting

The figure, *Time Series Forecasting*, shows how smart assist allows you to project possible future outcomes at the click of a button.

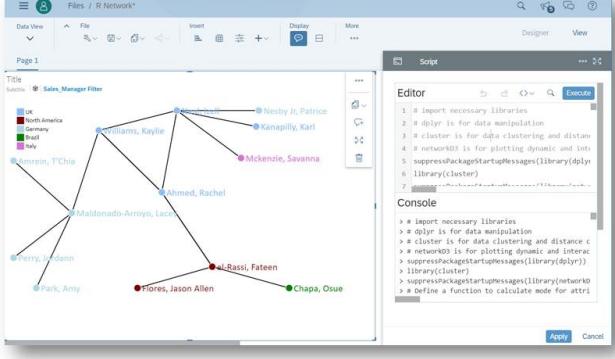


R is an open-source programming language that leverages machine learning and statistical capabilities for data analysis

Native R Visualization support in SAP Analytics Cloud

- Insert R-visualizations into your story, applying data filters and linked variables
- Share stories that include R-visualizations
- Visualizations respect row-level security of users
- Write R script in built-in IDE on top of existing data models

Example: Create a 3D plot chart for your customer data



Recent Innovation

Figure 207: Static and Interactive R Visualizations

R is a programming language used by data scientists. We can easily integrate R into SAC. The figure, *Static and Interactive R Visualizations*, illustrates how native R visualization support enables you to visualize and analyze data without limits.

The R Server Runtime Environment provided by SAP allows you to access interactive R visualizations with an automatically configured R Server.

Support for R Server Runtime Environment

- R Server deployed by SAP Analytics Cloud is provided for the following datacenters:
 - EU1
 - EUDP
 - AP1
 - US1
 - US2
- Running R version 3.3.2 (Rserve 1.7.3) with a comprehensive list of pre-installed packages.

SAP Analytics Cloud Smart Assist empowers you to make better decisions, faster.

Smart Assist

- Smart Assist includes the following:
 - Smart Discovery (formerly Guided Machine Discovery)
 - Smart Insights
 - Smart Grouping
 - Smart Transformation (the data wrangling feature is outside our scope)



Recent Innovation

Uncover key influencers of KPIs by using classification and regression techniques

Interact with insights and explore hidden structures and relationships

Find the answer to business questions through intuitive charts and natural language

Examples: Uncover the business drivers of your revenue, churn, or employee productivity

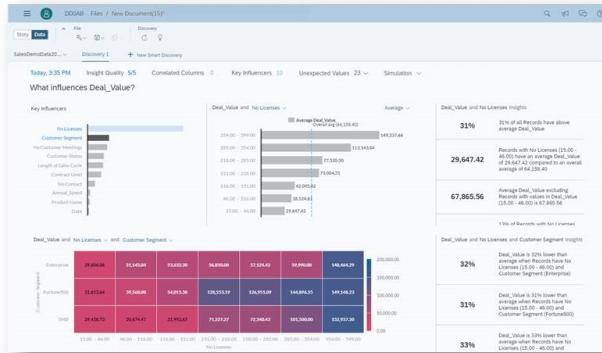


Figure 208: Smart Discovery - Core KPIs

The figure, *Smart Discovery - Core KPIs*, shows how you can understand your main business drivers behind your core KPIs.



Recent Innovation

Predict the outcome of a particular KPI or record value based on historical data

Experiment to see how particular dimension values or KPI values will affect the outcome

Example: Simulate the value of a new sales opportunity

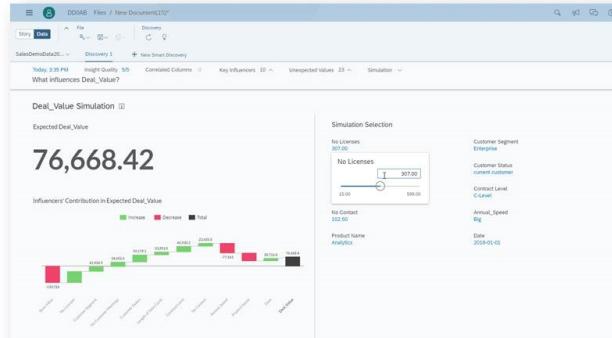


Figure 209: Smart Discovery - Simulation

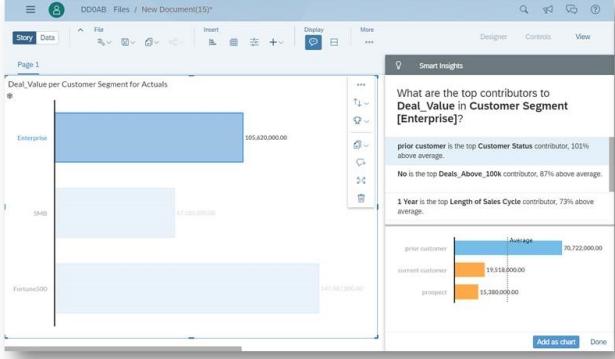
You can also simulate possible outcomes based on your business scenarios, as seen in the figure, *Smart Discovery - Simulation*.



[

Click on a data point to get smart textual and visual insights

Example: What to know more about your Revenue in the Enterprise Segment? Our Smart Insights panel will give you an explanation.



]

Figure 210: Smart Insights

Smart Insights, as the name suggests, lets you quickly develop a clear understanding of intricate aspects of your business data, as the example in the figure, *Smart Insights*, shows. With dynamic text token in chart footers, you can supplement visualizations with smart textual explanations on the contributors behind your data.

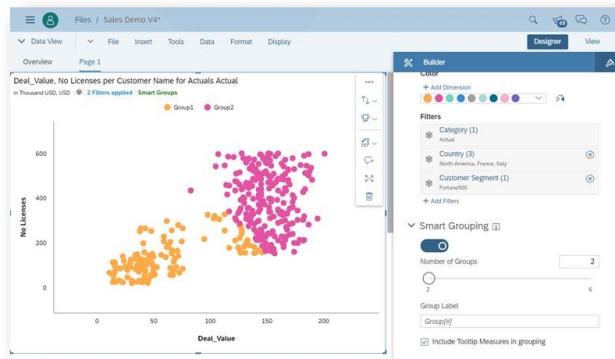


[

Get smart groupings (clusters) of data values across several measures

Use recommended number of groups most appropriate for your data

Example: Automatically identify customer groups in your data



]

Figure 211: Smart Grouping

Automatically create segments on different types of data in your organization with smart grouping, as seen in the figure, *Smart Grouping*.



Recent Innovations

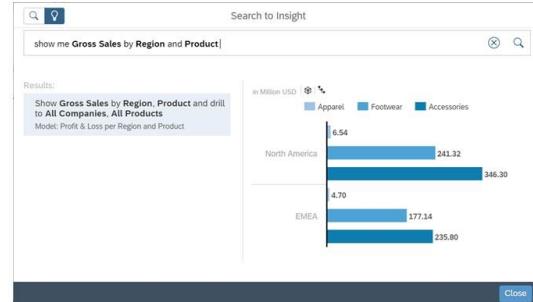
Search to Insight extends the Smart Assist capabilities by letting you ask natural language questions about your data

■Democratizes information access through simplicity:

Just ask your question in natural language
Discover top influencers of performance without having to look and automatically predict future values to improve results

■Fosters an insight driven culture:

Get insights on-the-fly and continue your exploration in the Story
Augment manual insights with embedded intelligence, including smart insights for variances and better data-driven decisions



■Future ready for SAP's CoPilot, an SAP Fiori digital assistant experience

■Part of SAP Leonardo's conversational Artificial Intelligence and Machine Learning foundation

This is the current state of planning and may be changed by SAP at any time.

↗ Figure 212: Search to Insight

As the figure, *Search to Insight*, shows, you can gain insights on-the-fly with conversational artificial intelligence.

Table 6: Which Features are Available for Live Models?

Live Models Supported For	Live Models Not Supported For
Time series forecasting in BI	Smart Insights
Smart Grouping	Smart Discovery
R-visualizations	
Note: Data needed for training will be sent to the SAP server if the toggle is turned on.	



On-Premise

SAP Predictive Analytics 3.2

Agnostic DB

HANA

APL

PAL

R

APL = Automated Predictive Library
PAL = Predictive Analysis Library
R = Open-source Language

Cloud

SAP Cloud Platform

SAP Analytics Cloud

Public Cloud

SCP Predictive Services 1.X

APL

Uses

Wraps

↗ Figure 213: What's Happening in the Background?

Sap Analytics Cloud Runs on SAP HANA, so the core predictive features of SAP HANA are available, which includes the automated predictive library (APL) and the predictive analysis library (PAL).

Duplication is prohibited.

Duplication is prohibited.

Unit 5

Exercise 11

Run Smart Discovery and Use Smart Insights

In this exercise, run a smart discovery within SAP Analytics Cloud. You will develop an understanding of the purpose of various pages that are created by smart discovery.

Based on the date you imported, you want to see what factors influence the salary you pay your employees. As you are not familiar with HR data, you want to use smart discovery in SAP Analytics Cloud which automatically creates you a story.

Key Tasks:

- Run a smart discovery with acquired data.
 - Explain the differences between the overview, key influencers, unexpected values, and simulation page.
 - Use smart insights to gain intrinsic information about a data point.
1. Open the SAC01_HR_Employee_xxxx story.



Note:

Open this story and copy it to the My Files folder so it becomes editable later.

2. Run a smart discovery at any time, using the *Smart Discovery* icon in the toolbar.

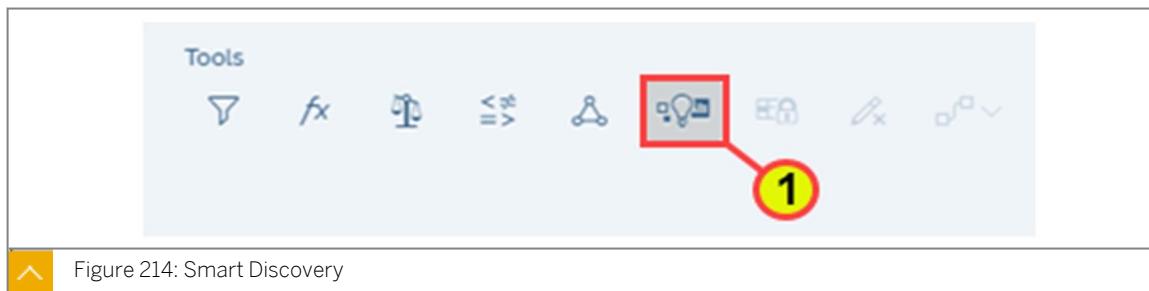


Figure 214: Smart Discovery

Smart Discovery provides insights on how underlying variables influence a given dimension or measure, within a dataset in a story, using machine learning algorithms.

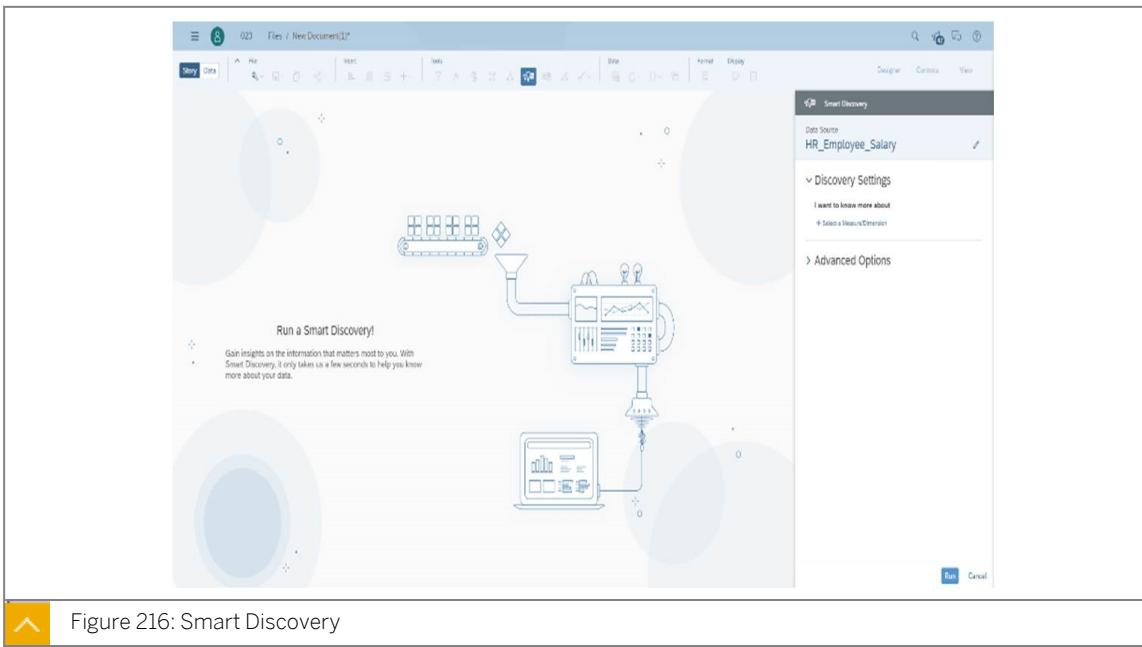


Figure 216: Smart Discovery

3. Learn more about the various factors that contribute to the annual salary that is paid to employees at Pacifica Company.
4. Based on the various visualizations on the Overview page, you are interested in analyzing the total annual salary spent in Europe (EMEA) versus North America (NA). It is evident that more is spent in NA in comparison to EMEA. Thus, analyze the breakdown within NA.
5. You can see that the company has employees situated in two countries: US and Canada. As the company is spending more in the US, explore what cities the company operates in.

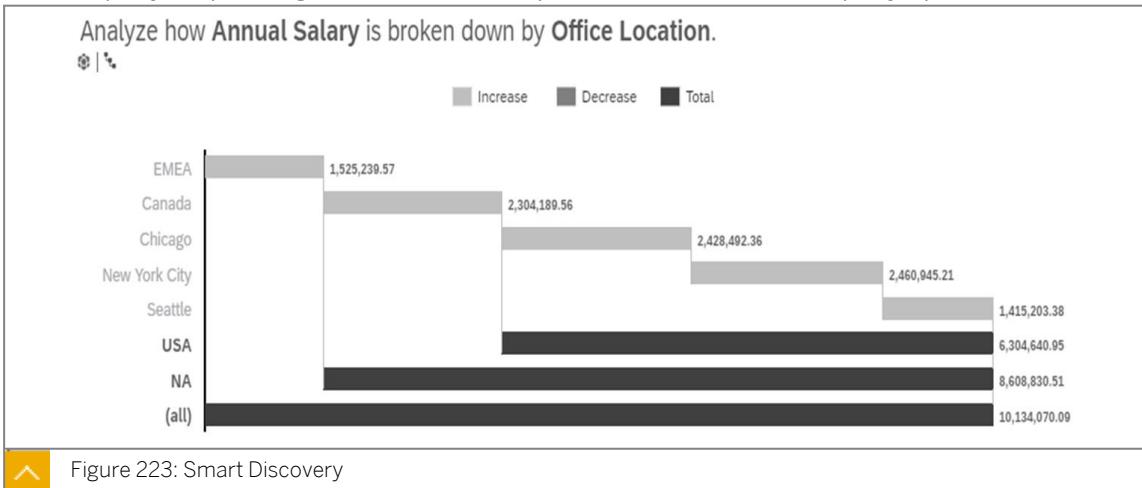
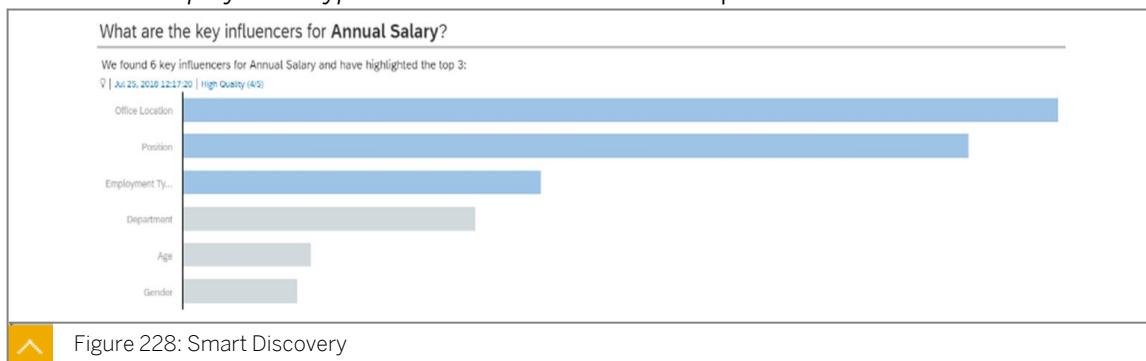


Figure 223: Smart Discovery

The US has three offices. It is clear that as there are more offices within the US, it ends up spending more in comparison to EMEA.

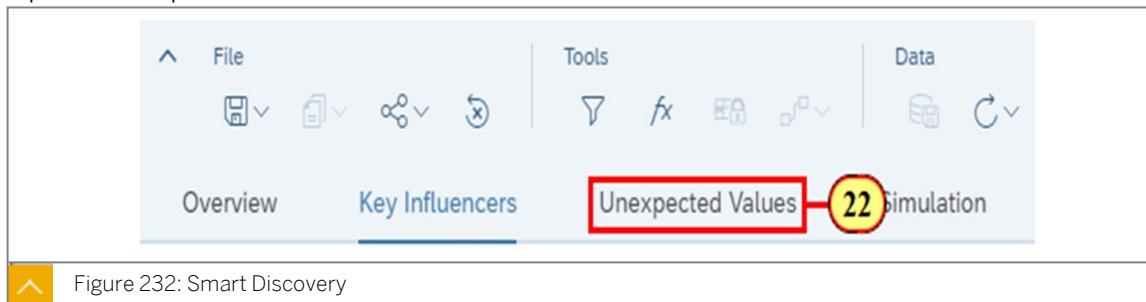
6. Check the distribution of annual salary by position. It is evident that the company is spending significantly more on the associate position. Explore what factors contribute to this.

7. On the lower pane, you can see the distribution of annual salary by age. You see that most associates are within their early twenties, as the company recently introduced an early talent program.
8. On the upper pane, you can see other visualizations that help illustrate the factors that contribute to the associate position department to ensure the values are correct.
9. Check how *Employment Type* contributes to the associate position.



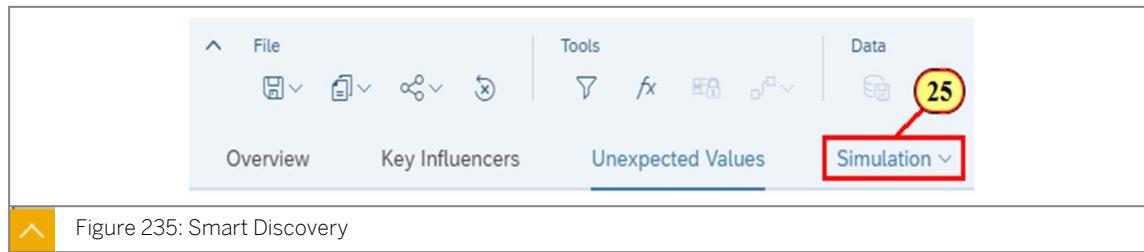
Smart discovery has found six key influencers that contribute to annual salary. You have already analyzed office location, position, and employment time.

10. Investigate how department impacts annual salary.
It is evident that on average the Sales Department is paid more than any other department.
11. See how much more the company is paying the Sales Department in comparison to the Operation Department.

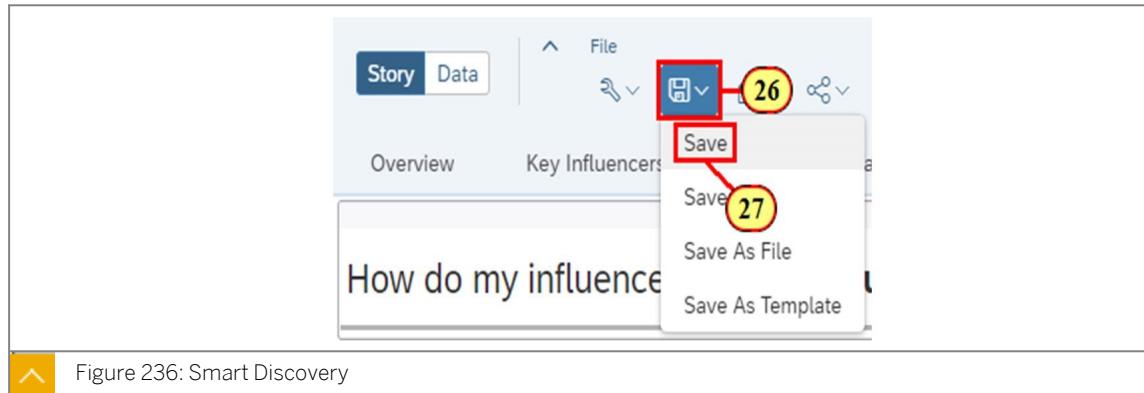


Based on the unexpected values that smart discovery generated, there are three employees from the sales department. On the Key Influencers tab, you saw that the sales department was paid more than any other department in the company.

12. Investigate these unexpected values.
Based on the difference marker for expected value to actual value, Gary Dumin is making \$55,424.66 more than smart discovery expected. We will investigate later whether Gary Dumin's salary is justified.
13. Choose the *Simulation* (1) tab.
The *Simulation* page will help the HR Department determine how much they should pay an employee that is about to join Pacifica.
In this case, you are not too interested in the simulation.



14. In the toolbar, choose *File* → *Save*.



You have completed the Run a Smart Discovery section. Your story may look like the following figure:

The screenshot shows a completed Smart Discovery story titled 'How do my influencers affect Annual Salary?'. The story summary states: 'Expected Annual Salary Jul 29, 2020 00:20 | []'. The main result is displayed as a large bold number: **41,982**. Below the result, it says: 'Expected Annual Salary is 41,982, negatively influenced mainly by Position [Associate] + Employment Type [Contract/Interim].'

The story also includes a summary section: 'Summary Use the Simulation view to discover how changing the values of your key influencers could have an impact on the value of your **Annual Salary**. Simply specify a new value for one or more of your key influencers, and choose the 'Simulate' button.'

Below the summary, there is a section titled 'Change the influencer values below, and choose 'Simulate' to see the impact on **Annual Salary**'. It contains four sets of input fields for 'Influencers' and 'Impact' (Position, Employment Type, Department) and 'Office Location' and 'Age'.

Influencers	Impact	Influencers	Impact
Position: Associate	Weakly Negative	Office Location: Brussels	Neutral
Employment Type: Contract/Interim	Weakly Negative	Age: 19	Neutral
Department: Accounting	Neutral		

A 'Simulate' button is located at the bottom left of the simulation section.

Figure 237: Smart Discovery

Run Smart Discovery and Use Smart Insights

In this exercise, run a smart discovery within SAP Analytics Cloud. You will develop an understanding of the purpose of various pages that are created by smart discovery.

Based on the date you imported, you want to see what factors influence the salary you pay your employees. As you are not familiar with HR data, you want to use smart discovery in SAP Analytics Cloud which automatically creates you a story.

Key Tasks:

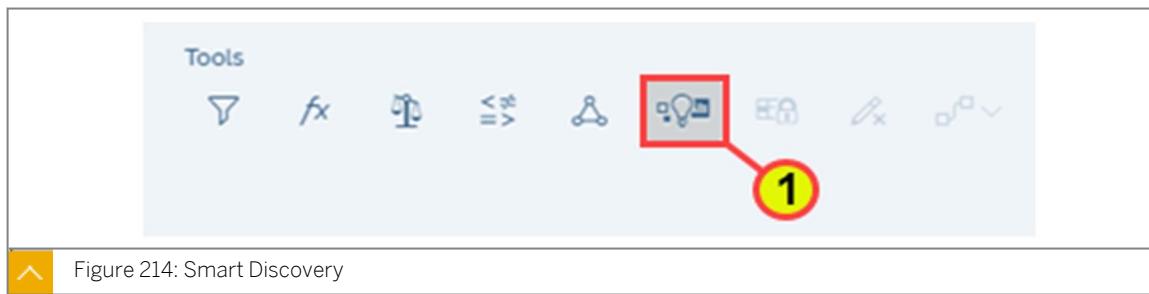
- Run a smart discovery with acquired data.
 - Explain the differences between the overview, key influencers, unexpected values, and simulation page.
 - Use smart insights to gain intrinsic information about a data point.
1. Open the SAC01_HR_Employee_xxxx story.



Note:

Open this story and copy it to the My Files folder so it becomes editable later.

2. Run a smart discovery at any time, using the *Smart Discovery* icon in the toolbar.



- a) Choose *Run a Smart Discovery*.
- b) Choose *OK*.

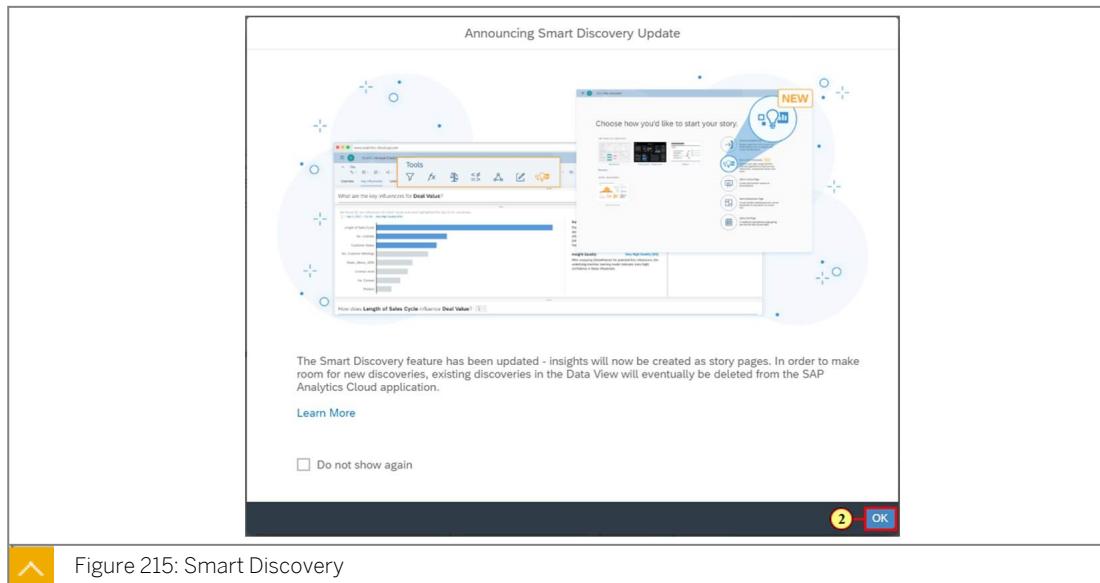


Figure 215: Smart Discovery

Smart Discovery provides insights on how underlying variables influence a given dimension or measure, within a dataset in a story, using machine learning algorithms.

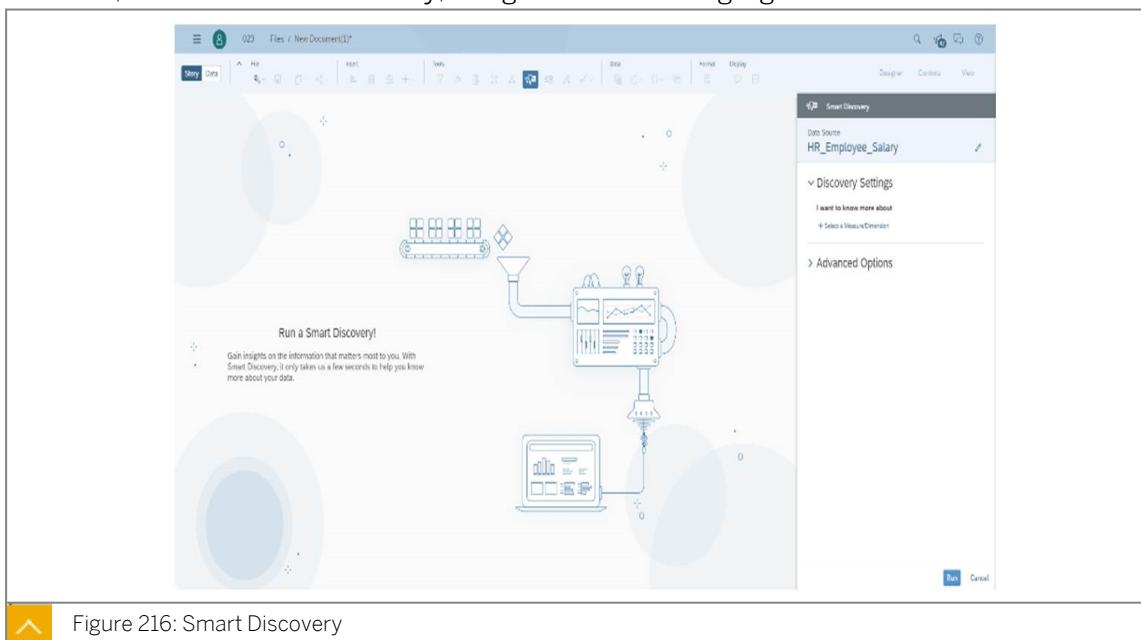
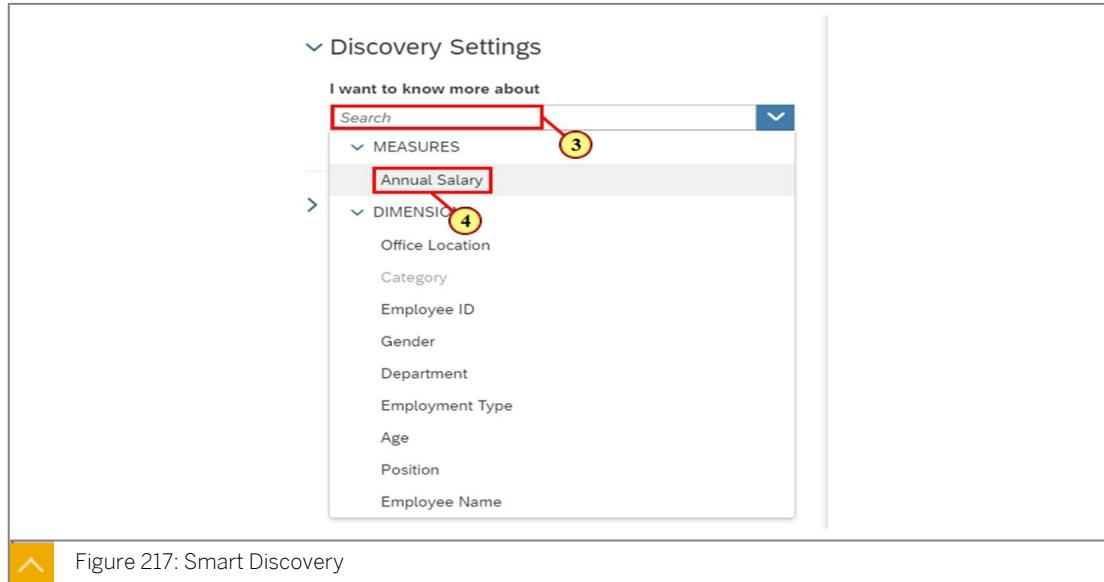


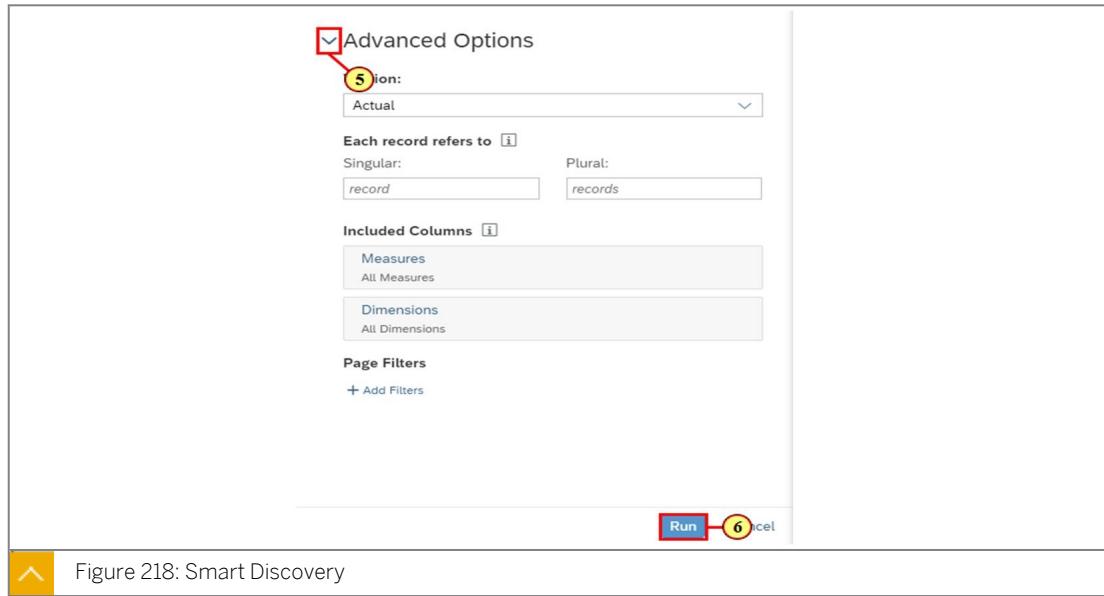
Figure 216: Smart Discovery

3. Learn more about the various factors that contribute to the annual salary that is paid to employees at Pacifica Company.
 - a) Choose + Select a Measure/Dimension.



