



Build a Data Fabric with SAP Datasphere



Langan Engineering



[valēre, present active infinitive of valeō] - be strong, healthy, matter.

Avvale is a Global Digital Business Transformation Company on a mission to **help innovative business evolve through the circular economy, enabled by technology.**

Industry Focused approach

Supporting both Fortune 500 and Midmarket in 15 sectors on the field.



3,000+

People

An inclusive mix of cultures, competences, attitudes and experiences to create **One Unique Company.**

\$350 MM

Revenue for 2023

Double digit growth year over year, since **2004 - Techedge foundation.**



distribution in
20+ offices



20 Years
and still counting...



Langan Engineering



50+
Years in Business



40
Locations

Projects in
100+
Countries



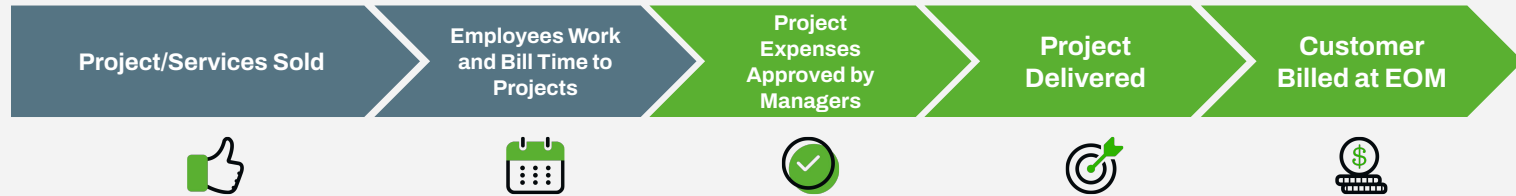
100+
Awards



Credit: BXP (formerly Boston Properties)



