



# ASK THE EXPERT

Take Your SAS® Visualizations to the Next Level

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## Gregor Herrmann

### Principal Business Solutions Manager, SAS

Working in the Global Technology Practice, Gregor is responsible for enabling the presales force in EMEA/AP to sell and position SAS BI products successfully. Furthermore, he supports product development by gathering requirements from the field and helps Product Management to prioritize them according to market needs. Gregor speaks on BI topics or unveils the latest innovations in SAS' BI product portfolio at external conferences and SAS users forums.

## Renato Luppi

### Principal Solutions Architect, SAS

Renato is responsible for empowering both sales and technical forces in the positioning and integration of the SAS system, as well as supporting SAS customers and prospects in his areas of expertise, which include data visualization, data management and analytics. He has more than 22 years of experience in information delivery, data and systems integration, and business intelligence solutions. He is an active member of SAS Communities and is passionate about sharing knowledge and helping others overcome their most challenging obstacles in the data visualization space.



# What is Modernization?

(and why modernize?)

## mod·ern·i·za·tion

/,mädərnə'zāSHən, ,mädər ,nī'zāSHən/

*noun*

1. the process of adapting something to modern needs or habits.

# Agenda





- SAS Visualization Interfaces
- SAS 9 and SAS Viya Source Data Artifacts Equivalency
- From Data to Insights
- SAS Viya Advantages by Contrasting with SAS 9
- Demo

# SAS Visualization Interfaces

## Modernization paths

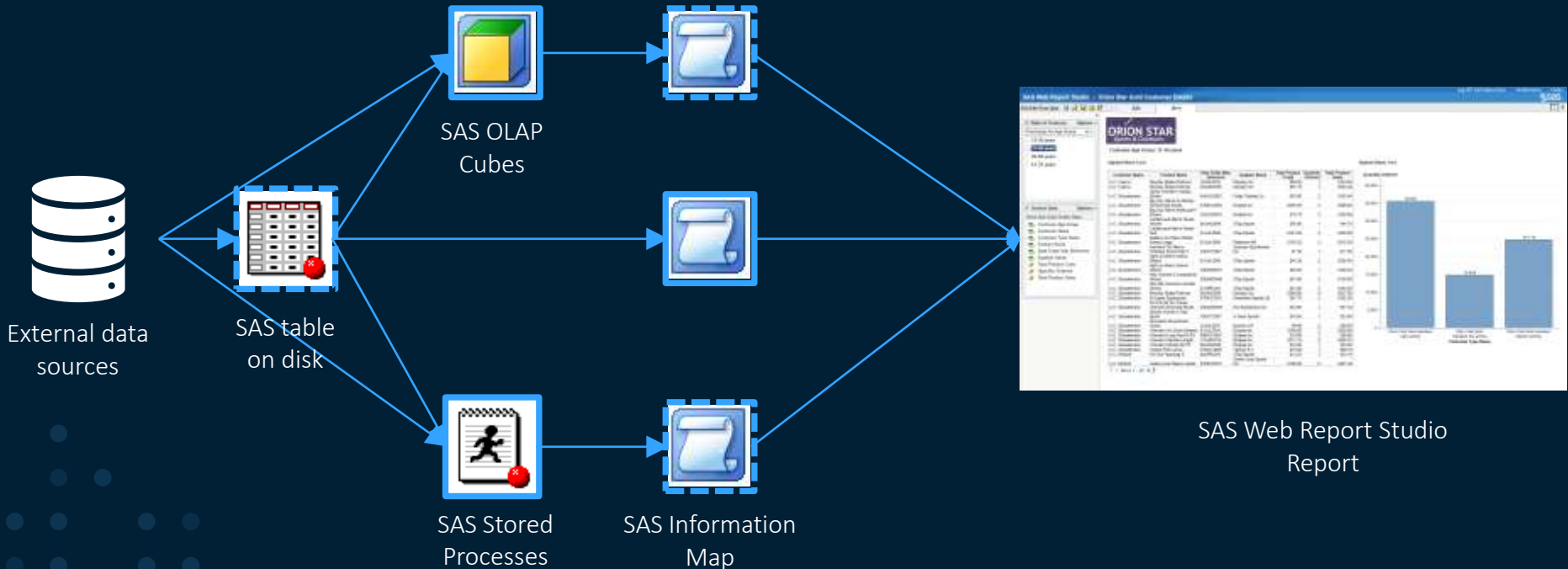
SAS 9	SAS Viya
Web Report Studio reports	Visual Analytics reports
BI Dashboards	Visual Analytics gauge objects
Information Delivery Portal	Visual Analytics visualizations and/or reports embedded in custom Web pages via SDK
Enterprise Guide (desktop)	SAS Studio flows (browser)

