

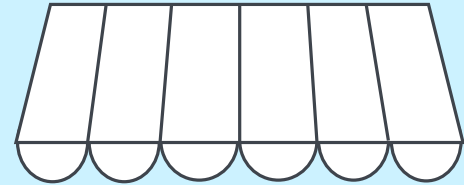
# Democratizing Data through Enterprise Data Marketplaces

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## Data Shopping for Data Consumers

Rebecca Eichler  
PhD Student

16th Symposium and Summer School On Service-Oriented  
Computing (SummerSoC 2022)



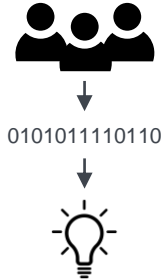
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SummerSoC  
Service Oriented Computing

# Introduction

## Goal: Extract Data Value in Enterprise



## Data Democratization:

empower employees to

- find
- understand
- access
- use
- and share

data across the enterprise.



## Enterprise Data Marketplace:

Platform for exchanging data within an Enterprise



# Outline

- Introduction
- Data Democratization
  - Definition & Dimensions
  - Current State - Finding, Understanding and Accessing Data in the Enterprise
- The Enterprise Data Marketplace (EDMP)
  - Definition, Offerings & Functionality
  - Finding, Understanding and Accessing Data through the EDMP
- Assessment - How does the EDMP Assist Data Democratization
- Conclusion

# Data Democratization

## Definition & Dimensions

### Definition:

empower employees to

- find
- understand
- access
- use
- and share

Consumer



Provider



data across the enterprise.

