Polaris Datasphere – Proof of Value

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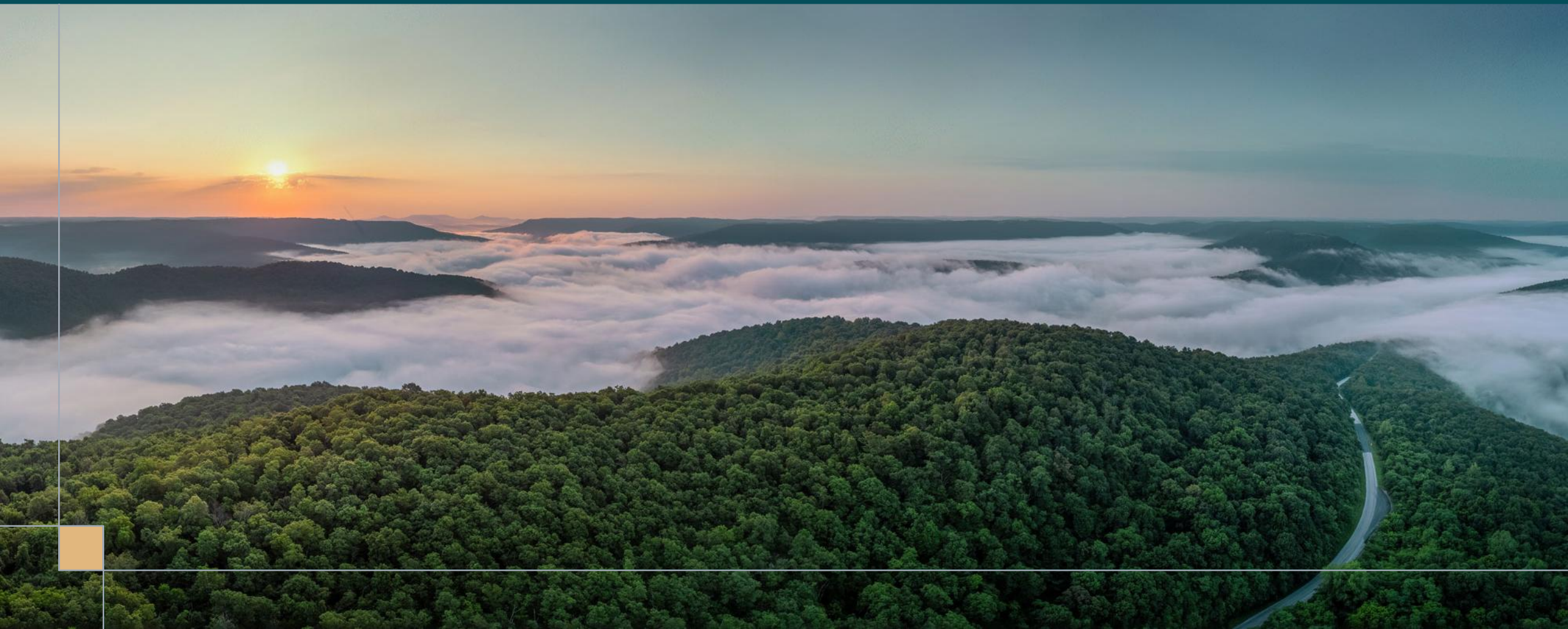
20/05/2025



Agenda

1. Introduction Atlas Copco
2. Polaris Platform
   - Organization & Architecture
3. Datasphere
   - Prove of value on usage, lineage/catalog & connectivity
   - Prove of value on dataflow modeling
4. Next steps

