

# Privacy and Transparency Interoperability, Standards and Vocabularies

Axel Polleres

Ben Whittam Smith

# 1 year ago...

## MyData 2017

Advancing human centric personal data  
Tallinn \ Aug 30th – Sep 1st / Helsinki



Draft of the regulation  
7/22/2012

Revisions  
3/12/2013

## Project Launch: SPECIAL (a Scalable Policy-aware linked data arChitecture for prIvacy, trAnsparency and compLIance)

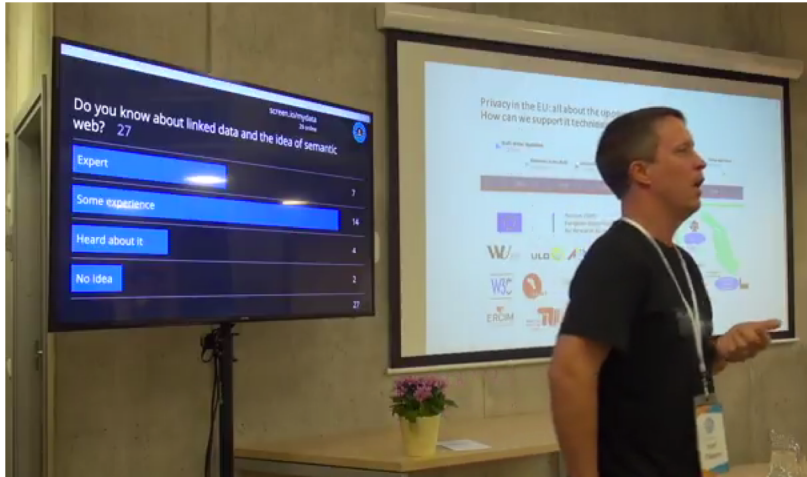
Axel Polleres, Vienna University of Economics and Business (WU Wien)

