



DATA GOVERNANCE AND MASTER DATA MANAGEMENT CONFERENCE EUROPE

11 - 14 March 2024 | London, UK

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Two-Tiered Governance: Innovation vs Standardization

Felix Streichert, Robert Bosch GmbH, G7/PJ-OP-X2, 11.03.2024



Two-Tiered Governance: Innovation vs Standardization

- Bosch and Industry 4.0
- Ownership Definition vs Asset
- Two Tiers of Data Governance

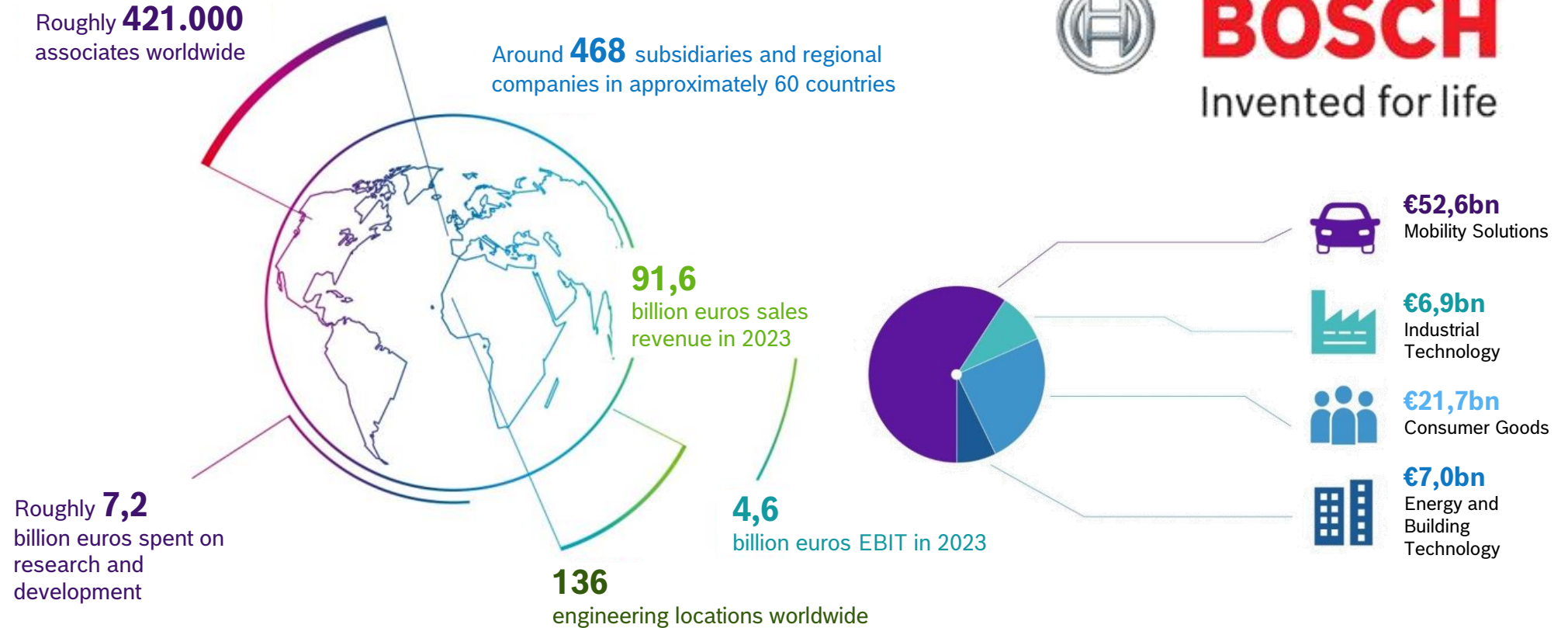
Two-Tiered Governance: Innovation vs Standardization