### Democratization Dimensions [1]:

1 Greater access to data & tools also for non-specialist users

2 Development of data and analytics skills

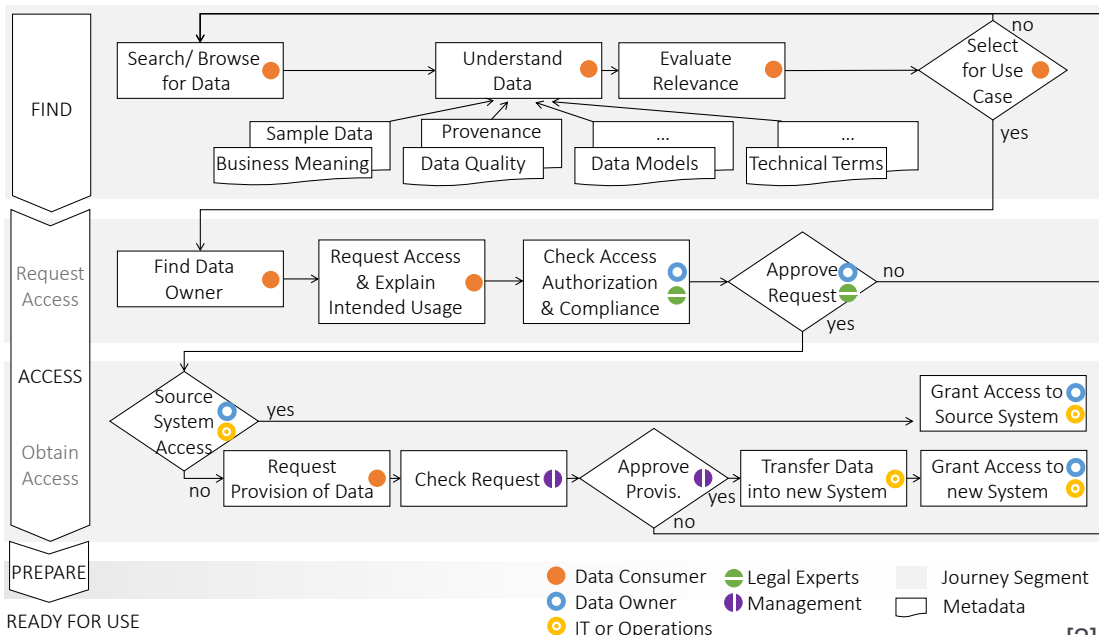
3 Collaboration and knowledge sharing

4 Promotion of data value

# Data Democratization

## Current State - Finding, Understanding and Accessing Data in the Enterprise

### The Data Consumer Journey

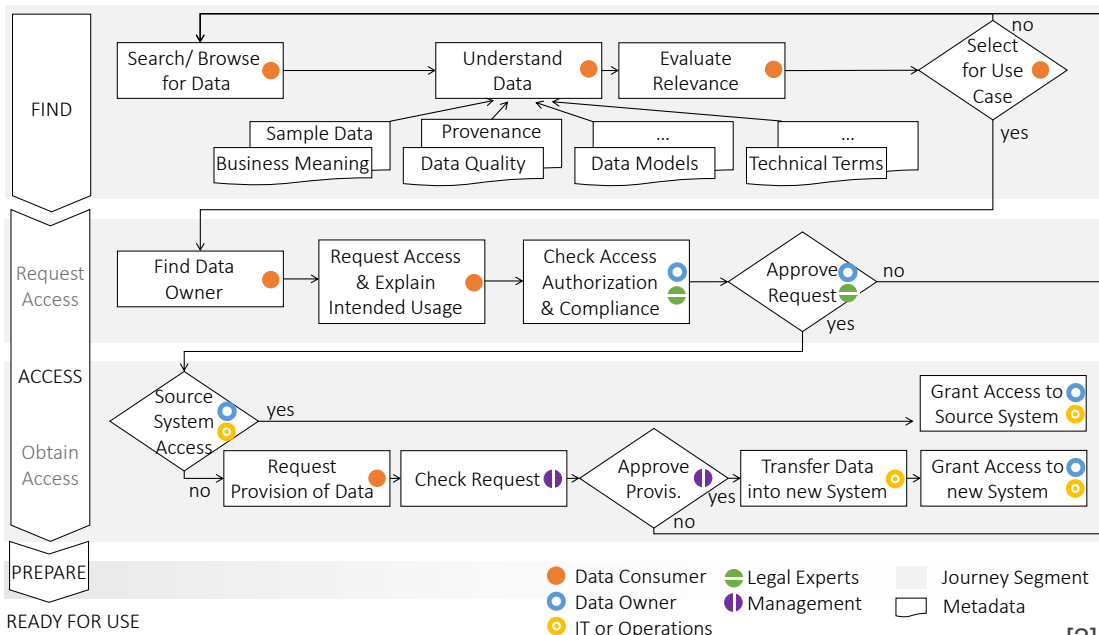


[2]

# Data Democratization

## Current State - Finding, Understanding and Accessing Data in the Enterprise

### The Data Consumer Journey

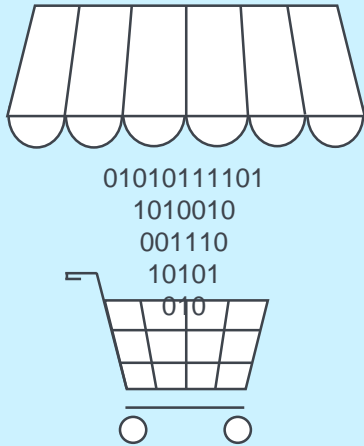


### Challenges:

- (1) The process involves several parties
- (2) Metadata for understanding the data is spread across a variety of tools
- (3) The tools are not integrated across the access process

# The Enterprise Data Marketplace (EDMP)

## Definition, Offerings & Functionality



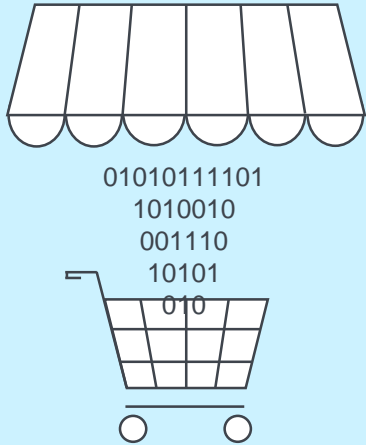
### Definition:

The edmp is a

- type of data marketplace for the exchange of data and data-related services between company employees, and optionally invited guests
- Objective is to democratize data within the company
- Offers the majority of the company's data including data:
  - from different domains,
  - in varying processing degrees,
  - and also data insights (e.g., reports)
  - from both operational and analytical systems

