# Key Financial Data Model Considerations for Your SAP S/4HANA Foundation

**David Dixon**, Partner, TruQua, an IBM Company **Scott Cairncross**, Partner, TruQua, an IBM Company



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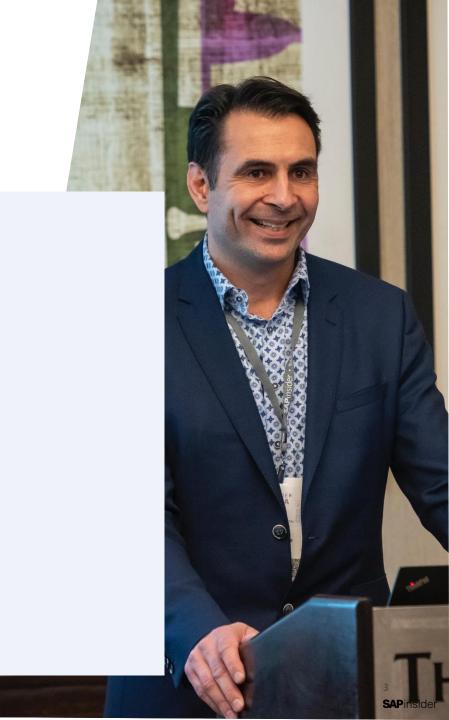
#### In This Session

While gaining a grasp of the fundamentals, go beyond Universal Journal design decisions, incorporating Group Reporting, SAC planning, Embedded Analytics, PaPM, Document and Reporting Compliance, Data Warehousing, and predictive accounting holistically.

Learn about key considerations around establishing your accounting principles, ledgers, currencies, chart of accounts, and organizational structures (e.g., cost centers and profit centers) including reporting challenges with organizational changes, restatements, transfer pricing, tax, and matrix consolidation.

#### **What We'll Cover**

- Financial Data Modeling
- Ledgers and Currencies
- Financial Master Data
- Beyond Universal Journal
- Beyond S/4HANA
- Wrap-Up

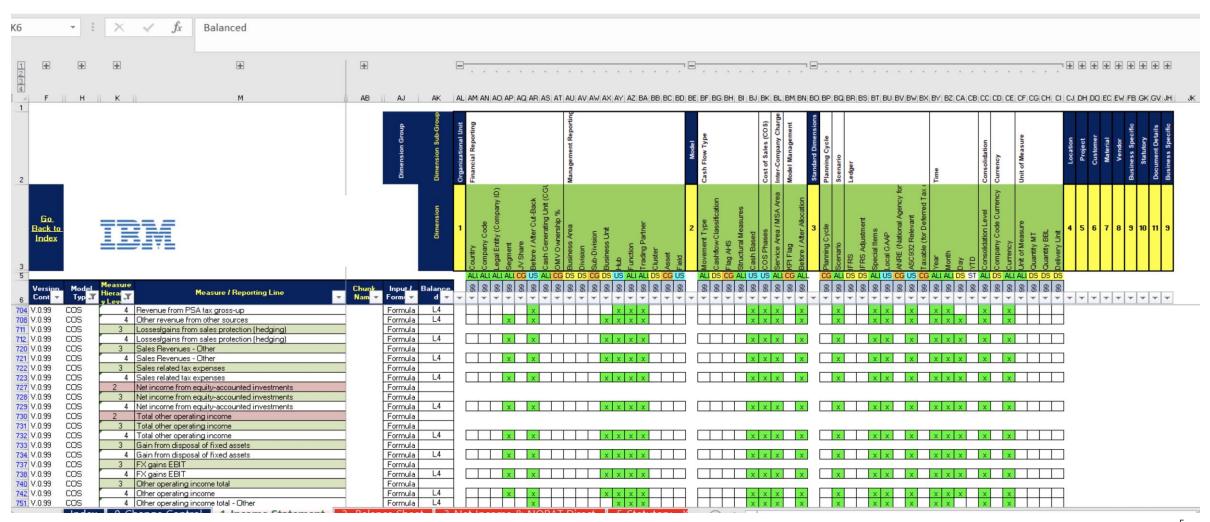


### **Financial Data Modeling**

- Financial Data Model Example
- Core Data Design Changes in SAP S/4HANA
- Key Data Design Concepts in the Universal Journal
- Coding Block Extension Key Considerations
- Coding Block Extension with Group Reporting Preparation Ledger

### Financial Data Modeling Example





# **Core Data Design Changes in SAP S/4HANA**



#### Harmonized and Simplified Data Design via Subledger Merge and Unification into the General Ledger

MLHD MLCRF

MLIT MLCD

MLPP CKM1

MLPPF BSIM

**New Asset** Accounting ANEK **ANEP ANEA** ANLP **ANLC** 

CE4xxxx ACCT

CE3xxxx

CE2xxxx

CE1xxxx

COBK

COEP

CCSP\_BAK

COSS\_BAK

Profit Center Accounting

Special Ledger

Made obsolete with parallel ledgers and Universal Journal

New General Ledger

FAAT\_DOC\_IT

FAAT\_PLAN\_VALUES

ACDOCA (Universal Journal Line Items)

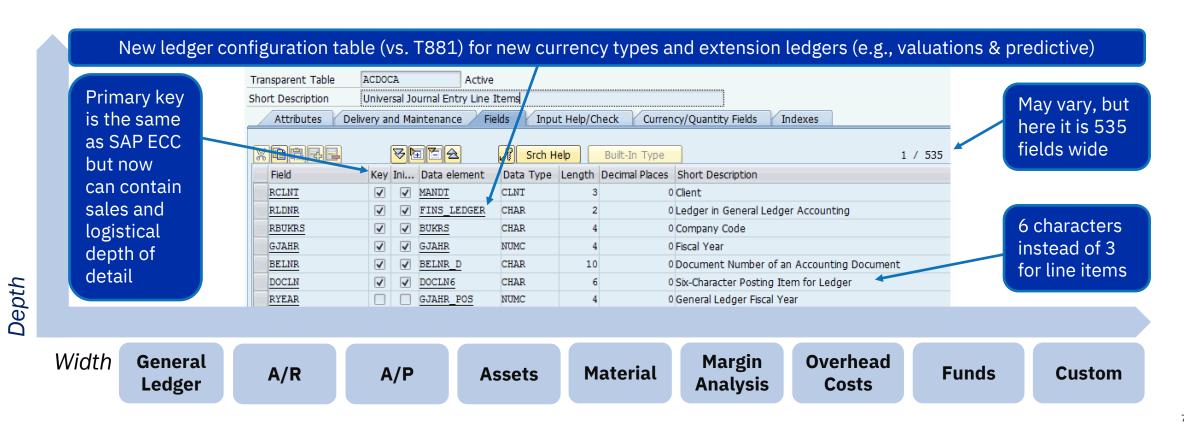
BSEG (FI Line Items)

BKPF (FI Header)

