LINKED DATA CONTRACTS TO SUPPORT DATA PROTECTION AND DATA ETHICS IN THE SHARING OF SCIENTIFIC DATA

In the light of new EU General Data Protection Regulation (GDPR)

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This Presentation

- Background and motivation
- Data Controllers and Data Subjects - legal perspective
- GDPR and the impact
- Data Subject Rights
- Ontologies
- Sharing scientific data
- Conclusion

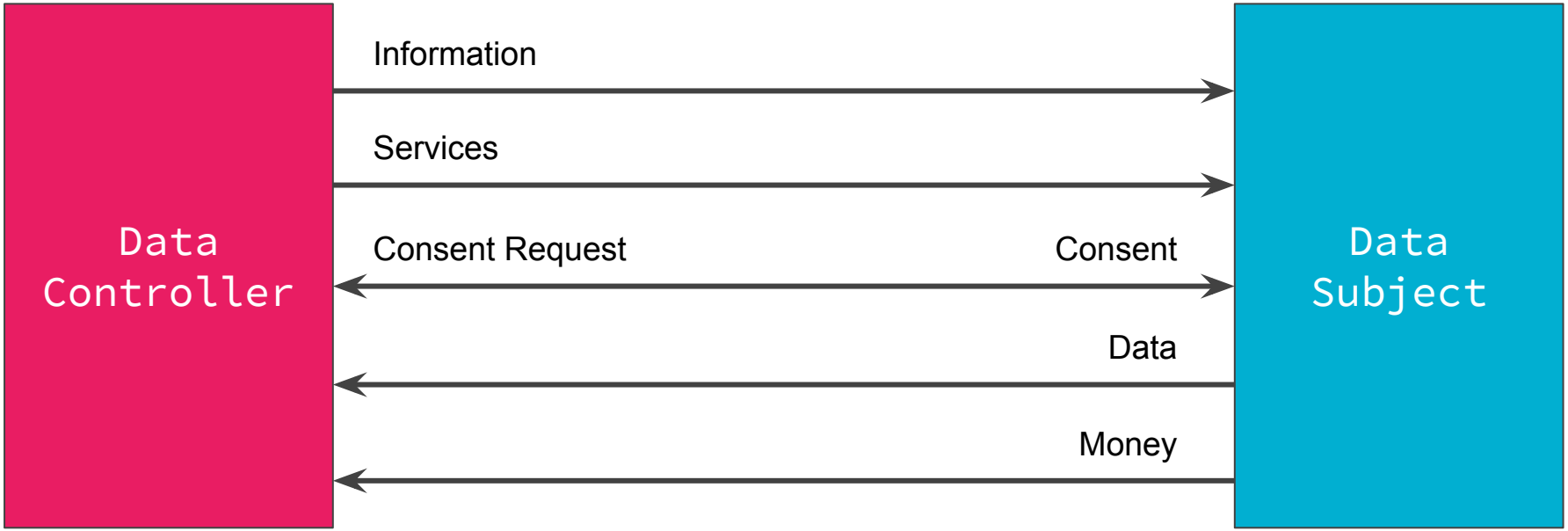
Background and Motivation

- Current rules and practices on academic research ethics ask for participant to provide written consent
- They vary from country to country
- Common ground is intention to protect the participants and researchers by stating the purpose and requesting a consent
- The EU’s adoption of GDPR imposes new requirements for tracking informed consent for the usage of any form of personal data

GDPR - Quick Facts

- Replaces 1995 EU Directive which regulates the processing of personal data within the European Union
- Adds to European Legislation from 2011 “Cookie Law”
- Will come into force on the 25th May 2018, replacing the existing data protection framework under the EU Data Protection Directive.
- Unlike a directive, it does not require national governments to pass any enabling legislation, and is thus directly binding and applicable