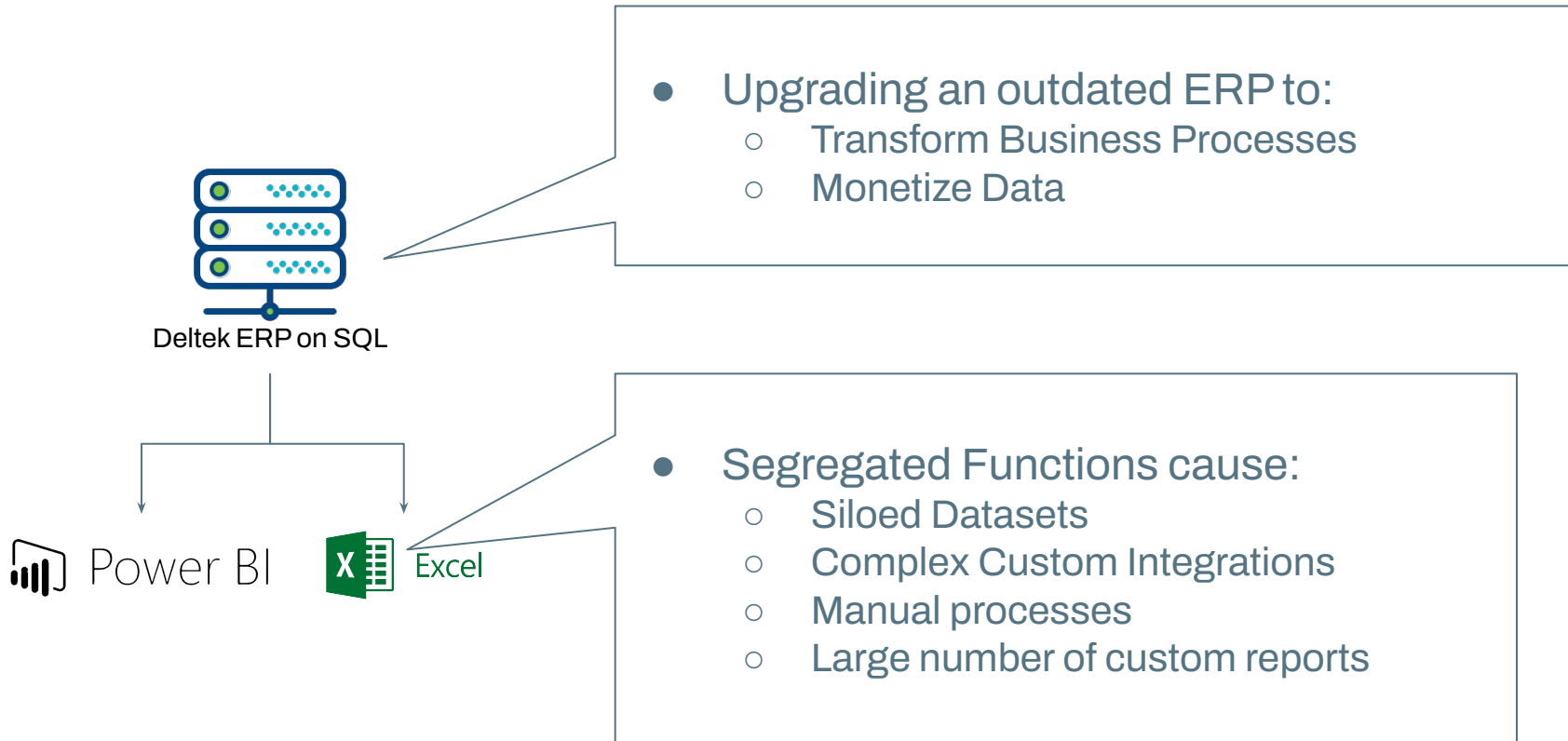
Workflow/Business



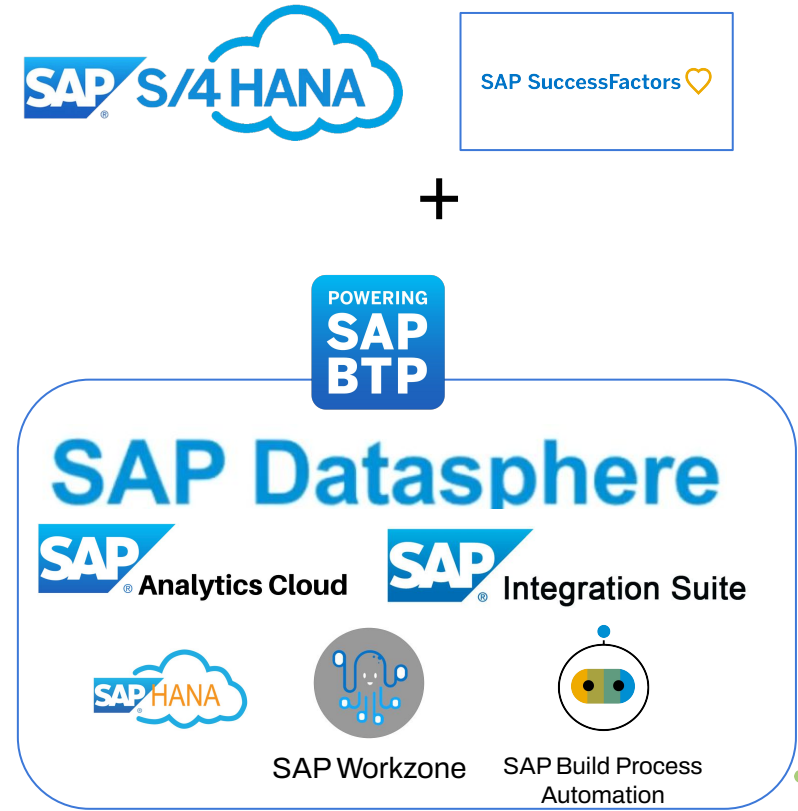
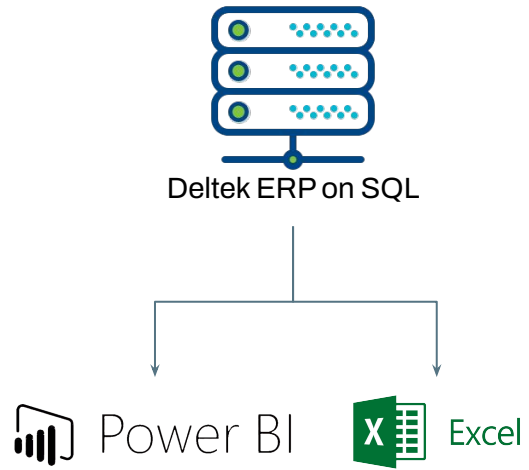
- Mid-Market/Large Professional Services Firms
- Project Based Delivery
- Global Large scale Engagements
 - Complex HR Conditions
 - Major Unknown Risks
 - Strict Timelines



Challenges



Architecture



Seeking a **Data Strategy** vs Data Management

SAP S/4 HANA
SAP SuccessFactors

POWERING **SAP BTP**

Microsoft Dynamics™

EquiS™

OneStream™

Deltek Vision
Historical Data

salesforce HubSpot

Data Sources

“You can't solve a problem with the management of technology with more technology.”



