The Art of Data Driven Storytelling

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SAPinsider

In This Session

- Review techniques on how to effectively present business problems, who they impact, and actionable next steps towards finding solutions (“Character, Conflict, and Climax”)
- Be introduced to the best methods of designing “stories” in SAP Analytics Cloud to model business datasets in meaningful ways
- Understand how to leverage a variety of tools such as Excel, digital boardrooms, and analytic applications when presenting the SAC story
- Learn how to use SAC Augmented Analytic features for “advanced storytelling techniques” that can deepen an audience’s ability to understand what happened in the past and how that can drive actions for the future

What We'll Cover

- Presenting the Business Story ("the hook")
- Writing Stories in SAP Analytics Cloud ("the story")
- Storytelling Interfaces in SAP Analytics Cloud ("the medium")
- Advanced Storytelling Techniques in SAP Analytics Cloud ("the deeper meaning")
- Wrap-Up

Presenting the Business Story ("The Hook")

- Why do we care about the story (conflict)?
- Who is involved in the story (character)?
- What is the inflection point (climax)?

Conflict

Every story has a conflict rooted in our goals and objectives as a business:

- What are we trying to accomplish (grow profits, reduce environmental impact, sell new products, etc.)?
- Are we on track to succeed in doing so, or are there things getting in our way?

Character

The “characters” of our story will ultimately be represented in the dimensionality of the enterprise data we collect:

- Who is helping resolve the conflict?
- Who is making the conflict worse?
- Who is monitoring the conflict?
- Who is accountable if the conflict isn’t resolved?

Climax

Our story builds to a climax, calling us to action towards turning a corner that will solve our current conflicts:

- What actions have been taken in the past by our characters to address our conflicts (especially those taken most recently)?
- How has the conflict evolved against those actions?
- What do the characters need to do next to resolve the conflict in its current state?

Our business story continues to churn out sequels; resolving one conflict never means the story is over.

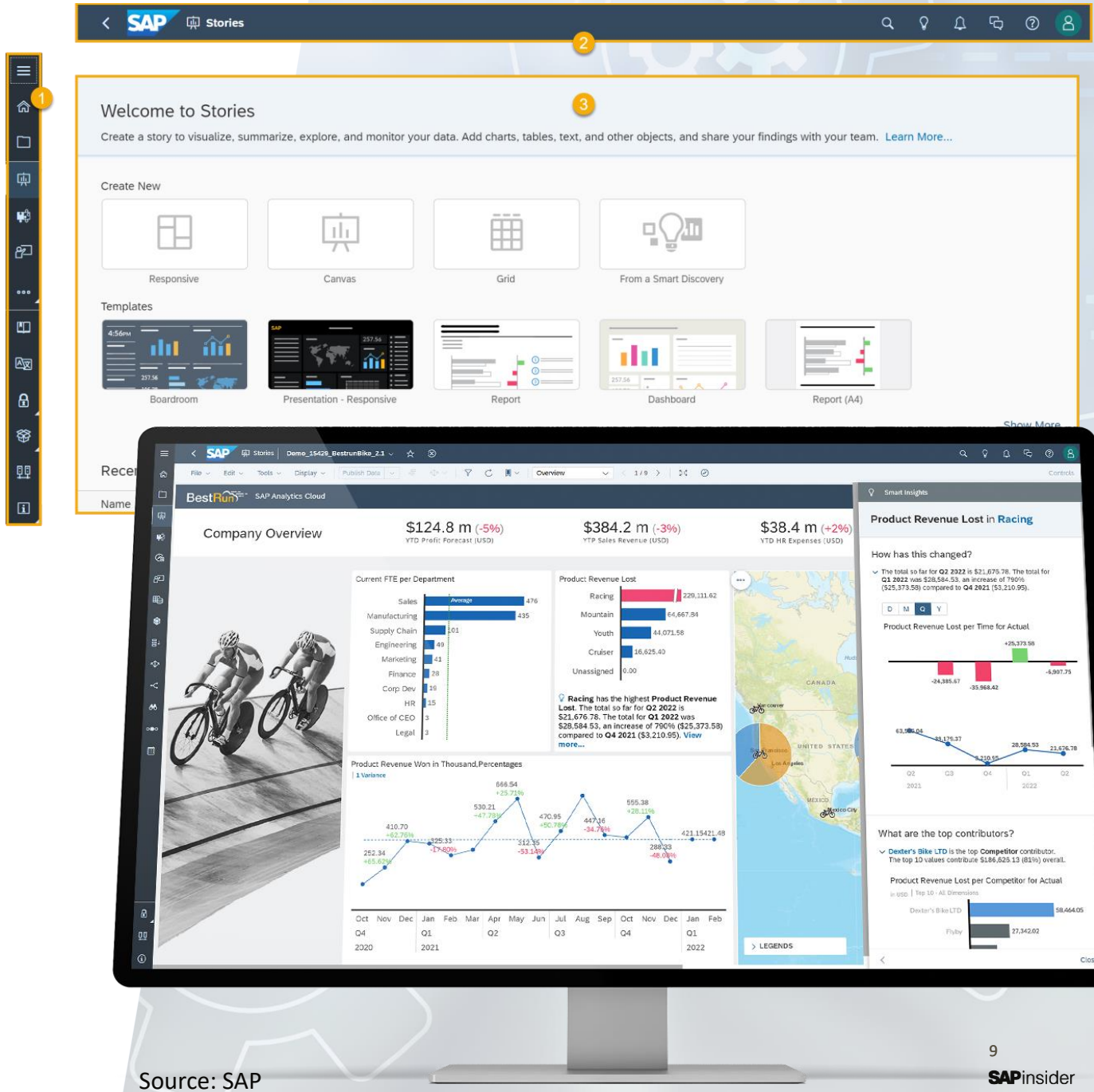
Analytics – The Language of Business Storytelling

- Enterprise organizations have access to more data than ever before
- Data needed to provide stakeholders with key information and insight
  - External Reporting
    - “How is my investment in your organization performing?”
    - “Are you in compliance with required regulations and standards?”
  - Strategic Reporting
    - “What happened in our business environment?”
    - “Are we aligning to our strategic objectives, and if what plan can we make to course correct?”
  - Operational Reporting
    - “How are our daily actions affecting our progress towards our objectives?”
    - “What do we need to do to execute our strategic plan?”
  - Having lots of data isn’t enough – we need to be able to quickly and easily understand the “story” our data is telling us

Writing Stories in SAP Analytics Cloud ("The Story")

SAP Analytics Cloud is SAP's end to end SaaS solution bringing together business intelligence, augmented and predictive analytics, and enterprise planning into a single cloud-based system.

- Seamless connectivity to an enterprise's trusted data sources
- Self service modeling which can be managed by business users
- Wide variety of visualization tools and interfaces to support different user audiences
- Powerful augmented analytics powered by cutting edge technology to unlock deeper meaning and correlations from key information

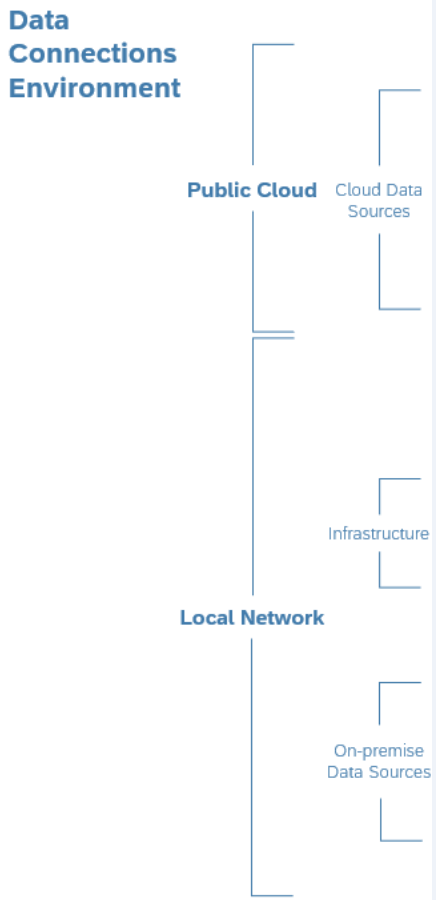


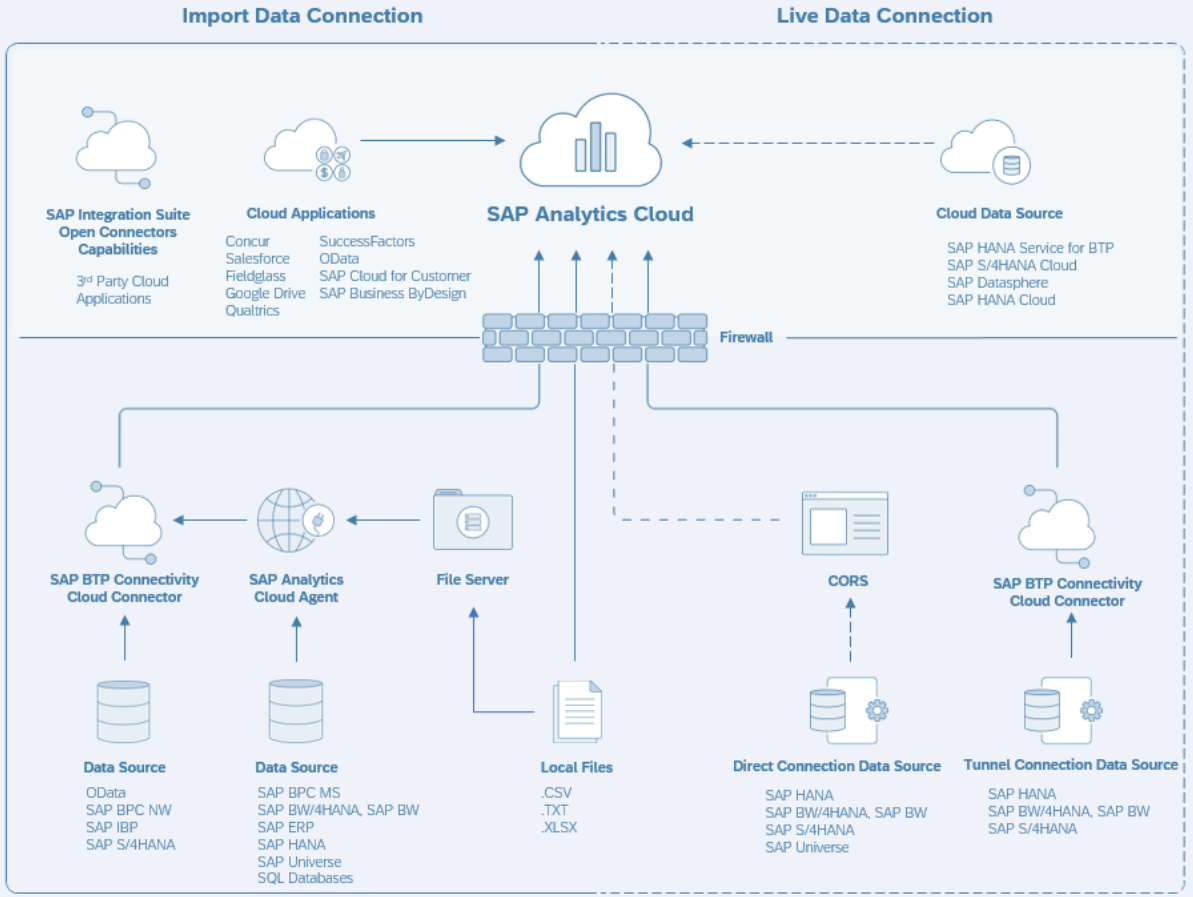
Source: SAP

Gathering “Story Elements”

SAC allows us to collect the information (characters, settings, themes, etc.) for our business story through a variety of data connectors.

