Universal Data Model for Data Sharing

under the European Data Strategy

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UNIVERSITY OF OSLO

Motivation
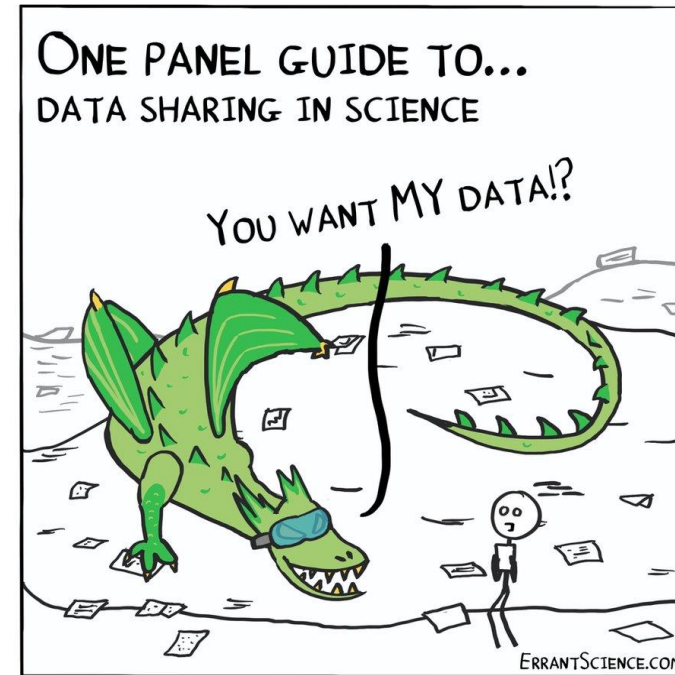
- Data sharing requires Metadata

- Interfaces require a common standard for metadata as well
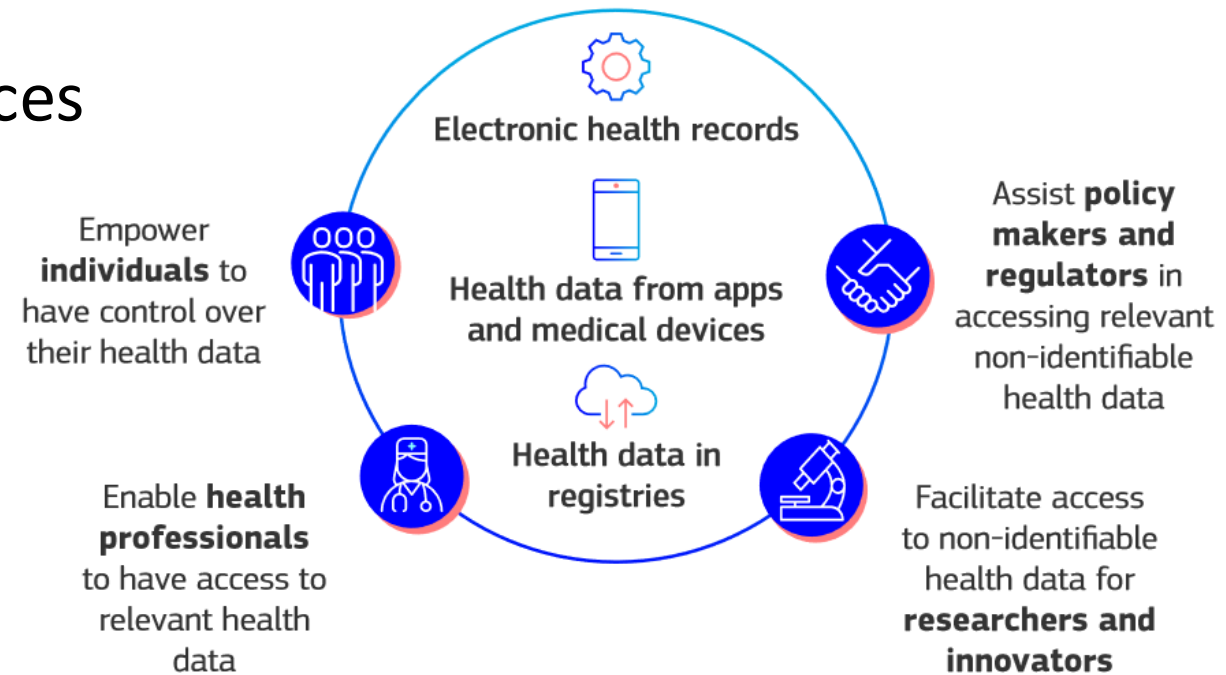
Data Sharing: Data Governance Act

- Introduction of European Data Spaces
  - Sharing and reuse of data
  - Public and private entities
  - Multiple sectors
- Data Intermediaries
  - Mediator between Data Controllers
  - Storing and requesting data sets
  - Facilitate Data Subject Rights enforcement

Empower **individuals** to have control over their health data

Electronic health records

Health data from apps and medical devices

Health data in registries

Assist **policy makers and regulators** in accessing relevant non-identifiable health data

Enable **health professionals** to have access to relevant health data

Facilitate access to non-identifiable health data for **researchers and innovators**