1. Poor Insights
2. Inefficient
3. Zero Data Governance

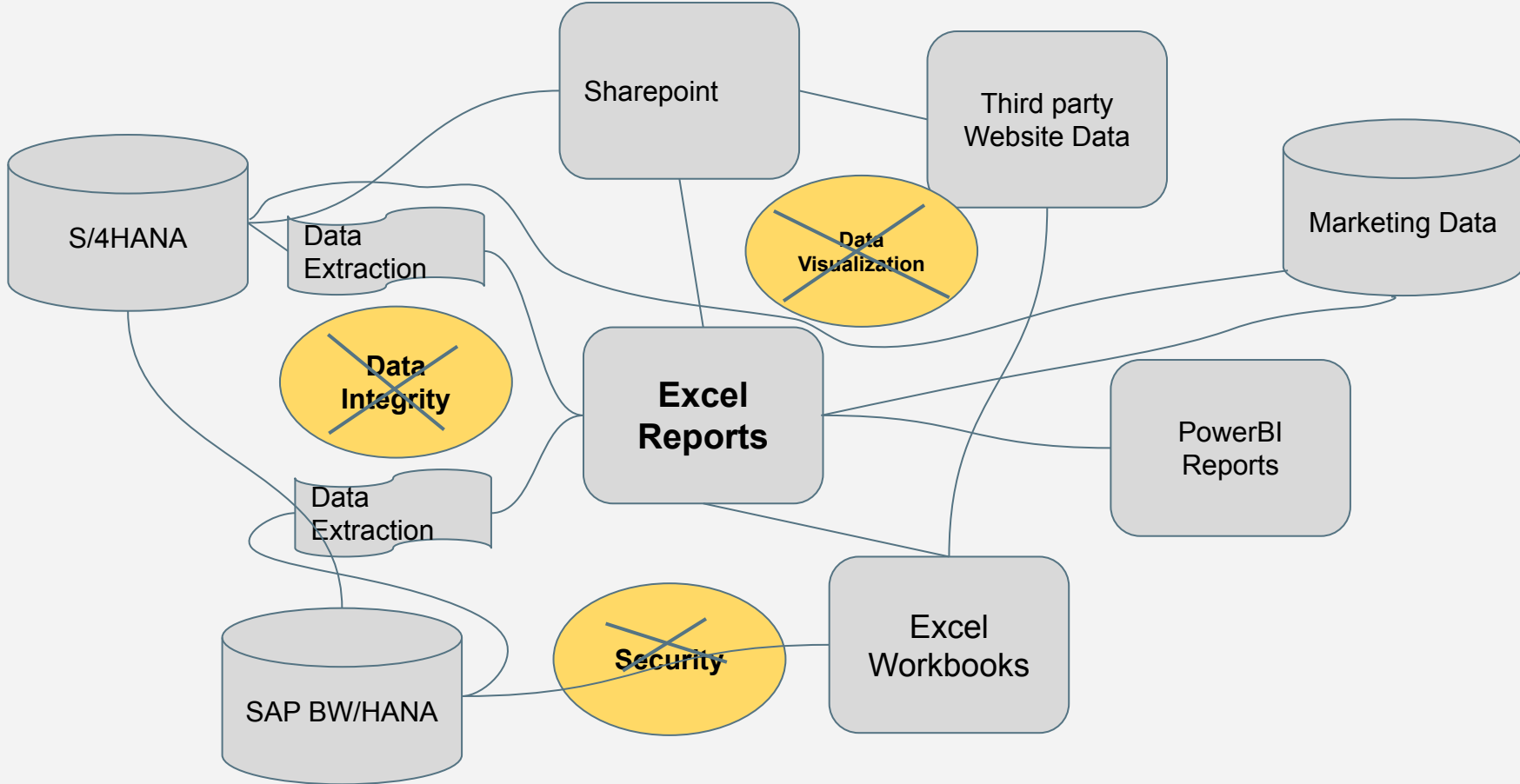
Excel

Power BI

**Reporting/
Visualization**

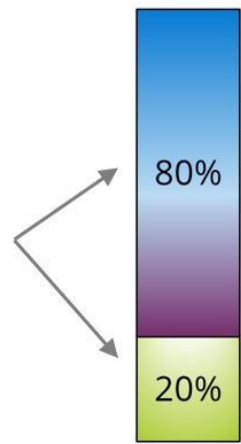


Oldest Data Problem: Silos



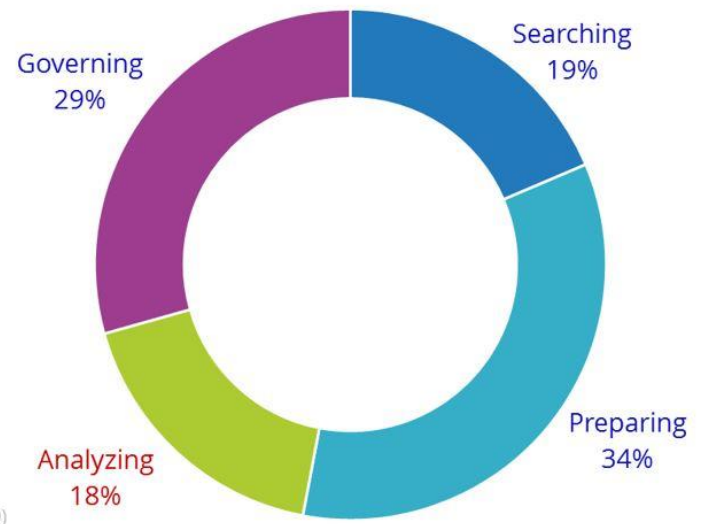
Costs of a Low-Quality Data Landscape

The 80-20 rule still applies to data related activities.
Less than 20% of time is spent analyzing data.



IDC# US43629218 (March 2018)
Source: Data Integration and Integrity End User Survey 2017, IDC, November 2017. (N=300)

% Weekly time Spent on Data Activities



Prying Deeper: The Age of Data

- The growth of custom applications as a competitive advantage
 - Growing need of interoperability between applications
 - Growing need of advanced insights within applications themselves
 - Growing need to operate on a unified set of insights in collaborative applications
 - Agility to build and deploy data rich applications





BUSINESS INTELLIGENCE



SELF-SERVICE ANALYTICS



DATA SCIENCE

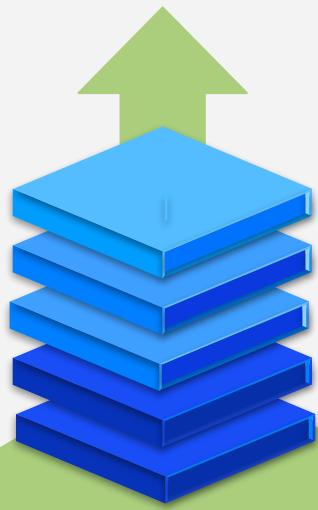


360 VIEW



360 TRANSACTIONAL APPLICATIONS

- 1. Single Source of Real-Time Truth
- 2. Accessibility
- 3. Strong Governance
- 4. Reduced TCO



- Data discovery & Self-service data access |
- Orchestration |
- Processing and persistency |
- Data governance |
- Data ingestion |



PACKAGED APPS



EXCEL & FLAT FILES



DATA LAKES



XML DOCS



WEB APIs



CLOUD DATA



MASTER & REFERENCE DATA



RDBMS



DATA WAREHOUSES



BIG DATA



CRM



ERP



Project Overview



The Challenge

This customer was transitioning away from an aging ERP system to a new - more complex environment with many data sources

1. Project Managers had no operational overview of the financial performance of their projects.
2. Senior Leaders and Partners had trouble recognizing and reacting to upcoming problems
3. Senior executives were either lacking KPI's or receiving wildly out of date KPI's with low accuracy

The Approach

Avvale acted as a strategic advisor and implementation partner for the entire digital transformation. On the Analytics Side - we pursued Phased approach which lead to us deciding on **SAP DataSphere** and **SAP Analytics Cloud** as the core tools of the Data Landscape.

Reasons for SAP DataSphere:

1. **Integrate:** Deep Integration with S/4HANA Cloud and BTP Assets
2. **Accessibility:** Empower a variety of users
3. **TCO:** Lower development, integration and maintenance costs
4. **Scalability:** Leveraging the scalability of the cloud