# The Enterprise Data Marketplace (EDMP)

## Definition, Offerings & Functionality



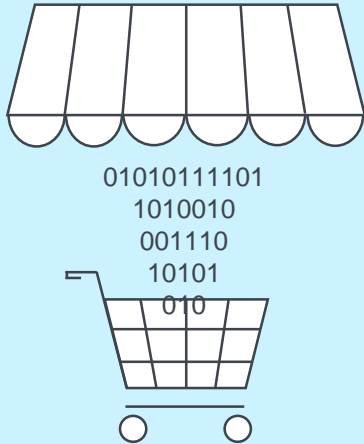
### Offerings:

- Data-as-a-Service
- Infrastructure-as-a-Service
- Software-as-a-Service
- Professional Services

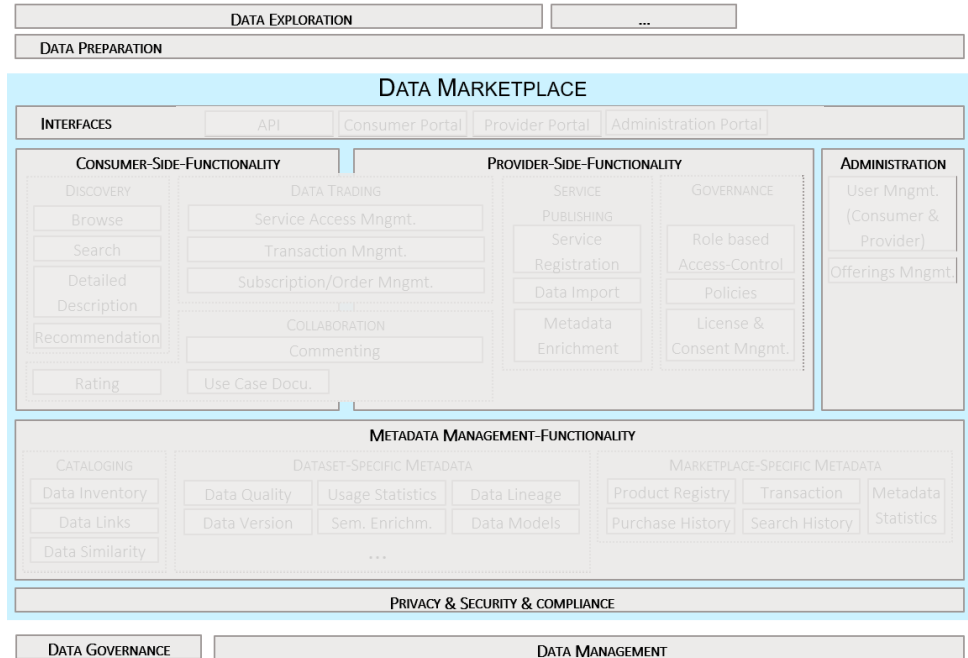


# The Enterprise Data Marketplace (EDMP)

## Definition, Offerings & Functionality



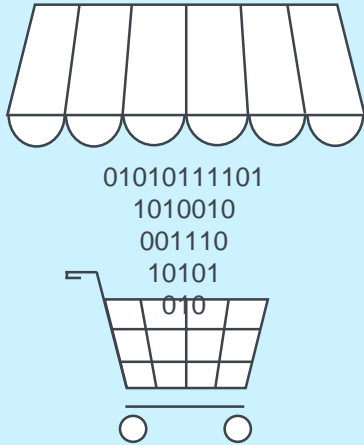
### Functionality:



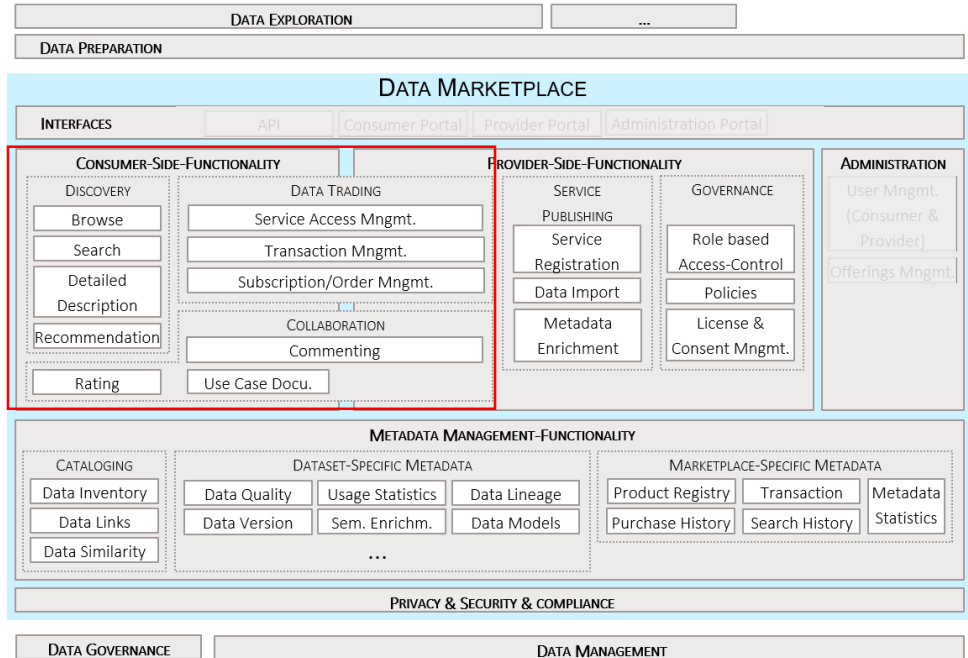
[3]

# The Enterprise Data Marketplace (EDMP)

## Definition, Offerings & Functionality



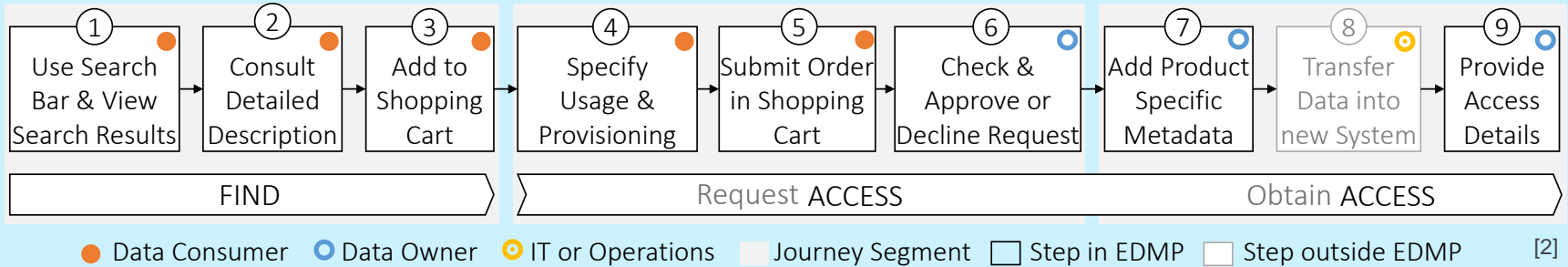
### Functionality:



[3]

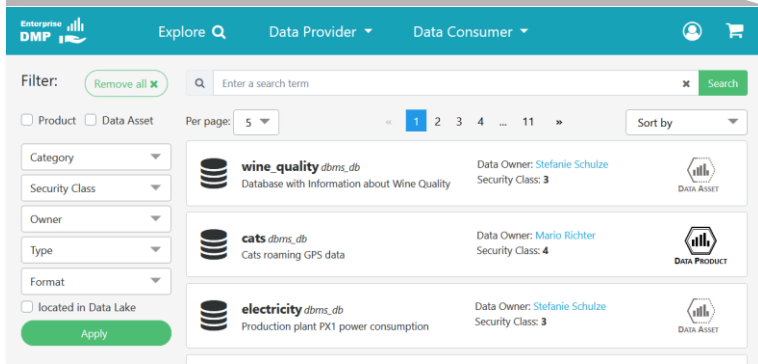
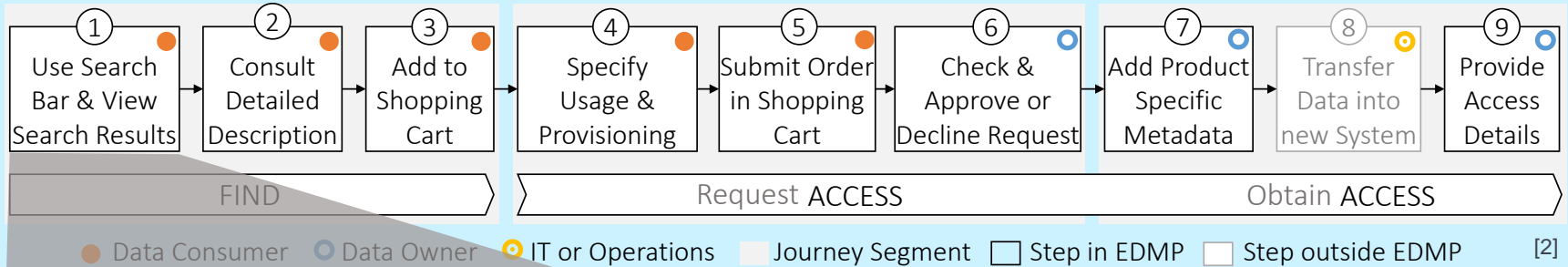
# The Enterprise Data Marketplace (EDMP)