Data Controllers vs Data Subjects



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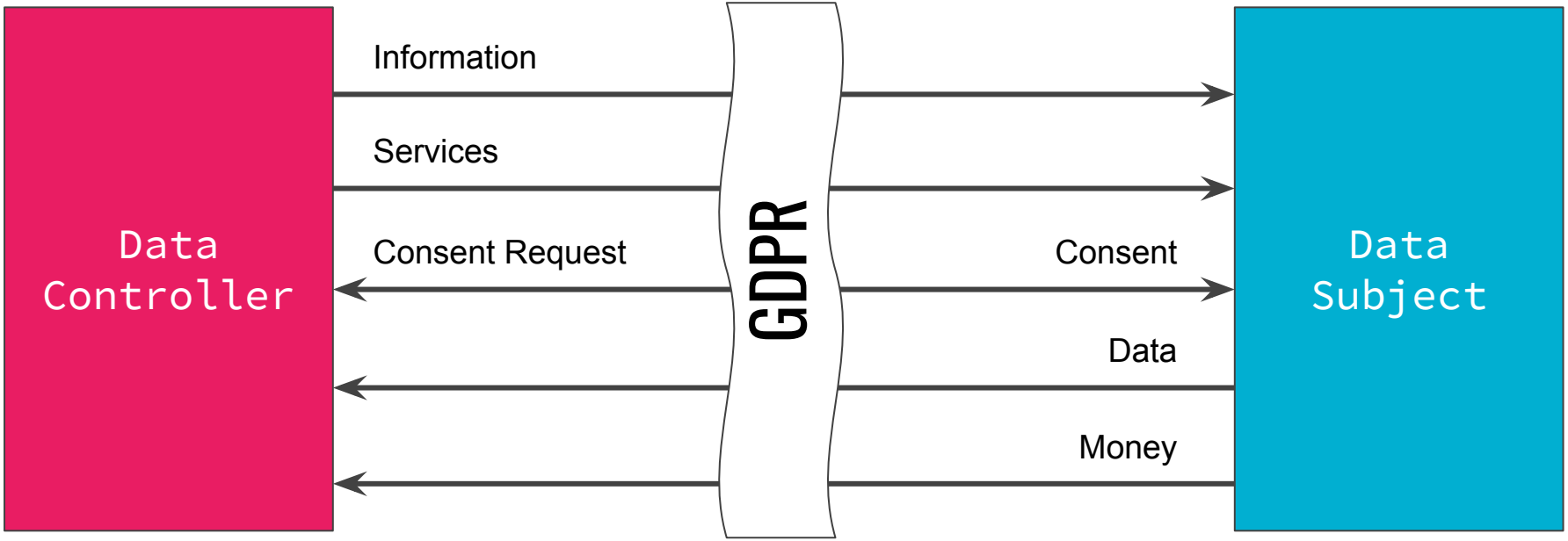


GDPR - The Good, the Bad and the Ugly

- GDPR is here mainly to protect the Data Subject rights (“identified or identifiable natural person”)
- There is a strong requirement on data controller, who is responsible for handling of personal data, to be able to demonstrate to regulators that any data subject’s personal data has been correctly processed
- Tracking data usage and keeping records
- Organizations in breach of GDPR can be fined up to 4% of annual global turnover or €20 Million (whichever is greater).

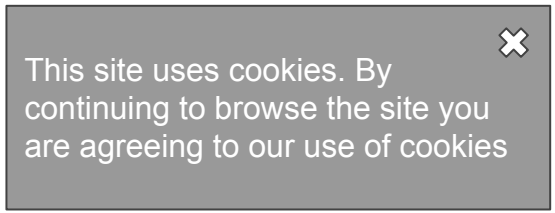
GDPR - The Good, the Bad and the Ugly

- When applied to research data, GDPR potentially imposes more rigorous and legally enforceable requirements on the collection and processing of data from individuals than current research ethics practices
- Ambiguity in certain clauses: data ‘portability’, ‘common machine-readable format’
- Incompatibility of organisational systems between data controllers / providers