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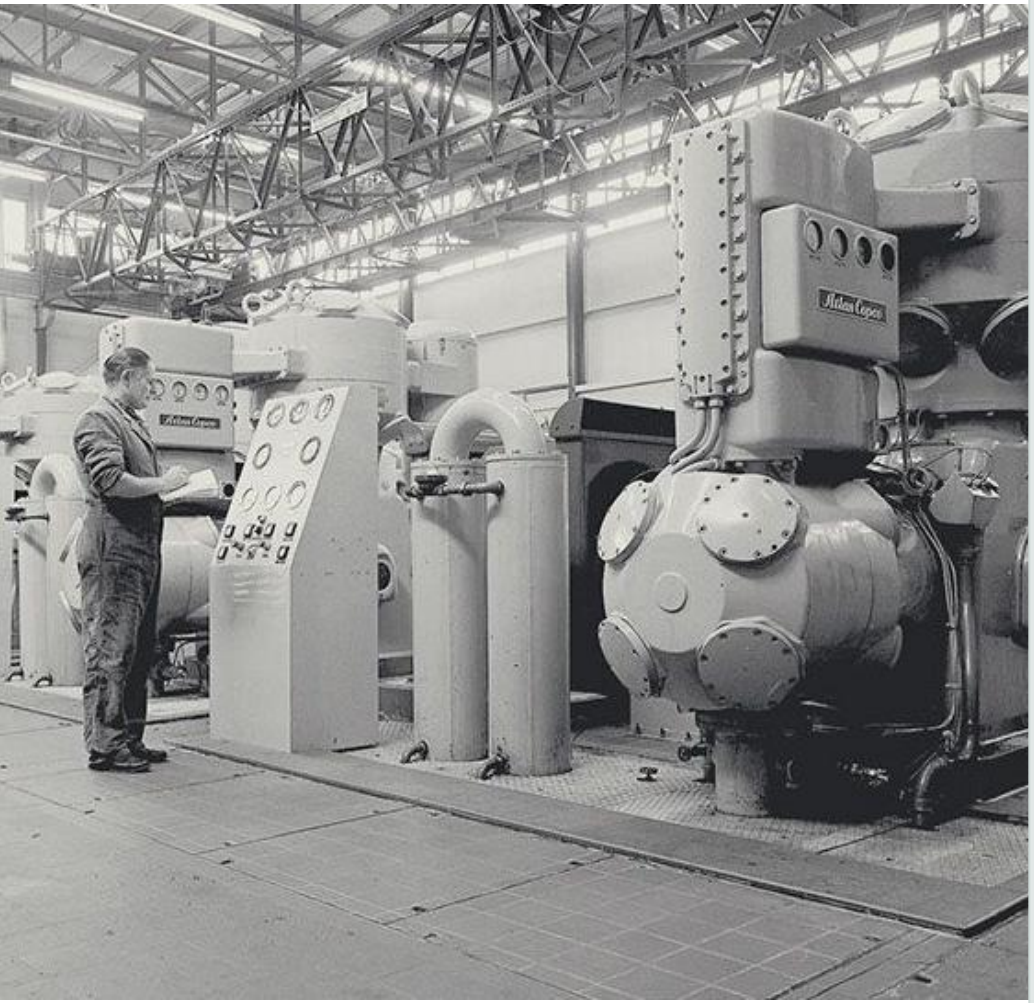
Introduction

This is Atlas Copco Group



Atlas Copco **manufactures and services** industrial tools and equipment, including air compressors, vacuum solutions, and power tools

Customers in more than **180** countries

55 000 employees in **73** countries

Established in **1873** Stockholm, Sweden

Turnover of **177** BSEK/**15** BEUR*

Operating margin of **21.5%**

*Based on the average exchange rate in 2023.

Atlas Copco Group

A decentralized Group

Board of Directors

President and CEO

Group management

Compressor Technique

- Compressor Technique Service
- Industrial Air
- Oil-free Air
- Professional Air
- Gas and Process
- Medical Gas Solutions
- Airtec

Vacuum Technique

- Vacuum Technique Service
- Semiconductor Service
- Semiconductor
- Semiconductor Chamber Solutions
- Scientific Vacuum
- Industrial Vacuum

Industrial Technique

- Industrial Technique Service
- MVI Tools and Assembly Systems
- General Industry Tools and Assembly Systems
- Chicago Pneumatic Tools
- Industrial Assembly Solutions
- Machine Vision Solutions

Power Technique

- Power Technique Service
- Specialty Rental
- Portable Air
- Power and Flow

Group Functions

- Finance
- HR
- IT
  - Solutions
  - Regional Teams
  - Architecture and innovation

Core technologies

Compressor Technique

Technologies for air and gas compression, expansion, energy management and conversion, filtration and treatment.

Vacuum Technique

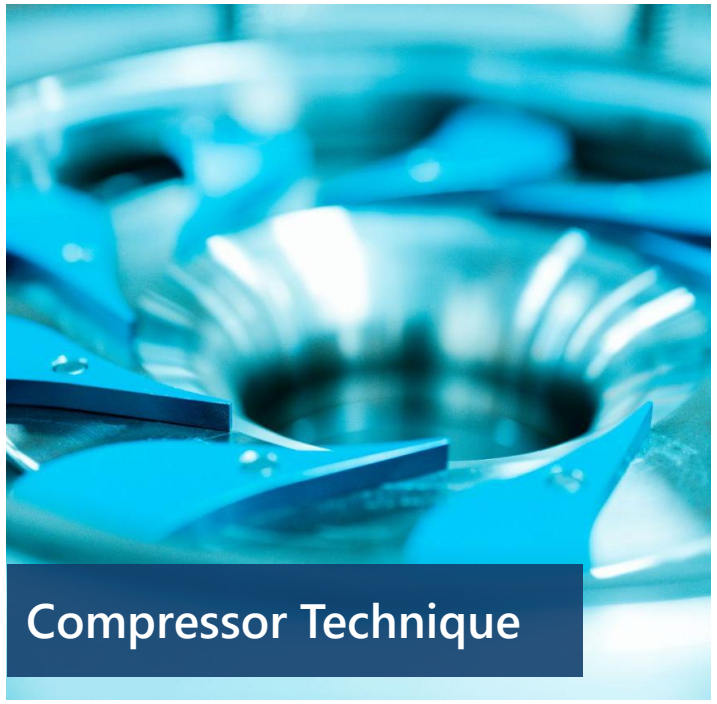
Technologies for vacuum, exhaust management, cryogenic, diagnostics and maintenance.