### **Key Data Design Concepts** in the Universal Journal

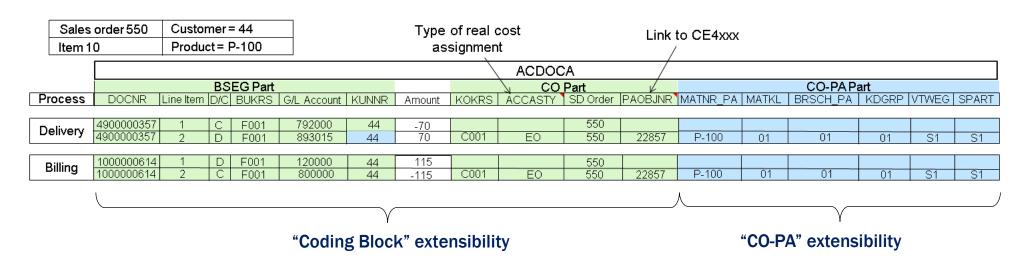


ACDOCA is not only a wider coding block but also more granular



# **Coding Block Extension Key Considerations**

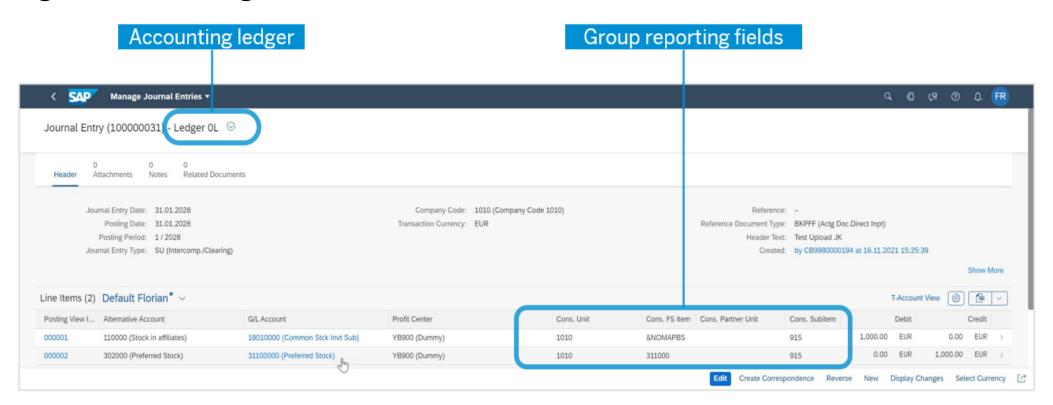
- See <u>SAP Note 2453614 FAQ: Universal Journal Extensibility</u> for 5 extensibility options
- For Margin Analysis-related extensions, realignment (tx KEND) is supported except for statutory fields (e.g., legal entity, profit center, etc.)
  - For performance and technical impacts, see <u>SAP Note 2946436 Technical implications of activating account-based profitability analysis in SAP S/4HANA</u>



# **Coding Block Extension with Group Reporting Preparation Ledger**



Derivation of Group Reporting fields in the coding block during posting and periodic realignments for changes in substitution rules

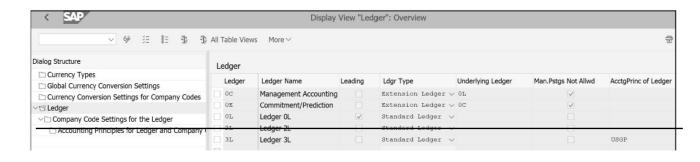


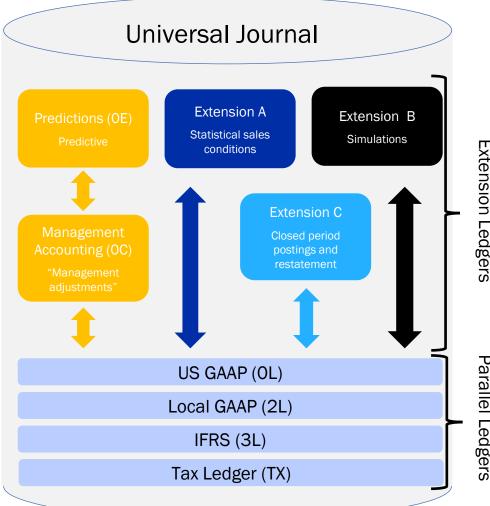
#### **Ledgers and Currencies**

- Parallel versus Extension Ledgers
- Extension Ledger Use Case: Predictive Close
- Parallel Accounting vs. Universal Parallel Accounting
- Example Configuration for Currencies
- Universal Parallel Accounting Currencies
- Value Chain Analysis and Operational Transfer Pricing

### Parallel versus Extension Ledgers

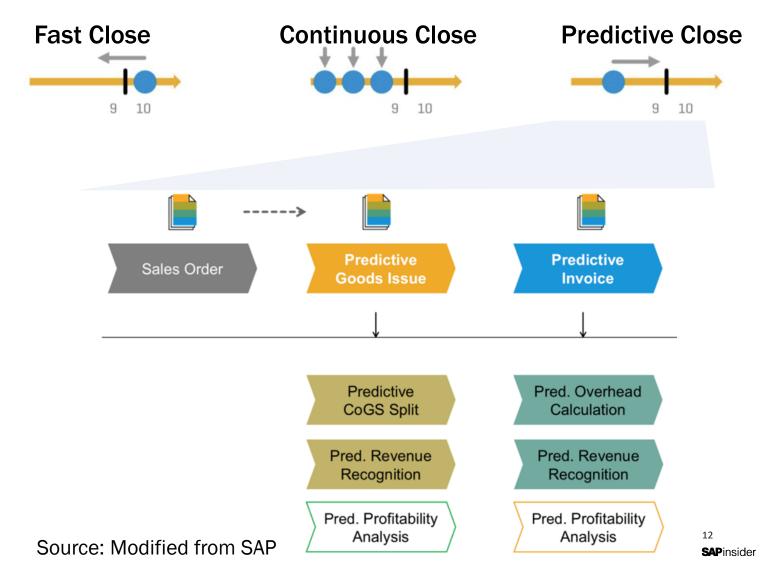
- Parallel ledgers for alternative accounting principles, fiscal years, currency settings, and valuations
- Extension ledgers for adjustments (i.e., incremental differences) and no storage of redundant data
  - Reduced reconciliation effort between ledgers
  - Minimal configuration impact
  - Extension ledgers point to other ledgers and can be stacked and can reuse base ledgers
  - Supports different posting periods, accounting principles, and company code assignments



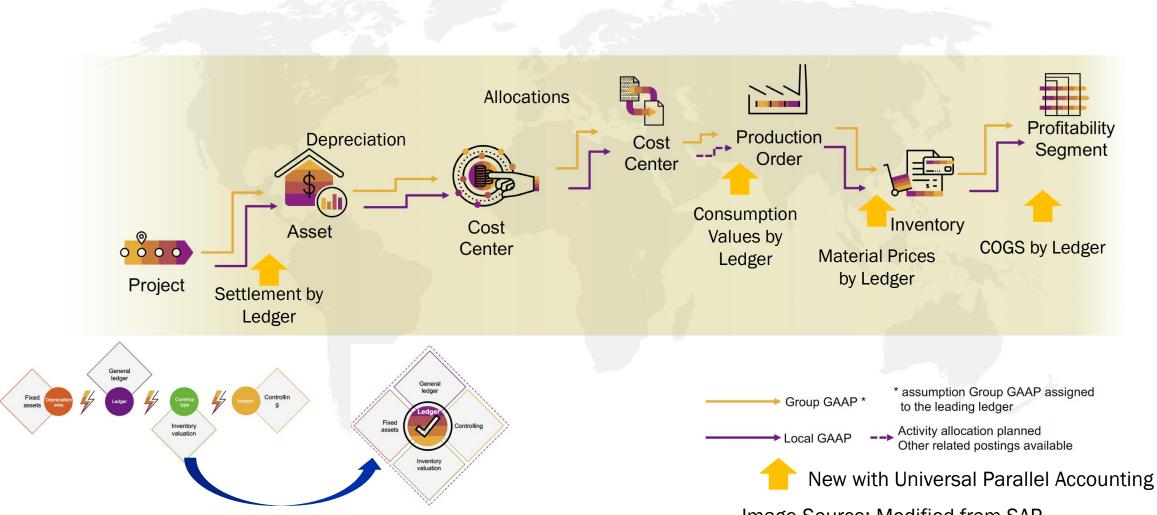


### **Extension Ledger Use Case: Predictive Close**

- Enables financial statement insights not yet GAAP relevant
- Leverages operational data from sales (for revenue and COGS) and procurement (for expenses) in an extension ledger for predictive close activities
- For scenario limitations, refer to <u>SAP Note 3223551 - Predictive</u> <u>Accounting: Restriction Note</u> (<u>SAP S/4HANA 2022</u>)