# SAS Viya Source Data Artifacts Equivalent to SAS 9

	SAS 9	SAS Viya
	Tables stored on disk	Tables stored in memory (CAS)
	OLAP cube metadata and supporting tables stored on disk	Data View (metadata) with hierarchies, labels, calculated items
	Information Map (metadata)	Data View (metadata) with hierarchies, labels, calculated items
	SAS Stored Process code + Prompts	SAS Job code + Prompts

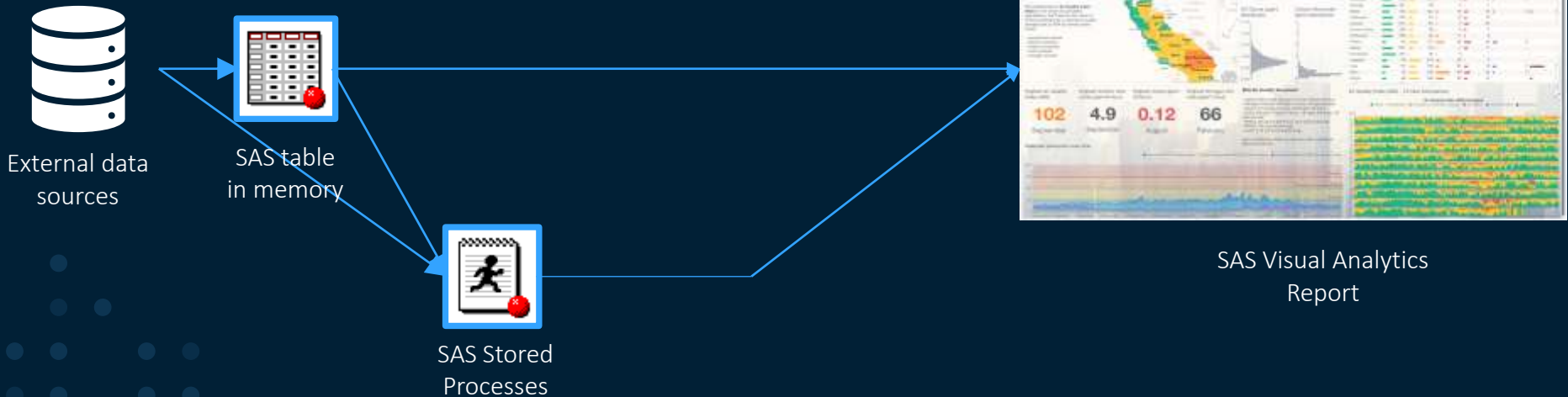
# From Data to Insights in SAS 9

## SAS Web Report Studio



# From Data to Insights in SAS Viya

## SAS Visual Analytics





# Taking Visualizations to the Next Level

## SAS Viya Advantages

- Dependency on IT and/or other personas
- OOTB Objects and Visualizations
- Custom Visualizations
- Interactions
- Design Interface
- Calculations
- Analytics/Data Exploration
- Use of AI
- Sharing and Collaboration

# SAS Viya Advantages

## Dependency on IT and other personas

### SAS 9

- Due to the variety of types of sources supported in SAS 9 (tables, OLAP cubes, relational and OLAP Information Maps), creating and managing those source types, calculations, hierarchies, etc. may fall on the hands of IT and/or other personas, such as data managers, data stewards, etc.

