

# Leverage S/4HANA Embedded Analytics for real-time data insights

*Anurag Barua*

*Digital Transformation Leader*

SAP America



# Speaker introduction

- 24+ years of SAP experience in a career of 29 years in a variety of roles including SAP product development, delivery/advisory/consulting, pre-sales, & sales; currently work for the SAP S/4HANA Center of Excellence, North America
- Served nearly 100 clients globally & across multiple industry verticals including Public Sector, Utilities, Media, Manufacturing, Pharmaceuticals, Oil & Gas, & Hi-tech among others
- Areas of expertise include SAP Financials, Logistics/Supply Chain, Reporting & Analytics, Data Management & Governance, Cloud technologies, User Experience, & Project/Program Management
- Prolific thought leader: Published over 100 articles & white papers for SAP publications; written 5 SAP books; spoken at nearly 60 SAP conferences globally

# Agenda

**1 Background**

**2 S/4HANA Embedded Analytics – what it means for the business user**

**3 Technology foundation of Embedded Analytics**

**4 Embedded analytics in action**

**5 Wrap-up**

# S/4HANA Embedded Analytics - Overview

## The need for Embedded Analytics

- Today, operational reporting in your ECC system is separate from your business transactions → the two are not integrated
- If 'canned' reports are not available, it takes effort (often custom development) to create reports
- Operational reporting is not real-time because this is typically an after-the-fact activity
- Limited flexibility for adaptations, modifications etc.
- Little to no analytical & visualization capabilities – outputs are primarily tabular
- Leads to too many one-off queries & reports & therefore lots of redundancies

***S/4HANA Embedded Analytics overcomes all these challenges***

[S/4HANA Embedded Analytics - An introduction](#)

# Transformational nature of Embedded Analytics

## From

Answering yesterday's questions with yesterday's data

Bringing the user to the reports

Information-seeking

Business Processes, fragmented over systems of records and systems of engagement

Exception Provisioning

## To

Answer today's and tomorrow's questions with embedded real-time and predictive analytics

Bringing the reports to the user (-roles)

Information-first / progressive disclosure

Insight-to-action in one system

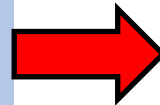
Exception Avoidance

# Agenda

- 1 Background
- 2 **S/4HANA Embedded Analytics – what it means for the business user**
- 3 Embedded analytics in action
- 4 Technology foundation of Embedded Analytics
- 5 Wrap-up

# S/4HANA Embedded Analytics - Overview

*“Where is my business data I need for insight-to action, fact-based process handling, and real-time operational reporting - and how is it structured?”*



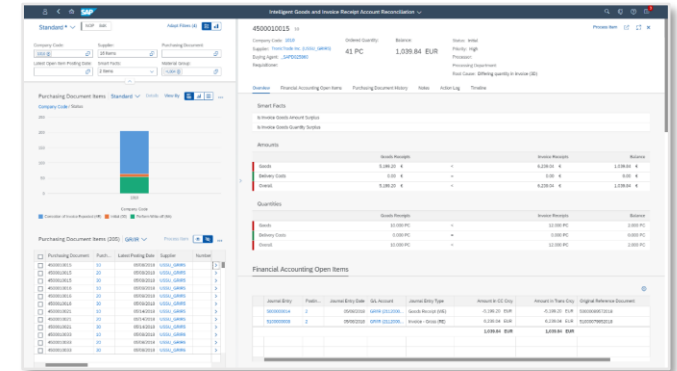
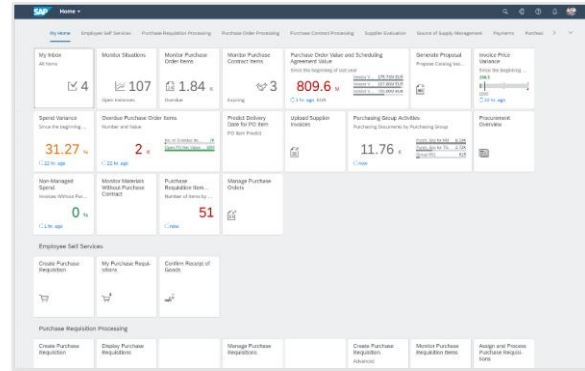
## SAP S/4HANA embedded analytics =

**Analytics embedded in SAP ERP** (embedding analytical views inside SAP Fiori applications)\*

+ **SAP HANA**

+ **Content** (Data Models and End User Applications)

+ **Design Applications**



\* Using ABAP CDS view models, not embedded BW, or ABAP Reports

# What are the implications of ‘embedded’?

- **Embedded on database level:**

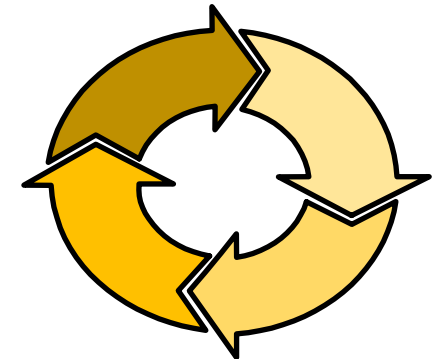
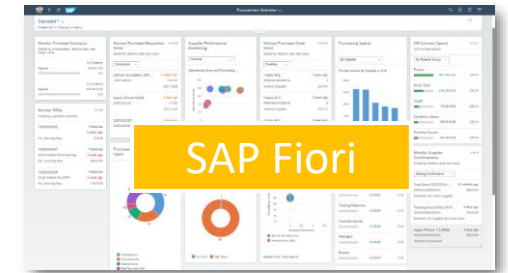
- No separate “analytical” storage of data
- Access only to real-time live data (the analytical data *is* transactional data)
- Necessary transformations are performed by the virtual data model (VDM)