- b) Choose *Annual Salary*.
- c) Expand *Advance Options*.

The advanced options in smart discovery allow you to filter down your data and exclude any dimensions and measures that you do not want to consider when running your smart discovery. All of the data included in this dataset is crucial to answer your business question. Thus, do not worry about filtering down our data.



- d) Choose *Run*.
- Wait for smart discovery to build the story.

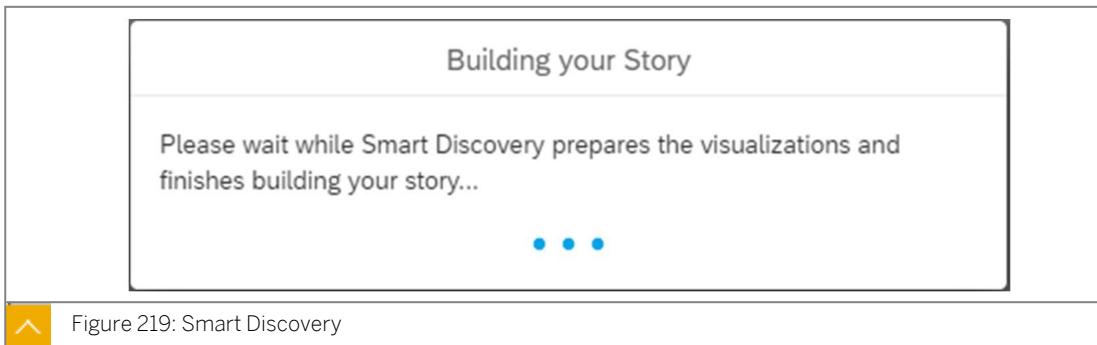


Figure 219: Smart Discovery

Smart discovery creates up to four pages, as shown in the following list:

a) Overview

Illustrates visualizations that help understand how the data is distributed, and what factors contribute to the total aggregated value.

b) Key Influencers

Shows a list of dimensions and measures (ranked from highest to lowest contribution) that have been identified by the underlying machine learning algorithm as top influencers. The included visualizations are displayed to understand the impact of the influencer on your target (annual salary).

c) Unexpected Values

Contains a table with records that have been identified by the underlying machine learning model as unexpected. The table shows the actual and the predicted values along with the other corresponding dimensions.

d) Simulation

Contains a list of the key influencers and their corresponding values. You can simulate an impact by selecting values for each key influencer. The impact of the value is reflected on the chart.

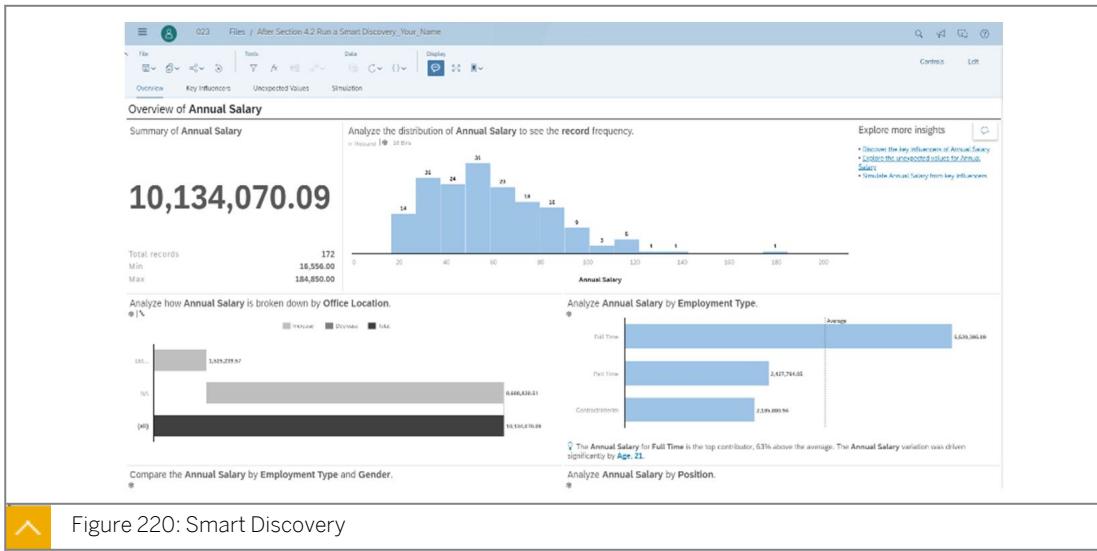
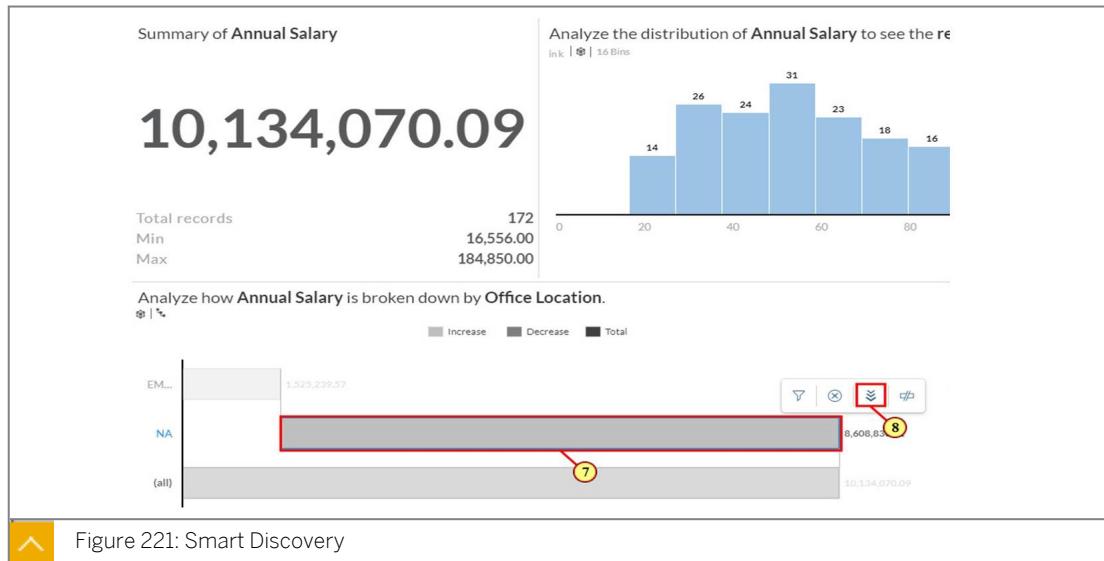


Figure 220: Smart Discovery

4. Based on the various visualizations on the *Overview* page, you are interested in analyzing the total annual salary spent in Europe (EMEA) versus North America (NA). It is evident that more is spent in NA in comparison to EMEA. Thus, analyze the breakdown within NA.

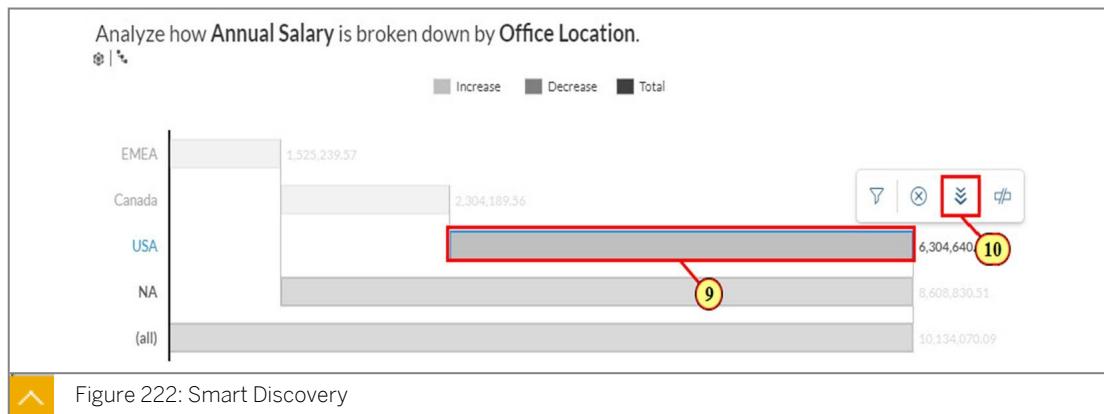
a) Choose NA.



b) Choose the *Expand Office Location* icon.

5. You can see that the company has employees situated in two countries: US and Canada. As the company is spending more in the US, explore what cities the company operates in.

a) Choose USA.



b) Choose the *Expand office location* icon.

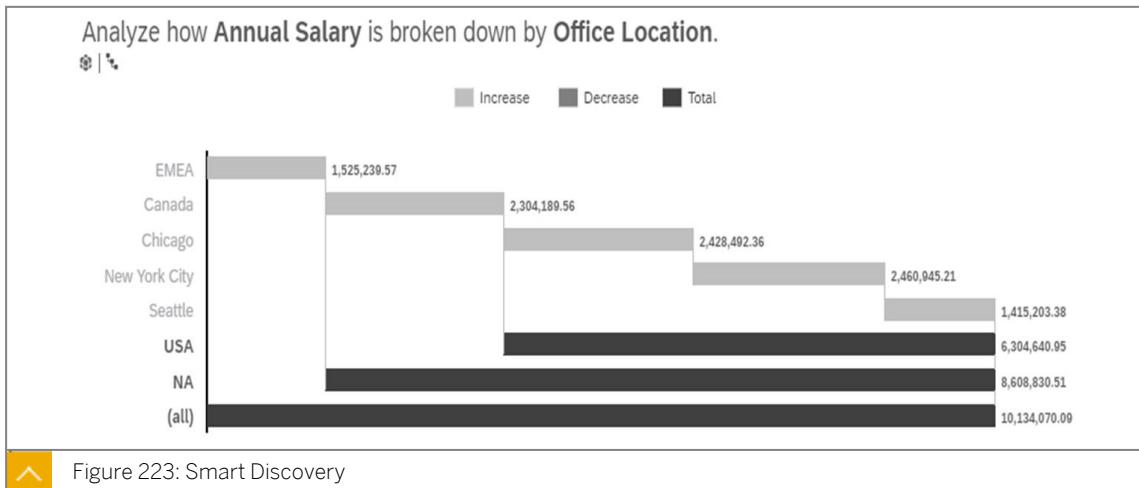


Figure 223: Smart Discovery

The US has three offices. It is clear that as there are more offices within the US, it ends up spending more in comparison to EMEA.

6. Check the distribution of annual salary by position. It is evident that the company is spending significantly more on the associate position. Explore what factors contribute to this.
 - a) Scroll to the bottom.
 - b) Choose Associate Position.

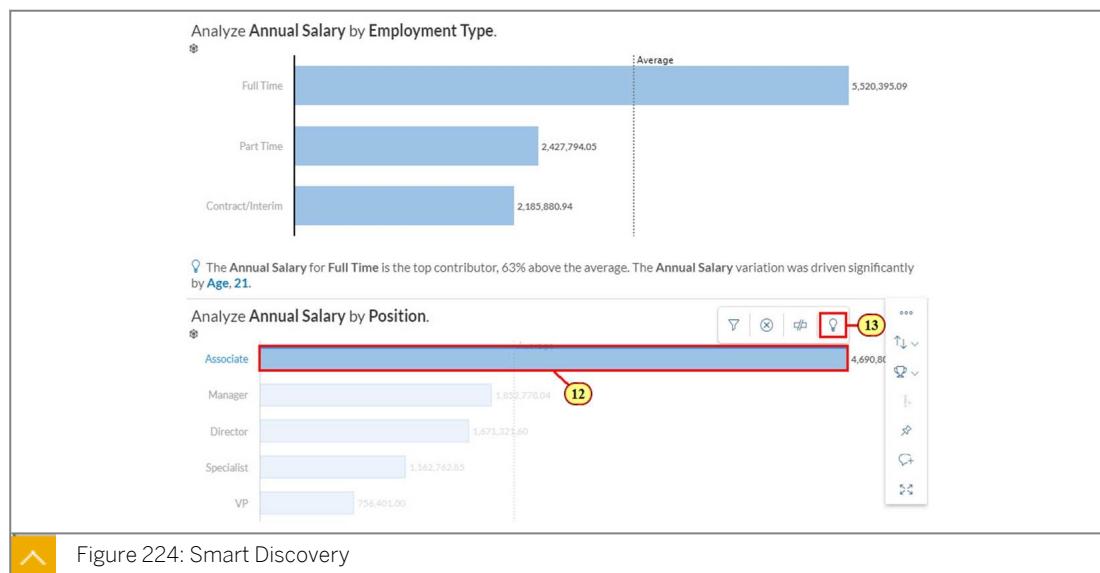


Figure 224: Smart Discovery

- c) Right-click to select *Smart Insights* icon.



Figure 225: Smart Discovery

Smart insights lets you gain more intrinsic information about a data point in your visualization. When you select a data point in your visualization and choose *Smart Insights*, a side panel appears with smart textual and visual insights on that particular data point, as follows:

- a) The lower pane shows a chart preview of the insight.
- b) The upper pane shows information that highlights contributing factors for the data point.

Smart insights can be added to a charts footer via the quick action menu.

7. On the lower pane, you can see the distribution of annual salary by age. You see that most associates are within their early twenties, as the company recently introduced an early talent program.
8. On the upper pane, you can see other visualizations that help illustrate the factors that contribute to the associate position department to ensure the values are correct.
9. Check how *Employment Type* contributes to the associate position.
 - a) Choose *Full Time is the Top Employment Time Contributor*.

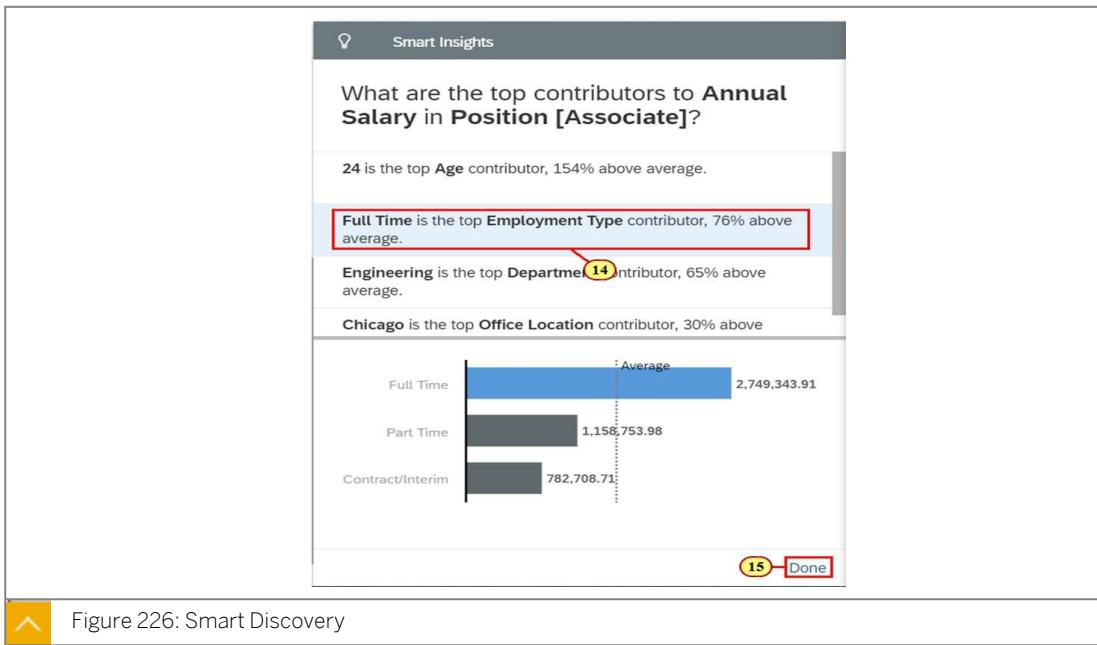


Figure 226: Smart Discovery

You can see that *Full Time* is our highest contributor, as Pacifica Company primarily employs full time employees. However, the amount it spends on contract/interim versus part time does seem a bit odd. Follow up with the HR.

- Choose Close.
- Choose the *Key Influencers* (1) tab.

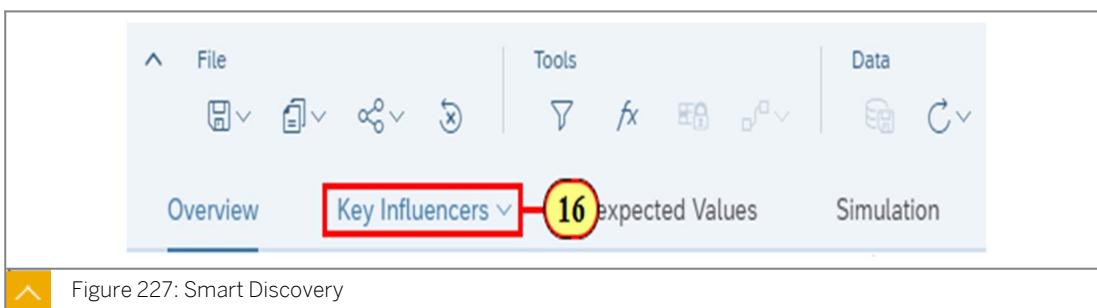


Figure 227: Smart Discovery

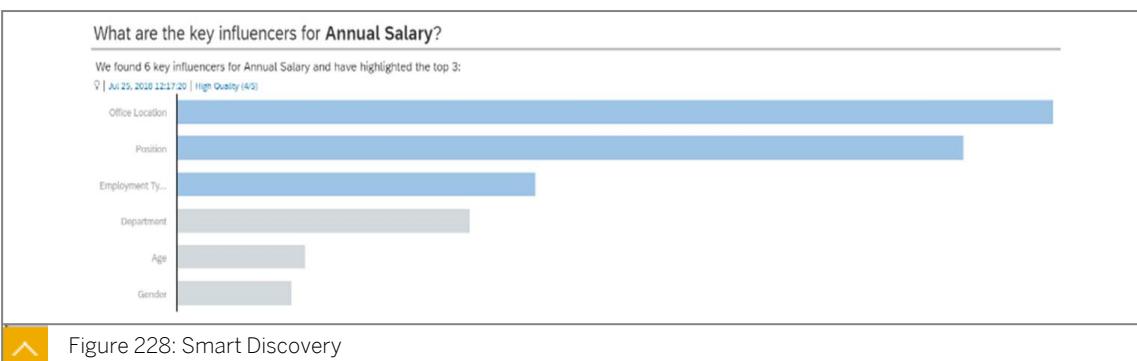


Figure 228: Smart Discovery

Smart discovery has found six key influencers that contribute to annual salary. You have already analyzed office location, position, and employment time.

- Investigate how department impacts annual salary.

a) Choose *Department*.

The screenshot shows the SAP Smart Discovery interface. On the left, there are three input fields: 'Department' (highlighted with a red box and circled with yellow marker 17), 'Age', and 'Gender'. To the right, a panel titled 'Department' contains text about how the department column impacts the target variable. A link 'How does it influence Annual Salary?' is also highlighted with a red box and circled with yellow marker 18.

How does Office Location influence Annual Salary?

Compare the Average Annual Salary of each Office group.

Office Location

Figure 229: Smart Discovery

b) Choose *How does it influence Annual Salary?*

It is evident that on average the Sales Department is paid more than any other department.

11. See how much more the company is paying the Sales Department in comparison to the Operation Department.

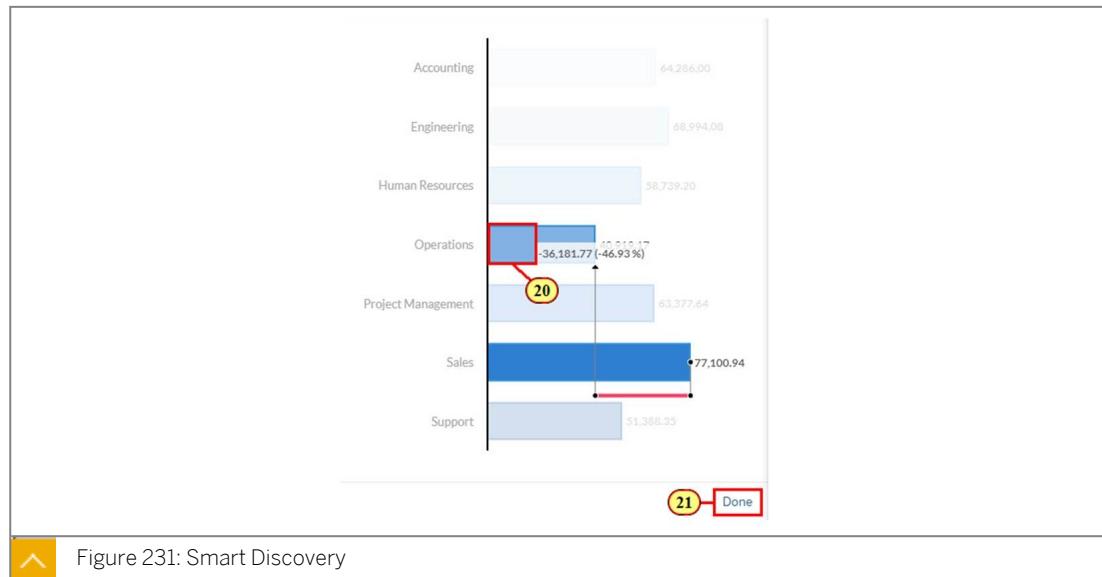
a) Choose *Sales*.

The screenshot shows a bar chart titled 'How does Department influence Annual Salary?'. The Y-axis lists departments: Accounting, Engineering, Human Resources, Operations, Project Management, Sales, and Support. The X-axis shows average annual salaries. The 'Sales' bar is highlighted with a red box and circled with yellow marker 19.

Department	Average Annual Salary
Accounting	64,286.00
Engineering	68,994.08
Human Resources	58,739.20
Operations	40,919.17
Project Management	63,377.64
Sales	77,100.94
Support	52,138.35

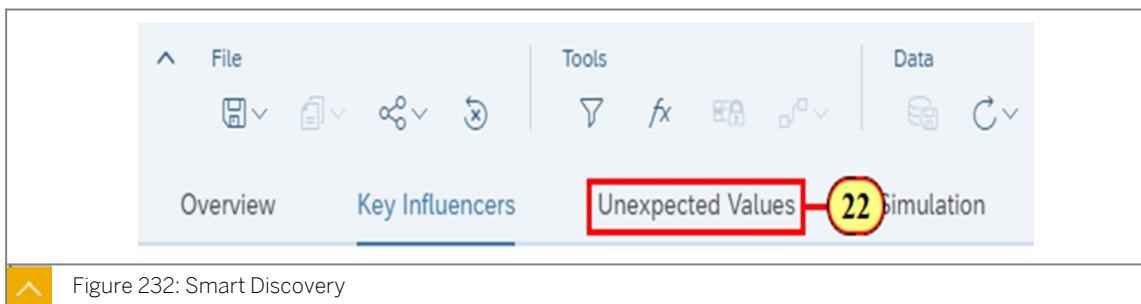
Figure 230: Smart Discovery

b) Choose *Operations*.



The difference marker illustrates that the Operations Department is paid 46.93% less than the Sales Department. You will need to consider this as you analyze the financial data to ensure that this is justified.

- Choose Done.
- Choose the *Unexpected Values (1)* tab.



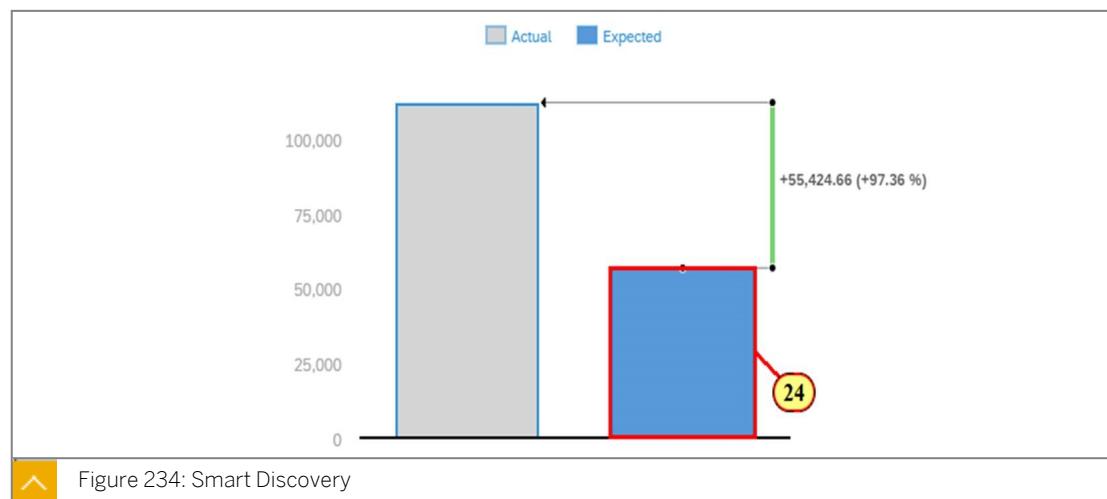
Based on the unexpected values that smart discovery generated, there are three employees from the sales department. On the Key Influencers tab, you saw that the sales department was paid more than any other department in the company.

- Investigate these unexpected values.
 - Choose row 3.

What are the unexpected values within Annual Salary?				
We found 5 records which were unexpected. ⌚ Jul 25, 2018 12:17:20 High Quality (4/5)				
	Annual Salary Actual	Annual Salary Expected	Annual Salary Difference	Annual Salary % Difference
1	115,235.00	80,481.15	-34,753.85	-30
2	115,326.00	80,481.15	-34,844.85	-30
3	112,353.00	56,928.34	-55,424.66	-49
4	139,568.00	56,928.34	-82,639.66	-59
5	184,850.00	77,465.27	-107,384.73	-58

Figure 233: Smart Discovery

- b) Choose the *Expected* bar.

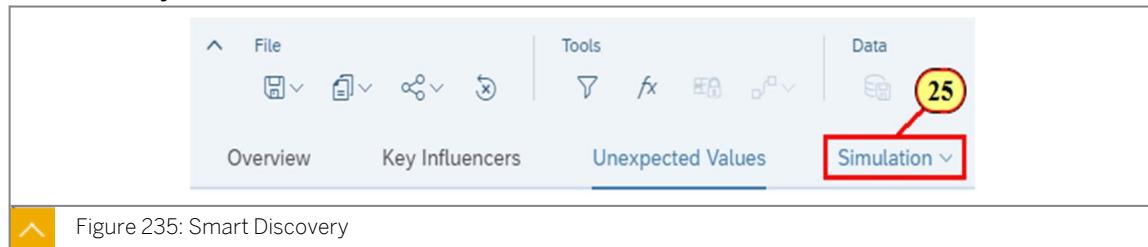


Based on the difference marker for expected value to actual value, Gary Dumin is making \$55,424.66 more than smart discovery expected. We will investigate later whether Gary Dumin's salary is justified.

13. Choose the *Simulation (1)* tab.

The *Simulation* page will help the HR Department determine how much they should pay an employee that is about to join Pacifica.

In this case, you are not too interested in the simulation.