## Finding, Understanding and Accessing Data through the EDMP



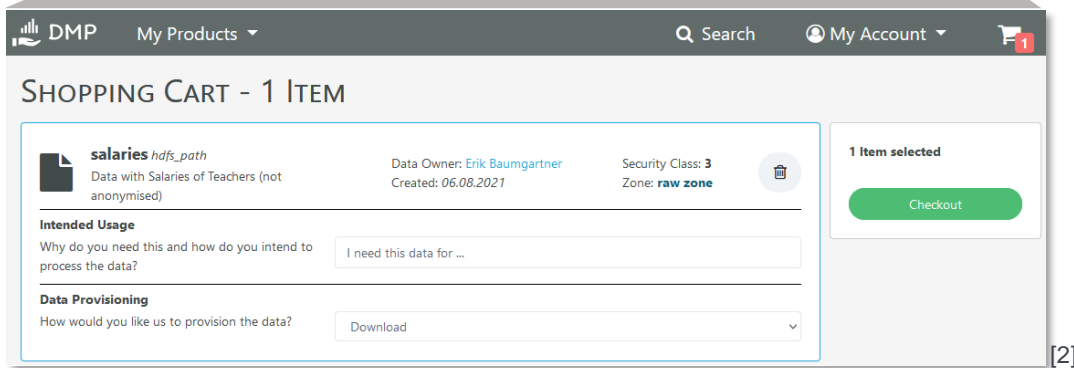
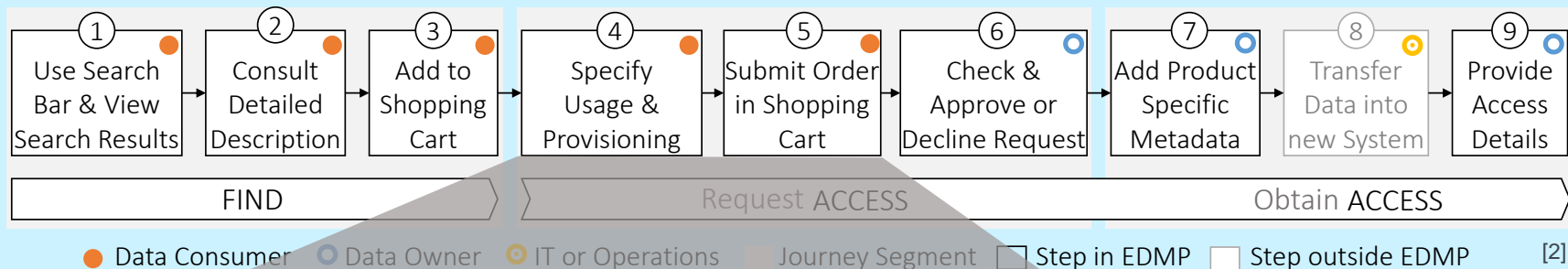
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## Finding, Understanding and Accessing Data through the EDMP