# Parallel Accounting vs. Universal Parallel Accounting



### Parallel Accounting vs. Universal Parallel Accounting (con't)

Asset capitalization values differ between GAAPs

Legal requirement in Brazil/China: Actual costing for Local GAAP Different capitalization rules for inventory valuation

Multiple currencies required

(e.g. due to Functional Currency
requirements/multi-valuation requirements)

Capitalization keys, capitalization versions, capitalization percentages

ECC, SAP S/4HANA OP

Parallel cost of goods manufactured incl. mapping of actual versions to ledgers

ECC, SAPS/4HANA OP

One inventory price, adjustments/delta runs at period-end

ECC, SAP S/4HANA OP, SAP S/4HANA Cloud

Three currencies in ML and AA, two currencies in CO, 10 currencies in G/L → multiple Controlling Areas, adjustment postings.....

SAPS/4HANA OP

Actual costing based on leading ledger posting to both ledgers

SAPS/4HANA Cloud

#### **Universal Parallel Accounting**

Settlement to AuC/final asset per ledger

Actual costing runs per ledger

Inventory price per ledger

10 currencies supported consistently through the applications (ML, CO, G/L, AA...)

Settlement rules per ledger

Source: Modified from SAP

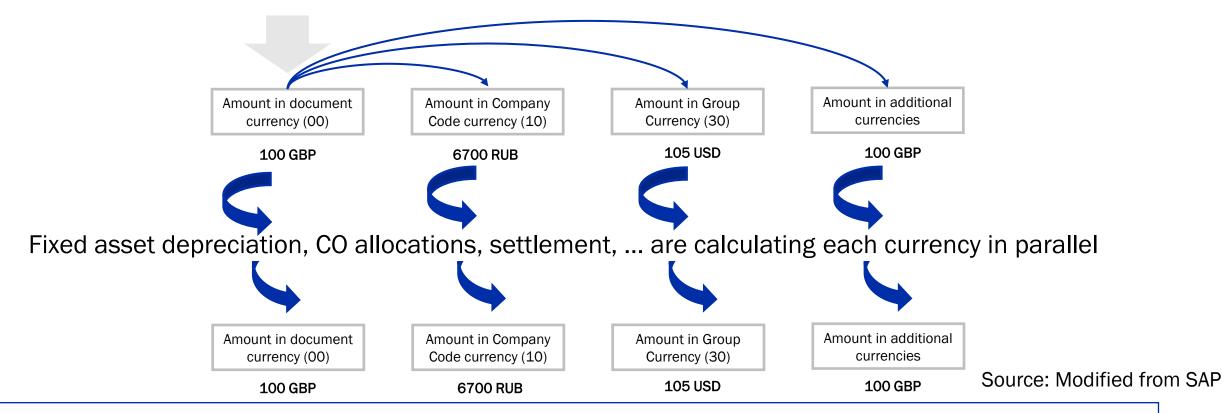
### **Example Configuration** for Currencies

Fieldname	Local Curr.	Global Curr.		Free Curr. 2	Free Curr. 3	Free Curr. 4	Free Curr. 5	Free Curr. 6	Free Curr. 7	Free Curr. 8
Application/Table	HSL	KSL	OSL	VSL	BSL	CSL	DSL	ESL	FSL	GSL
Universal Journal	10	30	40	<b>50</b>	60	<b>Z1</b>	<b>Z2</b>	<b>Z3</b>	<b>Z</b> 4	<b>Z</b> 5
BSEG and Fixed Assets	10	30	40							
Material Ledger	10	30	40							
Controlling	10	30								

- Plus: WSL (Document), TSL (G/L Balance), CO\_SL (CO Object), and FCSL (Functional) currencies
- See <u>SAP Note 2344012 Currencies in Universal Journal</u>
- See <u>SAP Note 2894297 Handling of Currencies in Controlling in SAP S/4HANA</u>
- See <u>SAP Note 3200089 Functional Currency in SAP S/4HANA</u>

# **Universal Parallel Accounting Currencies**

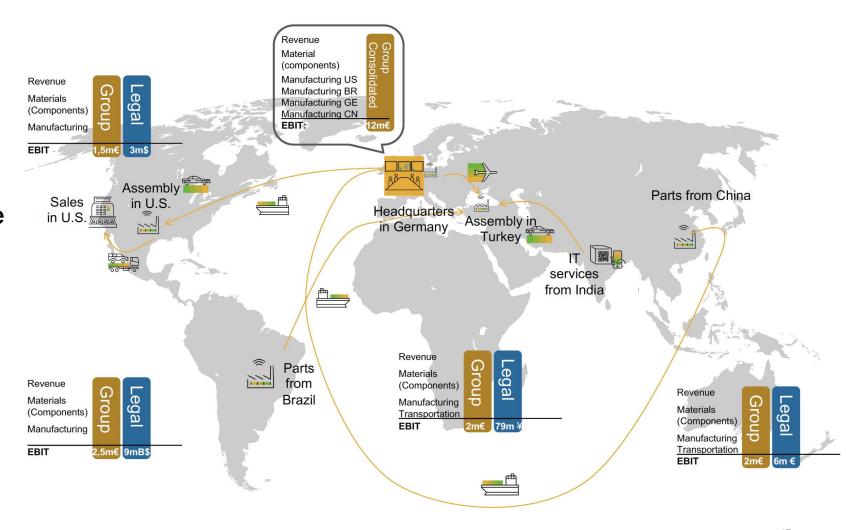
Supplier invoices, general journal entries, ... in transaction currency



With Universal Parallel Accounting, up to 10 currencies are fully integrated in Controlling, Material Ledger and Asset Accounting. The previously existing limitations, per <u>SAP Note 2894297</u> and <u>SAP Notes 2344012</u>, are resolved with Universal Parallel Accounting

# Value Chain Analysis and Operational Transfer Pricing

- SAP Value Chain Analysis is built on Universal Parallel Accounting
- Designed to track operational transfer pricing details in intercompany trade
- Transactional consolidation via a new ledger (4G) in the Universal Journal for management views
  - With the Group Reporting Preparation Ledger, supports automated profit in inventory eliminations in Group Reporting