MyData 2017, Tallinn/Helsinki

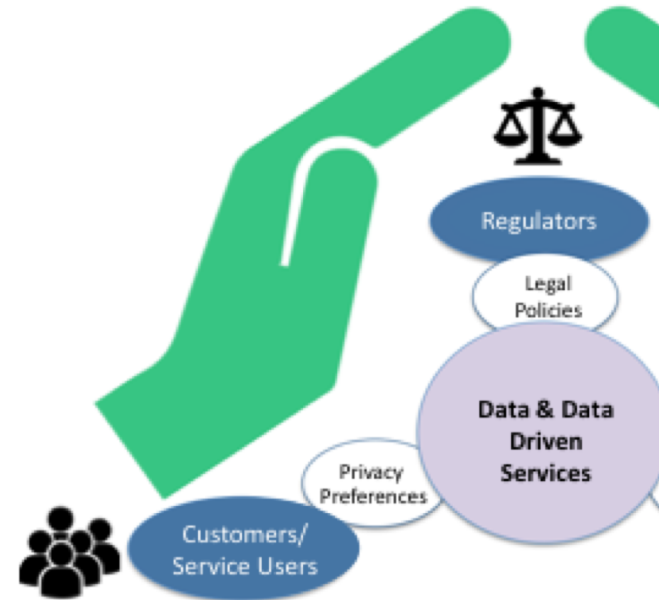
30/08/2017



Horizon 2020  
European Union funding  
for Research & Innovation



Horizon 2020  
European Union funding  
for Research & Innovation



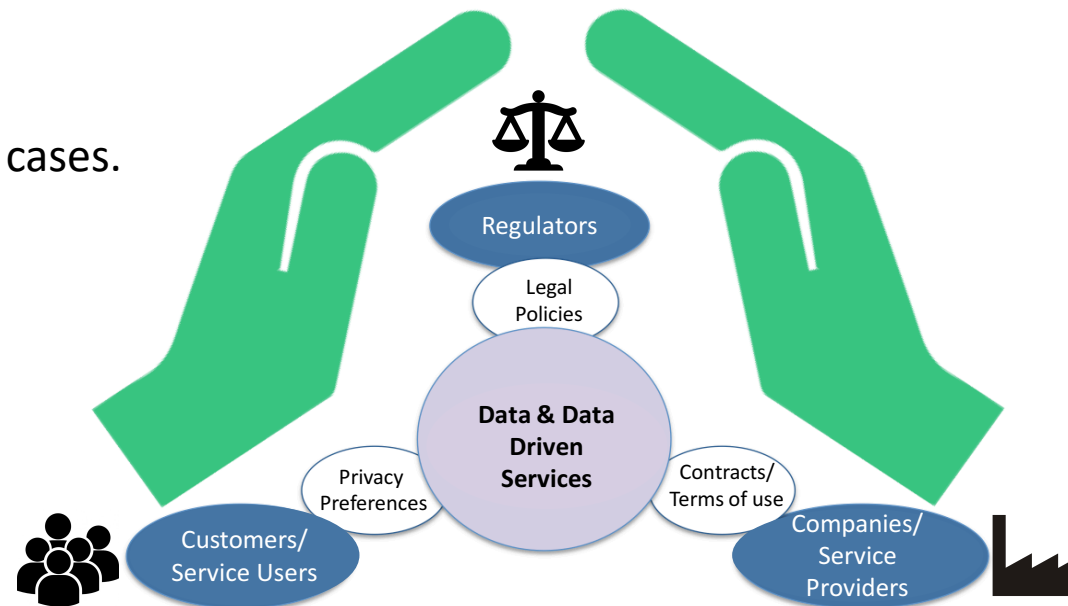
# Use Cases for Transparency and Interoperability:

 Companies: Ensuring Regulatory Compliance for Companies

 Regulators: Checking and enforcing GDPR

 *Data Subjects: Personal Data Markets: from “Data Collection” to “Data Donations”*

Different roles have different use cases.

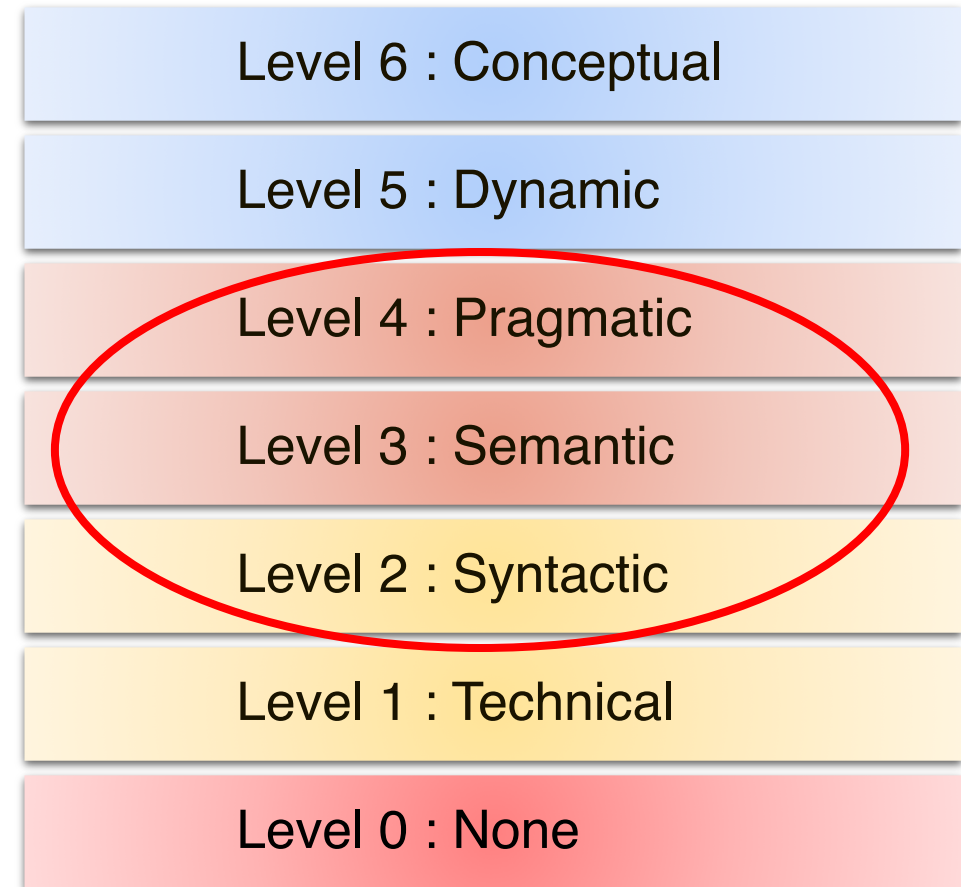


# Semantics/Interoperability

- Semantics:
  - Agreed structured vocabularies for describing and interchanging **Components of Personal Data Processing**
  - Enable standardized + **automated ways to implement and monitor GDPR compliance** checking