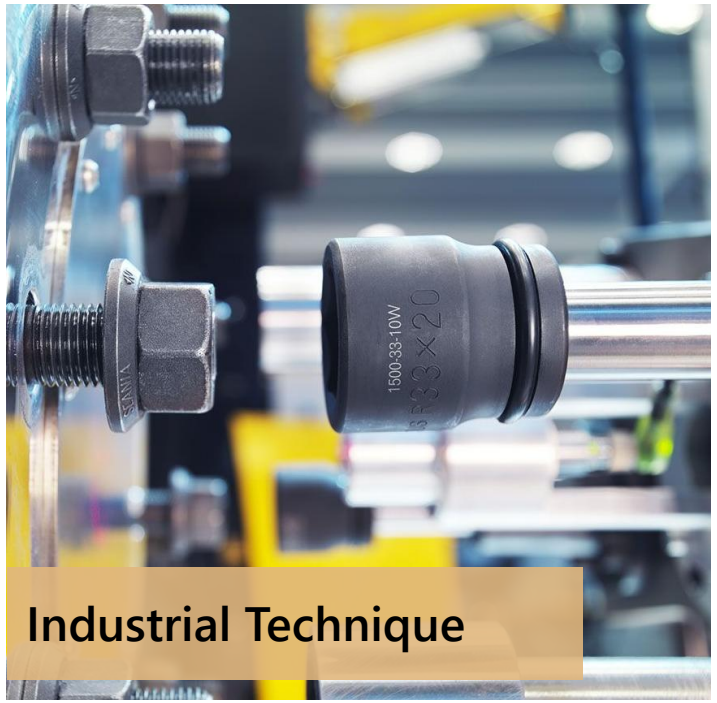
Industrial Technique

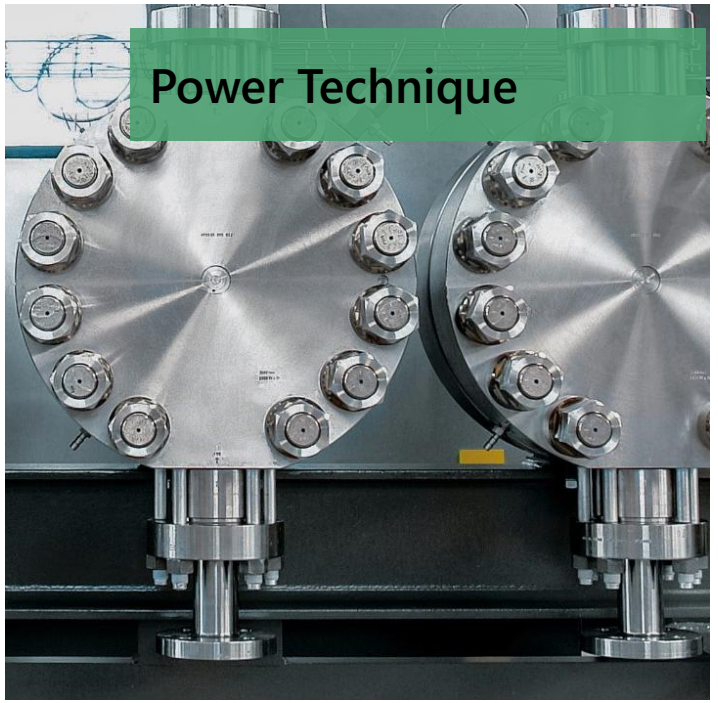
Technologies for automated assembly and quality control systems including tightening robotics, automatic feeding and machine vision.

Power Technique

Mobile technologies for air compression and treatment, gas and power generation, light and energy management and positive displacement and centrifugal pump technologies.







A very global presence

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Water for All 2024

Water for All supported some

70 projects…

…in

40 countries…

…reaching more than

200 000

beneficiaries.