Objectives of the European Health Data Space
Taken from
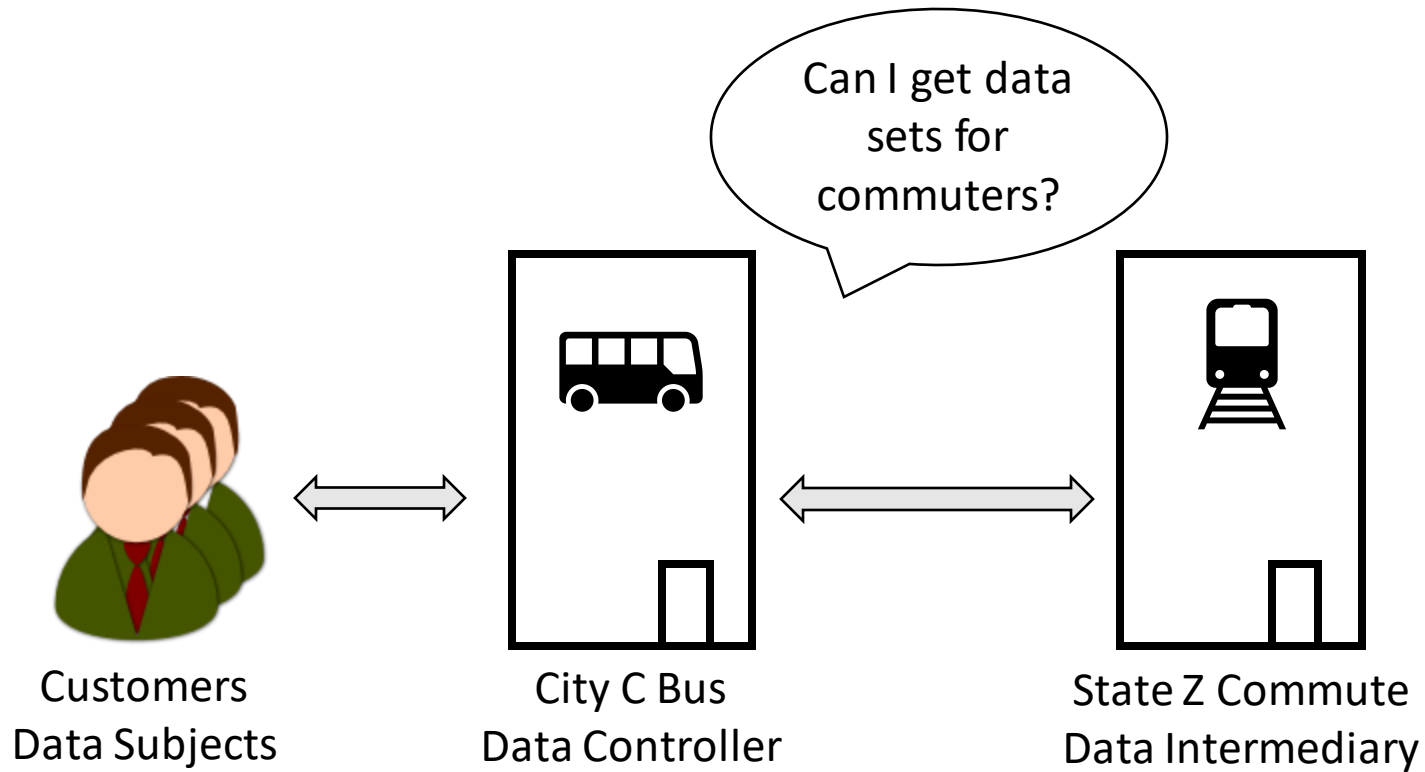https://ec.europa.eu/commission/presscorner/detail/en/fs_22_2713