14. In the toolbar, choose *File* → *Save*.

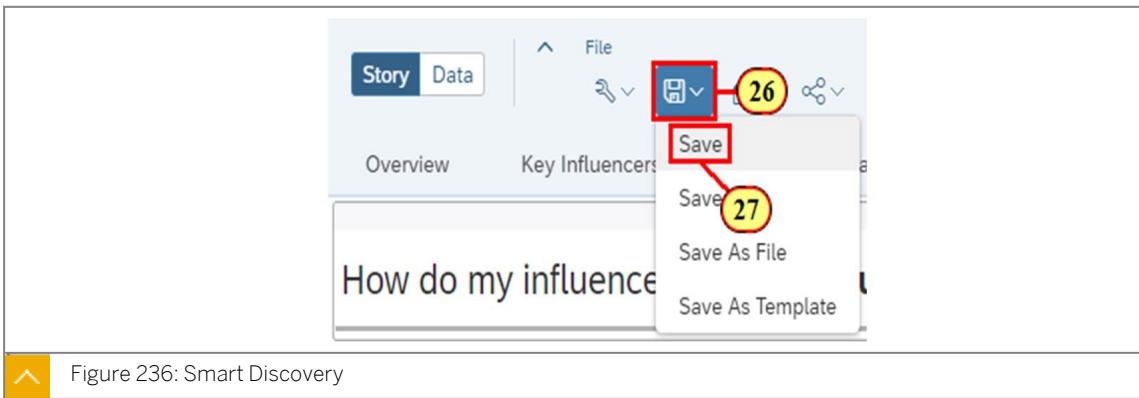


Figure 236: Smart Discovery

a) Choose Save.

Press CTRL + S on the keyboard to save the story.

You have completed the Run a Smart Discovery section. Your story may look like the following figure:

The screenshot displays the final 'Smart Discovery' story titled 'How do my influencers affect Annual Salary?'. The main content shows the expected annual salary as **41,982**. Below this, it states: 'Expected Annual Salary is 41,982, negatively influenced mainly by Position [Associate] + Employment Type [Contract/Interim].'

On the right, there is a 'Summary' section with instructions: 'Use the Simulation view to discover how changing the values of your key influencers could have an impact on the value of your **Annual Salary**. Simply specify a new value for one or more of your key influencers, and choose the 'Simulate' button.'

Below the summary, there is a simulation section titled 'Change the influencer values below, and choose 'Simulate' to see the impact on **Annual Salary**'. It includes four sets of input fields for 'Influencers' and 'Impact':

- Influencers:** Position (Associate), Employment Type (Contract/Interim), Department (Accounting).
- Impact:** Weakly Negative (selected).
- Influencers:** Office Location (Brussels), Age (19).
- Impact:** Neutral (selected).

A 'Simulate' button is located at the bottom left of the simulation section.

Figure 237: Smart Discovery



LESSON SUMMARY

You should now be able to:

- Describe how Smart Assist offers new insights into data

Duplication is prohibited.

Duplication is prohibited.

Simplifying Predictive with Smart Predict



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe how Smart Predict helps businesses to answer questions about the future

Smart Predict



- Augmented Analytics
 - Augmented Analytics features rely on machine learning technology to produce intuitive results that are easy to understand. Have the power to explore your data and make better decisions, faster.
- Smart Predict: Predictive made simple for business analysts
 - Business problem focus captures user intention
 - Transparent, understandable and trustworthy results
- Smarter BI and Planning
 - Use predictive results everywhere in BI and Planning
 - Offer context driven predictive options everywhere
- End to end lifecycle which delivers business value
 - Deploy to SAP S4/HANA applications using Predictive Analytics integrator (PAi)
 - Scheduled train and apply to keep predictions up to date
 - Predictive use cases in SAC Analytics Content Network



Figure 238: SAP Analytics Cloud Smart Predict

Augmented analytics features rely on machine learning technology to produce intuitive results that are easy to understand. Have the power to explore your data and make better decisions, faster.

The idea behind smart predict is to extend the statistical analysis features of smart insight and the smart discovery of existing data to predict outcomes. For example, with smart predict, you hope to receive predictions based on previous marketing campaigns to customers with various demographic and purchase behavior, who will potentially buy from a new campaign.

The technology behind smart predict is adapted from the SAP Predictive Analytics tools, which are still positioned to provide deeper support for real data scientists, with more advanced features than SAP Analytics Cloud offers.



Why This Matters –The Virtuous Cycle of SAP Analytics Cloud

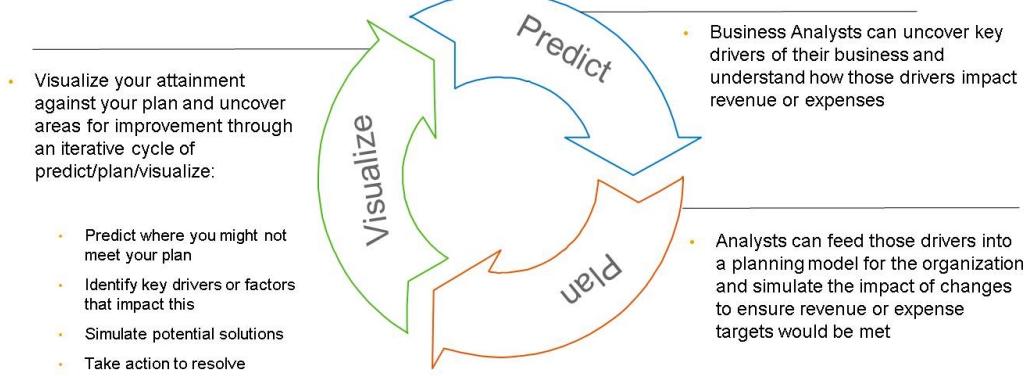


Figure 239: Smart Predict

The figure, *Smart Predict*, illustrates how predictive fits into the virtuous cycle of SAP Analytics Cloud.

Basic Concepts in Smart Predict

Before you start creating your first predictive scenario with smart predict, you need to understand some basic concepts:

- Predictive Scenario

A predictive scenario is a workspace which guides you, depending on your business question and the insights you need, through the creation of predictive models. Currently, you can choose between three different types of predictive scenarios: classification, regression, and time series.

- Predictive Model

It is the result found by smart predict exploring the relationships in your data by SAP machine learning algorithms and following the training settings you have defined at the predictive scenario creation step. Each predictive model produces visualizations and KPIs that help you understand and evaluate the accuracy of the predictive results. Depending on your business question, you will probably want to experiment a bit with different predictive models, varying the input data, or the training settings, to deliver a more accurate or relevant predictive output.

- Variables

A variable describes the observations (rows) stored in your dataset. A variable corresponds to a column in your dataset.

- Dataset

A dataset is a collection of data that is usually presented in a table. Each row represents an observation and each column represents a variable corresponding to this observation.

- Training

Training is a process that uses SAP machine learning algorithms to explore relationships in your dataset and find the best combinations. The result is a formula - your predictive model - that is applied to obtain predictions.

- Partition Strategy

A partition strategy is a technique that decomposes a training dataset into two distinct subsets: training and validation subsets. Thanks to this partition strategy, smart predict can cross-validate the models generated to ensure the best performance. This is done automatically with no actions from your side.

Unit 5

Exercise 12

Build a Predictive Model using Smart Predict

In this exercise, use Smart Predict to build a predictive classification model.

Background

An online bookshop launched a marketing campaign to promote a book entitled *Art History of Florence*. This campaign resulted in a response rate of 9%.

Two months later, the retailer decides to develop a new campaign using a predictive model that will be built using the response data from the original campaign. The data contains 50,000 customers, and it is split into two files:

1. *RETAIL_MODEL_BUILD* which contains 25,365 records.
2. *RETAIL_PROSPECTS* which contains 24,635 records.

RETAIL_MODEL_BUILD contains the records already used for the initial campaign and the response to that campaign. This data set is the one to be used to train the predictive model.

The model will then be applied on *RETAIL_PROSPECTS* to identify which of the prospects are most likely to want to buy the book.

The variable *PURCHASE OF ART HISTORY OF FLORENCE* = 1 if this book was purchased and 0 if it was not purchased. This is the binary nominal target for the classification model.

Task 1: Build the Model

1. From the *Main* menu, choose *Create/Predictive Scenario*.
2. Choose *Classification*.
3. Enter a *Name* and *Description* for the new predictive scenario as shown in the following table. Choose *Save*.

Field	Value
<i>Name</i>	Classification_Model_USER_XX
<i>Description</i>	Art History of Florence Classification Model

4. Choose *Create Predictive Model*.
5. In the *Description* field, enter **Art History of Florence Classification Model**. Choose *OK*.
6. In settings on right-hand side, search in *Public Folder* → *SAC01_24* → *SAC01_CONTENT* for the input data set. Choose the data *SAC01_Ex16_RETAIL_MODEL_BUILD*.

**Note:**

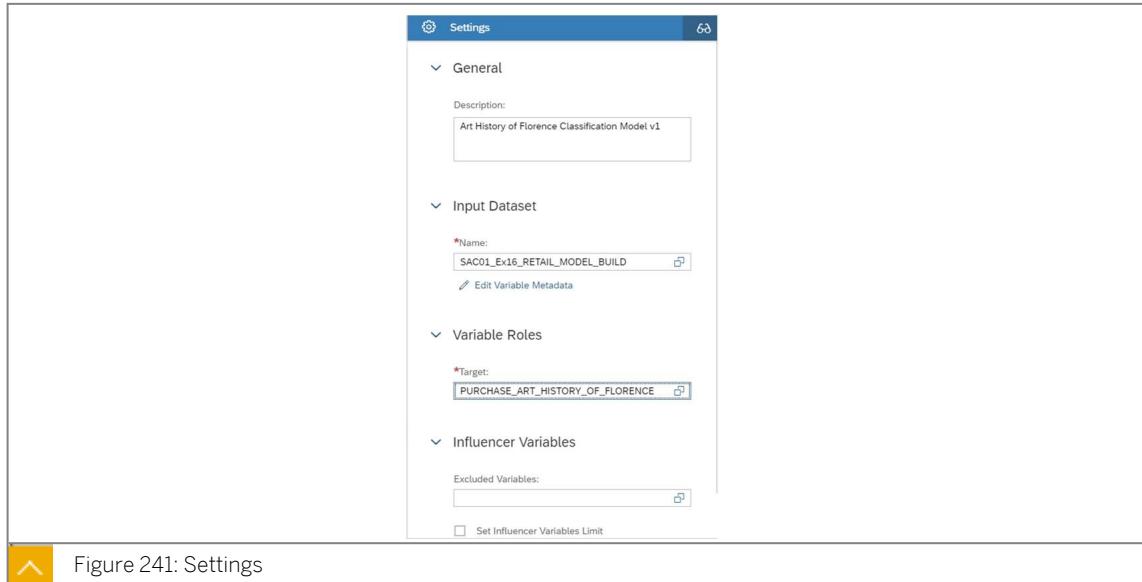
If you have not run the initialization script, do the following to extract SAC01_Ex16_RETAIL_MODEL_BUILD:

- a) Navigate to *Start* → *Initialize Course* → *SAC Initialize_SAC*.
- b) (C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Initialize Course\SAC)
- c) Files are extracted to: N:\SAC\SAC01 folder.

7. Choose *Edit Column Details*.**Note:**

- The *CUSTOMER_ACCOUNT_ID* variable is a key. This is the unique identifier of the customer.
- The variable storage for most of the variables is integer, not number. This is because these variables are numbers that have no fraction (decimal place).
- *SPEND_12_MTHS* is a continuous variable which means it is numerical, continuous, and sortable. Arithmetic operations may be performed on these values, such as determination of their sum or their mean. During modeling, a continuous variable may be grouped into significant discrete bins.
- Many of the variables have a type of ordinal. Ordinal variables are those with discrete values, so they belong to categories, and they are sortable. They can be numerical, meaning that the values are numbers and are therefore ordered according to the natural number system (0, 1, 2, and so on).
- Nominal variables have values that are discrete (meaning they belong to categories), and are not sortable.
- The target, *PURCHASE_ART_HISTORY_OF_FLORENCE* integer nominal. In smart predict, a classification model must always have a binary nominal variable with no missing values.
- In this exercise, there are no missing values in the target or explanatory variables.

8. In *Variable Roles*, in the *Target* field, choose **PURCHASE_ART_HISTORY_OF_FLORENCE.****9. Check that your settings are the same as the following figure.**

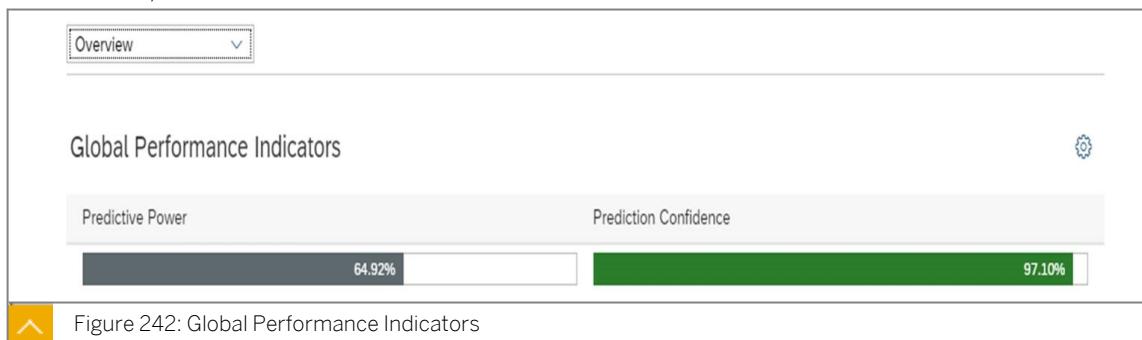


10. Choose Train.

Task 2: Understanding the Model

Once the model build has completed, you can examine the model reports.

1. In Overview, examine the Global Performance Indicators.



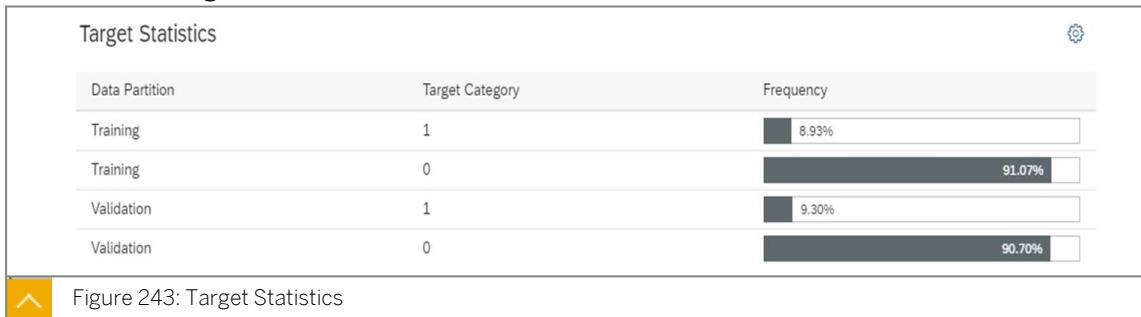
- Predictive Power measures the capacity of the input variables (explanatory variables) to explain the target. Predictive power ranges from 0 (a pure random model) to 100% (a perfect ideal model). Here Predictive Power = 64.92%.
 - What is a good predictive power value? It completely depends on the business case and available data. To improve the predictive power of a model, you could try to add new variables to the training data set if they are available. There are no new variables available in this exercise.
- Prediction Confidence measures the ability of a model to display the same level of performance on new data sets as it did on the training data. Prediction confidence ranges from 0 to 100%. If the prediction confidence is greater than or equal to 95% (a good score), it appears in green. If it is less than 95%, it appears in red. Here, Prediction Confidence = 97.10%, which is a very good score.

- What is a good prediction confidence? A prediction confidence less than 95% should be considered with caution. You risk generating unreliable results if you apply the model to a new data set. To improve the prediction confidence, you can try adding more observation rows to the training data set. In this model Prediction Confidence is 97%, so the model is satisfactory.

2. Examine the *Influencer Contributions*.

- This report enables you to check how the top 5 variables impact the target. The variables are displayed and sorted in descending order, depending on their impact on the target. You can quickly identify which one has the most influence.
- Here the variable contributing the most in the model is the number of art books purchased, followed by the number of geography and history books purchased. It appears that customers who like the Art of Florence also appreciate art books in general, and books on history and geography.

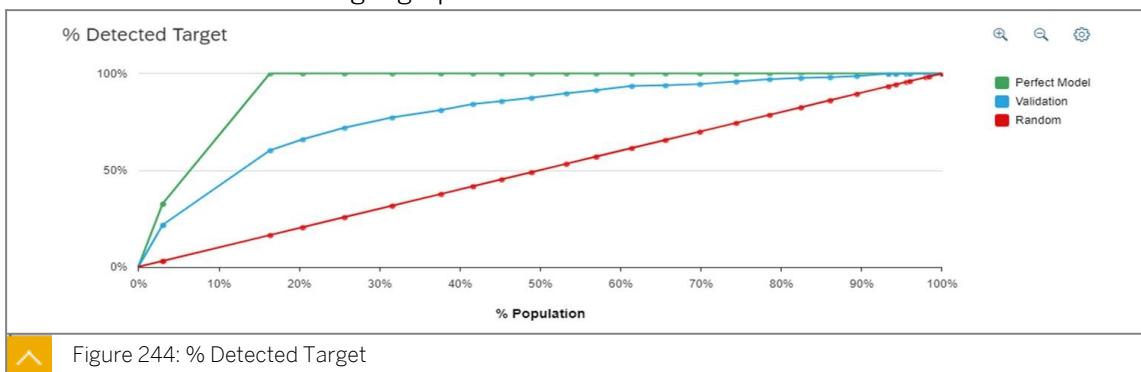
3. Examine the *Target Statistics*.



- Before the model is built, the data is automatically, randomly partitioned into two sub-groups – Training and Validation. 75% of the data is partitioned into the training data set randomly, which is used to train the model, and 25% is in the validation data set randomly, which is used to validate the model.

This report gives an overview of the frequency in each data set of each target class (positive or negative) that belongs to the target variable. Since the partition is random, you would expect to see a similar distribution of the target class (meaning the 1 and 0 frequency) in the Training and Estimation partitions, which you can confirm here.

4. Examine the % Detected Target graph.



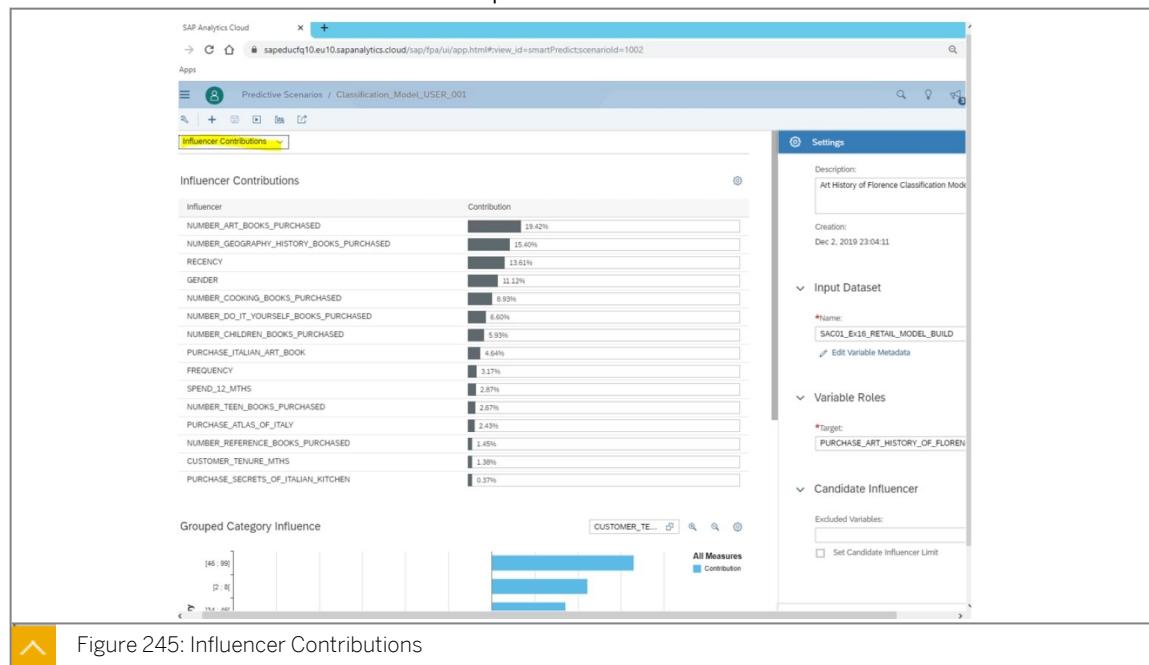
- This graph compares your model to a random model (in red) and a hypothetical perfect model (in green).
- The X-axis shows the percentage of the population and the Y-axis shows the percentage of the detected positive target.

The following curves are displayed:

- The green curve represents the perfect model. It detects all the positive targets of the target variable that are in the population.
- The red curve represents a random model. For example, by randomly taking 50% of the population, you would identify 50% of the target category of the target variable.
- The blue curve represents your model, based on its performance on the validation data set.

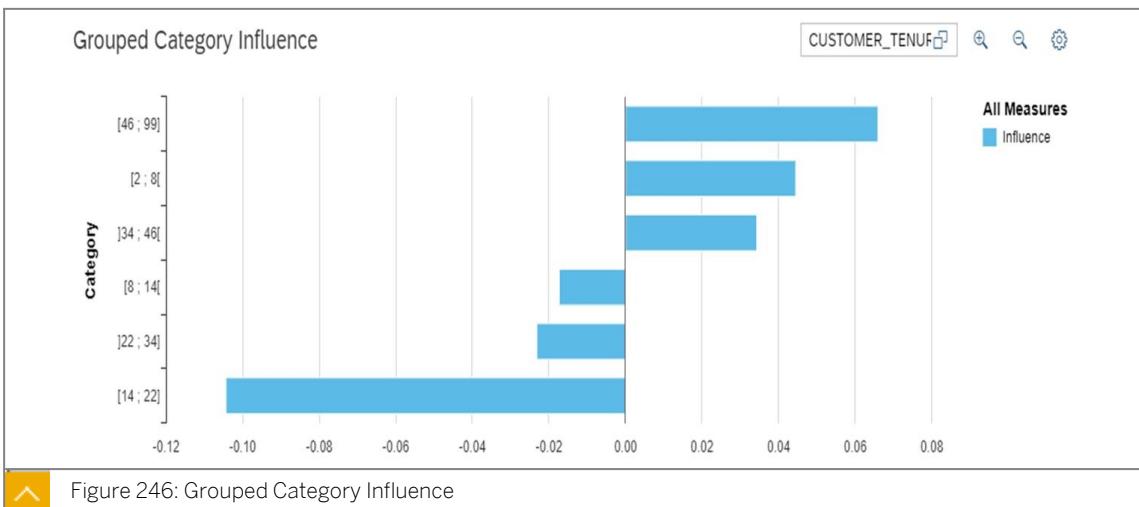
5. Change the report drop-down from Overview to *Influencer Contributions*.

6. Examine the *Influencer Contributions* report.



- The influencer contributions report allows you to examine the relative significance of each of the variables within the model.
- This chart displays the variables sorted by decreasing importance.
- The most contributive ones are those that best explain the target.
- The sum of contributions equals one.

7. Examine the *Grouped Category Influence* report.



Grouped category influence shows groupings of variable categories, where all the categories in a group share the same influence on the target variable.

- The X-axis represents the influence of the grouped categories on the target variable.
- The Y-axis represents the grouped categories.
- The length and direction of a bar show whether the category has more or fewer observations that belong to the target category:
 - A positive bar (influence on target greater than 0) indicates that the category contains more observations belonging to the target category than the mean (calculated on the entire validation data set).
 - 0 means that the category has no specific influence on the target.
 - A negative bar (influence on target less than 0) indicates that the category contains fewer positive cases (%) than the percentage of positive cases in the overall validation data set.

In the drop-down menu, you can select the variable you want to examine. This example shows the categories of the customer tenure variable that represents the number of months a customer has been buying books from the retailer. The banding of the variable, for example, [46;99] and [2;8[, are bins created when the data is automatically encoded when the model is trained.

You can quickly see which category group has the most influence. Here, customers most likely to buy the book Art of Florence are those who have a tenure of over 46 months, so they are well established patrons of this retailer.

8. Examine the *Grouped Category Statistics* report.

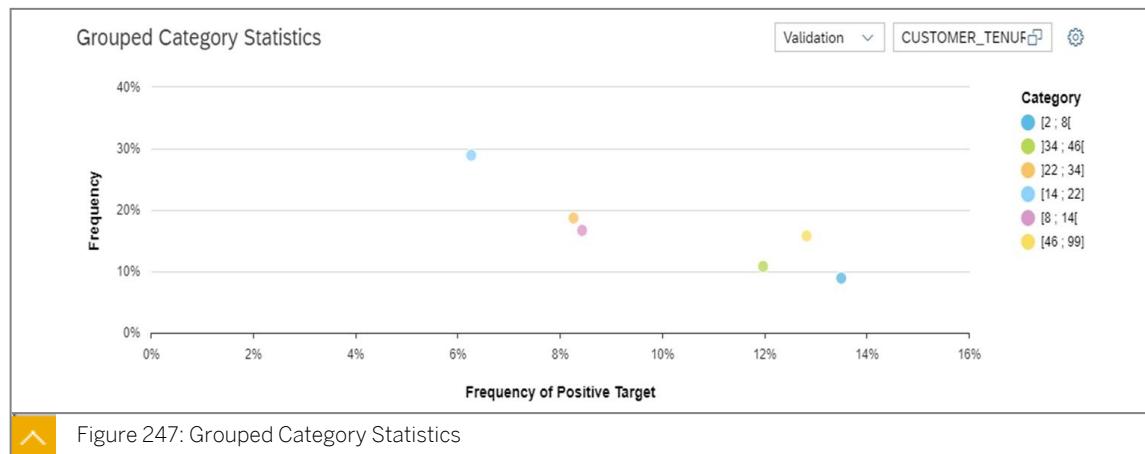


Figure 247: Grouped Category Statistics

Grouped category statistics show the details of how the grouped categories influence the target variable over the selected data set, using a scatter plot.

- The X-axis displays the target mean. For a nominal target, the target mean is the frequency of positive cases of the target variable contained in the selected data set (you can choose the data set in the drop-down).
- The Y-axis displays the frequency of the grouped category in the selected data set.

Task 3: Apply the Model

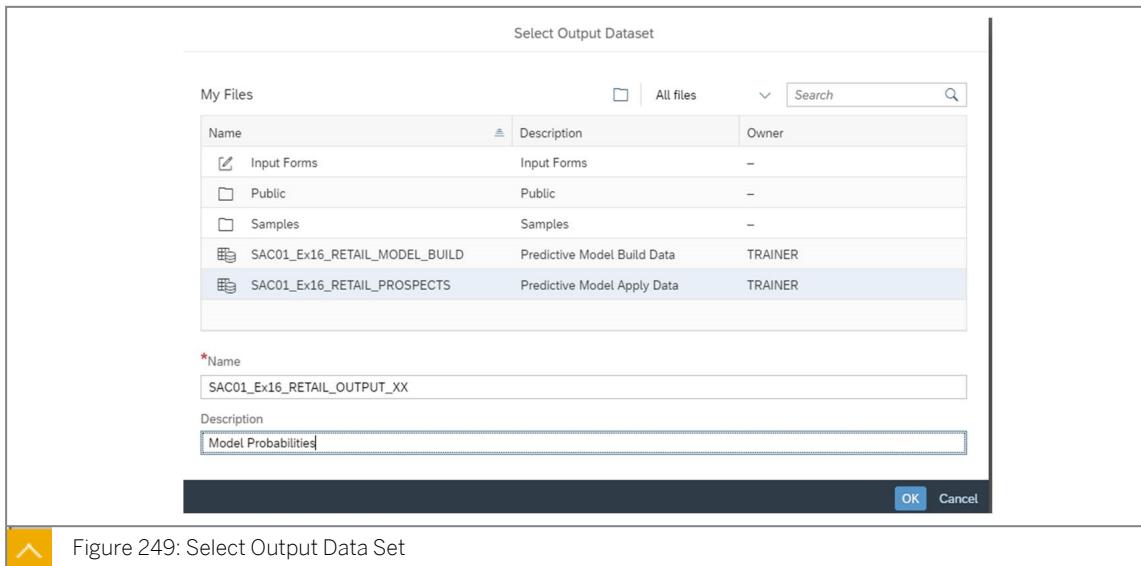
- On the top left, choose the *Apply Predictive Model* icon.



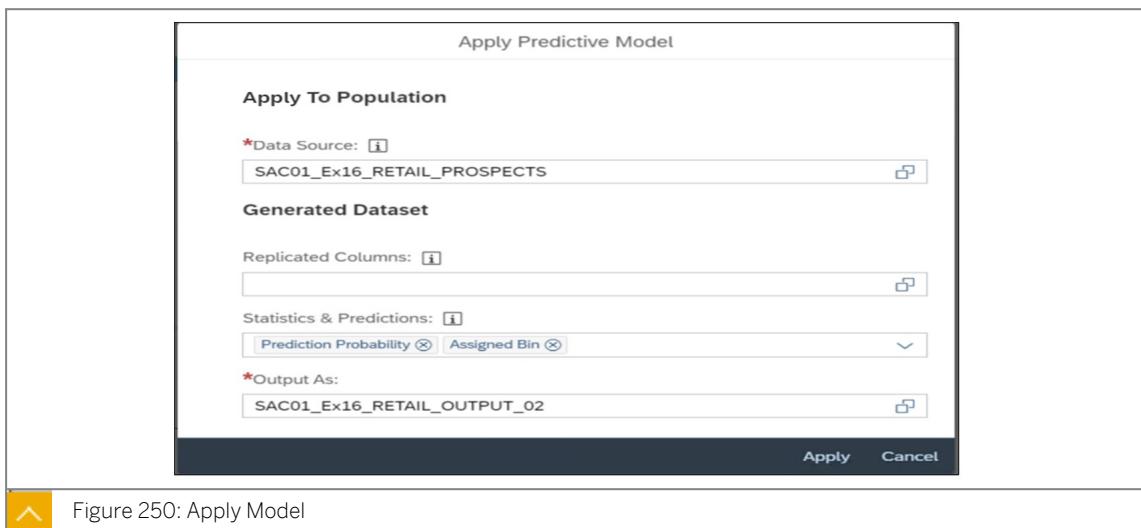
Figure 248: Apply the Model

- Select the data source.
- Name the *output* as using the following table and choose OK.