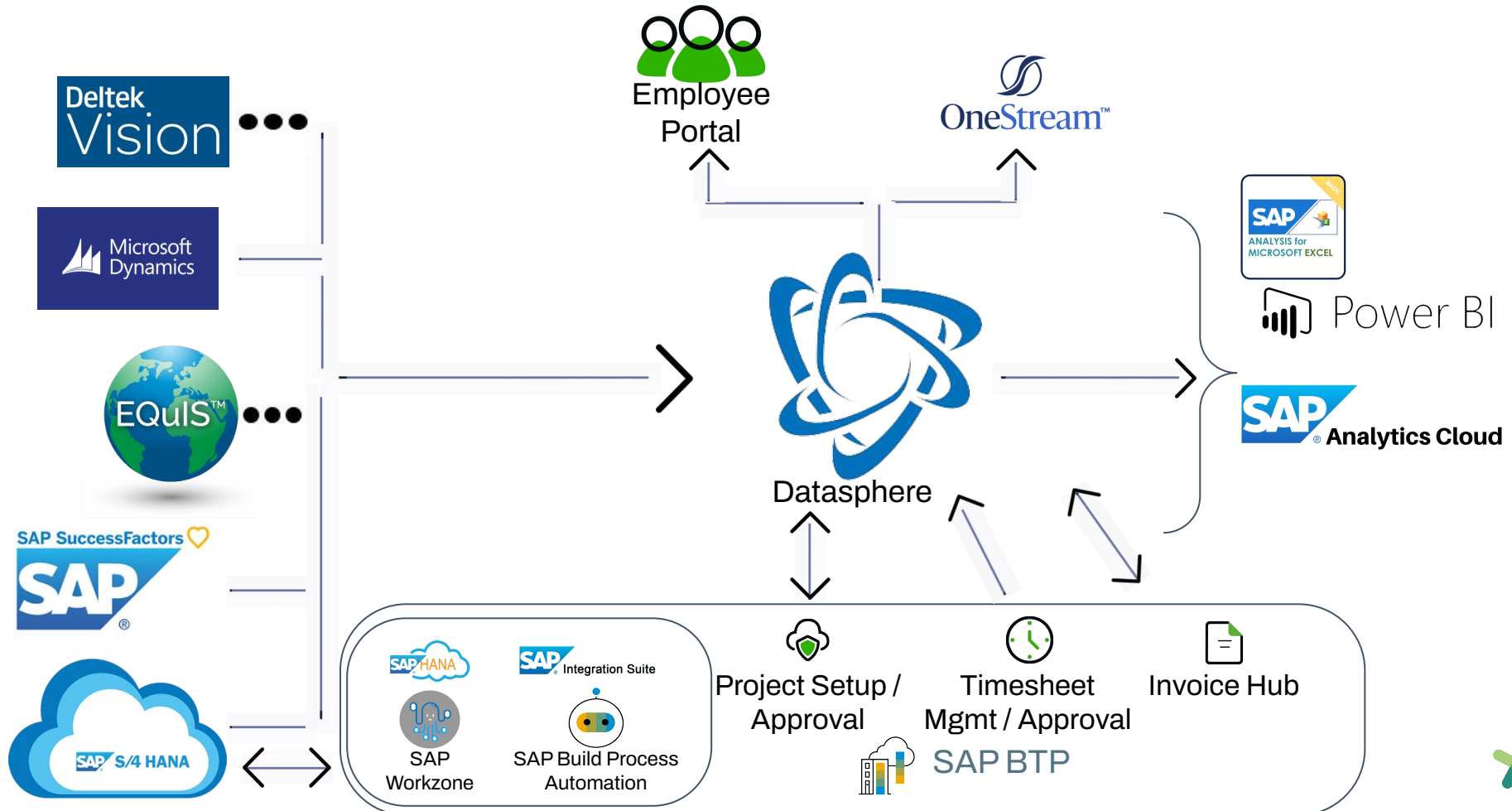
The Impact

DataSphere has become the de-facto data backbone (data fabric) for all reporting, analytics and data rich applications/use cases.

1. **Operate:** Key Operational Reports change the way projects run and operate.
2. **Strategize:** Executives can see deep insights powered by real-time data - while a powerful data fabric allows their team to answer complex ad-hoc questions.
3. **Data Driven Action:** Using data to enrich applications allows Langan to bring advanced insights to action - creating a data driven organization.



Customer Data Fabric



PM Dashboard

The PM Dashboard is a Project Manager's one-stop shop for all operational project data - powered by real-time data.

Burn Report

Contract Amount	Invoiced Amount	Unbilled Amount	Billing In Progress	Contract Amt Remaining	ODC Cost	NRM
2,796,300.00	72,185.50	1,444.20	6,115.00	2,717,999.50	0.00	5.14

Project Manager: Selected Project Manager(s): (All)
 Engagement/ProjectName (2): Selected Project(s): Public Square Apartments, Cleveland Clinic -ZRET 030

Details per Project								
Workitem	Measures	Contract Amount	Invoiced Amount	Billing In Progress	Unbilled Amount	Contract Amt Remaining	ODC Cost	NRM
~(all)		2,796,300.00	72,185.50	6,115.00	1,444.20	2,717,999.50	0.00	5.14
> Public Square Apartments		363,700.00	34,403.00	0.00	1,444.20	329,297.00	0.00	5.14
> Cleveland Clinic -ZRET 030		434,900.00	30,692.50	0.00	0.00	404,207.50	0.00	5.14
> Public Square Apartments		265,300.00	7,090.00	6,115.00	0.00	258,210.00	0.00	5.14
> Public Square Apartments		1,084,100.00	-	-	-	1,084,100.00	0.00	5.14
> Surveying		32,800.00	-	-	-	32,800.00	0.00	5.14
> Boundary Survey		16,400.00	-	-	-	16,400.00	0.00	5.14

AR Aging

3,738,518.60
Total Amount Due

Current Period Aged	134,688.96	118,334.10
121 to 180 Days Aged	151,490.90	123,449.20
91 - 120 Days Aged	89,856.50	215,017.70
61 - 90 Days Aged	118,781.00	2,786,920.24
31 - 60 Days Aged	-	-
0 to 30 Days Aged	-	-

Project	Total Amount Due	Current Period Aged
Mortclair G.C. - Pool & Tennis Facility	17,360.29	134,688.96
IRM Design and Implementation/Lucere	53,005.55	151,490.90
FFSHEMBAK	56,373.24	89,856.50
DiYoc RUSA Activities	1,965.09	123,781.00
	13,090.05	118,334.10
	8,085.00	123,449.20
	5,220.00	118,917.70
	4,640.00	-
	6,670.00	2,786,920.24

Timesheet Report

	New Hours	Rejected Hours	Submitted Hours	Non-Approved Hours	Approved Hours	Total Hours	Planned Effort	Remaining Budget	Approx Unapproved Amount
	983	113	731	858	1,319	2,177	2,187	10	116,175