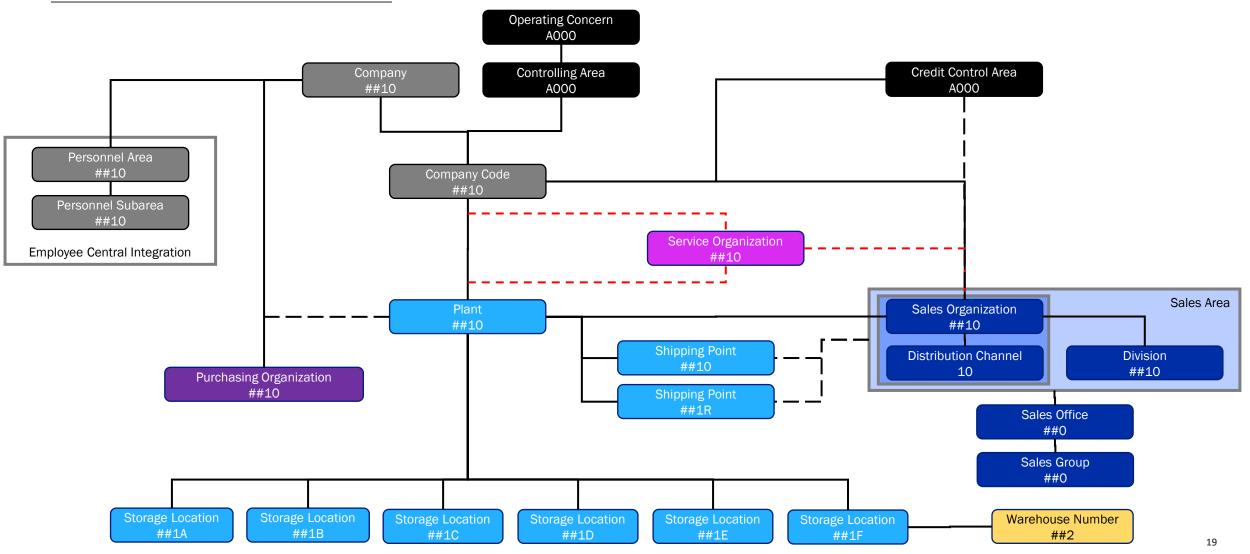


### **Financial Master Data**

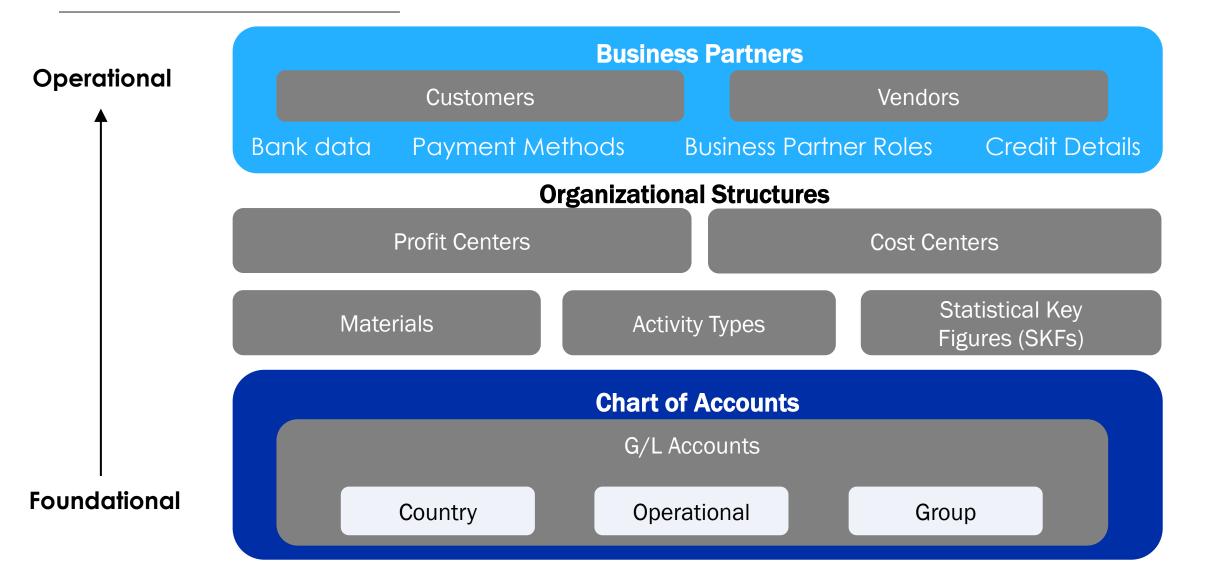
- SAP Best Practices Enterprise Structure
- Financial Master Data Focus
- Example: Chart of Accounts Simplification Case Study
- Organizational Structures in SAP S/4HANA
- Matrix Consolidation via Trading Partner Profit Centers
- Organizational Changes
- Process Overview for Organizational Changes

### **SAP Best Practices Enterprise Structure**





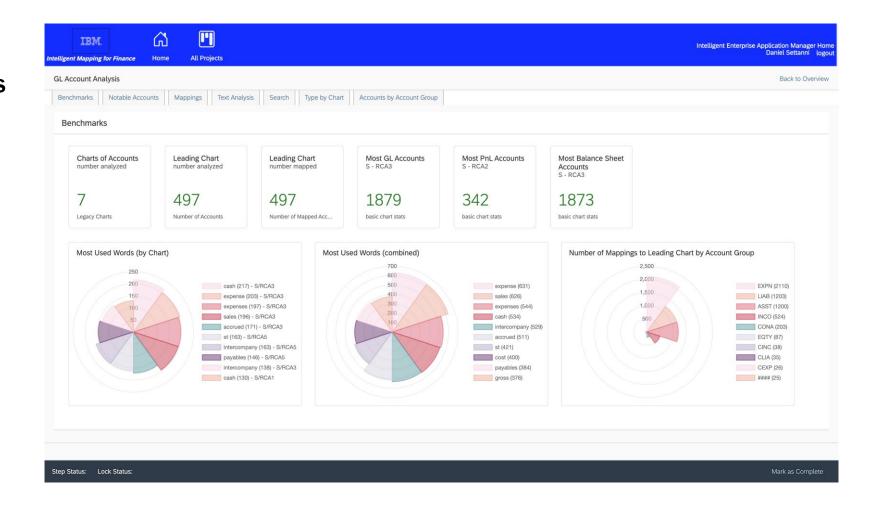
### **Financial Master Data Focus**



# **Example: Chart of Accounts Simplification Case Study**

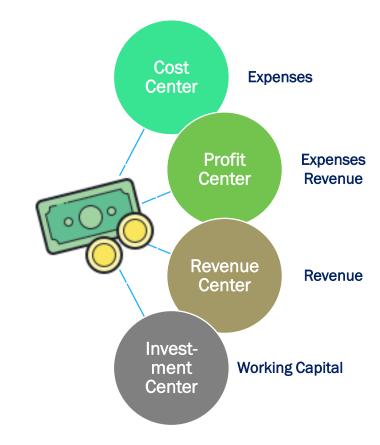


- Comparative analysis of multiple charts of accounts to identify various conventions and practices
- Exploratory analysis to identify unnecessary or redundant accounts:
  - Cash by bank
  - Intercompany by affiliate
  - Sales/Cost by product
  - Expense by function



# Organizational Structures in SAP S/4HANA

- Margin Analysis = external market view of profitability (e.g., customer, product and channel)
- Profit Centers = internal view of the enterprise
  - Responsibility Center or Product Hierarchy?
  - Trading partner profit centers → "matrix consolidation"
  - Cost centers → "Function Area"
  - Profit centers → "Segment"



"A responsibility center is an organizational unit headed by a manager, who is responsible for its activities and results. In responsibility accounting, revenues and cost information are collected and reported on by responsibility centers."

