

Brussels  26 June

SEMIC 20  
conference 24

Pre-conference  
workshops

interoperable  
europe  
from Vision to Reality

Digital-ready  
policymaking and  
semantics

# Introduction



Zsofia Sziranyi

Team leader

Digital-ready policymaking

European Commission



### 3. Digital-ready policymaking and semantics



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# Enabling Digital Ready Legislation for ex-post review



Becky King, OECD

# Outline

-  **DRL for ex-post review**
-  **Context of work in Denmark**
-  **Methodology to prioritise legislation**
-  **Further adjustments and applications**

# DRL for ex-post review

## DRL needs to be incorporated in ex-post review

- Build a healthy regulatory stock
- Ensure legislation is fit-for-purpose
- Prioritise reviews for maximum benefits and minimise review fatigue

## DRL enables better ex-post review

- Better institutional co-ordination, capacity and knowledge management
- Improved data-informed decision making
- Integrated and flexible assessment cycles



# Context for project in Denmark

## Legislation since 2018

**1200+** primary acts of legislation screened

**500+** legislative proposal drafts advised on

## Legislation pre-2018

**1,600** laws that pre-date the entry into force of the new requirements

# Methodology for prioritisation

## 1. High level appraisal and filtering

Initial selection of legislation that should be considered as a priority for review.

Combines a quantitative text analysis component with assessment based on expert judgement.

## 2. In-depth assessment

More detailed assessment and reality check, including further assessment against Denmark's 7 DRL Principles.

Expert assessment combining “manual” data processing, interviews, and deliberative/focus group assessment.



# Criteria for step 1

## Quantitative

- Readability
- References to other laws
- Tech neutrality as measured by basic hindrances
- Review or sunset clauses
- Age of legislation and/or amendment record

## Qualitative

- Potential to significantly impact innovation
- Governs fast growing or innovative economic activities
- Affects a significant number of other laws
- Imposes obligations upon a large number of compliance entities
- Governs a large number of files/cases
- Links to IT modernisation plans
- EU Law transposition
- Volume of complaints

# Criteria for step 2

## Core criteria

- Automated case processing
- Digital communications with business and citizens
- Use of digital solutions compliance monitoring and fraud prevention
- Proportionality of measures informed by risk profile

## Potential additional parameters

- Proxies for 'agility' of regulation (e.g. performance-based command type, consistent legislation, future-proof considerations)
- Further assessment against criteria in first stage

# Outlook: Advancing the methodology

## Application in Denmark

- Adoption of the methodology for a broader range of legislation
- Revision of prioritised non-DRL legislation by ministries

## Potential advancements

- Further quantification of criteria
- Linking with data from other government services
- Consider other integration of other new technologies



# Outlook: Further applications

## Growing the scope of the model

- Apply to primary and secondary legislation
- Apply a version of the methodology to new legislation

## Adoption by other jurisdictions

- Tailor and apply the methodology to new jurisdictions and countries
- Use the methodology to benchmark DRL across countries

### 3. Digital-ready policymaking and semantics



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# Digital-ready policymaking in Germany



Benedikt Liebig  
DigitalService of the  
German Government



Hi 🖐️

I am **Benedikt**

✉️ [benedikt.liebig@digitalservice.bund.de](mailto:benedikt.liebig@digitalservice.bund.de)

Digital  
Service

**Digital  
Service**

**For a digital  
Germany**



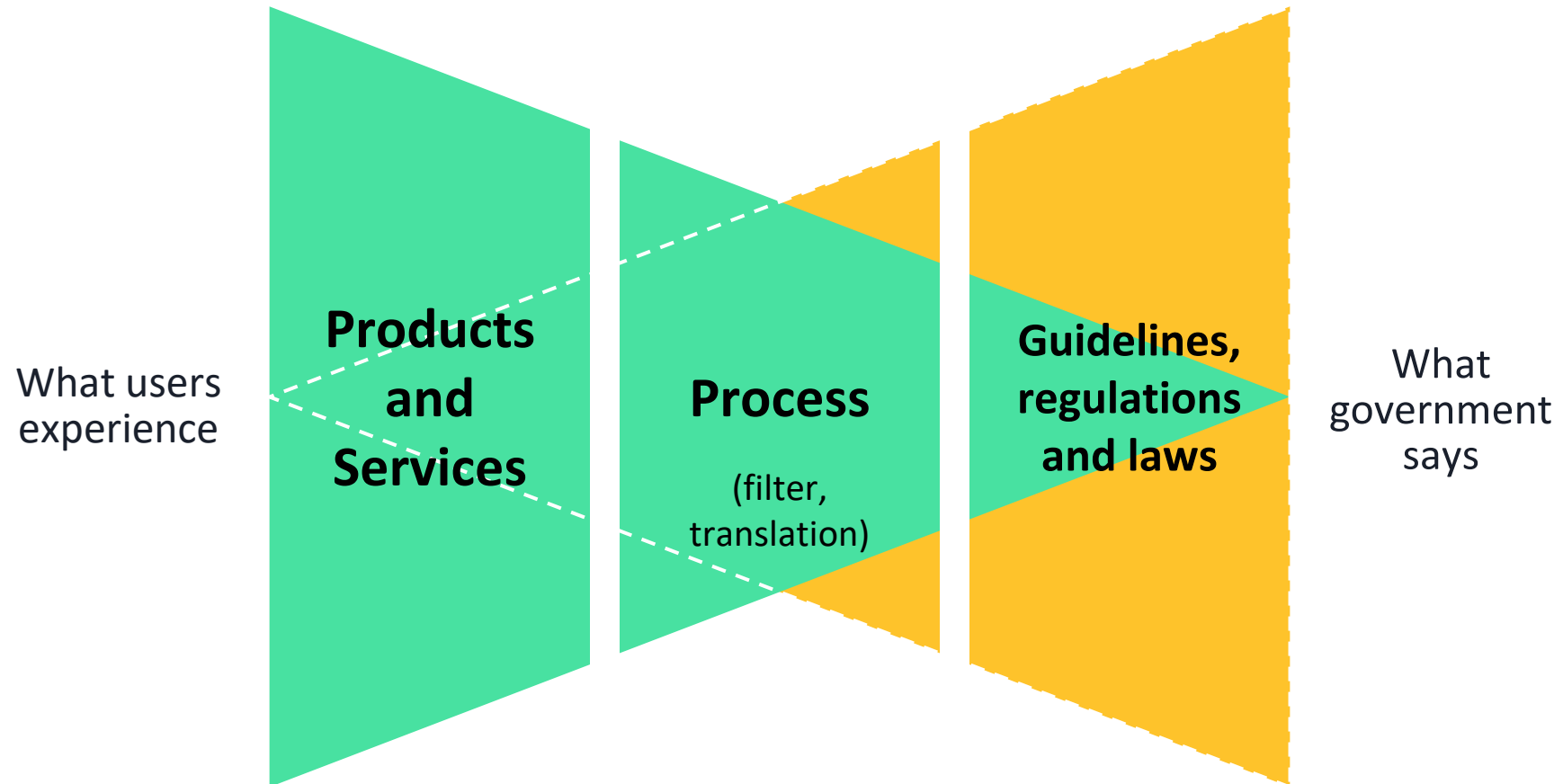
Federal Ministry  
of the Interior  
and Community

# Introducing a digital readiness check for legislation

The screenshot shows a website header with navigation links: 'Onlinezugangsgesetz', 'Digitale Identitäten', 'Registermodernisierung', 'Transformation' (highlighted), and 'Aktuelles & Service'. Below the header is a large image of a person's hands holding a tablet displaying a circular diagram with text. A small caption below the image reads 'Quelle: DigitalService GmbH des Bundes'. The main content area features the title 'ARTIKEL · TRANSFORMATION' and 'Digitalcheck für Gesetze'. A sub-headline states: 'Der Digitalcheck unterstützt bei der Erarbeitung von digitaltauglichen Regelungen für eine einfache und nutzerorientierte digitale Umsetzung.' Below this is an 'Inhaltsverzeichnis' section with four items, each preceded by a blue downward arrow: 'Was ist der Digitalcheck?', 'Wie nutze ich als Legistin oder Legist den Digitalcheck?', 'Support-Angebote für Legistinnen und Legisten', and 'Iterative und ressortübergreifende Weiterentwicklung des Digitalcheck'. At the bottom left, there is a short paragraph: 'Digitaltaugliche Regelungen sind eine zentrale Voraussetzung für digitale Leistungen und Prozesse und schaffen damit die Grundlage für eine erfolgreiche Digitalisierung in Deutschland. Seit dem 1. Januar 2022 unterstützt der Digitalcheck Legistinnen'. On the bottom right, there is a dark blue button with white text: 'Download: Digitalcheck Dokumente'.



# The foundations of good digital services are created in legislation:



**Submit a property tax  
declaration**

**Law on the Reform of  
Real Estate Tax and  
Valuation (BMF)**

# Digital-ready policy

# Digital-ready policy





**Digital-ready  
policy**



**analog policy**

**Digital-ready  
policy**



**analog policy — written form**

**Digital-ready  
policy**



**analog policy — written form\***

\*or other analog communication

**So how do we get there?**



A large, stylized white number '5' is positioned on the left side of the slide. The number is composed of thick white lines and a solid white circle at the bottom. The background is a solid dark blue color.

# 5 principles for digital-ready policy

**+2 extra**

# To make it actionable:

## 01

---

**Were the needs of those affected taken into account?**

**Was a professional perspective involved early on?**

## 02

---

**Was a visualization used to help policymakers to „think digital“?**

# Status quo?

Bundesrat

Drucksache

232/24

24.05.24

Fz - U - Vk - Wi

## Gesetzentwurf der Bundesregierung

### Entwurf eines Gesetzes zur Modernisierung und zum Bürokratieabbau im Strom- und Energiesteuerrecht

#### A. Problem und Ziel

Der Gesetzentwurf dient vorrangig der Modernisierung und dem Bürokratieabbau im Bereich des Strom- und Energiesteuerrechts.

Insbesondere im Bereich der Elektromobilität und der Speicherung von Strom bildet das Stromsteuerrecht aktuelle Entwicklungen nicht mehr ab. Auch der Ausbau der Stromerzeugung aus erneuerbaren Energien und neue dezentrale Versorgungskonzepte machen Anpassungen im Strom- und Energiesteuerrecht erforderlich. Zudem haben Änderungen zum Beispiel im EU-Beihilferecht dazu geführt, dass das Strom- und Energiesteuerrecht im aktuellen Wortlaut in Teilen nicht mehr anwendbar ist und daher im Sinne einer rechtsklaren Lösung der Anpassung an EU-rechtliche Vorgaben bedarf.

#### B. Lösung; Nutzen

Im Bereich der Elektromobilität wird durch einen neuen § 5a Stromsteuergesetz unter Beachtung der stromsteuerrechtlichen Systematik eine Vereinfachung in der Steuerpraxis vorgenommen, womit fortan Einzelfallprüfungen von komplexen Geschäftsmodellen „innerhalb der Ladesäule“ entfallen.

Für das bidirektionale Laden werden klare Vorgaben geschaffen, die verhindern, dass Nutzer von Elektrofahrzeugen zum Versorger und Steuerschuldner werden.

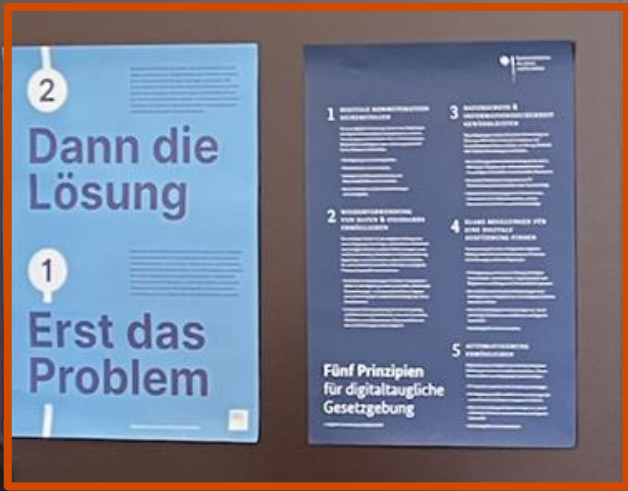
Mit der Aufnahme von anderen Formen von Energiespeichern als Stromspeicher ins Gesetz wird zudem ein innovativer Ansatz verfolgt. Eine doppelte Steuerentstehung wird künftig umfassend vermieden.

Zudem wird die sog. Anlagenverklammerung bei der dezentralen Stromerzeugung aufgehoben und für die Beurteilung der Steuerbefreiungen künftig einheitlich auf den Standort der jeweiligen Stromerzeugungsanlage abgestellt.

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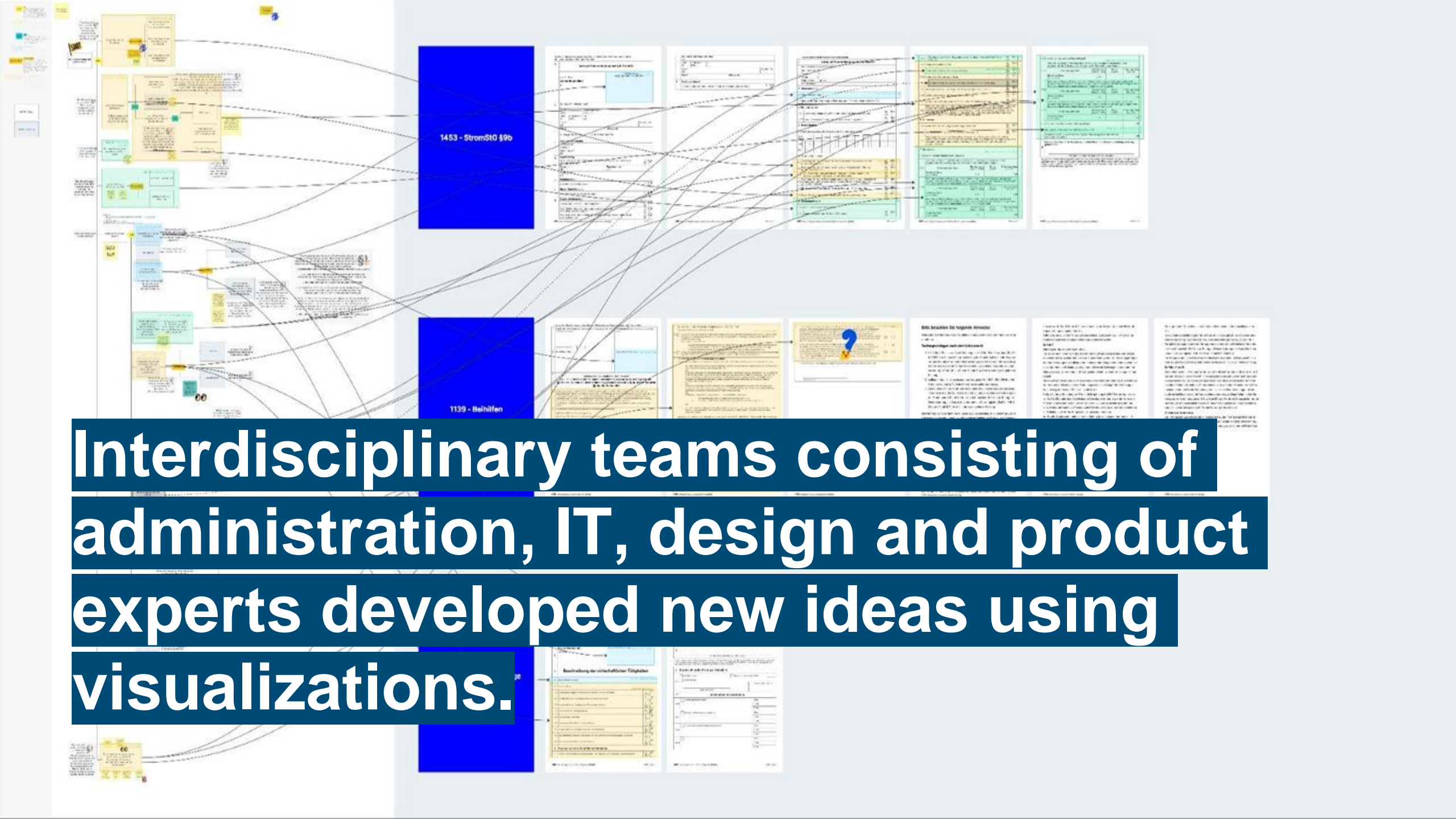