Field	Value
Name	SAC01_Ex16_RETAIL_OUTPUT_XX
Description	Model Probabilities



4. Select *Prediction Probability* and *Assigned Bin* in the *Statistics & Predictions* drop-down field.
5. Check that your inputs match the following figure.



- In *Input Dataset Variables*, you can choose to output all of the variables in the apply data set.
- In *Contextual Information*, you can choose to output information about the model, and apply a training date.
- In *Statistics*, you can select the statistics regarding the variables you want to export.

Statistic	Description	Column Name
Predicted Value Quantile	For each row in the application dataset, Approximate Quantile is the number of the quantile that this row belongs to. The option Approximated Quantiles sorts the individual data by decreasing score on the validation dataset. Then it creates 10 groups (bins) of equal size, and applies these groups to the application dataset. In other words, it applies the quantiles of the validation dataset to the application dataset. This is why the quantiles are called "approximate".	quantile_rr_<target>_<nb_quantiles> For example, the column name of a target model named "class" is quantile_rr_class_10.
Outlier Indicator	For each row in the application dataset, the Outlier Indicator is 1 if the row is an outlier with respect to the target, otherwise 0. An actual signal value is qualified as outlier once its corresponding forecasting error is considered to be abnormal relative to the forecasting error mean observed on the estimation dataset. The forecasting error indicator is the absolute difference between the actual and predicted values. This is also called the residue. The residue abnormal threshold is set to 3 times the standard deviation of the residue values on an estimation (or validation) dataset.	outlier_rr_<target>
Variable Contributions	For each row in the application dataset, for each variable, the Variable Contribution is the relative significance of the variable's effect on the target variable. The sum of all contributions equals to the predicted score for the dataset record that the model is applied to. They can be positive or negative.	contrib_<var>_rr_<class> One column is generated by variable.

Figure 251: Statistic

- In *Predictions*, you can select the predictions to include in the output table:

Prediction	Description	Column Name
Predicted Category Classification models (nominal target)	For each row in the application dataset, the Predicted Category is the target variable category with the best score, based on the model threshold that is displayed by default when entering the confusion matrix.	decision_rr_<target>
Prediction Score Classification models (nominal target)	For each row in the application dataset, the Prediction Score is the score for the Predicted Category .	rr_<target>
Prediction Probability Classification models (nominal target)	For each row in the application dataset, the Prediction Probability is the probability that the Predicted Category is the target variable value.	proba_rr_<class>
Prediction Confidence Classification models (nominal target)	For each row in the application dataset, the Prediction Confidence is the confidence level for the predicted value.	bar_rr_<target>
Predicted Value Regression models (continuous target)	For each row in the application dataset, the Predicted Value is the value predicted for the target variable.	rr_<target>
Predicted Value Confidence Regression models (continuous target)	For each row in the application dataset, the Predicted Value Confidence is the confidence level for the Predicted Value , also known as the error bar.	bar_rr_<target>

Figure 252: Prediction

6. Choose OK.

Your predictive model is applied. You can find your output data set with the predictions under *Main menu* → *Browse* → *Files*.

7. View the output that is generated.

Build a Predictive Model using Smart Predict

In this exercise, use Smart Predict to build a predictive classification model.

Background

An online bookshop launched a marketing campaign to promote a book entitled *Art History of Florence*. This campaign resulted in a response rate of 9%.

Two months later, the retailer decides to develop a new campaign using a predictive model that will be built using the response data from the original campaign. The data contains 50,000 customers, and it is split into two files:

1. *RETAIL_MODEL_BUILD* which contains 25,365 records.
2. *RETAIL_PROSPECTS* which contains 24,635 records.

RETAIL_MODEL_BUILD contains the records already used for the initial campaign and the response to that campaign. This data set is the one to be used to train the predictive model.

The model will then be applied on *RETAIL_PROSPECTS* to identify which of the prospects are most likely to want to buy the book.

The variable *PURCHASE OF ART HISTORY OF FLORENCE* = 1 if this book was purchased and 0 if it was not purchased. This is the binary nominal target for the classification model.

Task 1: Build the Model

1. From the *Main* menu, choose *Create/Predictive Scenario*.
2. Choose *Classification*.
3. Enter a *Name* and *Description* for the new predictive scenario as shown in the following table. Choose *Save*.

Field	Value
<i>Name</i>	Classification_Model_USER_XX
<i>Description</i>	Art History of Florence Classification Model

4. Choose *Create Predictive Model*.
5. In the *Description* field, enter **Art History of Florence Classification Model**. Choose *OK*.
6. In settings on right-hand side, search in *Public Folder* → *SAC01_24* → *SAC01_CONTENT* for the input data set. Choose the data *SAC01_Ex16_RETAIL_MODEL_BUILD*.

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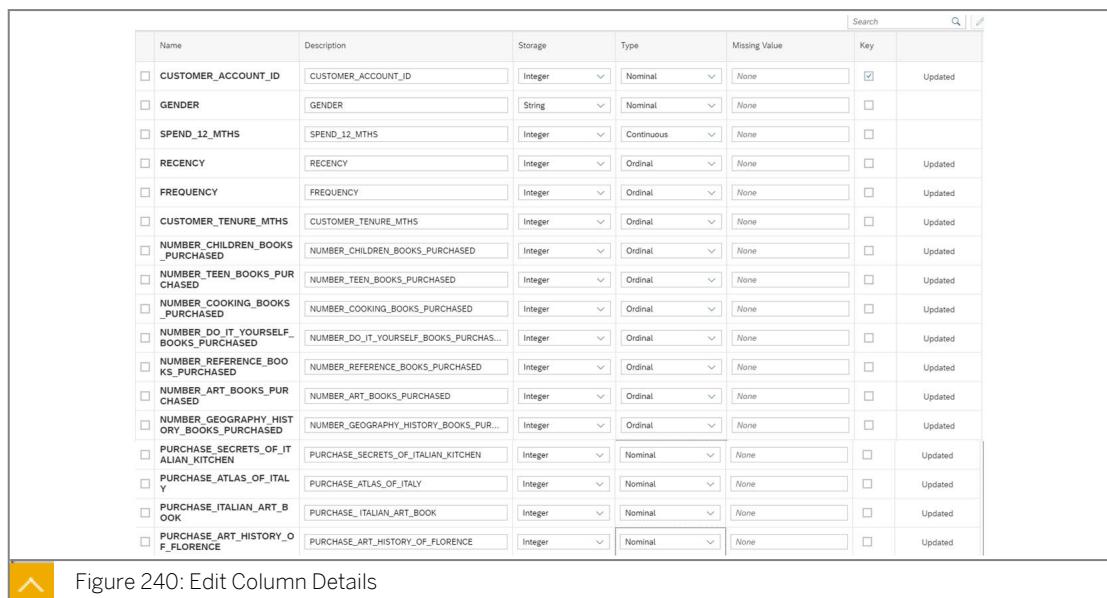
**Note:**

If you have not run the initialization script, do the following to extract
SAC01_Ex16_RETAIL_MODEL_BUILD:

- a) Navigate to *Start* → *Initialize Course* → *SAC Initialize_SAC*.
- b) (C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Initialize Course\SAC)
- c) Files are extracted to: N:\SAC\SAC01 folder.

7. Choose *Edit Column Details*.

- a) Edit the data as shown in the following figure.



The screenshot shows a table titled "Edit Column Details" with various columns and their properties. The columns include:

Name	Description	Storage	Type	Missing Value	Key	Updated
CUSTOMER_ACCOUNT_ID	CUSTOMER_ACCOUNT_ID	Integer	Nominal	None	<input checked="" type="checkbox"/>	Updated
GENDER	GENDER	String	Nominal	None	<input type="checkbox"/>	
SPEND_12_MTHS	SPEND_12_MTHS	Integer	Continuous	None	<input type="checkbox"/>	
RECENCY	RECENCY	Integer	Ordinal	None	<input type="checkbox"/>	Updated
FREQUENCY	FREQUENCY	Integer	Ordinal	None	<input type="checkbox"/>	Updated
CUSTOMER_TENURE_MTHS	CUSTOMER_TENURE_MTHS	Integer	Ordinal	None	<input type="checkbox"/>	Updated
NUMBER_CHILDREN_BOOKS_PURCHASED	NUMBER_CHILDREN_BOOKS_PURCHASED	Integer	Ordinal	None	<input type="checkbox"/>	Updated
NUMBER_TEEN_BOOKS_PURCHASED	NUMBER_TEEN_BOOKS_PURCHASED	Integer	Ordinal	None	<input type="checkbox"/>	Updated
NUMBER_COOKING_BOOKS_PURCHASED	NUMBER_COOKING_BOOKS_PURCHASED	Integer	Ordinal	None	<input type="checkbox"/>	Updated
NUMBER_DO_IT_YOURSELF_BOOKS_PURCHASED	NUMBER_DO_IT_YOURSELF_BOOKS_PURCHASED	Integer	Ordinal	None	<input type="checkbox"/>	Updated
NUMBER_REFERENCE_BOOKS_PURCHASED	NUMBER_REFERENCE_BOOKS_PURCHASED	Integer	Ordinal	None	<input type="checkbox"/>	Updated
NUMBER_ART_BOOKS_PURCHASED	NUMBER_ART_BOOKS_PURCHASED	Integer	Ordinal	None	<input type="checkbox"/>	Updated
NUMBER_GEOGRAPHY_HISTORY_BOOKS_PURCHASED	NUMBER_GEOGRAPHY_HISTORY_BOOKS_PURCHASED	Integer	Ordinal	None	<input type="checkbox"/>	Updated
PURCHASE_SECRETS_OF_ITALIAN_KITCHEN	PURCHASE_SECRETS_OF_ITALIAN_KITCHEN	Integer	Nominal	None	<input type="checkbox"/>	Updated
PURCHASE_ATLAS_OF_ITALY	PURCHASE_ATLAS_OF_ITALY	Integer	Nominal	None	<input type="checkbox"/>	Updated
PURCHASE_ITALIAN_ART_BOOK	PURCHASE_ITALIAN_ART_BOOK	Integer	Nominal	None	<input type="checkbox"/>	Updated
PURCHASE_ART_HISTORY_OF_FLORENCE	PURCHASE_ART_HISTORY_OF_FLORENCE	Integer	Nominal	None	<input type="checkbox"/>	Updated

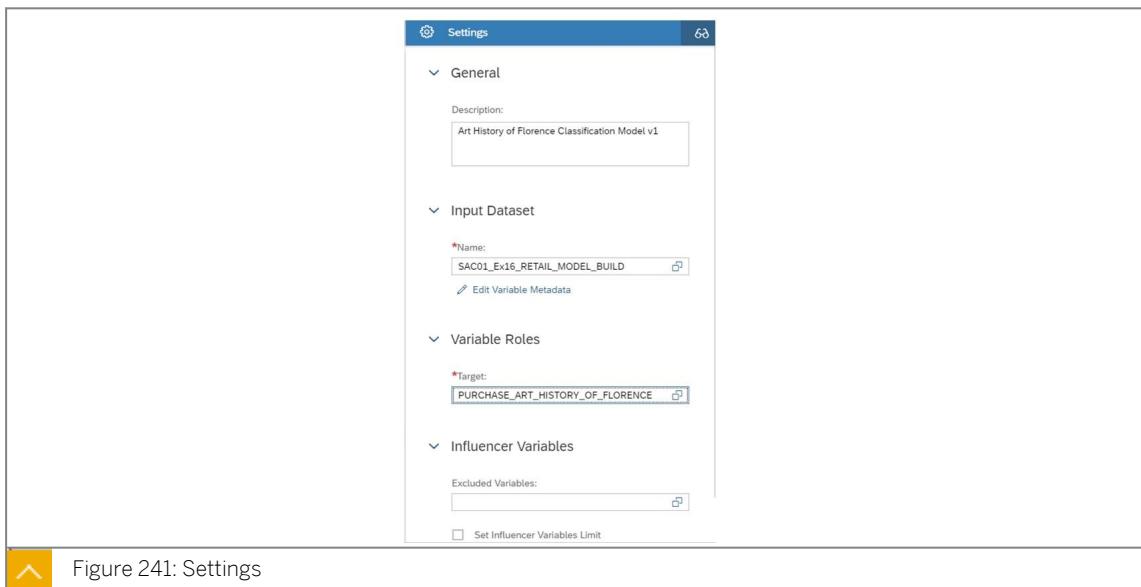
Figure 240: Edit Column Details

- b) Choose Save.


Note:

- The *CUSTOMER_ACCOUNT_ID* variable is a key. This is the unique identifier of the customer.
- The variable storage for most of the variables is integer, not number. This is because these variables are numbers that have no fraction (decimal place).
- *SPEND_12_MTHS* is a continuous variable which means it is numerical, continuous, and sortable. Arithmetic operations may be performed on these values, such as determination of their sum or their mean. During modeling, a continuous variable may be grouped into significant discrete bins.
- Many of the variables have a type of ordinal. Ordinal variables are those with discrete values, so they belong to categories, and they are sortable. They can be numerical, meaning that the values are numbers and are therefore ordered according to the natural number system (0, 1, 2, and so on).
- Nominal variables have values that are discrete (meaning they belong to categories), and are not sortable.
- The target, *PURCHASE_ART_HISTORY_OF_FLORENCE* integer nominal. In smart predict, a classification model must always have a binary nominal variable with no missing values.
- In this exercise, there are no missing values in the target or explanatory variables.

8. In *Variable Roles*, in the *Target* field, choose ***PURCHASE_ART_HISTORY_OF_FLORENCE***.
9. Check that your settings are the same as the following figure.

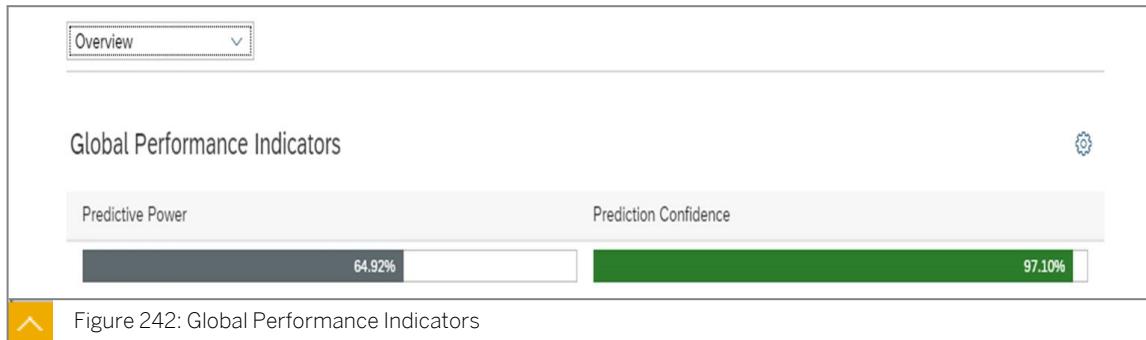


10. Choose *Train*.

Task 2: Understanding the Model

Once the model build has completed, you can examine the model reports.

1. In Overview, examine the *Global Performance Indicators*.

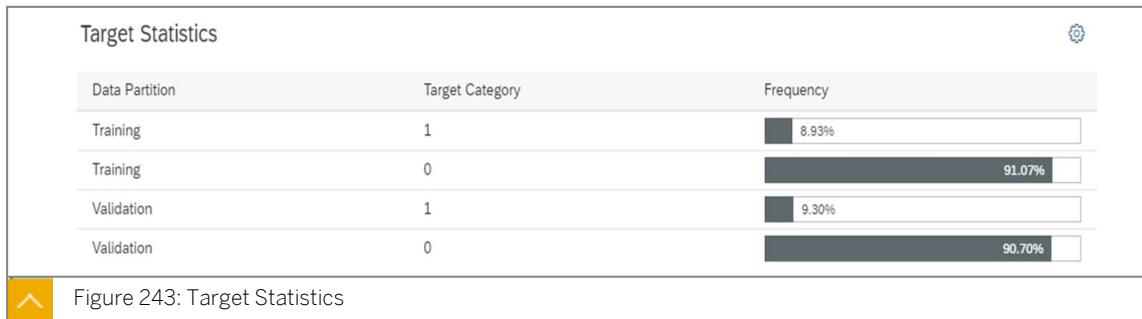


- Predictive Power measures the capacity of the input variables (explanatory variables) to explain the target. Predictive power ranges from 0 (a pure random model) to 100% (a perfect ideal model). Here Predictive Power = 64.92%.
 - What is a good predictive power value? It completely depends on the business case and available data. To improve the predictive power of a model, you could try to add new variables to the training data set if they are available. There are no new variables available in this exercise.
- Prediction Confidence measures the ability of a model to display the same level of performance on new data sets as it did on the training data. Prediction confidence ranges from 0 to 100%. If the prediction confidence is greater than or equal to 95% (a good score), it appears in green. If it is less than 95%, it appears in red. Here, Prediction Confidence = 97.10%, which is a very good score.
 - What is a good prediction confidence? A prediction confidence less than 95% should be considered with caution. You risk generating unreliable results if you apply the model to a new data set. To improve the prediction confidence, you can try adding more observation rows to the training data set. In this model Prediction Confidence is 97%, so the model is satisfactory.

2. Examine the *Influencer Contributions*.

- This report enables you to check how the top 5 variables impact the target. The variables are displayed and sorted in descending order, depending on their impact on the target. You can quickly identify which one has the most influence.
- Here the variable contributing the most in the model is the number of art books purchased, followed by the number of geography and history books purchased. It appears that customers who like the Art of Florence also appreciate art books in general, and books on history and geography.

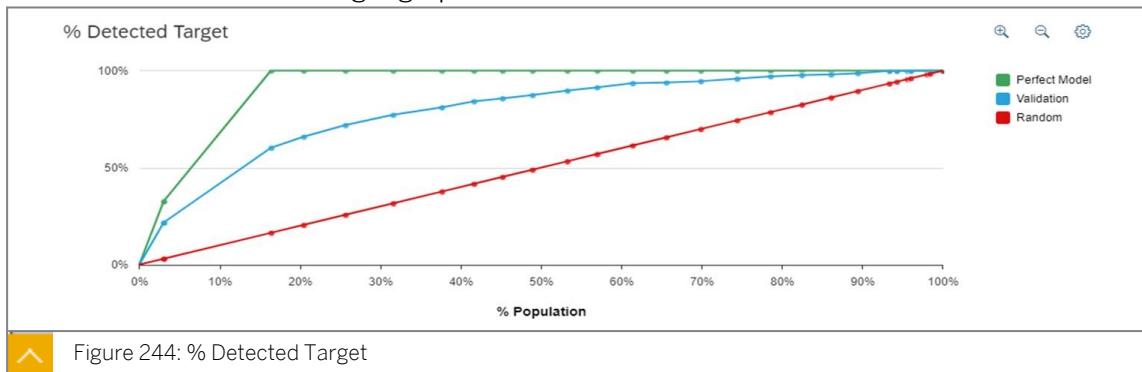
3. Examine the *Target Statistics*.



- Before the model is built, the data is automatically, randomly partitioned into two sub-groups – Training and Validation. 75% of the data is partitioned into the training data set randomly, which is used to train the model, and 25% is in the validation data set randomly, which is used to validate the model.

This report gives an overview of the frequency in each data set of each target class (positive or negative) that belongs to the target variable. Since the partition is random, you would expect to see a similar distribution of the target class (meaning the 1 and 0 frequency) in the Training and Estimation partitions, which you can confirm here.

4. Examine the % Detected Target graph.



- This graph compares your model to a random model (in red) and a hypothetical perfect model (in green).
- The X-axis shows the percentage of the population and the Y-axis shows the percentage of the detected positive target.

The following curves are displayed:

- The green curve represents the perfect model. It detects all the positive targets of the target variable that are in the population.
- The red curve represents a random model. For example, by randomly taking 50% of the population, you would identify 50% of the target category of the target variable.
- The blue curve represents your model, based on its performance on the validation data set.

5. Change the report drop-down from Overview to *Influencer Contributions*.

6. Examine the *Influencer Contributions* report.

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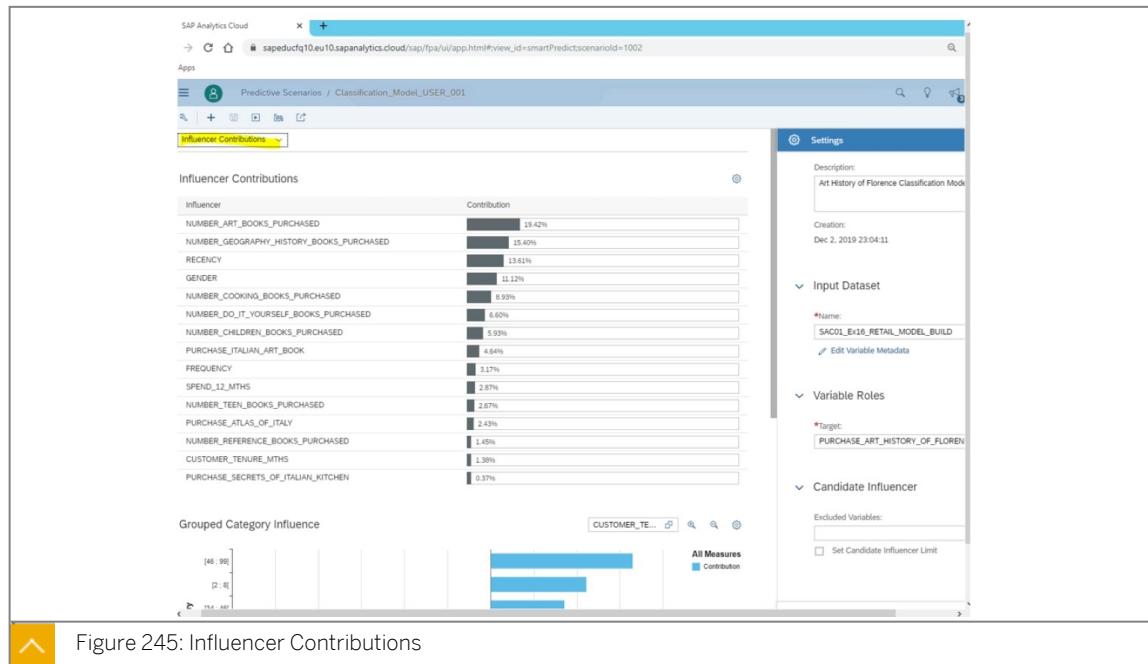


Figure 245: Influencer Contributions

- The influencer contributions report allows you to examine the relative significance of each of the variables within the model.
- This chart displays the variables sorted by decreasing importance.
- The most contributive ones are those that best explain the target.
- The sum of contributions equals one.

7. Examine the *Grouped Category Influence* report.

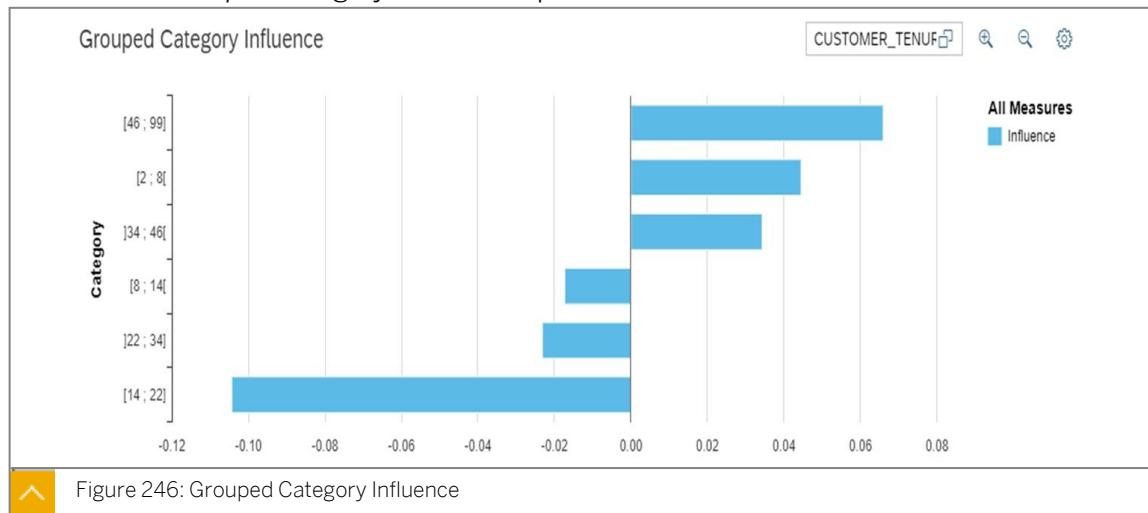


Figure 246: Grouped Category Influence

Grouped category influence shows groupings of variable categories, where all the categories in a group share the same influence on the target variable.

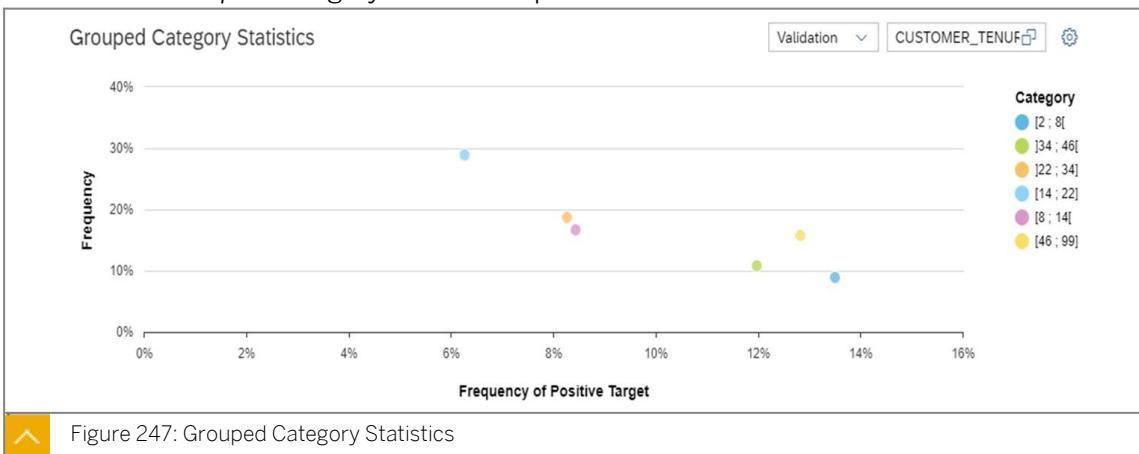
- The X-axis represents the influence of the grouped categories on the target variable.

- The Y-axis represents the grouped categories.
- The length and direction of a bar show whether the category has more or fewer observations that belong to the target category:
 - A positive bar (influence on target greater than 0) indicates that the category contains more observations belonging to the target category than the mean (calculated on the entire validation data set).
 - 0 means that the category has no specific influence on the target.
 - A negative bar (influence on target less than 0) indicates that the category contains fewer positive cases (%) than the percentage of positive cases in the overall validation data set.

In the drop-down menu, you can select the variable you want to examine. This example shows the categories of the customer tenure variable that represents the number of months a customer has been buying books from the retailer. The banding of the variable, for example, [46;99] and [2;8[, are bins created when the data is automatically encoded when the model is trained.

You can quickly see which category group has the most influence. Here, customers most likely to buy the book Art of Florence are those who have a tenure of over 46 months, so they are well established patrons of this retailer.

8. Examine the *Grouped Category Statistics* report.



Grouped category statistics show the details of how the grouped categories influence the target variable over the selected data set, using a scatter plot.

- The X-axis displays the target mean. For a nominal target, the target mean is the frequency of positive cases of the target variable contained in the selected data set (you can choose the data set in the drop-down).
- The Y-axis displays the frequency of the grouped category in the selected data set.

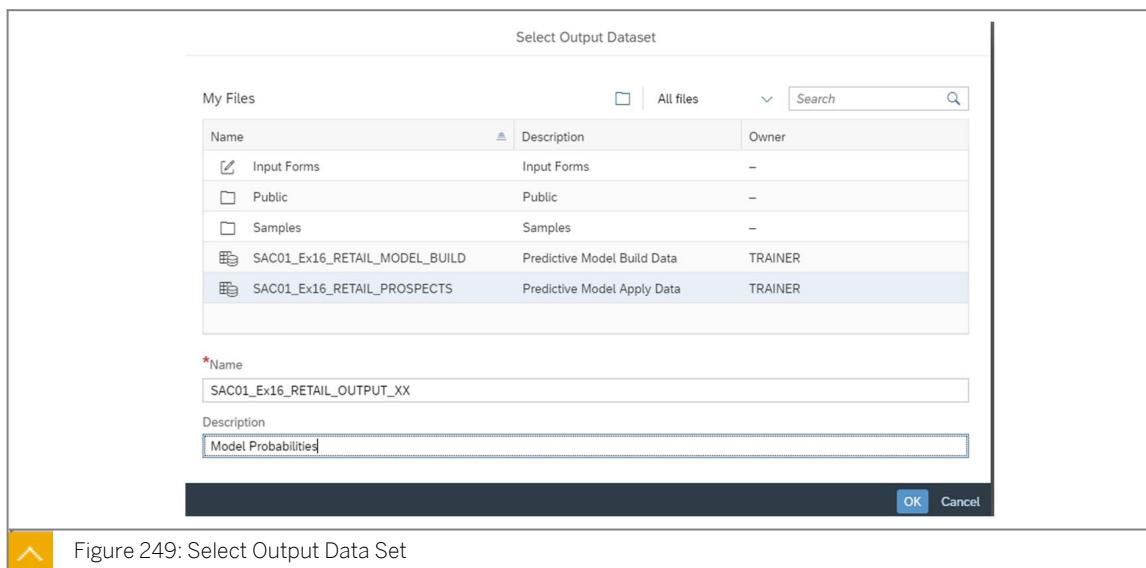
Task 3: Apply the Model

- On the top left, choose the *Apply Predictive Model* icon.



2. Select the data source.
 a) In the SAC01 folder, choose SAC01_Ex16_RETAIL_PROSPECTS.
3. Name the output as using the following table and choose OK.