Source: Wikipedia

### Matrix Consolidation via Trading Partner Profit Centers



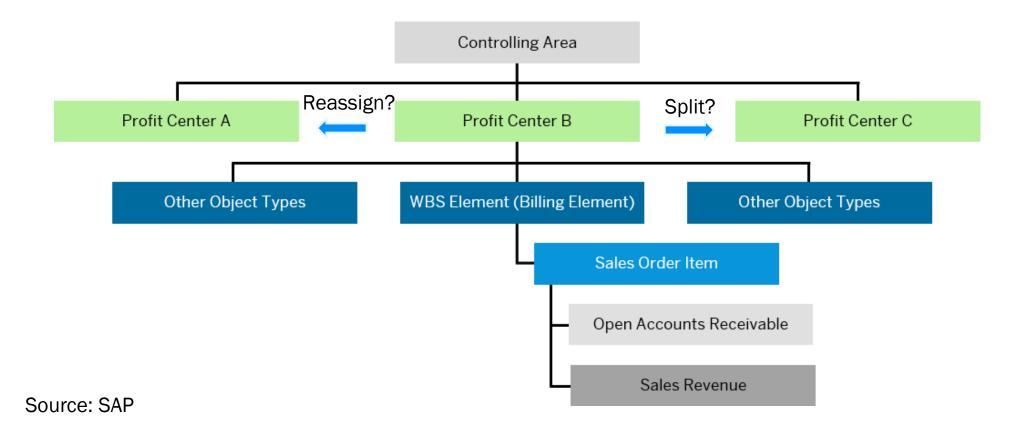
- Legal versus management consolidation versus both (i.e., matrix consolidation)
- Statutory consolidation includes ownership calculations and physical postings of eliminations
- Management eliminations done on the fly at run-time

FS Itom	411100									
FS Item	Sale of goods									
	✓ CU BY REGION (GD)									
Profit Center Eliminated   Consolidation Unit Eliminated		CU BY REGION (GI	∨ AMERICA			> ASIA	∨ EUROPE			
				S4004 US West	S4003 US East			EUROPE Eliminated	S4000 Germany	S4002 France
✓ Lines of Business	-264,661,077 EUR	76,229 EUR	-24,639,345 EUR	-10,887,820 EUR	-13,751,525 EUR	-205,976,461 EUR	-34,121,500 EUR	13,000 EUR	-11,957,000 EUR	-6,177,500 EUR
Lines of Business Eliminated	49,459 EUR	48,159 EUR					1,300 EUR	1,300 EUR		
✓ Food	-264,569,327 EUR	13,600 EUR	-24,613,687 EUR	-10,862,162 EUR	-13,751,525 EUR	-205,976,411 EUR	-33,992,830 EUR	4,700 EUR	-11,820,030 EUR	-6,177,500 EUF
Food Eliminated	18,300 EUR	13,600 EUR					4,700 EUR	4,700 EUR		
PC0001	-43,741,300 EUR		-24,613,687 EUR	-10,862,162 EUR	-13,751,525 EUR	-1,157,133 EUR	-17,970,480 EUR		-11,792,980 EUR	-6,177,500 EUF
PC0002	-220,830,027 EUR					-204,819,277 EUR	-16,010,750 EUR		-10,750 EUR	
PC0003	-16,300 EUR						-16,300 EUR		-16,300 EUR	
✓ Beverage	-141,209 EUR	14,470 EUR	-25,659 EUR	-25,659 EUR		-50 EUR	-129,970 EUR	7,000 EUR	-136,970 EUR	
Beverage Eliminated	8,470 EUR	5,970 EUR					2,500 EUR	2,500 EUR		
PC0004	-17,300 EUR					-50 EUR	-17,250 EUR		-17,250 EUR	
PC0005	-19,900 EUR						-19,900 EUR		-19,900 EUR	
PC0006	-22,650 EUR						-22,650 EUR		-22,650 EUR	
PC0007	-13,000 EUR						-13,000 EUR		-13,000 EUR	
∨ Soda	-76,829 EUR	8,500 EUR	-25,659 EUR	-25,659 EUR			-59,670 EUR	4,500 EUR	-64,170 EUR	
Soda Eliminated	13,000 EUR	8,500 EUR					4,500 EUR	4,500 EUR		
PC0008	-26,670 EUR						-26,670 EUR		-26,670 EUR	
PC0009	-44,659 EUR		-25,659 EUR	-25,659 EUR			-19,000 EUR		-19,000 EUR	
PC0010	-18,500 EUR						-18,500 EUR		-18,500 EUR	

Source: SAP

# **Organizational Changes**

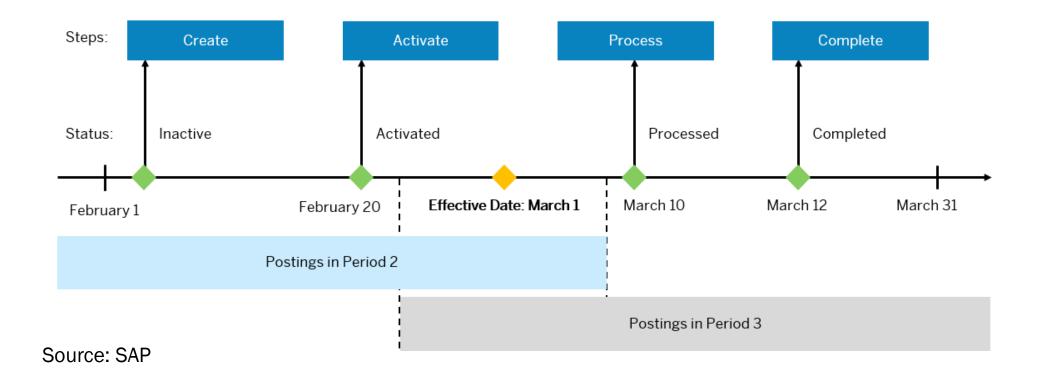
- Functionality of Organizational Changes was formerly known as Profit Center reorganization
- Margin Analysis realignments (tx KEND) will not change profit centers on historical postings



# **Process Overview for Organizational Changes**

Given profit centers' many data dependencies, a project is needed to implement changes as opposed to Margin Analysis realignments (tx KEND) that can be done more on-the-fly