- **Embedded on UI level:**

- Using the same UI technology (and sometimes even the same UI screen) to render transactional data and analytical information

- **Embedded into business processes:**

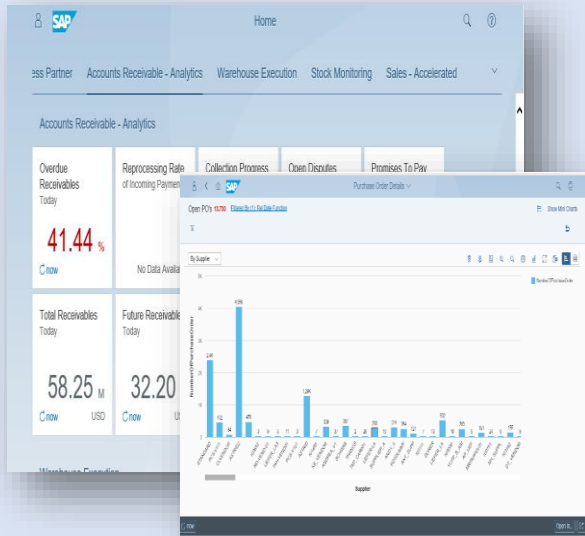
- Role-based access to analytical artifacts,
- Using intent-based navigation and thus
- Implementing an insight-to-action working style





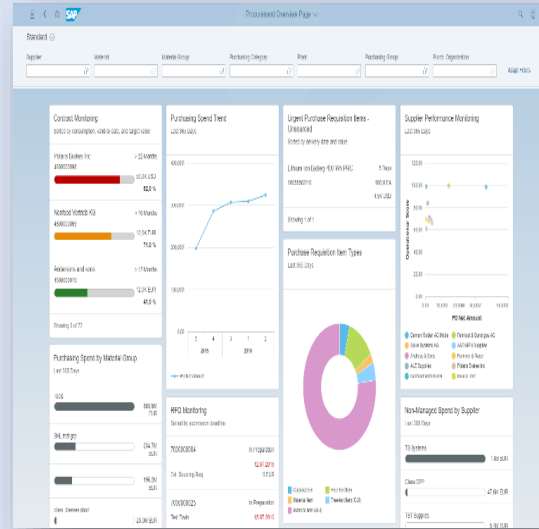
# Embedded Analytics Overview for Business User

## Smart Business KPIs



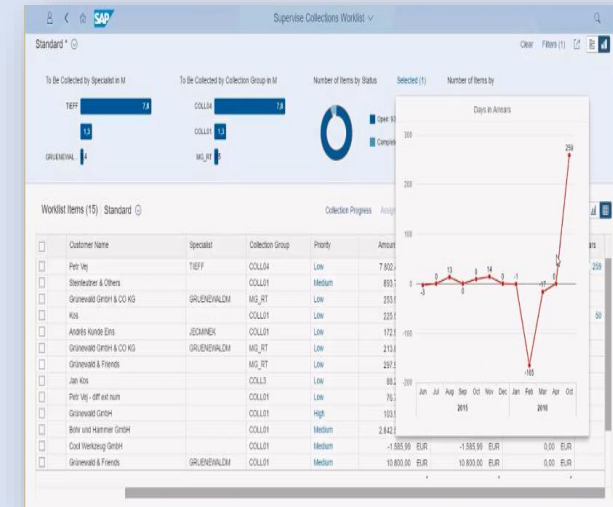
Smart Business KPIs deliver KPI monitoring on the Fiori Launchpad and drill-down capabilities into further analytical or transactional Fiori apps, save personal variants.

