Data Owner = Eigner & Besitzer?

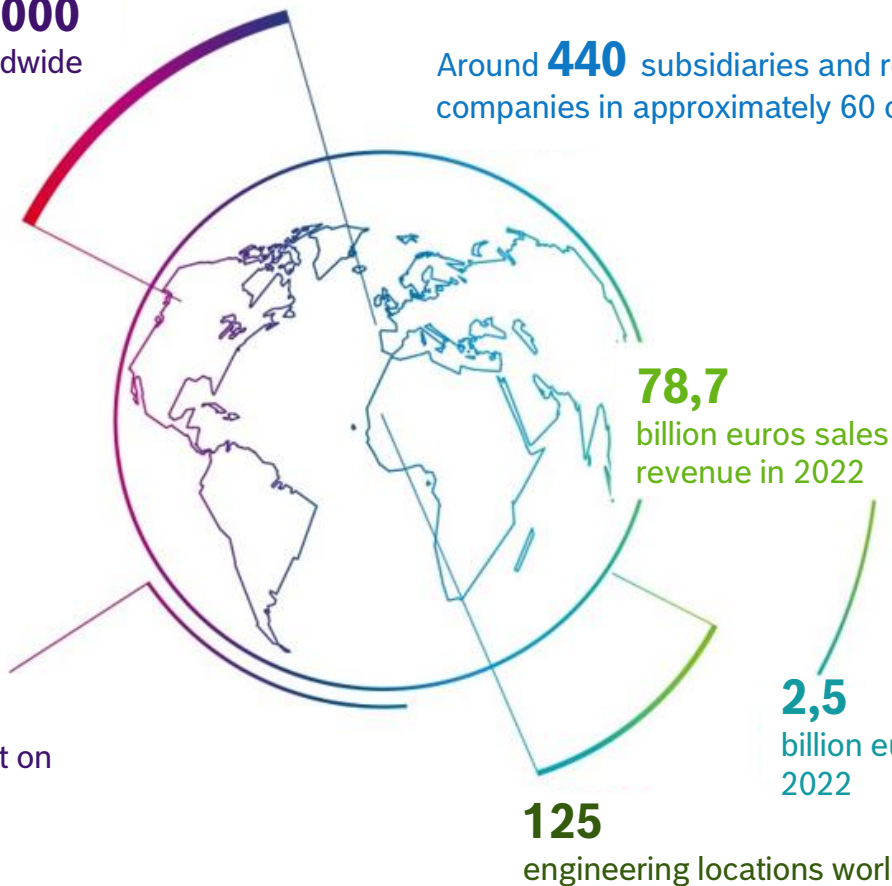Felix Streichert, Robert Bosch GmbH C/TMD2, 21.04.23

BOSCH

- Meaning of Data Ownership
- Challenges in Defining Data Ownership
- Is a Data Owner both „Eigner" and „Besitzer"
- Examples and Consequences

Data Owner = Eigner & Besitzer?
Robert Bosch GmbH

Roughly **402.000** associates worldwide

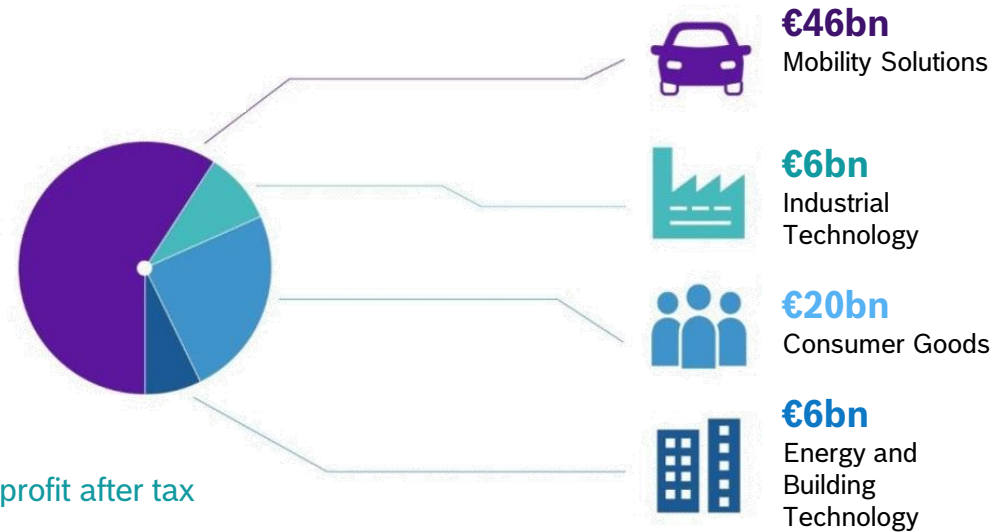Around **440** subsidiaries and regional companies in approximately 60 countries