Data Sharing: Digital Markets Act

- Empowerment of innovative small-size markets actors

- Mandatory data sharing

- Gatekeepers
  - Huge digital market platform operators
  - Make data accessible to less powerful actors
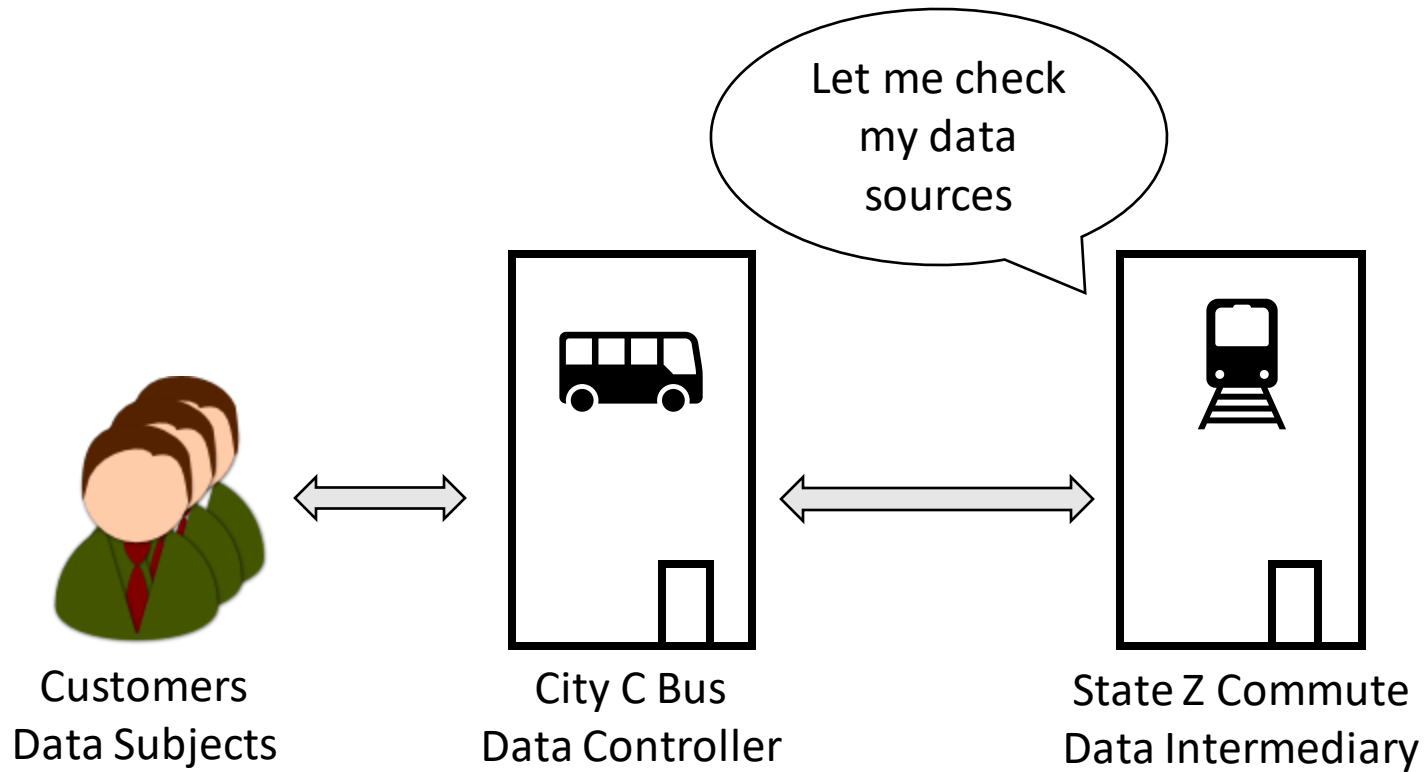 - Remain main contact point for Data Subjects
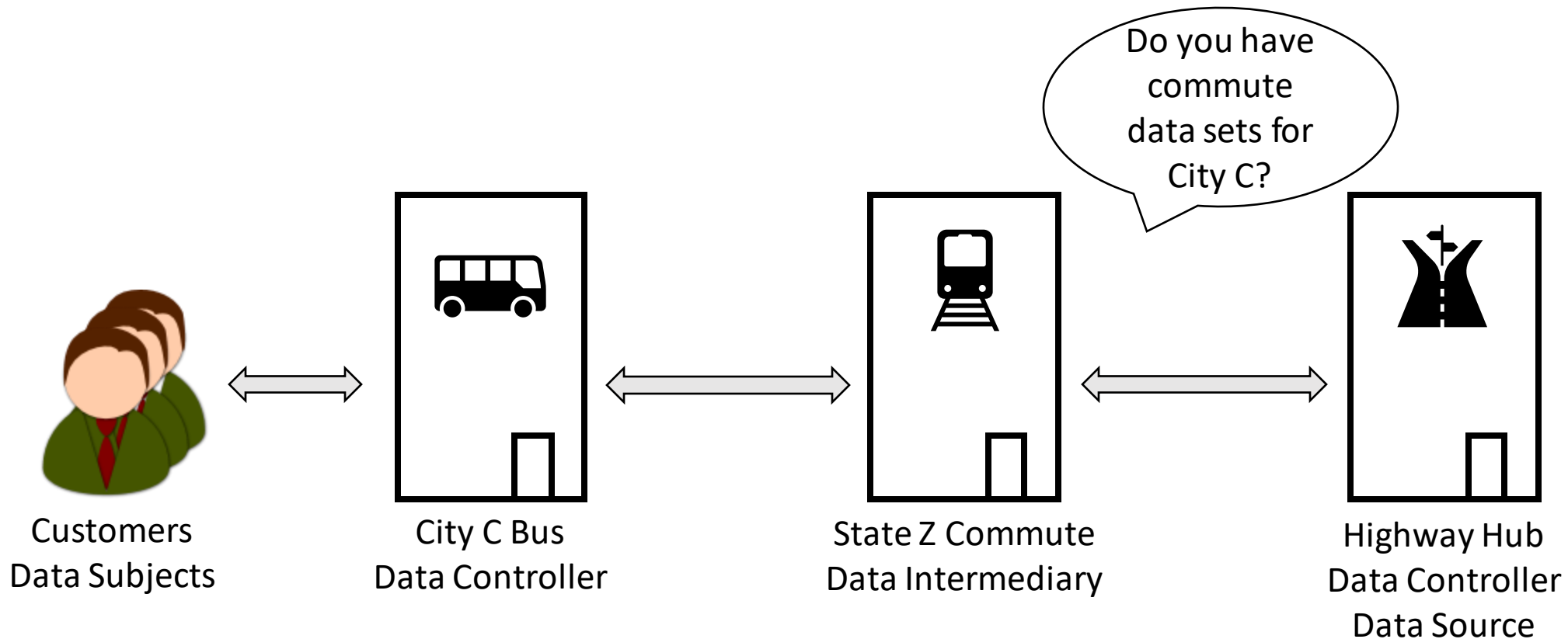
Data Sharing Scenario: City C Transit
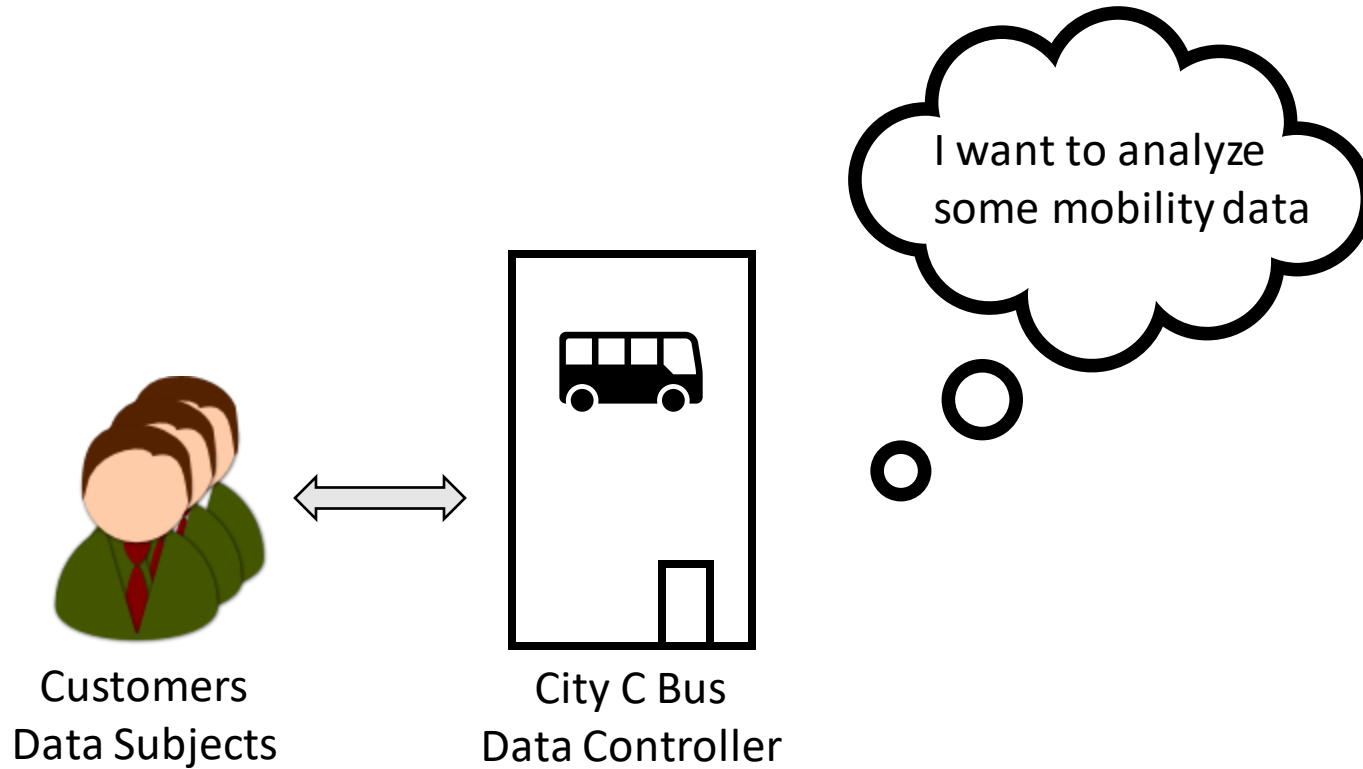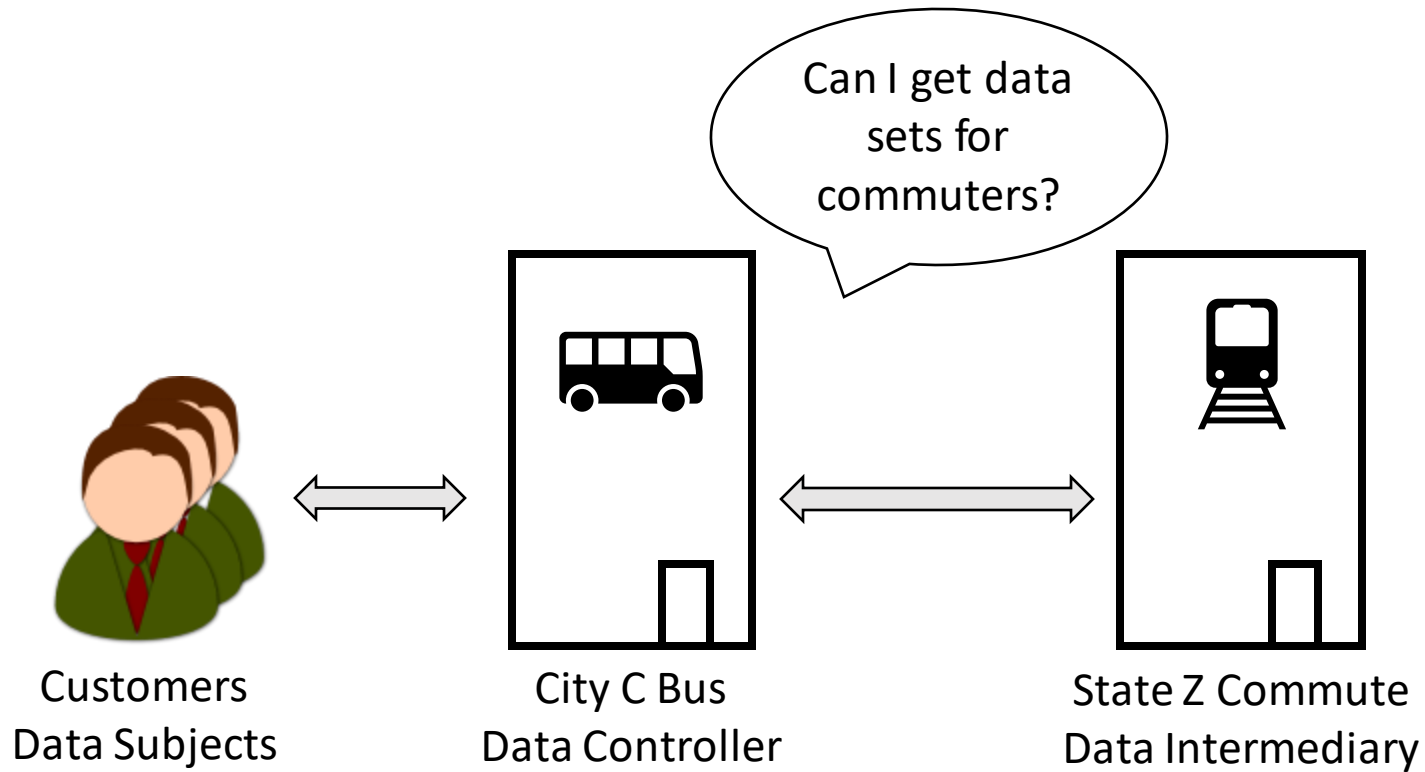
Data Sharing Scenario: City C Transit