## Overview Pages



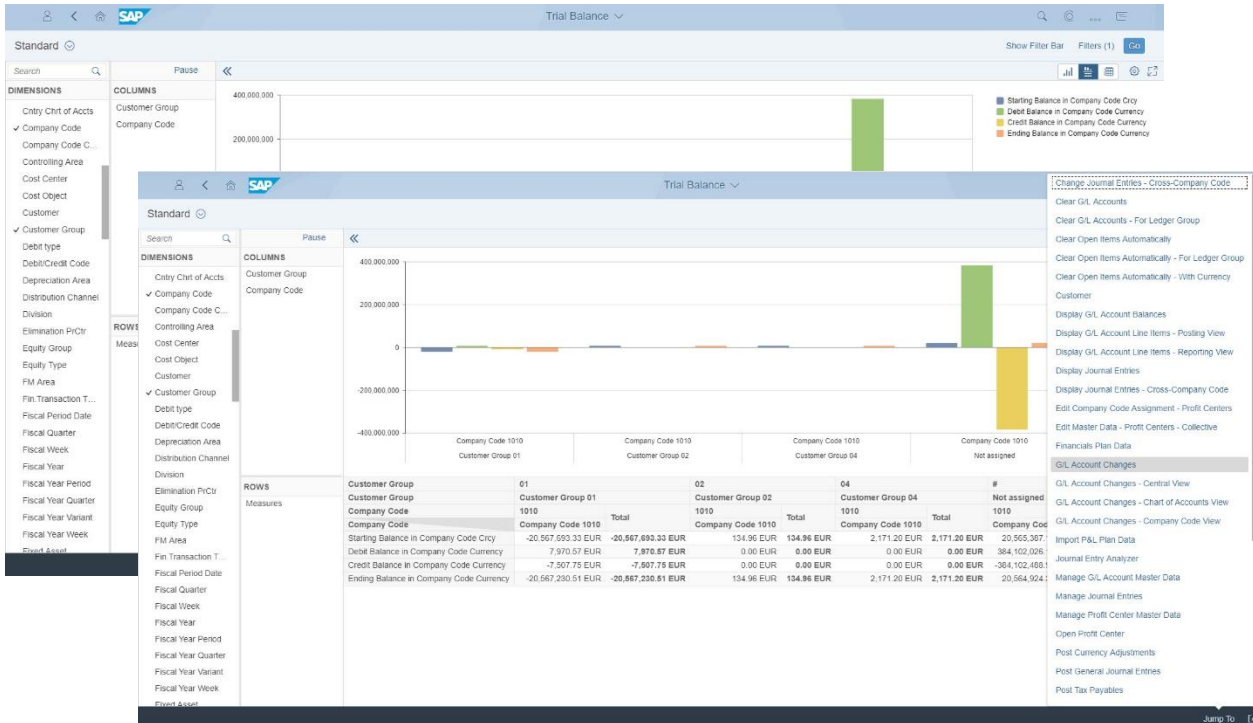
Get a consolidated view on a certain domain, e.g. Purchasing. Information presented in analytical tables and charts, take action in the same place or navigate to more details, save personal variants.

## Analytical List Pages



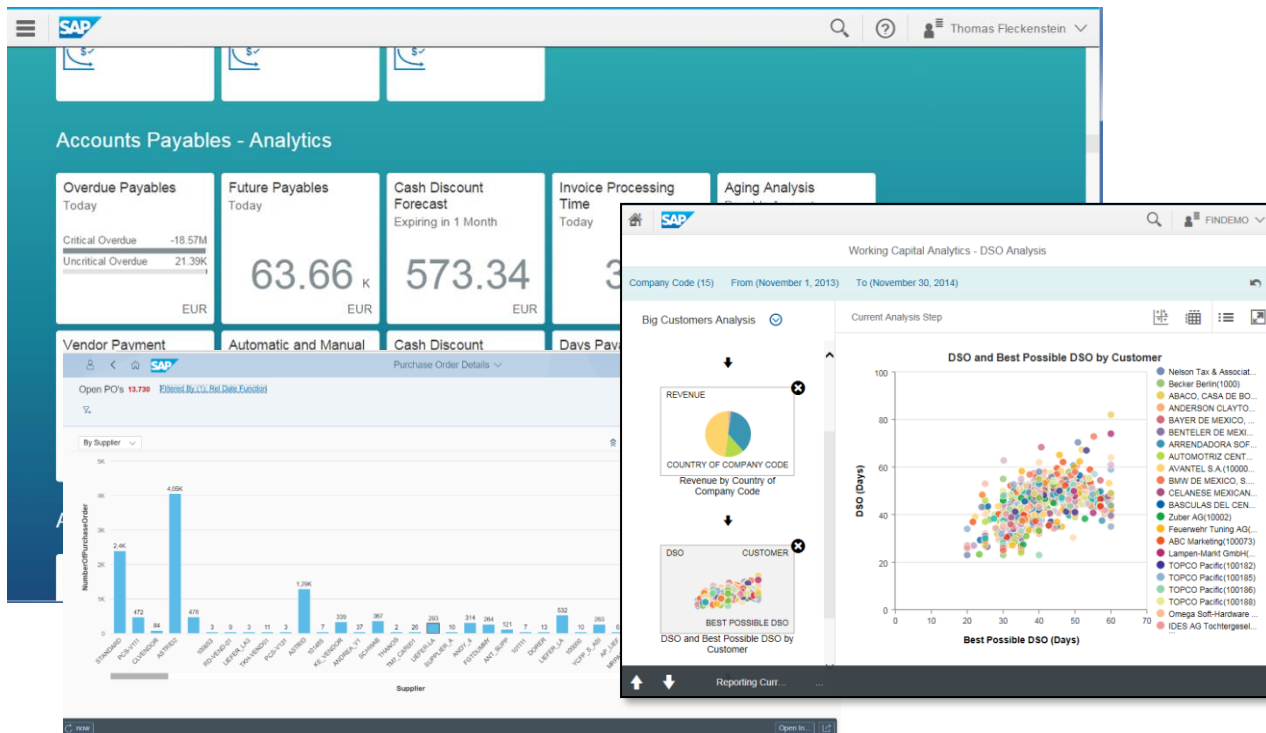
Generic approach to visualize and analyze data. Switch display from table to chart or a combined table-chart-display. Take action directly in the same app or navigate to other apps for more details and actions, save personal variants.