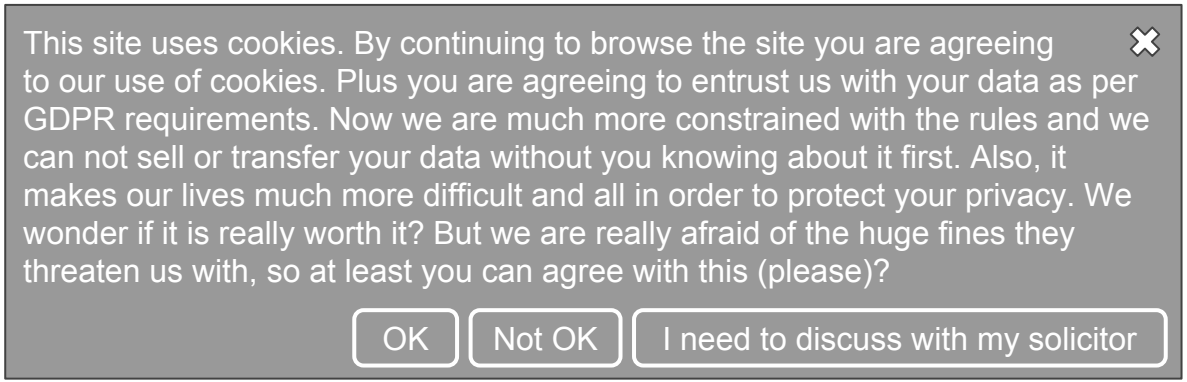
GDPR - The Good, the Bad and the Ugly

- Potential organisational issues for smaller businesses and individuals in roles of data controllers
- Expressing the rules and regulations on per-use cases

Before



After



Data Subject Rights in GDPR

- Right to information “concise, transparent, intelligible and easily accessible”
- Right to file a subject access request (SAR)
- Right to rectification
- Right to erasure (the “right to be forgotten”)
- Right to data portability
- Right to restrict access
- Right to object
- Right to know about data being shared with third parties

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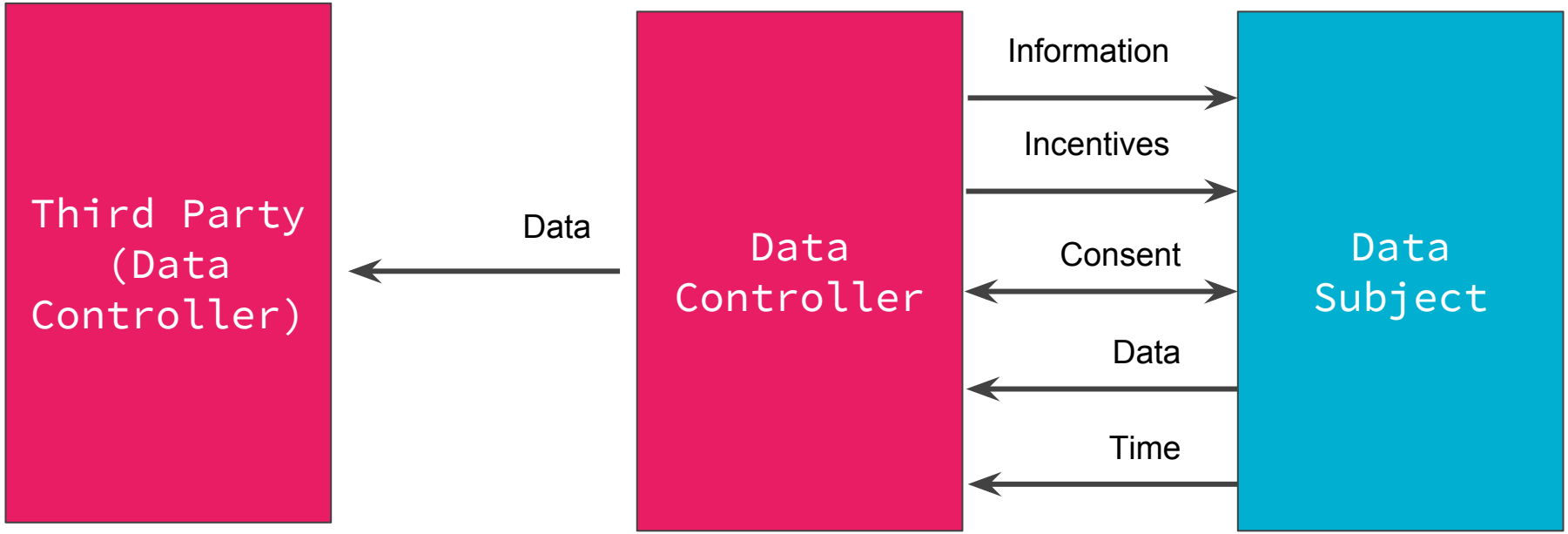
Data Controllers and Third Parties in Scientific Data Sharing