Data Sharing Scenario: City C Transit

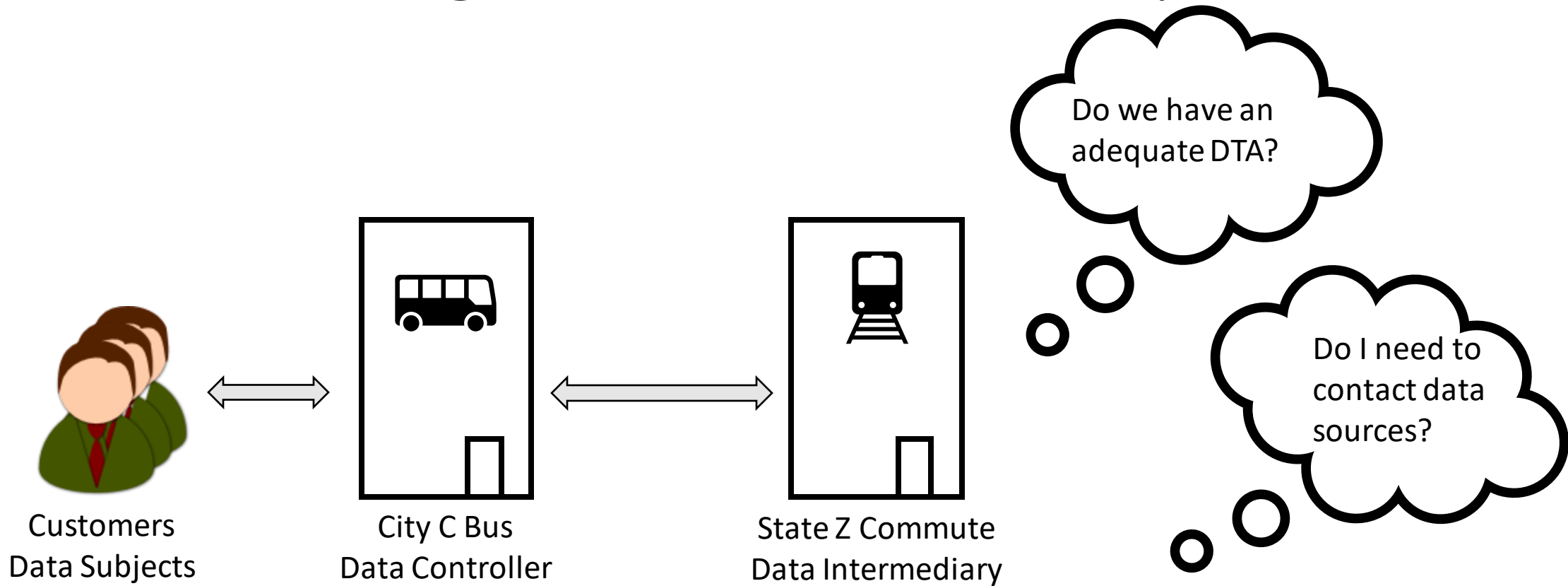# Data Sharing Scenario: City C Transit

Data Sharing Scenario: Receive Request

Data Sharing Scenario: Check Requirements

Customers
Data Subjects

City C Bus
Data Controller

State Z Commute
Data Intermediary

Do we have an adequate DTA?

Do I need to contact data sources?

Data Sharing Scenario: Check Requirements

Customers
Data Subjects

City C Bus
Data Controller

State Z Commute
Data Intermediary

Data Transaction Agreement	
id	7
title	Z State traffic route utilization agreement
description	Formal agreement on the exchange of route…
sender	City C Bus, Highway Hub
recipient	Z State Commute
startDate	2019-01-01 00:00:00
endDate	9999-12-31 23:59:59
legalGround	Legal obligation
category	Location, Transit ID

Data Sharing Scenario: Contact Data Source
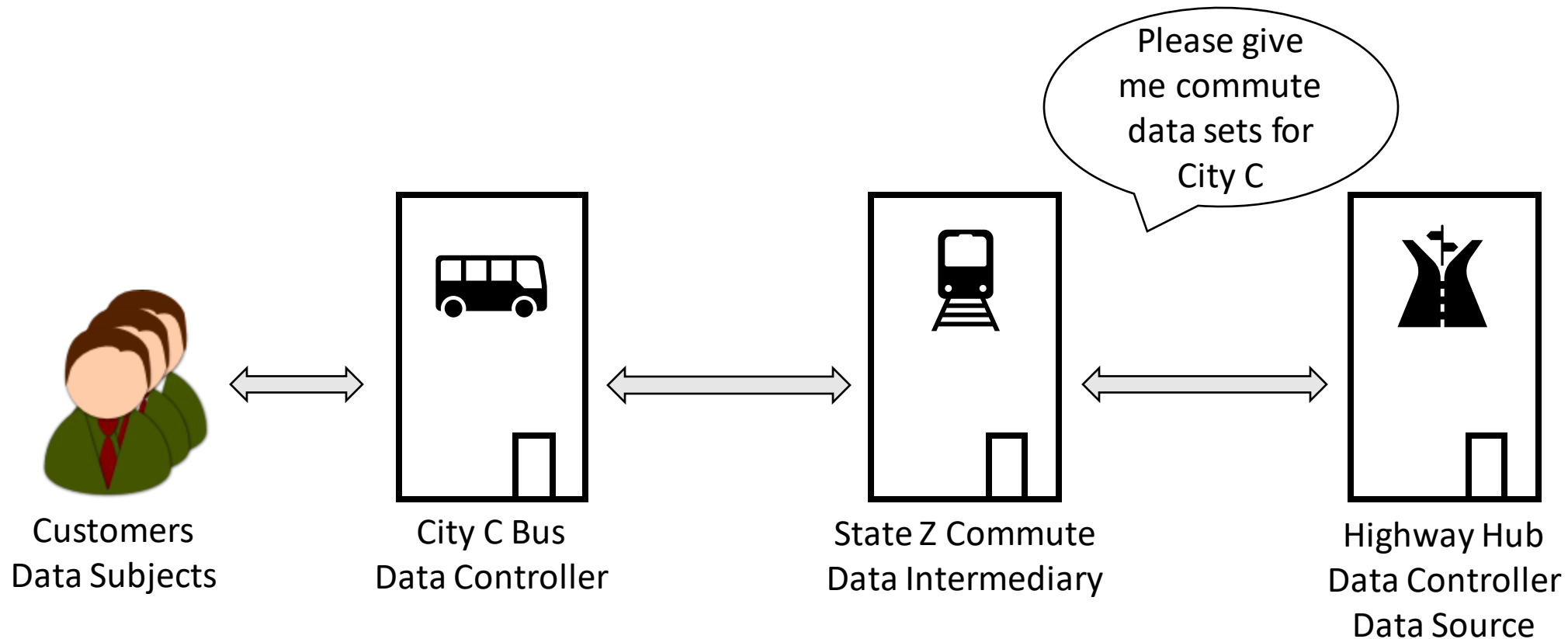
Data Sharing Scenario: Data Source to DI