# Business User – Analysis with Multi-dimensional reports



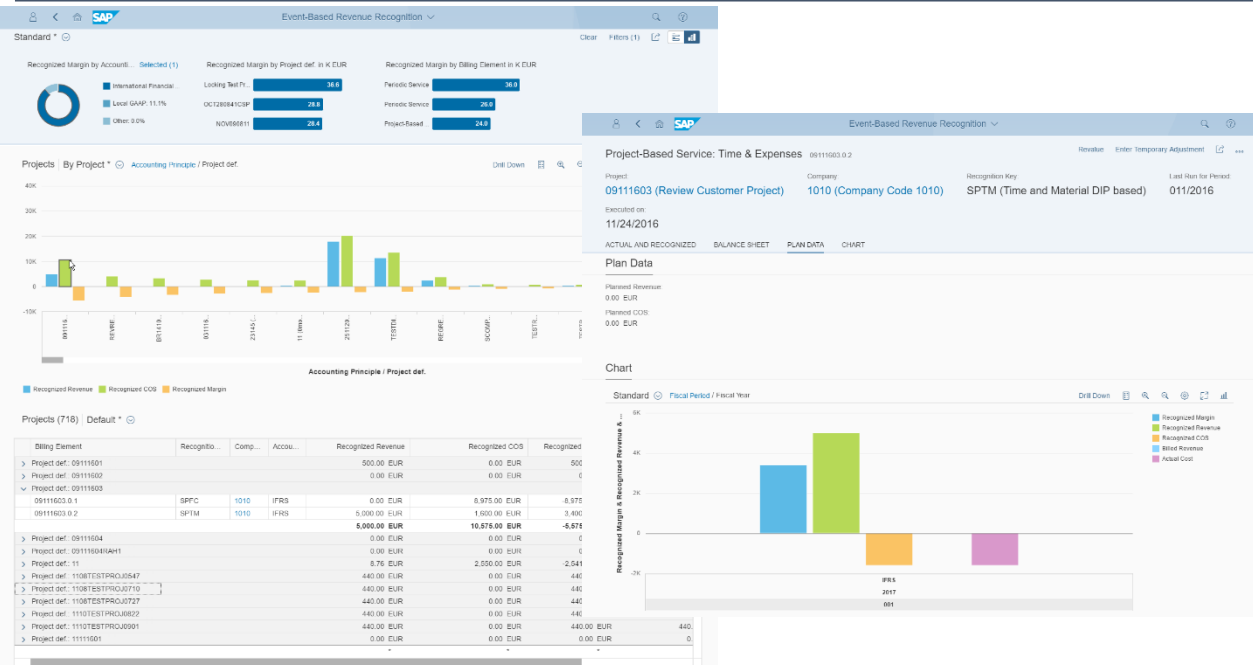
- Slice and dice, sort, filter
- Drill down, drill across
- Swap rows and columns
- Display chart and table
- Personalized views
- Navigate to other Fiori Apps

# Smart Business KPIs



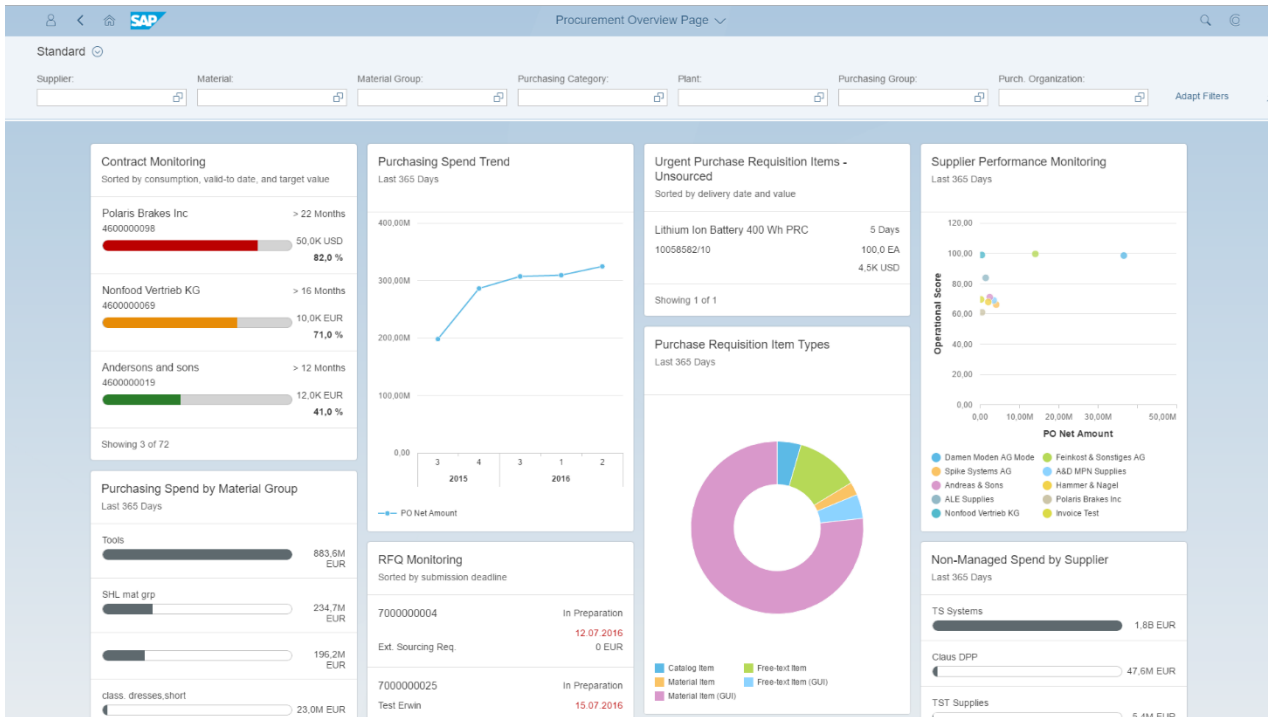
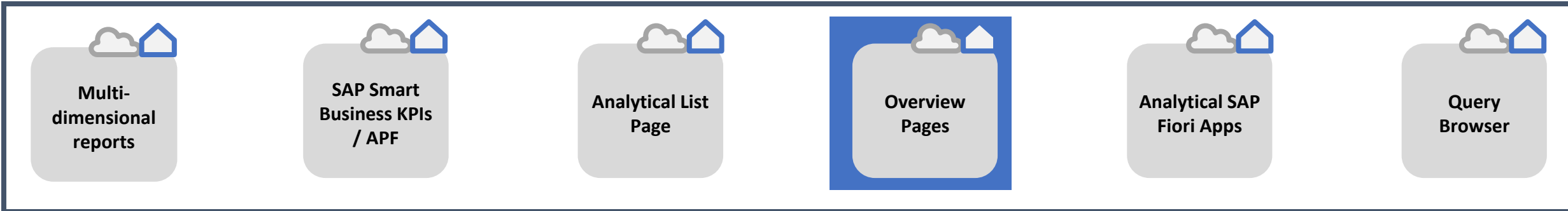
- KPI-tiles on the Fiori Launchpad providing quantitative information
- KPI-Details with various drill-downs by selected dimensions.
- Personalization and “Save as tile” of the KPI-Details
- Instead of KPI-Details (default), navigation from the KPI-tile to an **Analysis Framework Path** or to any other Fiori App can be configured
- Modification-free adaptation of pre-defined KPIs