Robert Bosch GmbH



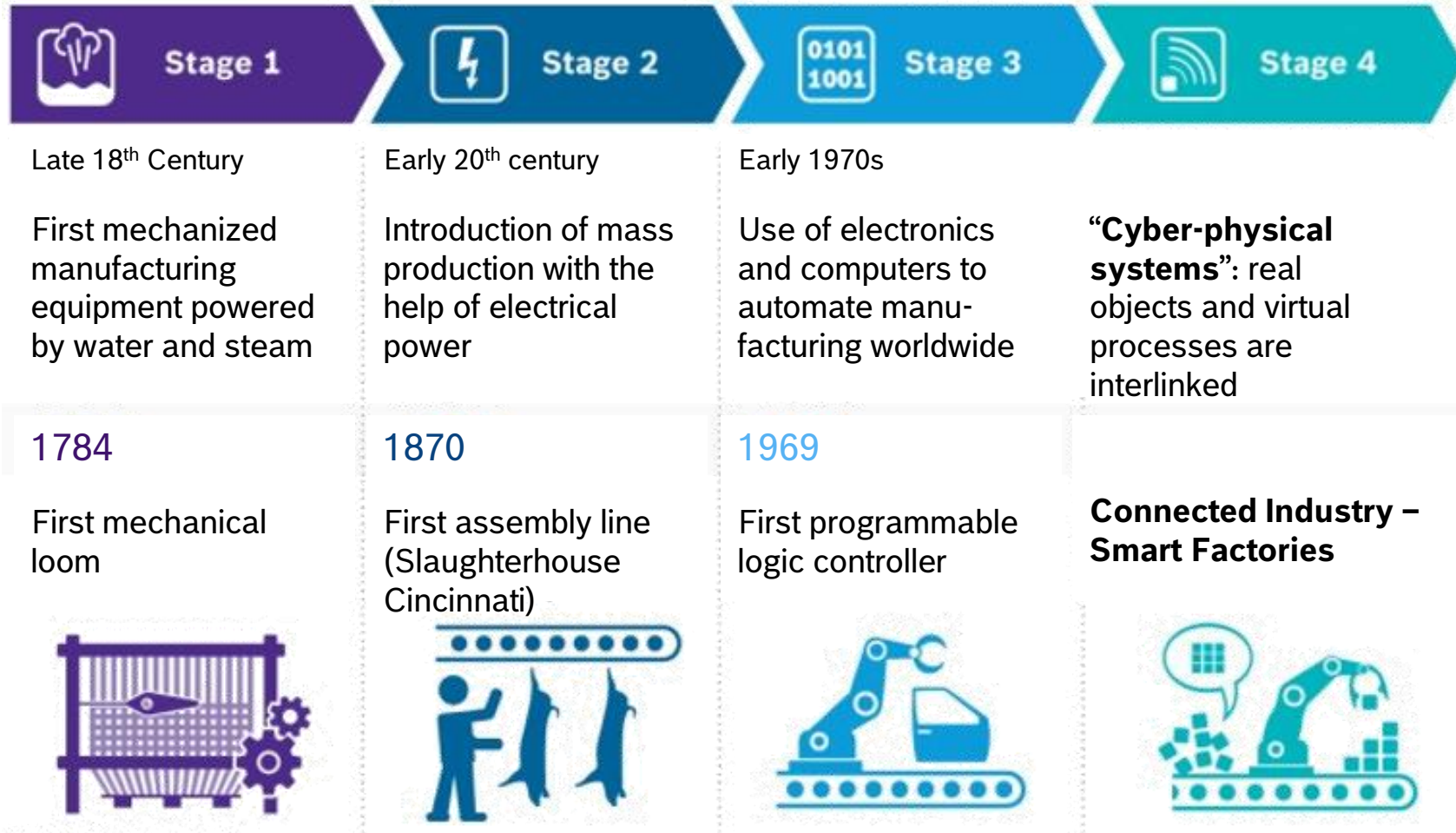
BOSCH

Invented for life



Two-Tiered Governance: Innovation vs Standardization

Four Stages of the Industrial Revolution



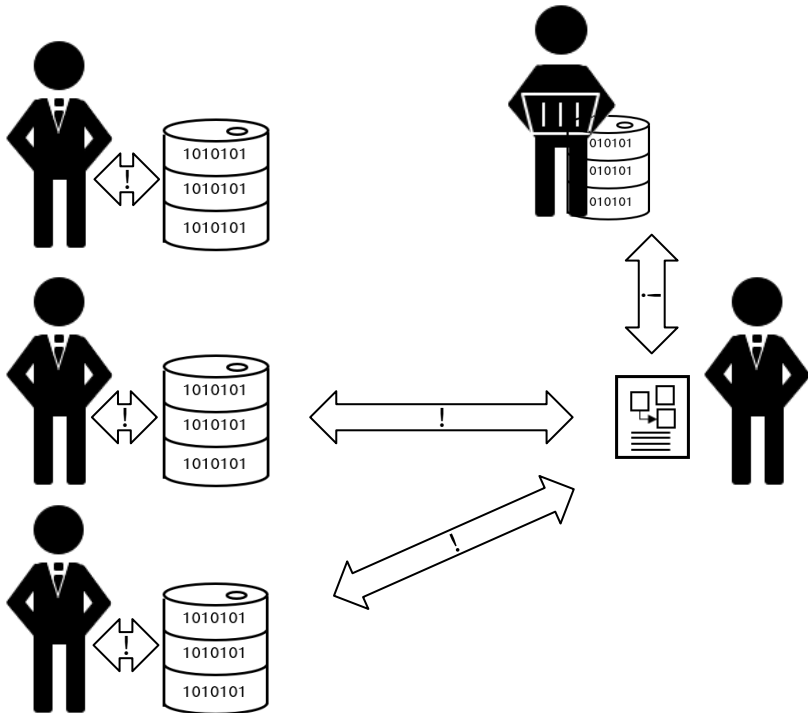
Source: DFKI 2011, Bosch

Two-Tiered Governance: Innovation vs Standardization

Ownership Definition vs Asset

▪ Data Owner

– An individual responsible for definitions, policy, and practice decisions about data within their area or responsibility. For business data, the individual may be called a Business Data Owner



- ▶ Do we need a data owner for **each** data asset?
 - ▶ **Yes**, legal and com accountability must be assigned
- ▶ Do we need a definition for each asset?
 - ▶ **No**, we standardize Data on a need-by-need basis
- ▶ Is the definition owner **always** the owner of the asset?
 - ▶ **No**, corporate standards need to be adhered to across multiple legal entities or business owners
 - ▶ **No**, both the **EU Data Act** as well as **GDPR** clarify data asset ownership independent of data definition

Two-Tiered Governance: Innovation vs Standardization

Ownership Definition vs Asset

▪ Data Definition Owner

- **Accountability for establishing data domain and data definitions**
- Authority on definitions, policies, description of strategic and operational goals, scope, and context of a data domain
- Final escalation point on data issues in data domain