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Polaris Platform

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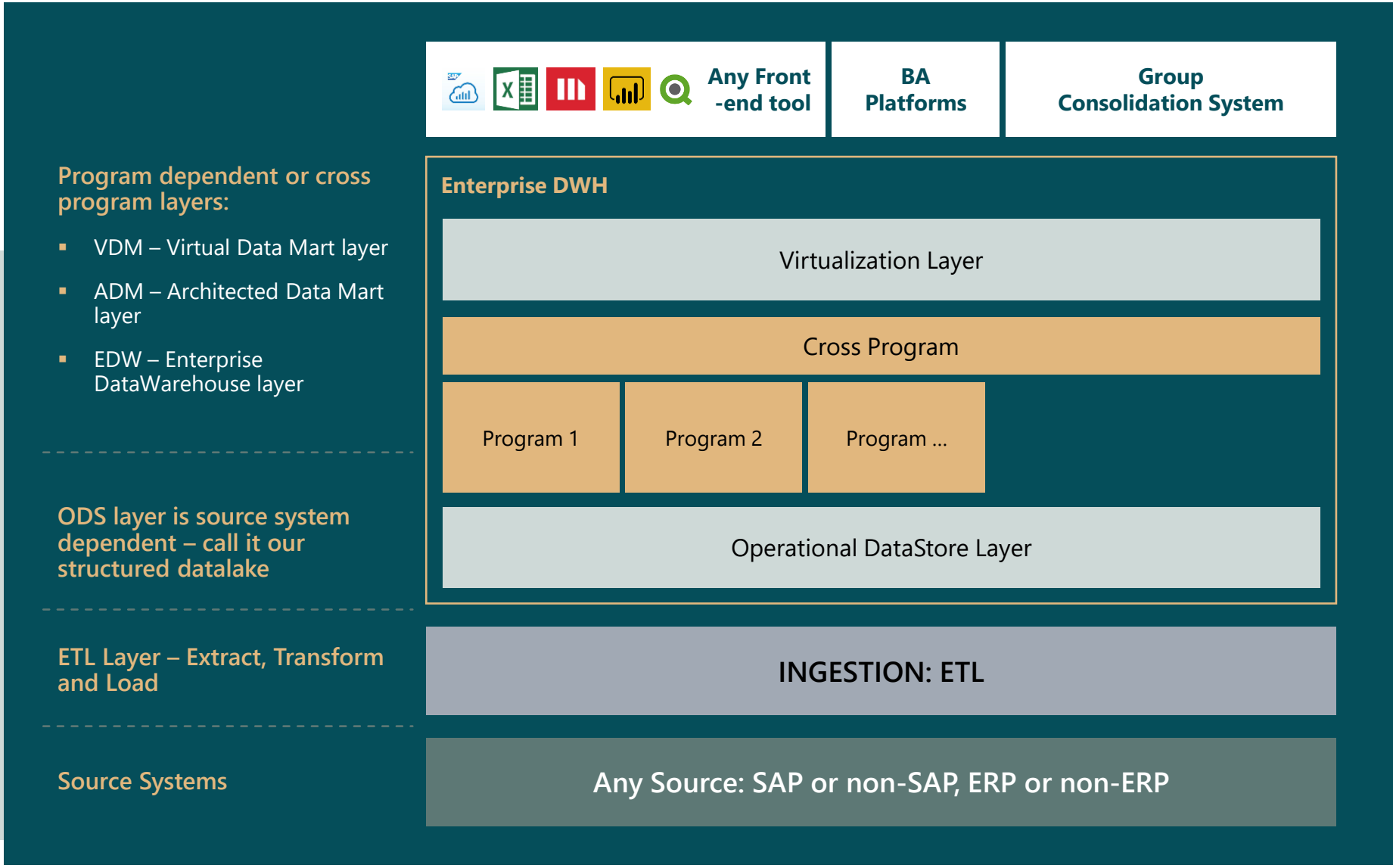
Polaris

What is it?

SAP's solution for an Enterprise Data Warehouse (BW4HANA):

An enterprise data warehouse (EDW) is a **centralized repository** that **stores, manages and harmonizes** large volumes of (structured) data from **various sources** to support business intelligence, analytics, and reporting.