Organizational Change – Steps and Status Changes

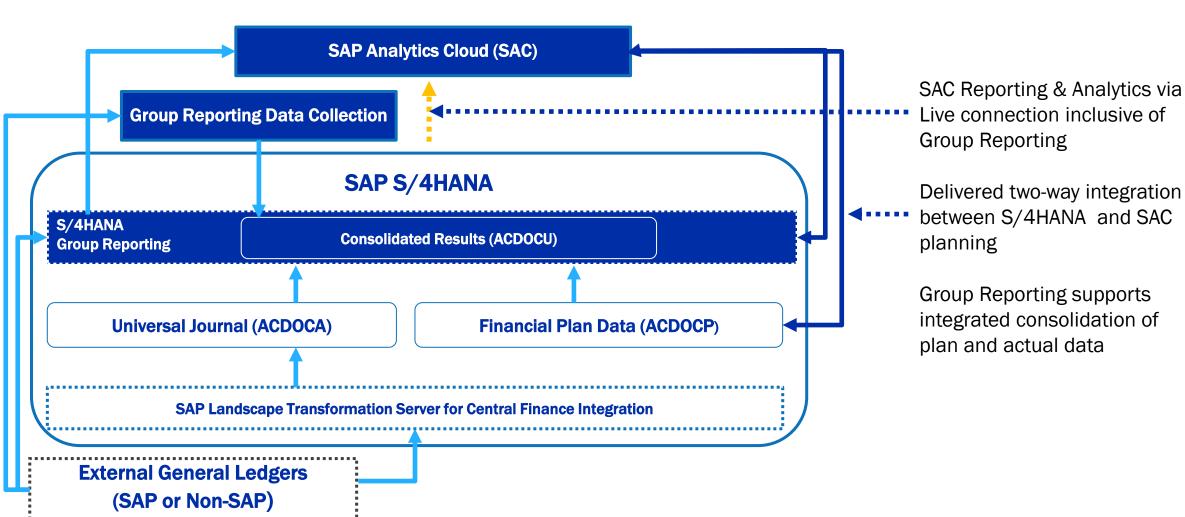


### **Beyond Universal Journal**

- SAP Analytics Cloud, Group Reporting and Central Finance Integration
- Holistic Financial Data Modeling Beyond Universal Journal
- Group Reporting Restatements and Simulations
- Embedded Analytics Architecture
- Semantic Tags Overview
- CDS View Extensibility Example

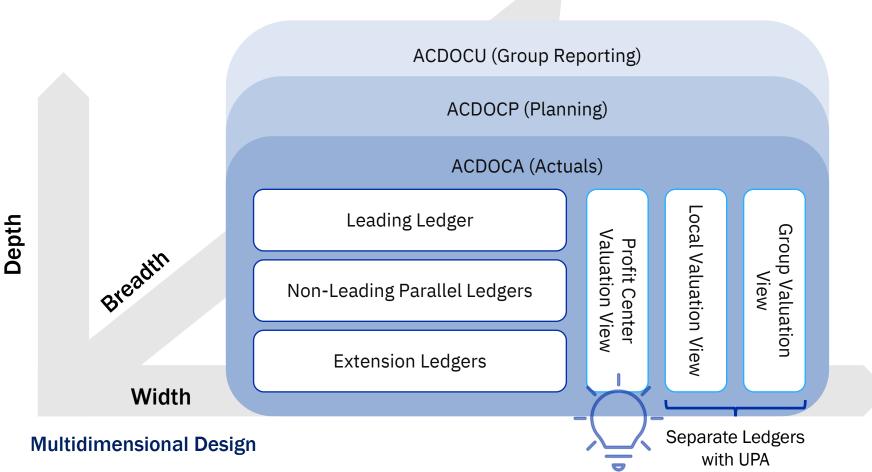
# **SAP Analytics Cloud, Group Reporting and Central Finance Integration**



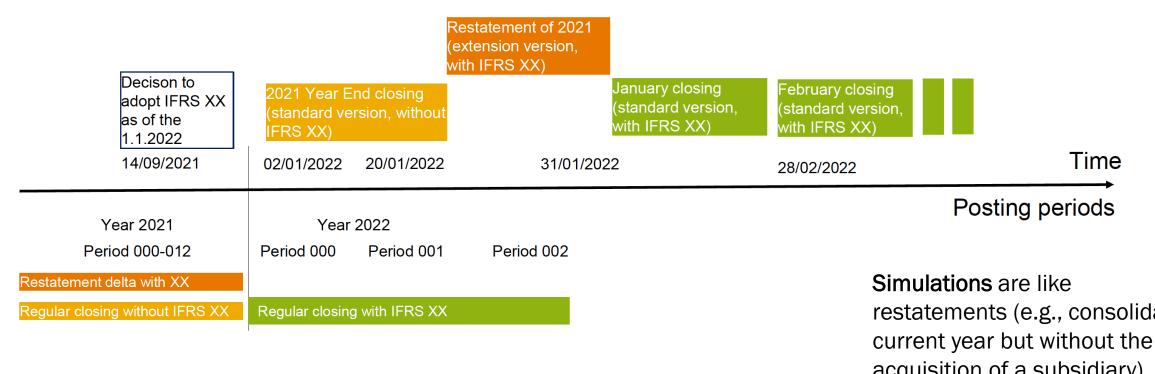


### Holistic Financial Data Modeling Beyond Universal Journal

- Multiple accounting principles, financial valuations, and predictive accounting handled by different tables, ledgers, and valuation views
- ACDOCA will typically contain much more data than ACDOCP and ACDOCU, but the degree of which can vary depending on the versioning and simulations



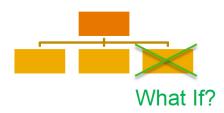
### **Group Reporting Restatements and Simulations**



Standard Version

- In 2021 the Standard version consolidates without IFRS XX
- A new Extension version is defined to consolidate 2021 with IFRS XX Extension Version
- The restated 2021 closing balances are carried forward to the **Standard** version in 2022

restatements (e.g., consolidate current year but without the acquisition of a subsidiary).

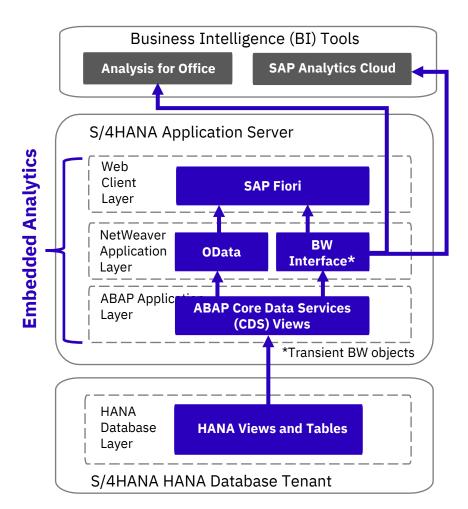


Source: SAP

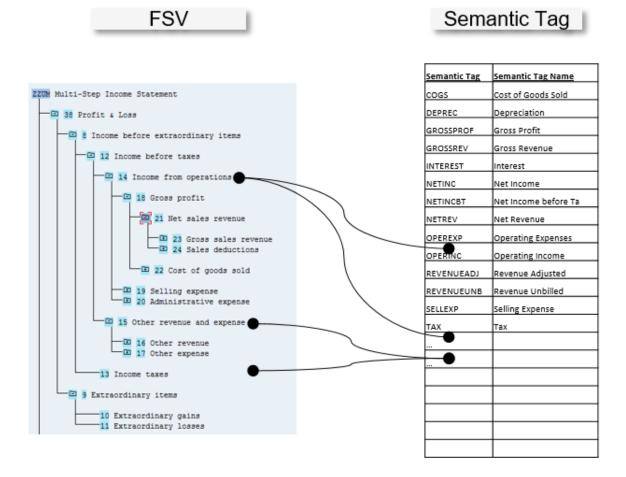
### **Embedded Analytics Architecture**



- Analytics in SAP S/4HANA uses the Analytic Engine as runtime for analytic Core Data Services (CDS) Views
  - Especially query views are executed via this engine
  - The Analytic Engine also enables several end-user tools like Query Browser, Custom Analytical Queries
  - CDS Views can extended or custom developed
- See <u>SAP Note 2289865 Configuration steps for SAP S/4HANA Analytics</u> and <u>SAP Note 2657021 Creating Custom CDS Views for Analytical Scenarios</u>



