GDPRtEXT

GDPR as a Linked Data Resource

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GDPR???

- General Data Protection Regulation (GDPR)
- New data protection law for EU
- Implemented from 25th May 2018
- Affects legal basis for how our personal data is being used by organisations
• Consent
• Information given to user
• What data is collected?
• How is it used?
• Who is it shared with?
• How long is it stored for?

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https://www.flickr.com/photos/cardkarma/
https://xkcd.com/1998/
“Before I write my name on the board, I’ll need to know how you’re planning to use that data.”
Motivation

Developed GDPRov [1], an ontology for modelling provenance related to GDPR compliance

How to relate with GDPR obligations and concepts?

[1] Pandit, H.J., Lewis, D.: Modelling Provenance for GDPR Compliance using Linked Open Data Vocabularies. In: Proceedings of the 5th Workshop on Society, Privacy and the Semantic Web - Policy and Technology (PrivOn2017) (PrivOn) (2017).
GDPR document

- References to are textual
- Articles: Article 4(11), A4-11
- Concepts: Compliance, Personal Data
- No consistent format in legal domain
- Arbitrary citations

Great for humans, but not for machines
Existing Work

- Legalislations – Linked Data – Semantic Web
- European Publications Office provides only document level metadata

- How to refer to specific articles, terms, or concepts within GDPR?

research problem right here!
GDPRtEXT (GDPR text extensions)

1. Expose the GDPR document as Linked Data
2. Define an ontology of its terms and concepts
Approach

1) Understand document structure
2) Represent as linked data
3) Identify terms and concepts
4) Define Ontology
Structure of GDPR

- Recitals (173)
- Chapters (10 – numbered I to X)
  - Sections (numbered in every chapter)
    - Articles (total 99, continuous numbering)
      - Points (numbered in every article)
        - Subpoints (numbered in every point)
- Citations (21)
GDPRtEXT Ontology
Extend ELI Ontology

- eli:LegalResource (LR) is a legal resource
- eli:LegalResourceSubdivision (LRS) is its (sub-)part
- We extend LRS to define:
  - Chapter
  - Section
  - Article
  - Point
  - SubPoint
  - Recital
  - Citation

ELI Ontology
European Legislation Identifier

- Published by European Publications Office
- Defines metadata for legal documents
- GDPRtEXT uses latest version (v1.1)

https://publications.europa.eu/en/mdr/eli/index.html
# GDPR Catalog

**define using DCAT / VOID**

| Dataset          | Distribution       | Comment                      |
|------------------|--------------------|------------------------------|
| canonical        | HTML, PDF, XML     | Official GDPR distributions  |
| textid, dataset  | HTML, JSON, text   | GDPR text with IDs           |
| annotated        | XML, Turtle, JSON-LD | RDF                          |
### article12-3 at GDPRtEXT
https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/article12-3

| Property               | Value                                                                                                                                       |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| eli: description       | The controller shall provide information on action taken on a request under Articles 15 to 22 to the data subject without undue delay and in any event within one month of receipt of the request. That period may be extended by two further months where necessary, taking into account the complexity and number of the requests. The controller shall inform the data subject of any such extension within one month of receipt of the request, together with the reasons for the delay. Where the data subject makes the request by electronic form means, the information shall be provided by electronic means where possible, unless otherwise requested by the data subject. (xsd:string) |
| is_gdprtext:hasPointOf | <https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/article12>                                                                        |
| gdprtext:isPartOfArticle | <https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/article12>                                                                        |
| gdprtext:isPartOfChapter | <https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/chapterIII>                                                                       |
| eli:is_part_of         | <https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/GDPR>                                                                          |
| eli:is_part_of         | <https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/article12>                                                                        |
| eli:is_part_of         | <https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/chapterIII>                                                                       |
| eli:is_part_of         | <https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/chapterIII-1>                                                                   |
| eli:is_number          | 3 (xsd:string)                                                                                                                               |
| eli:is_title_alternative | Article12(3) (xsd:string)                                                                                                                   |
| rdf:type               | eli:LegalResourceSubdivision                                                                                                                |
|                        | gdprtext:Point                                                                                                                             |