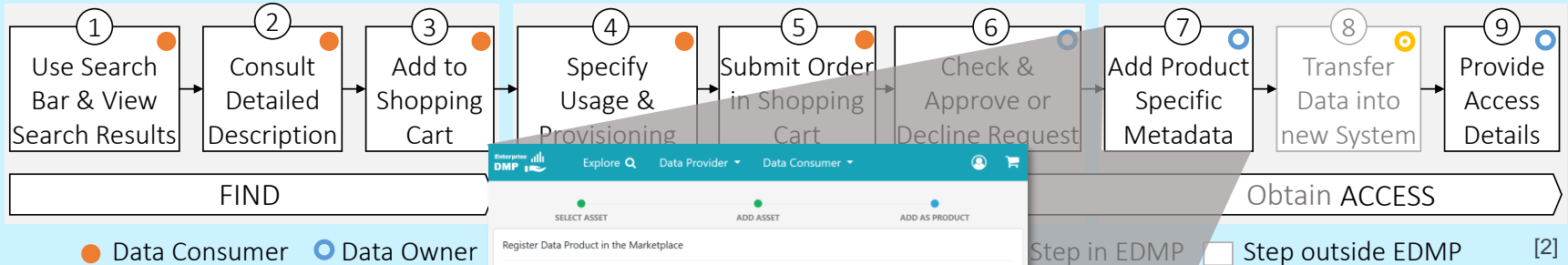
# The Enterprise Data Marketplace (EDMP)

## Finding, Understanding and Accessing Data through the EDMP



# The Enterprise Data Marketplace (EDMP)

## Finding, Understanding and Accessing Data through the EDMP



Enterprise DMP Explore Data Provider Data Consumer

SELECT ASSET ADD ASSET ADD AS PRODUCT

Register Data Product in the Marketplace

sleep study *dfms, table* Data Owner: Anny Smile Security Class: 3  
Table with Sleep Study Statistics

Term of use  
Is the data personal?  Yes  No

Permitted usage  
Specify which uses of data are permitted

Conditions of use  
Describe specific conditions of use for your data

License [i](#)  
CC BY-ND 4.0: Attribution-NoDerivs

Description  
This license lets others reuse the work for any purpose, including commercially; however, it cannot be shared with others in adapted form, and credit must be provided to you.  
[Learn more about Licenses](#)

Data Delivery Options  
Update-Cycle [i](#)  
No updates

How can I provide data  
Download

Access Link  
Enter a link to your data

Description of access procedure  
Describe the procedure for access to data

[+ back](#) [+ Add As Product](#) [3]

# Assessment – How does the EDMP Assist Data Democratization

## Data Democratization

**Data Democratization Def:**  
empower employees to

- find
- understand
- access
- use

Consumer



Provider



- and share

data across the enterprise.