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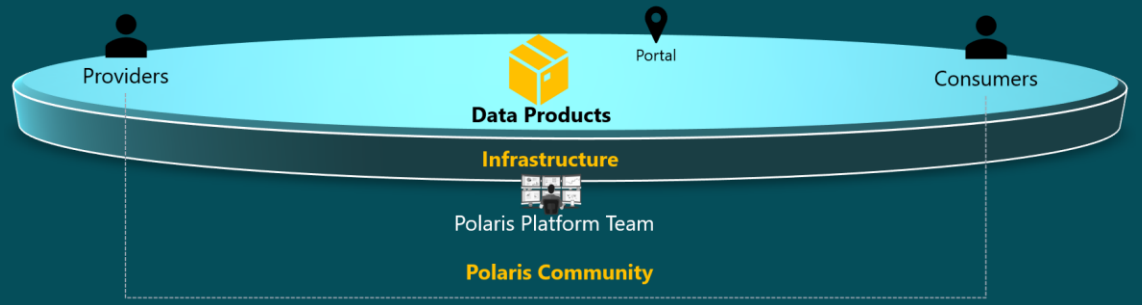
Polaris – POM

What do we deliver?



Foundation

Onboarding Services
- Onboarding of new providers and data sources on the platform

Architecture Services
- Technical advisory on product development architecture
- Community Engagement

Core Services
- Technical system governance and innovation
- Keep the platform up and running and make it as self-service enabled for the providers

Support Services
- 2nd and 3rd line support

Demand

Build Services
- Build end-to-end data products

Transition Services
- Assist in migration from legacy systems
- Knowledge sharing, Training

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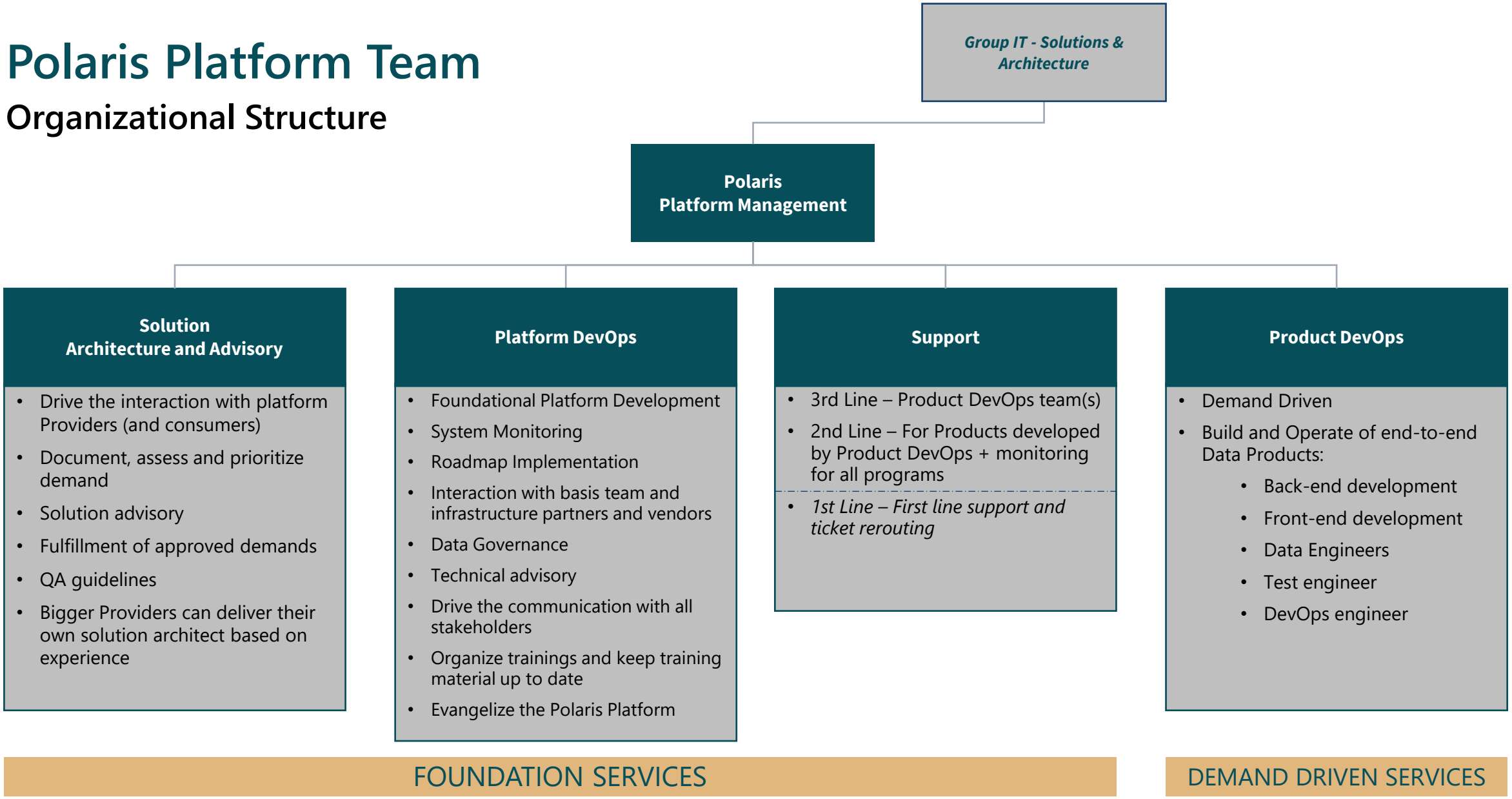
Polaris Platform Team