78,7 billion euros sales revenue in 2022

Roughly **6,1** billion euros spent on research and development

125 engineering locations worldwide

2,5 billion euros profit after tax 2022

BOSCH
Invented for life

€46bn Mobility Solutions

€6bn Industrial Technology

€20bn Consumer Goods

€6bn Energy and Building Technology

BOSCH

Data Owner = Eigner & Besitzer?
Importance of Data at Bosch in Manufacturing

| Stage 1	Stage 2	Stage 3	Stage 4
Late 18th Century	Early 20th century	Early 1970s	
First mechanized manufacturing equipment powered by water and steam	Introduction of mass production with the help of electrical power	Use of electronics and computers to automate manu-facturing worldwide	**"Cyber-physical systems"**: real objects and virtual processes are interlinked
1784	1870	1969	
First mechanical loom	First assembly line (Slaughterhouse Cincinnati)	First programmable logic controller	**Connected Industry – Smart Factories**

Source: DFKI 2011, Bosch

BOSCH
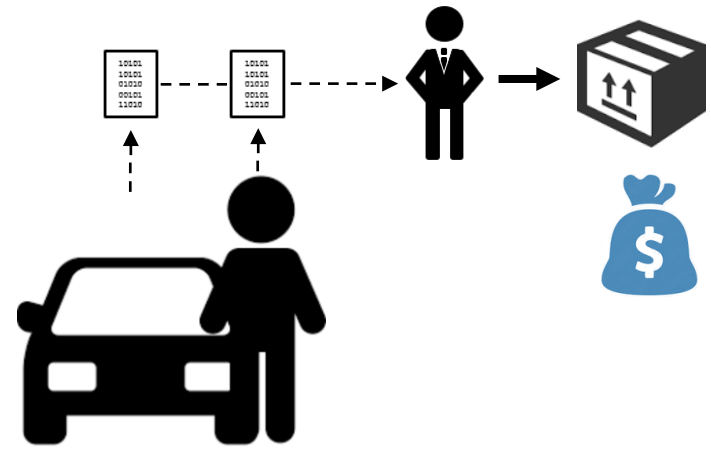
Data Owner = Eigner & Besitzer?
Importance of Data at Bosch

- The **Data-Driven Company** uses data to drive business decisions and to gain additional insights into processes, products, and markets
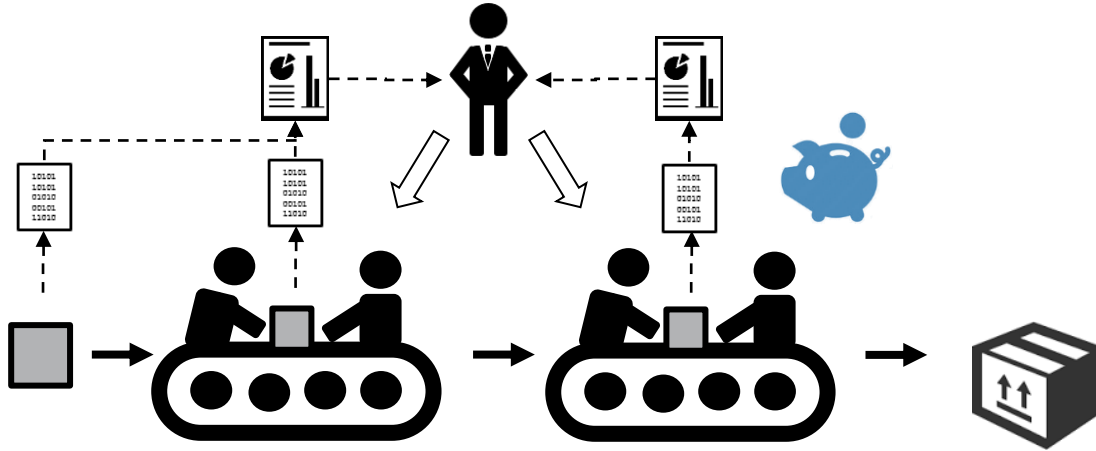
- **Data enhances the business model** by improving product design, quality, output