Project Number and Name	Recorded Hours per Project										
	Chargeable Hours	Non-Chargeable Hours	New Hours	Rejected Hours	Submitted Hours	Non-Approved Hours	Approved Hours	Total Hours	Planned Effort	Remaining Budget	Approx Unapproved Amount
Project 1	1.00	0.00	1.00	-	-	-	-	1.00	1.00	0.00	0.00
Project 2	16.00	0.00	16.00	-	-	-	-	16.00	16.00	0.00	16.00
Project 3	7.00	0.00	7.00	-	-	-	-	7.00	7.00	0.00	0.00
Project 4	4.00	0.00	-	-	-	4.00	4.00	4.00	14.00	10.00	0.00
Project 5	2.00	0.00	-	-	-	-	-	2.00	10.00	10.00	0.00
Project 6	4.00	0.00	3.00	-	3.00	3.00	-	3.00	13.00	10.00	4.00
Project 7	40.00	0.00	20.00	-	20.00	40.00	-	40.00	50.00	10.00	120.00
Project 8	30.00	0.00	20.00	-	-	-	-	30.00	18.00	28.00	0.00
Project 9	8.00	0.00	-	-	-	-	-	8.00	8.00	14.00	10.00
Project 10	7.00	0.00	-	-	2.00	2.00	2.00	5.00	7.00	17.00	700.00

Person/Office	Recorded Hours per Person Full Name					Recorded Hours per Person Full Name							
	New Hours	Rejected Hours	Submitted Hours	Non-Approved Hours	Approved Hours	Total Hours	Measures	New Hours	Rejected Hours	Submitted Hours	Non-Approved Hours	Approved Hours	Total Hours
Person 1	86.00	46.79	132.79	158.00	60.00	227.00		2.00	-	2.00	-	2.00	2.00
Person 2	9.00	-	9.00	9.00	44.00	61.00		2.00	-	2.00	-	2.00	2.00
Person 3	13.00	0.00	13.00	13.00	137.00	163.00		2.00	-	2.00	-	2.00	2.00
Person 4	36.00	-	-	-	36.00	36.00		-	-	-	-	2.00	2.00
Person 5	61.00	0.00	61.00	61.00	463.26	525.26		6.00	-	6.00	-	6.00	6.00
Person 6	20.00	-	-	-	18.00	38.00		1.00	-	1.00	-	1.00	1.00



Business Impact (ROI) - Reporting/Analytics

- Widely Applicable Data Foundation
 - a. Improve visibility and reporting across the organization
 - b. Advanced Self-Service Reporting Capabilities



~300 Hours/Week
saved in manual effort
related to reporting





Lessons learned & Best Practices

Leveraging SAP DataSphere

SAP DataSphere is a unique product that is a re-imagining of the traditional data warehouse paradigm.

1. **Data Fabric:** Plan for a “Data Fabric”
 - a. **Unique Features:** Leverage Unique Features in SAP DataSphere
 - b. **Data Enriched Applications:** Enrich Applications

*Pursue a revolutionary leap -
rather than an evolutionary one”*



Unique Features: Open Connectivity



SAP Applications

SAP S/4HANA SAP S/4HANA Cloud

SAP ECC SAP ABAP

SAP BW/4HANA Model Transfer

SAP BW SAP HANA Data Lake

SAP HANA, Data Lake Files

SAP SuccessFactors SAP Fieldglass

SAP Marketing Cloud



Databases & Generic Connections

SAP HANA on-prem & Cloud

Oracle Microsoft SQL Server

Generic JDBC Generic OData

Generic SFTP Local CSV File

Generic Cloud Data Integration



Hyperscaler & Cloud Apps

Google Cloud Storage Google BigQuery

Azure SQL Database Azure Blob Storage

Azure Data Lake Store Gen1

Azure Data Lake Store Gen2

Amazon S3 Amazon Athena

Amazon Redshift HDFS

SAP Open Connectors



External Tool Support

SAP Data Intelligence* SAP Data Services*

SAP HANA Smart Data Integration*

SAP Landscape Transformation*

Adverity APOS* Datazeit*

Informatica* Precog Snaplogic*

Real-Time Remote table replication

Flexible ETL capabilities

Remote table federation

Batch loads & transformations

Unique Features: Spaces

1. Build off a governed “core” foundation to service all use cases
 - a. Data Acquisition
 - b. Harmonization
 - c. Model/Insight Generation
 - d. Cleansing/Quality Management
 - e. Tagging
 - f. Data Access Controls
2. Allows “Domains” to innovate on the “Core” at their own pace
- allowing for “Data Mesh” Practices



SAP Datasphere

SAP

Enterprise Analytics for Procurement SAP Ariba	Special Analytics SAP Ariba	Responsive Supply Network, Sales and Inventory SAP Ariba	Revenue Growth Management Customer Products	Finance for SAP S/4HANA Cloud	Financial Analytics Dashboard for SAP Analytics Cloud SAP S/4HANA	PCS Analytics Retail
Life Science Dashboard SAP Cloud	Statistical Process Control SAP	Customer Value Management Manufacturing	Meter to Cash Utilities	Outcome-based Insights SAP	Simple Content Finance, HR, Sales	Sales Analytics for SAP S/4HANA Cloud New
Intelligent Real Estate SAP New	Sustainability Control Tower SAP New	Content Generation SAP New				

Partner

Marketing Analytics Adverity	Customer Service Insights Bitech	E-Commerce - Cross-Marketplace Insights datazeit.	Procurement Cockpit CubeServ.	Sales Dashboard iBolution	Optimizing Order Fulfillment with ML Innovative Software	Analytics for Effective Inventory Optimization ISR
SuccessFactors / Attendance Tracker MDC	Product Cost Simulator mibaNDC	Sales Insights (SAP BW & S/4HANA) pirc	MDGAC - Mergin-Optimized Sales Intelligence REPLY	OPERA - Opportunity Performance Analysis REPLY	Lynx Integrated Capacity Planning (EAM & HCM) RIZING	Financial Reporting for SAP Business One peers
ESM Insights Westernacher	RapidView IT CD Rapid Views WESTERNACHER	RapidView 3D Rapid Views WESTERNACHER	RapidView IMA Rapid Views WESTERNACHER	RapidView PPM Rapid Views WESTERNACHER	RapidView CM Rapid Views WESTERNACHER	