## Room for Standardisation?

- Standard Vocabularies
- Standard Architectures+Compliance checking Algorithms





# Components of Personal Data Processing (not exhaustive...)



Rules/Policies

- Consent
- Regulations



Purpose



Processing



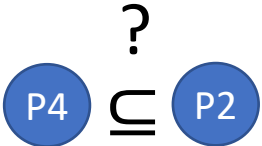
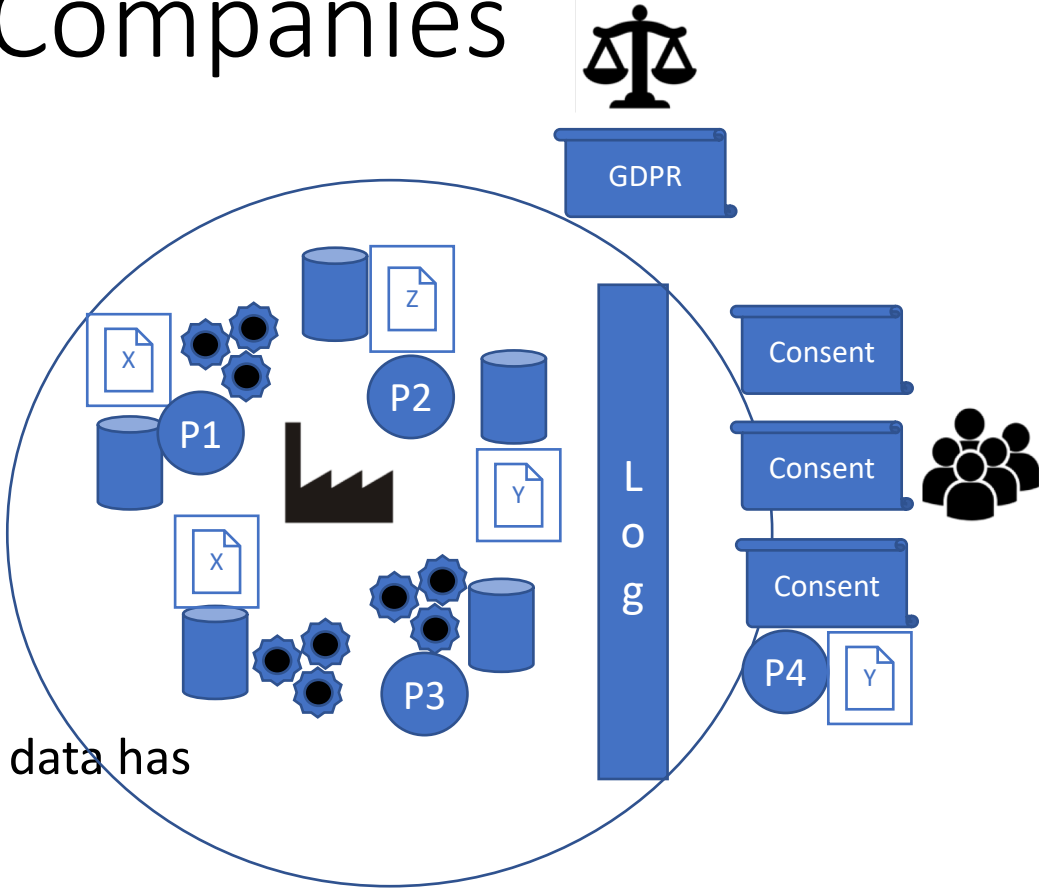
Storage



Personal Data (categories, formats)

