

### Combining Data Fabric and Data Mesh

Advancing Data Management with Hybrid Architecture





### VaultSpeed gibt 3 Versprechen

- VaultSpeed bietet den höchsten und ausgereiftesten Grad an Transformationsautomatisierung auf dem Markt - weltweit.
- Der Automatisierungsgrad ermöglicht es Datenteams, Datenprojekte im Durchschnitt in weniger als 2 Sprints abzuschließen.
- Die beschleunigte Bereitstellung von Datenprojekten ermöglicht einen durchschnittlichen ROI von 170% bis 300% innerhalb des ersten Jahres.



### "In god I trust, anyone else has to bring data"

- Die Versprechen von VaultSpeed werden untermauert durch
  - >30 Mitarbeiter in der Entwicklungsabteilung
  - > 640 Regeln zur automatischen Aufrechterhaltung der referenziellen Datenintegrität
  - >200 Jahre Projekt-IP/Erfahrung in einer globalen, selbstlernenden Vorlagenbibliothek
  - <sup>o</sup> 2<sup>222</sup> Automatisierungsszenarien durch einsetzbare Vorlagen



#### "Wo ist der Haken?"

#### **DENKEN SIE RICHTIG!**

#### BEGINNEN SIE MIT DEM KONZEPTIONELLEN MODELL UND LASSEN SIE UNS DEN REST MACHEN

#### SIE BAUEN KEINE RAW VAULT VORLAGEN MEHR



# Fordern Sie uns heraus und messen Sie uns an unseren Versprechen!

## **Gartner Hype Cycle 2023**

"Data Mesh will become obsolete before plateau (not the same as dead)"

#### **Reasons:**

- Domain boundary identification
- Technical complexity
- Team skills and training
- Interoperability
- Cultural change
- Data quality management
- Regulatory compliance



Plateau will be reached: 🔿 <2 yrs. 🔍 2–5 yrs. 🌑 5–10 yrs. 🔺 >10 yrs. 😵 Obsolete before plateau



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# in 2024...



#### Source: Gartner (August 2024)

#### Off the Hype Cycle

The following entries were removed for the Hype Cycle for Data and Analytics Programs and Practices, 2023 having reached wide-scale adoption:

- Data Hub Strategy
- Graph Analytics
- Hyperautomation
- Information Architecture
- Machine Learning
- Master Data Management
- Graph Analytics

Data Mesh has been subsumed into Data Fabric.

#### On the Rise

#### AI Literacy

Analysis By: Donna Medeiros, Alan D. Duncan, Pieter den Hamer

Benefit Rating: High

Market Penetration: 1% to 5% of target audience



### However...

#### **Data Products** are top of mind

A data product is essentially a set of data, metadata, semantics, and templates. They are curated and maintained to be **immediately useful for specific business objectives**. This principle ensures trustworthy, highquality data that drives informed decisions and strategic insights.

> According to a recent survey of 2,000 enterprise customers, the data product approach now dominates organizational focus, shifting emphasis from the interconnected domains of a Data Mesh to a broader technical architecture perspective.



Worldwide. 10/08/2019 - 10/09/2024. Web Search.

## What is data Mesh?

A data mesh is a **decentralized** data management approach where ownership and responsibility for data are distributed across different business domains. Instead of having a centralized data team, **each domain manages its own data as a product**, ensuring better scalability, data quality, and flexibility. It promotes the use of standardized interfaces and tools for data sharing across the organization.



### Data Mesh: Microservice architecture applied to data



- Loosely coupled
- Highly maintainable and testable
- Organized around business capabilities
- Independently deployable
- Owned by a small team

Each service has a separate database layer, independent codebase, and CI/CD toolkit Is based for their domain

- **Designed from Scratch** 
  - Single Version of the Facts

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### Why that works for microservices but not for data products



#### Microservices - Data Mesh Mapping

- Loosely coupled Data As A Product
- Highly maintainable and testable Data As A Product
- Organized around business capabilities Domain Ownership
- Independently deployable Self Service Data Platform
- Owned by a small team Domain Ownership

Each Domain will need to base their Data Product on the different non-integrated Source Systems that exist in the organization

- Based on existing Data Landscape
- Single Version of the Facts need to be created for every Domain
  - Governance

- Based on existing situation
- Complex architecture and Governance to create Single version of the Facts

## Data Product Delivery: Evolving but still Immature

Data modeling and transformation comprise **80-90%** of the workload.

Yet is it the **least automated** component.

"Data management teams spend more time on **data preparation** and **data integration**, and as a result, these are the primary candidates for automation".

Data Management Survey **Gartner**.

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#### Immaturity effects

- 🛛 Too late
- 🖱 Manual work
- ⑤ Technical debt
- 🟫 Incomplete data
- Lack of agility
- ✓<sup>3</sup> Innovation paralysis
- 😤 Increased Risk

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Data Management Survey **Gartner**.

## **Data Fabric**

Gartner's<sup>™</sup> Data Fabric is an architectural approach that enables seamless data integration and management across various platforms and environments, providing real-time access and delivering consistent, reusable data services for diverse business use cases. It leverages **metadata**, **AI**, and **automation** to create a unified and flexible data infrastructure that enhances decision-making and agility.



#### Lessons from DA summit 2024: What if we combine them?





# **GREAT**, but how?

### How do we combine them?

- Deliver an Integrated Foundation Layer as a service as the Single Version of the Facts for the Domains.
- Shift the Domain driven Data Product delivery to the Presentation Layer
- Build up a **shared library of repeatable logic** in the Data Product Experience Plane that can be used by all domains.





### **Data Foundation as a platform**

Platform Service Groups:

- Infrastructure Utility Plane: Provides access to infrastructural resources, decoupling consumers from underlying infrastructure. The Foundation layer stands on this plane.
- Data Product Experience Plane: Manages data product lifecycle operations—creation, update, validation, deployment, and decommissioning.
- Mesh Experience Plane: Offers a marketplace for data products to be searched, accessed, and queried.





Delivery



- Foundation team delivers the Foundation Layer as a Service
- Domain teams deliver Presentation Layer

- Domain teams delivers the Foundation Layer as a Service, Central governance Foundation team.
- Domain teams deliver Presentation Layer



### Library of repeatable Business Logic

At the detailed level, every report requires unique information, so it is a manual work to build them the logic one by one.



At the dimension attribute by fact abstraction level, they can be implemented by 1 repeatable pattern, sum, avg, count, acros s 2 dimensions attributes and 1 fact.

VaultSpeed Studio Template



Avg(Measure) Sum(Measure) Count(Measure) by Dimension Attribute 1 by Dimension Attribute 2



### Shared Library of repeatable logic

Examples :

- Dimensional Models
- Age calculation = 1 Template

- How old a person is.
- How long an employee is in a company.
- How old a product is.
- How old a campaign is

- Gender Normalization
- Name & Address Cleansing
- Etc ...



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### **Universal Template Modeler**



## 3 things I'd like you to take away from this session

There are many implementations of Data Mesh/Data Fabric possible, we recommend:

- Hybrid approach, combining centralized and distributed approaches
- Foundation Layer as a Service, adding real business value to data infrastructure
- Pre-defined library of transformation patterns used to accelerate Data product delivery

#### Visit our website

www.vaultspeed.com

Want to learn more?

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#### Get a demo www.vaultspeed.com/request-a-demo

Talk to sales

sales@vaultspeed.com

11AM-1PM Hands-on demo session Breakout room

## Thank you



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