- The **Data Company** collects and sells data and data services often disrupting existing business processes or creating new business processes


- **Data changes the business model** by adding new products and services

A previously **auxiliary Resource,** Data becomes a **critical Resource in digital transformation**

Data Owner = Eigner & Besitzer?
Meaning of Governance according to DAMA

- **Data Governance** is the exercise of authority and control over the management of data assets
  - Thus, it is a coordinated enterprise effort that protects and optimizes the business value of data assets
  - But, is not defined by technology and therefore is not an IT function

- **Data Management** is the planning, execution and oversight of policies, practices and projects that acquire, control, protect, deliver, and enhance the value of data and information assets
  - This could be an IT program and set of technologies that executes defined policies, standards and business rules
  - But, it has not the authority to set these policies, standards or rules
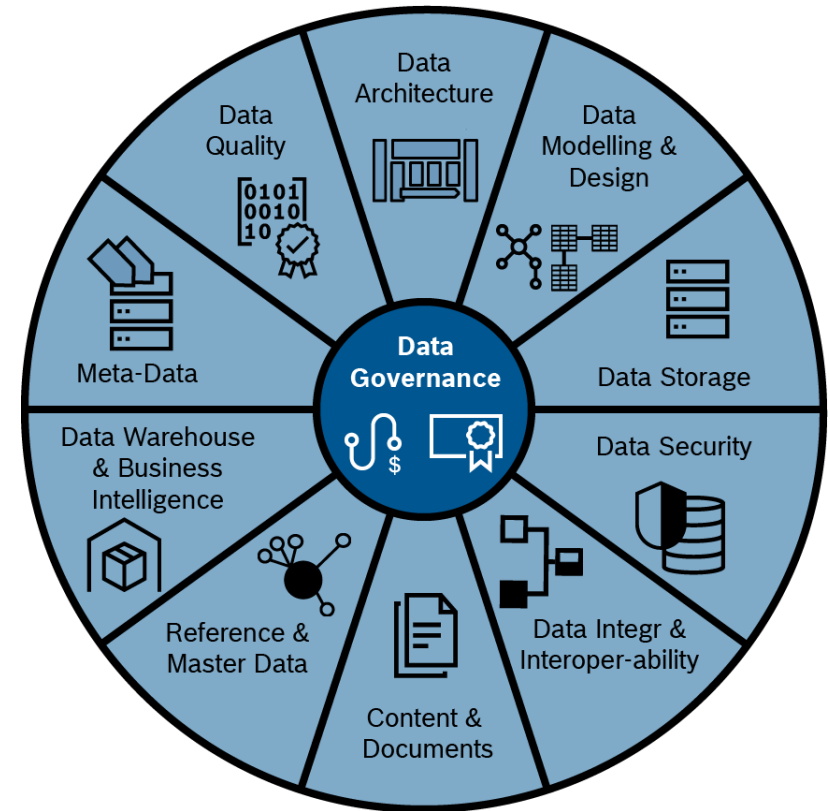
Data Governance is not an IT Program. It is a Business Program!

Data Owner = Eigner & Besitzer?
Meaning of Data Ownership according to DAMA

- ***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*

- ***Data Steward***
  - *A Business Leader and/or subject matter expert designated as accountable for*
    - *The identification of operational and business intelligence data requirements within an assigned subject area*
    - *The quality of data names, business definitions, data integrity rules, and domain values within an assigned subject area*
    - *Compliance with regulatory requirements and conformance to internal data policies and data standards*
    - *Application of appropriate security controls*
    - *Analysing and improving data quality*
    - *Identifying and resolving data related issues*
  - *Data stewards are often categorized as executive data stewards, business data stewards or coordinating data stewards.*

BOSCH
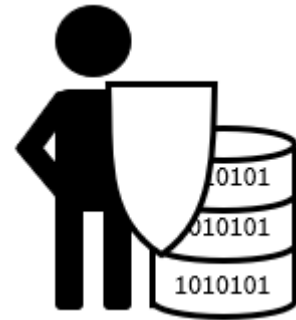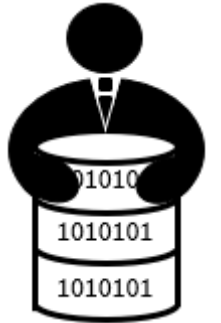
Data Owner = Eigner & Besitzer?
Meaning of Data Ownership our Understanding