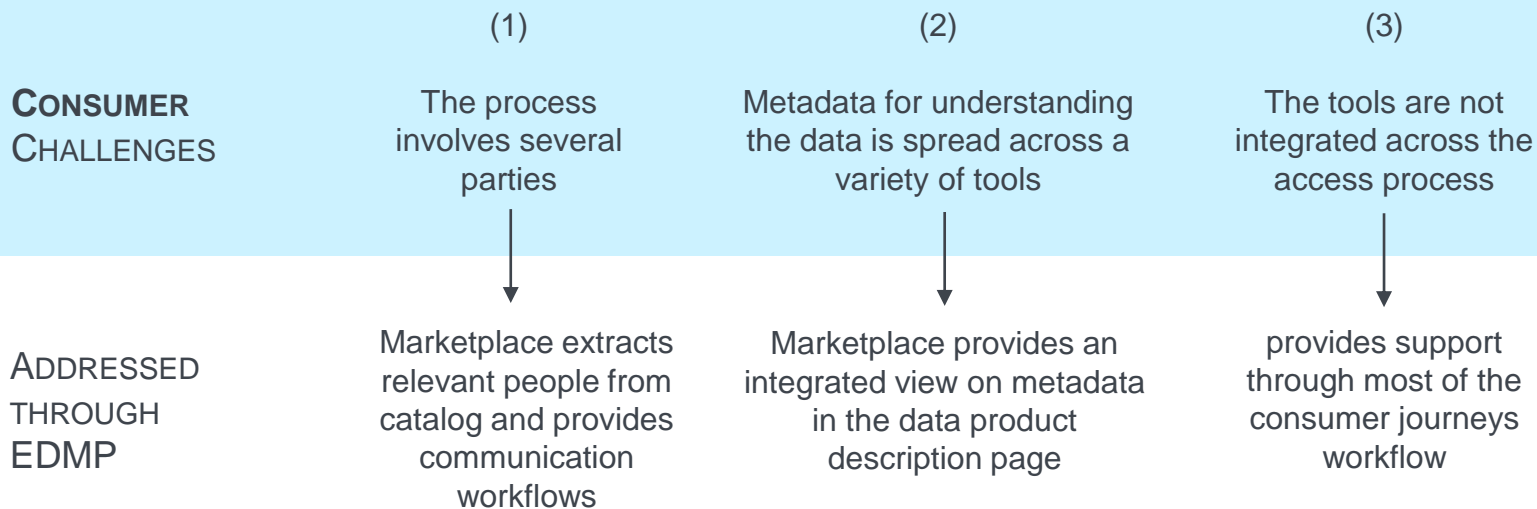
1 CONSUMER  
CHALLENGES

2 PROVIDER  
CHALLENGES

3 DATA DEMOCRATIZATION  
DIMENSIONS (1-4)

# Assessment – How does the EDMP Assist Data Democratization

## Data Democratization - Consumer Challenges





# Assessment – How does the EDMP Assist Data Democratization

## Data Democratization - Provider Challenges

**Definition:**  
empower employees to

- find
- understand
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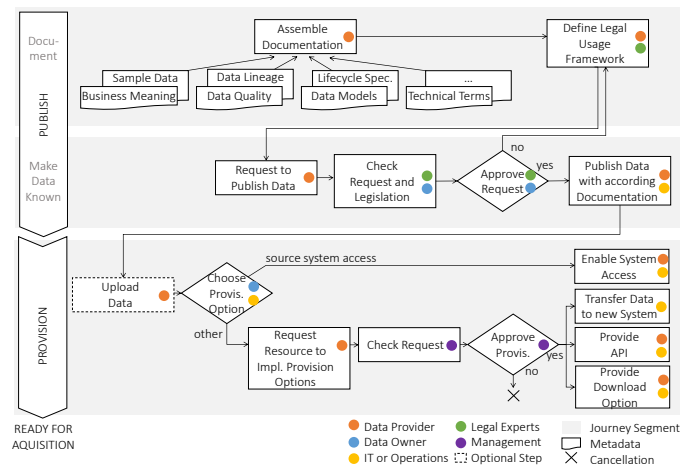
Consumer



Provider



data across the enterprise.



[3]

Provider Challenges ↓

- | PROVIDER CHALLENGES | (1)                  | (2)                            | (3)  | (4)                                  |
|---------------------|----------------------|--------------------------------|--|--------------------------------------|
|                     | Assembly of metadata | Supplying provisioning options | Registering data in several publishing tools | The process involves several parties |

# Assessment – How does the EDMP Assist Data Democratization

## Data Democratization Dimensions

### Democratization Dimensions:

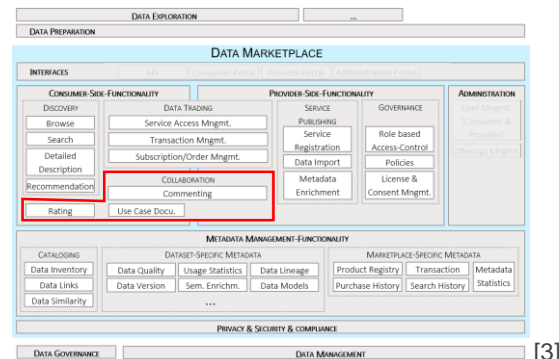
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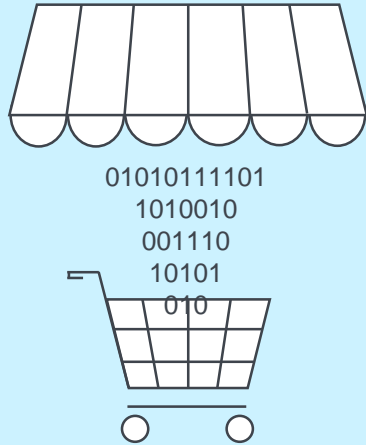
### Offerings:

- Data-as-a-Service
- Infrastructure-as-a-Service
- Software-as-a-Service
- Professional Services