- Organizational setup and nomination of Data Stewards and Data Asset Owners



▪ Data Asset Owner

- **Legal and commercial accountability and responsibility for data assets**
- Compliant management and governance of data assets
- Organizational setup and nomination of Data Stewards
- Management and improvement of commercial value contribution of assigned data assets



Two-Tiered Governance: Innovation vs Standardization

Data Principles

Data is an Asset

Assign Data Owners

Document Data

Use Data Standards

Share your Data

Provide Meta-Data

Ensure Data Quality

Protect your Data

Two-Tiered Governance: Innovation vs Standardization

Exemplary Impact of Data Strategy on Data Principles

Assign Data Owners

Legal: Document Data

Big Data: Share your Data

Data Mgt: Meta-Data

Data is an Asset

If \$ >> 0 Data Protect

If \$ >> 0 Data Standards

If \$ >> 0 Data Quality

Two-Tiered Governance: Innovation vs Standardization

Tier-1 Mandatory Elements of Data Governance

1. Every Data Asset has a Data Asset Owner
 - For **accountability of tasks**
2. Every Data Asset is documented
 - Compliance with **legal regulation**
 - Compliance with risk management
 - To turn data into information
3. Data is **shared and accessible**
 - Enabling use case exploration and innovation
4. Meta-Data is available
 - Enable **efficient data usage** and sharing
 - Enable data **management and control**

