Journey to a real-time enterprise data warehouse leveraging SAP BW/4HANA

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About the Speakers

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- Leads PwC's SAP Technology, Media, and Telecom Practice for Supply Chain and Analytics
- 20+ year of experience in large scale SAP Implementations

Key Outcomes/Objectives

1. Walkthrough the Simplify BI Scope and Journey
2. Understanding the process of identifying business use cases and choosing the right tools
3. Understand how lines were drawn between the Operational & Enterprise Data Warehouse while implementing an unified user experience
4. Understand how this compares and contrasts with other large enterprise BW4HANA users
5. Compare to two other case studies

Detailed Case Study

Case Study

- Global Technology Manufacturer and Distributor
- Global, $59 Billion in Annual Revenue, Net Revenue growing 12% annually.
- Challenged with simplifying BI during two significant business events
  - New S/4 Instance being rolled out over 3 years with almost every major SAP module in scope including IBP and financial planning and consolidation
  - Over 350+ legacy BI assets being consolidated and retired as part of a divestiture

Journey to “Simplify BI”

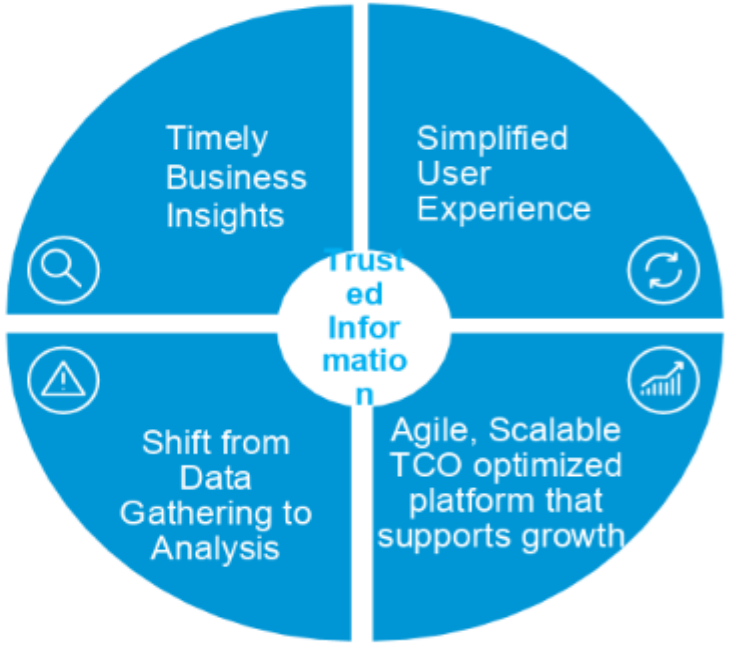
Mission & Guiding Principles

MISSION

To provide accurate, timely and consistent reporting that enables improved decision making via a simplified user experience that scales to grow with the organization with an optimized TCO.

GUIDING PRINCIPLES

- Perform operational reporting in or close to the transactional system
- Provide an agile platform that can adapt to changing business needs quickly
- Do not build business rules and use BI for transactional purposes
- Minimize data hops to reduce latency, quality and cost of information
- Enable Self Service Reporting capability
- Provide a seamless and consistent end-user experience across tools
- Architect and design with the end state in mind while minimizing the interim state pain
- Provide trusted data through a relentless focus on data quality and governance
- Secure data that complies with applicable privacy laws and regulations