Data Set	
id	15464
source	30091
category	Location, Transit ID
legalGround	Consent
dataSubject	12331
creationDate	2023-01-09 06:30:00
retentionDate	2025-01-09 06:29:59

Here you go!

State Z Commute
Data Intermediary

Highway Hub
Data Controller
Data Source
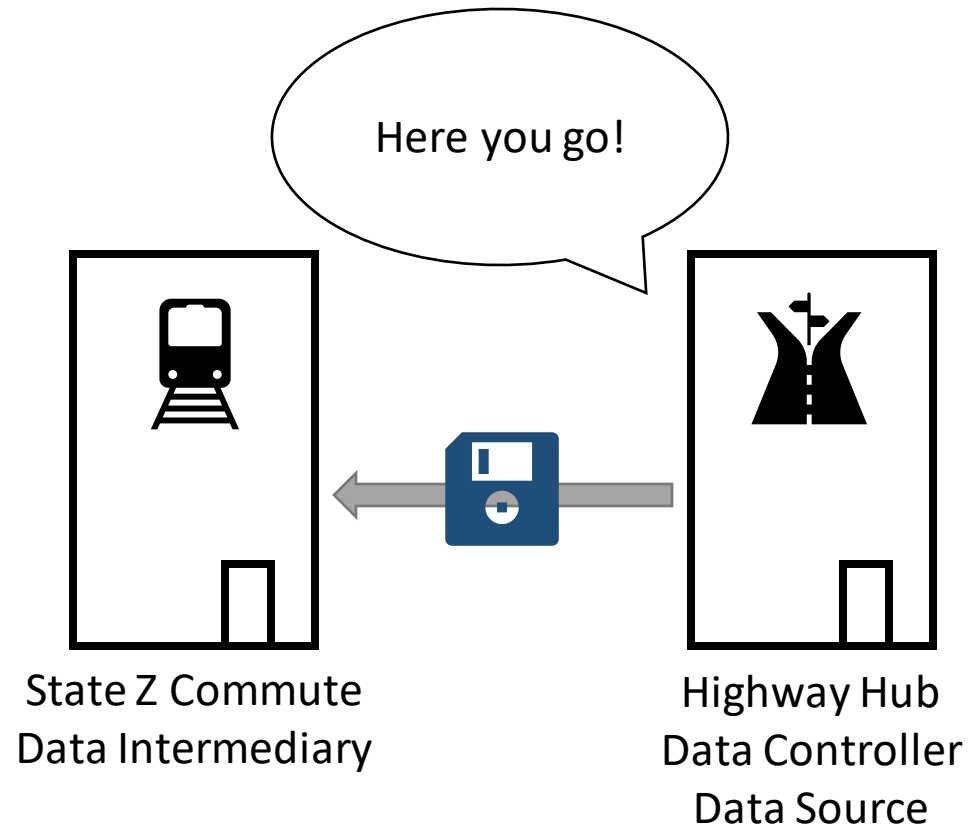
Data Sharing Scenario: Data Source to DI

Data Transaction	
id	30091
date	2023-02-01 13:27:53
dataSet	15454, 15455
dta	Z State traffic route utilization agreement
sender	Highway Hub
recipient	State Z Commute

Here you go!

