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What issues are holding back a greater adoption of the semantic web : The ELI case in EU

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1. The European Union (EU) context

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EU facts :

After a prudent start with 6 countries,
EU is now 28 countries with more than 450 million people

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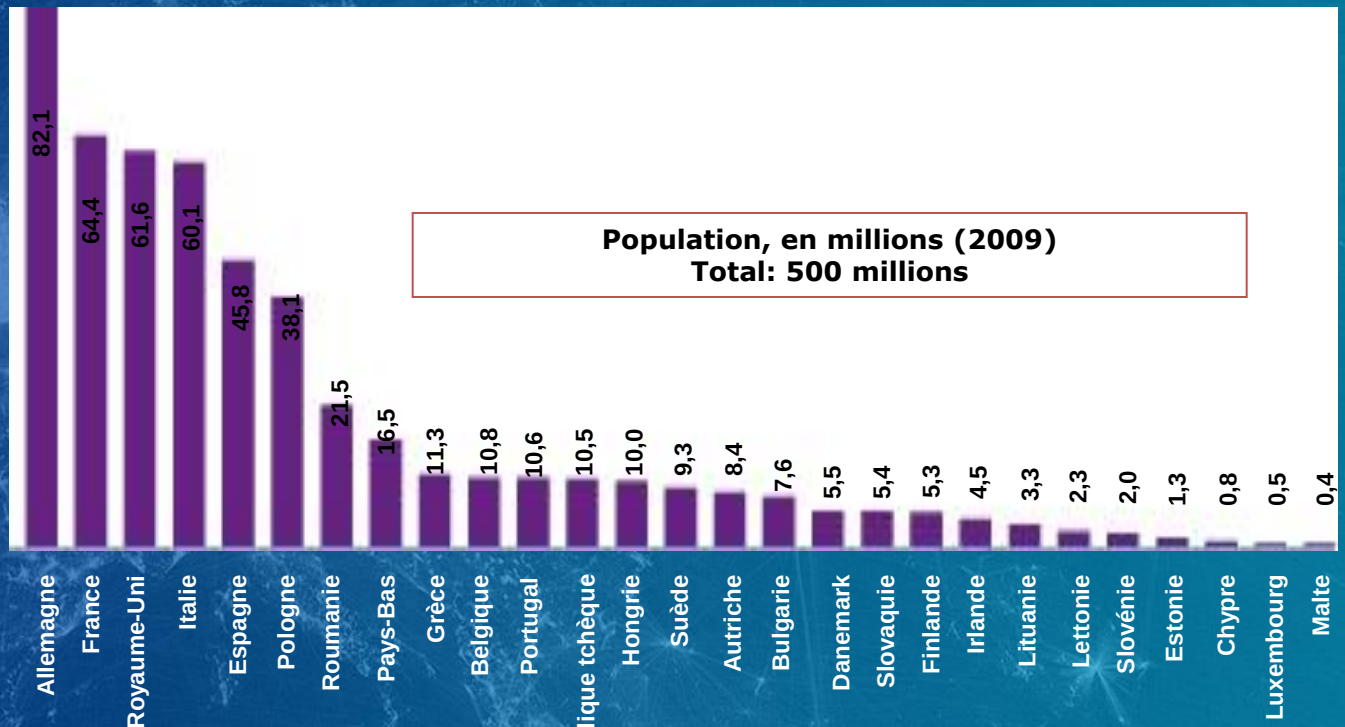
EU facts :

An uneven distribution of population : 68 % in 5 countries



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EU facts :

24 official languages

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The treaties : bases of the european union