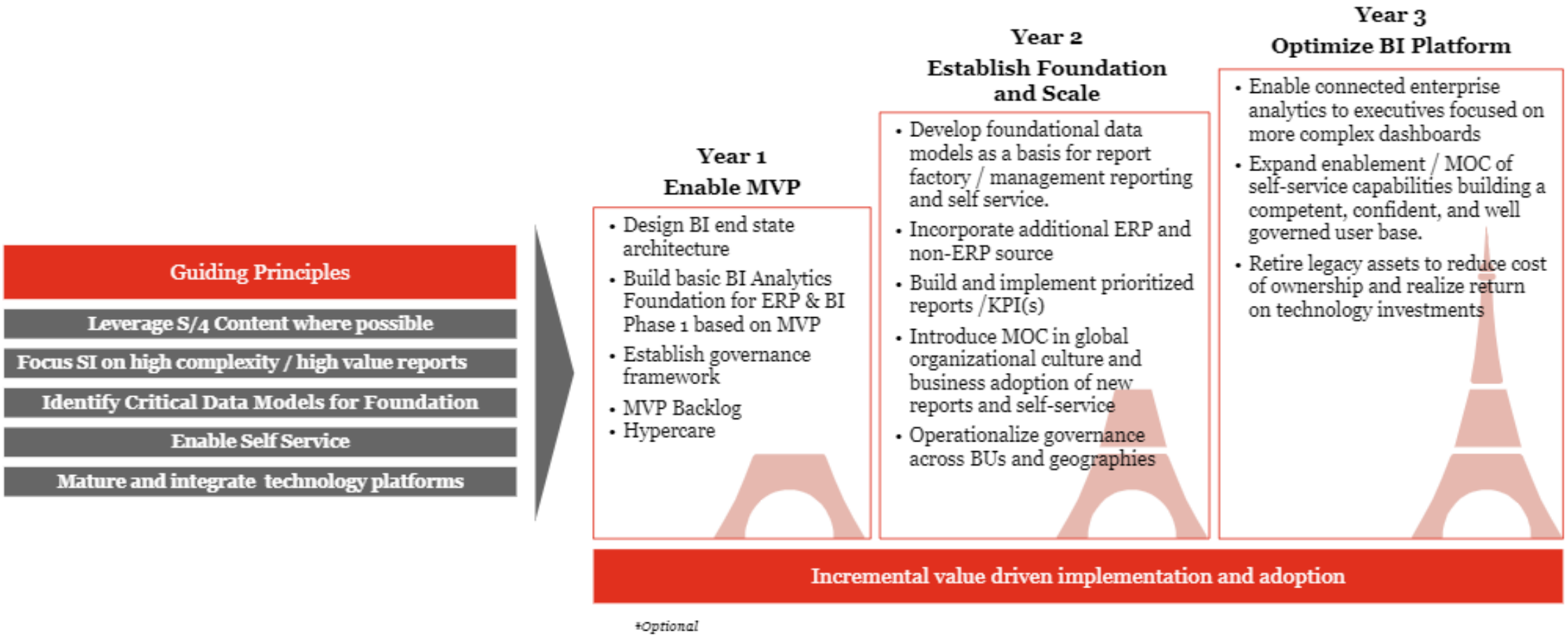


Critical Challenges

- How do you leverage foundational data models and limited resources to build the most critical business reports?
- How should BI capabilities be prioritized?
- What are the right tools?
- Where should a high performing Data Warehouse vs a more cost effective Data Lake be used
- How do you leverage agile product owners to build high quality user stories

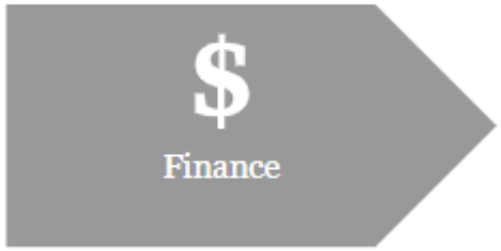
Business Capabilities

High Level Simplify BI Scope and deployment plan



Optimizing Business Value

We delivered business value through a functional focus on Enterprise BI combined with a unified UX and Change Management approach



- Simplify BI becomes the source for **cash flow, revenue, and cost of sales** to drive financial accountability
- Simplify BI enables advanced finance analytics **for management of customer and vendor payables aging**
- Simplify BI enables downstream **automation of base financials** through secure APIs to enable business agility

- Simplify BI becomes the robust source of logistics information **from source to customer** across product lines
- Simplify BI leverages modern technologies creating **real-time insights on operational performance**
- Simplify BI enables **operational sub-systems with insights and costing data** using real-time, secure APIs
- Simplify BI **extends to supporting non-SAP systems like PLM** to give a complete picture of the supply chain beyond S/4

- Simplify BI **increases full life cycle customer analytics** by adding service management and warranty information
- Simplify BI **manages operational excellence of services** by common metrics
- Simplify BI enables **planners to better understand repairs and inventory positions**
- Simplify BI provides **repair service information** back to customer-facing service centers

- Simplify BI **accelerates elements of sales planning** through insights into sales fulfillment
- Simplify BI feeds a customer and partner 360, with **robust customer/sales interactions**
- Simplify BI **connects the opportunity to delivery life cycle** for better management of sales processes