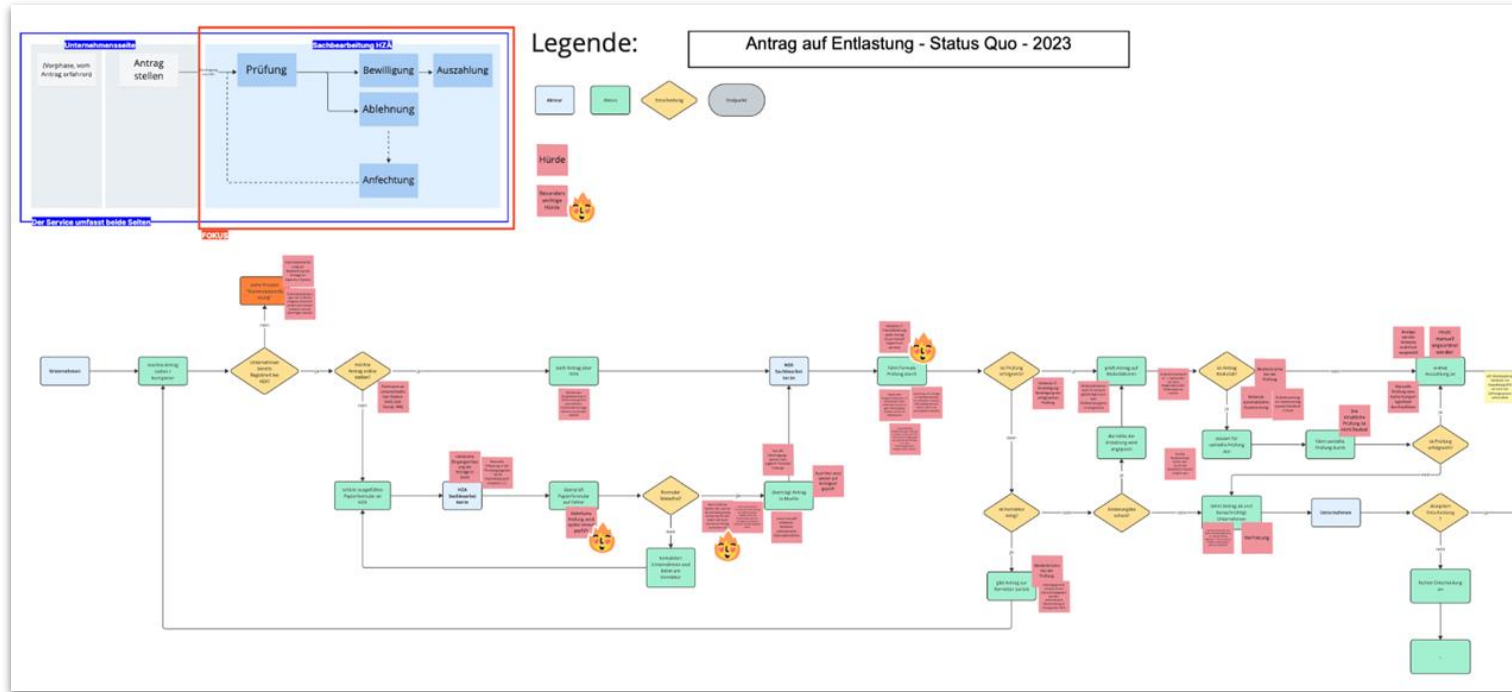
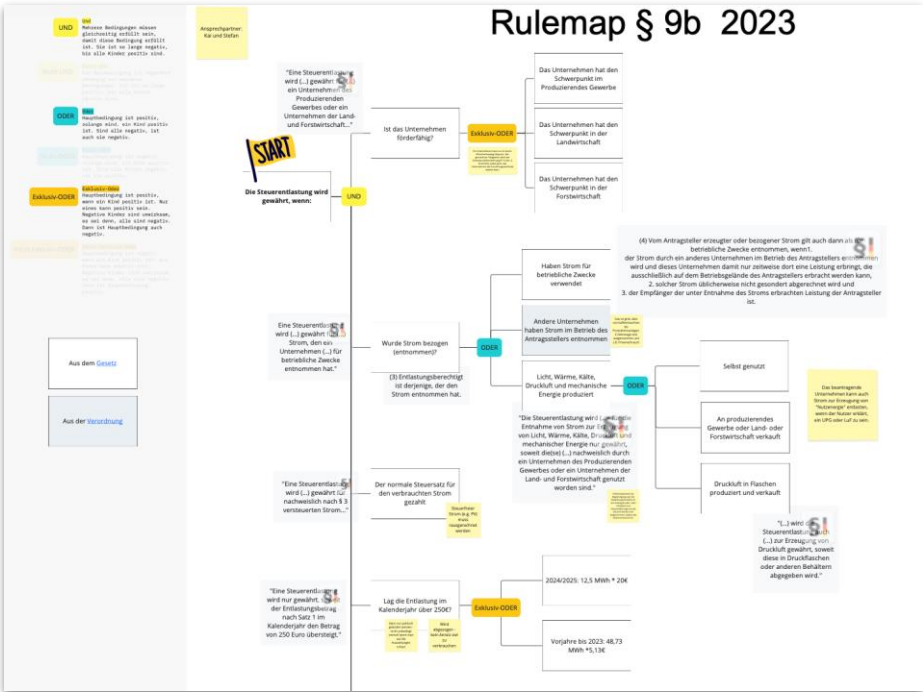




**Guided by the 5 principles for digital-ready laws, we discussed possible digital solutions.**

**Interdisciplinary teams consisting of administration, IT, design and product experts developed new ideas using visualizations.**





“

**The thorough analysis of enforcement processes has helped us to better understand the interplay between the regulations and the administration and thus to shape digital enforcement...**

- Anja Weihs, BMF III B 3



24.05.24

Fz - U - Vk - Wi

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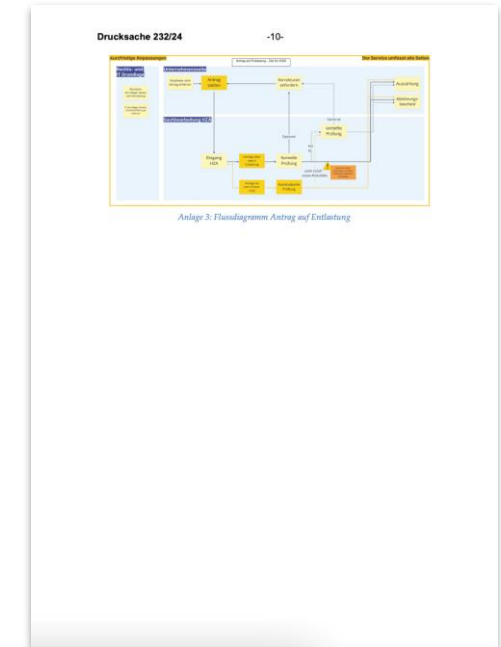
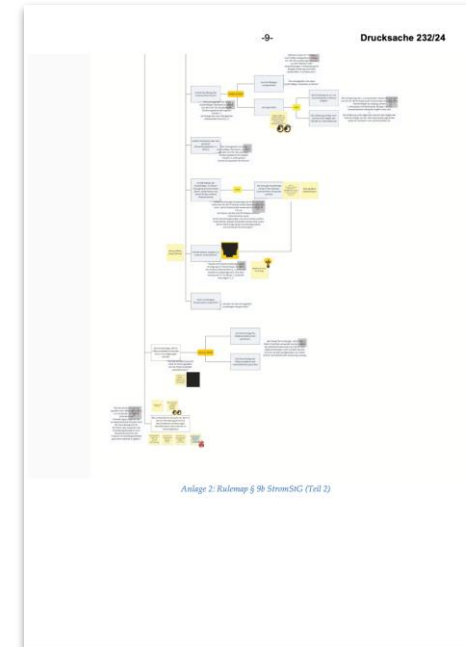
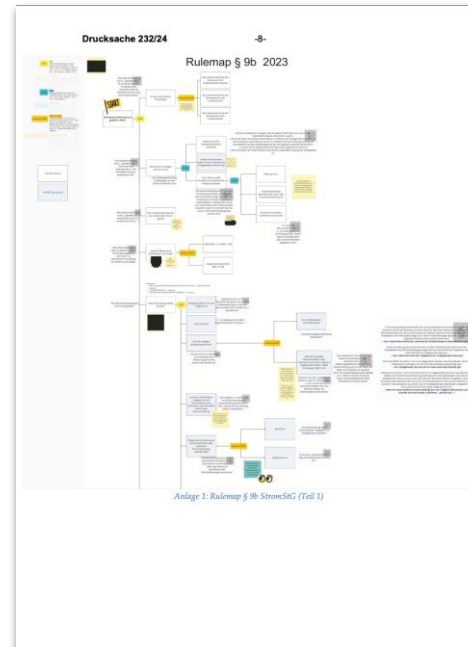
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Fristablauf: 05.07.24



24.05.24

Fz - U - Vk - Wi

#Retention obligations instead of submission obligations  
 #Removal of unnecessarily complex links in the process  
 #Advancing of the online application obligation  
 #Enabling of (partial) automation

**B. Lösung; Nutzen**

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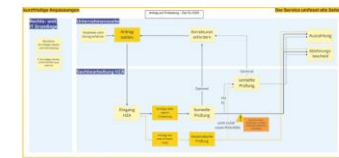
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Fristablauf: 05.07.24



Anlage 3: Handgezeichnete Antrag auf Entlastung

Anlage 1: Rulesmap § 9b StromStG (Teil 1)

Anlage 2: Rulesmap § 9b StromStG (Teil 2)

**Zooming out,  
we reached thorough utilization  
of the Digitalcheck.**

# 82% thought about digital-readiness, that are 147 laws the past 1,5 years.

Digitalcheck Overview - Komplet



215

Digitalchecks ⓘ

392

Digitalcheck inkl Vorprüfung

577

Regelungsvorhaben ⓘ

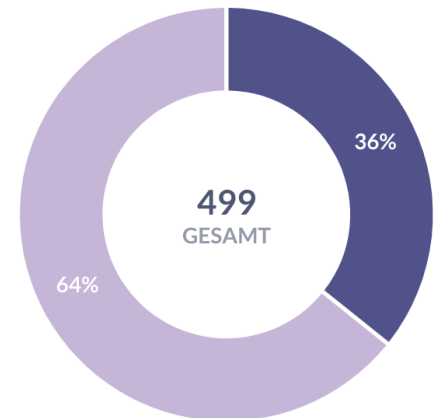
Digitalcheck Quote Gesamt

77%

2024

↑ 19.44% • im Vergleich zu früher jahr: 65%

Policy Making in Germany - Laws vs. Basic Regulation



109

Digitalchecks (Gesetze) ⓘ

147

Digitalcheck inkl Vorprüfung (Gesetze)

178

Regelungsvorhaben (Gesetze) ⓘ

Digitalcheck Quote (Gesetze)

86%

2024

↑ 5.63% • im Vergleich zu früher jahr: 81%





So, in 2024 we focus on creating an environment to increase the quality and provide “tailor-made” recommendations and tools.



# Digitaltaugliche Regelungsvorhaben erarbeiten

Heutzutage haben fast alle Regelungsvorhaben in der Umsetzung eine digitale Komponente. Hier erfahren Sie, welche Aspekte digitaler Umsetzung für Ihr Regelungsvorhaben wichtig sind und wie Sie eine reibungslose Umsetzung ermöglichen.

## So gehen Sie vor:

- 1 Vorprüfung: Digitalbezug einschätzen**

Finden Sie heraus, ob Sie in Ihrem Regelungsvorhaben auf Aspekte der digitalen Umsetzung achten müssen. Danach entscheidet sich, ob die weiteren Schritte für Sie relevant sind.

[Digitalbezug einschätzen](#)
- 2 Digitaltaugliches Regelungsvorhaben erarbeiten**

Wenn digitale Umsetzung für Ihr Regelungsvorhaben wichtig ist, finden Sie hier passende Methoden und Werkzeuge. Sie erfahren, wie Sie den Prozess darstellen und durchdenken, mit Beteiligten ins Gespräch kommen und die fünf Prinzipien anwenden. [Zu den Hilfestellungen und Methoden](#)

# What can you **take away** from this?

- Creating a shared language and foundation through principles is valuable.
- Visualizing policy helps in many different contexts, policy drafters will realize this when they try it out.
- Including the views of the implementation actors and the attended recipients is key.
- Starting is the hard part, make it as easy as possible (provide tools, support, training, information, and tailor-made recommendations with taskforces). It will take time to change habits and minds!

### 3. Digital-ready policymaking and semantics



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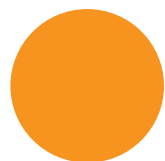
# Digitised public services with Knowledge Graphs



Felicitas Löffler, Thuringian  
Ministry of Finance, Germany  
Marianne Mauch, University  
of Jena, Germany



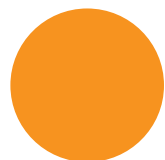
# Outline



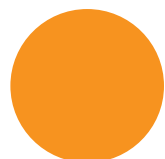
**FIM – Federal Information Management**



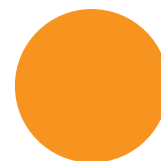
**FIM and public services**



**GerPS – ontology for public services in Germany**



**Knowledge Graph for public services**



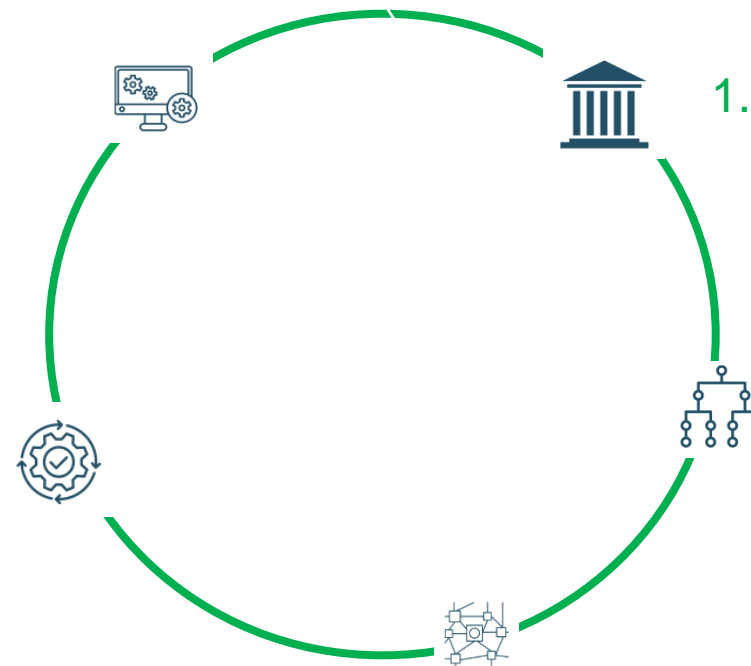
**Converter FIM (XML – semantic formats)**

## Digitise public services successfully!

- Don't digitise bad paper processes.
- Don't try to reinvent the wheel.
- Digitise in compliance with legal resources.