- Gather data from SAP and non-SAP sources
- Gather data from both on-premise and cloud-based systems
- Collect both structured and unstructured sources of information
- Connections can be created to import and export data or to access it directly in the source in real time



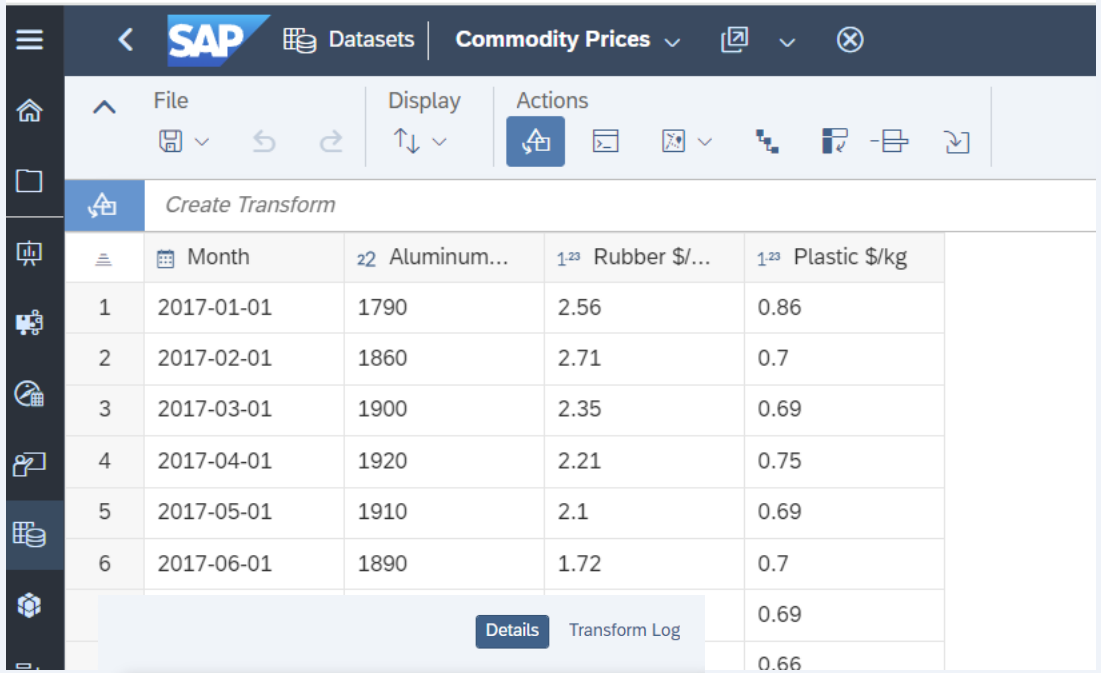


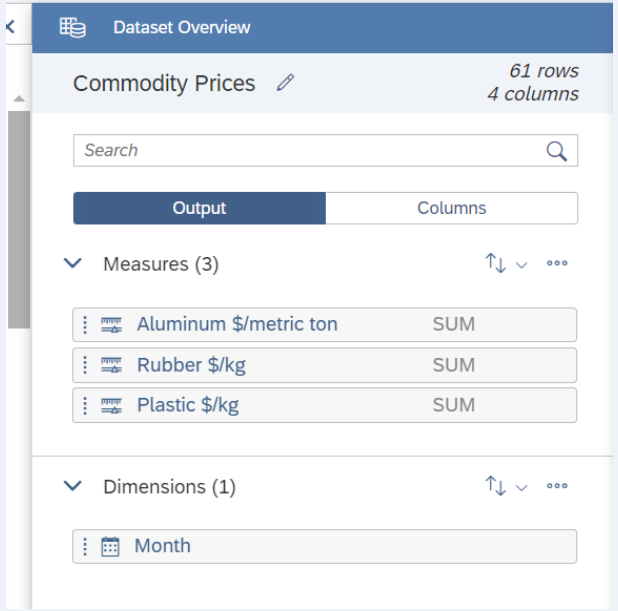
Source: SAP

Datasets for Your Stories

SAC Data Analyzer is a predefined ready-to-run application for ad-hoc analysis.

- Can access SAC or SAP Datasphere models as well as live SAP BW queries or SAP HANA views
- “Insights” can be saved for specific drilldown/filter states.
- Data insights can be exported to Excel, CSV, or PDF files.

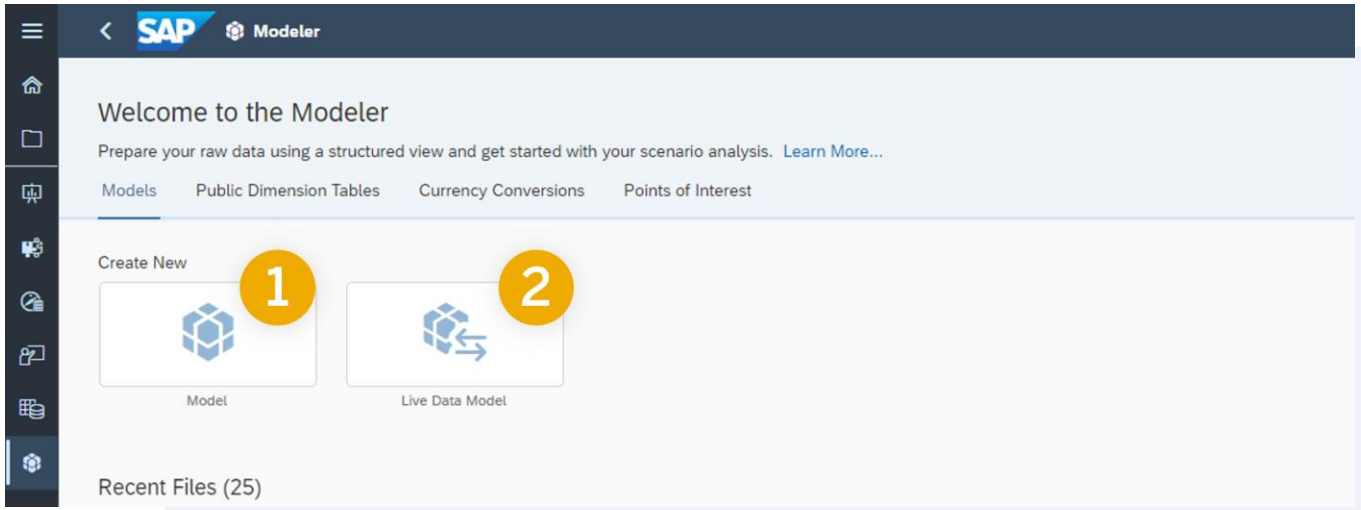


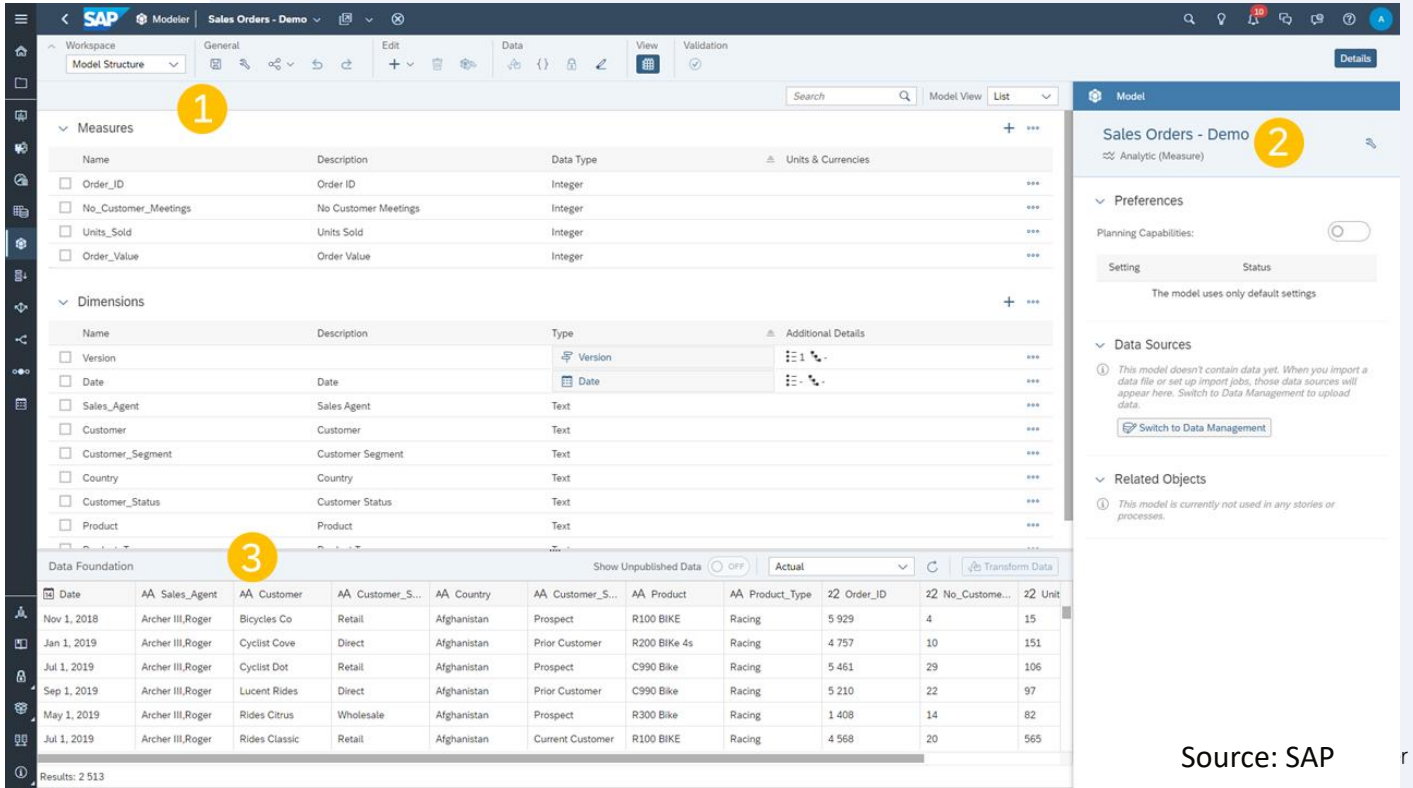


“Worldbuilding” in SAC

Models are representations of the business data in an organization that can be used as the basis of a story:

- Combines *measures* that provide meaning to your data with *dimensions* that categorize and contextualize it
- Models can use either acquired data (for planning + analysis scenarios) or live data (for purely analytical scenarios)
- Models can be built as either “Classic Account” or “New Model” types
- Model structures can be designed and architected OR can be created automatically using a “data first” approach