### **Semantic Tags Overview**





#### **Reports**

- Cash Flow
- Contribution Margin
- Project Profitability
- Product Profitability
- Event-based Revenue Recognition

Source: SAP

# **CDS View Extensibility Example**

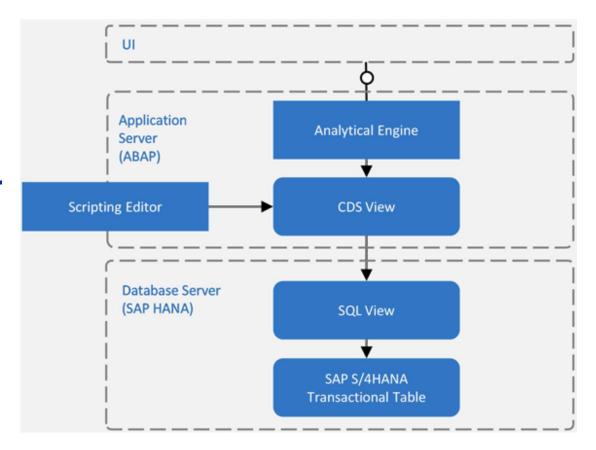


Adding Custom Semantic Tags to an SAP delivered CDS View:

```
@DefaultAggregation: #SUM
  @Semantics: { amount : {currencyCode:
    '$projection.CompanyCodeCUrrency'}}
  @EndUserText.label: 'Income Tax'
    case SemanticTag
    when 'ZINCOMETAX' then AmountInCompanyCodeCurrency
    end as ZZ_IncomeTaxInCCCry
...

@AbapCatalog.sqlViewAppendName: '<Your specified SQL view name>'
    @EndUserText label: '<Your specified CDS view description>'
```

```
@AbapCatalog.sqlViewAppendName: '<Your specified SQL view name>'
@EndUserText.label: '<your specified CDS view description>'
extend view C_CashFlowIndirectIFRS with <your specified CDS view name>
{
    @DefaultAggregation: #SUM
    @Semantics: { amount : {currencyCode:
    '$projection.CompanyCodeCUrrency'}}
    @EndUserText.label: 'Income Tax'
    case SemanticTag
    when 'ZINCOMETAX' then AmountInCompanyCodeCurrency
    end as ZZ_IncomeTaxInCCCry
}
```



Source: SAP

### **Beyond SAP S/4HANA**

- SAP Document and Reporting Compliance (DRC)
- SAP DRC Architecture
- PaPM Integration with SAP S/4HANA
- Embedded Analytics vs. Data Warehousing
- Data Fabric and Warehousing with SAP Datasphere

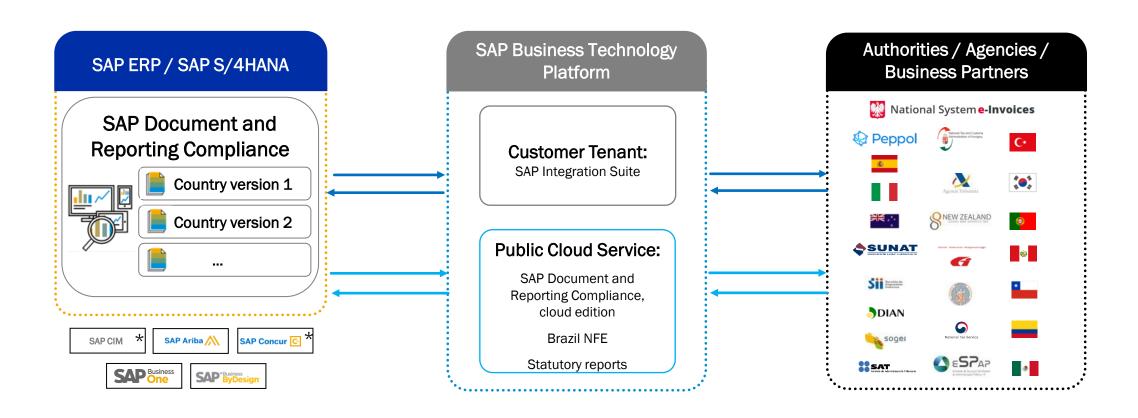
### **SAP Document and Reporting Compliance (DRC)**



- Almost every local statutory report available in SAP ECC has reached end of life in SAP S/4HANA with last batch expiring this year with the SAP S/4HANA 2022 FPSO release
- Separately licensed, SAP Document and Reporting Compliance (DRC) replaces those reports
- Activated as a Business Function (GLO\_DRC) in S/4HANA before configuring country versions
- Works with local versions fully integrated in SAP S/4HANA and may introduce new data elements such as "Business Place" for tax reporting below legal entity (e.g., for Korea or Brazil)
- See <u>SAP Note 2480067 Replacement of Existing Legal Reports with 'SAP Document and Reporting Compliance Statutory Reports'</u>