4. Utilize and adapt intelligent, fully digitised services with legally compliant and up-to-date knowledge for several stakeholders.

5. Collect information from enforcement and make it available for legislation.



1. Analyse the legal basis.

2. Generate structured information from legal basis, namely **service description, process information, data fields, and decisions.**

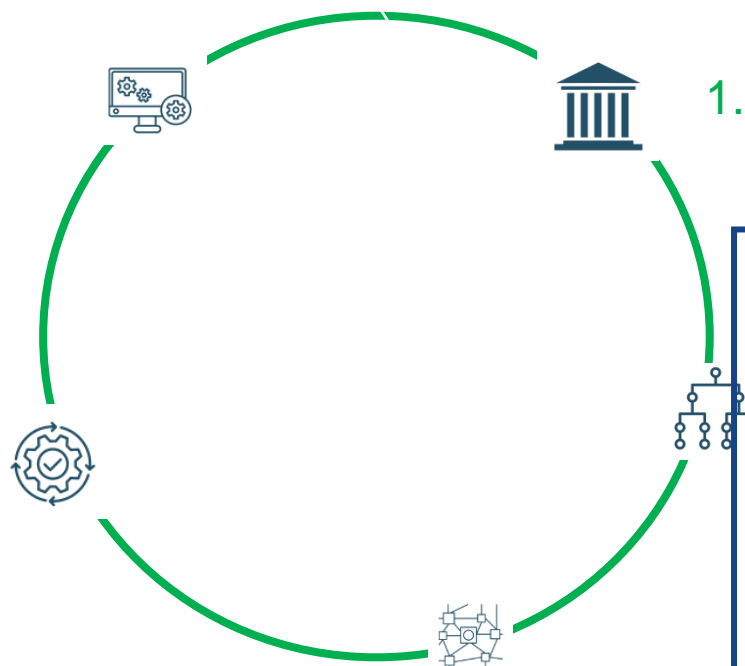
3. Describe and combine structured information semantically.

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### FIM

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# Federal Information Management





# Federal Information Management



§ 7 SGB 2 - Einzelnorm ( 1 ) **Bedingung** Leistungen nach diesem Buch erhalten **Ergebnisempfänger** **Personen** , **Bedingung** die 1 . das 15 . Lebensjahr vollendet und die Altersgrenze nach § 7a noch nicht erreicht haben , 2 . erwerbsfähig sind , 3 . hilfebedürftig sind und 4 . ihren gewöhnlichen Aufenthalt in der Bundesrepublik Deutschland haben ( erwerbsfähige Leistungsberechtigte ) . **Signalwort** **Ausgenommen** sind 1 . **Bedingung** Ausländerinnen und Ausländer , die weder in der Bundesrepublik Deutschland Arbeitnehmerinnen , Arbeitnehmer oder Selbständige noch aufgrund des § 2 Absatz 3 des Freizügigkeitsgesetzes / EU freizügigkeitsberechtigt sind , und ihre Familienangehörigen für die ersten drei Monate ihres Aufenthalts , 2 . **Ergebnisempfänger** **Ausländerinnen** und **Ergebnisempfänger** **Ausländer** , **Bedingung** a ) die kein Aufenthaltsrecht haben oder b ) deren Aufenthaltsrecht sich allein aus dem Zweck der Arbeitsuche ergibt , und ihre Familienangehörigen , 3 . **Bedingung** Leistungsberechtigte nach § 1 des Asylbewerberleistungsgesetzes . **Handlungsgrundlage** Satz 2 Nummer 1 **Signalwort** gilt nicht für **Ergebnisempfänger** **Ausländerinnen** und **Ergebnisempfänger** **Ausländer** , **Bedingung** die sich mit einem Aufenthaltstitel nach Kapitel 2 Abschnitt 5 des Aufenthaltsgesetzes in der Bundesrepublik Deutschland aufhalten . **Signalwort** **Abweichend** von **Handlungsgrundlage** Satz 2 Nummer 2 erhalten **Ergebnisempfänger** **Ausländerinnen** und **Ergebnisempfänger** **Ausländer** und ihre Familienangehörigen **Aktion** Leistungen nach **Handlungsgrundlage** diesem Buch , **Bedingung** wenn sie

1. Analyse the legal basis of a public service (example here “basic income support for jobseekers”).



# Federal Information Management



## Bürgergeld Bewilligung

Datum: 17.06.2024

Modul (zutreffendes Eingabefeld in der 115-Softwareplattform/Redaktionssystem)	Sachverhalt
Leistungsschlüssel	99107108017000
Leistungsbezeichnung I	Bürgergeld Bewilligung
Leistungsbezeichnung II	Bürgergeld beantragen
Leistungsadressat	• Bürger
Typisierung	1;2
Handlungsgrundlage(n)	<a href="#">Zweites Buch Sozialgesetzbuch (SGB II)</a>
Teaser	Wenn Sie nicht genügend Geld zur Verfügung haben, um Ihren Lebensunterhalt selbst zu finanzieren, dann können Sie Bürgergeld beantragen.
Volltext	Das Bürgergeld, auch bekannt als Grundsicherung für Arbeitsuchende, ist eine Leistung des Sozialstaats für erwerbsfähige Leistungsbereite.

2. Generate structured information from legal basis, e.g., a **description of the public service** “basic income support for jobseekers” (identifier, label, stakeholder/target group, legal basis, full text description)





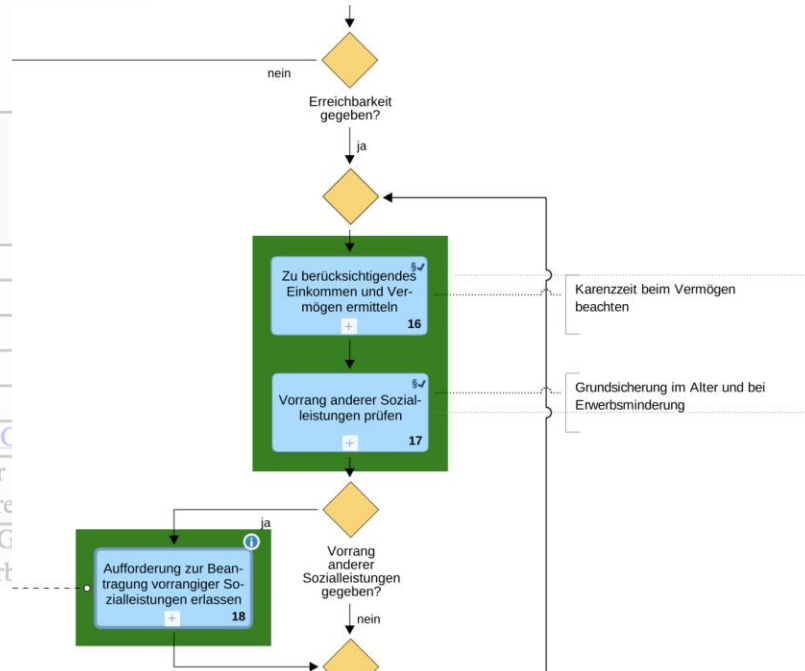
# Federal Information Management



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Gruppe "Einkommen":  
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 stammformularID=S00000123  
 stammformularVersion=1.0  
 elementId=G00000692

Gruppe "Angaben zur Feststellung der Einkommensverhältnisse":  
 eingehendeDaten.formularverweis.  
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 stammformularID=S00000123  
 stammformularVersion=1.0  
 elementId=G00000930

Gruppe "Angaben der Vermögensverhältnisse":  
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 stammformularID=S00000123  
 stammformularVersion=1.0  
 elementId=G00000962

Gruppe "Ansprüche gegenüber Sozialleistungsträgern/Familienkassen":  
 eingehendeDaten.formularverweis.  
 formularsteckbriefID=D00000114  
 stammformularID=S00000123  
 stammformularVersion=1.0  
 elementId=G00000702



2. Generate structured information about the **process** based on the legal basis



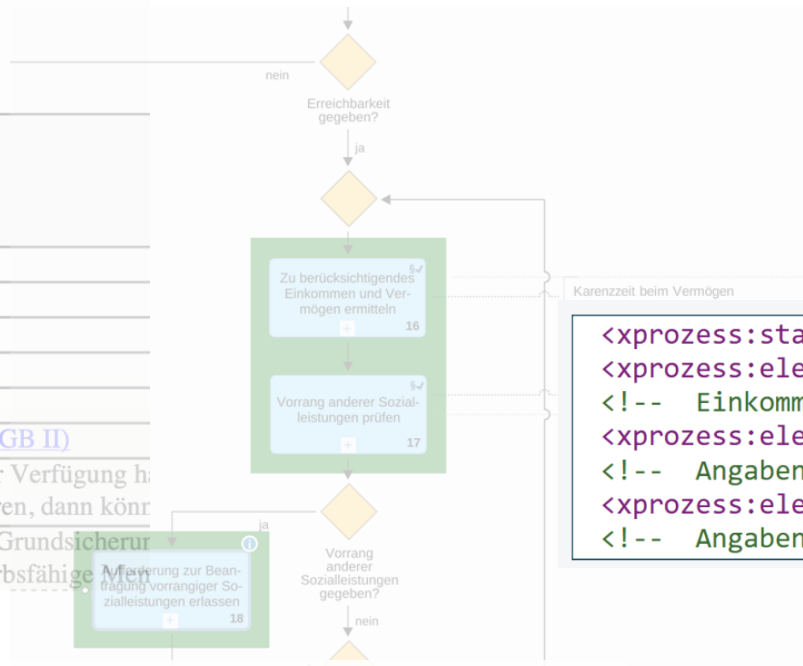
# Federal Information Management



## Bürgergeld Bewilligung

Datum: 17.06.2024

Modul (zutreffendes Eingabefeld in der 115-Softwareplattform/Redaktionssystem)	Sachverhalt
Leistungsschlüssel	99107108017000
Leistungsbezeichnung I	Bürgergeld Bewilligung
Leistungsbezeichnung II	Bürgergeld beantragen
Leistungsadressat	• Bürger
Typisierung	1;2
Handlungsgrundlage(n)	<a href="#">Zweites Buch Sozialgesetzbuch (SGB II)</a>
Teaser	Wenn Sie nicht genügend Geld zur Verfügung haben, um Ihren Lebensunterhalt selbst zu finanzieren, dann können Sie Bürgergeld beantragen.
Volltext	Das Bürgergeld, auch bekannt als Grundsicherung für Arbeitsuchende in der Bundesagentur für Arbeit, ist eine Leistung des Sozialstaats für erwerbsfähige Leistungsbereite.



Gruppe "EinkommeneingehendeDaten, formularsteckbrief, stammformularID, stammformularVI"

**Angaben zur Feststellung der Einkommensverhältnisse** ⓘ Ⓚ

**Persönliche Daten der Person über 15 Jahren in meiner Bedarfsgemeinschaft, auf**

**Einkommen** ⓘ Ⓚ

Gibt es Einkünfte aus selbstständiger Arbeit? ⓘ Ⓚ

```
<xprozess:stammformularVersion>1.0</xprozess:stammformularVersion>
<xprozess:elementId>G00000692</xprozess:elementId>
<!-- Einkommen -->
<xprozess:elementId>G00000930</xprozess:elementId>
<!-- Angaben zur Feststellung der Einkommensverhältnisse -->
<xprozess:elementId>G00000962</xprozess:elementId>
<!-- Angaben der Vermögensverhältnisse ... -->
```

**Angaben zu Renten** ⓘ Ⓚ

Wird das Rente beantragt? ⓘ Ⓚ

Nachweis Datei auswählen Keine Datei ausgewählt ⓘ Ⓚ



## 2. Generate structured information about data fields



## FIM Extension for decisions (planned as XRule)

### 2. Generate structured information about decisions

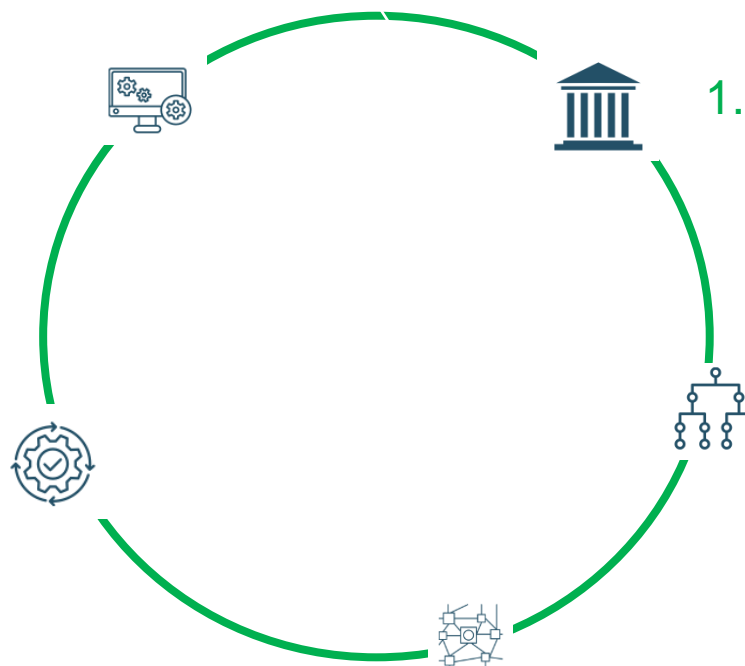


## Digitise public services successfully!

- Don't digitise bad paper processes.
- Don't try to reinvent the wheel.
- Digitise in compliance with the legal resources.

4. Utilize and adapt the intelligent, fully digitized services with legally compliant and up-to-date knowledge for several stakeholders.

5. Collect information from enforcement and make it available for legislation.



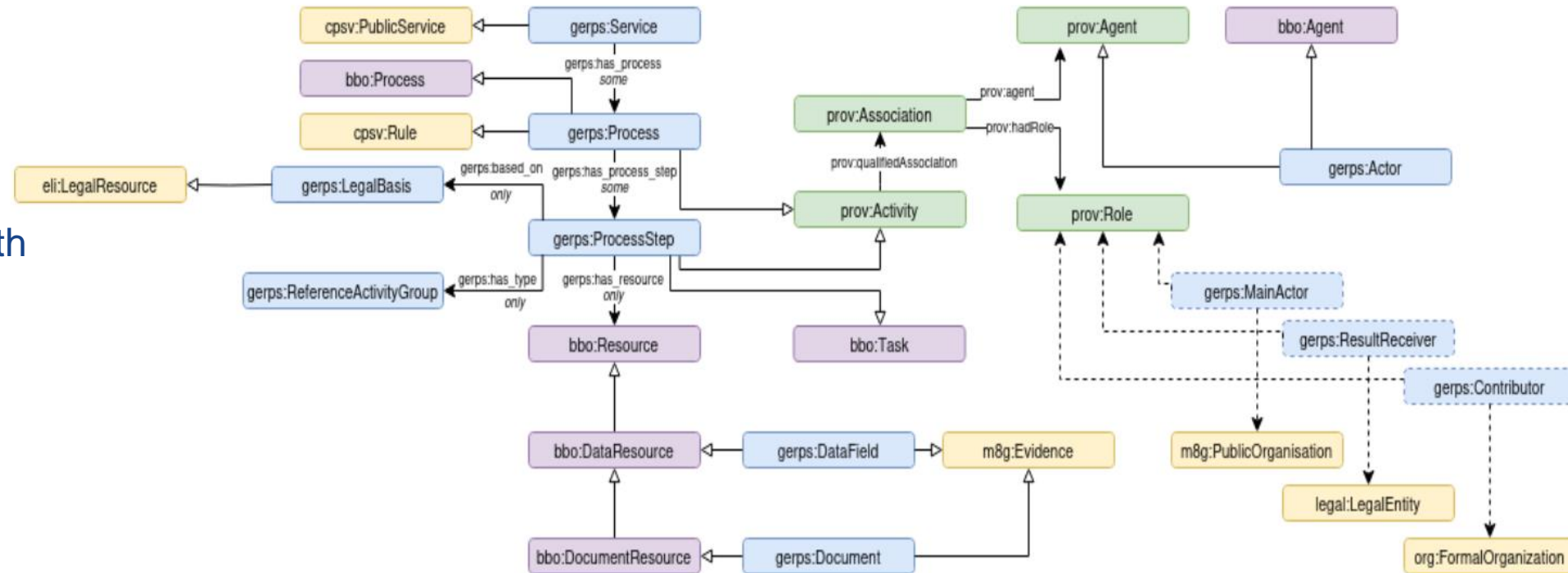
1. Analyse the legal basis.