SAP BW Bridge

Sales Overview Sales & Distribution	Conditions Sales & Distribution	Delivery Service Sales & Distribution	Service Orders Service	Service Confirmations Service	Plant Maintenance Asset Management	Customer Service Asset Management	Master Data Governance Master Data
Accounts Receivable Finance	Accounts Payable Finance	Fixed Asset Accounting Finance	Contract Accounts Finance	General Ledger incl. Financial Statement Finance	Funds Management Finance	Real Estate Finance	Quality Management QM
Enterprise Controlling Controlling	Cost Center Accounting Controlling	Overhead Cost Orders Controlling	Overhead Projects incl. Networks Controlling	Product Cost Controlling Controlling	Workforce Management HR HCM	Performance Management HR HCM	Procurement Supply Chain Management
Production Planning and Controlling Supply Chain Management	Invoice Verification Supply Chain Management	Inventory Supply Chain Management	Extended Warehouse Management Supply Chain Management	Energy Data Management Utilities	Sales Statistics Utilities	Master Data Utilities	

Unique Features: Pre-Built Content

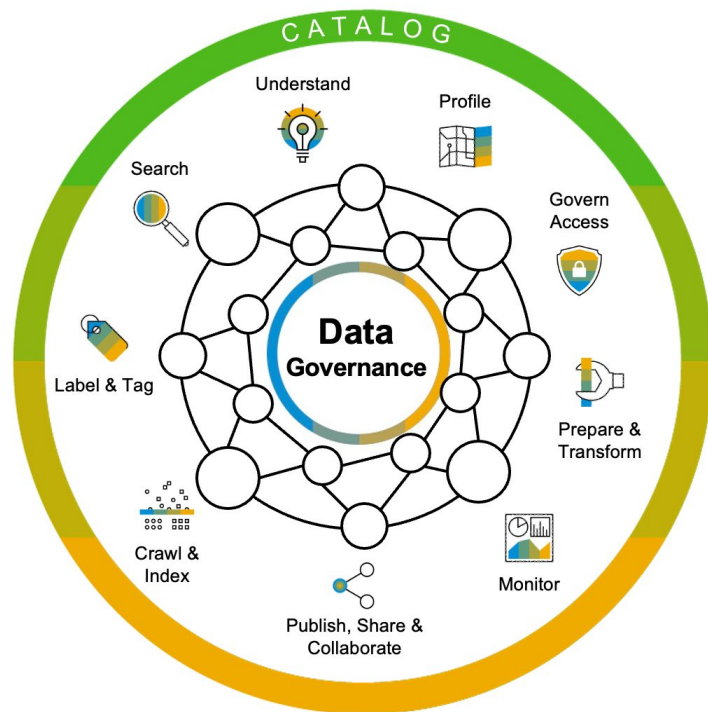
1. Utilize Pre-Built Content as a starting point for development
 - a. Prebuilt Content includes lots of foundational views
 - b. Connecting and the importing of remote tables (connecting to CDS views)
 - c. Pre-built content can also help get SAC Stories ready
 - i. Conduct GAP Analysis - Recommended especially for Greenfield Implementations
 - d. SAP Partner Content can also be a powerful accelerator for development



Unique Features: Cataloging the Data Fabric

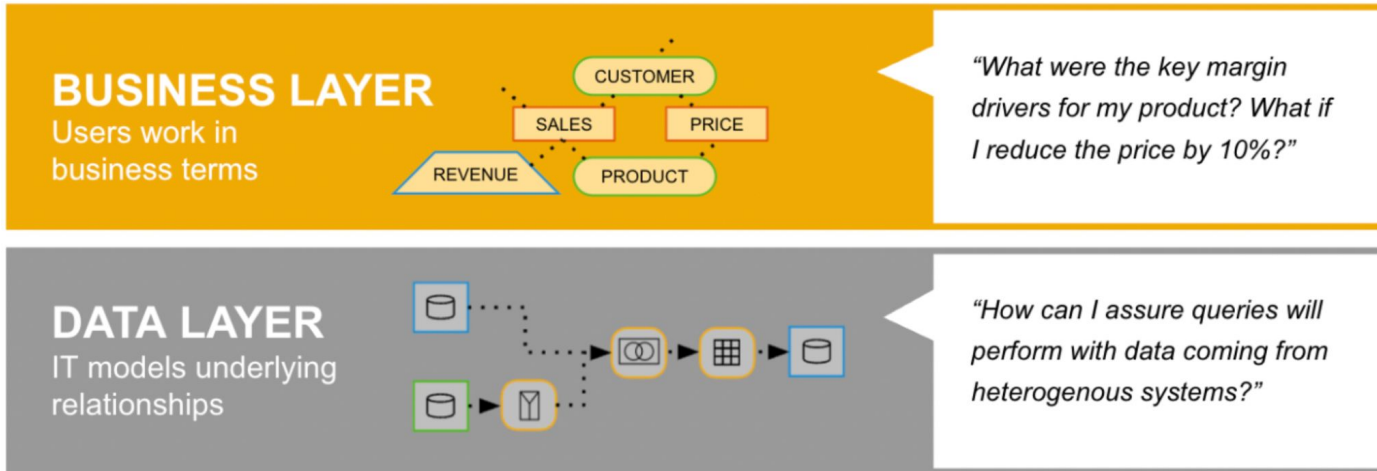
Data Needs 3 Factors to deliver value:

1. Discoverability
2. Trust
3. Accessibility



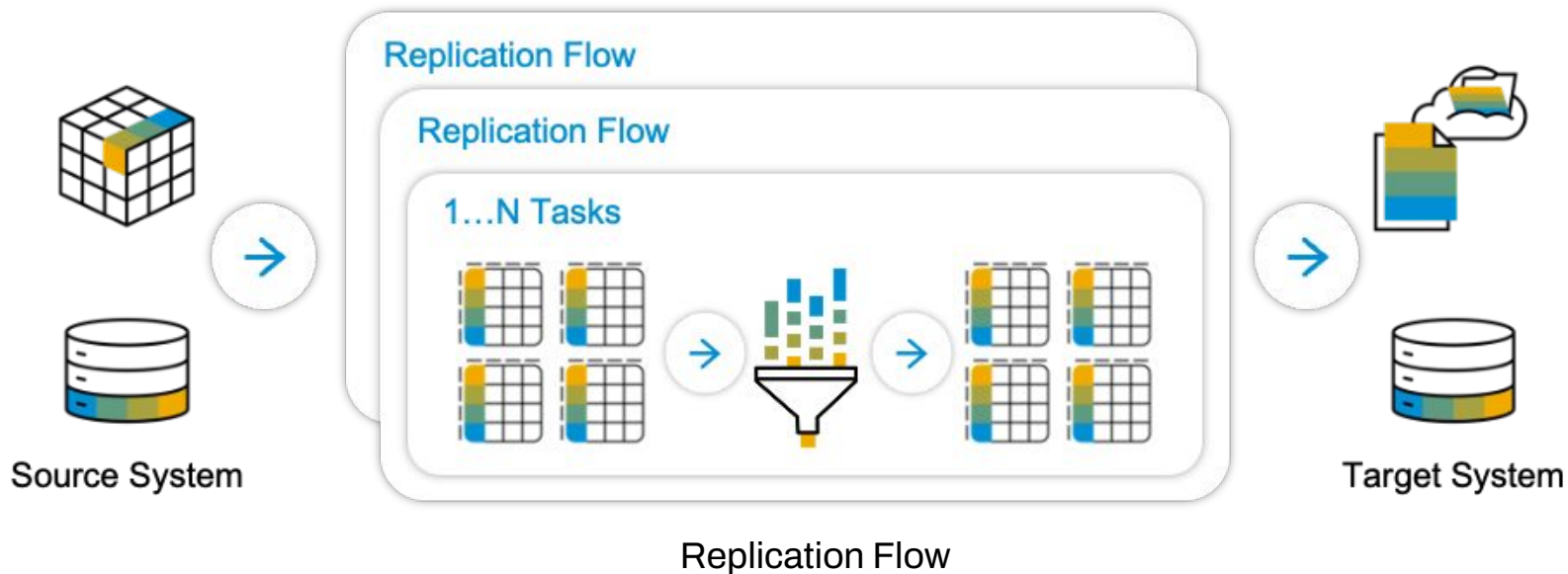
Unique Features: Business Layer

- Generating Data Products - Not Datasets
- Build for the Business



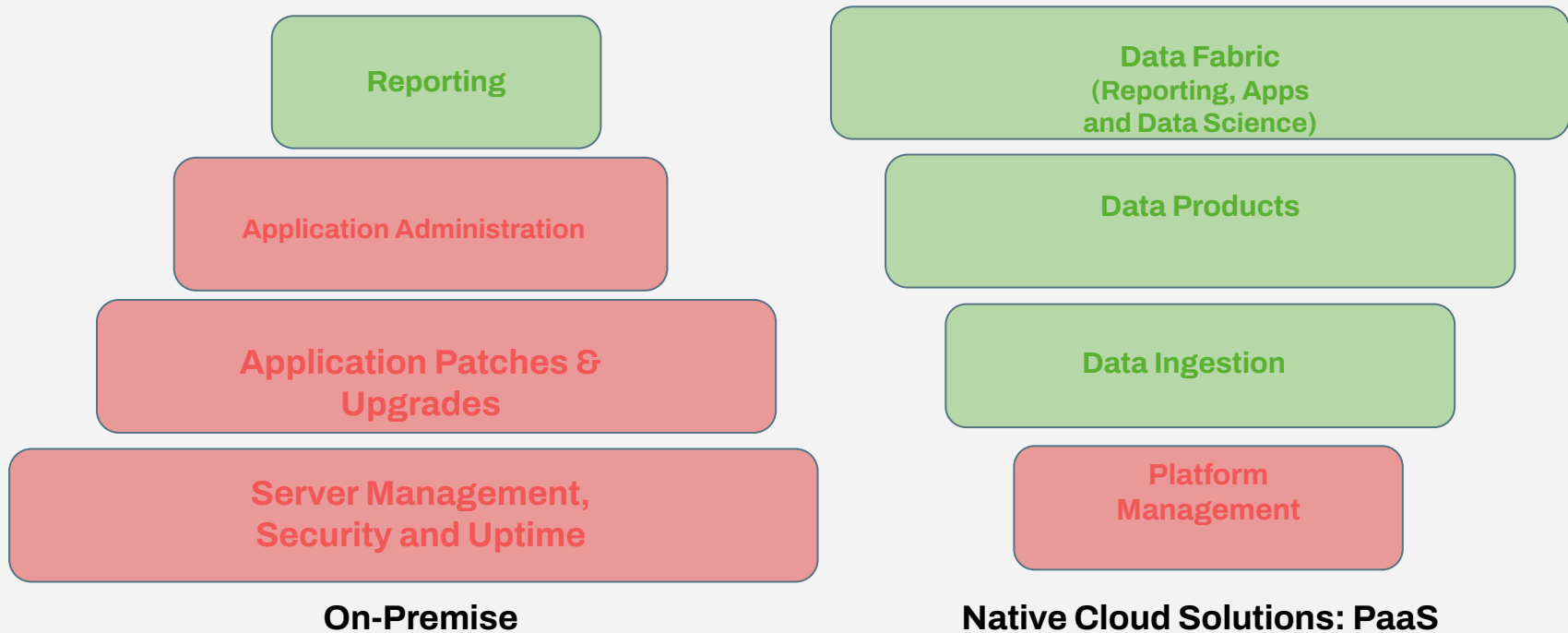
Unique Features: ETL - Replication Flows

1. Leverage Replication Flows for all ETL tasks
2. Wide array of sources available
3. Write to Cloud Store Objects*



Unique Features: A Leap from On-Premise to “D”PaaS

Radically reduce the burden of doing what's 'necessary - but not sufficient'



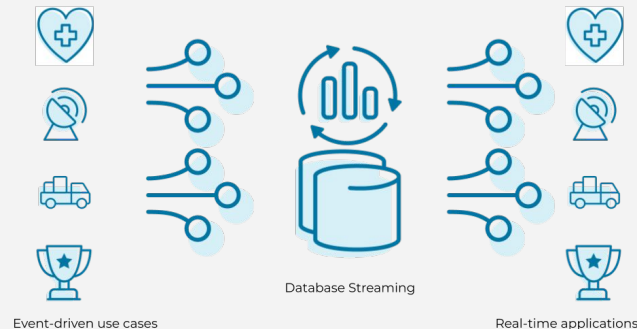


Data Enriched Applications

Data Powered Applications

Datasphere should be treated as the de-facto foundation source of all value added data.