State Z Commute
Data Intermediary

Highway Hub
Data Controller
Data Source

Data Sharing Scenario: DI to Initiator

Customers
Data Subjects

City C Bus
Data Controller

State Z Commute
Data Intermediary

Highway Hub
Data Controller
Data Source

Here is the complete result
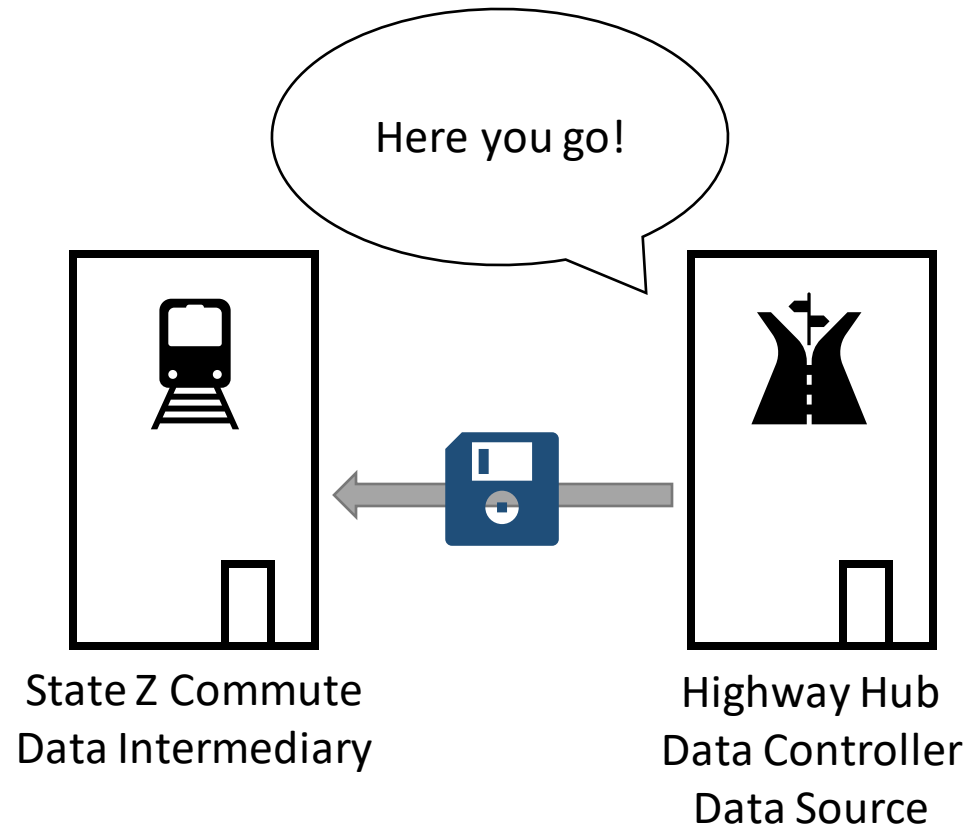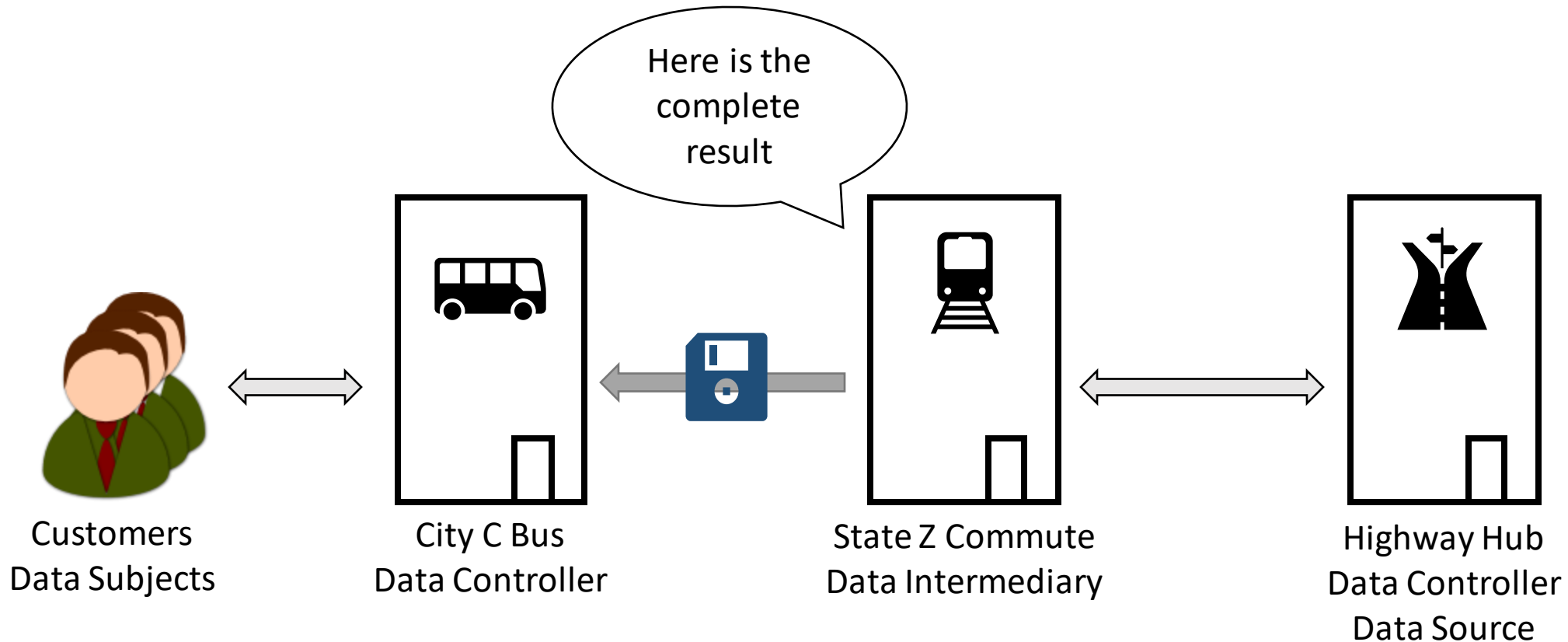
Data Sharing Scenario: DI to Initiator
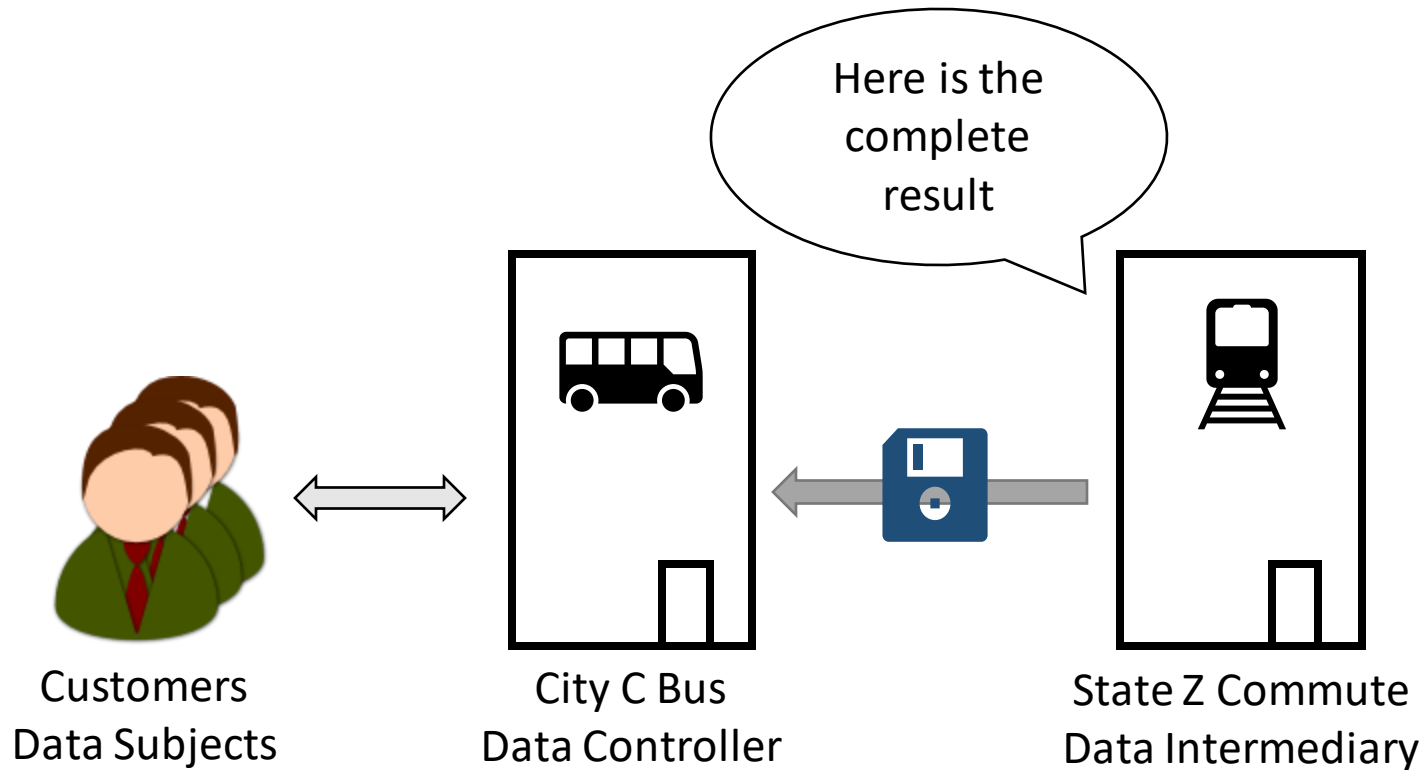
Data Transaction	
id	30158
date	2023-02-02 21:43:18
dataSet	15454, 15455
dta	Z State traffic route utilization agreement
sender	State Z Commute
recipient	City C Bus