2. Generate structured information from legal basis, namely service description, process information, data fields, and decisions.

3. Describe and combine structured information semantically.

## Digitise public services successfully!

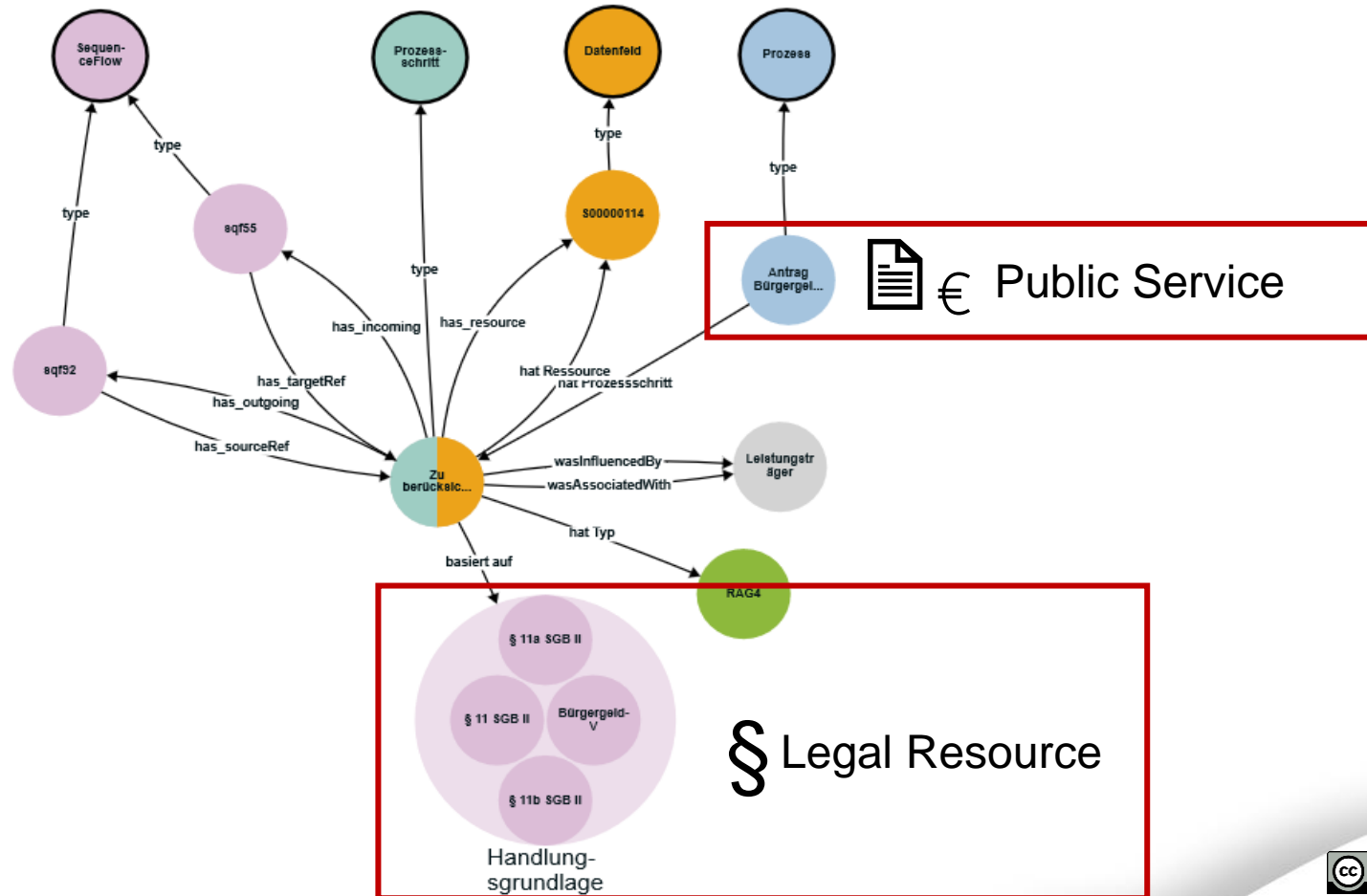
- Don't digitise bad paper processes.
- Don't try to reinvent the wheel.
- Digitise in compliance with the legal basis.








# Knowledge Graph for public services



# Get the legal basis for a public service

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX bbo: <http://BPMNbasedOntology#>
PREFIX gerps: <https://w3id.org/GerPS-onto/ontology#>
```

```
SELECT DISTINCT ?label
WHERE {
  ?Prozess gerps:GERPSP006 ?Prozessschritt.
  ?Prozess bbo:id "99107108017000".
  ?Prozessschritt gerps:GERPSP001 ?Handlungsgrundlage .
  ?Handlungsgrundlage rdfs:label ?label
}
```

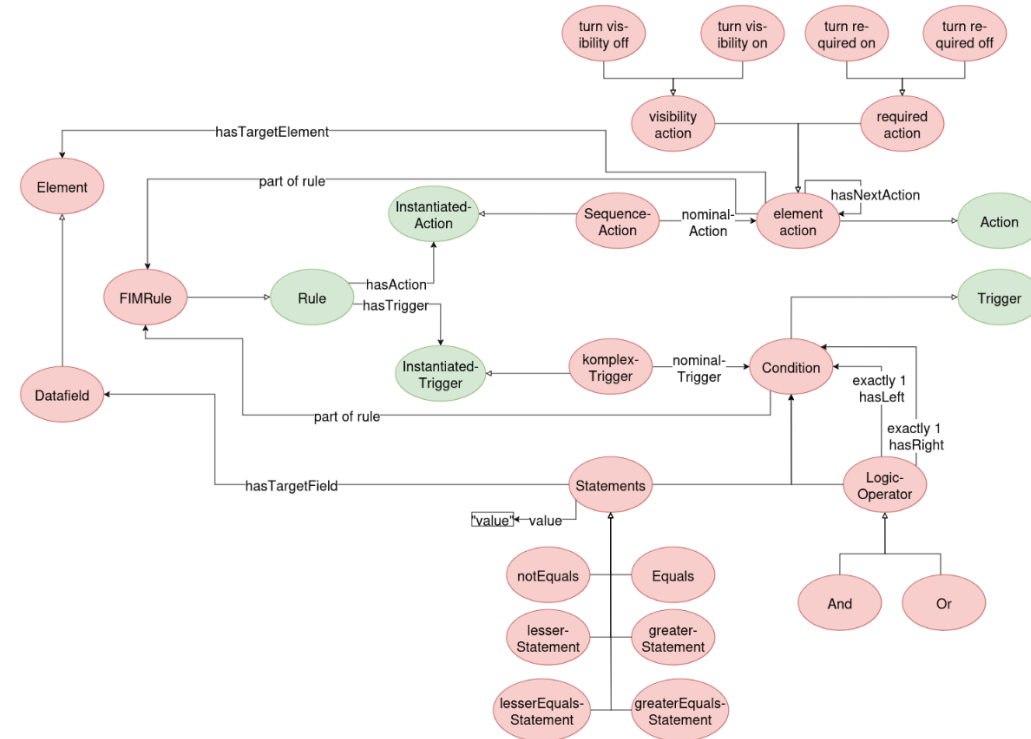
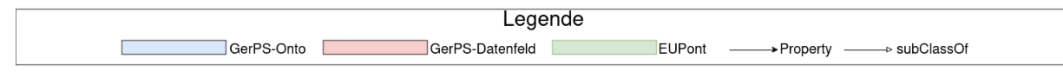
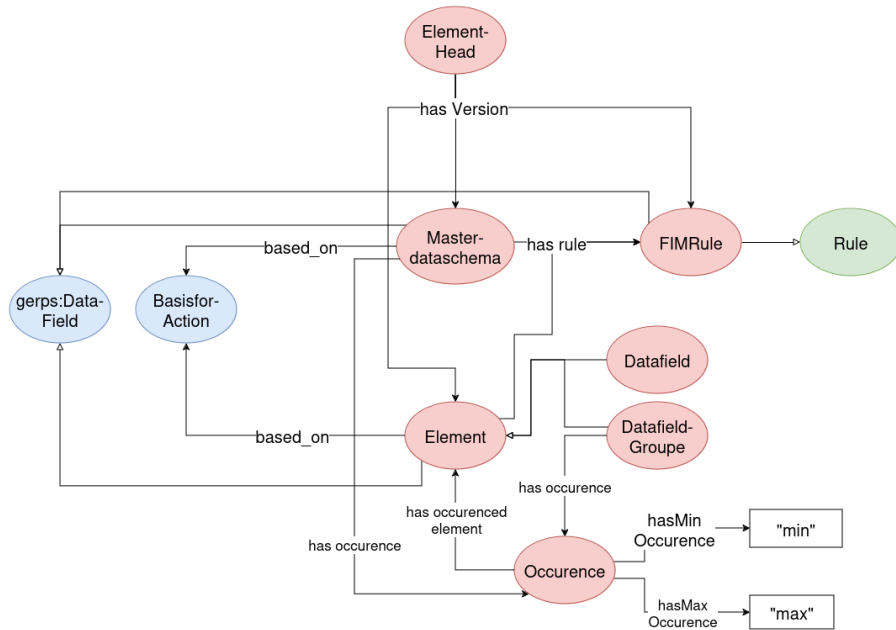
 € Public Service „basic income support for jobseekers“

## § Legal Resources for all process steps

[Table](#) [Response](#) 52 results in 0.162 seconds

	label
1	§ 39 SGB I
2	§ 21 SGB II
3	ErrV
4	§ 7b SGB II
5	§ 11b SGB II
6	§ 11 SGB II
7	§ 11a SGB II
8	Bürgergeld-V
9	§ 12a SGB II

# Extension – GerPS Data Fields





# Converter FIM (XML – semantic formats)

XImport XDatenfeld XProzess

## XImport

🔍 Führerschein (driver license)

Search

### Success

Name	Fim-ID v Version		
OZG-RDS_Umtausch einer deutschen Fahrerlaubnis in einen EU-Kartenführerschein, die bis zum 18.01.2013 erteilt wurden oder wegen Änderungen der bisherigen Angaben	S05000078v1.0	Download	Process
SDS - Antrag Führerschein Ausstellung	S06000178v0.4	Download	Process

Prototype, not published yet

# Converter FIM (XML – semantic formats)

XUI

XImport XDatenfeld XProzess

Prototype, not published yet

## XDatenfeld Konverter

**Files**

atenfeld, Codelist or Zip-Files here

---

**XDatenfeld**

datenfeld.xml	Delete
---------------	--------

---

**Codelist**

123.xml	Delete
121.xml	Delete
122.xml	Delete

**Action**

Select action to perform:

- Convert to Form.io
- Convert to ..
- Convert to .. and Push to Fuseki
- Push to Fuseki

JSONLD

**Result**

Execute

**Success**

```

{
  "@graph": [ {
    "@id": "https://test.schema-repository.fitko.dev/fields/baukasten/F00001",
    "@type": "https://w3id.org/GerPS-onto/FIMDatenfelder#J000028",
    "J000009": "https://test.schema-repository.fitko.dev/fields/baukasten/F",
  }, {
    "@id": "https://test.schema-repository.fitko.dev/fields/baukasten/F00001",
    "@type": "https://w3id.org/GerPS-onto/FIMDatenfelder#J000004",
    "name": "Lichtbild Person",
    "label": "Lichtbild Person",
    "J000002": "Fügen Sie ein Lichtbild der Person bei.",
    "J000004": "input",
    "J000005": "file",
    "J000006": "",
    "hat_datensfeldID": "F00001019"
  }, {
    "@id": "https://test.schema-repository.fitko.dev/fields/baukasten/F00002",
    "@type": "https://w3id.org/GerPS-onto/FIMDatenfelder#J000028",
    "J000009": "https://test.schema-repository.fitko.dev/fields/baukasten/F",
  }, {
    "@id": "https://test.schema-repository.fitko.dev/fields/baukasten/F00002",
    "@type": "https://w3id.org/GerPS-onto/FIMDatenfelder#J000004",
    "name": "Ausweisdokument (Fahrerlaubnis)",
    "label": "Ausweisdokument (Fahrerlaubnis)",
    "J000002": "Geben Sie die Art des Ausweisdokuments an, mit dem Sie Ihre",
    "J000004": "input",
    "J000005": "text",
    "J000006": "",
    "basiert_auf": "https://w3id.org/GerPS-onto/ontology#Handlungsgrundlage_
  }
  ]
}
    