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Solution Architecture

Simplify BI reporting disposition strategy

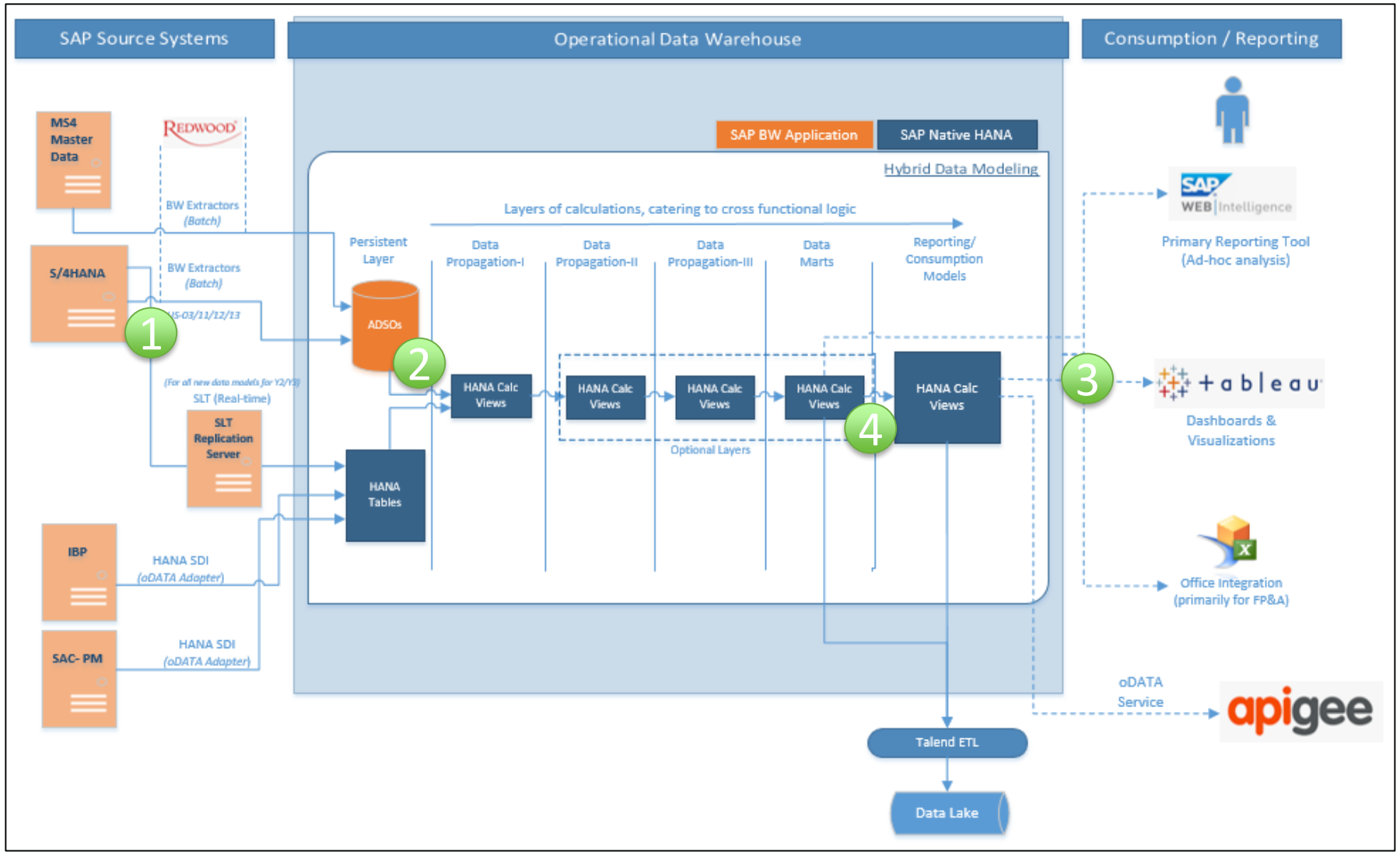
	Transactional/S4	Operational Data Warehouse (ODW)	Enterprise Data Lake (EDL)
What	**Real time** transactional data supporting **day-to-day operations.**	**Near real time enriched** data for reporting and analysis	Daily **integrated data** from multiple sources for analytics and exploratory purposes
Who	Operations	Operations, Executives, Analysts	Executives, Analysts, Data Scientists
When	Real-time	15 mins (select subject areas) to < 8 hours (case-by-case)	Daily / Weekly
Data Source	**Transaction system specific (e.g. ERP)**	**ERP + Supporting Data**	**All Enterprise Data**
How	Leverage out-of-box capabilities; very limited customization on S4 data only[1]	Enable dashboards, reports and guided self-serve capability via foundational data models	Enable investigative and analytical capability via advanced models, and data discovery zones
Example	*Open PO List, Shipped not Billed, GL Balances with Document Level Drill Down*	*Flash and Market Share Attainment (units & $) Owned Inventory Visibility; State Sales Tax*	*Predictive Analytics, Customer 360, Customer Profitability, Contra Revenue; Audit/Litigation*
Platform	**S/4 HANA** Fiori, AFO	**BW/4 HANA** Webi, Tableau, AFO	**Hadoop, Azure** Power BI, Tableau, R, Spark ML