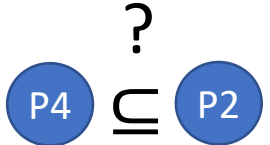
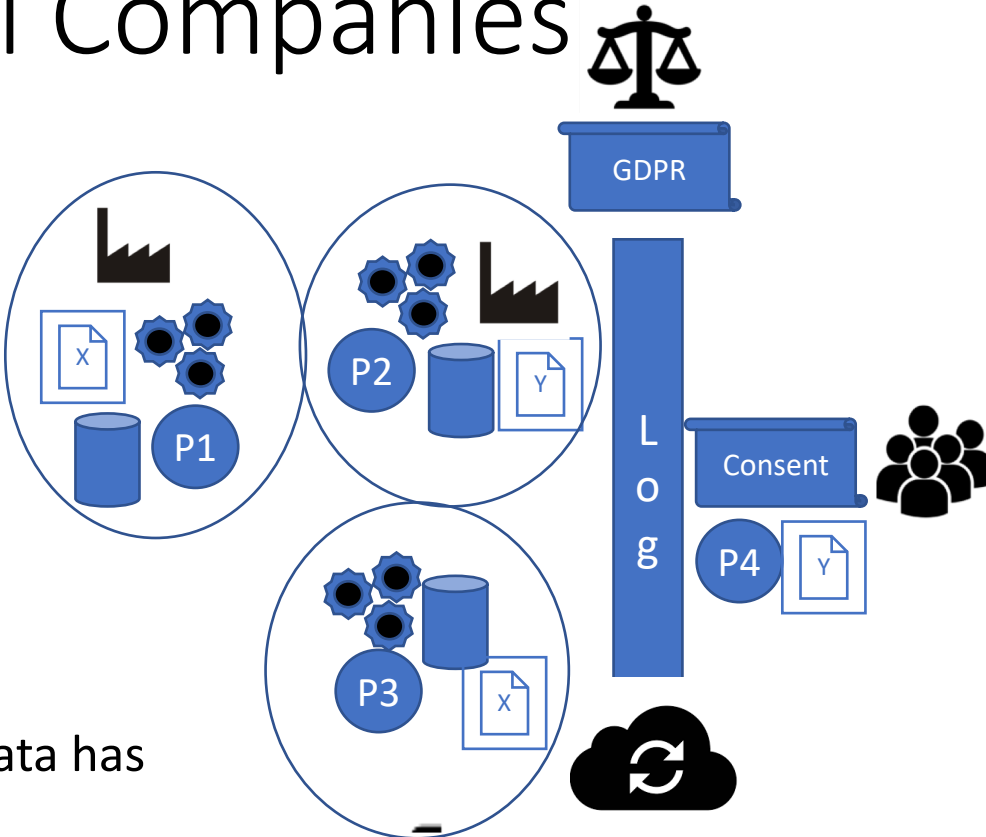
# Regulatory Compliance for Big Companies

- Many heterogeneous systems that process personal data
- Potentially many different places that store and hold consent
- How to deal with GDPR data requests at scale?
- How to prove to the regulator and to the customer that personal data has been handled in compliance to consent only?



# Regulatory Compliance for Small Companies

- No resources to build their own compliance infrastructure
- How to deal with GDPR data requests at scale?
- How to prove to the regulator and to the customer that personal data has been handled in compliance to consent only?



Semantic Interoperability boils down to:

- What is a common core to address these use cases?
- How do we benefit them all at the same time?



## Data Privacy Controls and Vocabularies

### A W3C Workshop on Privacy and Linked Data

17–18 April 2018, WU Vienna, Vienna, Austria, Europe

<https://www.w3.org/2018/vocabws/report.html>



# Semantic Interoperability boils down to:

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## Rough workshop outcome / scoping:



1. Taxonomy of regulatory privacy terms (including all GDPR terms).
2. Taxonomy for personal data.
3. Taxonomy of purposes.
4. Taxonomy of disclosure/processing.
5. Metadata (e.g. related to processing details of anonymization)
6. Log vocabulary.
7. Taxonomy of linkage operations.
8. Taxonomies of human behavior.

# Semantic Interoperability boils down to:

- What is a common core to address these use cases?
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## → Foundation of a W3C Community Group (25<sup>th</sup> May 2018)



[Home](#) / Data Privacy Vocabularies...