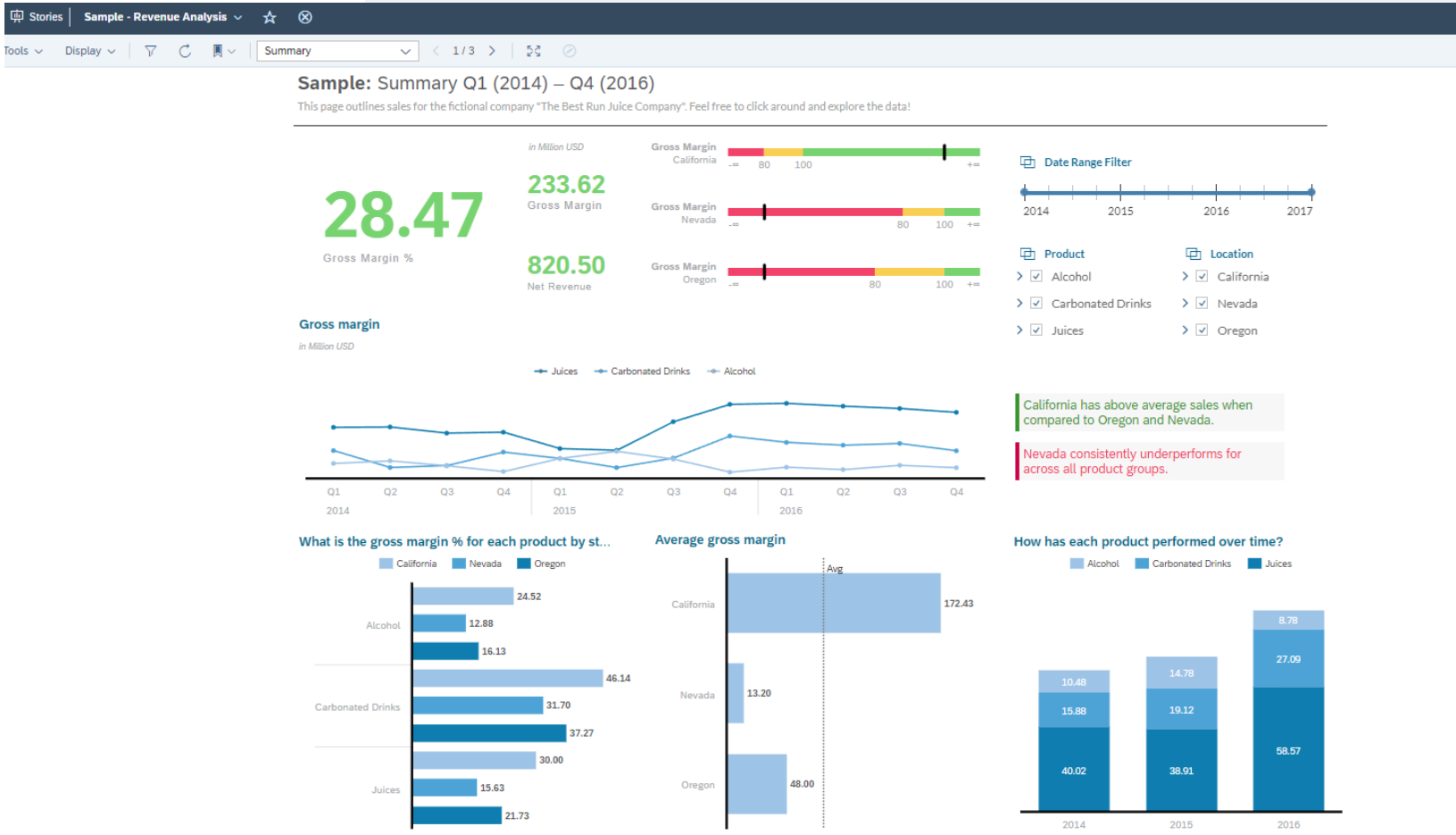


Source: SAP

The Center of the SAC experience – the Story

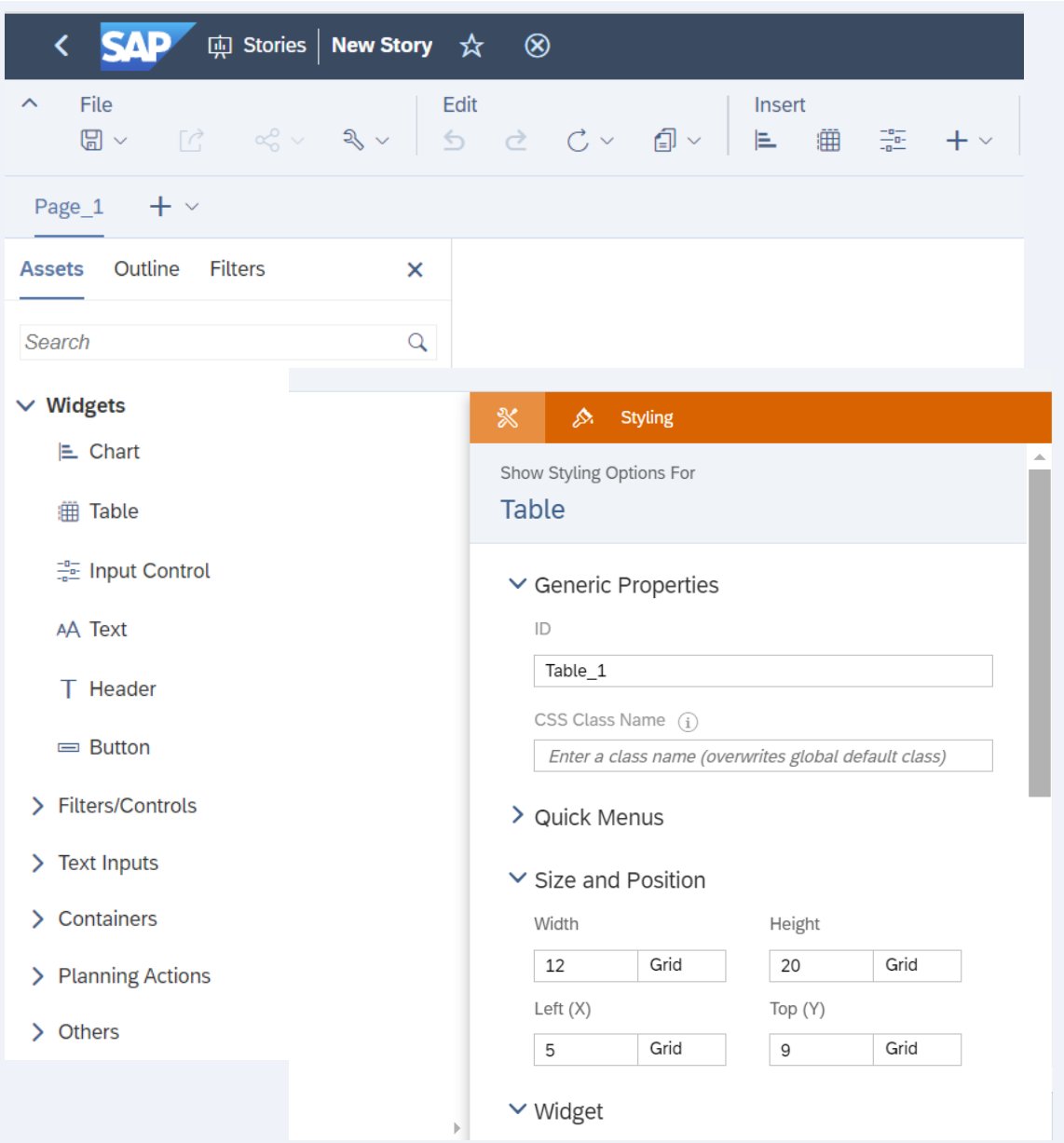
Stories allow us to explore data interactively, find insights, visualize information with charts and tables, and comment and discuss findings with colleagues.

- Stories can be presented in a “Story view” (for designed analysis) or a “Data view” (ad-hoc analysis)
- Stories can consume information from existing Datasets and Models, or can be created from a new data source on the fly
- Each user can pin their relevant Stories directly to their home screen for quick access



Authoring and Designing your Story in SAC

- The SAC Story Designer provides both a “Classic” design experience for standard users and an “Optimized” design experience for more advanced users.
- Designers can add a variety of page types (Grid, Canvas, and Responsive) to support different analysis needs and mediums.
- Designers can add a variety of chart and table types to access their key data
- Designers can enhance pages with additional widget components (filters, texts, images, planning functions, etc).
- Story elements can be configured from the “Builder” panel and formatted using the “Style” panel.

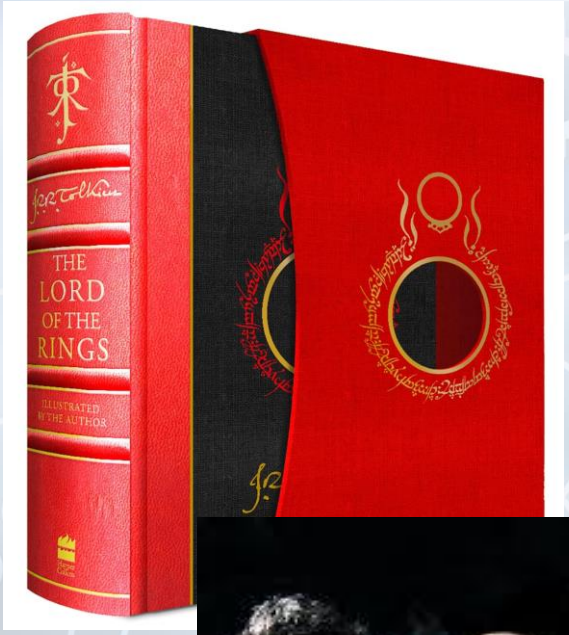


Storytelling Interfaces in SAP Analytics Cloud ("The Medium")

How do you want your audience to consume the Story?

- As a detailed novel?
- As a summarized "TV adaptation?"
- As an interactive "choose your own adventure" game?

SAC provide a variety of interfaces and user experiences to support different audiences and consumption preferences



Digital Boardroom

The Digital Boardroom allows us to transform executive meeting by replacing static presentations with interactive discussions based on real data

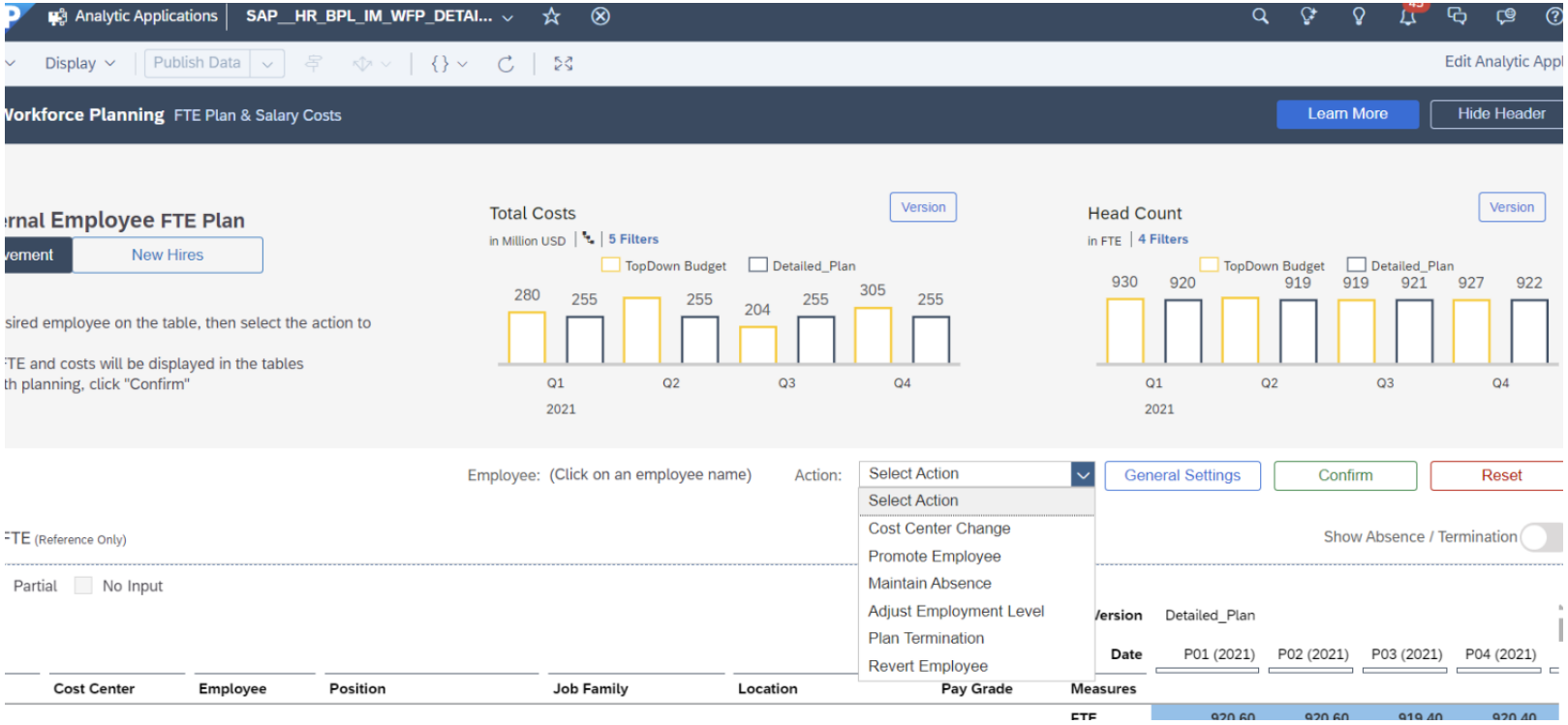
- Simplified boardroom processes and agendas
- Adds additional degrees of end user interactivity to Stories
- Simulate the effects of different assumptions, actions, and “what if” scenarios
- Can connect to multiple screens simultaneously

Source: SAP

Analytic Applications

The SAP Analytics Cloud Analytics Designer provides the ability to create professionally designed centrally governed analytic content and “smart” planning and analytic applications.