- **Data Owner**
  - An individual **responsible and accountable** for definitions, policy, and practice decisions about data within their area or responsibility
    - The identification of operational and business intelligence data req within an assigned subject area
    - The quality of data names, business definitions, data integrity rules, and domain values within an assigned subject area
    - Compliance with regulatory req and conformance to internal data policies and data standards
    - Application of appropriate security controls
    - Analysing and improving data quality
    - Identifying and resolving data related issues

- **Data Steward**
  - A Business Leader and/or subject matter expert designated as **responsible** for any tasks delegated from the Data Owner
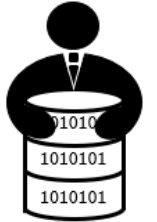
BOSCH

Data Owner = Eigner & Besitzer?
## Challenges in Defining Data Ownership

- Do we **always** need a data owner for each data record?
  - **Yes**, at Bosch we assume that both legal and commercial accountability has to be assigned for each record
    - Responsibility for Data Privacy and Protection
    - Responsibility for Legal Compliance
    - Responsibility for Commercial Value Contribution, e.g. Data Quality

- Do we **always** need a data definition (i.e. released Standard) for each record?
  - **No**, at Bosch we assume we standardize Data on a need-by-need basis, e.g.
    - Data Definition for Master Data
    - Data Definition for Standardized Business Processes
    - Data Definition for Product Data
    - No Data Definition for Supplier Specific Data
    - No Data Definition for Machine Specific Data
    - No Data Definition for Analytics Innovation

BOSCH

Data Owner = Eigner & Besitzer?
Challenges in Defining Data Ownership

- Is the owner of the data definition **always** the owner of the data record?
  - **No**, at Bosch we assume that corporate standards need to be adhered to across multiple legal entities or business owners
    - The same employee data definition is to be used throughout the enterprise, but different legal entities have dedicated accountability for local legislation, e.g. GDPR, …
    - The same production data definition is to be used throughout our international production network, but again different legal entities have dedicated accountability for local legislation, e.g. Chinese Cyber Security Law, …
  - **No**, both the **EU Data Act** as well as **GDPR** clarify data record ownership
    - Data generated with an "*IoT device belongs to the user not the manufacturer of the IoT device*"
    - The manufacturer who designed the product and thus owns the data definition may only act as data holder in respect to the data record
- But of course, the ownership of the data definition and the data record can align, e.g. Master Data, Local Activities, small Projects, …

BOSCH
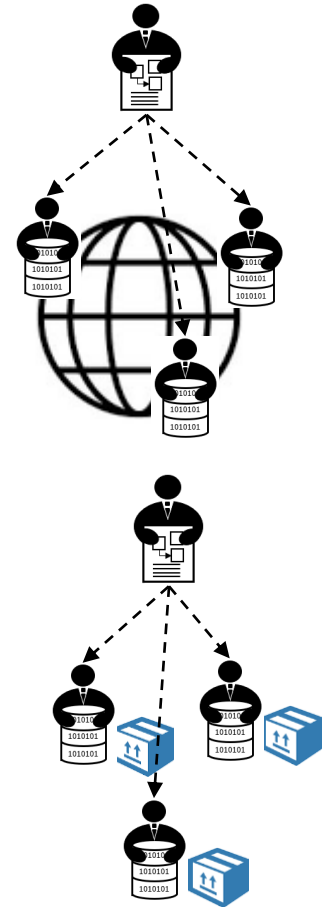
Data Owner = Eigner & Besitzer?
Is a Data Owner both „Eigner" and „Besitzer"?

- Maybe the definition of a single owner responsible for definition and actual records is misleading. Compare the German terms for

  - **Eigentum (Property):** having a legal title on an object, e.g. the right to sell the object or use it as security
  - **Besitz (Possession):** having the control on an object, e.g. living in a rented flat or driving a rented car

- Eigentum (Property)

  - Chooses on the rules of engagement
    - What constitutes the object, e.g. what is part of the rental agreement
    - What rules does the Owner have to comply
  - Has the final say in case of conflicts

- Besitz (Possession)

  - Promises to oblige with the rules of engagement
    - Proper up-keep
    - Cleaning
    - ...
  - Enjoys the utility of the object

BOSCH

Data Owner = Eigner & Besitzer?
Is a Data Owner both „Eigner" and „Besitzer"?