### Functionality:

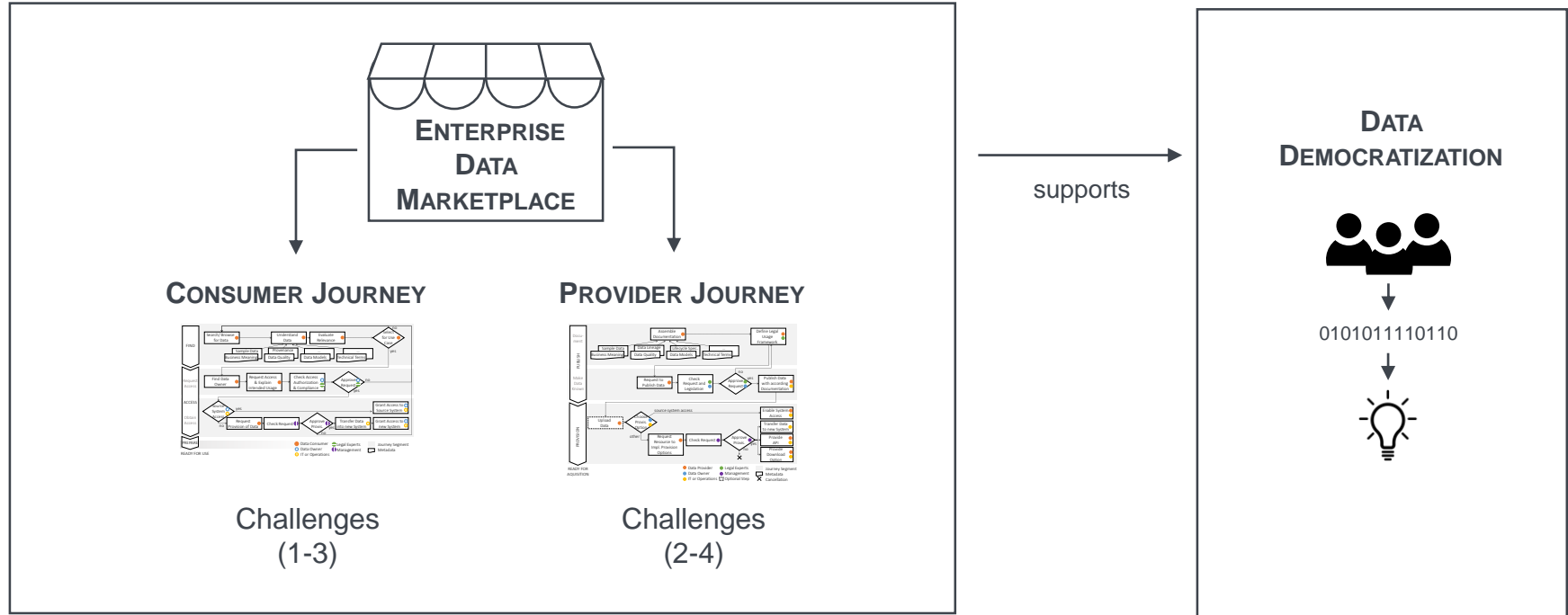


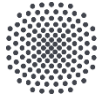
# Assessment – How does the EDMP Assist Data Democratization



## Prototypical Demo

# Summary & Conclusion





**University of Stuttgart**

Institute for Parallel and Distributed Systems

# Thank you!



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- [1] Lefebvre, H., Legner, C., Fadler, M.: “Data democratization : toward a deeper understanding.” In: Proceedings of the International Conference on Information Systems (ICIS 2021).
- [2] Eichler, R., Gröger, C., Hoos, E., Schwarz, H., Mitschang, B.: "Data Shopping — How an Enterprise Data Marketplace Supports Data Democratization in Companies." In: Proceedings of the 34th International Conference on Advanced Information Systems Engineering (CAiSE 2022).
- [3] Eichler, R., Gröger, C., Hoos, E., Schwarz, H., Mitschang, B.: "From Data Asset to Data Product – The Role of the Data Provider in the Enterprise Data Marketplace ." In: Proceedings of the 16th Symposium and Summer School On Service-Oriented Computing (SummerSoc 2022).
- [4] Eichler, R., Giebler, C., Gröger, C., Hoos, E., Schwarz, H., Mitschang, B.: Enterprise-Wide Metadata Management: An Industry Case on the Current State and Challenges. In: Proc of the 24th International Conference on Business Information Systems (BIS). pp. 269–279 (2021).