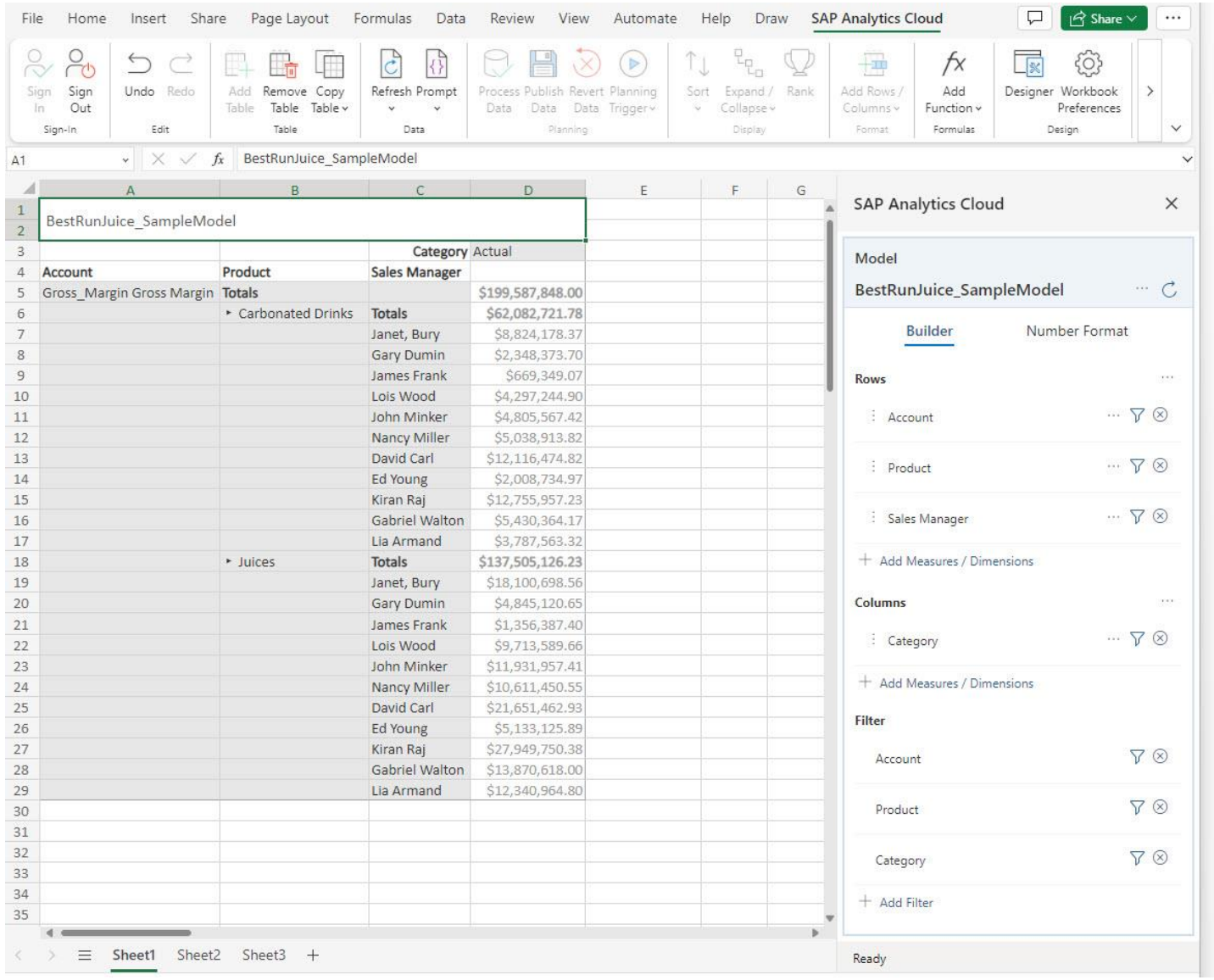
- UI elements can be configured through event driven API programming to dictate desired behaviors for a variety of story elements
- Adds additional layers of “call and response” prompting to the user experience
- Can be embedded into canvas pages of a Story



Microsoft Office

Most organizations still have a degree of comfort with Microsoft Office for presenting information.

- Stories, Datasets, and Models can be exported to PDF, PowerPoint, or CSV files in Excel
- SAC also supports Excel extensions through SAP Analysis for Office or through a specialized SAP Analytics Cloud add in for Excel

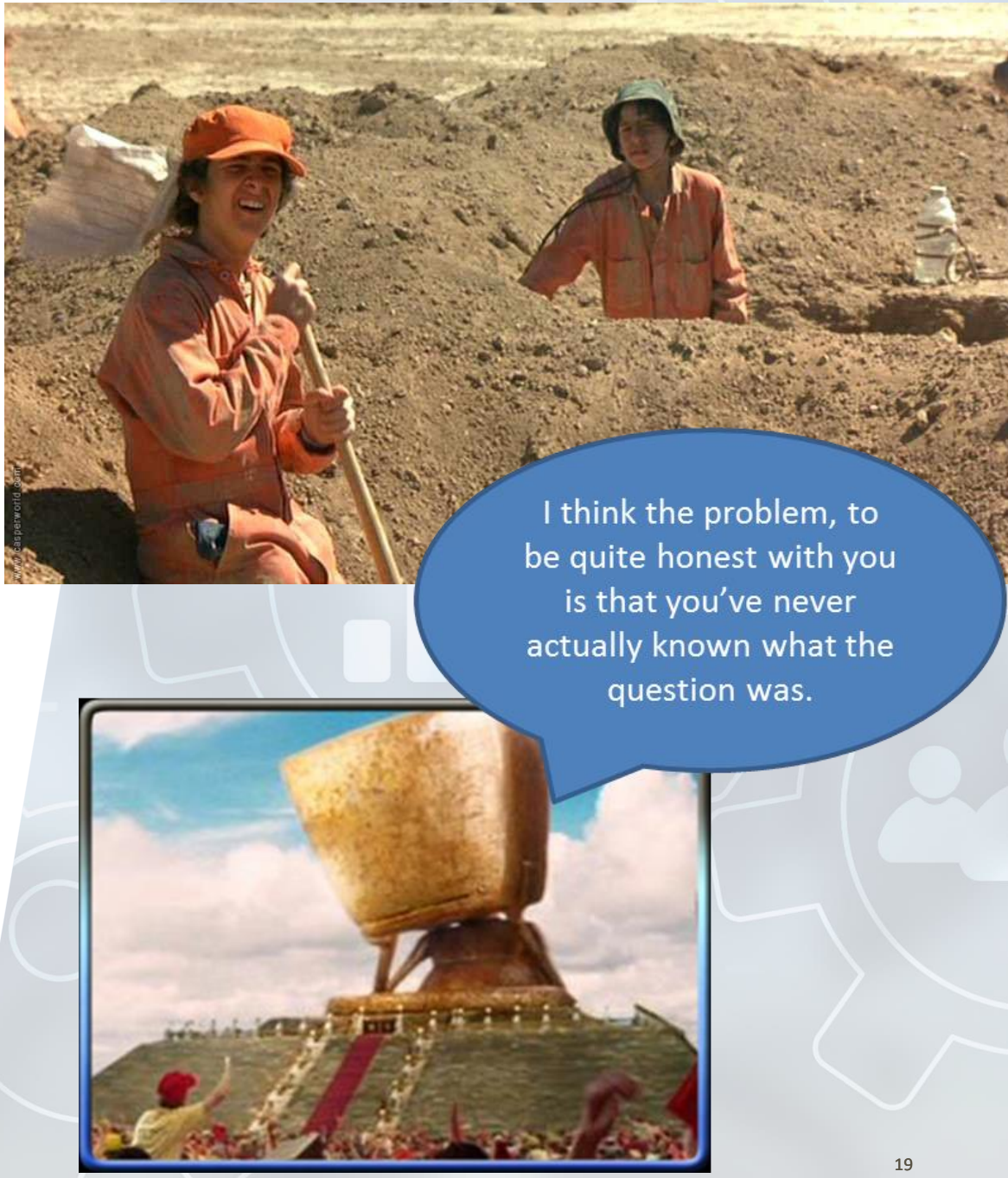


Advanced Storytelling Techniques in SAP Analytics Cloud ("The Deeper Message")

SAC gives us an authorship platform to drive the business story and present it to stakeholders in whatever context and medium is most compelling for them

- How do we make it easier for users to begin a new Story or rewrite an existing Story?
- How can we make it easier for users to understand the Story we're telling them and extract the key messages and themes?
- How can we tell a "deeper", "truer" Story?

We can do all of this (and more) by leveraging the capabilities of SAC's "augmented analytics" features.



Techniques for "Augmented" Business Storytelling

Advancements in technology have provided numerous techniques which have become well established drivers of accelerating and unlocking new value from business data in enterprise analytics:

- **Predictive Analytics -** use of techniques such as data mining, statistics, machine learning, and artificial intelligence to predict the possibility of future events based on patterns and hidden details detected in historical datasets
- **Artificial Intelligence –** using technology to make machines smarter and more capable of automating low value tasks to free up human time for higher value tasks
- **Machine Learning –** a subset of AI which involves "teaching machines to train themselves" so they can improve their effectiveness without human intervention
- **Natural Language Processing –** the automatic manipulation of natural language (such as speech and text) by software

Natural Language Processing in SAC

Natural language processing (NLP) refers to the branch of computer science concerned with giving computers the ability to understand text and spoken words in much the same way human beings can.

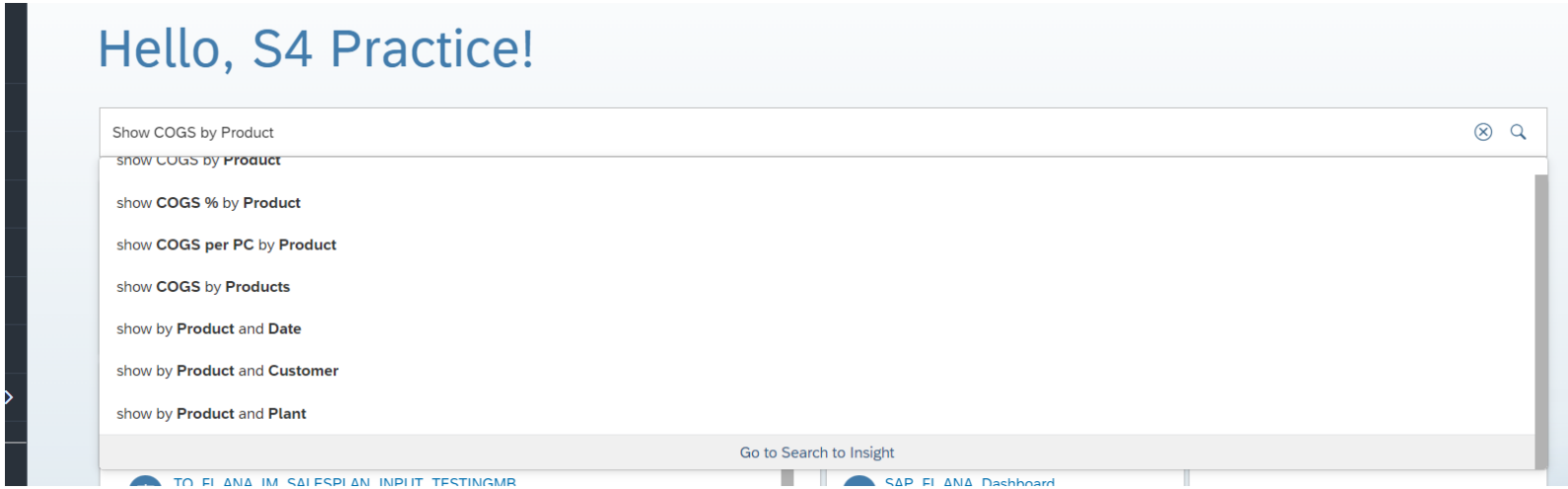
- Used in search engines, chat bots, etc. - the underlying idea is to leverage technology to quickly and easily answer questions for us.
- “Can SAC give me a quick answer from my analytics for the business question I want to tell a Story about (without me having to search for it)?”