- The analogy is not perfect, since we assume that a Data Asset (Record) Owner, retains the legal and commercial rights on the record. Instead, we could use the analogy of homeowners transferring certain rights/accountability to a property management entity, i.e. the task of data standardization
  - Consolidate Data Requirements from Business needs
  - Define Data Standards and Business Rules to oblige to

- Eigentum: Data Definition Owner
  - The identification of operational and business intelligence data req within an assigned subject area
  - The quality of data names, business definitions, data integrity rules, and domain values within an assigned subject area

  - Identifying and resolving data related issues

- Besitz Data Asset Owner
  - Collection of operational and business intelligence data req within an assigned subject area

  - Compliance with regulatory req and conformance to internal data policies and data standards
  - Application of appropriate security controls
  - Analysing and improving data quality
  - Identifying and resolving data related issues

BOSCH

Data Owner = Eigner & Besitzer?
Is a Data Owner both „Eigner" and „Besitzer"

- **Data Governance Owner**
  - **Accountability for establishing data domain**
  - Authority on definitions (e.g. via a **Business Glossary**), policies, description of strategic and operational goals, scope, and context of a data domain
  - Final escalation point on data issues in data area
  - 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 (e.g. via a **Data Catalogue**)
  - Organizational setup and nomination of Data Stewards
  - Management and improvement of commercial value contribution of assigned data assets

BOSCH

Data Owner = Eigner & Besitzer?
## Examples and Consequences: Federated Intra- & Inter-Company Gov.

- Within the company the model scales

    1. In simple or centralized use case both roles Data Definition Owner and Data Asset Owner can be assigned to the same person

    2. In complex use cases you are more flexible

        1. One Data Definition Owner per Data Object

        2. Multiple Data Asset Owners for different records of the same Data Object

On a need-by-need basis!