1. Datasphere has the capability to share any view of data as ODATA and in real-time
2. Datasphere has deep integration with S/4HANA Cloud and BTP. Datasphere can:
 - a. query in real-time any data generated by BTP Applications
 - b. be queried in real-time by any BTP Application
 - c. query any data in S/4HANA in real-time
3. These new capabilities allow for powerful scenarios where applications can leverage the rich insights and data generated by SAP Datasphere



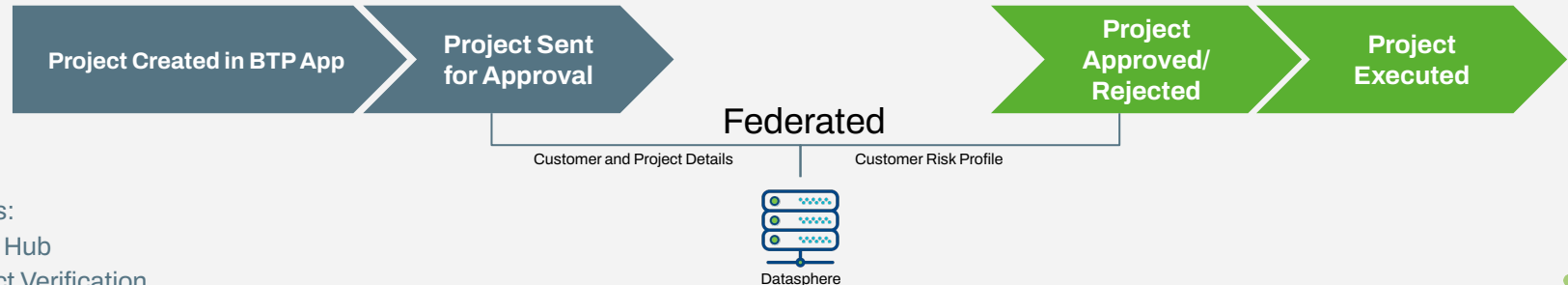
SAP Datasphere: Data Rich Applications

Example: The Project Creation Workflow was enhanced significantly by assessing the risk of a particular Project, Customer and Budget. Made possible due to a Real-Time Data Fabric Architecture powered by SAP Datasphere

Workflow Before



Workflow After



Other Examples:

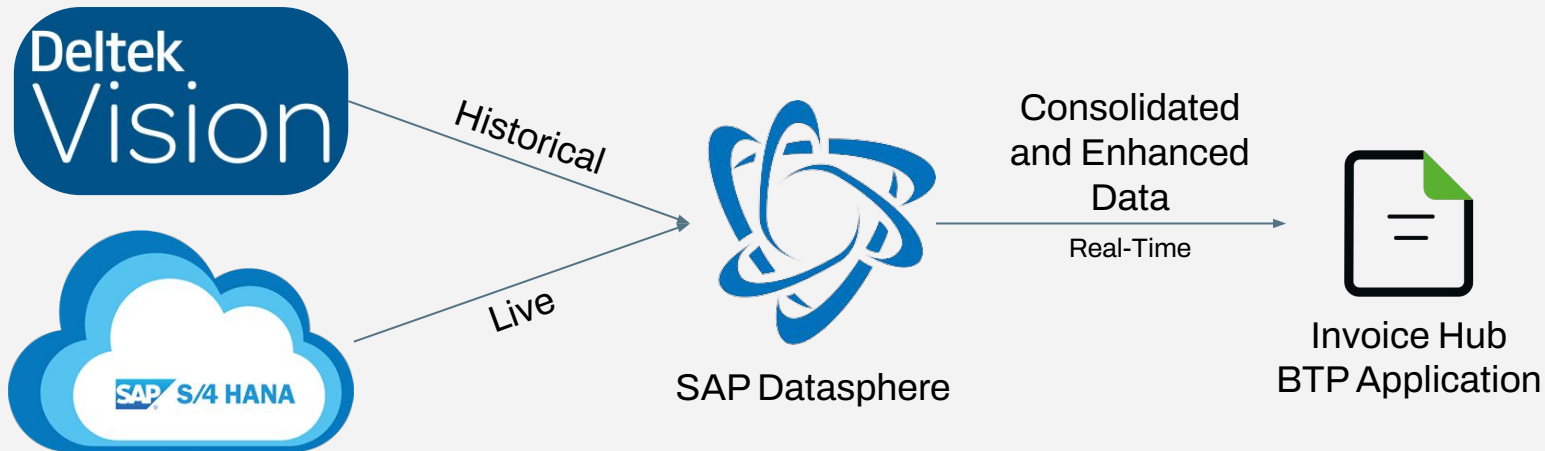
1. Invoice Hub
2. Contract Verification



SAP Datasphere: Data Rich Applications

Example: A custom invoice generation application is powered by SAP Datasphere to generate a complete invoice which includes aggregated finances from the old ERP as well as the new S/4HANA Cloud ERP.

Impact: ~4 second query time vs. consistent failures due to consolidating S/4 and historical data at the client layer (ex. user laptop).



Datasphere Momentum: 11+ Customers and Growing

Number	Industry	Strategy	Type
1	Rare Earth/Mining	Datasphere + SAC	Greenfield
2	Lumber/Hardwood Manufacturing	Datasphere + SAC	Greenfield
3	CPG Food and Beverages	Datasphere + SAC	Greenfield
4	Professional Services	Datasphere + SAC	Greenfield
5	Professional Services	Datasphere + SAC	Greenfield
6	Construction	BW/4HANA + HANA DB -> Datasphere	Brownfield
7	Pharmaceutical	Datasphere + Snowflake + PowerBI	Greenfield
8	Manufacturing	BW 7.5 + SQL -> Datasphere	Brownfield
9	Manufacturing (Food)	BW/4HANA-> Datasphere	Brownfield
10	Manufacturing (CPG)	BW on HANA -> Datasphere + SAC	Brownfield
11	Retail Customer	BW 7.5 -> Datasphere + PowerBI	Brownfield



How to Start?



1. Free Trial
2. Pre-Built/Partner Built Content Enablement
3. POC: MVP
4. Grow Footprint over Time





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Thank you!

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