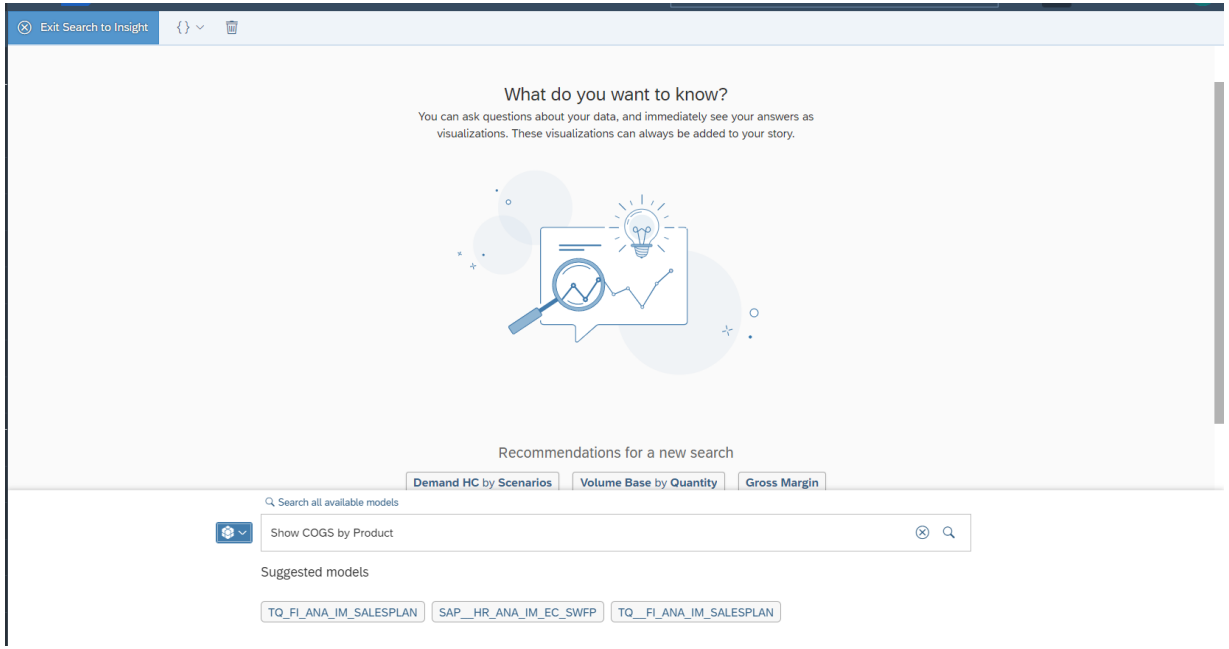
Yes – we can access quick insights about our data in SAC using the “Search to Insight” and the “Just Ask” features.

Search to Insight -> “the Search…”

“Search to Insight” is a natural language query interface used to ask questions about business data

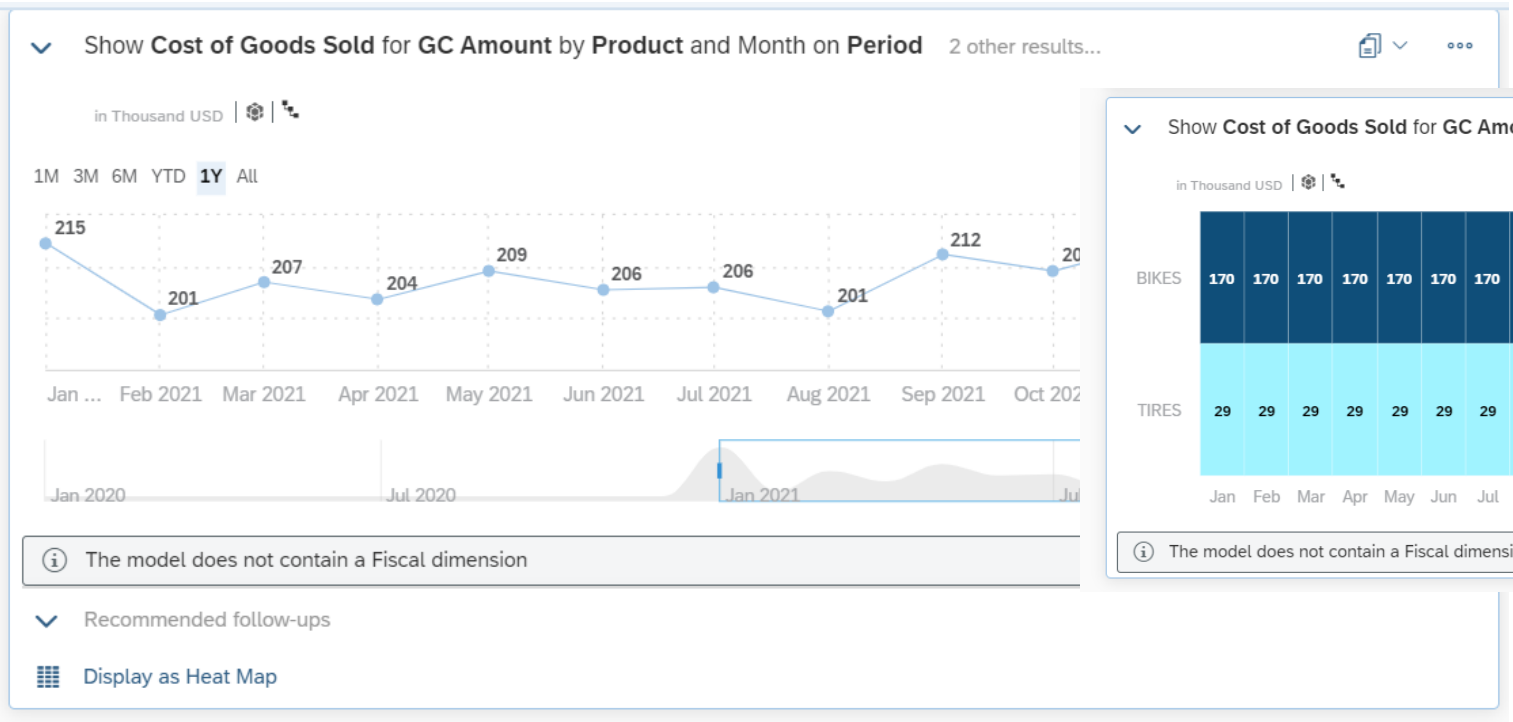
- Can be accessed immediately upon logging into SAC from home page or main toolbar.
- Search engine identifies and auto-completes relevant strings based on dimension names, values, and measures from the organization’s data models.
- Can be enhanced through a synonyms dictionary to associate data-model elements with additional common English language phrases.

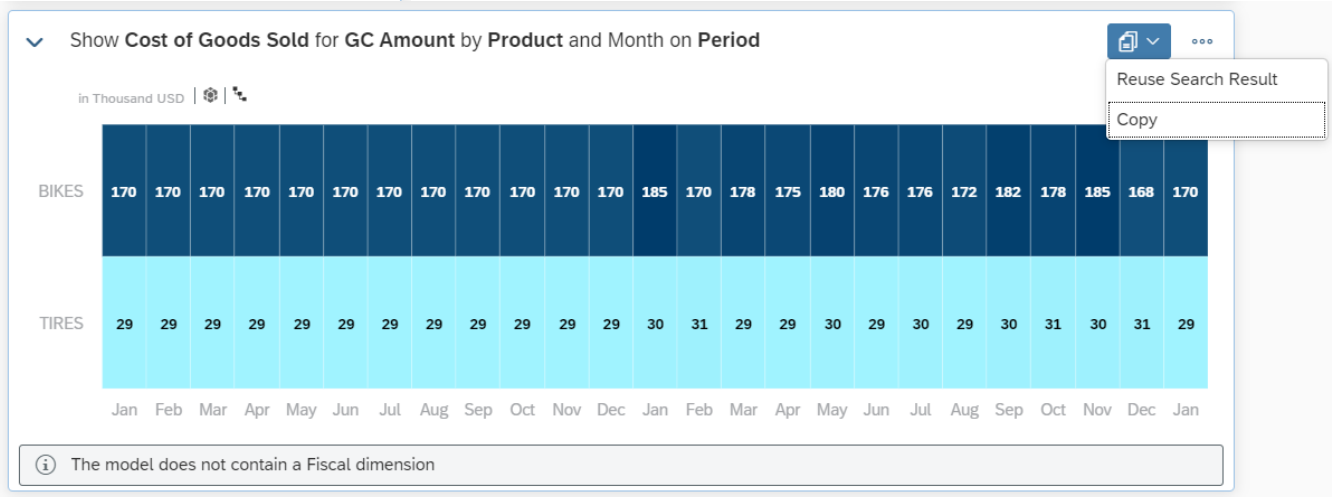




Search to Insights -> “...the Insights”

- Based on the user’s query a visualization will be generated to answer their question
- Additional follow up actions are suggested for digging deeper into the answer
- All autogenerated insights can be copied into presentations to enhance existing Stories

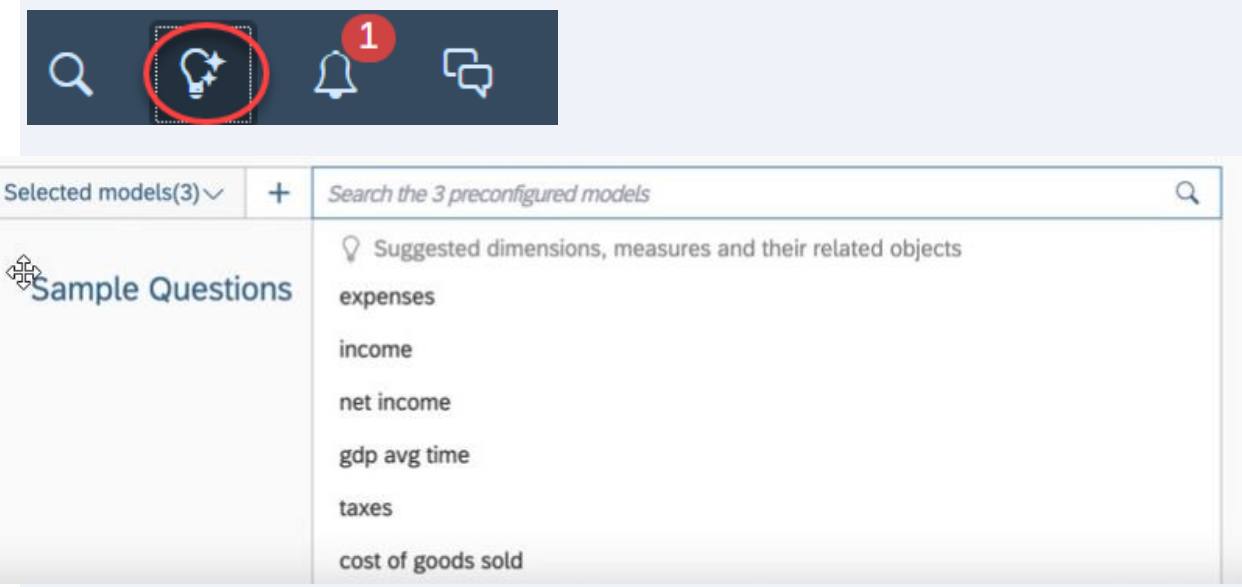


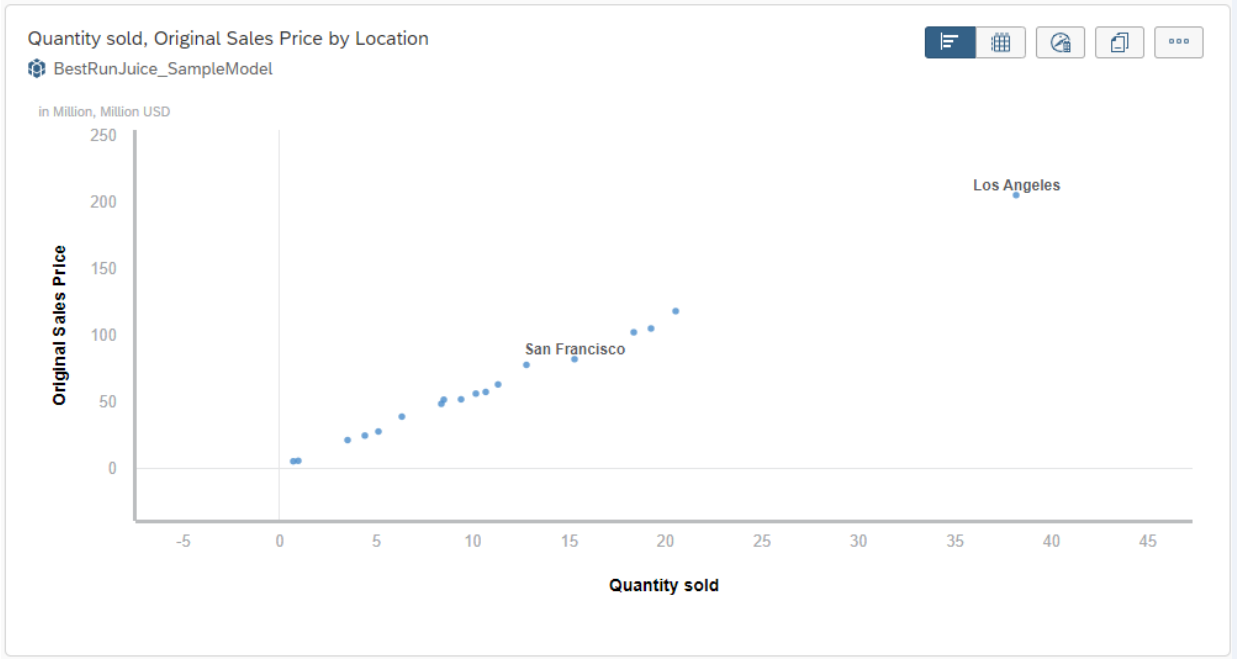


“Just Ask”

As of this quarter, SAC has released the option to utilize the new “Just Ask” engine for querying models

- The SAC admin manages which models are included as part of the search base for user queries (reduces confusion)
- The system can provide end users with sample questions based on the model they are deciding to query
- Currently available for SAC acquired models and SAP Datasphere models
- Search to Insight still available, but will be scaled back and eventually sunset as the Just Ask engine evolves.