Organizational Structure



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Prove of value on usage, lineage/catalog & connectivity

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Scope

- Explore the features of SAP Datasphere
  - How is the tool for Developers
  - What modeling options are there
  - How is error handling & versioning
  - Easy to monitor?
- Check the Catalog & Lineage functionalities
- See how security is set up and if we can implement a similar framework as we have on Polaris
- How does Datasphere integrate with sources (e.g. SAP ECC, SAP S/4HANA) and non-SAP reporting solutions

Score Card

DATASPHERE - POC	Average scoring on 5 1 = Very Bad and 5 = Very Good
Connecting Sources	
How easy is it to connect other applications / Sources	2,3
Navigation	
How intuitive is the tool as a Developer(e.g. do the categories and objects make sense)	4,0
Developments	
How would you rate the ease of development	4,3
How would you rate maintainability (e.g. when we need to add a field in the flow)	4,7
How is the built-in ("standard") functionality of the tool (e.g. a lot of custom coding required)	3,5
Compared to B4HANA, how easy is it to set up complete data flows covering the same requirements	3,7
How easy is Monitoring	4,0
How is the security setup in Datasphere and does it cover the requirements of our current setup on Polaris	3,5
How is Version Management for developers	0,0
General	
How are the Data Catalog Features	3,5
How is Linage / Object Impact Analysis	3,5
How is Error Handling / Debugging	3,5
How is the integration with Non SAP Reporting Solutions (e.g. Power BI)	1,7
End User / Key user experience	
How intuitive is the Business Builder where Key users can create their own models and consumption views	3,7
How is Version Management (In the Business Builder)	4,5

Very Bad	0 - 1
Bad	1 - 2
Neutral	2 - 3
Good	3 - 4
Very Good	4 - 5

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Explaining the Score

Connecting sources

- Connecting to ECC system, setup was done by SST Team (BC-team).

Navigation

- Very Intuitive
- A lot of drag & drop functionalities
- Low code

Development

- Easy to develop in, takes some time to get used to. Requires decent governance rules
- Easy to set up small and medium complex flows.
- Doubtful on very complex dataflows. (See next POC)
- Good Monitoring
- Can provide a similar security setup compared to Polaris
- No Version Management

General

- Good Catalog & lineage features, but only inside the Datasphere tool
- Clear error messages, integrated help functions
- Connection to Power-BI via ODATA or ODBC
- Challenging Power-BI integration, neither support Business Context / Labels

Explaining the Score

End User / Key User Experience

- Data affinity / understanding of the data is required
- basic understanding of data modeling is also required
- Great Version and Status Management

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Conclusion

- Easy to use and very intuitive tool for developers
- Possible to set up easy & medium complex flows, but doubtful on very complex flows
- Great Catalog & Lineage functionalities
- Business Builder could really be an added value for Key Users
- Challenging integration with non-SAP Reporting Solutions (e.g. Power-BI)
- Additional POC on complex dataflow needed

Prove of value on dataflow modeling

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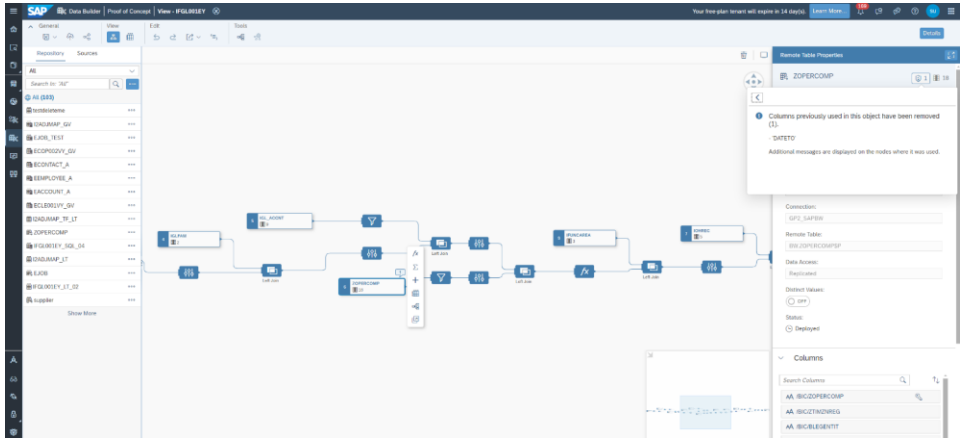
Scope