Field	Value
Name	SAC01_Ex16_RETAIL_OUTPUT_XX
Description	Model Probabilities



4. Select *Prediction Probability* and *Assigned Bin* in the *Statistics & Predictions* drop-down field.
 5. Check that your inputs match the following figure.

Duplication is prohibited.

Duplication is prohibited.

Figure 250: Apply Model

- In *Input Dataset Variables*, you can choose to output all of the variables in the apply data set.
- In *Contextual Information*, you can choose to output information about the model, and apply a training date.
- In *Statistics*, you can select the statistics regarding the variables you want to export.

Statistic	Description	Column Name
Predicted Value Quantile	For each row in the application dataset, Approximate Quantile is the number of the quantile that this row belongs to. The option Approximated Quantiles sorts the individual data by decreasing score on the validation dataset. Then it creates 10 groups (bins) of equal size, and applies these groups to the application dataset. In other words, it applies the quantiles of the validation dataset to the application dataset. This is why the quantiles are called "approximate". Note The number of the quantile is set to 10 and isn't customizable.	quantile_rr_<target>_<nb_quantiles>. For example, the column name of a target model named "class" is quantile_rr_class_10.
Outlier Indicator	For each row in the application dataset, the Outlier Indicator is 1 if the row is an outlier with respect to the target, otherwise 0. An actual signal value is qualified as outlier once its corresponding forecasting error is considered to be abnormal relative to the forecasting error mean observed on the estimation dataset. The forecasting error indicator is the absolute difference between the actual and predicted values. This is also called the residue. The residue abnormal threshold is set to 3 times the standard deviation of the residue values on an estimation (or validation) dataset.	outlier_rr_<target>
Variable Contributions	For each row in the application dataset, for each variable, the Variable Contribution is the relative significance of the variable's effect on the target variable. The sum of all contributions equals to the predicted score for the dataset record that the model is applied to. They can be positive or negative.	contrib_<var>_rr_<class> Note One column is generated by variable.

Figure 251: Statistic

- In *Predictions*, you can select the predictions to include in the output table:

Prediction	Description	Column Name
Predicted Category Classification models (nominal target)	For each row in the application dataset, the Predicted Category is the target variable category with the best score, based on the model threshold that is displayed by default when entering the confusion matrix.	decision_rr_<target>
Prediction Score Classification models (nominal target)	For each row in the application dataset, the Prediction Score is the score for the Predicted Category .	rr_<target>
Prediction Probability Classification models (nominal target)	For each row in the application dataset, the Prediction Probability is the probability that the Predicted Category is the target variable value.	proba_rr_<class>
Prediction Confidence Classification models (nominal target)	For each row in the application dataset, the Prediction Confidence is the confidence level for the predicted value.	bar_rr_<target>
Predicted Value Regression models (continuous target)	For each row in the application dataset, the Predicted Value is the value predicted for the target variable.	rr_<target>
Predicted Value Confidence Regression models (continuous target)	For each row in the application dataset, the Predicted Value Confidence is the confidence level for the Predicted Value , also known as the error bar.	bar_rr_<target>

Figure 252: Prediction

6. Choose OK.

Your predictive model is applied. You can find your output data set with the predictions under *Main menu* → *Browse* → *Files*.

7. View the output that is generated.

a) From the *Main* menu, select *Browse* → *Files*.

b) Select the output file you created: SAC01_Ex16_RETAIL_OUTPUT_XX

	CUSTOMER_ACCOUNT_ID	PURCHASE_ART_HISTORY_OF_FLORENCE	proba_rr_PURCHASE_ART_HISTORY_OF_FLORENCE	quintile_rr_PURCHASE_ART_HISTORY_OF_FLORENCE_10
1	31979	0	0.05644312571459255	5
2	29085	0	0.10778268802686405	3
3	33430	0	0.043788350209858634	6
4	59654	0	0.256221456616878	1
5	33023	0	0.04378866619228014	6
6	56916	0	0.043899197870064965	5
7	16589	0	0.2368313767930509	2
8	15468	0	0.08141387790065704	3
9	40396	0	0.018136475051101605	9
10	47464	0	0.10652626659816083	3
11	25485	0	0.06359369287430018	4
12	43689	0	0.01885660602254813	7
13	39363	0	0.043788982174701646	6
14	46145	0	0.043812644386060896	6
15	57600	0	0.018756730713520443	7
16	39285	0	0.0159464895953307	10
17	51963	0	0.002843792022280547	10

Figure 253: Output

- You can sort the output based on the *proba_* value. This is the probability that the customer will purchase the book. The higher the probability, the more likely the customer is to buy the book.

- You have also created quantiles in the output column *quantile_*. Each of the customers are sorted into 10 bins based on their probability to purchase the book. Bin 1 has the 10% of customers with highest probability to purchase the book and quantile 10 has the 10% of customers with lowest probability to buy the book.
- You can consume your results directly or, depending on your business needs, consume the output data set in a BI story.

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LESSON SUMMARY

You should now be able to:

- Describe how Smart Predict helps businesses to answer questions about the future

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Learning Assessment

1. Which kind of augmented analytics tools can be used in SAP Analytics Cloud?

Choose the correct answers.

- A Smart Analysis
- B Search to Insight
- C Smart Insight
- D Smart Discovery

2. R server deployed by SAP Analytics Cloud is not provided in the US data centers due to legal constraints.

Determine whether this statement is true or false.

- True
- False

3. The idea behind the feature Smart Predict is to extend the analysis and insights of data, to the ability to predict outcomes.

Determine whether this statement is true or false.

- True
- False

Learning Assessment - Answers

Duplication is prohibited.

1. Which kind of augmented analytics tools can be used in SAP Analytics Cloud?

Choose the correct answers.

- A Smart Analysis
- B Search to Insight
- C Smart Insight
- D Smart Discovery

2. R server deployed by SAP Analytics Cloud is not provided in the US data centers due to legal constraints.

Determine whether this statement is true or false.

- True
- False

The R server is deployed in EU1, EUDP, AP1, US1, and US2.

3. The idea behind the feature Smart Predict is to extend the analysis and insights of data, to the ability to predict outcomes.

Determine whether this statement is true or false.

- True
- False

Smart Predict is used to predict future outcomes.

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UNIT 6

Users, Security, and Administration

Lesson 1

Defining Users, Teams, Roles, and Security	326
Exercise 13: Monitor System Performance and Usage	335

Lesson 2

Performing Administration Tasks	339
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UNIT OBJECTIVES

- Assign roles and privileges to users
- Administer user access and privileges

Unit 6

Lesson 1

Defining Users, Teams, Roles, and Security

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LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Assign roles and privileges to users

Users, Teams, Roles, and Security

User Management in SAP Analytics Cloud

User management in SAP Analytics Cloud has the following features:



- SAP Analytics Cloud uses SAP Cloud Platform Identity as the default authentication method.
- Single sign-on (SSO) authentication to a custom-identity provider can be configured using SAML 2.0 protocol.
- SAP Analytics Cloud provides basic user management, including creating, deleting, changing, and role assignment.

SAP has provided a authentication service for all our cloud products, called SAP Cloud Platform Identity. It is tied to your email address. Other authentication techniques are supported, but they are outside the scope of this class.



030 Security / Users								
USER ID	FIRST NAME	LAST NAME	DISPLAY NAME	E-MAIL	MANAGER	ROLES	LICENSES	
37 USER_29	User	29	User 29	BOC29@educatio		Admin;BI Admin;Pr	Planning Professional;	
38 USER_30	User	30	User 30	BOC30@educatio		Admin;BI Admin;Pr	Planning Professional;	
39 USER_31	User	31	User 31	BOC31@educatio		Admin;BI Admin;Pr	Planning Professional;	
40 USER_32	User	32	User 32	BOC32@educatio		Admin;BI Admin;Pr	Planning Professional;	
41 USER_33	User	33	User 33	BOC33@educatio		Admin;BI Admin;Pr	Planning Professional;	
42 USER_34	User	34	User 34	BOC34@educatio		Admin;BI Admin;Pr	Planning Professional;	

Figure 254: User Management - Create, Delete, Change, Search

The figure, *User Management - Create, Delete, Change, Search*, shows the user management area, where an administrator can create, delete, and search for users. The following guidelines apply to managing users in SAP Cloud Analytics:

- Directly enter the user ID and additional information to add a new user. A user ID cannot be changed once it has been created.
- The display name is used throughout SAP Analytics Cloud where a user name is displayed.

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- Email can be used to receive system notifications.
- Manager information can be used for a user to request system access via self-service roles.
- User type (license) is determined by the roles assigned to the user and the licenses available.
- X.509 user mapping can be used to link to a user's SAML identity in an external SAML identity provider.

After the user account is created, a welcome email including an account activation URL will be sent to the user, so that the user can set an initial password and access the system. You can use the *Resend Invitation Email* button if necessary.

The screenshot shows the SAP Fiori User Management interface. On the left, there is a list of users with columns: USER ID, FIRST NAME, LAST NAME, DISPLAY NAME, E-MAIL, MANAGER, ROLES, and LICENSES. The list includes entries from USER_29 to USER_34. On the right, a detailed view of a user profile for 'User 10' is shown. The profile includes fields for First Name (User), Last Name (10), and Email (BOC10@education.cloud.sap). A note states: 'Your personal information, like your name and email address, is provided by SAP Cloud Identity. If you want to update those details, click the link below to go to your SAP Cloud Identity profile. Your changes will only take effect the next time you log in to SAP Analytics Cloud.' Below the profile is a 'User Preferences' section with a 'Edit Profile & Change Password' button. Two red arrows point to the 'Edit Profile & Change Password' button and the note about SAP Cloud Identity.

Figure 255: User Management - Set Password / Assign SYSTEM Owner

In the *User Management* area, an administrator can create an initial password for a user, or change a password if a user has forgotten it.

There are two ways to change a password:

1. An administrator can reset passwords for a user in the users list.
2. A user can change a password in their user profile.



Note:

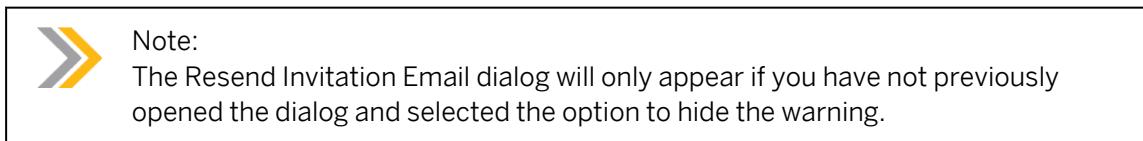
If a user is connecting with an SAML Identity Provider (IdP), the password change functionality will not be available in the users list. Users connecting via SAML must use the user profile dialog to change their passwords.

Users that connect using the SAP Cloud Platform Identity Authentication service (IAS) can select *Forgot password?* on the logon page.

To Reset a Password

1. On the *Users* page, select one or more rows in the users list.

2. Choose *Resend Invitation Email*. The *Resend Invitation Email* dialog will appear.
3. Choose *Resend* to reset login credentials for the selected users.



- Select roles listed in the left hand side for user. A user will receive the union of security privileges defined in all selected roles.
- Role selection popup supports toggle display of role ID/Description, role sorting and role searching.
- A user cannot assign a role to themselves

Figure 256: User Management - Role Assignment

Users can be assigned to existing roles. Select the box next to the role.



Figure 257: User Management - Import Users from CSV

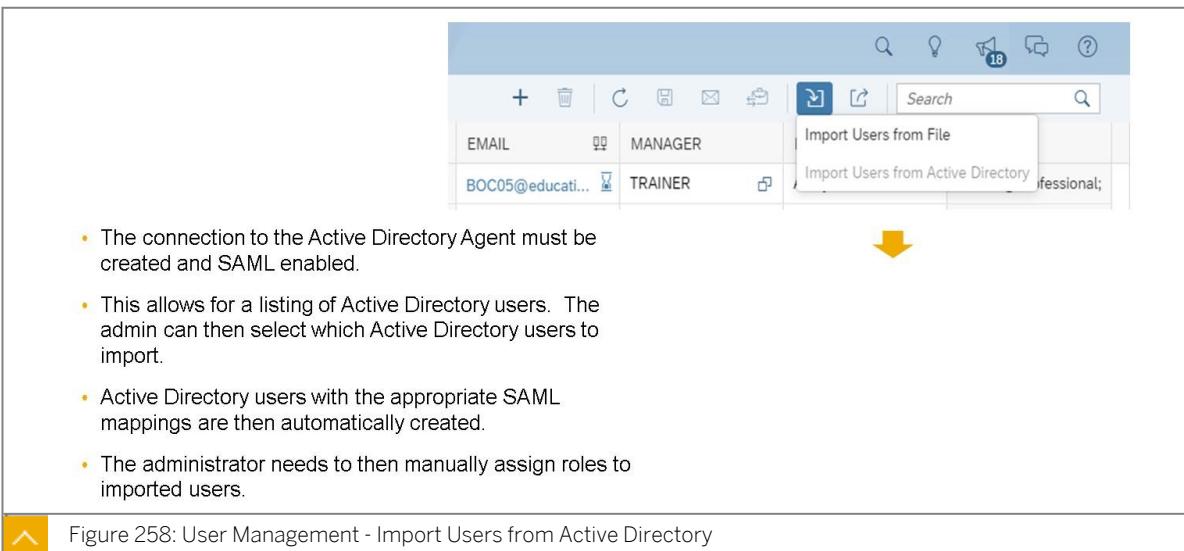
You can upload valid users with a simple file. This can include all of their role assignments.

To Import Users from a CSV File

1. Define mapping – this is a mandatory step.
2. Select the target field from the drop-down list.
3. Default mapping is proposed.
4. You need to add an initial password for all users to be imported.

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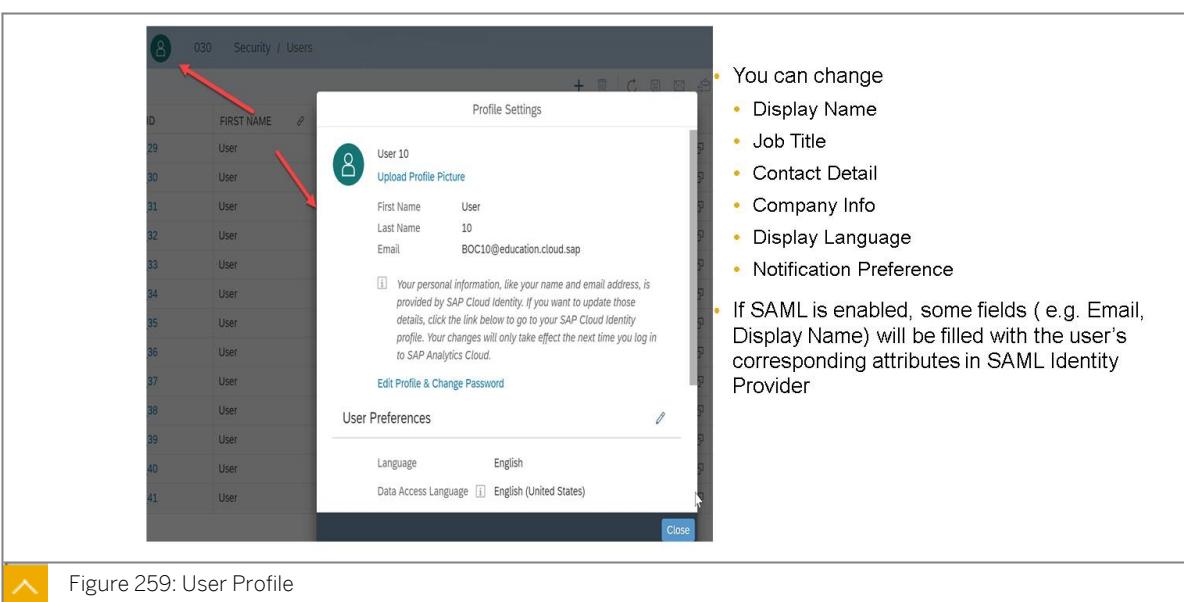
5. After you choose the *Import* button on the Import Users pop-up, the new users are saved.



The screenshot shows the SAP Fiori User Management interface. In the top right corner, there is a toolbar with various icons. Below the toolbar, there are two buttons: 'Import Users from File' and 'Import Users from Active Directory'. A yellow arrow points downwards from the 'Import Users from Active Directory' button towards the list of users below.

- The connection to the Active Directory Agent must be created and SAML enabled.
- This allows for a listing of Active Directory users. The admin can then select which Active Directory users to import.
- Active Directory users with the appropriate SAML mappings are then automatically created.
- The administrator needs to then manually assign roles to imported users.

Figure 258: User Management - Import Users from Active Directory



The screenshot shows the SAP Fiori User Profile interface. On the left, there is a list of users with their first names. A red arrow points from the user 'User 10' in the list to the profile icon in the 'Profile Settings' dialog. Another red arrow points from the profile icon in the dialog back to the user 'User 10' in the list. The 'Profile Settings' dialog contains fields for First Name, Last Name, and Email, along with a note about SAML integration and a 'Edit Profile & Change Password' link. To the right of the dialog, there is a sidebar with various settings.

- You can change
 - Display Name
 - Job Title
 - Contact Detail
 - Company Info
 - Display Language
 - Notification Preference
- If SAML is enabled, some fields (e.g. Email, Display Name) will be filled with the user's corresponding attributes in SAML Identity Provider

Figure 259: User Profile

To change your own basic user information, click on your user (the face icon) then Profile Settings. You can change the phone number, language preferences, and other items.

Note:
For detailed information, see the following resource:
[Import or Modify Users from File: <https://help.sap.com/doc/00f68c2e08b941f081002fd3691d86a7/release/en-US/1c53ded9896248f093089c2713d2cd71.html>](https://help.sap.com/doc/00f68c2e08b941f081002fd3691d86a7/release/en-US/1c53ded9896248f093089c2713d2cd71.html)

Features of Roles

- Roles define the following:
 - The activities a business user can conduct in an application.
 - The data in a model that a business user can access.
- When a user is assigned a role, they get all the privileges defined in that role.
- When a user has multiple roles assigned, they get the union of all privileges defined in all the roles.
- Roles can be requested by users through self-service.
- A user can only see a menu if their role has the privilege of the function associated with the menu.

Standard Application Roles

SAP Analytics Cloud is delivered with several standard application roles. The roles you see will depend on the licenses included in your subscription.

The screenshot shows the SAP Analytics Cloud Role Management interface. At the top, there's a navigation bar with a yellow square icon, the text 'Security / Roles', and a search bar. Below the navigation bar, the interface is divided into sections for different applications:

- Analytics Hub:** Contains three roles:
 - Analytics Hub Admin** (Default): Full Privileges, 15 Users, Assign Users button.
 - Analytics Hub Content Creator**: Full Assets Privileges, Read Structures Privileges, Assign Users button.
 - Analytics Hub Viewer**: Read Assets Privileges, Assign Users button.
- Business Intelligence:** Contains six roles arranged in a 2x3 grid:
 - Application Creator**: Analytics Designer Privileges, Assign Users button.
 - BI Admin**: Full Privileges, Assign Users button.
 - BI Content Creator**: Create and Update Privileges, Assign Users button.
 - BI Content Viewer**: Read Privileges, Assign Users button.
 - Digital Boardroom Creator**: Create, Read, Update, Delete Privileges, Assign Users button.
 - Digital Boardroom Viewer**: Read Only, Assign Users button.
 - Predictive Admin**: Full Privileges, 3 Users, Assign Users button.
 - Predictive Content Creator**: Create and Update Privileges, Assign Users button.
 - Translator**: Create, Read, Delete Privileges, Assign Users button.

At the bottom left is a yellow square icon with a white arrow pointing up-right, followed by the caption 'Figure 260: Role Management - Roles'.

Roles are tied to licensed features. When you assign roles that allow access to a feature, such as SAP Digital Boardroom, you must have licenses for that feature.



Watermark 'Planning Prof' indicates it is a planning professional activity. If a user is assigned any planning professional activity (if license type available), he is considered as a planning professional user.

Select existing role template

Permissions Select Model

Name	Create	Read	Update	Delete	Execute	Maintain	Share	Manage
> Dimension	<input type="checkbox"/>							
> Currency	<input type="checkbox"/>							
> Planning Model	<input type="checkbox"/>							
> Analytic Model	<input type="checkbox"/>							
SAP Cloud Platform Datasource								
Other Datasources								
KPI	<input type="checkbox"/>							
Role	<input type="checkbox"/>							

- Different functions/objects have different rights available to be selected.
- Dimension, Currency, Model and Data change log support fine grained control on individual objects. (Right 'Create' cannot be set on object level).
- There is dependency between privileges on directly related objects.

Figure 261: Role Management – Maintain Roles and Assign Rights

You can assign roles from the user menu, but the figure, Role Management – Maintain Roles and Assign Rights, shows how you can also start from the role menu and assign users to the roles.

You can easily see what licenses will be involved when assigning users roles. The watermark shows this information.

Table 7: Role Management

	Create	Read	Update	Delete	Execute	Maintain	Share	Manage
Dimension	X	X	X	X		X		
Currency	X	X	X	X				
Planning Model	X	X	X	X	X	X		
Analytic Model	X	X	X	X		X		
SAP Cloud Platform Data Source						X		
Other Data Sources						X		
KPI	X	X	X	X	X		X	
Role								
User	X	X	X	X				X
Team	X	X	X	X				X
Activity Log		X		X				
Data Change Log		X		X				
Lifecycle		X				X	X	

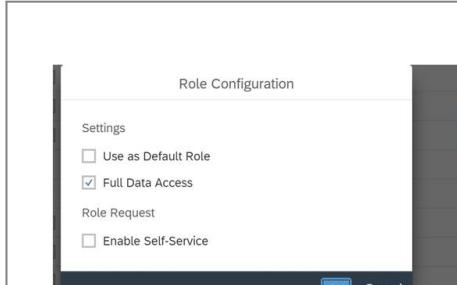
Duplication is prohibited.

Duplication is prohibited.

	Create	Read	Update	Delete	Execute	Maintain	Share	Manage
Connection	X	X	X	X		X		
Private Files	X	X		X				X
Deleted Files								X
Ownership of Content					X			
System Information		X	X					
Allocation Step	X	X	X	X	X			
Allocation Process	X	X	X	X	X			
Explorer					X			
Personal Data Acquisition					X			
Value Driver Tree	X	X	X	X	X			
Automated Discoveries					X			
Digital Boardroom	X	X	X	X			X	
Analytics Hub Assets	X	X	X	X	X			
Analytics Hub Structures	X	X	X	X				
Data Locking	X	X	X	X		X		
Data Action	X	X	X	X	X			
Predictive Scenario	X	X	X	X				
PAi Connection	X	X	X	X				
Applications	X	X	X	X				
Data Set	X							
Point of Interest	X	X	X	X		X		
Schedule	X							
Theme	X	X	X	X				
Data Analyzer					X			

	Create	Read	Update	Delete	Execute	Maintain	Share	Manage
Public Files	X	X		X				X

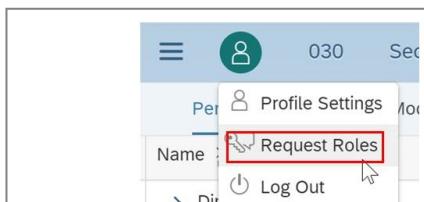
Some basic information about what each right allows is listed in the *Role Management* table. A role is a collection of these rights.



- When 'Enable Self-Service' is marked, this role will be available when a user requests roles.
- Default Role usually contains the minimum privileges a system admin would give to all business users.
- Once a role is marked as default role, it will appear in the default role list when user request roles in Self-Services.
- 'Full Data Access' allows read/write access to all models a user has been assigned with this role. Use with caution
- Approver will be one who approves the role request submitted from Self-Services. Either the 'Manager' (from user management) of the requestor or other users can be selected as Approver.

Figure 262: Role Management - Maintain a Role Settings

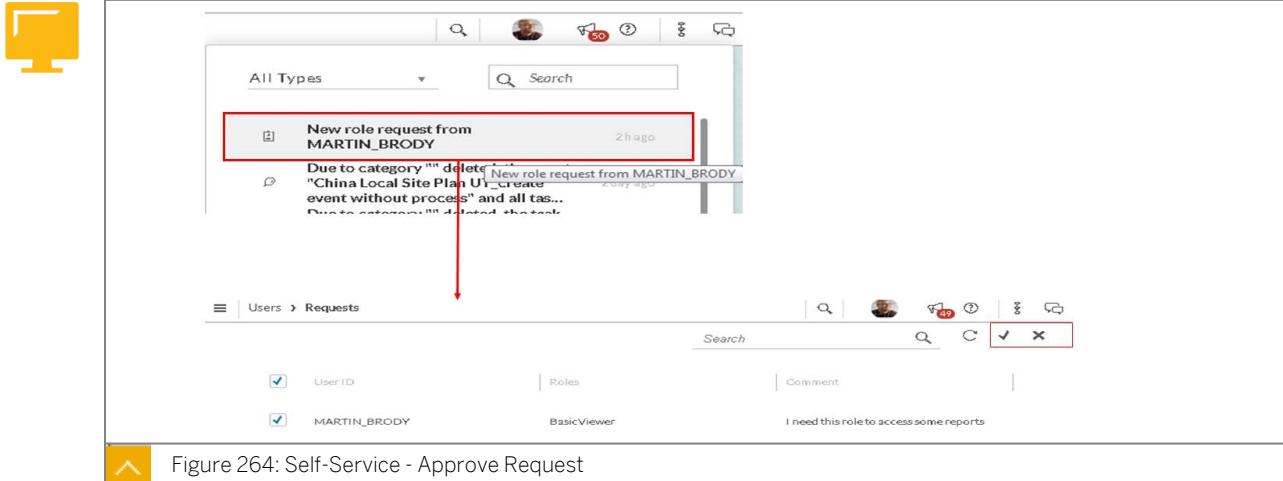
When you create a role, you can decide if it is available to be requested via self-service, and if so, who has to approve the request. Normally, this would be the person's manager.



- All default roles will be selected and can't be deselected if you are requesting default roles.
- A user can select which self service role to request.
- A user can enter comment for approver.
- A request notification will be sent to approver upon completion of the dialog.

Figure 263: Self-Service - Request Roles

Accessed under the picture icon you can request roles. Only the roles previously allowed for self-service can be requested.



Approval requests will be shown in the notifications area. The manager or the assigned approver can approve the request, thus granting the requester a new role.

The screenshot shows the SAP Analytics Cloud 'System / Administration' interface with the 'Security' tab selected. The 'Authentication Method' section shows 'SAP Cloud Identity (default)' as the selected option. Below it, the 'SAML Single Sign-On (SSO) Configuration' section is divided into two steps: 'Step 1: Download Service Provider metadata' and 'Step 2: Upload Identity Provider metadata'. Both steps have descriptive text and a 'View metadata details' link.

SAP Analytics Cloud uses SAP Identity Authentication Service as the default authentication method

Single Sign-On (SSO) authentication to a custom identity provider(IDP) can be configured using SAML 2.0 protocol:

- Cloud or on-premise IDP can be used
- Dynamic user creation and team/role mapping
- Allows for seamless SSO
- Two factor authentication and Social single-sign-on is possible

Unit 6

Exercise 13

Monitor System Performance and Usage

In this exercise, view the real-time statistics and usage of the system.

1. Explore available system information.
 - Which user had the most transactions?
 - Were there any errors encountered in the system?
 - View the statistics of active users in the system for the past month.
 - Find out which user is currently using the most disk space in the system.
2. Filter the activities based on your user account. Remove the filter when finished.

Monitor System Performance and Usage

In this exercise, view the real-time statistics and usage of the system.

1. Explore available system information.
 - Which user had the most transactions?
 - Were there any errors encountered in the system?
 - View the statistics of active users in the system for the past month.
 - Find out which user is currently using the most disk space in the system.
 - a) Choose *Main Menu*.
 - b) Navigate to *System* → *Monitor* → *System Usage by User*.
 - c) Choose the *Transaction Count* column and choose *Sort Descending*.
 - d) On the top of the screen, choose the *Trace* tab.
 - e) Review the *Trace Level* column and the corresponding *Message* column.
 - f) If available, choose the link in the *Stack* column to display the full message.
 - g) Choose *Close* to return to the *Trace* screen.
 - h) On the top of the screen, choose *Overview*.
 - i) Under *Historical Usage*, next to *Number of Active Users*, choose *1M*.
 - j) Repeat step i) for the lower chart (*Number of Logins*).
 - k) On the top of the screen, by *Storage*, choose *System Usage by Storage*.
 - l) In the upper-right of the right chart (*Storage Use by User*), choose the *Sort* button twice (double arrow).



Note:

Note which user account is consuming the most storage.

2. Filter the activities based on your user account. Remove the filter when finished.
 - a) Choose the *Main* menu.
 - b) Navigate to *Security* → *Activities*.

- c) Choose *Filter*.
- d) From *Available Filters*, only select *User Name*.
- e) Enter **Axx**, where xx is your number.



Note:

Only users who logged on will be displayed.

- f) Choose *OK*.
Now only your activities are displayed.
- g) Choose *Filter*.
- h) Remove the filter selection, then choose *OK*.



LESSON SUMMARY

You should now be able to:

- Assign roles and privileges to users

Duplication is prohibited.

Duplication is prohibited.

Unit 6

Lesson 2

Performing Administration Tasks



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Administer user access and privileges

Administration Tasks



The screenshot shows the SAP Data Access Control interface. On the left, there's a main window titled 'Data Access Control' with tabs for 'General', 'Edit', 'Data', and 'Validation'. A sub-dialog 'Dimension Settings' is open, showing a dropdown for 'Description' with 'Account' selected. On the right, there's another window titled 'Rights / Access' with sections for 'Data Access Control' (disabled), 'Hierarchies' (disabled), and 'Member Details'. Under 'Member Details', there are fields for 'Units & Currencies', 'Threshold', 'Read', and 'Write'. A legend at the top right indicates that blue text represents 'Right/Access'.

Figure 266: Define Data Access in a Model

Duplication is prohibited.

To define data access in a model:

1. In the *Dimension Settings* property in the model, enable *Data Access Control* for *Rights/Access*.
2. Select the dimension. Go to *Member Details* and choose *Read/Write* access for users.

If the model has privacy set, then you need to have the role include the data access levels.



Note:

Model owner always has full read/write data access in the model.