Laws are in accordance to treaties

2009
Traité de Lisbonne

2003
Traité de Nice

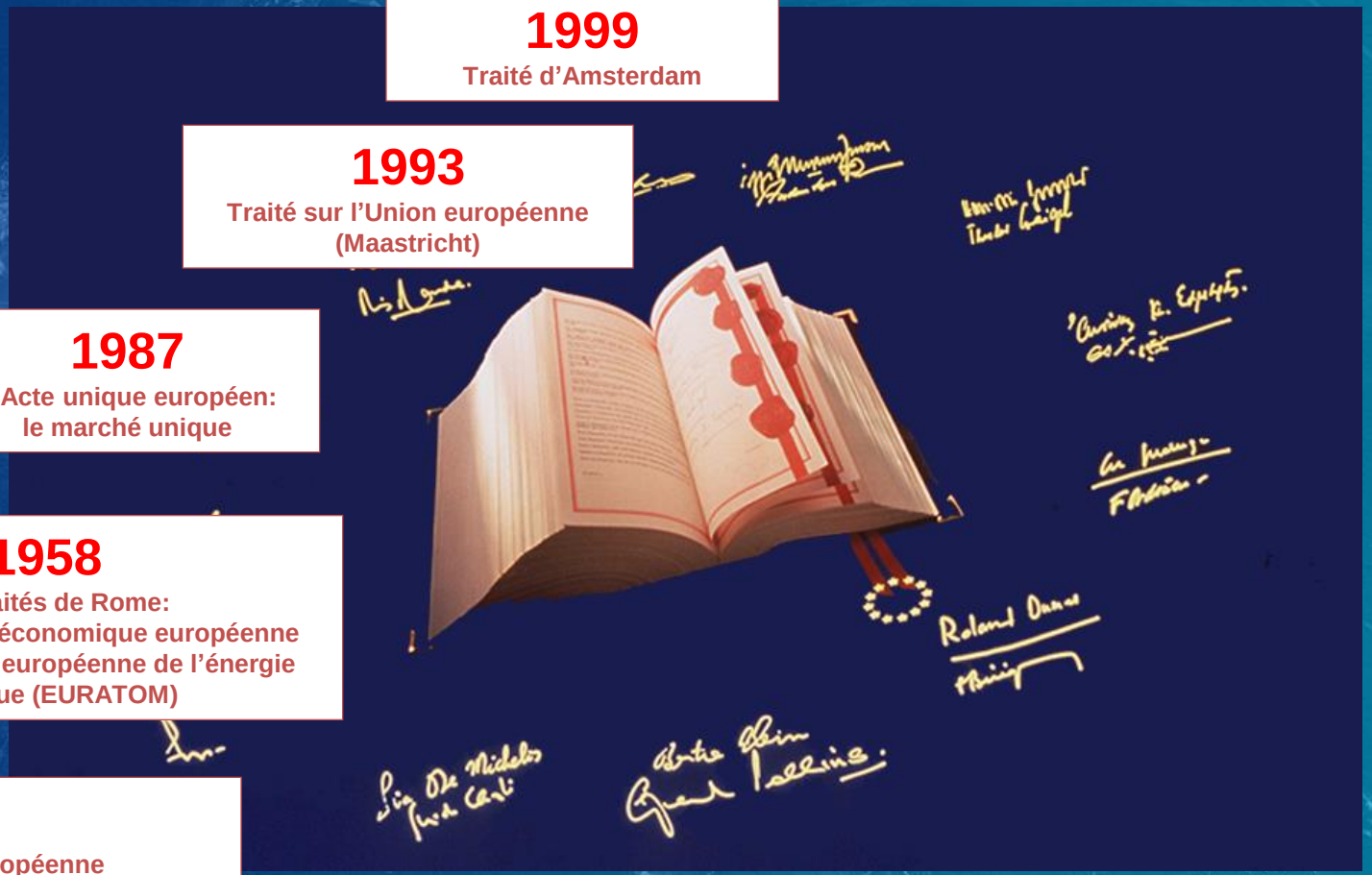
1999
Traité d'Amsterdam

1993
Traité sur l'Union européenne (Maastricht)

1987
L'Acte unique européen: le marché unique

1958
Les traités de Rome:
La Communauté économique européenne
La Communauté européenne de l'énergie atomique (EURATOM)

1952
La Communauté européenne du charbon et de l'acier



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1. The EU context

Organization based on laws
but
Large disparities in language, cultures, economic and social weights

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2. Adopting a semantic web in EU

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Why do we have to try to widely implement (apply) a semantic web in EU ? : The observations