- Rebuild Polaris solution of IP0 Finance GL Setup
  - Use Polaris as Source
  - Extract all staging layers and master data 1:1 from Polaris
  - Translate Polaris Business Logic to Datasphere



- Delta support is a must

- Explore different modeling functionalities

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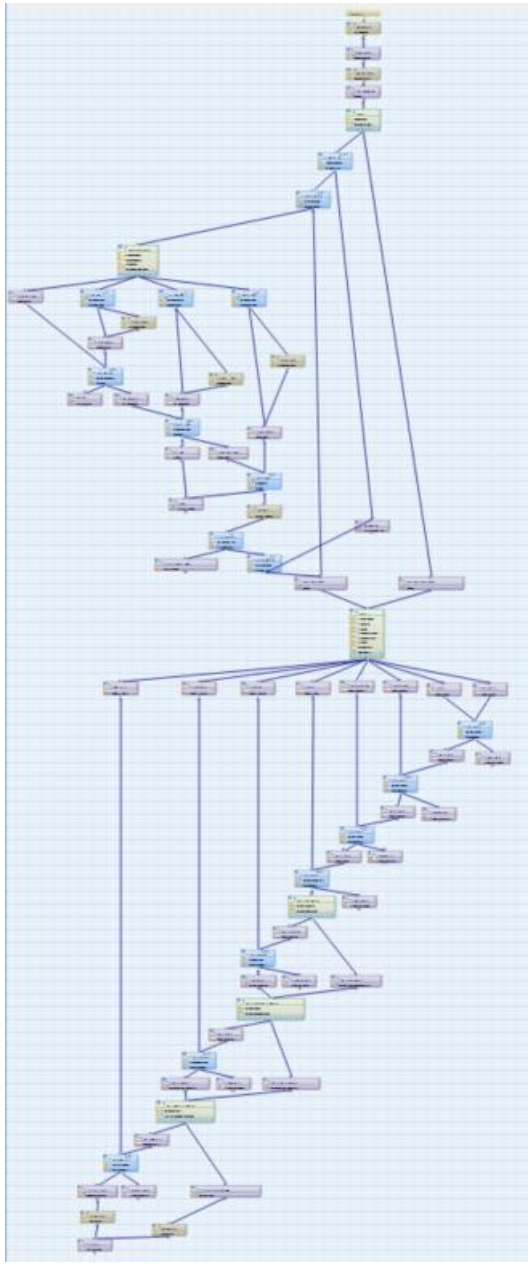
BW4/HANA flow

- Staging / Ingestion layer
  - 1:1 from ECC
- Harmonization / EDW layer
  - Loaded from staging layer
  - Transformations with custom routines
    - Business dimension (re)derivations
  - Complex Calculation View
    - Used to do Allocations



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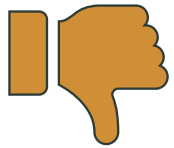
Datasphere Flow (1)

Staging / Ingestion layer

Ingest data into Datasphere approach



- Local table filled by a Replication Flow

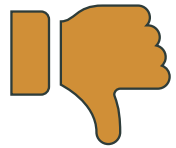
- Delta Supported
- Delta load intervals possible from (near) real-time till once every day
- Full Load scheduling similar to Polaris
- Filtering in replication flows possible, also supported by delta
- Delta replication flows can be paused
- Ability to replicate multiple objects in one replication flow

- Delta needs to be flagged in 2 places in the object. Forgetting it means it needs to be completely recreated
- Data type changes are not recommended in replication flow
- When delta is active and running, no changes allowed anymore

Datasphere Flow (2)

Harmonization / EDW layer

Business Dimensions derivation approach



- Transformation Flows

- Supports delta -> better for performance, calculation are only done on the delta
- Transformation logic can include both
  - Graphical views (for Renaming objects)
  - SQL Views (for writing business logic)
- Supports self loads (target can be the same as the source)

- Remote tables not supported. Source needs to be local tables or graphical views on local tables
- Little flexibility during design, recreation if done wrong or if scope changes
- Virtualization not possible, data will always need to be replicated