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Access Assignment

ID	Description	Agg.	A..	Sc..	F...	Read	Write
Revenue	Revenue					2	MARTIN_BRODY
Profit	Profit					2	MARTIN_BRODY
Liters	Liters					2	
Trays	Trays					2	
Containers	Containers					2	
Cost	Cost					2	MARTIN_BRODY

Data shown in Report

T	172194.52	A	B	C
1		Category	Actuals	Forecast
2		Version	Actual	Forecast
3	W3_Dairy_Account			
4	Revenue	172,194.52		252,761.97
5	Cost	124,010.76		181,692.90
6	Profit	48,183.76		71,069.07

- Apply to all the models that use this dimension
- One model can have more than one data-access-control-enabled dimension
- Access defined on hierarchy node will be propagated to its descendants, but will be overwritten if another access is defined on a lower-level node
- Write includes read access
- Write controls the publishing (user can change data in his private version without write access)

Figure 267: Read/Write Property in Dimension

Controlling the read/write property follows the rules as listed in the figure, Read/Write Property in Dimension. Write access is for planning. If you can write, you can also read. This can be done for the measures (accounts) and other dimensions as well.



Users > Roles > Planner_Reportr

Permissions

Select Model

Perspective
Currency
Model
KPI

No data

Select New Model

Search

Define Read Access

Define Write Access

Activity Filter Action

Read (W4_Version.CATEGORY = Actuals) Edit Remove

Read (W4_Account.acctype = INC) Edit Remove

Figure 268: Define Data Access Filter in Role

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- You can only select a model whose Privacy is On
- Full Access: All the data in the model can be read and write
- Multiple filters can be created on one model, the data access on this model will be the union of these filters
- Write access includes the read access
- If Data Access is Enabled on dimension, access filter will be based on data region restricted by data access defined in dimension

Model-specific access is used in conjunction with dimension access. Dimensions make up a model. For example, you may want some to see only US general, in the country dimension, but in a model that uses country specifically about sales, the user can see all the countries.



Figure 269: Model-Based Privacy Settings

- Filters can be defined on any property of the dimension in the model
- The relationship between filter entries is AND
- Operator Field:
 - =, >=, <=, Contains, <, >, Between
 - IS CURRENT USER: The Property value equals to current user name
- Value Field: Can be multiple values or *

The figure, *Model-Based Privacy Settings*, shows detail about model-based privacy. In this session, we will just cover dimension security settings.



Note:

For more information, see the video [Apply Model Privacy in the Help Center](#).

Files

Stories, input forms, boardroom agendas, sample content, and other content, such as uploaded files, can all be accessed from the *Files* page.

Managing Files and Folders

On the *Files* page, you can organize stories, input forms, boardroom agendas, and other content, such as uploaded files.

The *Files* page displays your private files (files that are not shared with other users), plus folders for public files and input forms.

Create folders to organize your files. You can upload Microsoft Office, text, CSV, and PDF files. Permissions can be defined on files when sharing.

To share files and folders that you have created, grant the following permissions (note that some permissions apply only to folders):

- Read
- Update
- Create files
- Create folders
- Maintain
- Delete

- Share

The owner has full permissions.

Teams in SAP Analytics Cloud

You can also control access to information using teams.



- A team is a group of users.
- A user can belong to multiple teams.
- If a role is assigned to a team, then all the members of the team inherit that role.
- Each team has a team folder, which can only be accessed by the users in that team.



When a team is created, a corresponding folder will be created in File Library

Figure 270: Team Management - Create, Change, Delete

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You can create groups of users. These groups are called teams. They allow collaboration and role assignment options. The figure, *Team Management, Create, Change, Delete*, shows how to manage team settings.

Assigning Roles to Teams

You can indirectly assign the role to the users by assigning the role to a team. You can do the following in any order:

- Assign users to teams.
- Assign roles to teams.

Deployment

Importing and Exporting Content as Files

In *Deployment*, you can create and manage exports and imports of content using *.tgz* files. You can use these files to copy your objects between tenants.

Content Deployment Guidelines



- SAP Analytics Cloud supports easy export and import of content to and from a file.
- If there are dependencies between content, the dependent content is automatically selected (it can be deselected), unless it is a location dimension if you have geo-enrichment in your model. This must be manually selected.
- Only public content can be exported.
- You cannot import old exports into newer tenants. Only the current version +1.

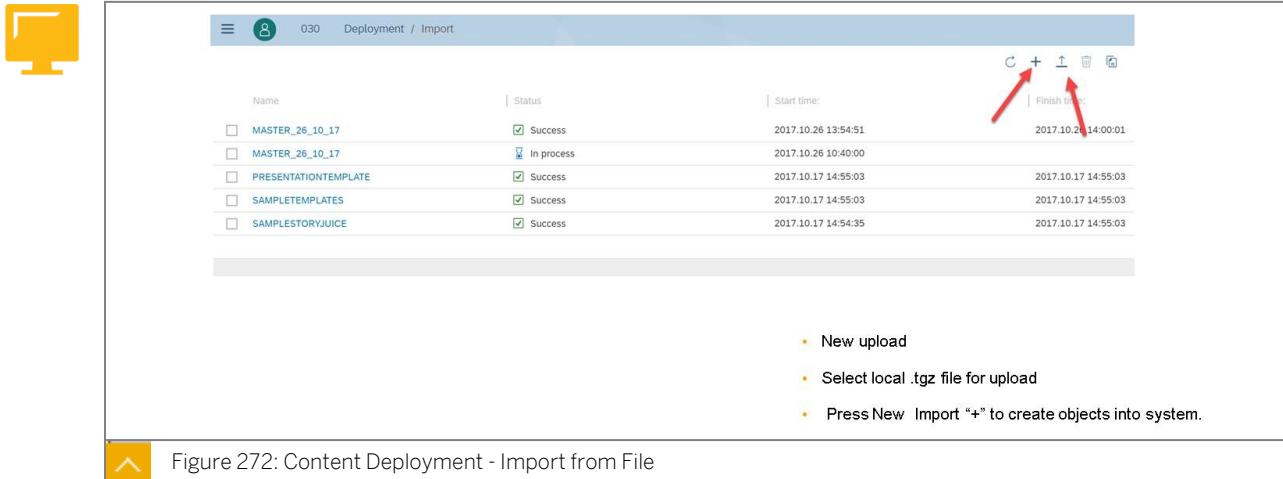


The screenshot shows two overlapping SAP Analytics Cloud interface windows. The top window is titled 'Deployment / Export / New' and displays a list of objects with checkboxes for selection. A yellow callout bubble points to the 'Origin_Airport_Code' entry, stating: 'Selecting a story will auto select the dependencies for export.' The bottom window is titled 'Deployment / Export' and shows a sidebar with navigation options like Home, Create, Browse, Events, Security, Deployment, Connection, and System. A red arrow points to the 'Deployment' option in the sidebar, and a yellow arrow points to the 'Export' button in the right-hand toolbar. Both windows have a light blue header bar with the SAP logo and tenant information (030).

Figure 271: Content Deployment - Export for File

The process for exporting objects to a file is as follows:

- Choose *New Export*.
- Select objects for export, remembering that object selection has automatic dependency. For example, if you select a model for export, all its perspectives will be selected automatically.
- Choose whether data (master data for perspective, transaction data for the model) shall be exported.
- Choose *Export*, and choose *Export to Local File*.



Restrictions for Exporting Data as a CSV File

The following limitations apply to table exports that have the scope set to all and to chart exports:

- Maximum number of columns: 60.
- Maximum number of cells of data: 3 million.
- Any filters applied to the chart are applied to the data export.
- The export does not contain information on which filters or data sources are used.
- Formatting (such as cell color, font styles, and so on) will not be exported.
- Hyperlinks are removed.
- Hierarchies are flattened.



Note:

It is not recommended to use exports to archive content. Content can only be imported in the same version of the application from which it was exported, or the subsequent version. After your system is upgraded again, you cannot import the content.



Object Type	Package	Object Name	User Name	Activity	Status
Model	sap.epm.Planned_Events_S...	Planned_Events_Sample	USER_10	Read	Succeed
Model	sap.epm	BestRunJuice_SampleModel	USER_10	Read	Succeed
User	undefined	USER_10	USER_10	Update	Succeed
		The Best Run Juice Co.			Succeed
		starting point			Succeed
		starting point			Succeed
		SAP_Cloud4Customization			Succeed
		SAP_Concurrent			Succeed
		starting point			Succeed
		starting point	USER_10	Read	Succeed
		SAP_Fieldglass	USER_10	Read	Succeed
		SAP_SuccessFactors	USER_10	Read	Succeed
		Sapphire_S4_V2	USER_10	Read	Succeed
		starting point	USER_10	Read	Succeed

- Support Search and Advanced Filter
- Activity logging is always on

Figure 273: Audit Logs - Activity log

The contents of an audit log tell you who did what, and when. This is a feature that allows tracking user activity. This does not replace the trace feature, which can log system errors.

SAP Analytics Cloud logs all activities users perform on business objects, for example, making changes to a model.

In addition, SAP Analytics Cloud can log failed attempts to create, delete, and change objects in the following situations:

- Missing authorization
- Disallowed or invalid change
- Viewing activity log data

To view the audited activities in the SAP Analytics Cloud, choose *Main Menu* → *Security* → *Activities*.

To display the log, your user ID must be assigned to a role that grants read permission on the activity log.

To filter for specific types of activities, choose the *Filter* icon. In the *Set Filters* dialog, you can select one or more parameters to filter in the *Available Filters* list. In the *Active Filters* list, type or choose a filter value for each parameter that you select. When you choose *OK*, the log is filtered according to your selections.

You can also select *Download Options* to download the log data in CSV files. If you applied filters to the log, the entries that you filtered out are also excluded from the download.

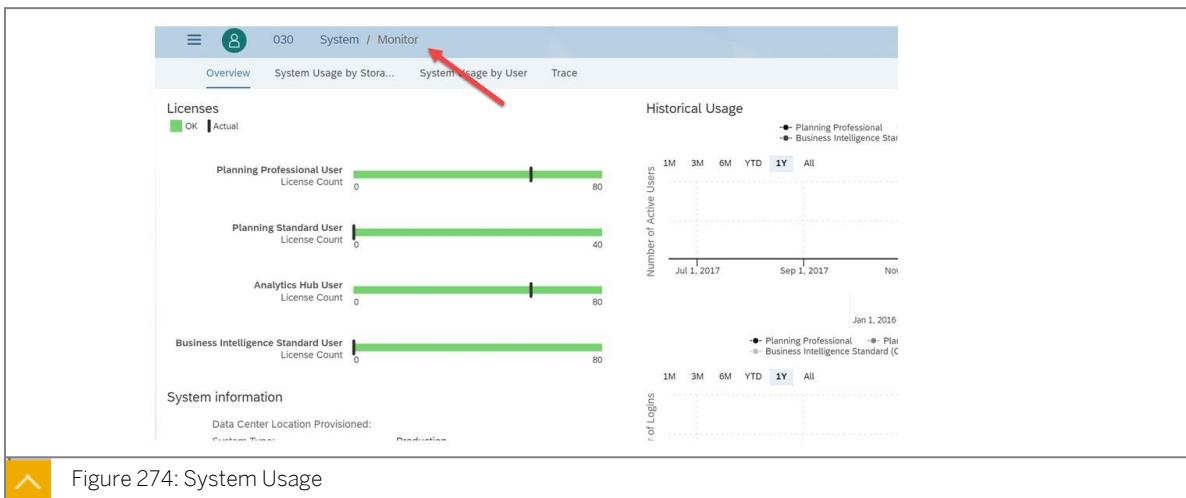


The screenshot shows the 'Model Preferences' dialog within the SAP Fiori interface. It includes sections for 'Data Audit' (with a note about tracking data changes), 'Privacy' (with a note about model privacy being disabled), and 'Currency Conversion' (with a note about currency conversion being enabled). There are also tabs for 'Enterprise_Currency_Rates' and 'Maximum Currency Conversion Limit' (set to 4).

The screenshot shows the SAP Fiori navigation bar. A red arrow points to the 'Data Changes' icon under the 'System' section.

- Data change audit can be switched on for planning models to track “who planned what”.
- A user needs ‘Data Change Log’ privileges on a Model to view the Data Change log
- Supports aggregation by Dimension

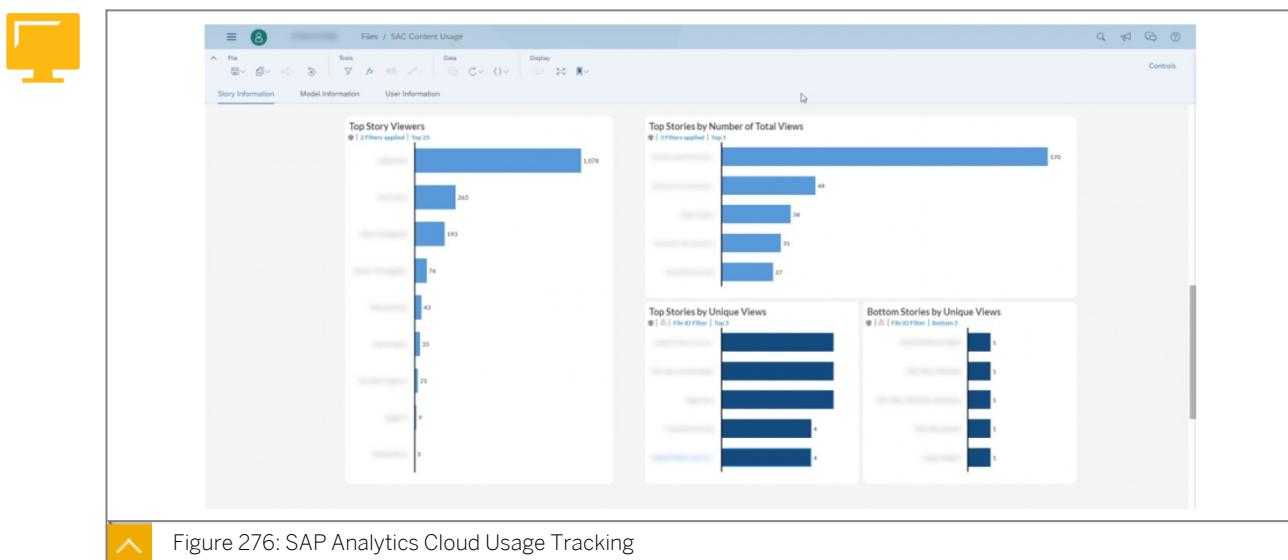
The data changes feature can optionally track the planning process down to the values changed. Unlike the audit log, this must be specifically requested, because it involves more storage.



In the cloud, SAP does the real admin in this area, but usage information is always available to be reviewed by administrators on your tenant.



To help control costs, you can review usage information.



The SAP Analytics Cloud Usage Tracking Content package contains four models and one story.

The models cover the domains of users, files, other objects and activities.

The story, called SAC Content Usage, contains three tabs:

- Story Information
 - Model Information
 - User Information

Usage Content access and security

The SAP Analytics Cloud Usage Tracking Content package resides in the Content Library of the Files area. To access the Content Library, your user will need a role that has the Maintain privilege on Lifecycle. From there, you can find the package titled — ‘SAP Analytics Cloud Usage Tracking Content’.

Since the content contains sensitive information about users' activities, private file names, metadata, and so on, we advise to keep the story in a Private folder. You can later share the story with whomever you choose to grant access to.



LESSON SUMMARY

You should now be able to:

- Administer user access and privileges

Learning Assessment

1. SAP Analytics Cloud offers the possibility to import user data from a CSV file.

Determine whether this statement is true or false.

- True
- False

2. A user inherits all roles of the teams he belongs to.

Determine whether this statement is true or false.

- True
- False

Learning Assessment - Answers

- SAP Analytics Cloud offers the possibility to import user data from a CSV file.

Determine whether this statement is true or false.

True

False

You can import user data.

- A user inherits all roles of the teams he belongs to.

Determine whether this statement is true or false.

True

False

A user automatically inherits all roles which are assigned to the team.

UNIT 7

Extended Presentation and Consumption of Content

Lesson 1

Collaborating with SAP Analytics Cloud

353

Lesson 2

Creating Presentations with SAP Analytics Cloud Digital Boardroom

357

Lesson 3

Exploring SAP Analytics Hub

365

Exercise 14: Manage Content in SAP Analytics Hub

371

Lesson 4

Introducing SAP Analytics Cloud Mobile

379

Lesson 5

Managing Translation

385

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UNIT OBJECTIVES

- Collaborate content in SAP Analytics Cloud
- Describe the features of SAP Analytics Cloud Digital Boardroom
- Describe how SAP Analytics Cloud and SAP Analytics Hub simplify access to analytics in an organization
- Describe SAP Analytics Cloud Mobile
- Manage translation in SAP Analytics Cloud

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Unit 7

Lesson 1

Collaborating with SAP Analytics Cloud

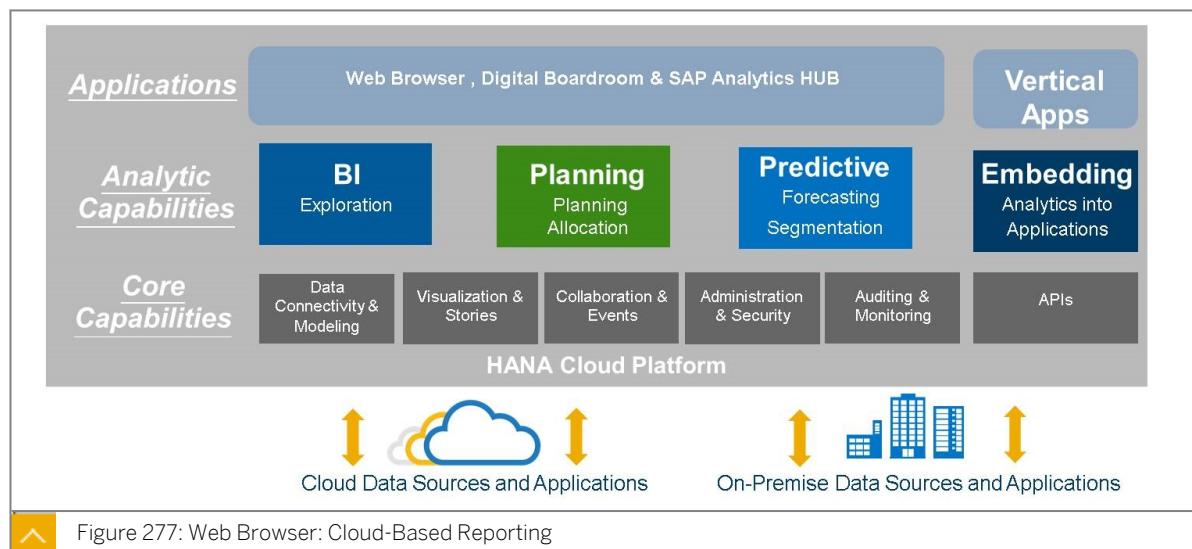


LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Collaborate content in SAP Analytics Cloud

Collaboration



Explore, search and visualize your data with cloud-based reporting.

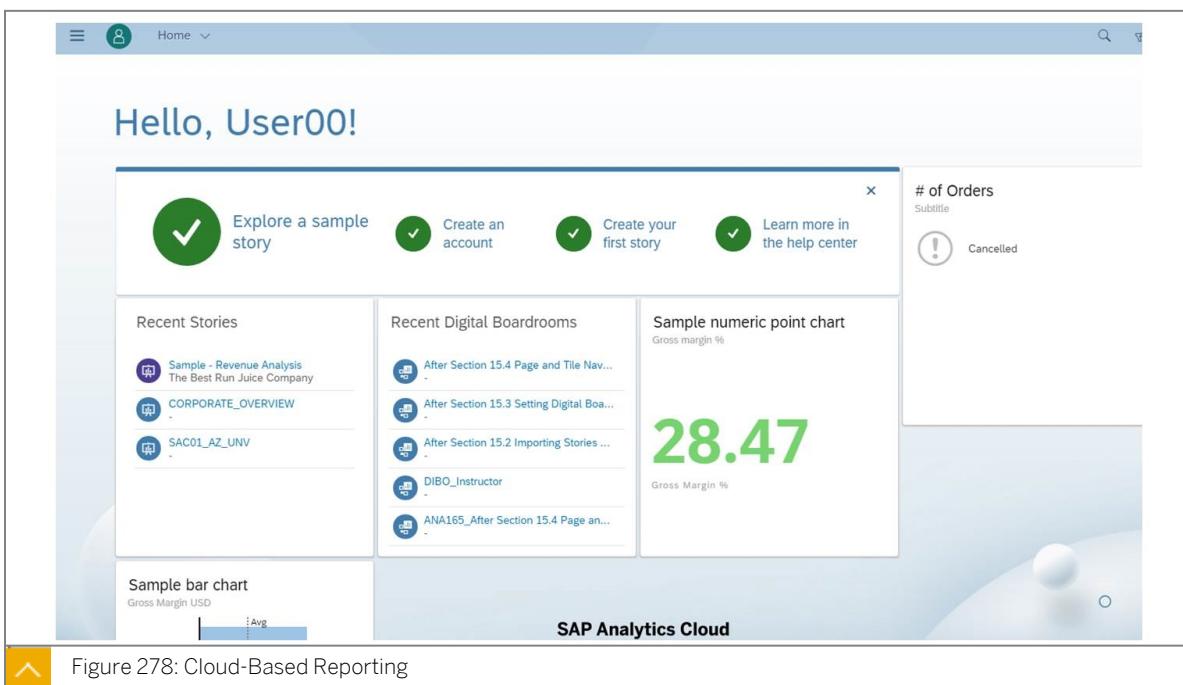


Figure 278: Cloud-Based Reporting

SAP Analytics Cloud offers different applications for the Google Chrome browser. No additional software (for example, Java) is needed to show, create, or edit content from your cloud.

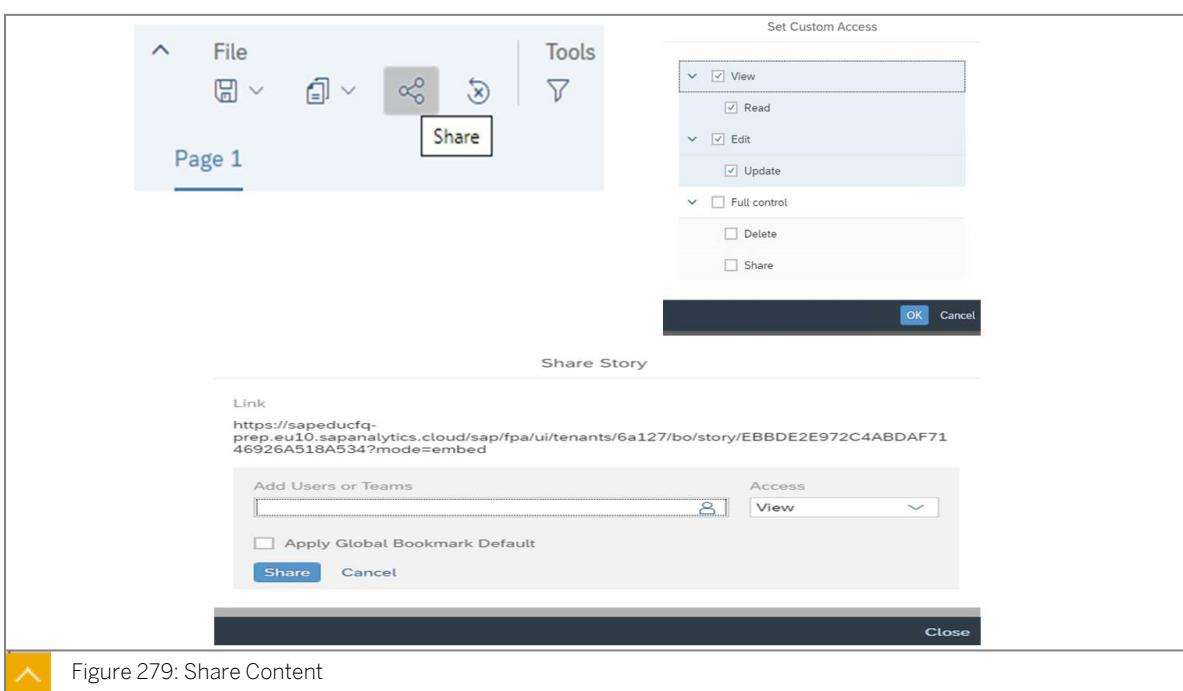


Figure 279: Share Content

You can share stories or bookmarks, including personal bookmarks.

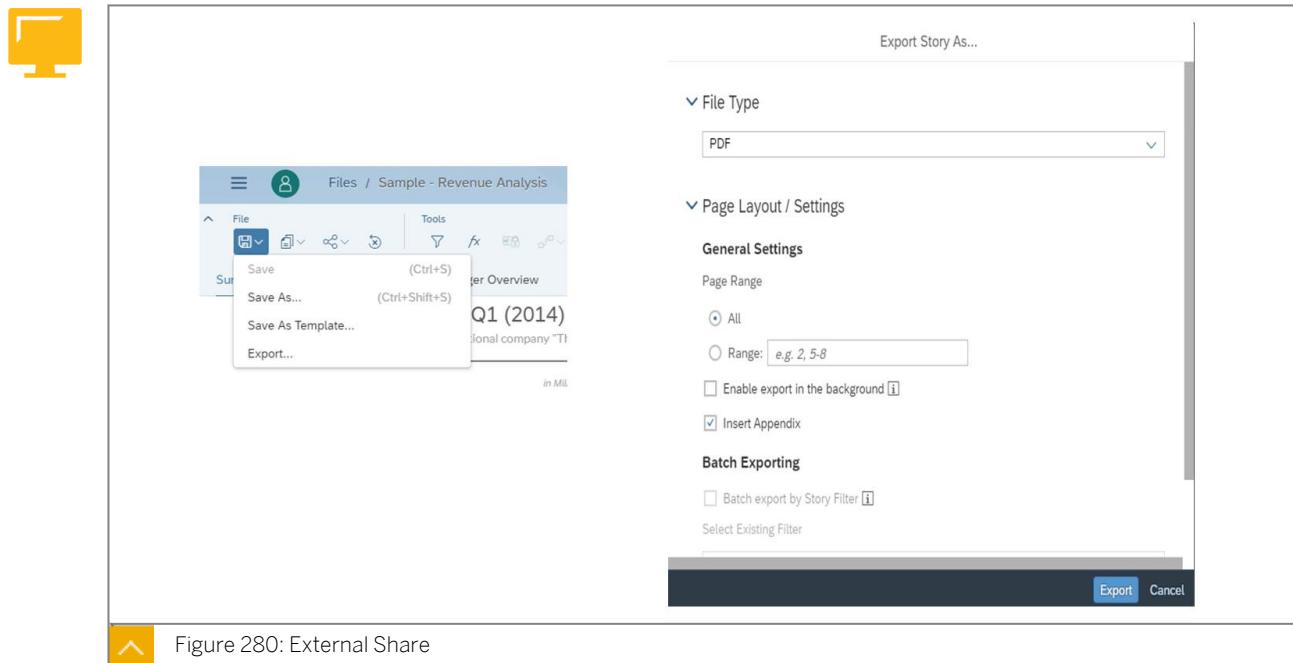
When viewing a story, you can share stories (and change the story sharing settings) and personal bookmarks. As a story designer, you can also share a global bookmark for the story.

To share a story internally, select the **Share Story** icon and choose the users you want to share your story with.

Sharing a story allows the participants to use and access:

- Dynamic Filters
- Drilling through Hierarchical Data
- Input Controls
- Linked Dimensions

When sharing a story, you can set permissions for participants. Permissions can be set to *View*, *Edit*, or *Full control*.



To share a story externally, use the Save button, choose *Export*, and choose the file type as *PDF*. This method is used to share a story with external clients who do not have access to the system.



Note:

Sharing a story externally will remove all dynamic functionality.



LESSON SUMMARY

You should now be able to:

- Collaborate content in SAP Analytics Cloud

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Creating Presentations with SAP Analytics Cloud Digital Boardroom



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe the features of SAP Analytics Cloud Digital Boardroom

SAP Digital Boardroom



This is the current state of planning and may be changed by SAP at any time.

Alignment from Top to Bottom
Digitize the boardroom function by providing oversight and alignment on all corporate objectives at every level

Data Driven Insights
Critical relationships in your data are uncovered through automated machine learning techniques

What-if Simulations
Identify the impact of potential actions and simulate the results instantly

Take Action
Updated plans based on simulated options and cascade those changes to every level of the organization

Figure 281: SAP Digital Boardroom

Give top decision makers real-time, digital-enterprise insight into integrated line-of-business data from SAP and third-party applications. With SAP Digital Boardroom, users can more readily monitor, simulate, and support business change to meet the expectations of customers, business partners, and employees.





Total Transparency

- Real-time 360° reporting without data duplication
- One reporting environment
- Content from different business areas to provide comprehensive insight into the organization



Instant Data-Driven Insights

- Answer ad-hoc questions on-the-fly to better understand the business
- Analyze root causes to identify business risks and opportunities in real-time
- Simulate impact of potential decisions to financials and



Simplified Boardroom Processes

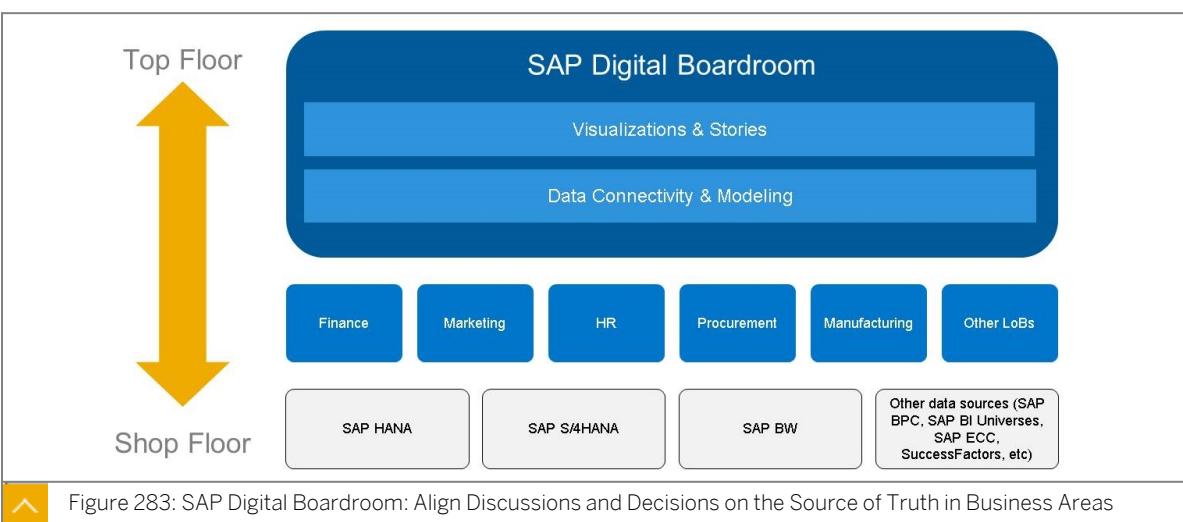
- Transform the boardroom experience for better outcomes
- Reduce boardroom meeting preparation time and effort
- Leverage predefined best practices to accelerate time to value

▲
Figure 282: SAP Digital Boardroom: Built on SAP Analytics Cloud

Use the SAP Digital Boardroom to transform your executive meetings. Replace static presentations and stale information with interactive discussions based on real data – allowing you to make fact-based decisions to drive your business.