# Analytical List Pages



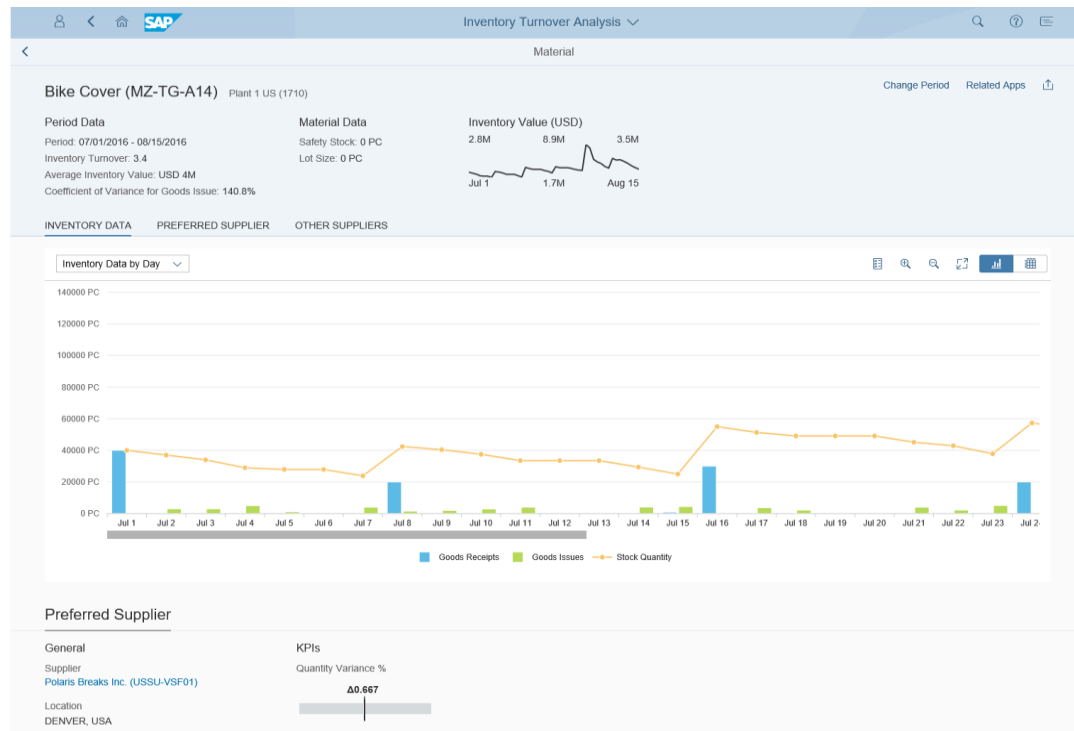
- Visual filters to focus on the most important areas
- User switch between complex, visual, facet filter
- Chart area for quick overview and drill down, charts personalizable
- Details area for operational details
- Navigation to other Fiori apps that are semantically linked to the data
- Personalized views
- Ideal for insight-to-action scenarios

# Overview Pages



- Most important information at a glance (instead of opening many different transactions)
- Combination of analytical and transactional information (*different type of "Cards"*)
- More detailed information can be found with one click
- Entire page can be fully personalized
- Navigation to other Fiori apps that are semantically linked to the data

# Analytical Fiori apps



- Implemented for **highly specific use cases**
- Using Fiori floorplans and UI5 controls
- Details of the functionality depending on the use case