### SAS Viya

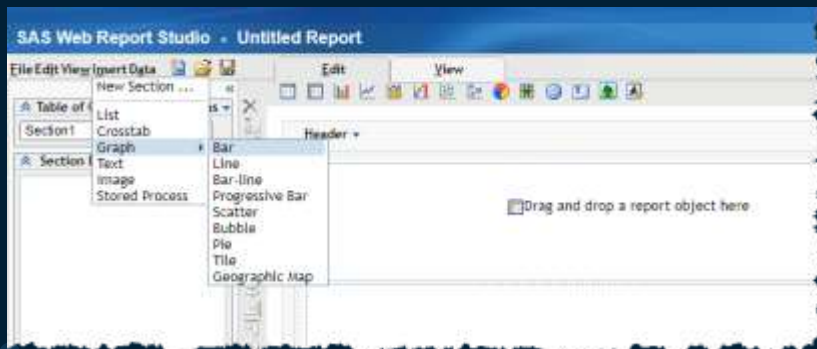
- Report authors are more self sufficient and empowered with the tools they need to derive the information they need, when they need, without having to rely that much on IT and other personas.

# SAS Viya Advantages

## OOTB report objects

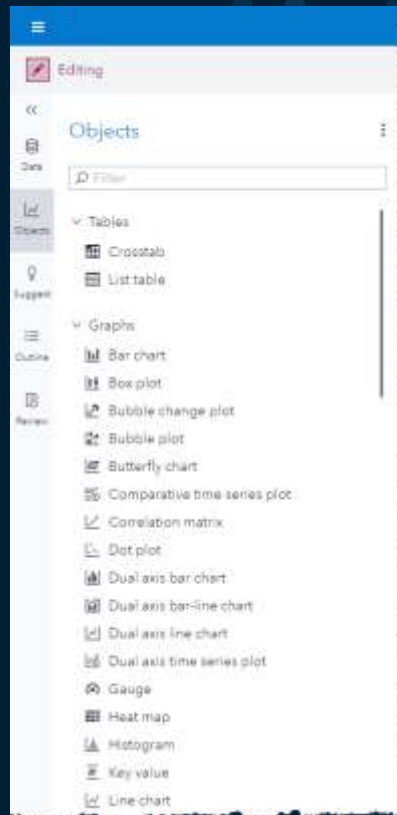
SAS 9

- 14 report objects



SAS Viya

- 60+ report objects, not counting advanced modeling objects via extensions



# SAS Viya Advantages

## OOTB visualizations (no code)

### SAS 9 (13 visualizations)

- List Table
- Crosstab
- Bar Chart
- Line Chart
- Bar-Line Chart
- Progressive Bar Chart
- Scatter Plot
- Bubble Plot
- Pie Chart
- Tile Chart
- Geographic Map
- Text
- Image

### SAS Viya (around 50 visualizations)

- Crosstab, List Table, Bar Chart, Box Plot, Bubble Change Plot, Bubble Plot, Butterfly Chart, Comparative Time Series Plot, Correlation Matrix, Dot Plot, Dual Axis Bar Chart, Dual Axis Bar-Line Chart, Dual Axis Line Chart, Dual Axis Time Series Plot, Gauge, Heat Map, Histogram, Key Value, Line Chart, Needle Plot, Numeric Series Plot, Parallel Coordinates Plot, Pie Chart, Scatter Plot, Schedule Chart, Step Plot, Targeted Bar Chart, Time Series Plot, Treemap, Vector Plot, Waterfall Chart, Word Cloud, Geo Bubble, Geo Cluster, Geo Contour, Geo Coordinate, Geo Line, Geo-Line Coordinate, Geo Network, Geo Pie, Geo Region, Geo Region-Coordinate, Automated Explanation, Automated Prediction, Forecasting, Network Analysis, Path Analysis, Text Topics, Image, Text