```

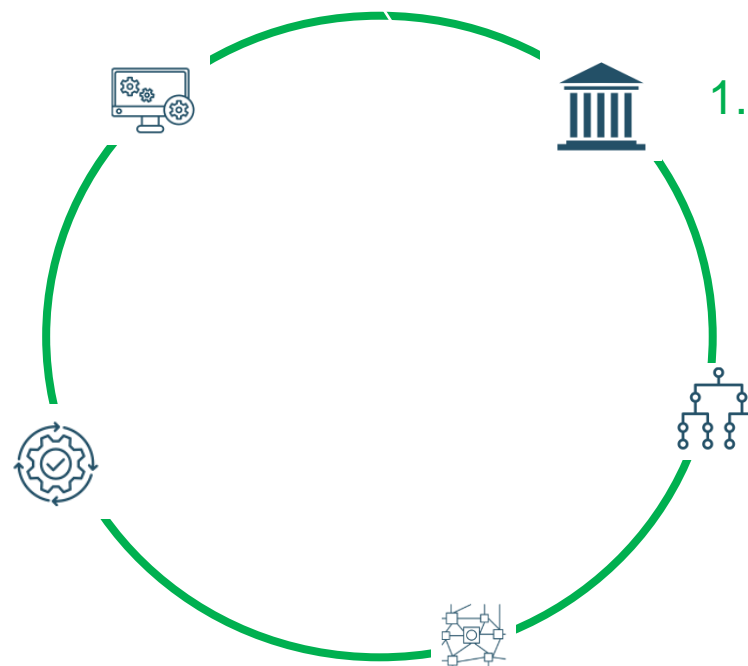
Download

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- **From Legal Texts to Digitized Services for Public Administrations** Marianne Mauch, Sarah T. Bachinger, Philipp Bornheimer, Stephan Breidenbach, Daniela Erhardt, Leila Feddoul, Hannes Legner, Felicitas Löffler, Frank Löffler, Maximilian Raupach, Sirko Schindler, Jörg Schröder and Birgitta König-Ries, IRIS24: International Legal Informatics Symposium 2024, Salzburg, Austria, February 14-17, [https://www.easychair.org/publications/preprint\\_english/PsVv](https://www.easychair.org/publications/preprint_english/PsVv)
- **GerPS-NER: A Dataset for Named Entity Recognition to Support Public Service Process Creation in Germany** Leila Feddoul, Sarah T. Bachinger, Clara Lachenmaier, Sebastian Apel, Pirmin Karg, Norman Klewer, Denys Forshayt, Robin Erd and Marianne Mauch. Second International Workshop on Semantic Technologies and Deep Learning Models for Scientific, Technical and Legal Data SemTech4STLD, ESWC '24, May 26th, 2024, Hersonissos, Greece
- **On which legal regulations is a public service based? Fostering transparency in public administration by using knowledge graphs** Feddoul, Leila; Raupach, Maximilian; Löffler, Felicitas; Babalou, Samira; Hoyer, Jonas; Mauch, Marianne; König-Ries, Birgitta (2023), INFORMATIK 2023 - Designing Futures: Zukünfte gestalten. DOI: 10.18420/inf2023\_115. Bonn: Gesellschaft für Informatik e.V.. PISSN: 1617-5468. ISBN: 978-3-88579-731-9. pp. 1035-1040. Öffentliche Infrastruktur - IT-Kompetenzen für die digitale Verwaltung der Zukunft. Berlin. 26.-29. September 2023, <https://dl.gi.de/server/api/core/bitstreams/b183d43b-63a9-4606-b941-93d9834bf162/content>.
- **Data and its challenges on the path to end-to-end digitization in public administration-Contributions from three projects of the openDVA working group:** Marianne Mauch, Sarah Bachinger, Sirko Schindler, Leila Feddoul, Felicitas Löffler, Samira Babalou, Frank Löffler, Marc Bodenstein, Daniela Ehrhardt, Clemens-Alexander Brust, Data Science Day Jena 2023, Poster Sessions, Jena, Germany, Mai 10, 2023, [https://inference.uni-jena.de/assets/book\\_of\\_abstracts.pdf](https://inference.uni-jena.de/assets/book_of_abstracts.pdf), <https://elib.dlr.de/195197/>.
- **Evaluation of Data Augmentation for Named Entity Recognition in the German Legal Domain:** Robin Erd, Leila Feddoul, Clara Lachenmaier and Marianne Jana Mauch, Joint Proceedings of the 3rd International Workshop on Artificial Intelligence Technologies for Legal Documents (AI4LEGAL 2022), co-located with the 21st International Semantic Web Conference (ISWC 2022). Virtual Event, Hangzhou, China, October 23-24, 2022, <https://ceur-ws.org/Vol-3257/paper7.pdf>.
- **From Legal Texts to Digitized Services for Public Administrations:** Marianne Mauch, Sarah T. Bachinger, Philipp Bornheimer, Stephan Breidenbach, Daniela Erhardt, Leila Feddoul, Hannes Legner, Felicitas Löffler, Frank Löffler, Maximilian Raupach, Sirko Schindler, Jörg Schröder and Birgitta König-Ries, EasyChair Preprint no. 11925 of Internationales Rechtsinformatik Symposium (IRIS 2024), Salzburg (AT), February 14-17, 2024, [https://easychair.org/publications/preprint\\_english/PsVv](https://easychair.org/publications/preprint_english/PsVv).

### 3. Digital-ready policymaking and semantics



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## Q&A



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# Coffee break

We'll be back in 30 minutes!  
In the meantime, fill in this survey!

**Shape**  
Interoperability  
Assessments **that**  
**work!**



## Interoperability Assessments...

...are a journey, introduced by  
the Interoperable Europe Act,  
to **discover opportunities** for  
more **cross-border**  
**interoperability.**

### 3. Digital-ready policymaking and semantics



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# Ontologizing Reporting Obligations



Ashwin Ittoo  
Full Professor, ULiège, BE



# Outline



**Problem Description**



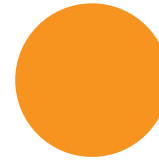
**Motivation**



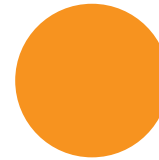
**Approach 1: Classical NLP**



**Limitations of Classical NLP Method**



**Approach 2: LLM**



**Limitations of LLM Method**

# Ontologizing Reporting Obligations

# From Unstructured Text

No later than 5 September 2010, the Commission shall submit a report to the European Parliament and to the Council on the issue of the reprocessing of medical devices in the Community .

← → ↺ eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32015R0061&qid=1524575017030&from=EN/ 🔍 ☆ ☰

of 10 October 2014

**to supplement Regulation (EU) No 575/2013 of the European Parliament and the Council with regard to liquidity coverage requirement for Credit Institutions**

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

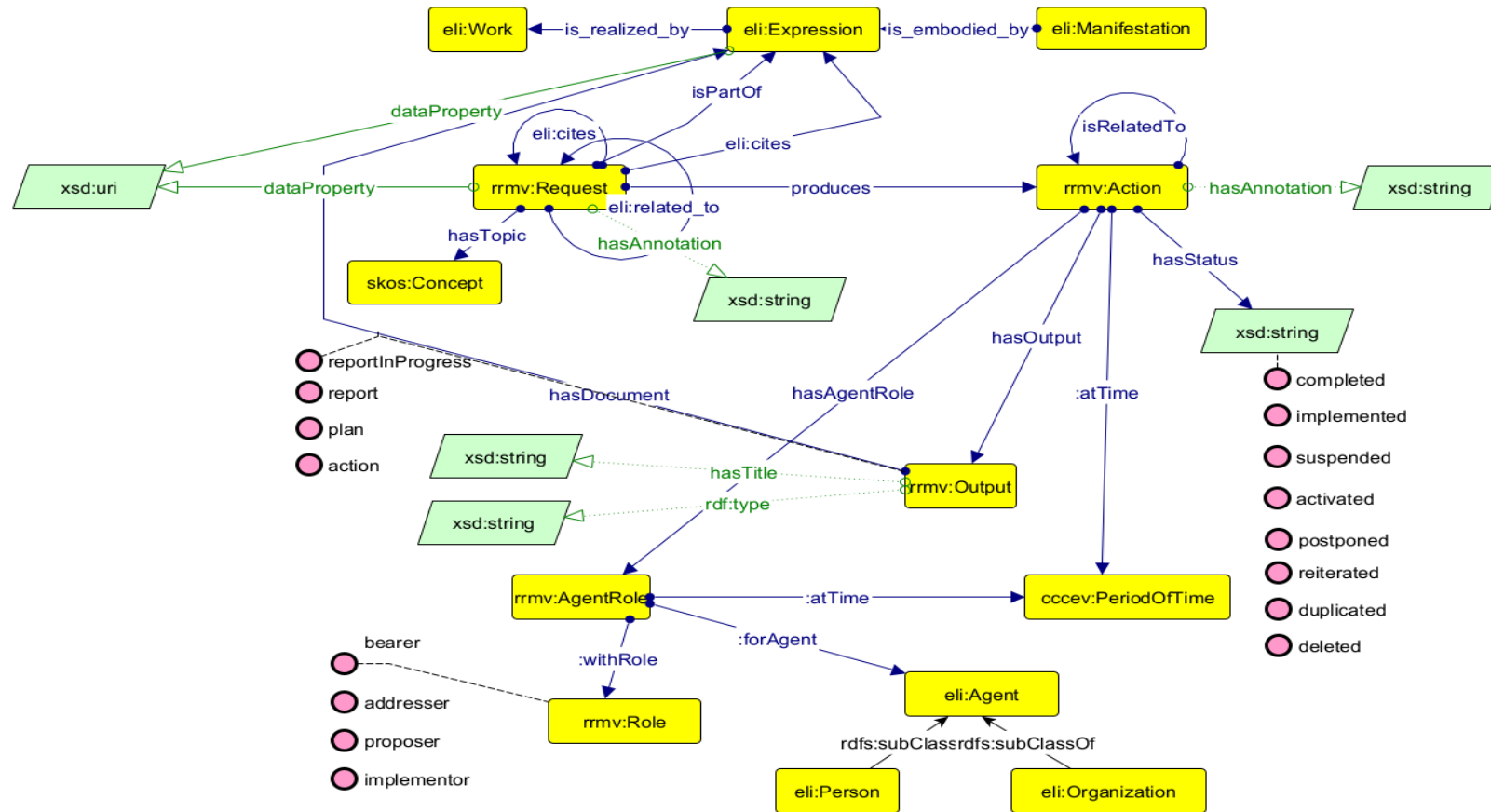
Having regard to Regulation (EU) No 575/2013 of the European Parliament and the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) 648/2012<sup>(1)</sup>, and in particular Article 460 thereof,

Whereas:

- (1) During the early 'liquidity phase' of the financial crisis that began in 2007, many credit institutions, despite maintaining adequate capital levels, experienced significant difficulties because they had failed to manage their liquidity risk prudently. Some credit institutions became overly dependent on short term financing which rapidly dried up at the onset of the crisis. Such credit institutions then became vulnerable to liquidity demands because they were not holding a sufficient volume of liquid assets to meet demands to withdraw funds (outflows) during the stressed period. Credit institutions were then forced to liquidate assets in a fire which created a self-reinforcing downward price spiral and lack of market confidence triggering a solvency crisis. Ultimately many credit institutions became excessively dependent on liquidity provision by the central banks and had to be bailed out by the injection of massive amount of funds from the public purse. Thus it became apparent that it was necessary to develop a detailed liquidity coverage requirement whose aim should be to avoid this risk by making credit institutions less dependent on short-term financing and central bank liquidity provision and more resilient to sudden liquidity shocks.
- (2) Article 412(1) of Regulation (EU) No 575/2013 imposes a liquidity coverage requirement on credit institutions formulated in general terms as an obligation to hold 'liquid assets, the sum of the values of which cover the liquidity outflows less the liquidity inflows under stressed conditions'. Pursuant to Article 460 of Regulation (EU) No 575/2013, the Commission is empowered to specify in detail that liquidity coverage requirement and the circumstances under which competent authorities have to impose specific in- and outflow levels on credit institutions in order to capture specific risks to which they are exposed. In accordance with Recital of Regulation (EU) No 575/2013, the rules should be comparable to the liquidity coverage ratio set out in the international framework for liquidity risk measurement, standards and monitoring of the Basel Committee on Banking Supervision ('BCBS'), taking into account Union and national specificities. Until the full implementation of the liquidity coverage requirement from 1 January 2018, Member States should be able to apply a liquidity coverage requirement up to 100 % for credit institutions in accordance with national law.
- (3) Consistent with BCBS liquidity standards, rules should be adopted to define the liquidity coverage requirement as a ratio of a credit institution's buffer of 'liquid assets' to its 'net liquidity outflows' over a 30 day stress period. 'Net liquidity outflows' should be calculated by deducting the credit institution's liquidity inflows from its liquidity outflows. The liquidity coverage ratio should be expressed as a percentage and a minimum level of 100 %, when fully implemented, which indicates that a credit institution holds sufficient liquid assets to meet its net liquidity outflows during a 30-day stress period. During such a period, a credit institution should be able to convert quickly its liquid assets into cash without recourse to central bank liquidity or public funds, which may result in its liquidity coverage ratio falling temporarily below the 100 % level. Should that occur or be expected to occur at any time, credit institutions should comply with the specific requirements laid down in Article 414 of Regulation (EU) No 575/2013 for a timely restoration of their liquidity coverage ratio to the minimum level.
- (4) Only freely transferable assets that can be converted quickly into cash in private markets within a short timeframe and without significant loss in value should be defined as 'liquid assets' for the purposes of credit institutions' liquidity buffers. Consistent with Part Six of Regulation (EU) No 575/2013 and the BCBS classification of liquid assets, appropriate rules should differentiate between assets of extremely high liquidity credit quality or level 1 assets, and assets of high liquidity and credit quality or level 2 assets. The latter should be further divided into level 2A and 2B assets. Credit institutions should hold an adequately diversified buffer of liquid assets, having regard to their relative liquidity and credit quality. Accordingly, each level and sub-level should be subject to specific requirements on haircuts and limits of the overall buffer and, where appropriate, differentiated requirements should be applied between levels or sub-levels and between categories of liquid assets in the same level or sub-level, which should be more stringent the lower their liquidity classification.
- (5) Certain general and operational requirements should be applied to liquid assets to ensure they can be converted into cash within a short timeframe, subject to some exceptions for specified level 1 assets where appropriate. These requirements should specify that liquid assets should be held free from any obstacle preventing their disposal, easy to value and listed on recognised exchanges or tradable on active sale or repurchase markets. They should also ensure that the credit institution's liquidity management function has access to and control of its liquid assets at all times and that the assets comprising the liquidity buffer are appropriately diversified. Diversification is important to ensure that a credit institution's ability to rapidly liquidate liquid assets without a significant loss in value is not compromised by those assets being vulnerable to a common risk factor.



# Structured Formal Representation





# Business Motivation

- Business process automation
- For businesses
  - Reporting
  - Compliance
- For regulatory agencies
  - Enforcement/liability/penalties
  - Standardized templates

# Challenges

- Intricacies of human language
- Multifarious ways to express reporting obligations
- No predefined templates
  - Participating entities are optional

*Addresser, addressee, temporal information, action result*

# Reporting Obligations

- *No later than 5 September 2010, the Commission shall submit a report to the European Parliament and to the Council on the issue of the reprocessing of medical devices in the Community. In the light of the findings of this report, the Commission shall submit to the European Parliament and to the Council any additional proposal it may deem appropriate in order to ensure a high level of health protection.*
- *In each case in which the limit has been exceeded, the institution shall report the amount of the excess and the name of the client concerned and, where applicable, the name of the group of connected clients concerned, without delay to the competent authorities*

## Approach 1: Classical NLP

- Learn how reporting verbs are expressed
  - Find closest embeddings (vectors) to “to report”

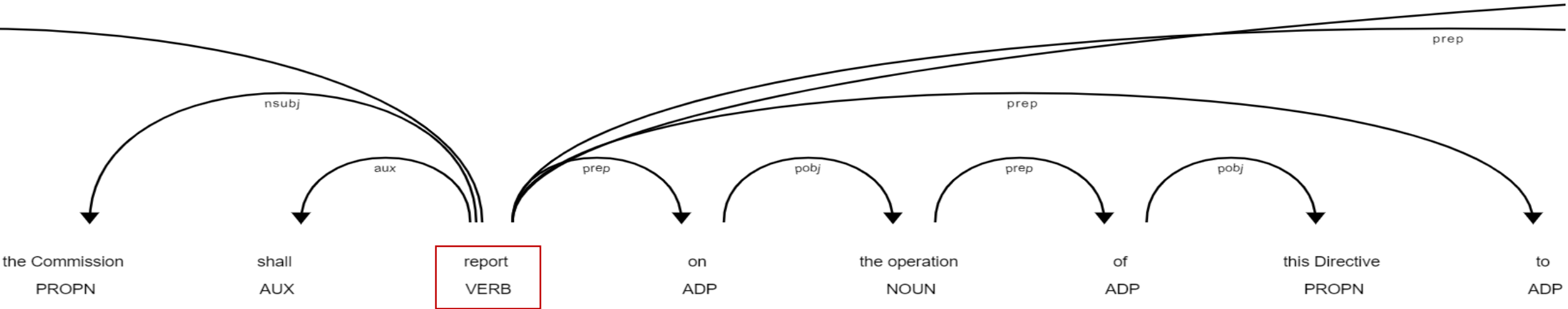




# Classical NLP

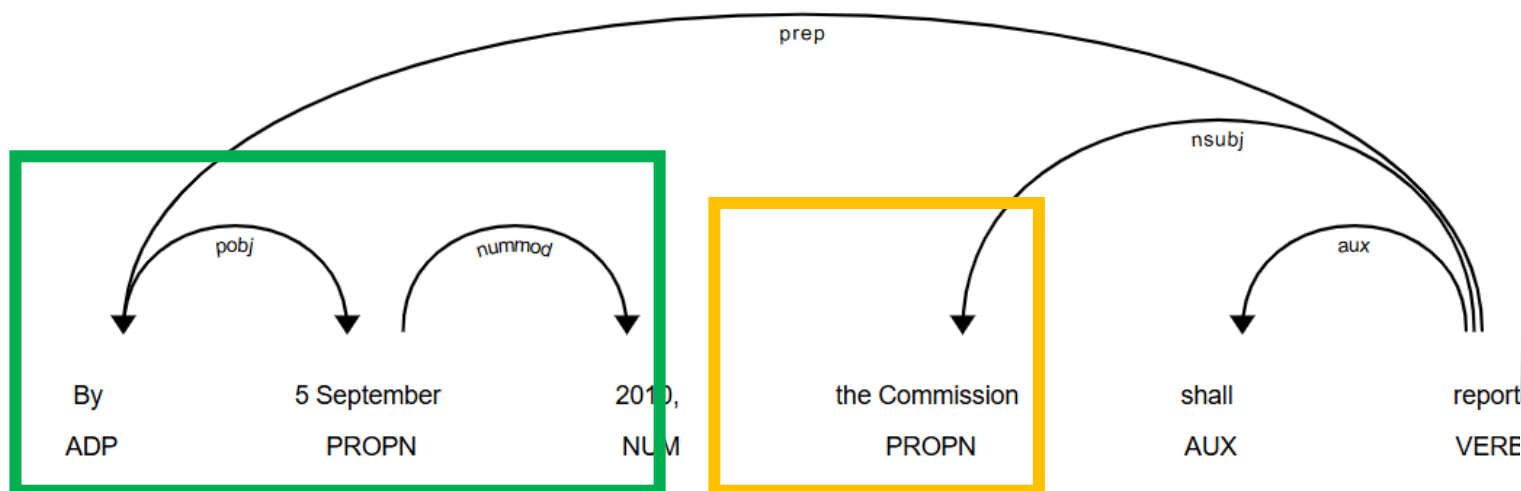
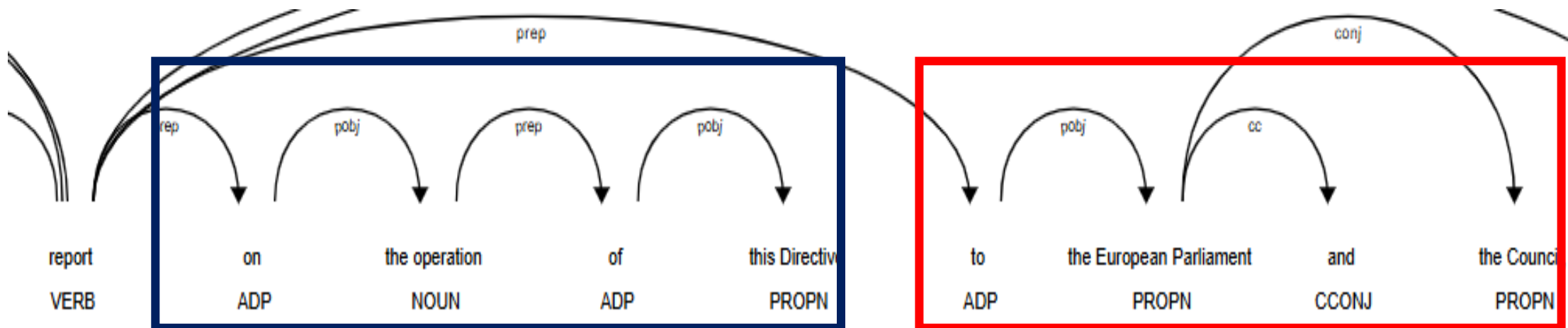
- Syntactic dependency/tree for each provision
- Reporting verb = tree verb

*By 5 September 2010, the Commission shall report on the operation of this Directive to the European Parliament and the ...*



## Classical NLP

- Traverse tree to detect
  - Addresser
  - Addressee
  - ActionResult
  - Temporal information
- Leverage on syntactic information
  - Straightforward for addresser (subject)
  - Much more complex for other entities
    - Prepositional object
    - Adverbial phrases
    - ....



# NLP Method Challenges

- Syntactic information unable to distinguish entities
  - Action result & addressees both prepositional objects
- Syntactic parsing complex
  - Tree traversal not generalizable
- Brittle & difficult to scale
  - Substantial customization for different sentence structure



## Approach 2: LLMs/Llama3

- Llama3-8B-Instruct
  - Relatively lightweight
  - Performs well on huggingface benchmark
- Instruction-based prompts
- Few-shot learning

# Llama3

*You are a virtual annotator.*

*For each sentence, you annotate the addresser, addressee, ActionResult, date.*

*The output should be in Json format. Here are some samples:*

# Llama3 Prompting

Sentence: By 31 December 2010 and, thereafter, at least every three years, the Commission shall review the provisions concerning its implementing powers and present a report to the European Parliament and to the Council on the functioning of those powers.