# Query Browser



Query Browser

Analytical Queries 120 Views

Show Favorites

Favorite	Tags	View Name	View Description	Application Component
<input type="checkbox"/>	★	CZ_ACDOCA_QUERY	CZ_ACDOCA_QUERY	SD-SLS
<input type="checkbox"/>	★	CZ_ACDOCA_QUERY_COPY	CZ_AcDoca_Query_Copy	SD-SLS
<input type="checkbox"/>	★	CZ_EASILINEITEMS	CZ_EASILineItems	FI-GL
<input type="checkbox"/>	★	C_APCASHDISCOUNTFORECAST	Cash discount forecast	FI-GL-IS
<input type="checkbox"/>	★	C_APCSHDISCUTILIZATION	Account Payable Cash Discount Utilization	FI-GL-IS
<input type="checkbox"/>	★	C_APDAYSPAYOUTST	Accounts Payable. Days Payables Outstanding	FI-GL-IS
<input type="checkbox"/>	★	C_APFLEXIBLEAGING	Aging Analysis	FI-GL-IS
<input type="checkbox"/>	★	C_APFUTUREACCOUNTSPAYABLE	Accounts Payable. Future Accounts Payable	FI-GL-IS
<input type="checkbox"/>	★	C_APIINVOICEPROCESSINGTIME	Accounts Payable. Invoice Processing Time	FI-GL-IS
<input type="checkbox"/>	★	C_APIMANUALPAYMENTS	Vendor Payment Analysis: manual and automatic payments	FI-GL-IS
<input type="checkbox"/>	★	C_APOVRD	Accounts Payable. Overdue Payables	FI-GL-IS
<input type="checkbox"/>	★	C_APVENDOROPENITEMS	Accounts Payable. Vendor Open Items	FI-GL-IS
<input type="checkbox"/>	★	C_ARBANKSTMTREPROCESSING	Consumption View for Bank Statement Reprocessing	FI-GL-IS
<input type="checkbox"/>	★	C_BE_STRPWHLDGTAXITEMQ	Withholding Tax View For Belgium	FI-LOC
<input type="checkbox"/>	★	C_CHARTOFACCOUNTS	chart of accounts	FI

★ Add Tags Open in Design Studio

- Lists the analytical queries assigned to the roles of the current user
- Tag queries, flag as favorite
- In-App Search
- Queries are launched in the multidimensional reporting client

# Agenda

- 1 Background
- 2 S/4HANA Embedded Analytics – what it means for the business user
- 3 Embedded analytics in action
- 4 Technology foundation of Embedded Analytics
- 5 Wrap-up



# Demo – S/4HANA Embedded Analytics for Accounts Receivables

Demo



# Demo – Embedded Analytics in SAP Transportation Management

Demo



# Demo – Embedded Analytics in Enterprise Asset Management

[Demo](#)



# Agenda

- 1 Background
- 2 S/4HANA Embedded Analytics – what it means for the business user
- 3 Embedded analytics in action
- 4 Technology foundation of Embedded Analytics
- 5 Wrap-up