# SAS Viya Advantages

## Custom visualizations

### SAS 9

- SAS Stored Processes

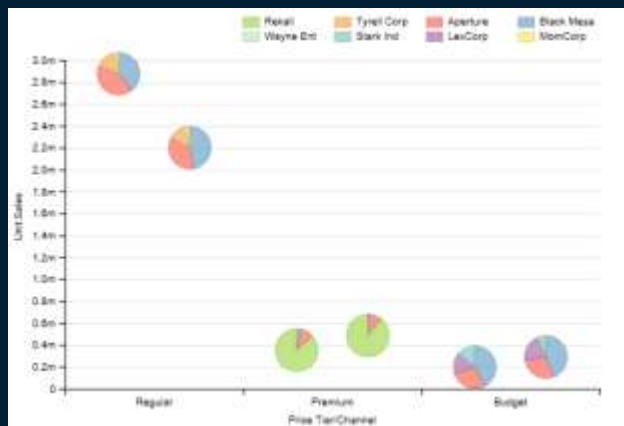
### SAS Viya

- Native graphs with SAS Graph Builder
- Custom visualizations via Third Party JavaScript packages (e.g.: D3, C3, Google Charts, etc.)
- SAS Jobs (SAS Stored Processes)

# SAS Viya Advantages

Custom visualizations in SAS Viya

Dimple



D3.js



Custom Graph (SAS Graph Builder)



Google Charts



# SAS Viya Advantages

## Interactions

### SAS 9

- Filter
- Drill-down
- Group Breaks
- Link to reports, Stored Processes, URLs

### SAS Viya

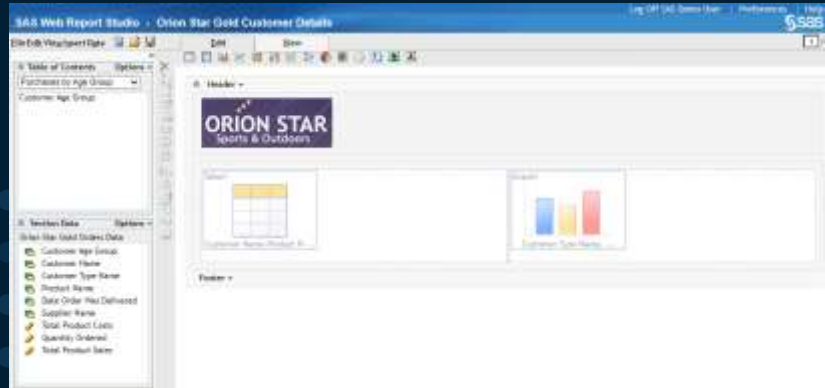
- Filter
- Drill-down
- Control objects (prompts – can work as group breaks too)
- Link to pages, reports, URLs (includes SAS Jobs)
- Actions between objects
  - Filter
  - Linked selection (brushing)
- Zooming
- Expanding
- Auto-refresh
- Playable reports
- Report consumer can change data assignment, ranks, charts

# SAS Viya Advantages

## Design Interface

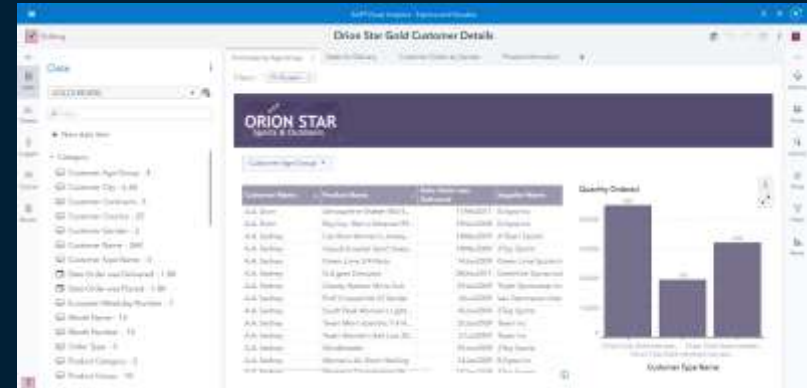
### SAS 9

- Design interface is mostly an object placeholder view, no data, no report consumer experience