#### **SAP DRC Architecture**

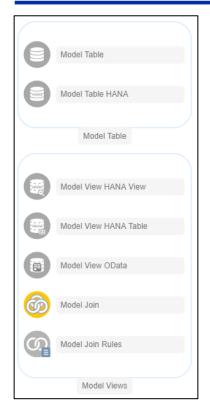


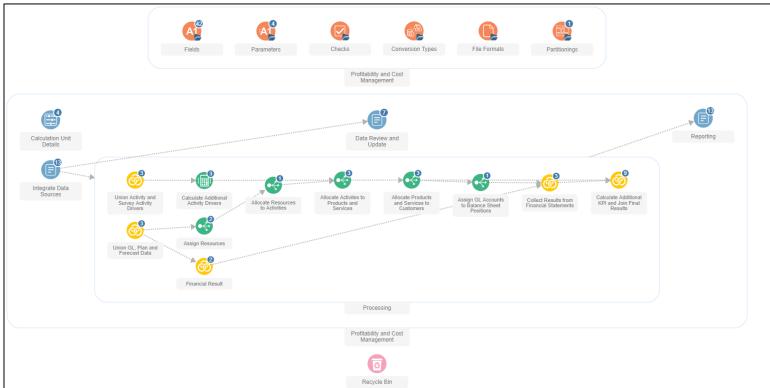


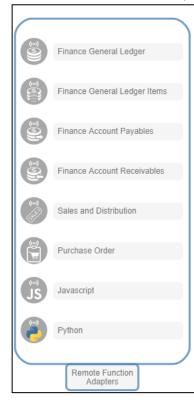
# PaPM Integration with SAP S/4HANA



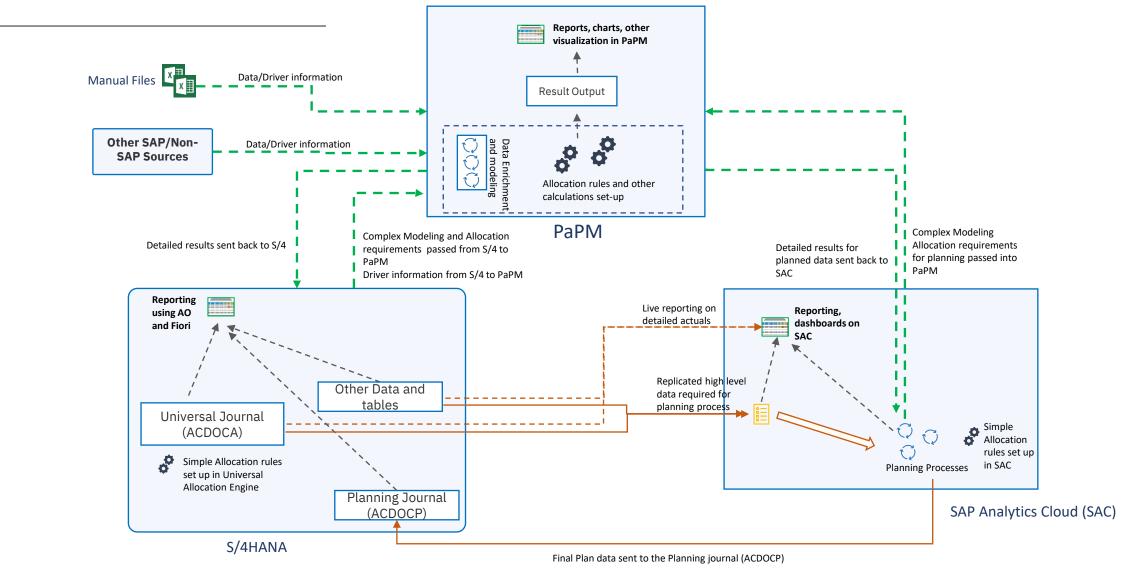
Read from HANA or OData, model calculations and data flows, and the write back results to the Universal Journal via BAPI (e.g., BAPI\_ACC\_DOCUMENT\_POST) with PAPM





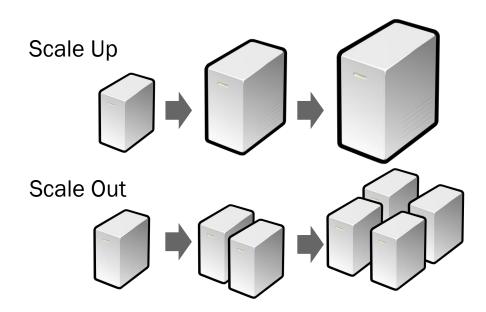


# PaPM Integration with SAP S/4HANA and SAC



# **Embedded Analytics vs Data Warehousing**

- Sizing and performance are key considerations to evaluate vis-à-vis the extent Embedded Analytics is used
  - See <u>SAP Note 1872170 ABAP on HANA sizing report</u> (S/4HANA, Suite on HANA...)
  - See <u>SAP Note 2428711 S/4HANA Scale-Out Sizing</u> and SAP <u>Note 2408419 - SAP S/4HANA - Multi-Node Support</u>



#### Embedded Analytics

Level of S/4HANA Transformation

SAP document level detail and substantiation

Live, realtime and/or operational

Analysis <20% of overall processing

#### Data Warehouse

Level investment and footprint

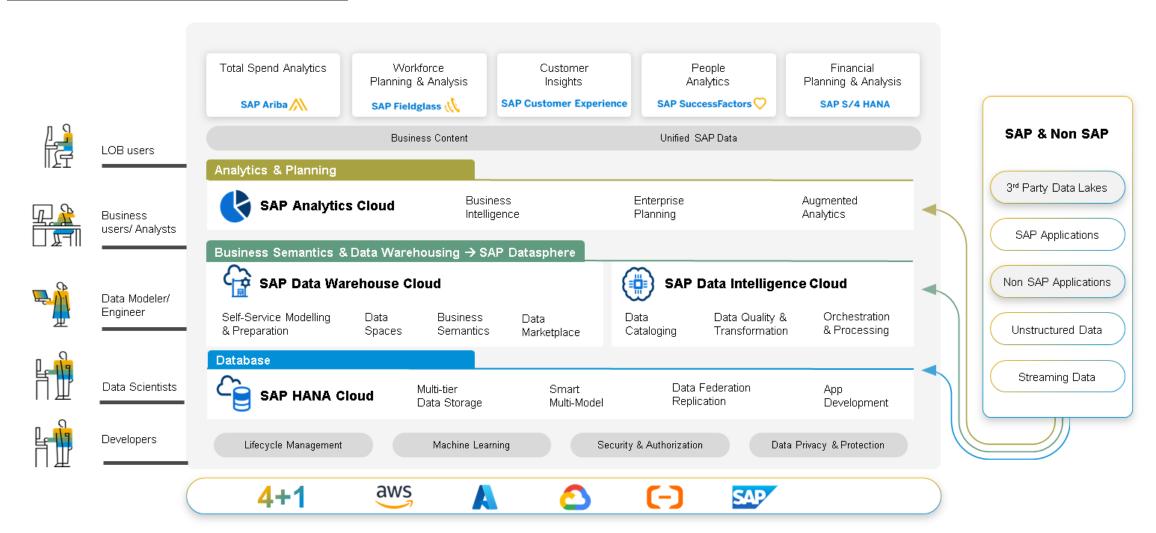
Non-SAP, cleansed and/or harmonized data

Trend, snapshots and/or history

Analysis >20% of overall processing

# Data Warehousing and Data Fabric with SAP Datasphere





Source: SAP

### **Wrap Up**

- Where to Find More Information
- Key Points to Take Home



### Where to Find More Information

#### https://www.ibm.com/topics/sap-hana

Information and resources on "What is SAP HANA?"

https://www.truqua.com/resource/group-reporting-whitepaper-part-1-matrix-consolidation-in-group-reporting-an-introduction

White Paper entitled "Matrix Consolidation in Group Reporting: An Introduction"

https://www.truqua.com/the-business-case-for-transforming-tax-with-sap/

Blog on "The Business Case for Transforming Tax with SAP"

Devraj Bardhan, Axel Baumgartl, Nga-Sze Choi, Mark Dudgeon, Piotr Górecki, Asidhara Lahiri, Bert Meijerink, Andrew Worsley-Tonks, "SAP S/4HANA: An Introduction" (SAP PRESS, 2021)

Satwik Das, Marius Berner, Suvir Shahani, Ankit Harish, "SAP Analytics Cloud: Financial Planning and Analysis" (SAP PRESS, 2022)

Carsten Hilker, Javaid Awan, David Dixon, Marc Six, "Central Finance and SAP S/4HANA" (SAP PRESS, 2020)

#### http://help.sap.com

 Follow Enterprise Resource Planning > SAP S/4HANA > Use > English > Enterprise Business Applications > Finance > Accounting and Financial Close

#### **Key Points to Take Home**

- Financial Data Modeling is foundational to SAP S/4HANA and requires a blend of analytic and process design skills
- Universal Journal goes beyond coding block design but also parallel accounting decisions incorporating ledgers, currencies, accounting principles, and valuations
- The Chart of Accounts and Organizational Hierarchies are key dimensions of the overall multi-dimensional design
- Design must go beyond Universal Journal incorporating planning, consolidation, embedded analytics and external data feeds into SAP S/4HANA
- Design must also go beyond SAP S/4HANA incorporating reporting and analytics solutions like DRC, PaPM, Datasphere and data warehouses

### **Thank you! Any Questions?**

#### **David Dixon**

Twitter.com/davidcdixon

Linkedin.com/in/davidcollinsdixon

#### **Scott Cairncross**

Twitter.com/scottcairncross

Linkedin.com/in/scottcairncross

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