The SAP Digital Boardroom allows you to:

- Create a responsive, fluid, boardroom presentation in a visual, drag-and-drop manner.
- Find answers to your questions by directly exploring live data to discover relationships and drill into details.
- Plan and simulate the effects of different assumptions and actions visually using value-driver trees.



The SAP Digital Boardroom is just the final step in one connected and integrated presentation of the source data. This is especially true when data originates from SAP S/4HANA operational tables.



Transform the meeting experience

Reduce preparation time and effort

Leverage predefined best practices



Figure 284: Simplified Executive Meetings

SAP Digital Boardroom enables simplified executive meetings.

Use SAP Digital Boardroom to enhance the presentation experience, with fluid navigation between content and on-screen interactivity. The large, triple interlinked touch screens transform the boardroom experience by providing a unique, modern, and engaging user experience that invites business leaders to interact with insights for better outcomes. However, you can get started with SAP Digital Boardroom on a single screen and a projector.

Foster trust among business leaders with a complete 360-degree, real-time view of cross-departmental situations and metrics.

Simplify the boardroom process by reducing preparation time and offline topics with collaboration tools that leverage expert knowledge.

Improve decisions by accessing accurate information, answering ad hoc queries, and analyzing alternatives and implications.



SAP Digital Boardroom

- Total transparency
- Instant data-driven insights
- Simplified steering meetings

SAP Analytics Cloud

- Business Intelligence
- Planning, Simulation
- Forecasting, Predictive

SAP Analytics within applications

- SAP S/4HANA embedded analytics
- SAP Fiori integration
- Predefined reports & visualizations



Figure 285: Analytics from the Top Floor to the Shop Floor

With this design in mind, we can now have a broader look at how SAP delivers a consistent analytics experience from the top floor to the shop floor, based on the SAP HANA in-memory computing platform top to bottom.

So, going from top to bottom, SAP Digital Boardroom equips the executive management team in the boardroom, as well as any other decision-maker, encouraging collaborative decision-making in an executive meeting. Beyond the boardroom, SAP Analytics Cloud delivers analytics in one product, with BI, planning, and predictive. Finally, when you move to SAP S/4HANA, SAP BW/4HANA and other applications, you get insights directly embedded into business processes, which SAP users can access at the point of decision, with SAP S/4HANA embedded analytics, SAP Fiori integration, and predefined best practice reports and visualizations built with SAP Analytics Cloud.



Total Transparency

Visualize in-context insights to maximize impact on the audience

- Leverage touch display technology to present in a natural manner
- Assign data visualizations to different screens to leverage the available screen space for context information and as an anchor during data exploration

Overview Screen	Agenda & Main Screen	Context Screen
Supports the current agenda topic	Details on the current agenda story	

Figure 286: SAP Digital Boardroom: Visualize In-Context Insights to Maximize the Impact on the Audience

The overview screen allows you to show the *big picture* as a summary or introduction to the presentation.

Use the agenda and the main screen to:

- Drive your overall meeting agenda.
- Define the stores for the agenda topics.
- Switch between agenda topics.

This is the area where the majority of the content is presented.

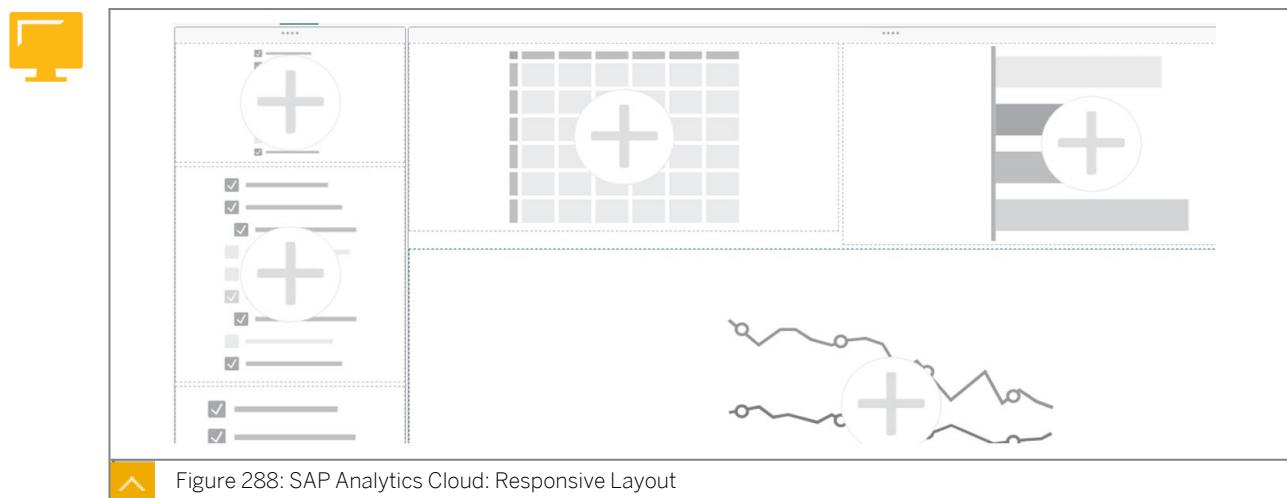
The context screen is typically used to provide additional support analytics to the presented content on the main screen.



Meaningful insights, better decisions, and immediate action come together in the SAP Digital Boardroom. BI, planning, and predictive capabilities are blended with context-rich experience tailored for each individual in the organization. The result is a software application that can turn your business investments into a strategic asset for exponential growth.

Use Responsive Pages

It is recommended to design SAP Digital Boardroom presentations using responsive story pages. Responsive pages allow you to create layouts that automatically resize and reflow when viewed on different screen sizes, and are required for viewing on mobile devices. Canvas pages can also be used, however, grid pages are not supported. If a story contains a mixture of responsive, canvas, and grid page types, only the responsive and canvas pages are imported into the SAP Digital Boardroom builder.



Responsive pages let you create lanes to section the page content into groups. Tiles within a lane stay together when the responsive page is resized.

Responsive Lanes

You can use responsive lanes to section the content of a responsive page into groups. Tiles within a responsive lane stay together when the responsive page is resized.

After the responsive page is added to a story, responsive lanes can be added, copied, modified and deleted.

Pre-defined templates can also be applied to a responsive page.

To apply a template to a responsive page:

1. Open and modify a story.
2. Add a responsive page.
3. Select ... under More, and choose *Layouts* under *Format*.
4. Expand *Custom Templates*.
5. Select the template you want to use.
6. Choose *Apply*.
7. Choose *Close*.

SAP Digital Boardroom Presentation

After you create a new SAP Digital Boardroom, you can choose either the agenda or dashboard option.



Agenda Presentation Type

The agenda presentation type is the traditional boardroom meeting structure. You create the agenda items you want, then you add and combine pages from stories into your topics.

Once the SAP Digital Boardroom is created, choose the agenda presentation type. The agenda type allows for a title, presenter name, and a time for the first agenda item. You can also add an image. Your presentation details and first agenda item provide the foundation to build out your presentation. Once the basic details are filled out, you can add story content.

Choose the + button to add a topic to the agenda. Choose Library to open the Stories window and import your stories. Once the stories are imported, drag and drop the stories from the Imported Stories area with multiple pages, or choose Expand to select single or multiple pages of stories to go into your topic. You can use the CTRL or Shift click to select multiple items from the Imported Stories area.

Dashboard Presentation Type

The dashboard presentation type is a modern, exploratory, corporate steering dashboard. You can create free-form topics to match your business organization. You can then add and combine pages from stories.

Once the SAP Digital Boardroom is created, choose the dashboard presentation type. The dashboard type allows for a topic name for the root topic. Choose Library to open the Stories window and import your stories. Once the stories are imported, drag and drop the stories from the Imported Stories area with multiple pages, or choose Expand to select single or multiple pages of stories to go into your topic. You can use the CTRL or Shift click to select multiple items from the Imported Stories area.

Single Screen Setups

You can also use a single large screen, like a Microsoft Surface Hub, a Cisco Webex Board, or a single touch-screen monitor connected to a PC.

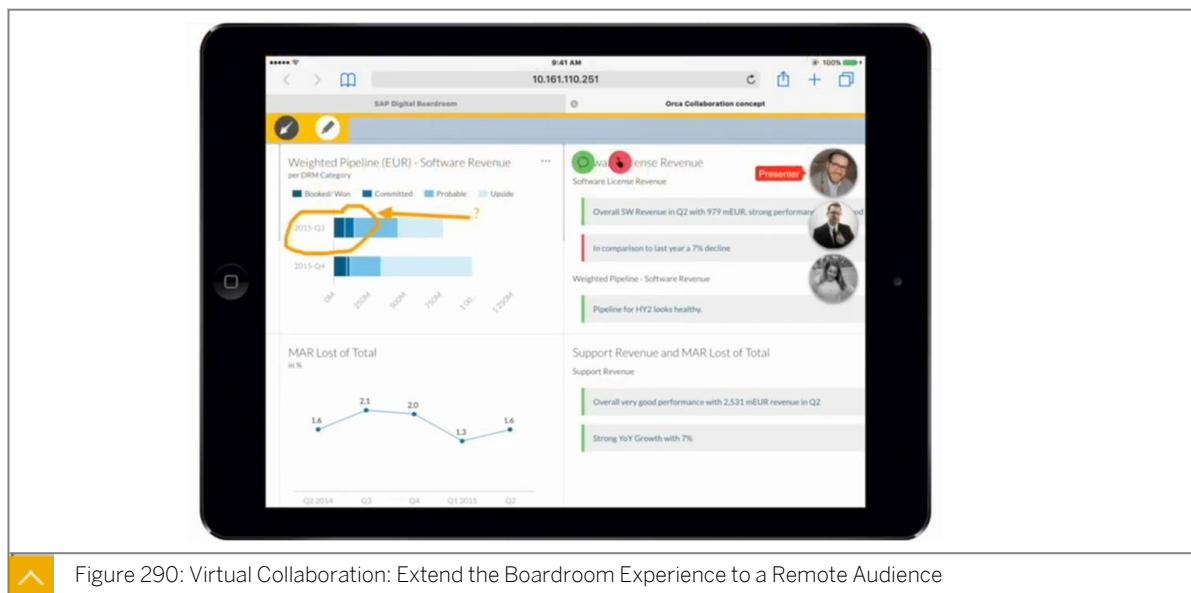
Responsive layouts in SAP Digital Boardroom presentations can adjust to the number of touch screens you are using. With a single screen, the visible page can show a preview of pages in the same topic. You can select or swipe from one to the next, or jump from one to another using bread crumbs or other navigation features. For more information, see [Presentation Settings and Theming](#).

An SAP Digital Boardroom app is available in the Microsoft store. It integrates SAP Digital Boardroom with Microsoft Surface Hub collaboration features, including e-mail, Skype, and drawing. To install the app, just follow the store instructions on your Surface Hub device. Another option is a video wall, where several individual monitors are combined into a single screen.

Video wall vendors supply the necessary hardware and software to split the standard screen across multiple devices.

Multiple Screen Setups

With multiple large 4K touch screens connected to a single PC, you can present several topic pages at once. You can connect up to three screens to provide an immersive experience. A standard PC can support three monitors, with HDMI or DVI ports.



The SAP Digital Boardroom allows for engagement with remote audience:

- Screen share support

- Virtual control handover
- Annotation capabilities for both main presenter and remote audience



LESSON SUMMARY

You should now be able to:

- Describe the features of SAP Analytics Cloud Digital Boardroom

Exploring SAP Analytics Hub



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe how SAP Analytics Cloud and SAP Analytics Hub simplify access to analytics in an organization

SAP Analytics Cloud and SAP Analytics Hub

SAP Analytics Hub

SAP Analytics Hub is a single point of access to analytics. SAP Analytics Hub simplifies access to analytics scattered across multiple heterogeneous environments. The solution recommends the best analytics to fit personalized needs, and grants users with actionable insights without compromising agility.

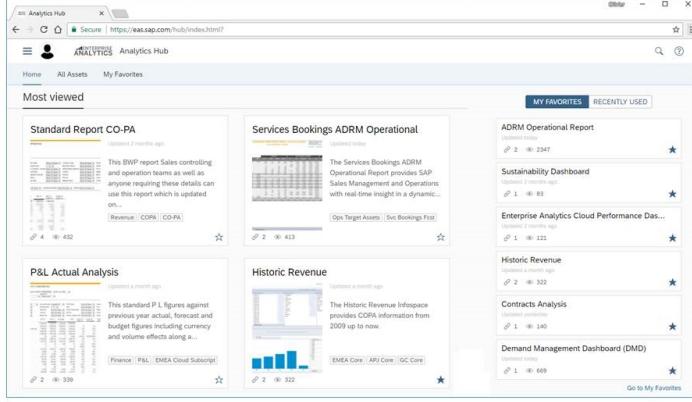
Key Capabilities

- Enterprise Agility:
 - Increase adoption rates.
 - Deliver a single version of the truth.
 - Bridge multiple systems.
 - Make decisions based on facts.
- IT Efficiency:
 - Run in realtime.
 - Start your journey to the cloud with no disruption.
 - Grow the adoption rate of analytics.
- Self-Governed Community:
 - Empower your business intelligence community.
 - Enable collective insights.
 - Enrich metadata.
 - Certify analytics.

SAP Analytics Hub offers IT administrators and content authors a simple way to manage enterprise-wide access to all analytics scattered across multiple applications and platforms. The

solution helps avoid report proliferation and duplication, and helps ensure proper documentation of all exposed analytics. And, as all analytics are accessed through the solution, you can track usage and understand which systems, data sources, and analytics are widely adopted.

- A Single Access Point:
 - Centralize the repository of governed analytics.
 - Eliminate the need to remember links to multiple systems.
 - Store metadata and links to source systems.
- A Single Version of the Truth:
 - Select and organize the right analytics.
 - Provide analytic information, and a clear definition of the data and performance metrics.
 - Bridge cloud and on-premise systems.
- Encourage Users to Explore:
 - Drive toward a data-driven and analytics culture.
 - Allow users to discover new analytics that they can trust.



Home Page

- Shows analytics picked for you (promoted by content moderator)
- Displays the most viewed,
- Mark as a favorite, list your favorites
- Recently used
- The administrator can adjust the logo and name of the Analytics Hub

Figure 291: SAP Analytics Hub Home Page

The figure, *SAP Analytics Hub Home Page*, offers an example of how your home screen might look.

Home Page

- Shows assets picked for you.
- Displays the most viewed assets.
- You can select and display your favorites.

- Toggle between My favorites and Recently used assets.
- Search by keyword, then further refine or sort the results.

On the Overview tab, you can add tags, a short description, and change the tile layout.

The *Description* tab allows for more detail. On the right, you can add, modify, and change links containing the URL to content such as Analytic Applications or other websites.

Content validator

- Can reject/validate assets
- Can hide/unhide/delete assets

Chief content editor

- Can see all assets in all states and can edit them when possible and perform any life cycle management.
- Can promote assets in the "What's Hot" section

Tenant Operator

- Can change store structure
- Can manage users and assign above roles

Figure 292: Asset Validation

The following list shows the Analytics Hub roles.

Analytics Hub Admin

- Full privileges

Analytics Hub Content Creator

- Full Assets privileges
- Read Structures privileges

Analytics Hub Viewer

- Read Assets privileges



User administration

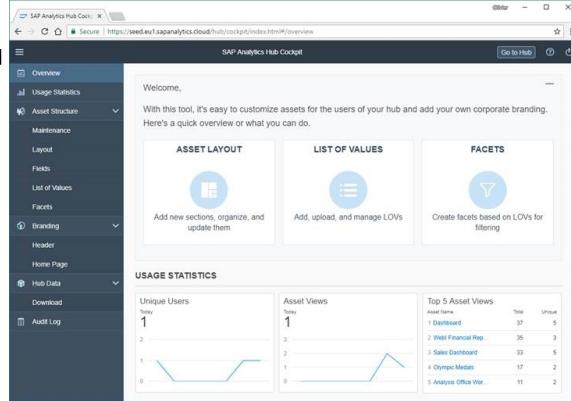
- Once you receive the email, the tenant is created
- Add users and define their role

Configuration through the cockpit (1709)

- An asset profile is created by default
- The fields for an asset are customizable
- The taxonomy (facets and values) is as well
- Name and logo can be changed

Monitor

- Review usage
- Audit user actions
- Export hub content



Rank	Asset View	Year	Unique
1	Grafana	37	5
2	West Financial Rep.	36	3
3	Sales Dashboard	33	5
4	Olympic Medals	17	2
5	Analyse Office Info.	11	2

Figure 293: SAP Analytics Hub Cockpit

SAP Analytics Hub Cockpit

- The overview allows you to change the asset layout, manage list of values, maintain facets and overall statistics.
- Usage statics display the number of unique users, total asset views, and unique asset views for yesterday and today.
- Branding allows you to modify the header and home page options.
- Asset structure enables you to view planned maintenance, asset layout modification, fields in use and creation, list of values creation and facets in use.
- Hub data allows you to download (export) or upload (import) the asset structure, branding, and hub content.
- Audit Log tracks the actions of users.



Figure 294: Content Deployment: Transport of SAC Content

Transport SAC Content

As an administrator, you might need to transfer content between systems in your landscape. For example, you might set up stories, analytic applications, and models in your test system and then move them to a production system when they are ready.

Or you might want to help your users get started by importing some of the public content provided by SAP and its partners: sample content, templates, and end-to-end business scenarios for specific industries and lines of business.



Figure 295: Content Network: Transport of SAC Content

You can import and export data with a couple of different tools:

- Content Network: The Content Network stores your exported packages in the cloud, where you can share the packages with other systems in your landscape, and manage the content

and sharing settings. You can import content that's shared with your system, including private content as well as public samples, templates, and business content provided by SAP and its partners.

- Deployment area: From here, you can export and import content as *.tgz* files.



Note:

The SAP Analytics Cloud software release versions installed on the source and target tenants need to match (same version) or may differ by only one version.

Unit 7

Exercise 14

Manage Content in SAP Analytics Hub

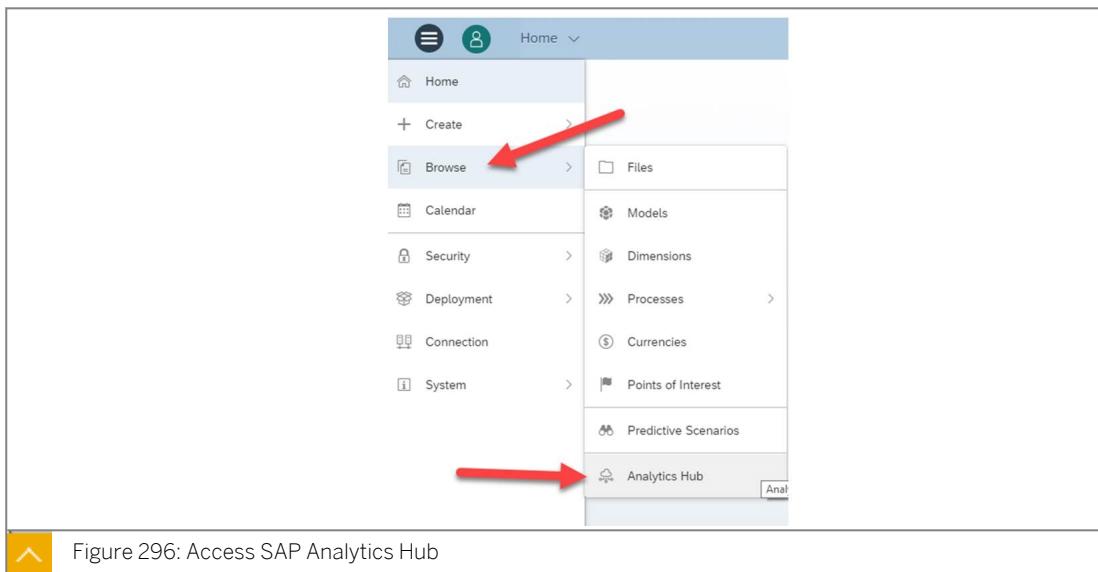
In this exercise, you will do the following:

- Experience SAP Analytics Hub.
 - Perform content management functions to add content to SAP Analytics Hub.
 - Perform user functions in SAP Analytics Hub.
1. Open the *SAC01_18_Presentation_Analytics_story* story and copy the URL.
 2. Navigate to the *SAP_Logo.jpg* file stored on your N drive.
 3. Switch to the SAP Analytics Hub and create a new asset.
 4. Add the story link to the asset, use the name: **SAC01_18_Presentation_Analytics**.
 5. Rename the draft title, and add a tag using your initials and user number in the format XXX xx - (item).
 6. Enter your initials, user number, and – **Analytic Story** as the short description for the asset. Change the title layout and add a picture.
 7. Add the following description: **Analytics Cloud Hub Presentation**. Save the changes and send it for validation.
 8. Validate the asset.
 9. Set your asset as a favorite, then view the favorites.
 10. View the story in your asset, then return to the analytics hub.
 11. Search for items in your asset, then clear the filter selection.
 12. Hide your asset, then restore your asset.
 13. Access the cockpit and review the total asset views. Return to SAP Analytics Cloud.

Manage Content in SAP Analytics Hub

In this exercise, you will do the following:

- Experience SAP Analytics Hub.
 - Perform content management functions to add content to SAP Analytics Hub.
 - Perform user functions in SAP Analytics Hub.
1. Open the *SAC01_18_Presentation_Analytics_story* story and copy the URL.
 - a) Choose the *Main* menu, and navigate to *Browse* → *Files* → *Public* → *SAC01_24* → *SAC01_CONTENT*.
 - b) Choose *SAC01_18_Presentation_Analytics_* to open the story.
 - c) Copy the URL in the browser to the clipboard (press *CTRL-C*).
 2. Navigate to the *SAP_Logo.jpg* file stored on your N drive.
 - a) Navigate to *N drive* → *SAC* → *SAC01*.
 - b) Select *SAP_Logo.jpg*
 3. Switch to the SAP Analytics Hub and create a new asset.
 - a) Choose the *Main* menu.
 - b) Navigate to *Browse* → *Analytics Hub*.



**Note:**

It might take a second to start this service. You may also need to acknowledge that you should not add private information.

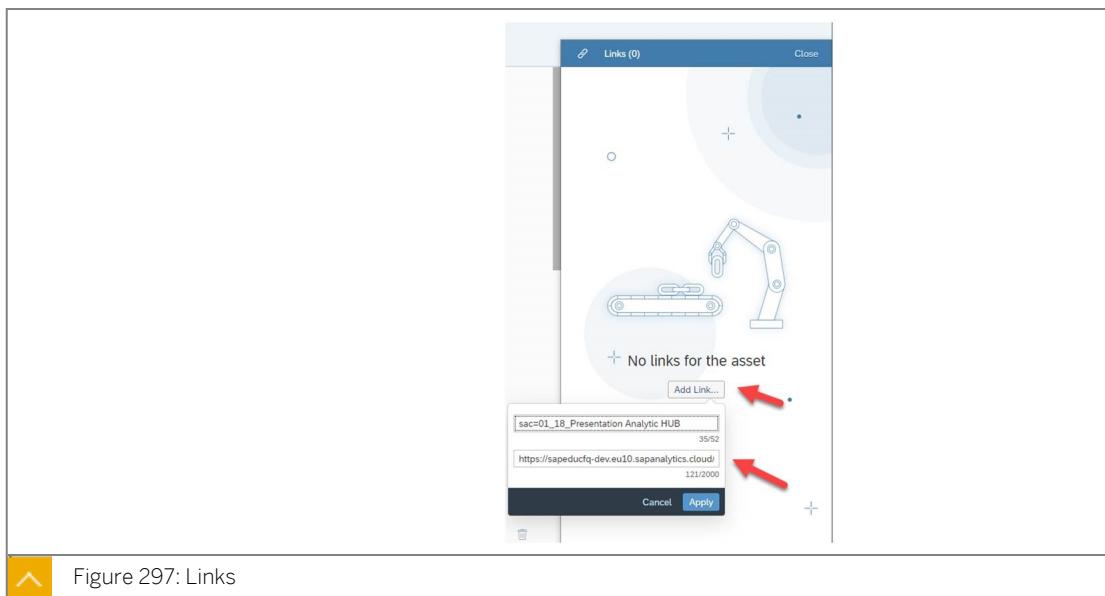
c) Choose the *Content Management* tab.

d) Choose *Create Draft* (+ button on the right).

4. Add the story link to the asset, use the name: **SAC01_18_Presentation_Analytics**.

a) Choose *Add Link*, and change the link title to: **SAC01_18_Presentation_Analytics**.

b) Paste the URL from a previous step as the *Link URL*.



c) Choose *Apply*.

5. Rename the draft title, and add a tag using your initials and user number in the format **XXX xx - (item)**.

a) Choose *New Draft*, and delete the contents of the cell.

b) Enter your initials and user number as the *Asset Title*, in the following format: **xxx xx - asset title**.

c) Choose *Add a new tag*.

d) Repeat step b using the format **xxx xx - tag** as the tag, and press Enter.

e) Choose *Save Changes*.

f) Choose *Edit asset*.

6. Enter your initials, user number, and – **Analytic Story** as the short description for the asset. Change the title layout and add a picture.

- a) In the Asset Short Description area, enter **XXX xx - Analytic Story**.
- b) Select the *Big Image Tile* layout.
- c) Choose *Upload image*.
- d) Navigate to the *Downloads* directory.
- e) Select the *SAP_Logo.jpg* picture, and choose *Open*.
7. Add the following description: **Analytics Cloud Hub Presentation**. Save the changes and send it for validation.
 - a) Choose the *Description* tab.
 - b) Enter **Analytics Cloud Hub Presentation** as the description of the asset.
 - c) Choose *Save Changes*.
 - d) Choose *Send for Validation*.
8. Validate the asset.
 - a) Choose the *Content Management* tab.
 - b) Choose *Awaiting validation*.
 - c) Choose your asset, and choose *Validate*.

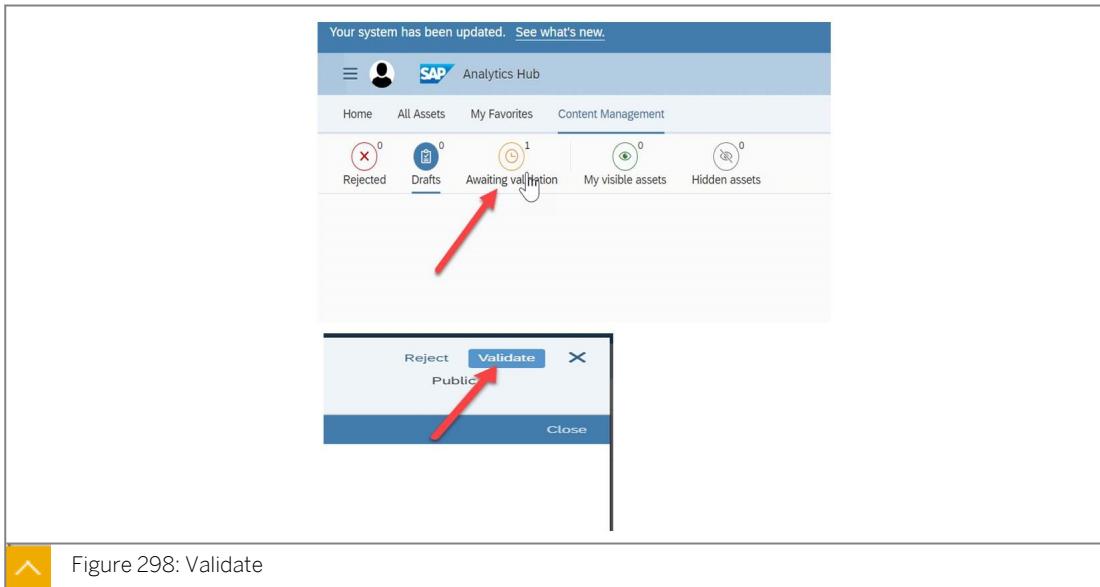


Figure 298: Validate

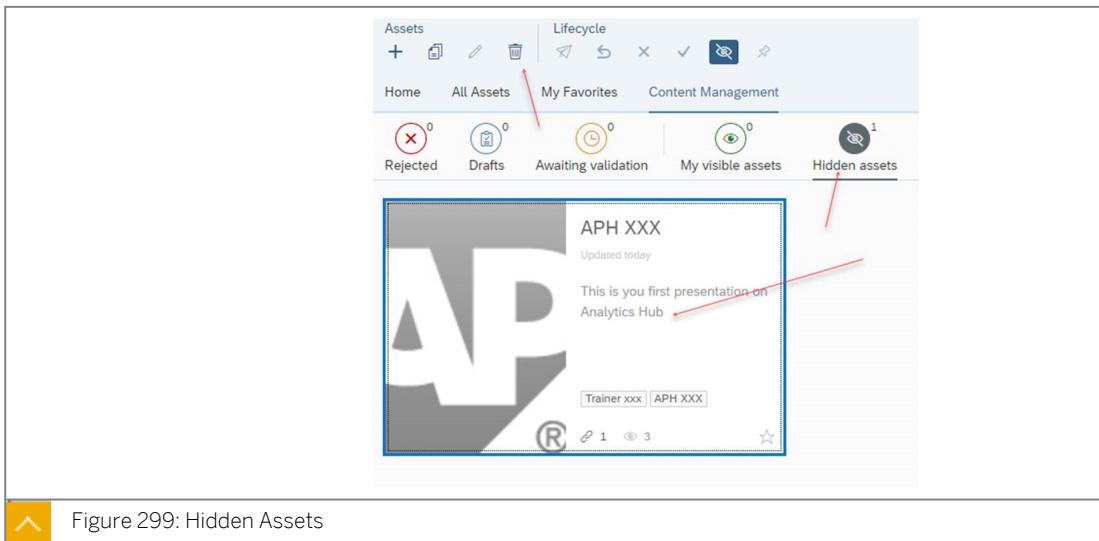
9. Set your asset as a favorite, then view the favorites.
 - a) Choose the *All Assets* tab.
 - b) Choose your asset, and choose *Add favorite*.
 - c) Choose *Close asset*.
 - d) Choose the *My Favorites* tab.
10. View the story in your asset, then return to the analytics hub.