Data Sharing Scenario: Compliance Check

Data Sharing Scenario: Compliance Check

Why do you have my highway data?

Customers
Data Subjects

City
Data C[...]

Data Transaction Agreement

id	7
title	Z State traffic route utilization agreement
description	Formal agreement on the exchange of route…
sender	City C Bus, Highway Hub
recipient	Z State Commute
startDate	2019-01-01 00:00:00
endDate	9999-12-31 23:59:59
legalGround	Legal obligation
category	Location, Transit ID

Data Transaction

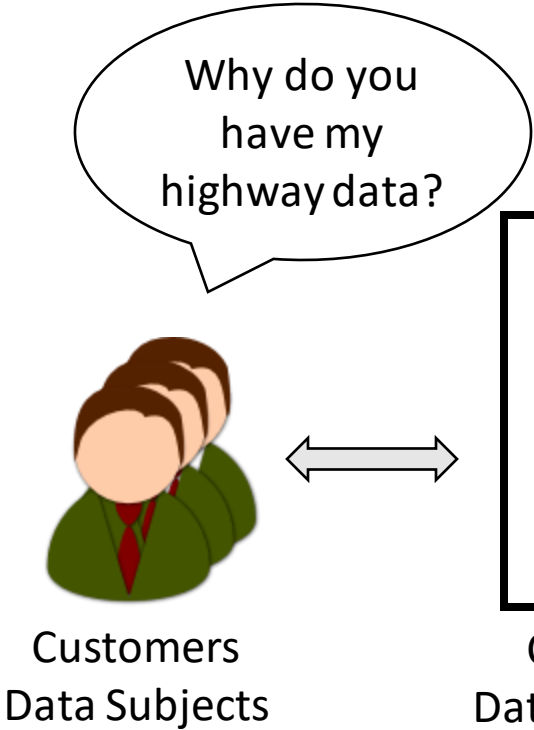| id	30158
date	2023-02-02 21:43:18
dataSet	15454, 15455
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recipient	City C Bus

Data Sharing Scenario: Compliance Check

Why do you have my highway data?

Customers
Data Subjects

City C
Data Co...

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Data Transaction	
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date	2023-02-02 21:43:18
dataSet	15454, 15455
dta	Z State traffic route utilization agreement
sender	State Z Commute
recipient	City C Bus

Legal Ground, Purpose & Category

Legal Ground	
id	283
type	Legal obligation
description	Requirement to share route utilization with competent authority
startDate	2019-01-01 00:00:00
endDate	9999-12-31 23:59:59
purpose	Service optimization, examination of utilization of public resources
actor	State Z Commute, City C Bus, Highway Hub
dataSubject	30091, 30092, 30093,…

Purpose	
id	74
name	Service optimization
description	Collection and processing of data for the optimization of a service
autoDecision	false

Category	
id	53
name	Location
personal	true
sensible	false

Discussion

- Data minimization
  - Metadata
  - Recital 57
  - Data Subject Rights and data breach notifications

- Partial dissemination

- Standardization

- Can be used in conjunction with existing frameworks
  - Privacy policy languages
  - Framework for free flow of non-personal data
  - Data sharing agreement languages

Conclusion

- Data Sharing requires metadata

- Metadata require a universal model

- We introduced a first draft of such a model!

- Going Forward:

    Data Intermediaries and gatekeepers require a standard!