```
{  
  "addresser": ["the commission"],  
  "Action": "present",  
  "ActionResult": "a report on the functioning of those powers",  
  "addressee": ["the european parliament", "the council"],  
  "Date": "By 31 December 2010"
```

**Compare to  
complexity of classical  
NLP!**

# Llama3 Example Result

- *Sentence: By 5 September 2010, the Commission shall report on the operation of this Directive to the European Parliament and the Council.*

Output:

```
{  
  "addresser": ["the commission"],  
  "Action": " report ",  
  "ActionResult": " the operation of this Directive ",  
  "addressee": ["the european parliament", "the council"],  
  "Date": "By 5 September 2010 "  
}
```



# LLM Challenges

- Choosing representative examples for few-shot learning
- Explainability
- Cost (unless open-source models)
- Hallucination (see next slide)

- Sentence: The original identification established by the third country shall be recorded in the computerised database provided for in Article 5 or, if this is not yet fully operational, in the registers provided for in Article 3, together with the identification code allocated to it by the Member State of destination.

Output:

- {  
  "addresser": ["the third country"],  
  "Action": "record",  
  "ActionResult": "the original identification",  
  "addressee": ["the computerised database" **or** "the registers"],  
  "Date": "None"  
}

# Conclusion

- Converting regulatory text to a data graph structured according to a pre-defined ontology is challenging
- Complexity of human language
- LLMs seem promising..but
  - Explainability, trustworthiness
  - Statistically grounded
    - Overlooking of rare information (words)
  - Hallucination

### 3. Digital-ready policymaking and semantics



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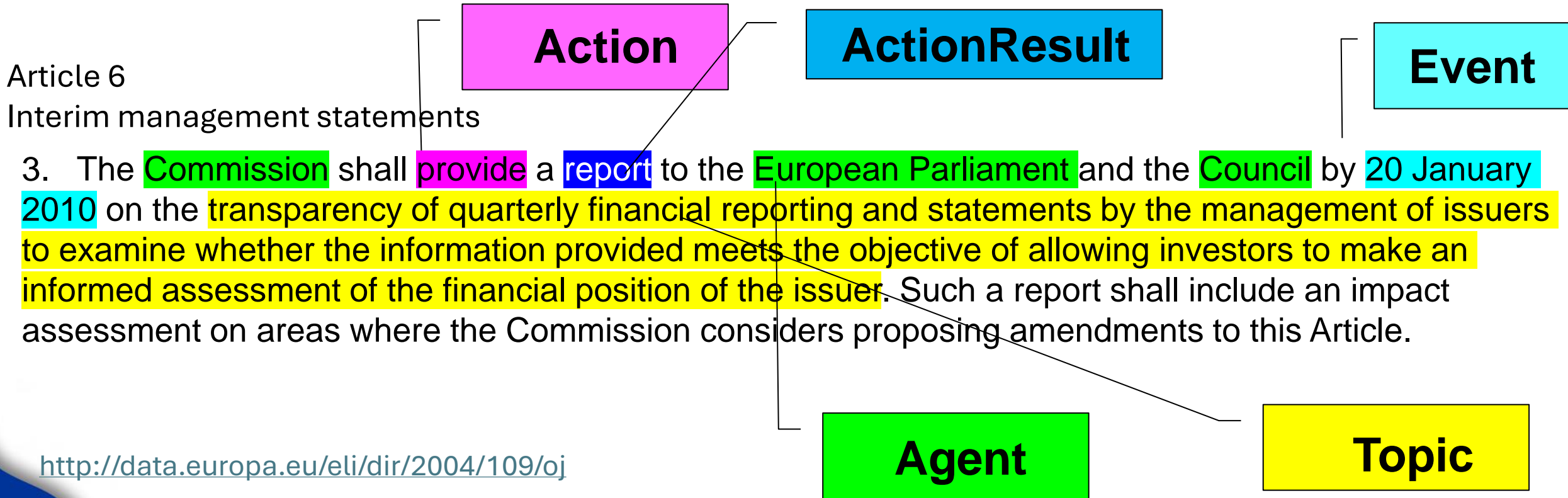


# Reporting Requirement Clause Drafting in LEOS



Monica Palmirani,  
University of Bologna,  
ALMA-AI

# Anatomy of a «Reporting Requirement Clause»



<http://data.europa.eu/eli/dir/2004/109/oj>

## Evolution of a «Reporting Requirement Clause»

Article 6

Interim management statements

3. The Commission shall provide a report to the European Parliament and the Council by 20 January 2010 on the transparency of quarterly financial reporting and statements by the management of issuers to examine whether the information provided meets the objective of allowing investors to make an informed assessment of the financial position of the issuer. Such a report shall include an impact assessment on areas where the Commission considers proposing amendments to this Article.

<http://data.europa.eu/eli/dir/2004/109/oj>

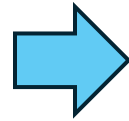
2013-11-26

Article 6

Report on payments to governments

Member States shall require issuers active in the extractive or logging of primary forest industries, as defined in Article 41(1) and (2) of Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC (\*3), to prepare on an annual basis, in accordance with Chapter 10 of that Directive, a report on payments made to governments. The report shall be made public at the latest six months after the end of each financial year and shall remain publicly available for at least 10 years. Payments to governments shall be reported at consolidated level.

<http://data.europa.eu/eli/dir/2004/109/2013-11-26>

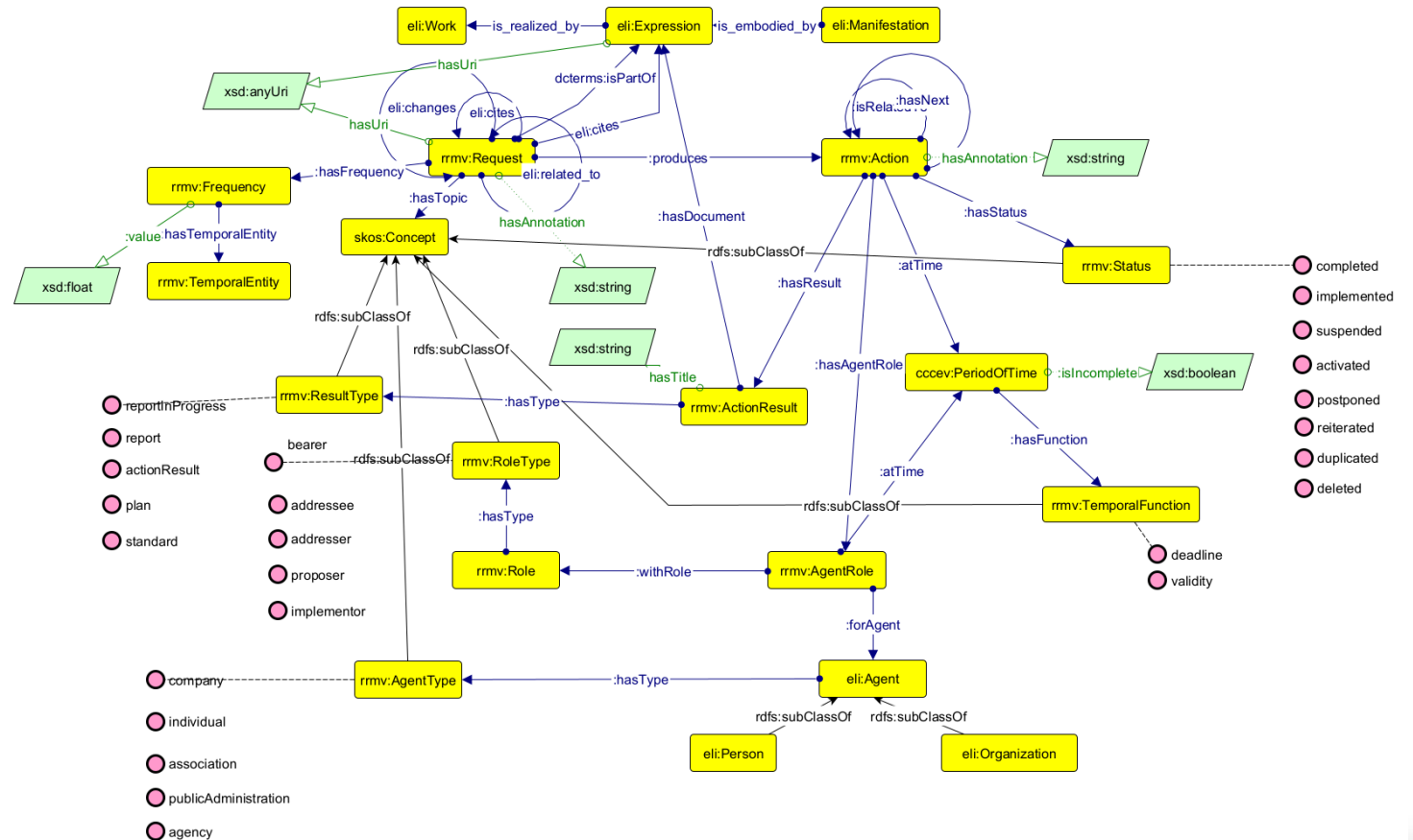




## RRMV «Reporting Requirement Clause» Ontology



CCCEV: Core Criterion and Core Evidence Vocabulary





## «Reporting Requirement Clause» Query and Monitoring

Give me all the reporting requirement in the interval of **2024-2026** where the **EU Commission** is addresser and the **EU Parliament** is addressee in the **last version** of the EUR-LEX consolidated document

The screenshot displays a web-based SPARQL visualizer interface. The browser address bar shows the URL: <https://madsholten.github.io/sparql-visualizer/>. The interface is divided into several sections:

- Dataset:** Shows '1: Sample data'.
- Description:** Provides instructions for using the visualizer, including adding data, changing descriptions, and copying datasets.
- SPARQL-visualizer | 11034 - EXERCISE 2:** A configuration panel with fields for 'Select dataset', 'Query', and 'Description'. It includes a '1 Add data' button and a '3 Click download button (will copy data to your clipboard)' instruction.
- Code Editor:** Contains a SPARQL query: 

```
### https://github.com/palmirani/rrvm/-/raw/main/docs/current/rrvm-v2.rdf#Request4Action
:Request4Action rdf:type owl:NamedIndividual ,
  <http://www.semanticweb.org/monica.palmirani/ontologies/2024/rrvm#Action> ;
rrvm:atTime :Request4PeriodOfTime ;
rrvm:hasAgentRole :Request4AgentRole1 ,
  :Request4AgentRole2 ,
  :Request4AgentRole3 ;
rrvm:hasResult <http://www.semanticweb.org/monica.palmirani/ontologies/2024/rrvm#report> .