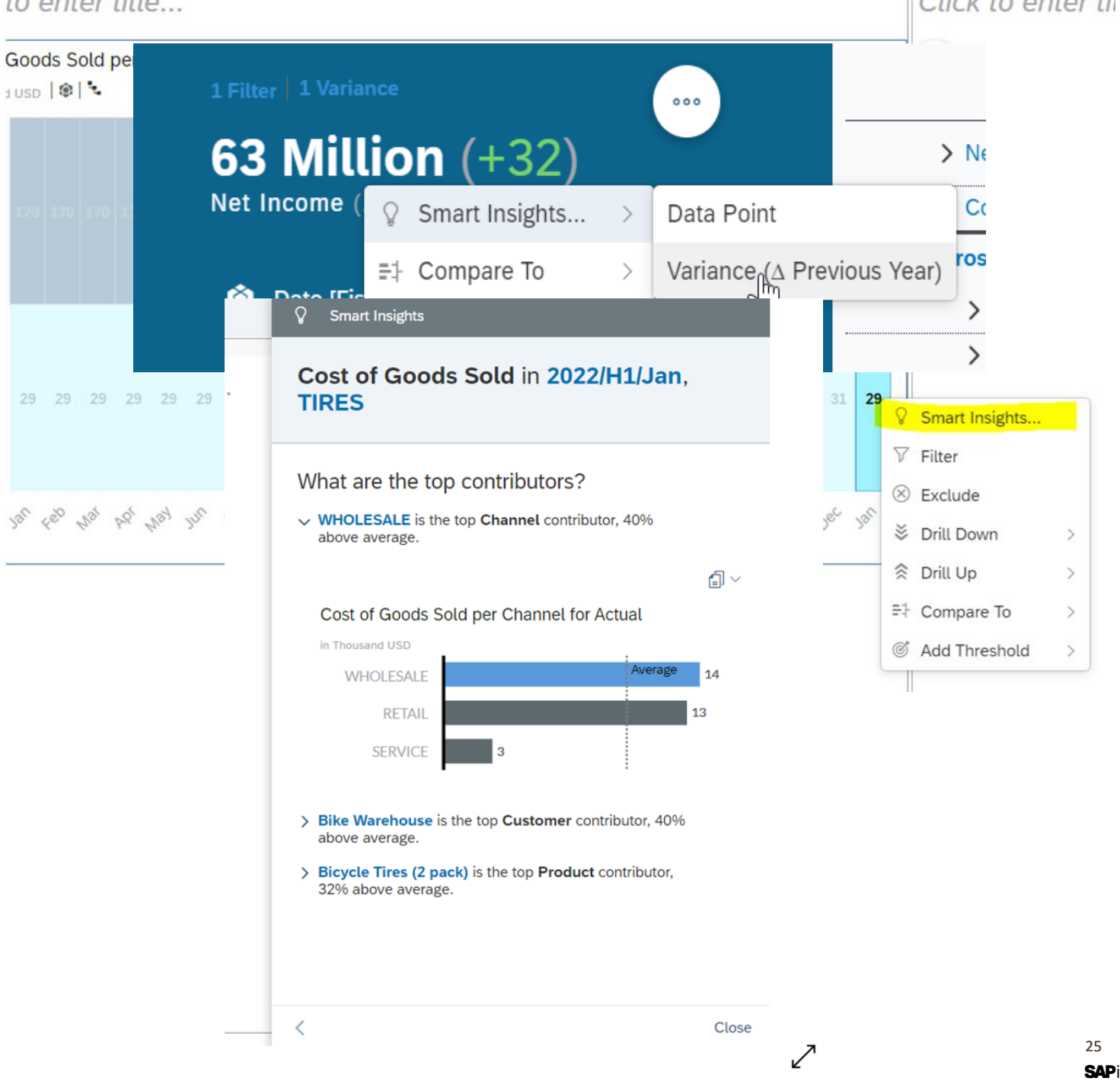


Source: SAP

“Smart Insights” into the core messages of the Story

The “Smart Insights” feature auto-generates insights so we spend less time pulling out obvious details and go deeper faster, enhancing existing analytics by generating explanations to answer:

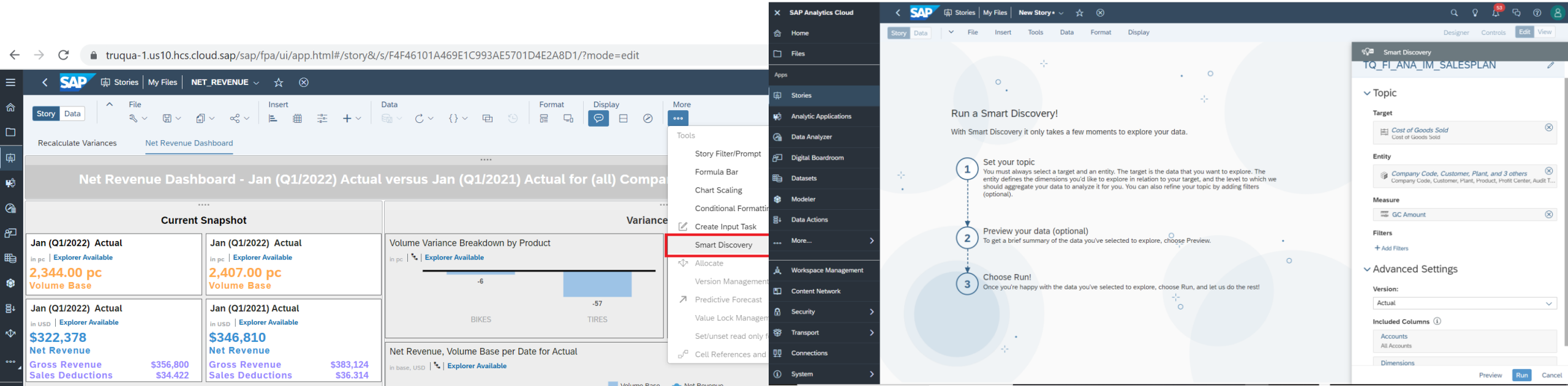
- “How has this data point/variance changed over time?”
- “What are the main contributors to this data point/variance?”
- “How is this data point/variance being calculated (which formulas, hierarchies, aggregations, etc.)?”



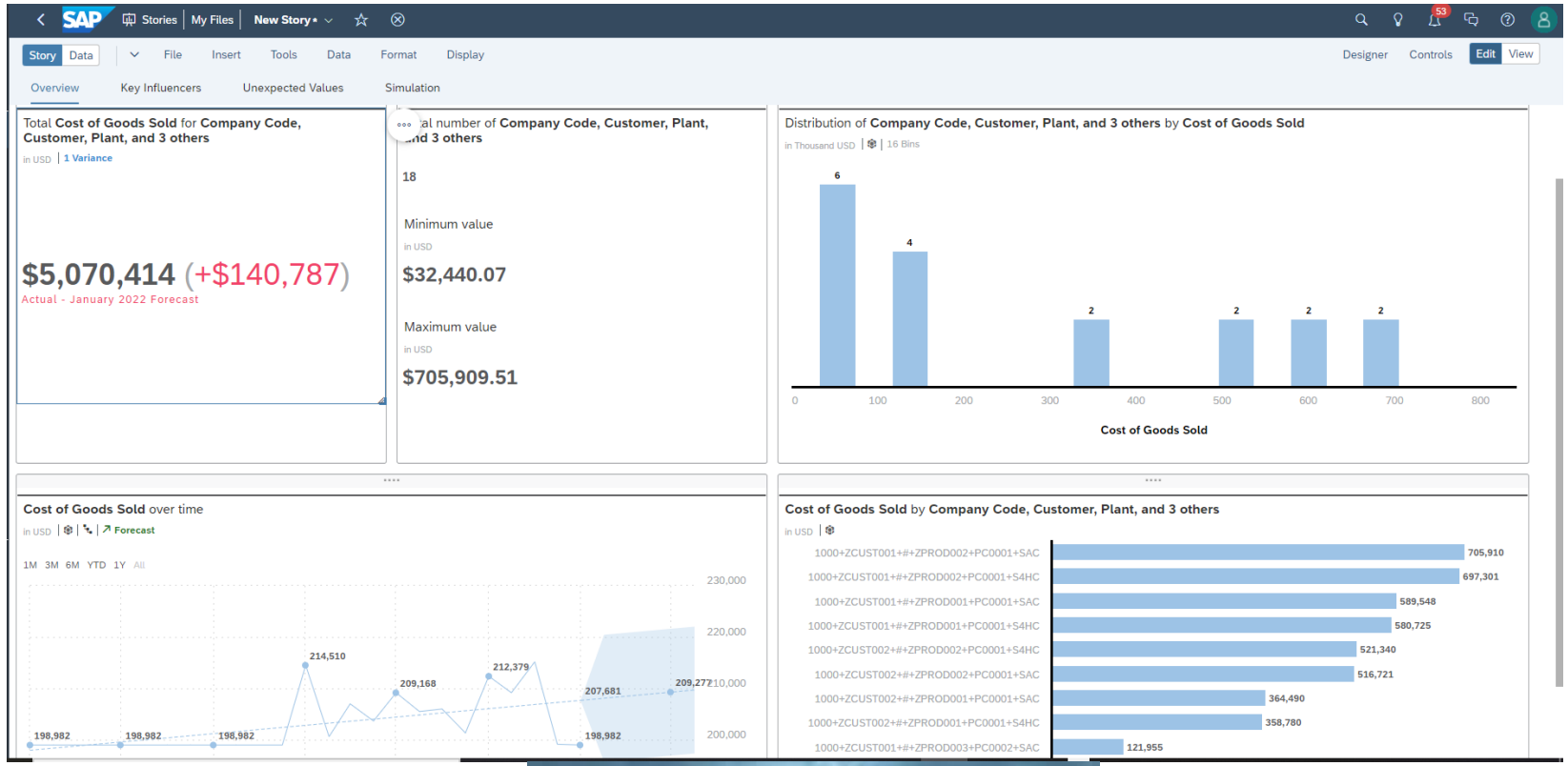
Rapidly Discovering New Plotlines

The “Smart Discovery” feature allows users to refine the context of their questions and run a fully automated discovery to provide an entirely new level of the Story based on the “next questions.”

- What Model or Dataset do we want to explore?
- What is the “Target” field we want to generate a story to learn more about?
- What discrete “Entity” values do we want to understand the influence of?
- What context/filters do we want to apply to the story as we write it?