- Between companies the model scales

    1. For company specific data one company realizes Data Definition & Asset Ownership internally

    2. Shared Data Definition each company has an internal Data Asset Owner, while Data Definition Ownership is given to a standardization body
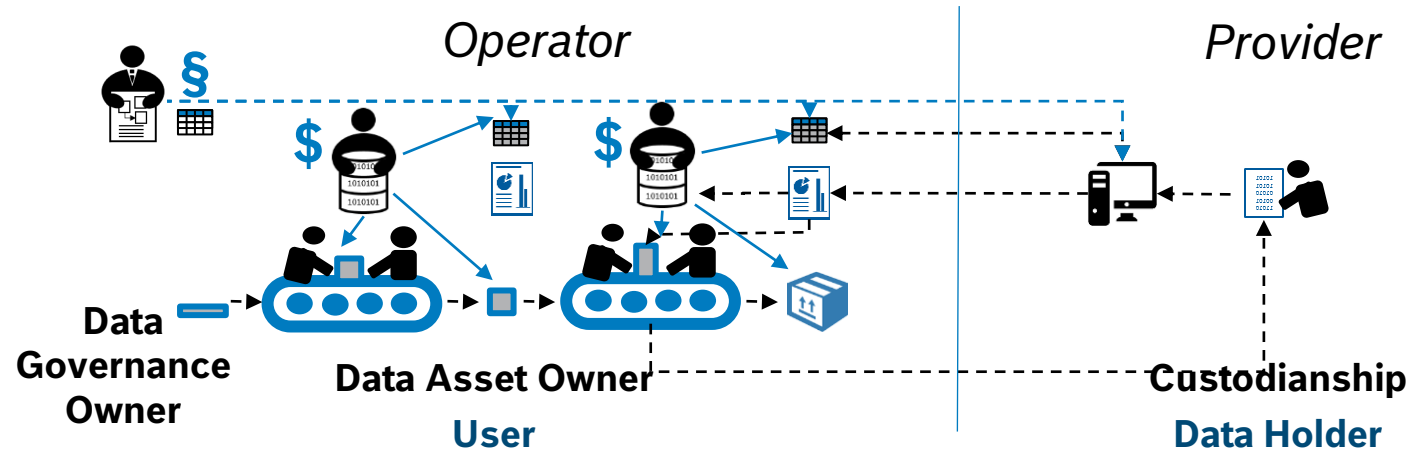
BOSCH
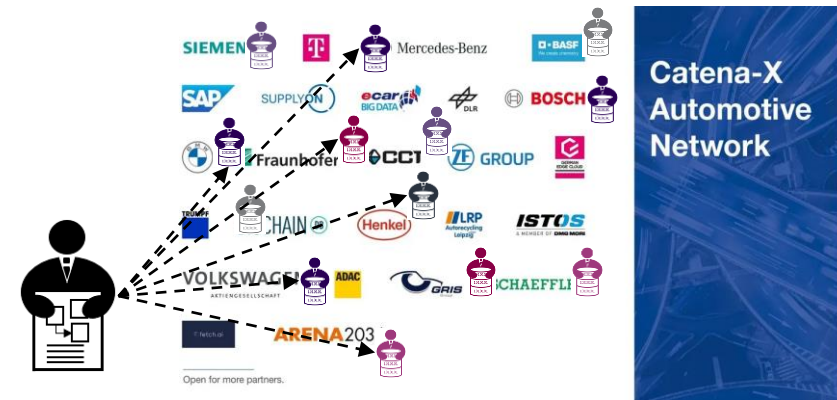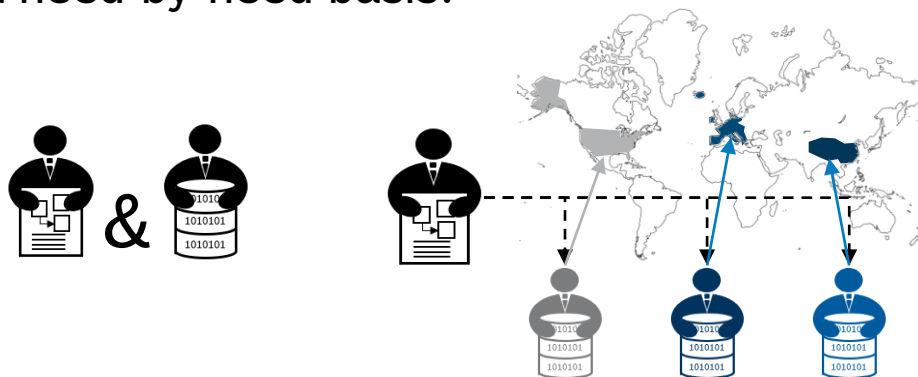
Data Owner = Eigner & Besitzer?
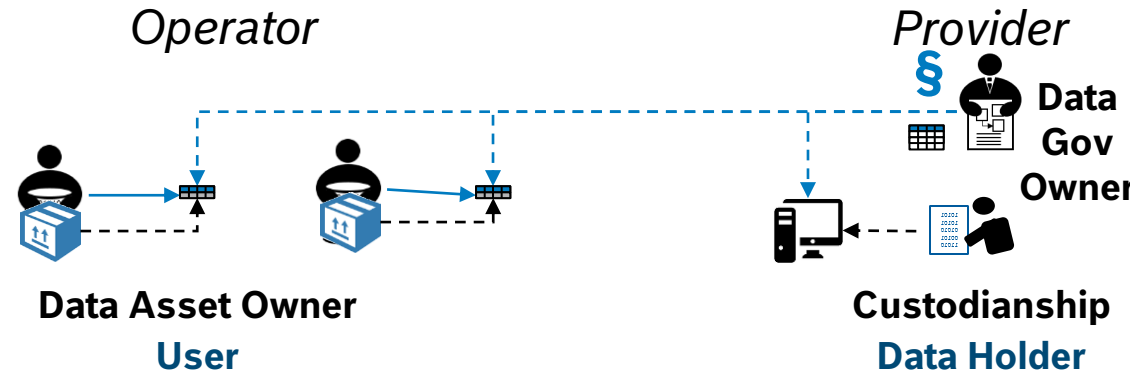## Examples and Consequences: Distributed Governance

- **B2B**
  - The Equipment Provider is considered the **Data Holder**
  - The Equipment Operator is considered the **User**
  - It is up to the operator to specify data req. for the equipment

- **B2C**
  - The IoT Device Provider is considered the **Data Holder**
  - The IoT Device User is the considered the **User**
  - Here it is up to the OEM to decide on the data requirements


Operator *Provider*

Data Governance Owner

Data Asset Owner
User

Custodianship
Data Holder

Operator *Provider*

Data Asset Owner
User

Data Gov Owner

Custodianship
Data Holder

BOSCH

Data Owner = Eigner & Besitzer?
Examples and Consequences: Two-Tiered Data Governance