#### Metadata

Anon_0

| rdf:type | prov:DataItem                                                                 |
|----------|-------------------------------------------------------------------------------|
| rdf:type | <http://www.w3.org/2003/03/ves/iri.rdf-1/Graph>                                 |
| foaf:primaryTopic | <https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/article12-3> |
| foaf:topic | Anon_0                                                                         |
| ir:realizes | <https://openscience.adaptcentre.ie/resources/GDPRtEXT/gdpr/data/article12-3> |
| prov:createdBy | Anon_1 (more)                                                                 |

**expand all**

This page shows information obtained from the SPARQL endpoint at https://openscience.adaptcentre.ie/sparql.

**As NL | As RDF/XML | Browse in Disco | Browse in Tabulator | Browse in OpenLink Browser**
GDPRtEXT Ontology
Defining GDPR terms and concepts

- Define term
  - skos:Concept
  - without broad/narrow

- Link to definition in GDPR text
  - rdfs:isDefinedBy
  - rdfs:seeAlso

- Additional relations
  - gdprtext:involves

- OWL2 vocabulary
  - 200+ concepts/terms

- purl.org for persistent url

- CC-by-4.0 license

- Zenodo
  - 10.5281/zenodo.1146350

- Datahub
  - http://datahub.ckan.io/dataset/gdprtext

- data.gov.ie
  - https://data.gov.ie/dataset/gdprtext
GDPRtEXT

Release 2017-10-01

This version: https://openscience.adaptcentre.ie/ontologies/GDPRtEXT/v0.5.owl

Latest version: http://publib.biba.psl.eu/ontologies/ontology/GDPRtEXT

Previous version: https://openscience.adaptcentre.ie/ontologies/v0.1.owl

Revision: 0.5

Authors: Harshvardhan Pandit

Publisher: http://publib.biba.psl.eu/ontologies/ontology/GDPRtEXT

Download serialization:
- OWL 2
- RDFa
- N3
- TRL

License:

Visualization:

Compatible with:

Abstract

The General Data Protection Regulation (GDPR) is comprised of several articles, each with points that refer to specific concepts. The general convention of referring to these points and concepts is to quote the specific article or point using a human-readable reference. This ontology provides a way to refer to the points within the GDPR using the European Legislation Identifier ontology published by the European Publication Office. It also defines the concepts relevant or defined by the GDPR using the Simple Knowledge Organization System (SKOS) ontology.

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- 5. Cross reference for GDPR text Extensions classes, properties and data properties
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1. Introduction

The GDPRtEXT ontology aims to provide a way to refer and use concepts defined by the General Data Protection Regulation (GDPR). It does so by exposing the text of the GDPR as a linked data resource using the European Legislation Identifier (ELI) ontology. SKOS is then used to define concepts defined / specified / used by the GDPR.
DPD → GDPR

- Data Protection Directive (DPD)
- Reuse existing work from DPD to GDPR?
- XACML rules for compliance [1]
- Map DPD obligations to GDPR
- Quantify what has changed

[1] Fatema, K., Debruyne, C., Lewis, D., OSullivan, D., Morrison, J.P., Mazed, A.A.: A semi-automated methodology for extracting access control rules from the european data protection directive. In: Security and Privacy Workshops (SPW), 2016 IEEE. pp. 25–32. IEEE (2016)
Benefits - Compliance

- Documentation
- Reports

- Privacy Policy
- Licenses
- Link Legal Datasets
- Relate Laws
Turn text based approaches to semantic approaches!

Harshvardhan J. Pandit, Declan O’Sullivan, Dave Lewis. “Queryable Provenance Metadata For GDPR Compliance”. SEMANTICS 2018. in-press
Future Work

- Adapt recent change/correction to GDPR
- Extend approach to other legal documents
- Participate in W3C Data Privacy and Controls Vocabulary Group (DPCV)
- Possible collaboration with lexparency.org
GDPRtEXT

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