Assign Data Owners

Legal: Document Data

Big Data: Share your Data

Data Mgt: Meta-Data

Two-Tiered Governance: Innovation vs Standardization

Tier-2 Additional Elements of Data Governance

1. Protect our data
 - Valuable Data needs **special protection**, e.g. encryption or access control, to reduce business risk of loss or theft
2. Use Data Standards
 - To **scale** good use cases
 - To reduce ETL efforts for multiple data consumers
3. Ensure Data Quality
 - To **ensure/improve** business process results
 - To reduce rework and improve efficiency

Data is an Asset

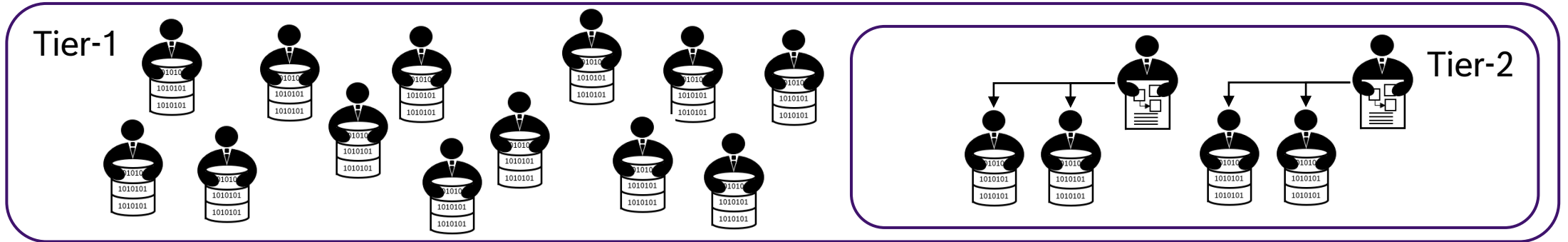
If \$ >> 0 Data Protect

If \$ >> 0 Data Standards

If \$ >> 0 Data Quality

Two-Tiered Governance: Innovation vs Standardization

Two-Tiered Data Governance: Idea



▪ Weak Data Governance (Hard Rules)

- All Data Records are assigned a Data Asset Owner
- Mandatory Data Policies apply, e.g. Security Classes, GDPR, ...
- Data definitions are tentative
- Data provisioning is in a **use-as-is** basis allowing for schema-on-read

▪ Enabling Agile Develop. and Innovation

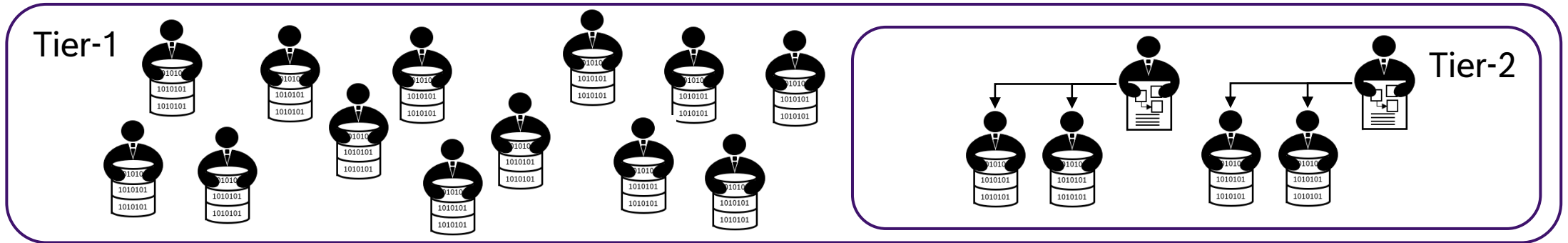
▪ Strong Data Governance (Busi. Rules)