Reading the “new story” from the results of the Smart Discovery



Overview – *what happened in the story?*

Key Influencers – *which characters and settings had the biggest influence on the plot?*

Unexpected Values – *which story elements seem out of place, and should we exclude them when editing the story for publication?*

Simulation – *what’s going to happen in the “sequel” to these events?*

What Happens Next in the Story?

SAC Smart Assist features can be used not only to help us discover and understand what has *already happened in the past*, but also can help us anticipate and answer what *is likely to happen in the future*

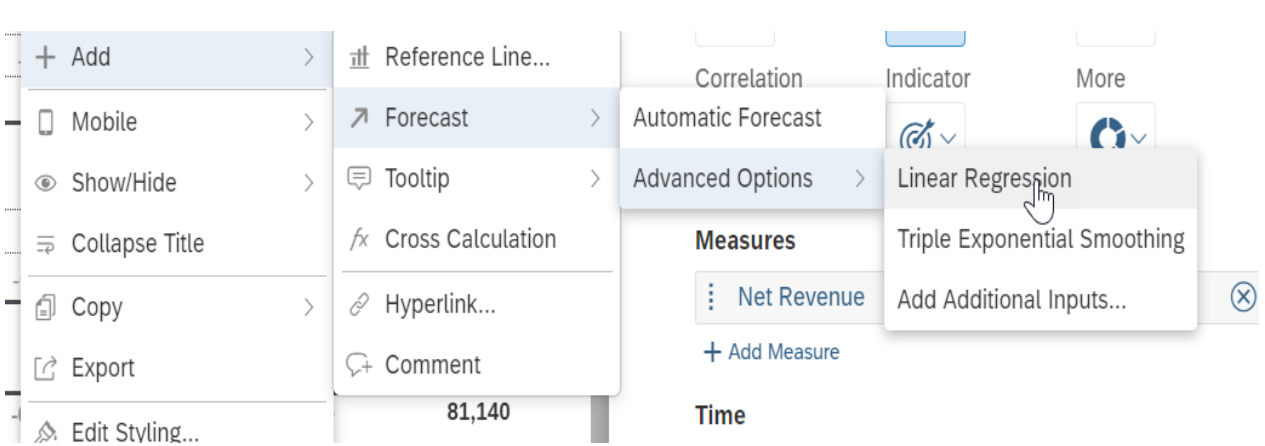
Common Scenarios where we'd like to "predict the future"

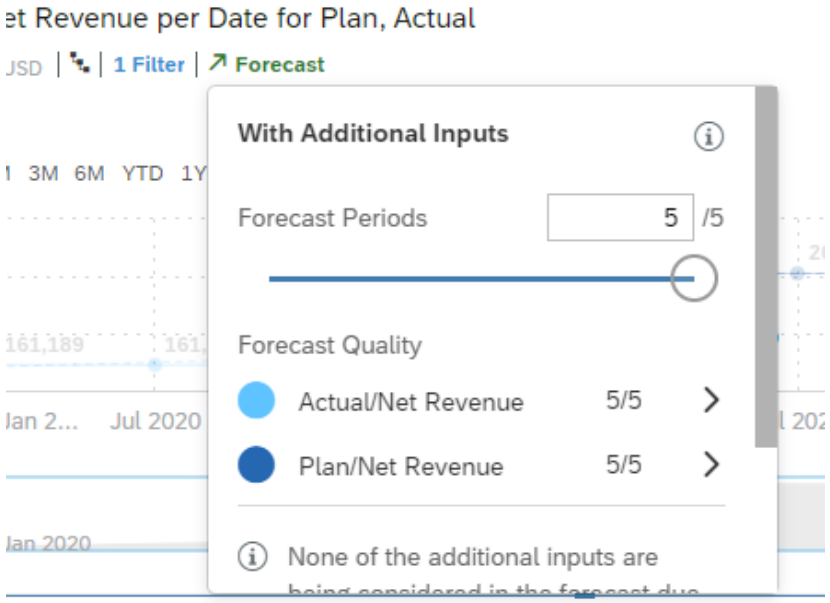
- **Classification Scenario** – *what is the likelihood a specific future event will occur? (ex: predicting employee churn)*
- **Regression Scenario** – *what is the predicted value of a specific business metric if a specific context is considered? (ex: predicting production and shipping costs based on the expected inflation rates)*
- **Time Series Scenario** – *what are the future values of a business metric over a specified horizon of time? (ex: predicting sales over the next 12 months)*

Simple Predictions

SAC lets us add basic “Predictive Forecast” to time series charts or reports to extrapolate data points into future periods based on historical trends.

- Allows for automation of baseline forecast assumptions.
- Human subject matter experts can then refine the predictions as needed.

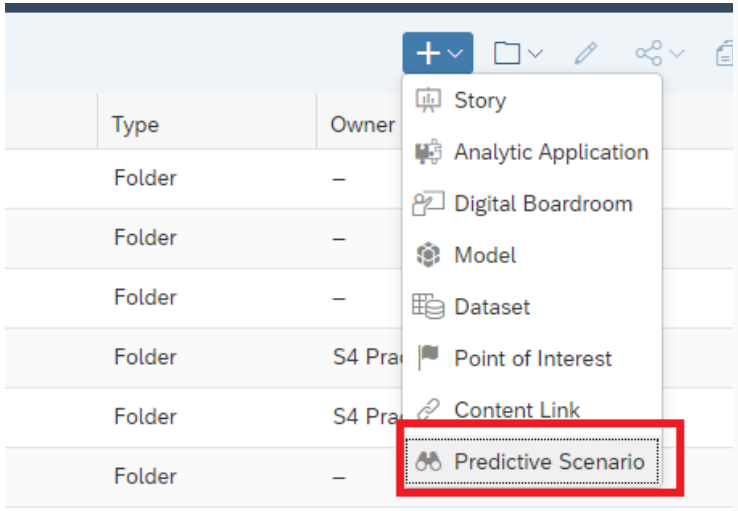


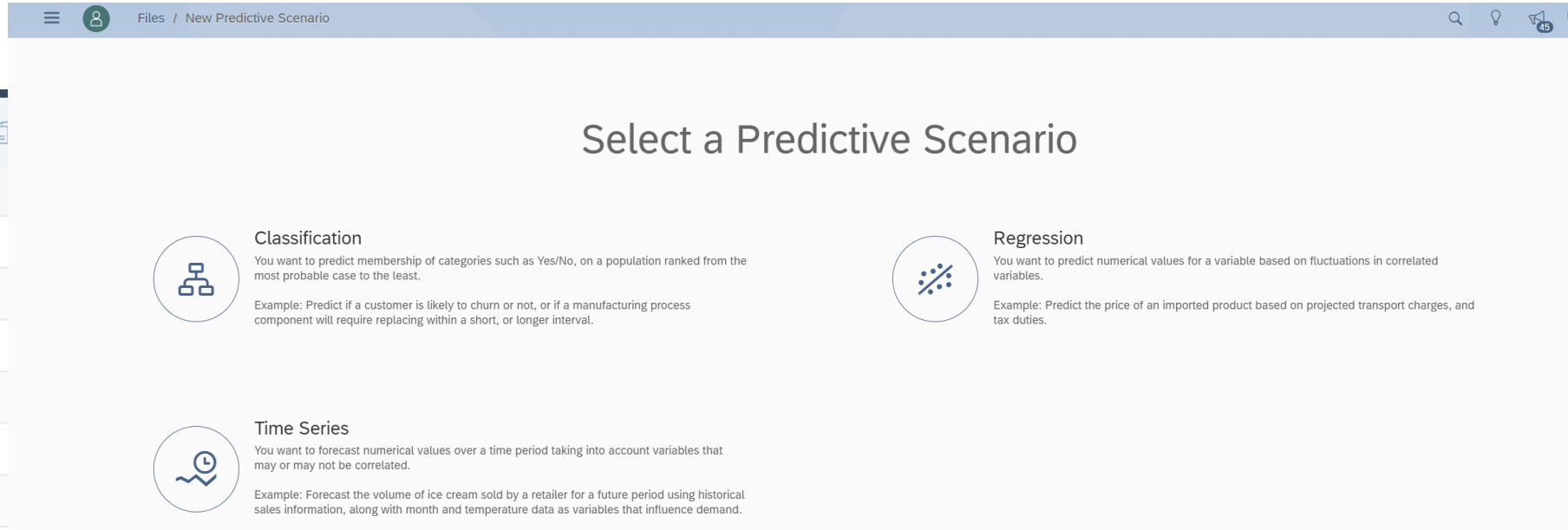


Creating Predictive Scenarios

SAC provides the ability to create, train, and compare different predictive models using machine learning techniques, and then integrate the best models as part of the recurring planning and forecasting processes – this feature is known as **Smart Predict.**

- Smart Predict features allow users to create “Predictive Scenarios” without extensive technical backgrounds in machine learning.
- Smart Predict allows users to leverage machine learning models to make predictions for Classification, Regression, or Time Series questions.



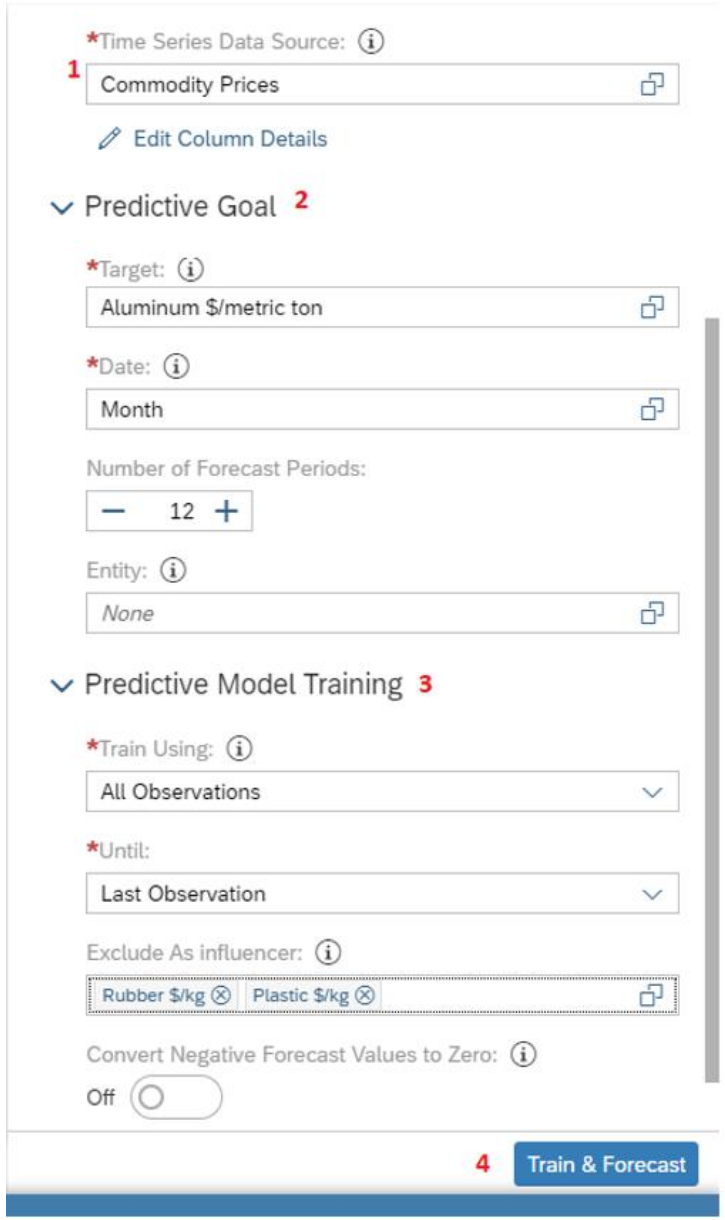


What affects our Future Story?