- **Weak Data Governance**
  - All Data Asset are assigned a Data Asset Owner
  - Mandatory Data Polices 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 Development and Innovation**
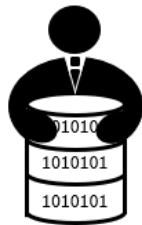
- **Strong Data Governance**
  - Business Critical Data Assets are assigned a Data Governance Owner
  - Extended Data Policies apply, e.g. business rules, data quality rules
  - Data definitions are released
  - Data provisioning uses **Service Level Agreements** for schema-on-write
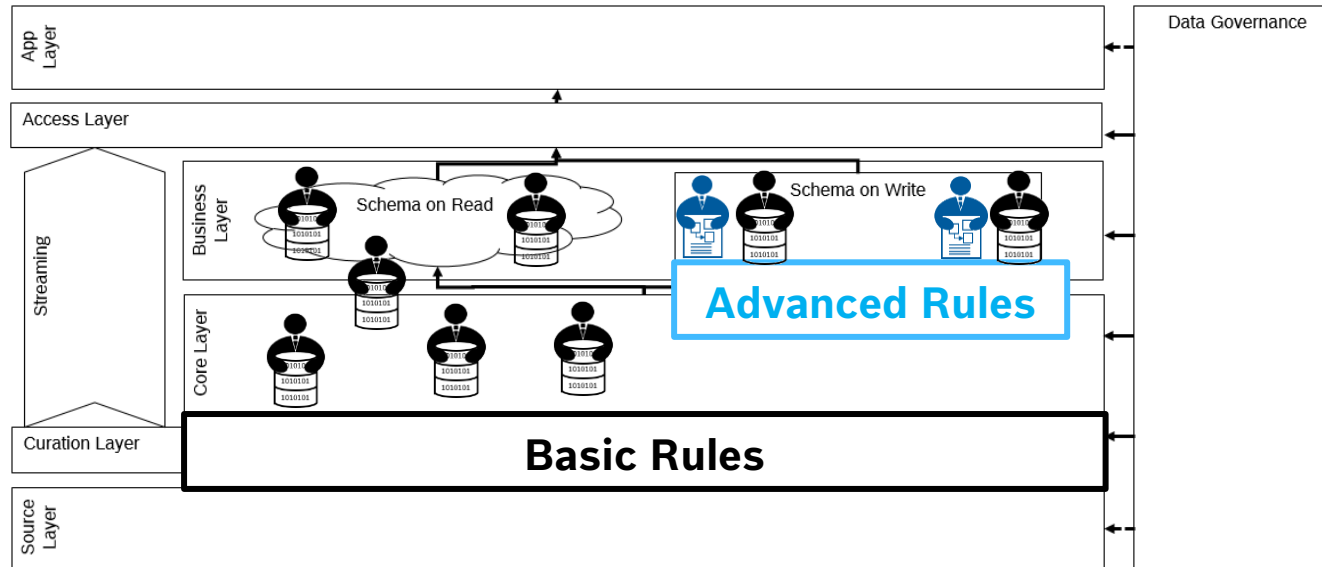- Enabling **Standardization and Scalability**
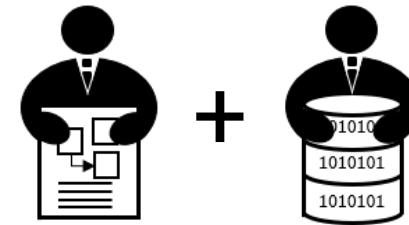
BOSCH

Data Owner = Eigner & Besitzer?
Examples and Consequences: Two-Tiered Data Governance

Weak Data Governance　　　**Strong Data Governance**

– We can shift from **Weak Data Governance** to **Strong Data Governance**, by assigning an additional Data Governance Owner and enforcing additional data polices, e.g. business rules and data quality, on a **need-by-need basis**

BOSCH

Summary

- In the digital transformation data becomes a business asset

- Thus, Data Ownership is a Business Role not an IT role and Data Governance is a Business Task

- EU laws and organizational complexity give limits and constraints to data ownership assignment

- Spliting Data Definition and Asset Ownership enables flexible and scalable governance

  - Distributed Ownership of Standardized Data

  - Two-tiered Data Governance

BOSCH