# High Level Architecture

## SAP S/4HANA(scope of standard delivery)

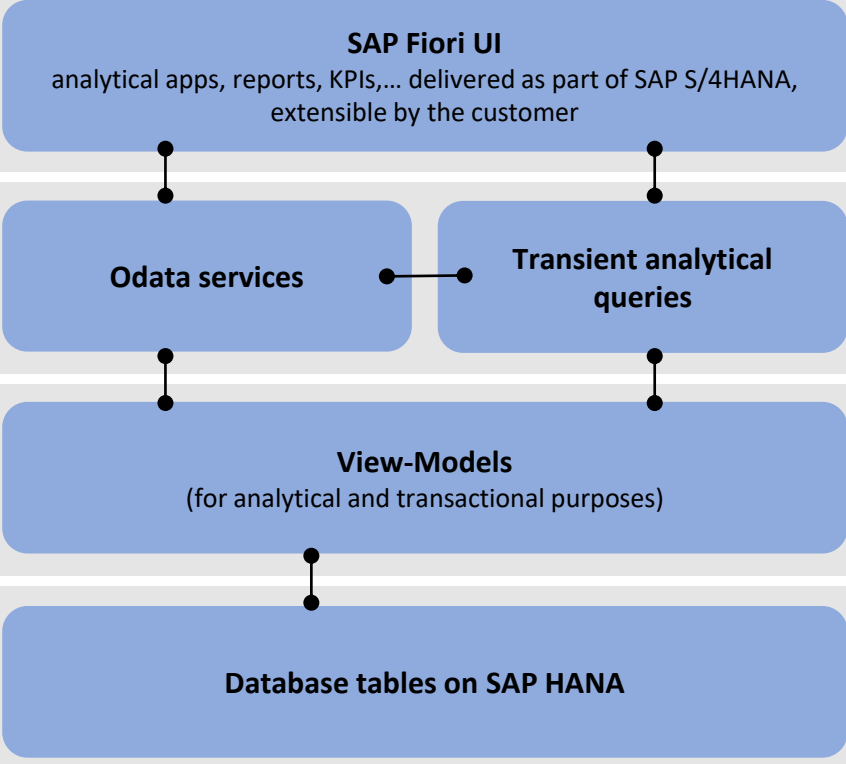


**Visualization**

**Access**

**Modelling**

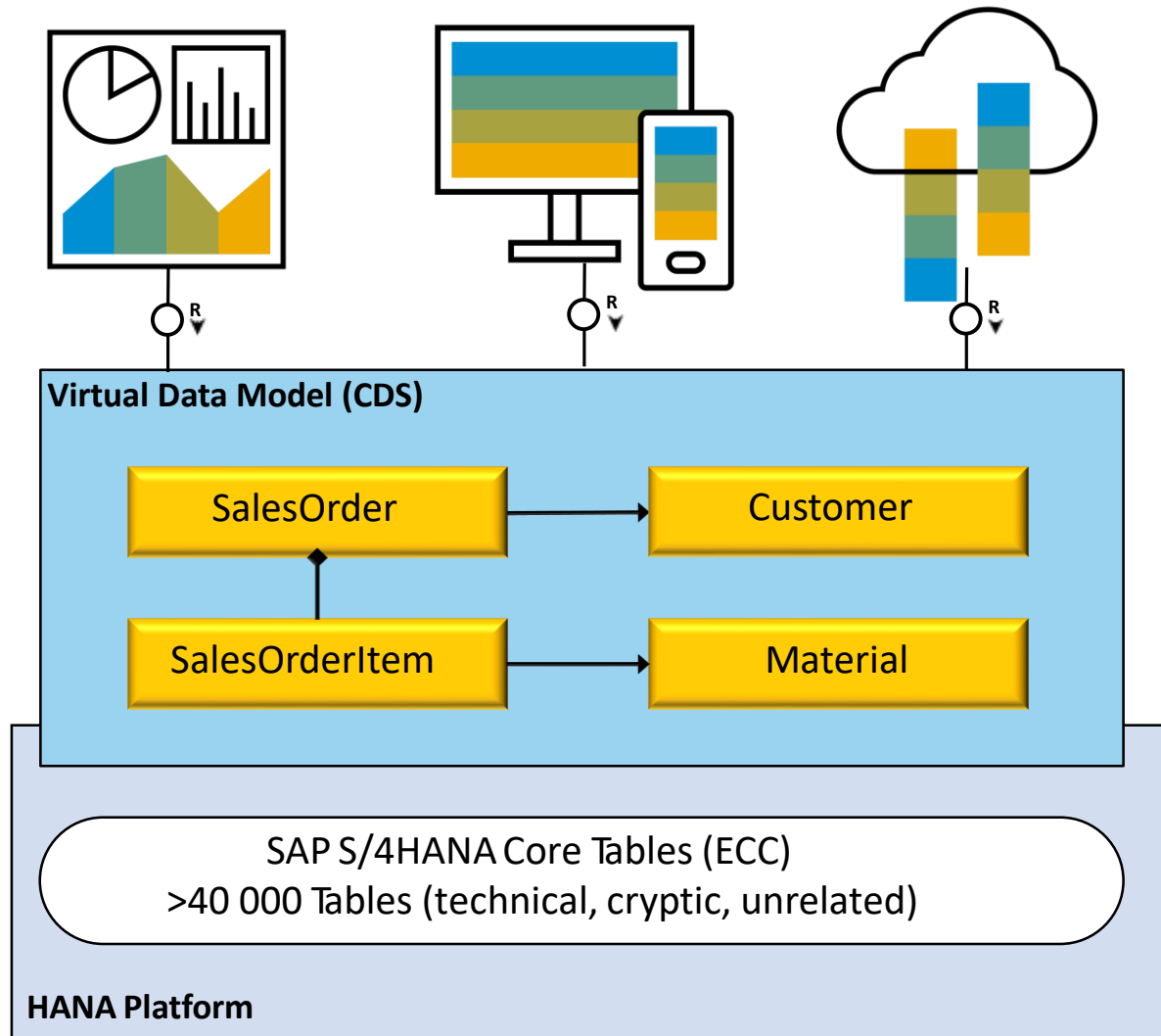
**Persistency**



**SAP Analytics products**  
 can access SAP S/4HANA data directly via the available transient analytical queries  
 For SAP S/4HANA Cloud:  
 SAP Analytics Cloud  
 For SAP S/4HANA on prem:  
 SAP Lumira, Analysis Office, Design Studio,...