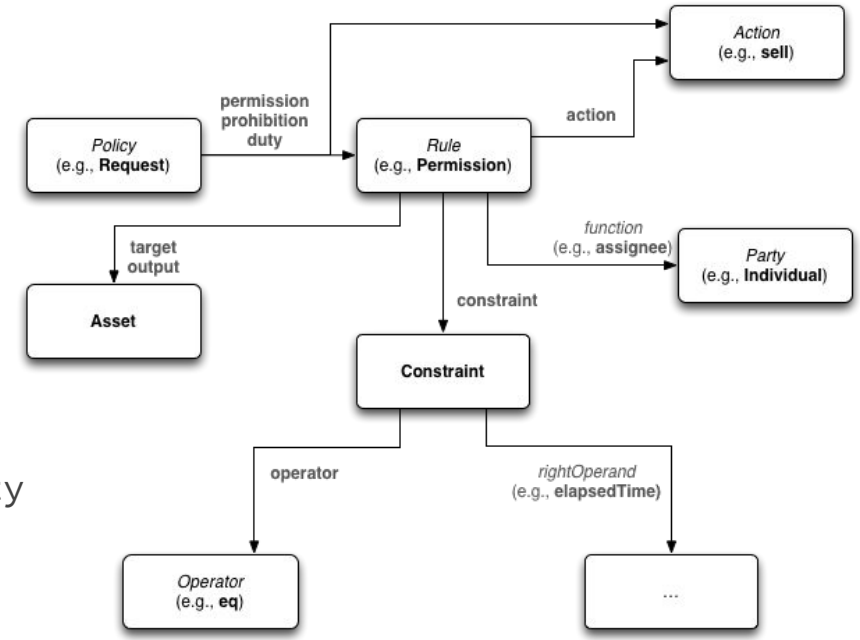
Ontologies

- ODRL (Open Digital Rights Language)
  - Expressing digital rights management
  - Used for access and usage conditions
- DataID
  - Describing simple and complex datasets in an interoperable way
  - Extension to the Data Catalog Vocabulary (DCAT)
  - Adds features such as dataset hierarchies, permissions, distribution and machine-readable licensing information
  - Integrates provenance information from the PROV Ontology
- DUV
  - Tracking, sharing, and persisting dataset usage

ODRL

https://www.w3.org/community/odrl/
https://www.w3.org/2016/poe/

- Classes
  - Permission, Prohibition
  - Asset, Party
  - Policy, Privacy
- Properties
  - inheritAllowed, inheritFrom
  - constraint, relation
  - attributedParty, consentingParty
- Concepts
  - grantUse, annotate
  - anonymize, attribute
  - derive, distribute



DPRL: Data Protection Rights Language

- Gentle extension to ODRL, by the means of templating
- Overcoming technological obstacles in following the criteria set by GDPR
- Licensing-oriented action concepts on ODRL are insufficient