### DATA PRIVACY VOCABULARIES AND CONTROLS COMMUNITY GROUP

The mission of the W3C Data Privacy Vocabularies and Controls CG (DPVCG) is to develop a taxonomy of privacy terms, which include in particular terms from the new European General Data Protection Regulation (GDPR), such as a taxonomy of personal data as well as a classification of purposes (i.e., purposes for data collection), and events of disclosures, consent, and processing such personal data.

- Collect concrete **Use cases**
- Collect **Existing Vocabularies**

→ **Align Core Vocabularies**

1. Taxonomy of regulatory privacy terms (including all GDPR terms).
2. Taxonomy for personal data.
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The screenshot shows the W3C Community & Business Groups banner at the top. Below it is the title "DATA PRIVACY VOCABULARIES AND CONTROLS COMMUNITY GROUP". A paragraph describes the mission of the W3C Data Privacy Vocabularies and Controls CG (DPVCG) to develop a taxonomy of privacy terms, including those from the new European General Data Protection Regulation (GDPR).

- Collect concrete **Use cases**
- Collect **Existing Vocabularies**

→ Align Core Vocabularies

### Use-Cases [\[edit\]](#)

- [SPECIAL/Proximus use case](#) - personalized touristic recommendations
- [SPECIAL/DT use case](#) - mobile network quality measurements
- [SPECIAL/TR use case](#) - 'Know Your Customer' (finance, anti-money-laundering)
- [DECODE/DEC01 use case](#) - Online voting system with privacy
- [DECODE/DEC02 use case](#) - Rental Register
- [DECODE/DEC03 use case](#) - Sharing sensor data



***We need your input!***  
→ ***Join DPVCG!***

### Vocabularies [\[edit\]](#)

- [CDMM Consent Ontology](#)
- [COEL](#)
- [Data Protection Ontology by Bartolini et. al](#)
- [GDPRov](#)
- [GDPRtEXT](#)
- [IEEE 7012](#)
- [ODRL](#)
- [P3P](#)
- [P-Plan](#)
- [Privacy Preference Ontology](#)
- [PROV-O](#)
- [SPECIAL Usage Policy](#)
- [SPECIAL Policy Log](#)

[https://www.w3.org/community/dpvcg/wiki/Use-Cases, Requirements, Vocabularies](https://www.w3.org/community/dpvcg/wiki/Use-Cases,_Requirements,_Vocabularies)



# Starting Point: Use Cases/Vocabularies from SPECIAL

Ben Whittam Smith, Axel Polleres

MyData2018, Helsinki



Horizon 2020  
European Union funding  
for Research & Innovation



## Three Distinct Use Cases:



THOMSON REUTERS

Know-Your-Customer services for the banking industry



Recommendation engine for subscribers



Service quality monitoring



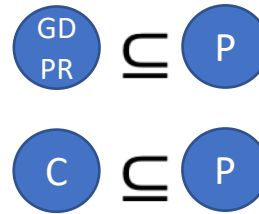
# One Compliance Solution:

Processing requires **PERMISSIONING**

Permissions must be compliant with the **GDPR**

Permissions must be compliant with **Consent**

i.e., **COMPLIANCE** is a logical operation



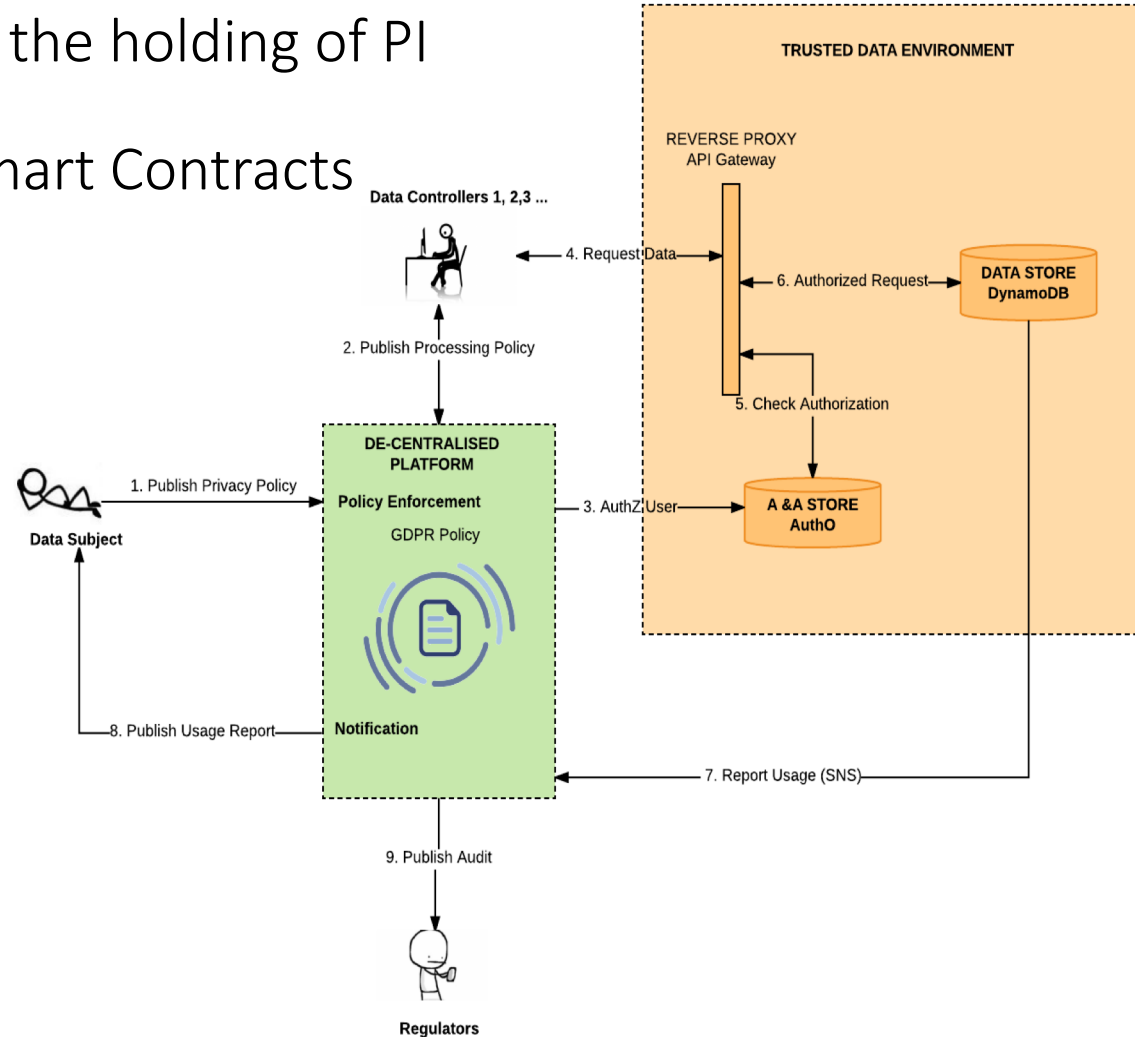
# KYC Permissions (AKA Processing Steps)

1. To take **documentary evidence** of identity and generate **identity attributes**
2. To **store** identity attributes
3. To **screen** against mandated datasets
4. To **validate** screening results
5. To **store, share,** and generate *risk flags* from validated results
6. To **share** and **store** *risk assessment*

# Centrality of Interoperability

If we can show completeness and correctness of execution then we can decentralise the holding of PI