### SAS Viya

- Design interface is live, giving the consumer experience to the report designer



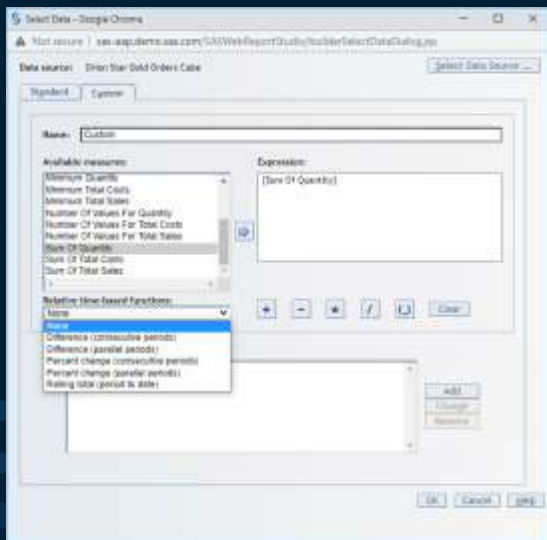


# SAS Viya Advantages

## Calculations

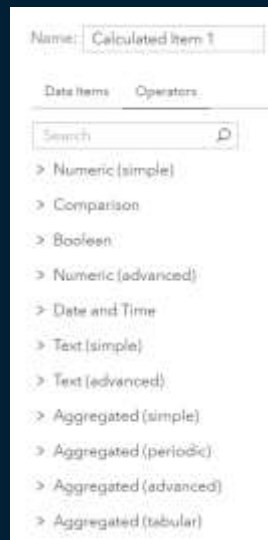
### SAS 9

- 4 basic operators and a few relative time-based functions for OLAP cubes OR performed in Information Map



### SAS Viya

- More than 100 operators, including relative time-based functions and one-click calculations



# SAS Viya Advantages

## Analytics

### SAS 9

- Analytical content that could be provided via a Stored Process

### SAS Viya

- Automated Explanation
- Automated Prediction
- Correlation Matrix
- Decision Tree
- Forecasting
- Network Analysis
- Path Analysis
- Text Topics
- Fit Line
- Expandable with SAS Visual Statistics and SAS Visual Data Mining & Machine Learning

# SAS Viya Advantages

## Use of AI

### SAS 9

- N/A

### SAS Viya

- Chatbots (SAS Conversation Designer)
- Recommended reports
- Suggestions for visualizations
- Automatic correlation detection
- Automatic outlier detection
- NLG

AI + Analytics + Interactions = Flexible Data Exploration

# SAS Viya Advantages

## Sharing & Collaboration

### SAS 9

- SAS Add-In for MS Office
- SAS Enterprise Guide

### SAS Viya

- SAS for Microsoft 365
- Mobile Apps
- Visual Analytics SDK
- Publish Package



# SAS Viya Advantages

## Summary

Topic	SAS 9	SAS Viya
Dependency on IT and/or other personas	High	Low
OOTB Visualizations	Basic (14 objects)	Wide range (60+ objects)
Custom Visualizations	Only via SAS Stored Process	Native and JS in addition to SAS Jobs
Interactions	Filter, drilldown, links	Filter, drilldown, links, and a lot more
Design Interface	Placeholders	Live data, WYSIWYG
Calculations	Basic or within Information Map	Hundreds of operators (basic & advanced)
Analytics	Only via Stored Process	Embedded and expandable
Use of AI	No	Yes, for recommendations, automations, etc.
Sharing and Collaboration	Add-in for MS Office and Enterprise Guide	SAS for Microsoft 365, mobile, embedding into external Web apps via SDK, report packages with zero SAS footprint

# Q&A

Please submit your questions using the Q&A icon located in the menu at the bottom of your screen



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Thank you  
for joining us for  
this SAS webinar