# The Virtual Data Model (VDM) as the foundation for Embedded Analytics



Customers and Partners can develop on released VDM views

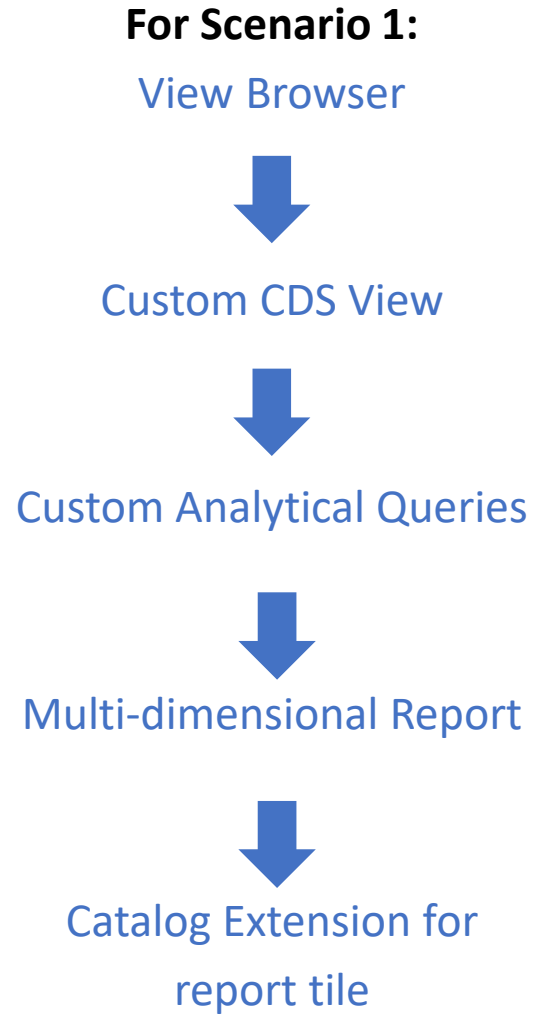
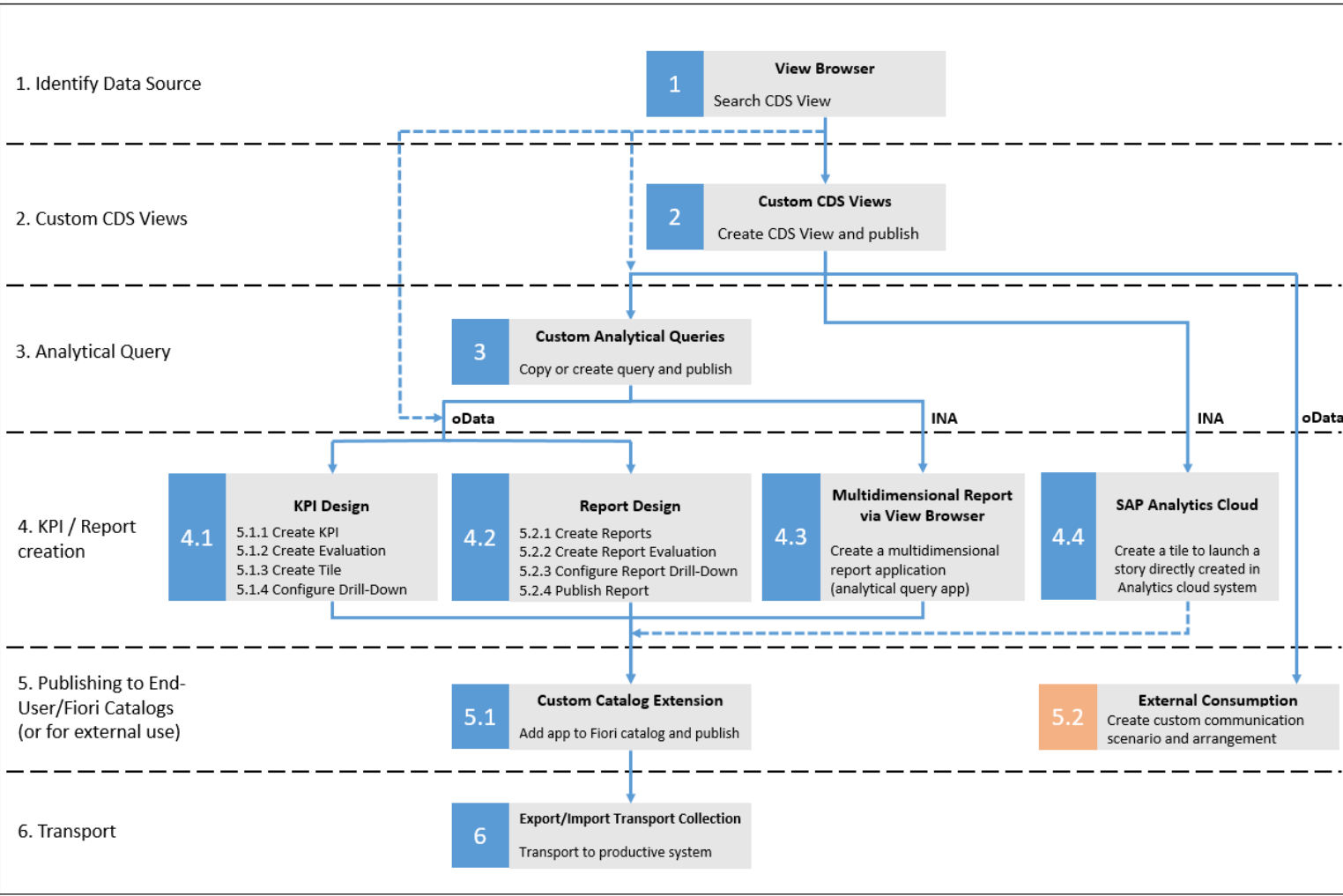
VDM is the data model and source for all types of applications

- ✦ Transactional
- ✦ Analytical
- ✦ External interfaces

VDM is a set of views on SAP S/4HANA application data

- ✦ Business-oriented
- ✦ Understandable & semantically rich
- ✦ Reusable & stable
- ✦ Executed on SAP HANA
- ✦ **Implemented as ABAP CDS views (core data services)**

# Extension & adaptation via CDS views



# Agenda

- 1 Background
- 2 S/4HANA Embedded Analytics – what it means for the business user
- 3 Embedded analytics in action
- 4 Technology foundation of Embedded Analytics
- 5 Wrap-up



# Key Takeaways

- In the traditional world of reporting & analytics, these were two separate activities & often times occurring in separate systems
- S/4HANA Embedded Analytics brings the two worlds together by providing users a convenient means to run their operational analytics in real-time in their source S/4HANA system
- Embedded Analytics is designed to be run as Fiori apps & therefore is easy & convenient for the business user to run both planned and ad-hoc analytics
- Embedded Analytics has a strong technological foundation and the Virtual Data Model provides users with indirect access to S/4HANA tables
- Although SAP provides considerable content out-of-the-box, you can easily extend underlying 'CDS views' to meet your custom reporting/analytics needs

# Questions?

For questions after this session, contact me at [Anurag.barua@sap.com](mailto:Anurag.barua@sap.com)

# Thank you.

For questions after this session, contact me at [Anurag.barua@sap.com](mailto:Anurag.barua@sap.com)