### https://github.com/palmirani/rrvm/-/raw/main/docs/current/rrvm-v2.rdf#Request4ActionResult
:Request4ActionResultResult rdf:type owl:NamedIndividual ,
```
- Buttons:** 'Update' and 'Reset' buttons are visible below the code editor.
- Query:** A section for entering a query.
- Result:** A large, complex graph visualization showing relationships between various entities like 'Request4AgentRole1', 'Request4AgentRole2', 'Request4AgentRole3', 'Request4PeriodOfTime', 'Request4Action', and 'Request4ActionResultResult'. The graph is centered around a red node labeled 'owl:NamedIndividual'.
- Footer:** A section for 'In template JSON-file (Get it here)' with instructions for using Visual Studio Code or Notepad, and a '4 Change title and name' button.

Give me all the reporting requirements that have been suspended between 2019-2022

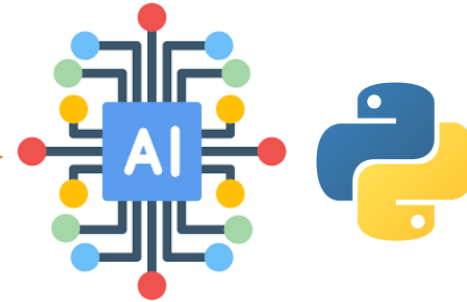
<https://atomgraph.github.io/SPARQL-Playground/>

## Extraction and Representation during drafting

3. The **Commission** shall provide a **report** to the **European Parliament** and the **Council** by **20 January 2010** on the **transparency of quarterly financial reporting and statements by the management** of issuers to examine whether the information provided meets the objective of allowing investors to make an informed assessment of the financial position of the issuer. Such a report shall include an impact assessment on areas where the Commission considers proposing amendments to this Article.

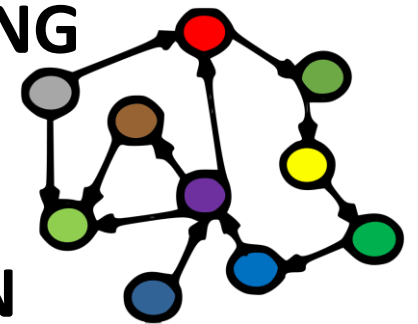


**EXTRACTION**



**VISUALIZATION**

**MAPPING  
RRMV**



**REPRESENTATION**



**INTEGRATION**



The screenshot displays the LEOS web application interface. At the top, there is a navigation bar with the LEOS logo, 'Home', and 'Support' links. On the right, it shows 'DEMO Demo' with a user profile icon and a language selector set to 'EN'. Below the navigation bar, a breadcrumb trail reads 'ome > Workspace > Proposal View > Legal Act'. The version information 'v1.0.7 - last edited by DEMO Demo (CNECT) on 17/06/2024 17:06' is visible on the right, along with a 'Close' button.

The main interface is divided into several sections:

- Top Toolbar:** Contains buttons for 'Save', 'Import from OJ', 'Exports', and 'Search'. It also features three toggle switches: 'See user guidance' (off), 'Enable track changes' (on), and 'See track changes' (off). To the right, there are more toggle switches for 'Enable definition assistant' (on) and 'Enable reference review' (on).
- Navigation Pane (Left):** Shows a tree view of the document structure: 'Preface', 'Preamble', 'Enacting Terms' (expanded), 'Article 1 - Scope 1. Text...', 'Article 2 - Request 1. The Commission shall ...', and 'Signature'. A 'Versions' link is also present.
- Main Drafting Area (Center):** Displays the text of the legal act. It starts with 'Article 1' and 'Scope', followed by '1. Text...'. Below this is a rich text editor toolbar. The main text area shows 'Article 2' and 'Request', with the following paragraph: '1. The Commission shall provide a report to the European Parliament and the Council by 20 January 2010 on the transparency of quarterly financial reporting and statements by the management of issuers to examine whether the information provided meets the objective of allowing investors to make an informed assessment of the financial position of the issuer. Such a report shall include an impact assessment on areas where the Commission considers proposing amendments to this Article.' Below the paragraph is the text 'This Regulation shall be binding in its entirety and directly applicable in all Member States.' and 'Done at Brussels,'.
- Right Panel (ACM Services | Annotations & document notes):** Contains a 'Drafting Review' tab. Under the 'INFO:' section, it lists: 'Action : provide', 'Action Result : on the transparency of quarterly financial reporting and statements by the management of issuers', 'Addressee : the\_european\_parliament,the\_council', 'Addresser : the\_commission', and 'Period Of Time : 20 January 2010'. Below this, it shows 'Is Part Of in rdf:RDF/rrmv:Request/dcterms:isPartOf:' with the value 'test'. Further down, it lists 'Has Annotation in rdf:RDF/rrmv:Request/rrmv:hasAnnotation:' with the value 'The Commission shall provide a report to the European Parliame' and 'Has Uri in rdf:RDF/rrmv:Request/rrmv:hasUri:' with the value 'test/\_art\_2\_\_para\_1'.



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## Q&A



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# Statistical Interoperability Node (SIN)



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Coordinator of Data Access and Statistical Quality  
Canary Islands Statistics Institute



**Jorge Velasco López**

Deputy Assistant Director of Data Architecture and Development of Common  
Statistical Components  
National Statistics Institute

# Spanish Statistical System

## Legal grounds

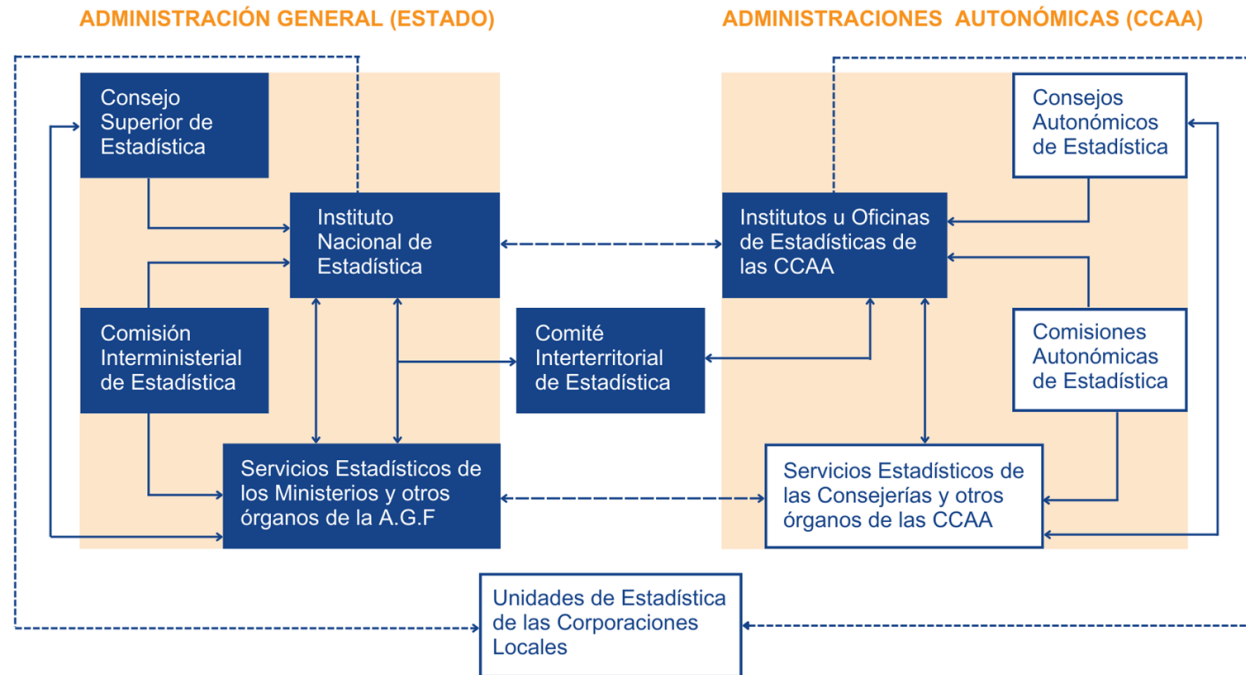
- Public Statistical Function Act
- Autonomous Regions Statistics Acts

## Organisations

- National Statistics Institute (INE), statistics offices of the Ministries, Bank of Spain
- Central statistical bodies of the autonomous regions

## Coordination bodies

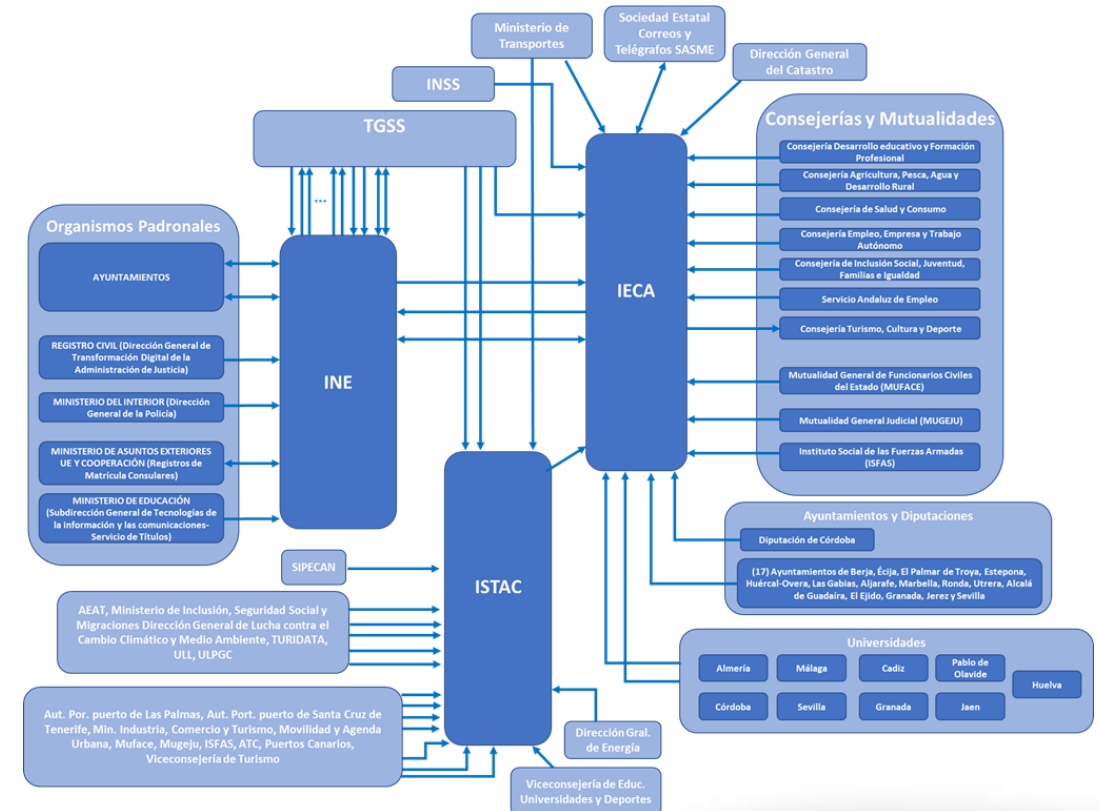
- Interministerial Statistics Commission (CIME) (Official State Statistics)
- Interregional Statistics Committee (CITE) (State and autonomous regions)
- Higher Council of Statistics (CSE) (Representation of users and producers of the Official State Statistics)





# Analysis in the CITE Working Group: Statistical Interoperability Node (interSTAT)

- **More than 4,000 annual file exchanges** occur among statistical bodies and with other bodies of both central and regional administration, all based on complex statistical legislation.
- **A large number of participants** use different technological elements necessary for each of the beneficiaries.
- **Decentralised, heterogeneous and complex information** transmission mechanisms take place due to the large number of participants.
- **Highly disparate tools, applications and other delivery means** that show a lack of homogeneity, with the presence of often obsolete technologies, require manual interventions and human actions.





# Working group of the Interterritorial Statistics Committee (CITE): Statistical Interoperability Node (interSTAT)

## General objective

Establish the legal and technical bases for the formation of a Statistical Interoperability Node in line with the provisions of Royal Decree 4/2010, of January 8th, which regulates the National Interoperability Framework within the e-government scope.

## Specific objectives

1. **Identify the legal framework for the configuration of a Statistical Interoperability Node**, which facilitates the exchange of data for statistical purposes between public administrations holding administrative data and national or regional public statistical services.