Technical Architecture Components and Use Cases

	S/4 CDS View Framework	BW/4 HANA	Native HANA
Complexity – Use case	**Simple** – Live data access with limited customization	**Complex** – Modeling scenarios requiring SAP and non-SAP data combined with complex security, hierarchies, and high custom user prompts	**Moderate** – Modeling scenarios requiring SAP and non-SAP data with simple EDW features via calculation views
Business example	Trial balance	Spend analysis (custom ETL to combine PO and non-PO spend types + custom vendor hierarchies based on D&B rollup + complex security based on purchase org + position in org hier.)	A/R DSO report across all S/4 instances
Performance considerations	Good for simple real-time data pulls. Can be slow with complex transformations and can impact transactional system performance for large data pulls	Most options for performance tuning with trade-off of development complexity	Best blend of real-time data access and simplicity of modeling via calculation views; however, calculation view EDW features are limited, and for complex EDW scenarios like time-dependant hierarchies and complex security, BW is a better choice for performance
Hybrid approach	Combined BW/4HANA data models, native HANA calculation views, and CDS views to develop a holistic solution **Example**: 1.Stage data that doesn't change frequently in BW and enable real-time virtual access for only frequently changing current data. Unify the virtual HANA data, staged data, and master data from BW/4HANA in composite providers. 2.Use ODP extractors to source data from SAP, perform transformation in HANA to avoid data redundancy, and consume back in BW to leverage hierarchies, fiscal calendars, customization and more.		

Operational Data Warehouse Architecture

Overview of how BW4HANA was utilized



Lessons Learned

Business capabilities to Technology mapping

- Consolidate business requirements while eliminating duplicate requests
- Prioritize requirements while considering various factors such as business impact
- Mapping requirements to right tools & technology

Architectural vision

- Establish an optimized architecture that can cater to different types of reporting needs
- Identify the right tools and technology to be leveraged

UI Experience

- Enable the platform to ensure unified user experience

BI Governance

- Establish the right governance model including lineage, data dictionary to ensure development consistency

Change management

- Enable a strong yet robust management of change process

Additional Case Studies

Case Study 2 - Cloud vs BW4HANA

A $9Bn global beauty products company which was on SAP BW moved to AWS based Red Shift and Microstrategy solution. Within a couple months of being on this new solution, this company decided to move back to SAP BW4HANA.

The Challenge

- Platform Scalability issues
- Lengthy data load time
- Poor response and limited insights
- Technology Risk

Approach

After assessing all the available options, the customer decides to move to SAP BW/4HANA as that was a solution that they were familiar with, and a more reliable and stable solution.

Client Benefits

- A familiar stable platform
- Better integration with SAP source systems
- SAC to be the front-end tool for this client

Lessons Learnt

- Concurrency issues when using data sets in Red Shift
- BW/4 HANA provides the fundamental for Data-as-a-Service combined with Dynamic Tiering and NLS using SAP IQ, for which there is seamless integration
- The client is considering expanding the Data as a Service to a HADOOP based Data lake

Case Study 3 - S/4 Embedded vs BW4HANA

A global beverage manufacturer moved to BW4HANA to support interim and hybrid data warehouse use cases during its transformation journey.

The Challenge

- Lack of trust in old BW system, partially due to lack of investment and turnover
- 3 year deployment of S/4 required interim reporting from old ECC and new S/4 systems for business continuity
- Native HANA lacked advanced features of BW (Query Tool, Hierarchy management, time dependent hierarchies, security, etc)
- Separate corporate and business data lakes required S/4 data as well
- Wanted one consistent look and feel for users

Approach

After assessing all the available options, client decided to use embedded analytics / CDS views to expose S/4 data, while using BW4HANA w/SLT for replication and interim reporting. SAC was used as front-end

Client Benefits

- BW4HANA provided capabilities to replicate more complex parts of existing BW system
- Improved options for security and for materializing more complex data for performance gains
- SAC to be the front-end tool for this client which works with both embedded analytics CDS views, BW4HANA Queries and Native HANA Calculation Views

Lessons Learnt

- Large clients are very wary of performance issues in S/4 from complex Analytic Loads despite HANA as a database
- BW4HANA has a large perception issue but does provide value as part of the ERP analytics ecosystem, especially for handling complex queries, security, and data materialization and tiering.

Join us at our next session to hear directly from our detailed case study client!

HP's journey to a real-time enterprise data warehouse leveraging SAP BW/4HANA

PwC SAPPHIRE Industry Booth May 9th 11:00-11:20

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Presentation Materials

Access the slides from 2019 ASUG Annual Conference here:

http://info.asug.com/2019-ac-slides

Q&A

For questions after this session, contact us at
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