- Citizens believe legislation is too complex and often incomprehensible
- Public think that only experts can find their ways
- Experts think that information is too dispersed and not detailed enough
- Governments and Institutions think that :
  - Information flow is increasing with decreasing performance
  - Legislative workflow is complex and on paper
  - Analysis consume too much time
  - Information is too duplicated

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Why do we have to try to implement (apply, make adopted) a semantic web in EU ? : The opportunities

Facilitate the accessibility and participation

- Access to public Information - PSI Directive
- Citizens and businesses

Further digitalization of public services

- Enrichment of analysis for better decision making
- Exchange and interconnection of data

Research, Innovation and Development

- Towards an ”Legislative Open Data“

Increase transparency and efficiency

- Promote participatory democracy
- Better reflect the needs of users

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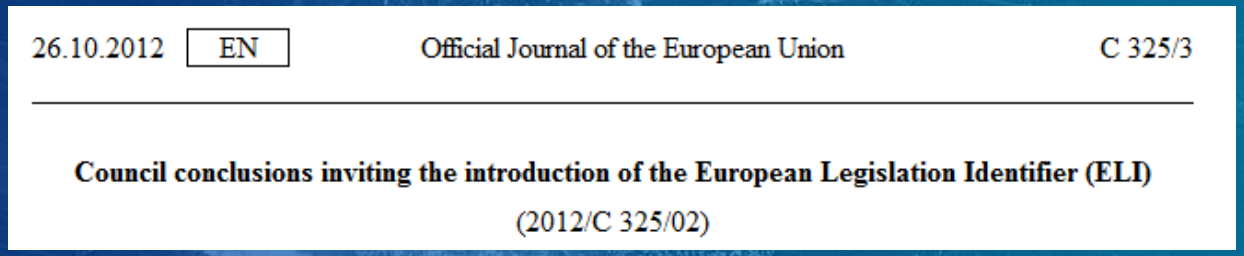
Why do we have to try to implement (apply, make adopted) a semantic web in EU ? : The goals

- Share and exchange legal informations
- Keep in mind “User-friendliness »
- Target at easy accessibility with common and flexible framework for Identifiers , Metadata, Ontologies, Thesauri, Datasets
- Be human and machine readable

How EU try to implement (adopt) a semantic web? :

The EU Council decide to promote officially the semantic web ELI with a text in the Official Journal



26.10.2012 EN Official Journal of the European Union C 325/3

Council conclusions inviting the introduction of the European Legislation Identifier (ELI)

(2012/C 325/02)

- *§15 : "Noting that each element of ELI (i.e. unique identifiers, metadata and ontology) as set out in the Annex is subject to **voluntary**, **gradual** and **optional** introduction, the Council invites the Member States who decide to introduce ELI, and on a voluntary basis"*

Methodology : during a "Discovery phase" 11 Member States/EFTA countries were interviewed (France, Germany, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Slovakia, Switzerland, United Kingdom and the Publications Office)

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How EU try to implement (adopt) a semantic web? :

ELI have to be adopted widely but, according to the way works the EU institutions :

- It is only a **preconization** to introduce a unique European Legislation Identifier
- The council encourage countries to adopt it on a **voluntary basis**
- Allow the **partial** or step by step implementation
- Due to the **proportionality and subsidiarity principle**, the member states are allowed to choose the best means.
- **Re-use** the national and European legislation already available (= be adapted to heterogeneity of the existing systems)
- **Limit investment** of each member state

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How to get closer from the international standards :

Today we are part of the OASIS group to bring ELI as near as possible from international standards as Akoma Ntoso that are also based on the FRBR model with URIs and metadata.

Officiallised in annex 2b of the council conclusion about ELI 2012/C 325/02

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2. Adopting a semantic web in EU

Public, experts and government have problem to access to the legislation data

So we seize the opportunity to improve the data analysis (open data).