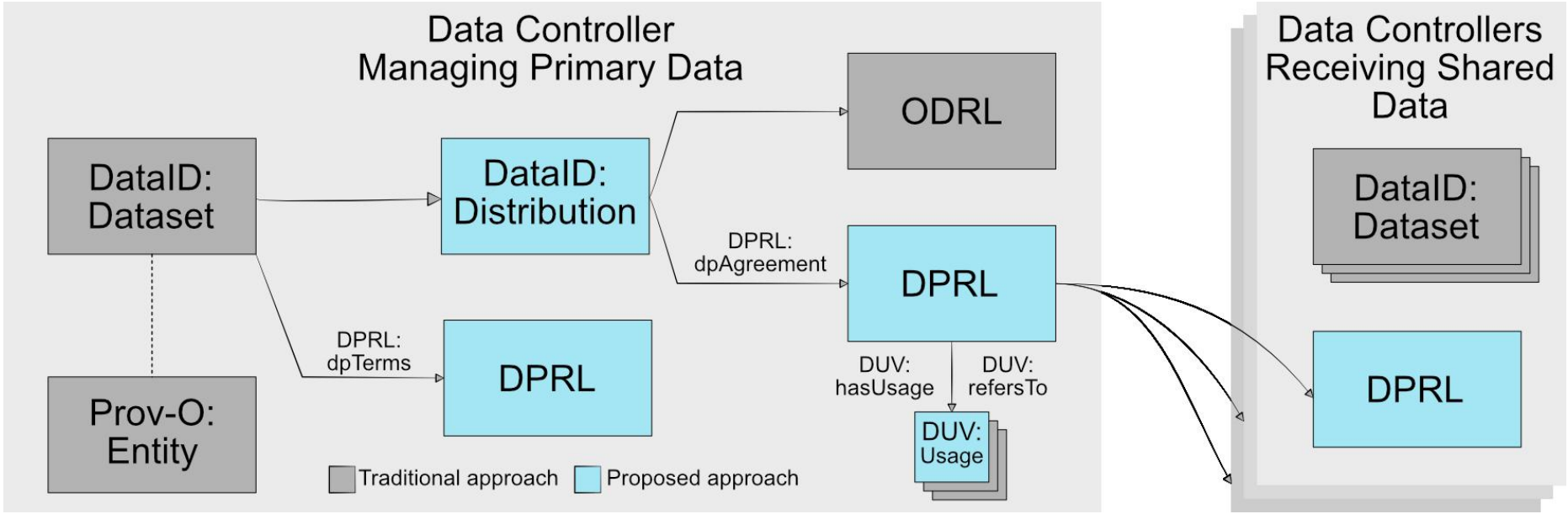
DPRL concepts:	dpAccess	dpRectify	dpErase	dpPort	dpRestrict	dpObject
ODRL concepts:	read/use	update	delete	export/transfer	-	-

DPRL properties:	dpAgreement	dpTerms		
ODRL properties:	permission	constraint	**DPRL classes:**	dpRight dpObligation

Sharing Scientific Data

- Currently there is no established method commonly used between the academic institutions when sharing scientific data
- GDPR data portability clause requires that the data subject can access their data in common machine-readable format
- GDPR requires not only the provenance tracking of data processing to support compliance
- Tracking extends to the data controller of any other organisation with which the data is shared

Open data architecture for sharing the scientific data between academic institutions



Future Work

- Further develop DPRL through fuller integration with data set processing provenance tracking using PROV-O and the use of SPARQL over DPRL and other DataID components
- GDPR compliance checks
- Sharing linked data itself through Linked Data Rights ontology
- Design of future open scientific data API and platforms, such as those previously developed for publication metadata in the OpenAire project

that's all for today

questions?

Slides:
https://goo.gl/8A8ghU