To create a useful predictive scenario in Smart Predict, we want to understand the following:

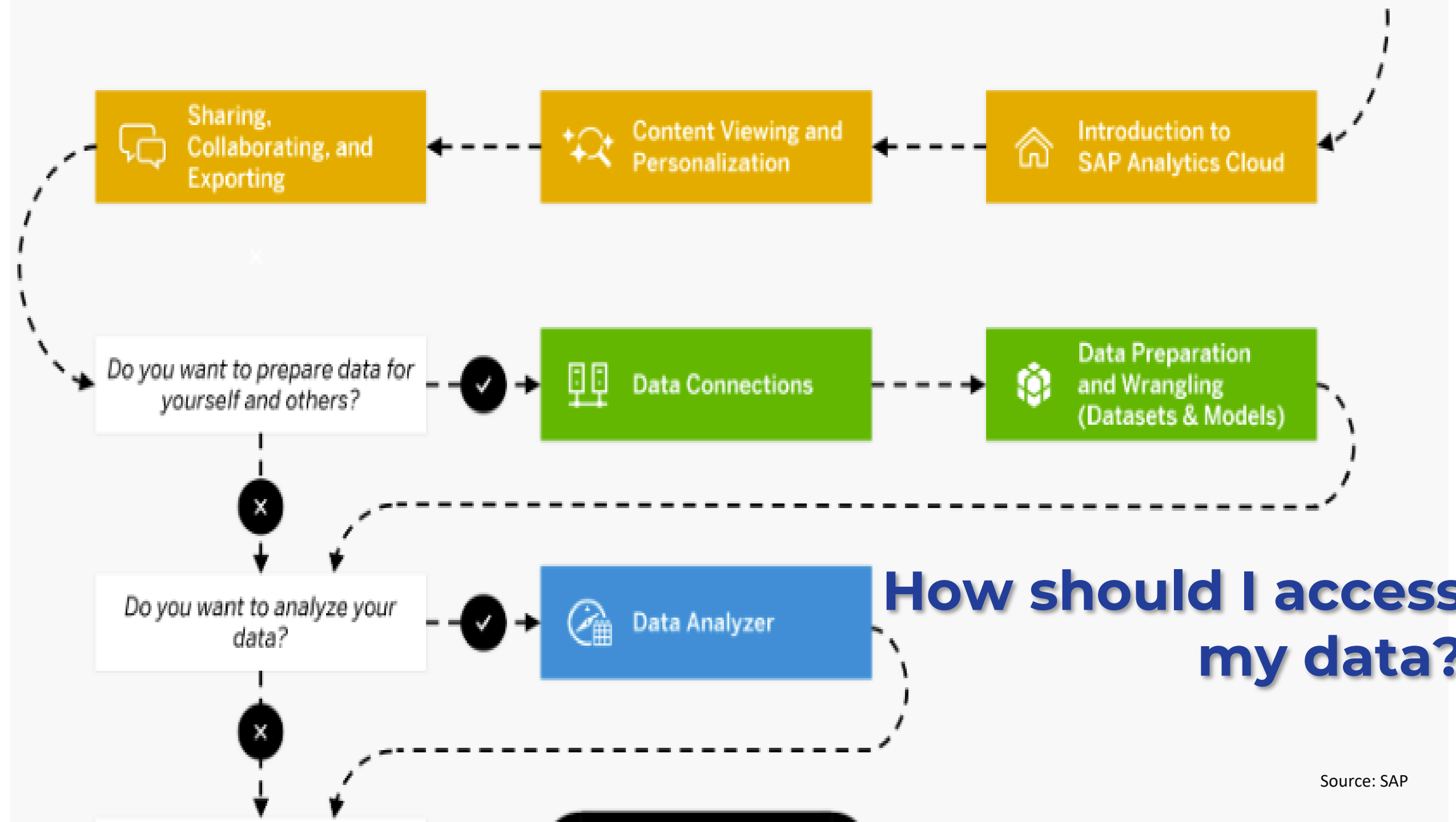
- **Target/Signal –** what is the business question we are trying to answer/the metric we are trying to predict?
- **Influencers –** what characteristics and elements of our external and internal business environment might be influencing the values of the target?
- **Data Sources –** what data do we have available for the machine learning model to analyze to better understand the relationships between the target and the influencers?
- **Training Strategy –** how do we partition our data between "training data" and "testing data"?

Goal: *to produce an accurate prediction of the future that is easy to explain to our users and can be flexibly re-examined to simulate different actions and scenarios.*



Wrap Up

Now that we've talked about some of the storytelling approaches available in an SAP Analytics Cloud framework, let's review some of the best practices and key decisions that are relevant when deciding how to craft *your* story.



How should I access my data?

Source: SAP

Live or Acquired Data?

Choosing the type of data connection (Import or Live) for a Dataset or a Model involves considering:

- **Availability** – more source systems have pre-configured Import connectors available in SAC than Live connectors
- **Latency** – Live connections provide literal real time access to source data, while Import connections require scheduled or manual refreshes
- **Functional Requirements** – Import connections allow more ability to model and change data within SAC than Live connections do
- **Data Privacy and Security** – Live connections provide full control of data privacy and reuse existing security models from the source systems
- **Data Volumes** – models based on Import connections have limits to how much data can be replicated into SAC, while Live connections have no theoretical limit

Dataset

Model

Dataset		Model
Best for ad-hoc data (ungoverned) Predictive workflow with Smart Predict*	Use cases	Best for governed data Preferred format for Live Data Planning use cases/Time Series predictive scenarios
Created in a story, or separately Data is stored as a table with separate metadata	Format	Created outside of a story Data is stored as a star schema
No data is deleted Limited data management of dimensions	Data Preparation	Data is overwritten Fine-grained data management of dimensions
No row-level security	Security	Row-level security

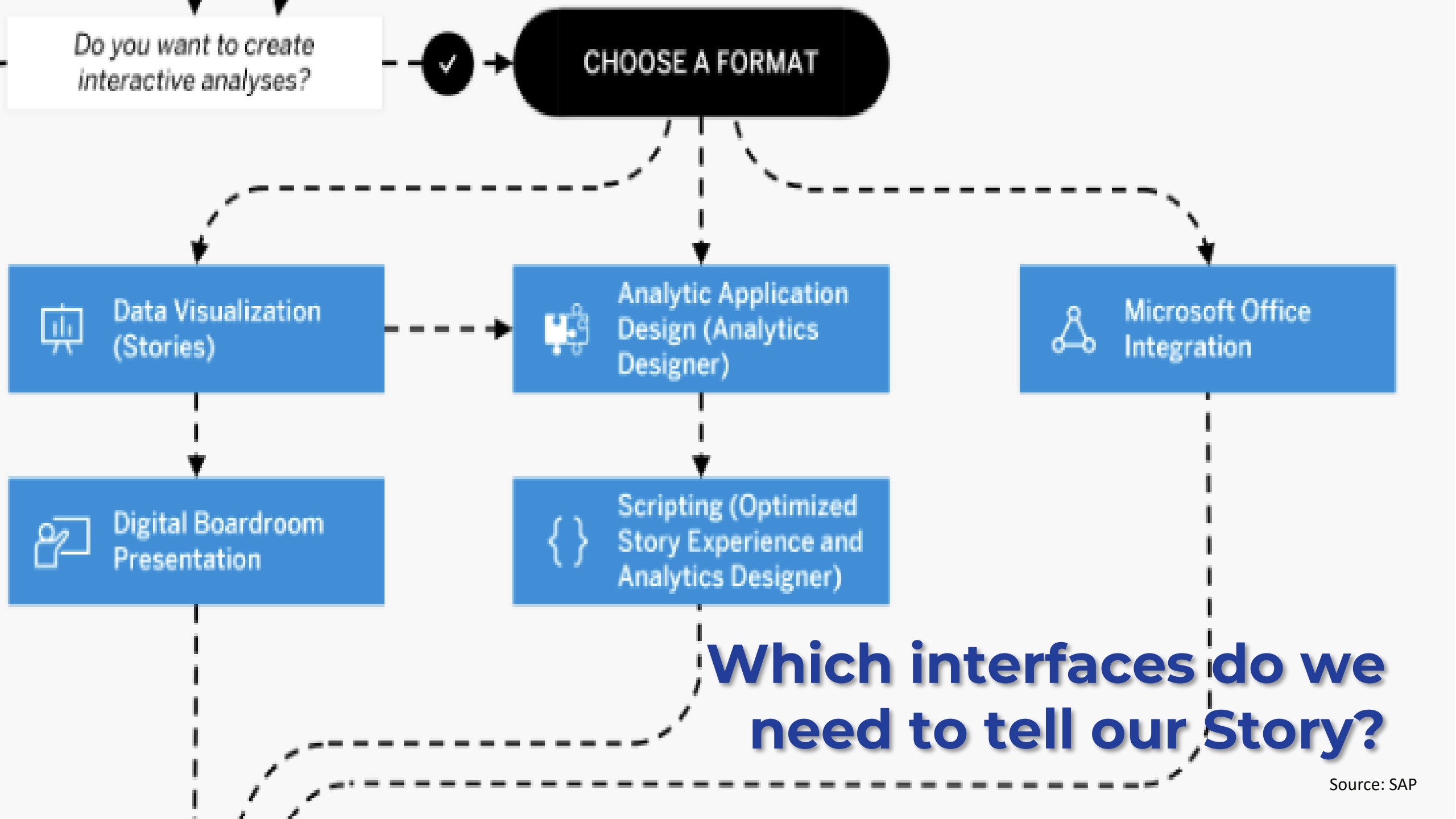
Dataset or Model?

* Except for time series predictive scenarios that can be created from planning model

Source: SAP

Best Practices for Model Design

- Aim for “lean” models whenever possible by limiting dimensions to what is relevant for data collection
- Leverage attributes to provide information which can be derived rather than using separate dimensions
- Use multiple models with cross model copy functions if the dimensionality for different processes is not similar
- Where possible, use hierarchies (i.e. dimension level calculations) to replace model or story level calculations
- Avoid specifying Exception Aggregations at a Model level (use Restricted Measures or Story level calculations instead)
- Limit the number of driving dimensions on Model level data locks
- For Model dimensions with large number of members, use Data Access Control to limit the queries to what the specific user/group requires
- Use the “Optimize Story Building Performance” feature in Model Preferences to prevent automatic refreshes during story design



Which interfaces do we need to tell our Story?

Source: SAP

Best Practices for Story Design

- Provide a “summary” landing page from which users can link to deeper details (i.e. start from high level, and support drilling down as needed)
- Use the “mass data entry” mode to ease data collection for users
- Implement cascading filtering as much as possible to allow users to drill down to a specific data point (rather than exploding all details)
- Limit the use of “Unbooked data” in tables where possible (try and use the “Add Member” feature instead)
- Limit the number of widgets per page to reduce rendering times
- Use the “Responsive” page type if not embedding Analytic Applications into the page (which allows content to re-flow depending on the size of the screen/device)

SAC is designed to support self-service extension: “Less is more - build what you need and trust the users to add anything else they need.”

Additional Best Practices

Digital Boardroom design

- Build your Digital Boardroom from multiple well designed and optimized Stories to create a more complete picture of enterprise performance and blend both operational and experiential data sets
- Design “Analysis paths” based on the likely follow up questions to a data point (drill downs, filters, “what-if” simulations)
- Design with a strategy for filtering and navigation in mind (boardroom level, page level, or chart level)

Analytic Application design

- Avoid one overcomplicated application with many data sources in favor of multiple smaller applications that can be linked to navigate between each other
- Leverage browser caching to improve performance when there are no structural changes to refresh
- Try to leverage APIs to avoid duplicating widgets or styling rules unnecessarily
- Employ good coding practices when writing the JavaScripts to execute application logic

Where to Find More Information

https://help.sap.com/viewer/product/SAP_ANALYTICS_CLOUD/release/en-US

- SAP product documentation for SAP Analytics Cloud

https://pages.community.sap.com/topics/cloud-analytics/best-practices-troubleshooting

- SAP best practices for design topics in SAP Analytics Cloud

https://www.truqua.com/category/blog/sap-analytics-cloud/

- TruQua thought leadership blogs around SAP Analytics Cloud

Key Points to Take Home

- SAP Analytics Cloud provides a robust platform that allows users to analyze, discover, predict, plan, and collaborate in one place to tell the important Stories about their business
- These stories can be supported by quantitative and qualitative data gathered from on-premise and cloud-based enterprise source systems (both SAP and non-SAP).
- Information can be analyzed through both structured, designed analytical frameworks and through flexible, self-service ad-hoc analysis.
- Users can consume Story content through a variety of formats and interfaces including the Digital Boardroom, Analytic Applications, and Microsoft Office.
- These Stories can provide deeper insights and meaning more quickly by leveraging Augmented Analytics techniques unlocked by “Smart Assist” features

Thank you! Any Questions?

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Please remember to complete your session evaluation.

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