Access is controlled by Smart Contracts



## What to Standardise:

Core Logic

Core Vocabulary

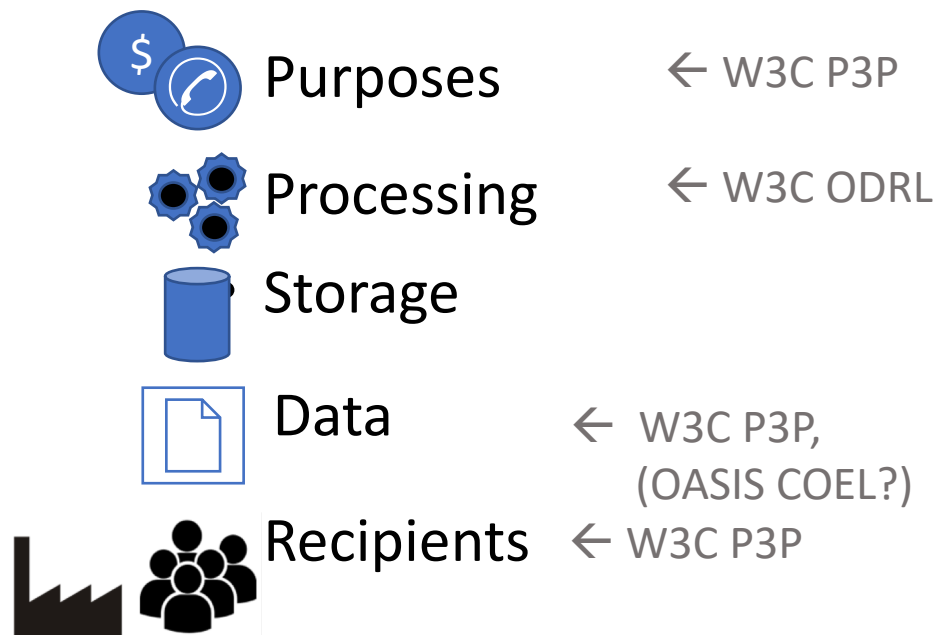
Compliance Services

## Against What Criteria:

Completeness and Correctness:  $\subseteq$

Market adoption

# SPECIAL's view on Core Interoperability Components:



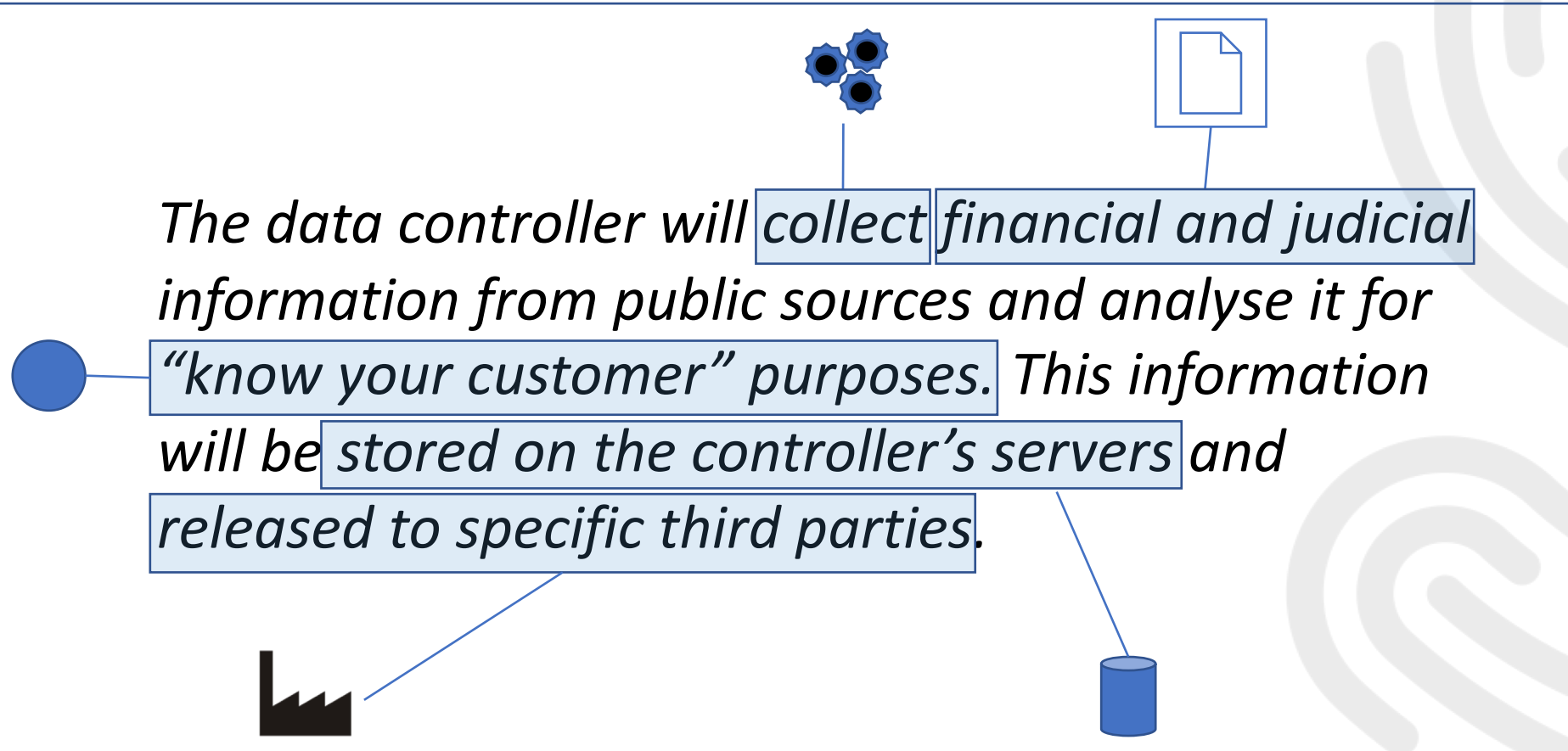
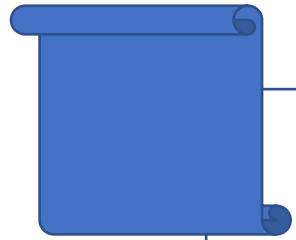
## ***SPECIAL namespaces:***