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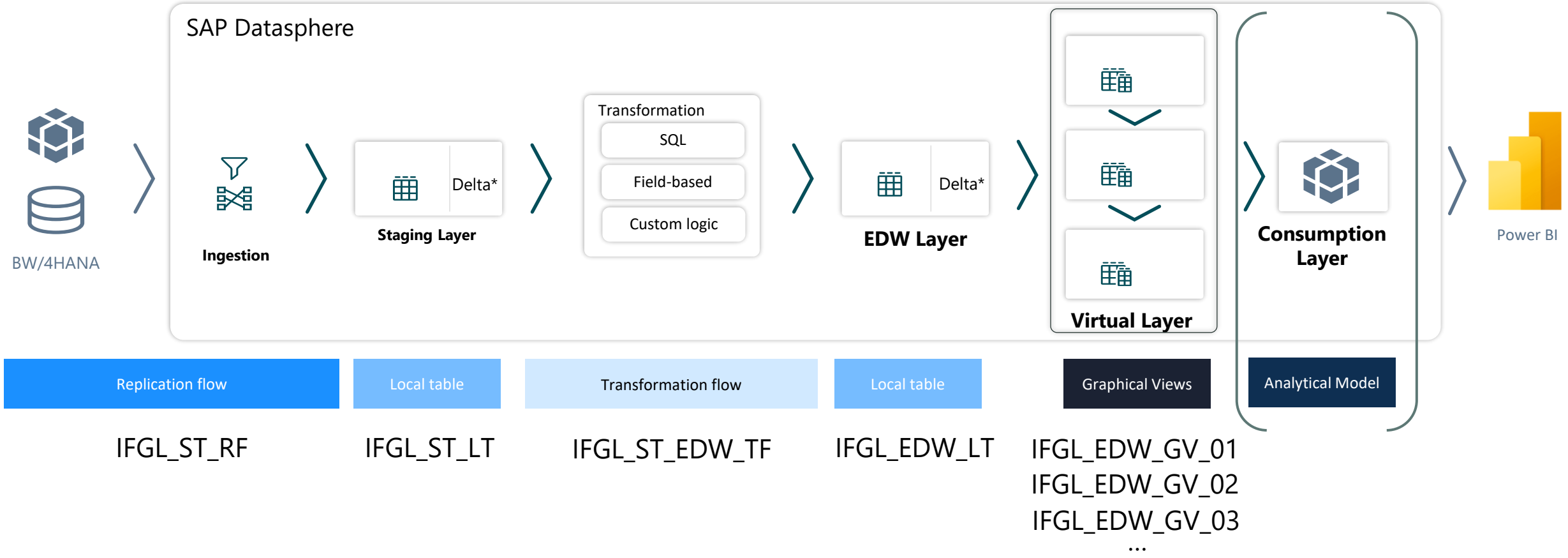
Datasphere Flow (3)

Harmonization / EDW layer

- Allocation Logic (crucial in IP0 Finance Setup)
  - Needs to be done via series of Graphical Views to replace Calculation Views in Polaris
  - Creating them in SQL views is far too time intensive
  - Using Graphical Views has some downsides
    - not possible to split a node in 2 with filtering, while in Calculation Views this is used very frequently on Polaris
    - Performance is not ideal, runs out of memory

- Conclusion
  - Impossible to 100% rebuild the logic from Polaris
  - Challenging to implement very complex setups like used in Polaris
  - We cannot conclude on performance and memory consumption as this free tenant has very limited memory
  - BW Bridge is a must but is not part of the free tenant. (needed to ingest data directly from ECC)

Datasphere Model Overview



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Evaluation

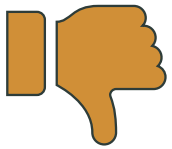
Ingestion

- Local table filled by a replication flow
- Delta enabled
- Extensive scheduling options
- Easy to set up connections

Harmonization: Modeling

- Local tables filled by Transformation flows
- Delta enabled
- Both graphical modeling (ease of use) and SQL modeling (complex logic) are possible within the transformation flow.

Harmonization: Allocations



- Only possible with Graphical views
- Missing functionality to split nodes by filtering
- Performance limited by tenant

Bonus: Task Chain

- Replication flow and transformation flows can be integrated in a task chain to ensure sequential loading.
- Similar to Process Chains in BW4/HANA

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Next steps

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How do we proceed? (1)

- Request a paid tenant for 2024 onwards
  - Minimum requirement tenant requested and approved by strategic council
  - No active developments ongoing

- Setting up full data governance
  - Naming Conventions
  - Best Practices
  - Access Control & Roles
  - Catalog & lineage across SAP sources

- Start small
  - Find and implement small use-cases where we leverage Datasphere
  - Gradually expand the scope

How do we proceed? (2)

- Leverage Self Service Capabilities

- Close follow-up on Datasphere roadshow
  - Check what new functionalities will be available
  - Specially with announcement of BDC and partnership with Databricks

- KAFKA Integration
  - KAFKA is/will be intensely used by Act!
  - Q4 2024 KAFKA connector available according to SAP Roadmap

- Integrate with Intelligence Hub
  - Find use-cases where DSP can act as Data Federation Layer
  - Expose Polaris data to Intelligence Hub via delta share capabilities of BDC

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