2. **Identify the conditions, protocols and functional or technical criteria** necessary for the aforementioned exchange of data for statistical purposes with the maximum guarantees of security, integrity and availability.
3. **Identify organizational, semantic or technical interoperability requirements** in matters of public statistics that could be developed by the Statistical Interoperability Node.

## Members

INE, IBESTAT (Balearic Islands), ISTAC (Canary Islands), IDESCAT (Catalonia), IGE (Galicia), IECA (Andalusia), EUSTAT (Basque Country), CREM (Region of Murcia).

# CITE Report

**CITE:** It formulates recommendations for interoperability, aimed at promoting the governance and interoperability of administrative data for statistical purposes.

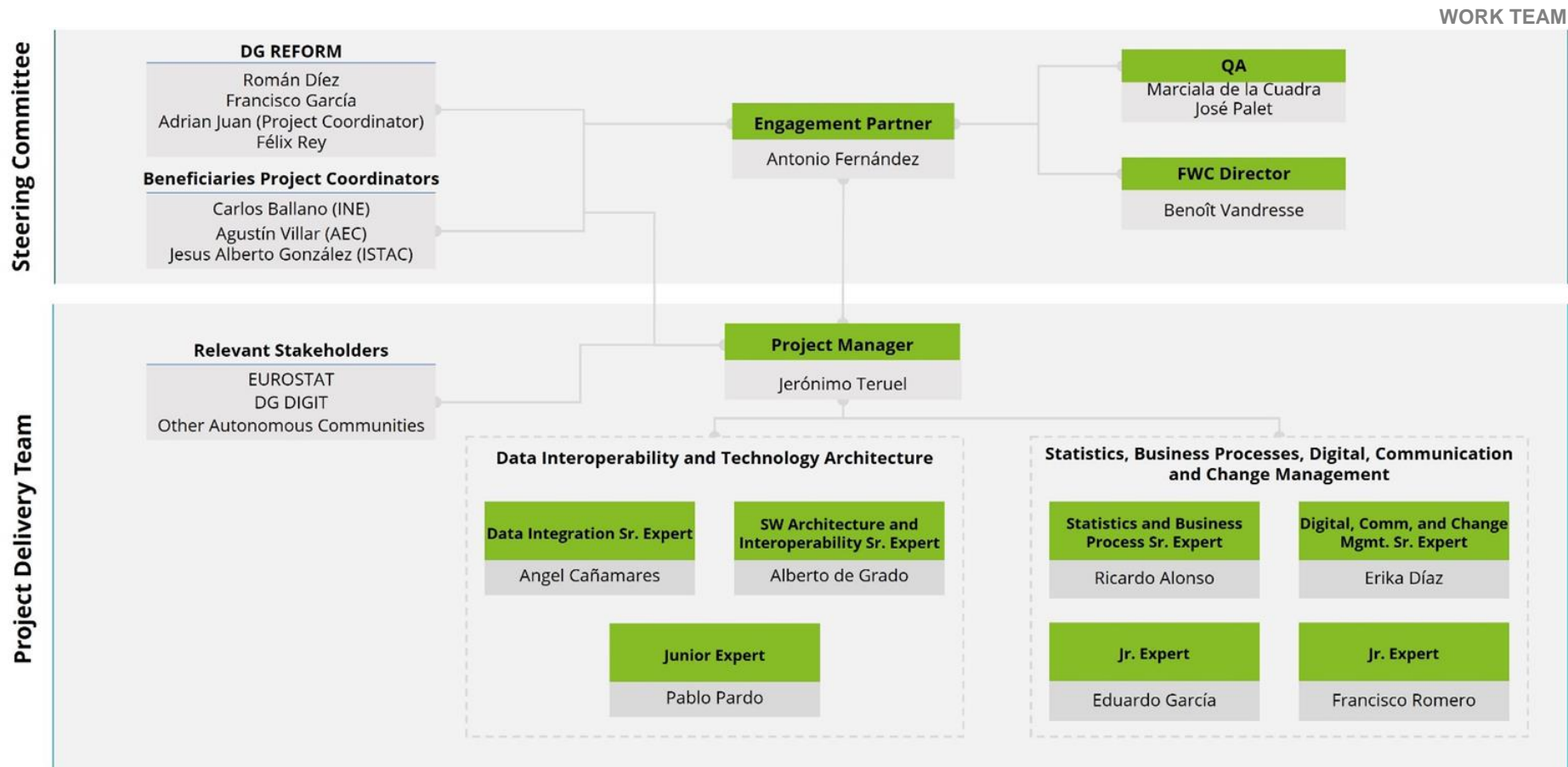
**InterSTAT:** National Statistical Data Space is a decentralised infrastructure for sharing and exchanging reliable data.

**GAIA-X:** It serves as a framework for a national space of official statistical data and infrastructures for sharing.

- Data platforms, supporting systems for sharing and exchanging data.
- Data inventories, platforms where data owners can offer their data and users can request access to it.
- Data sovereignty, defined as the authority of each stakeholder to determine how digital processes, infrastructure and data flows are structured, constructed and managed.

Organisational interoperability	Governance component
Agents involved: CITE + data intermediaries, data providers and applicants	<ul style="list-style-type: none"> <li>• Agreements between applicants and intermediaries</li> <li>• Agreements between data providers and intermediaries</li> <li>• Each use is authorized by the data provider</li> </ul>
Legal interoperability	
<ul style="list-style-type: none"> <li>• Right of access to administrative data</li> <li>• Personal data protection</li> <li>• Conditions related to the National Interoperability Framework</li> </ul>	
Semantic and technical interoperability	

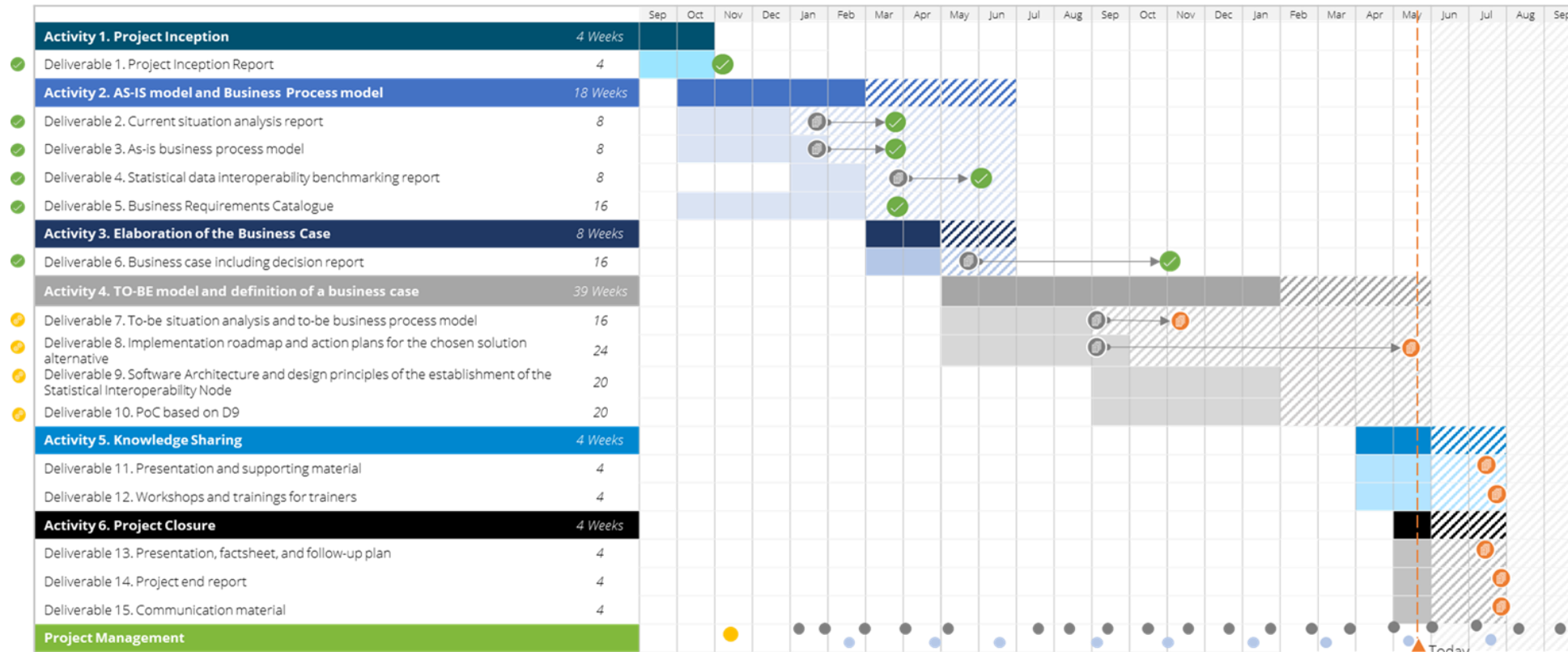
# TSI Programme. Statistical Interoperability Node (SIN)





## TSI Programme. Statistical Interoperability Node (SIN)

PROJECT PLANNING



● Draft    
 ● Kick-off    
 ● Status Point Summary    
 ● Steering Committee Report    
 ✓ Approved Deliverables    
 ● Pending Approval



## Benchmarking report. Good practice analysis

### eDelivery

A network of nodes conforming to uniform technical standards to facilitate secure and reliable data and document exchange for public and private organizations across Europe, supporting cross-border and cross-sector communication.

### CCN/CSI Network

Promoted by DG-TAXUD, this secure network links customs and taxation administrations through the Common Communications Network and Common Systems Interface, offering a high-availability and reliable system for data exchange.

### EDAMIS

An integrated data transmission environment facilitating data exchange between Eurostat and Member States, managing users and actions, and perform semantic validation of files to ensure accuracy and consistency.

### Gaia-X

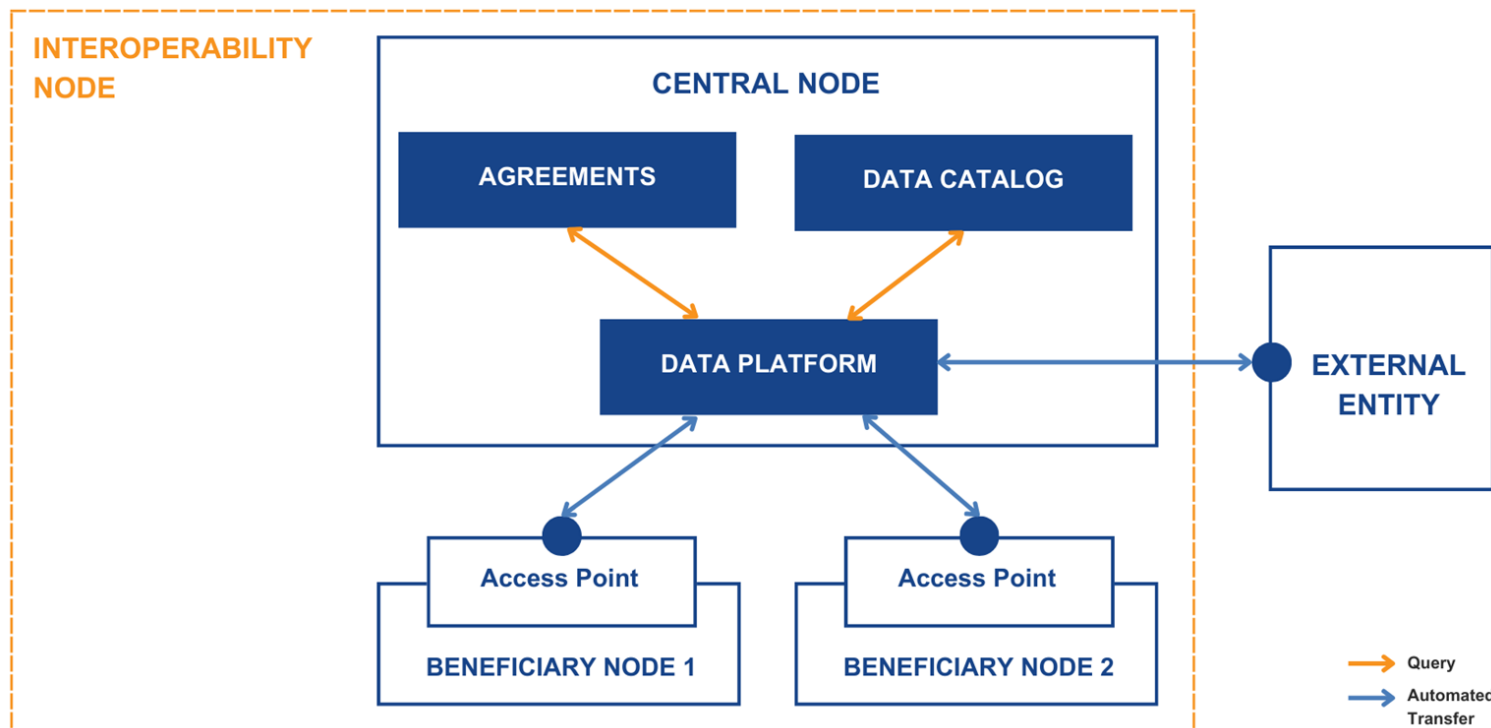
An initiative designed to create a data services ecosystem in Europe, based on a federated approach and complying with the high security and privacy standards of the European Union.

### Spanish Government Data Platform

A technological infrastructure that supports the management, storage and dissemination of data generated by the Spanish public administration, ensuring efficient and secure data handling.

# To-Be situation. Proposed model

Describes roles, responsibilities and systems that will support the Statistical Interoperability Node (SIN), as well as a detailed description of the tasks that make up the exchange process of data.



## To-Be situation. Proposed model



**REQ1** - Management of supply agreements (SA)



**REQ2** - Data catalogue



**REQ3** - Coordinated governance model



**REQ4** - Process automation



**REQ5** - Application of rules and validations



**REQ6** - Secure exchange channels



**REQ7** - Synchronous and asynchronous integrations



**REQ8** - Flexibility to new exchange needs



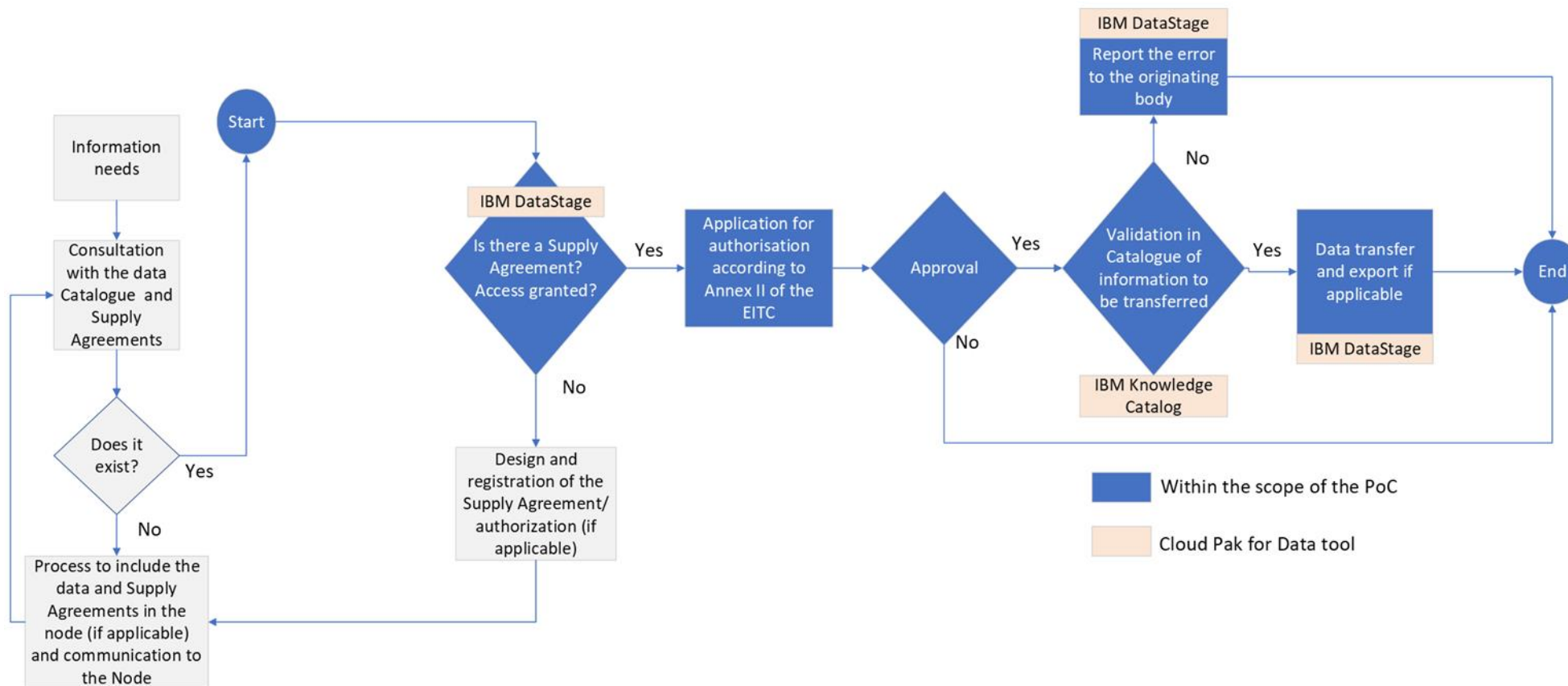
**REQ9** - External user access

# Proof of concept (PoC). Global SIN process and scope

FUNCTIONAL MILESTONE	DESCRIPTION
<b>Access to the platform</b>	Management of permissions, roles and users on the platform.
<b>Catalogue consultation by users</b>	Users can access and consult the catalogues, and the platform provides options for managing access and security.
<b>File metadata: supply agreements and catalogues</b>	Generation of supply agreements and catalogues under the DCAT-AP standard and for 2 cases or data sets that affect several beneficiaries.
<b>Ingestion, virtualization and permission granting of information based on supply agreements</b>	A process that, based on the supply agreements, determines the data sources to be ingested, datasets, validations, virtualization, permissions, etc.
<b>Validation/Transformation of the file</b>	Validation process of the files collected from data sources, focusing on the structure and format of the datasets and the information they contain, based on the catalogues.
<b>Access and making available the file and information</b>	Options for making information available and granting user access to it if requirements are met.
<b>Governance</b>	Platform governance management (access control, catalogues, etc.).



## Proof of concept (PoC). Functional milestones



## Proof of concept (PoC). Functional milestones

### PROGRESS

- Test and preproduction environment, available and accessible, on the SGAD data platform.
- Technical support from the INE, SGAD and Telefónica.
- The beneficiaries have provided the necessary files and information to carry out the PoC.
- Analysis of the tools available on the platform to carry out exchanges.
- Analysis of the options available on the platform for security governance and management.
- Implementation of the tasks that check if the exchange is possible, collect the files from the source and place them at their destination.

### NEXT STEPS

- Preparation of the design document of the proposed architecture for the SIN.

## Highlights

### **Coordination efforts in a decentralised environment**

Highlighting the collaborative approach within a decentralised context, particularly in Spain.

### **Inspired by GAIA-X and data space**

Drawing inspiration from GAIA-X and the concept of data spaces as a driving force.

### **Significant innovation**

Particularly in achieving legal and organizational interoperability, while also ensuring a robust technical foundation.

# Contact

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# How could data spaces support the reduction of reporting burden?



Michal Kuban,  
Policy Officer  
DG CNECT.G1

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## Q&A



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...are a journey, introduced by the Interoperable Europe Act, to **discover opportunities** for more **cross-border interoperability**.