@prefix spl: <<http://www.specialprivacy.eu/langs/usage-policy#>>.  
@prefix svpu: <<http://www.specialprivacy.eu/vocabs/purposes#>>.  
@prefix svpr: <<http://www.specialprivacy.eu/vocabs/processing#>>.  
@prefix svd: <<http://www.specialprivacy.eu/vocabs/data#>>.  
@prefix svr: <<http://www.specialprivacy.eu/vocabs/recipients#>>.  
@prefix splog: <<http://www.specialprivacy.eu/langs/splog#>>.

...



# Use Cases/Vocabularies from SPECIAL: Example



# Use Cases/Vocabularies from SPECIAL: Example (OWL)

ObjectIntersectionOf(



ObjectSomeValueFrom( **spl:hasData**  
 ObjectUnionOf( svd:Financial svd:Judicial ))



ObjectSomeValueFrom( **spl:hasProcessing**  
 ObjectUnionOf( tr:Collect-public svpr:Analyze ))



ObjectSomeValueFrom( **spl:hasPurpose** tr:KYC )

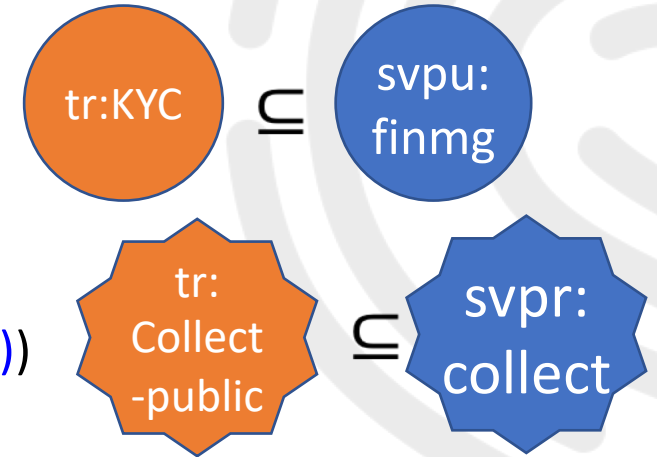


ObjectSomeValueFrom( **spl:hasStorage**  
 ObjectIntersectionOf(  
     ObjectSomeValueFrom(**spl:hasLocation** spl:ControllerServers)  
     DataSomeValuesFrom( **spl:durationInDays**  
         DatatypeRestriction( xsd:integer **xsd:minInclusive** "0"^^xsd:integer ))  
 ))



ObjectSomeValueFrom( **spl:hasRecipient** svr:AnyRecipient )

)



# Call for Action: Join DPVCG!

- More use cases matter!
- Existing efforts for interoperability/vocabularies matter!



***Joining is easy!***

***→ The group is Open to everyone!***

***→ Just create a W3C account***

**CLICK  
HERE**



**<https://www.w3.org/community/dpvcg/>**

- Maybe discuss in more detail in one of the upcoming **Open Space** sessions...