- Business Critical Data Records are also assigned a Data Definition Owner
- Extended Data Policies apply, e.g. business rules, data quality rules
- Data definitions are released
- Data provisioning uses **Service Level Agreements** for schema-on-write

▪ Enabling Standardization and Scalability

Two-Tiered Governance: Innovation vs Standardization

Two-Tiered Data Governance: Effect



■ Weak Data Governance (Hard Rules)

- Data is documented
- Schema-on-read
- Little organizational overhead and alignment
- Access for Data Scientists
- **Aim for innovation and agility**
- **Compare Data Mesh**

- We would estimate, that **80% of our data is in Tier-1**, but only 20% of our use cases

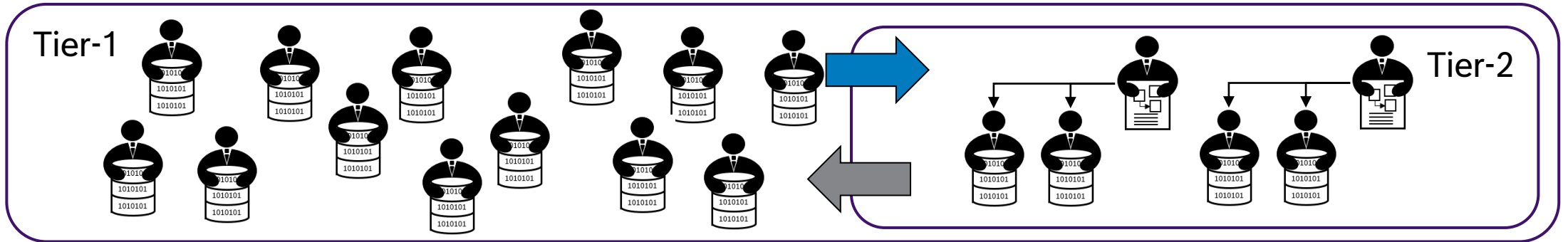
■ Strong Data Governance (Busi. Rules)

- Link between Data Asset and Definition
- Schema-on-write
- Consolidation of Data Requirements to SLAs
- Access for Data Analyst
- **Aim for automation and efficiency**
- **Compare Data Fabric**

- We would estimate, that only 20% of our data, but **over 80% of our use cases is in Tier-2**.

Two-Tiered Governance: Innovation vs Standardization

Two-Tiered Data Governance: Balancing



■ If a use case or an associated data asset is deemed valuable or business critical, we can move it from Tier-1 to Tier-2

- Assign a Data Definition Owner
- Establish Data Definition
- Consolidate Data Requirements to SLAs
- Additional Monitoring & Control is introduced
- Data Asset is promoted to Data Product and offered on a Data Marketplace

■ If usage of a given Data Product drops below a given threshold or the use case is gone, we can move the Data Product from Tier-1 to Tier-2

- Release Data Definition Owner
- Set Data Definition as out-of-use
- Terminate SLAs
- Data Asset is only subject to standard monitoring and control
- Data Product is demoted to Data Asset

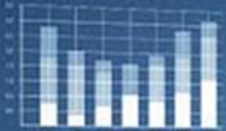
Two-Tiered Governance: Innovation vs Standardization

Summary

- Splitting Data Definition and Data Asset Ownership scales with organizational complexity, is inline with EU data regulations, and give an incremental governance approach
- The resulting two-tiered Governance enables
 - **Innovation** in a minimal rules set environment (Tier-1 or Weak Data Governance, Data Assets, Data Catalogue, Use-as-is, Data Mesh, Data Asset Owners)
 - **Standardization** in an extended rule set environment (Tier-2 or Strong Data Governance, Data Products, Data Marketplace, SLAs, Data Fabric, Data Asset Owners and Data Definition Owners)
- Data Asset can be promoted to a Data Product and vice versa based on Business Need and Data Strategy
- Additional governance tiers may be necessary, depending on the specific Data Strategy



RETRIEVING DATA...



Questions?



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