- a) Choose your asset.
 - b) Select the link contained in the asset.
 - c) Close the *Story* tab.
 - d) Choose *Close asset*.
 - e) Choose the *All Assets* tab.
11. Search for items in your asset, then clear the filter selection.
 - a) Choose *Search*.
 - b) Enter one of the items below:
 - Your initials
 - Your number
 - Story
 - Tag
 - c) Choose one of the items in the list.
 - d) Repeat step b as desired.
 - e) Choose *Remove filter* for the filtered item.
 12. Hide your asset, then restore your asset.
 - a) Choose *Content Management*.
 - b) Choose *My visible assets*.
 - c) Choose *Edit mode*.
 - d) Choose your asset.
 - e) Choose *Hide asset*.
 - f) Choose *Edit mode*.
 - g) Choose *All Assets*.

**Note:**

Your asset is no longer visible. Try to search for it. Remove all filters when finished.

- h) Choose *Content Management*.
- i) Choose *Hidden assets*.

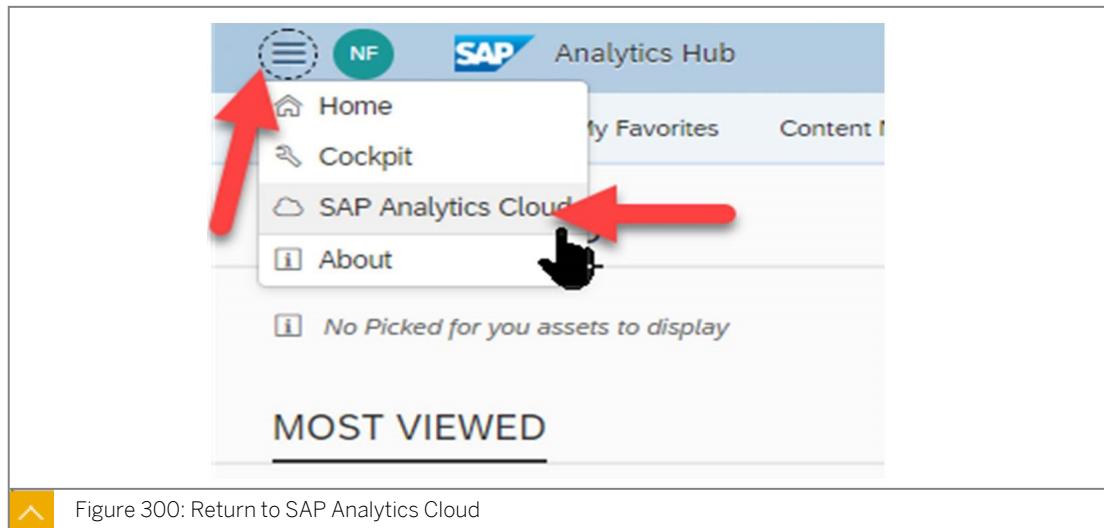


- j) Choose *Edit* mode.
- k) Select your asset.
- l) Choose *Unhide asset*.
- m) Choose *Edit* mode.
- n) Choose *All Assets*.



Note:
Make sure your asset is visible.

13. Access the cockpit and review the total asset views. Return to SAP Analytics Cloud.
 - a) Choose *Main Menu*.
 - b) Choose *Cockpit*.
 - c) Navigate to *Usage Statistics*.
 - d) Choose the *Unique Users* drop-down and choose *Total Asset Views*.
 - e) Choose *Go to Hub*.
 - f) Choose the *Main* menu.
 - g) Navigate to *SAP Analytics Cloud*.



Duplication is prohibited.

Duplication is prohibited.



LESSON SUMMARY

You should now be able to:

- Describe how SAP Analytics Cloud and SAP Analytics Hub simplify access to analytics in an organization

Introducing SAP Analytics Cloud Mobile



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe SAP Analytics Cloud Mobile

SAP Analytics Cloud Mobile



Figure 301: SAP Analytics Cloud Mobile

SAP Analytics Cloud Mobile application is available for iOS devices, so you can use SAP Analytics Cloud and its functions on your iPhone or iPad.



Note:

Requires iOS 11.0 or later. Compatible with iPhone and iPad only.

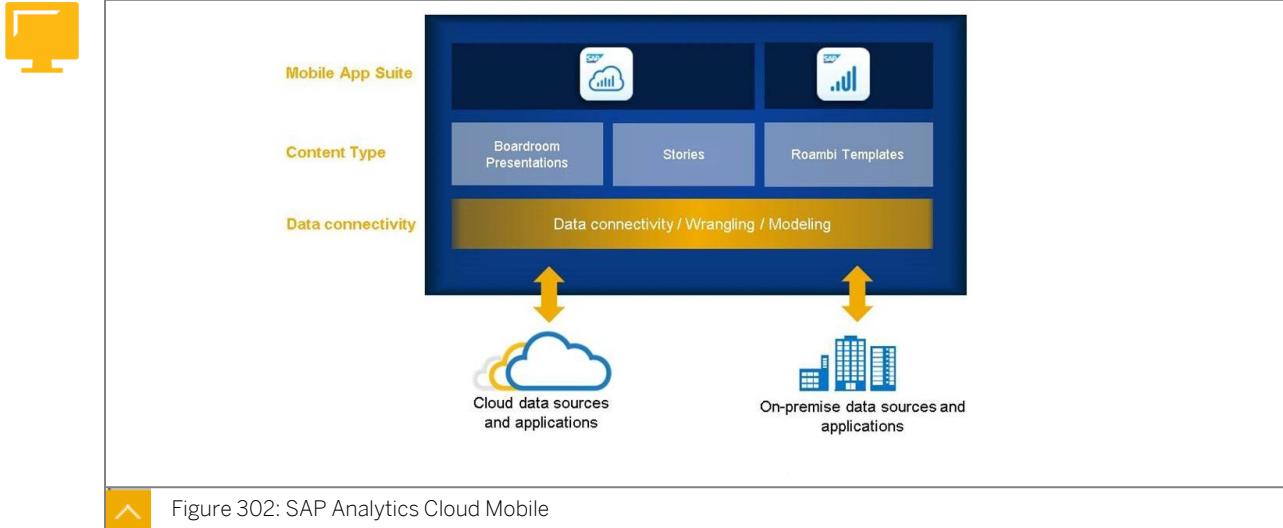


Figure 302: SAP Analytics Cloud Mobile

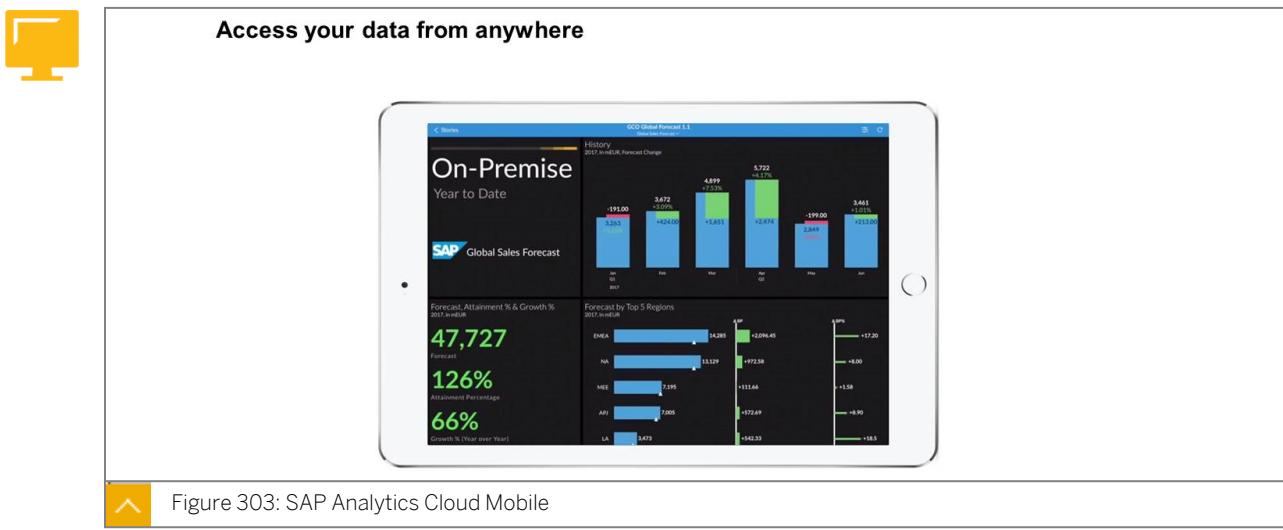
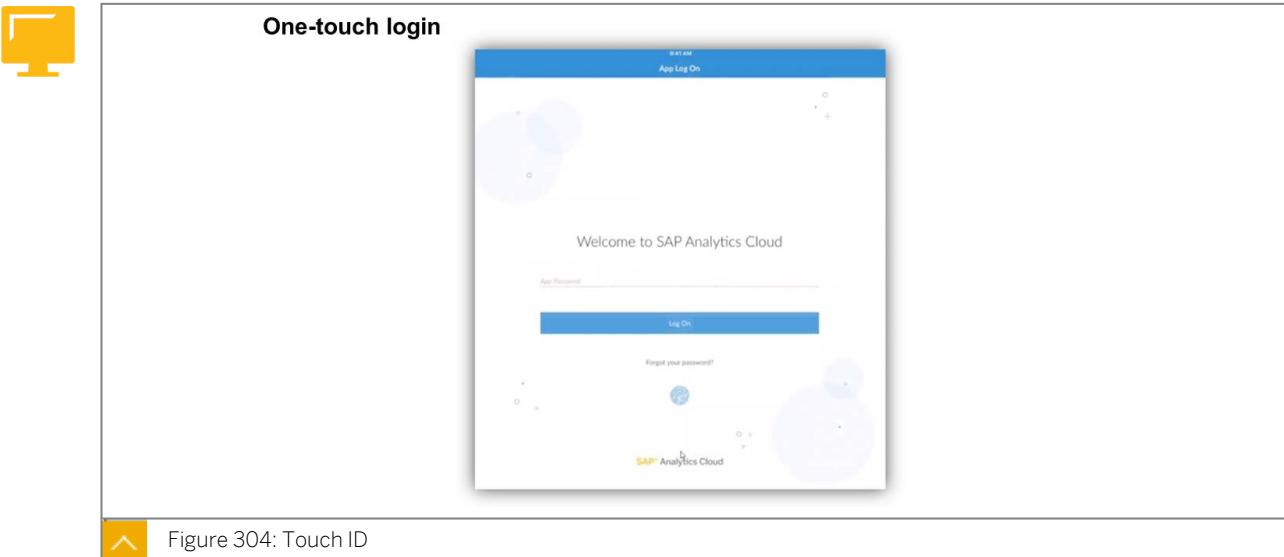


Figure 303: SAP Analytics Cloud Mobile

Use the SAP Analytics Cloud mobile app and access your analytics anywhere and anytime.



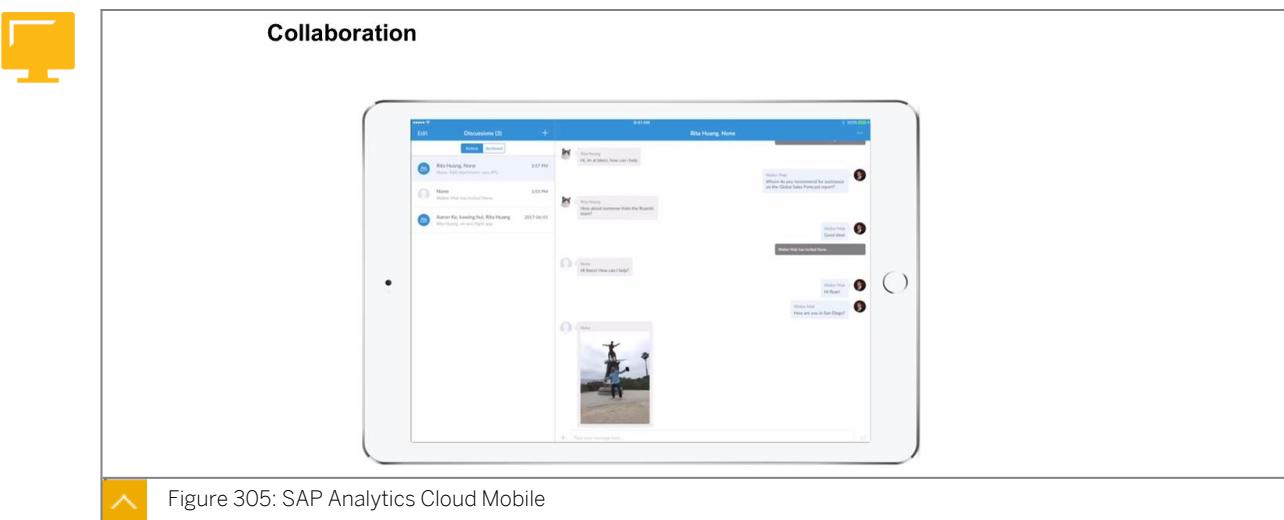
With the SAP Analytics Cloud iOS app, you can log in with a touch ID or face ID.

By using the one-touch fingerprint scanner, you can quickly access your stories while still having a secure login.

Sharing and Collaborating on Mobile

Share story and SAP Digital Boardroom links, create discussions with colleagues, and manage your notifications.

- Annotate and share with others
- Share links
- Share custom URL scheme links
- Collaborate with colleagues
- Receive and manage notifications

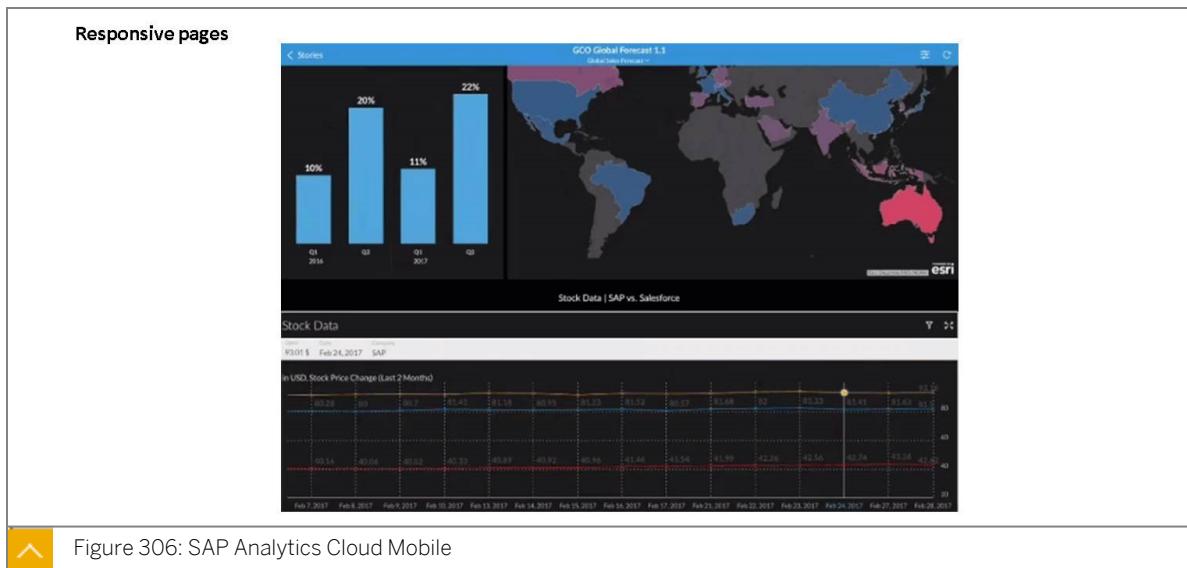


Share Links

Links to stories and SAP Digital Boardroom presentations opened on a mobile device automatically launch the SAP Analytics Cloud mobile app and go directly to that content.

Collaborate with Colleagues

Tap the Collaboration button to chat with colleagues in real-time.



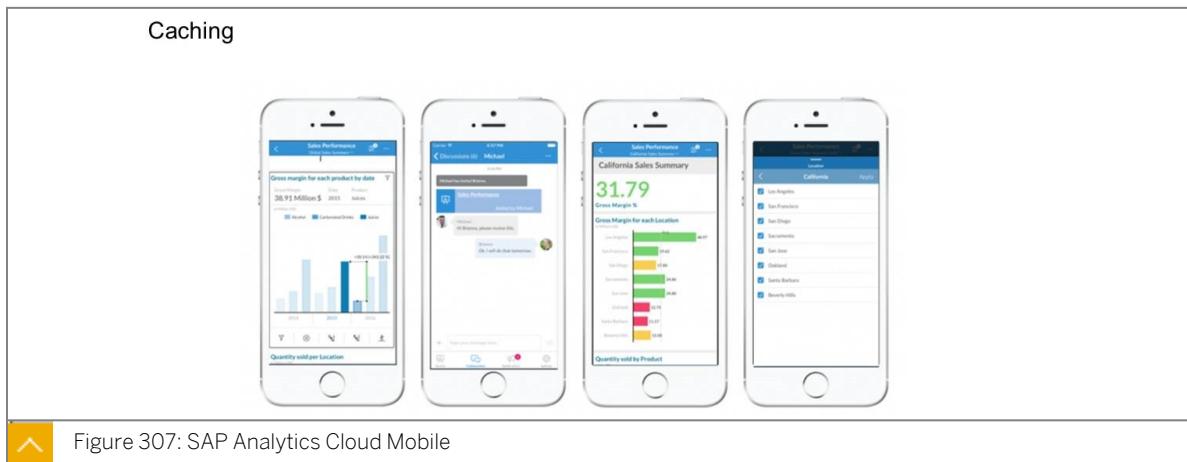
Responsive stories will adapt page size automatically to fit the device.

Preview your story on a phone or tablet of different sizes to see how lanes auto-arrange. This automatic scaling function allows you to navigate your story on large screens, phones, and tablets.



Note:

The mobile app can only be viewed in portrait mode for iPhone and landscape mode for iPad. The app does not rotate orientation.



It is possible to navigate your story without a connection to the internet.

Table 8: Mobile Feature Compatibility

General	MOB Support	Notes
iOS Touch / Face ID	X	
iOS notifications	X	
SAP Digital Boardroom	Limited	No Story Filter
Import Data refresh	X	
Live Data refresh	Limited	No SAP BO Universes
Offline Mode	Limited	Cached is supported while using Airplane mode. You must first have a connection and loaded the data once.
Responsive page	X	No Canvas, Grid or Exploration view
KPI	X	
Charts	X	
Table	Limited	No Predictive Forecast
Filter / Input Control	Limited	
Bex Variables	No	
Hana variables	No	
RSS Reader	No	

 Note:
Before using the mobile application, please check the mobile feature compatibility in: [SAP Help](#).



LESSON SUMMARY

You should now be able to:

- Describe SAP Analytics Cloud Mobile

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Duplication is prohibited.

Unit 7

Lesson 5

Managing Translation



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Manage translation in SAP Analytics Cloud

Managing Translation



Name	Description	Type	Creator
timer	-	Analytic Application	A00
SAC01_BI_01_S01	Solution 01	Story	A00

Figure 308: Translation

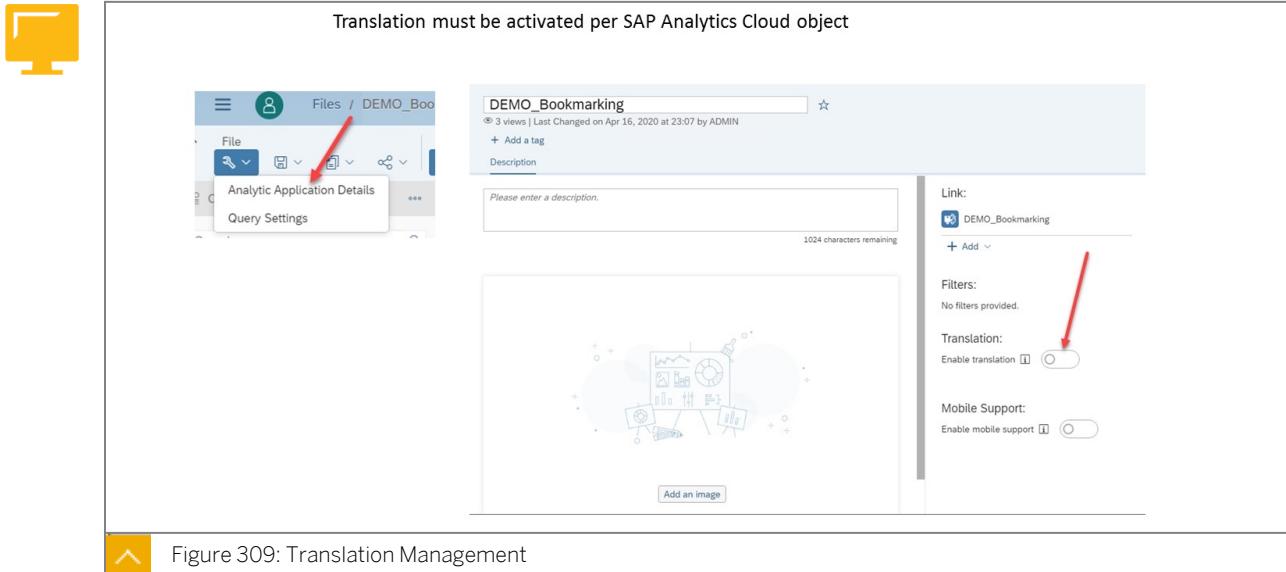
The use of SAP Analytics Cloud in international organizations and companies leads to the need of a multilingual content support. It is necessary to offer the analytical content in different languages to target audience and to improve the acceptance of the content and the intelligent system.



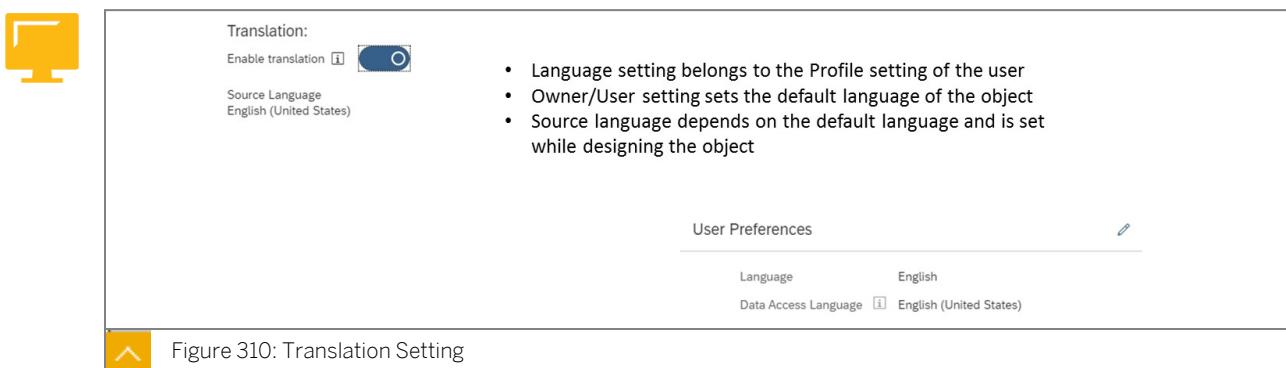
Note:

Translation management must be switched on in the Administration panel. If you do not have a link to the translation tool please turn it on .

With the translation option of different parts of the content offers a solution for this requirement.



The use of the translation tool must be required per single SAC Object, this means that the translation must be activated for every story or application in a single process .



The language that is taken as the story source language depends upon the language settings of the user who has created the story. For example, while creating this story the language was set to English and so the source language is also marked as English.

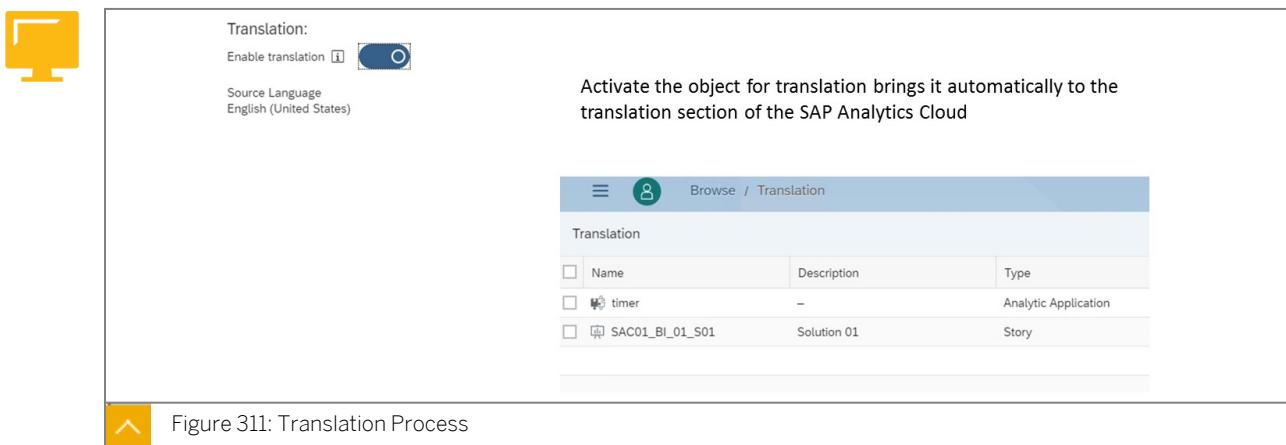




Figure 312: Translation Process

Select the story you want to translate and click on the export button in the menu on the right side.
Select *All String* to extract all strings that are in the story.

This leads to the export of a *.XLF File , which can be edited by using a notepad .



Figure 313: Translation Process

First of all, you need to rename this file so that the file name is **[Story_name]_TargetLanguage.XLF**. For example, you want to translate it to German so you will rename the file to

Hospital Overview_DE.xlf.

You will find source tags in the *.xlf in which it contains the original text in the story. To enter the translation for each text, you will need to enter a target tag next to it with the translation. As shown in the figure above you have entered a translation for Measure Input in the target tag.



Note:

Don't forget to import the translated File back to the SAC Object at the translation section. Alternatively you can use an Translation Assistant, but this programming way gives you more possibilities and flexibility



Mark an object in the translation section and press edit to use the translation assistant

SAC01_BI_01_S01

3/8 Translated

1. Solution 01 Lösung

2. SAC01_BI_01_S01 SAC01_BI_01_S01

3. <p>LATAM</p> Enter translated text here

4. <p>MEA</p> Enter translated text here

5. <p>NA</p> Enter translated text here

6. Average Processing Time Durchschnittliche Verarbeitungszeit

7. Average Shipping Time Enter translated text here

8. Average Total Delivery Time Enter translated text here

Figure 314: Translation Assistant

After a successful translation, depending on your profile language settings, the corresponding translation will be used in the story.



LESSON SUMMARY

You should now be able to:

- Manage translation in SAP Analytics Cloud

Learning Assessment

1. What is the typical screen structure of a Digital Boardroom?

Choose the correct answer.

- A Overview screen — Content screen — Context screen
- B Context screen — Agenda screen — Single screen
- C Product screen — Working screen — Presentation screen
- D Analytics screen — Planning screen — Presentation screen

2. SAP Digital Boardroom is a fully automated tool that instantly creates relevant visualizations during a meeting. No preparation is needed before the meeting.

Determine whether this statement is true or false.

- True
- False

3. The idea of the SAP Analytics Hub is to simplify the access to all analytics regardless of where it comes from.

Determine whether this statement is true or false.

- True
- False

4. Which kind of mobile devices are supported by SAP Analytics Cloud?

Choose the correct answers.

- A iPhone
- B iPad
- C Android phone
- D Windows phone

5. What kind of content can be translated?

Choose the correct answer.

A String

B Date

C Integer

D Time

6. What is the prerequisite to use the translation tool?

Choose the correct answer.

A Direct link to a translation database

B It needs a specific URL to translate

C It must be activated

D It needs extra installation

7. Which area of the SAP Analytics Cloud supports the translation tool?

Choose the correct answers.

A Analytic Hub

B Analytic Catalog

C Data Modeller

D Business Objects

Learning Assessment - Answers

1. What is the typical screen structure of a Digital Boardroom?

Choose the correct answer.

- A Overview screen — Content screen — Context screen
- B Context screen — Agenda screen — Single screen
- C Product screen — Working screen — Presentation screen
- D Analytics screen — Planning screen — Presentation screen

2. SAP Digital Boardroom is a fully automated tool that instantly creates relevant visualizations during a meeting. No preparation is needed before the meeting.

Determine whether this statement is true or false.

- True
- False

The content that needs to be displayed must be created and prepared in advance.

3. The idea of the SAP Analytics Hub is to simplify the access to all analytics regardless of where it comes from.

Determine whether this statement is true or false.

- True
- False

That is the idea of the SAP Analytics Hub.

4. Which kind of mobile devices are supported by SAP Analytics Cloud?

Choose the correct answers.

- A iPhone
- B iPad
- C Android phone
- D Windows phone

5. What kind of content can be translated?

Choose the correct answer.

- A String
- B Date
- C Integer
- D Time

6. What is the prerequisite to use the translation tool?

Choose the correct answer.

- A Direct link to a translation database
- B It needs a specific URL to translate
- C It must be activated
- D It needs extra installation

7. Which area of the SAP Analytics Cloud supports the translation tool?

Choose the correct answers.

- A Analytic Hub
- B Analytic Catalog
- C Data Modeller
- D Business Objects