We want to give the best accessibility to human and machines

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3. Example of a semantic web that is trying to be widely adopted : ELI

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The ELI project :

In 2011, 3 countries (France, Luxembourg, UK) have proposed a Unique Legislation Identifier to the workgroup ELAW of the council

In 2012, The council validate the idea and following the council decision, the ELI project is born

In 2014 :
2 member states have implemented ELI :
France on all official journal since 2002 (153 290 texts)
UK has implemented ELI on more than 100 000 texts

In 2015 :
3 member states : Luxembourg, Ireland, Danmark and UE office of publications are implementing ELI
7 member states are officially interested and asked for assistance :
Malte, Spain and Catalonia, Italy, Lithuania, Lettonia, Austria, Belgium
3 non member states are also interested :
Albania, Norway, Swiss

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How ELI works ? :

ELI is partly based on the use of Uniform Resource Identifiers (URIs), and partly on a set of structured metadata for referencing European and domestic legislation. Lastly, with an eye to fully taking advantage of the semantic Web, ELI is based on the implementation of a specific language for exchanging this data.

ELI is based on 3 pillars :
-Identification
-Metadata
-Structured information (ontology)

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1st pilar : Structure of the URI :

/eli/ {country}/ {agent}/ {sub-agent}/ {year}/ {month}/ {day }/ {type}/{Natural identifier}/ {Level 1…}/ {Point in Time}/ {Version}/ {language}

- All the components are optional and do not have a pre-defined order
- Unique Identifier– **HTTP URI**
- **Natural hierarchisation**
- Semantic data
- Possibility to « guess » the URI

		Name	
	1	Eli	
Country	2	Country	Use of DCTERMS.IS For international orgar "EU" or "WTO"
	3	Agent	Administrative hierarc parliament etc…
	4	Sub_agent	Administrative hierarc
Reference	5	Year	YYYY Various interpretation of signature or date of
	6	Month	MM
	7	Day	DD
	8	Type	Nature of the act (law, Various interpretation
	9	Sub-type	Sub-category of an act

Exemple with the european official journal TODAY
http://eur-lex.europa.eu/legal-content/FR/TXT/HTML/?uri=CELEX:32003L0098&qid=1411465654681&from=FR

Exemple tomorow with ELI:
http://eur-lex.europa.eu/eli/dir/2003/98/HTML/FR/

Another example : Construction of a semantic Luxembourg URI

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n1

Format (pdf, html…)

Interpretation (language)

Abstract resources (idea of the law)

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n1

Legal Resources (the law)

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n1/jo

Language: FR
Title: Règlement grand-ducal du 10 décembre 2009 concernant le rapprochement des législations …

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n1/jo/htm

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n1/jo/xml

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n1/jo/rdf

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n1/jo/pdf

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Construction of a semantic Luxembourg URI

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n1 (the law)

eli.legilux.public.lu

European Legislation Identifier - ELI

Législation luxembourgeoise

Contenu | Référence

Contenu

PDF Version publiée

Règlement grand-ducal du 10 décembre 2009 modifiant le règlement grand-ducal modifié du 14 octobre 1981 portant application de la directive 80/181/CEE du Conseil du 20 décembre 1979 concernant le rapprochement des législations des Etats membres relatives aux unités de mesure.

Nous Henri, Grand-Duc de Luxembourg, Duc de Nassau,

- Vu la loi modifiée du 17 mai 1882 sur les poids et mesures;
- Vu la directive 2009/3/CE du Parlement européen et du Conseil du 11 mars 2009 modifiant la directive 80/181/CEE du Conseil concernant le rapprochement des législations des Etats membres relatives aux unités de mesure;
- Vu l'avis de la Chambre de commerce;

L'avis de la Chambre des métiers ayant été demandé;
Notre Conseil d'Etat entendu;
Sur le rapport de Notre Ministre de l'Economie et du Commerce extérieur et après délibération du Gouvernement en Conseil;

Arrêtons:

Art. 1er.

L'article 2, lettre b) du règlement grand-ducal modifié du 14 octobre 1981 portant application de la directive 80/181/CEE du Conseil du 20 décembre 1979 concernant le rapprochement des législations des Etats membres relatives aux unités de mesure, est modifié comme suit:

«

b) les unités dérivées SI fixées à l'article 4;

»

Art. 2.

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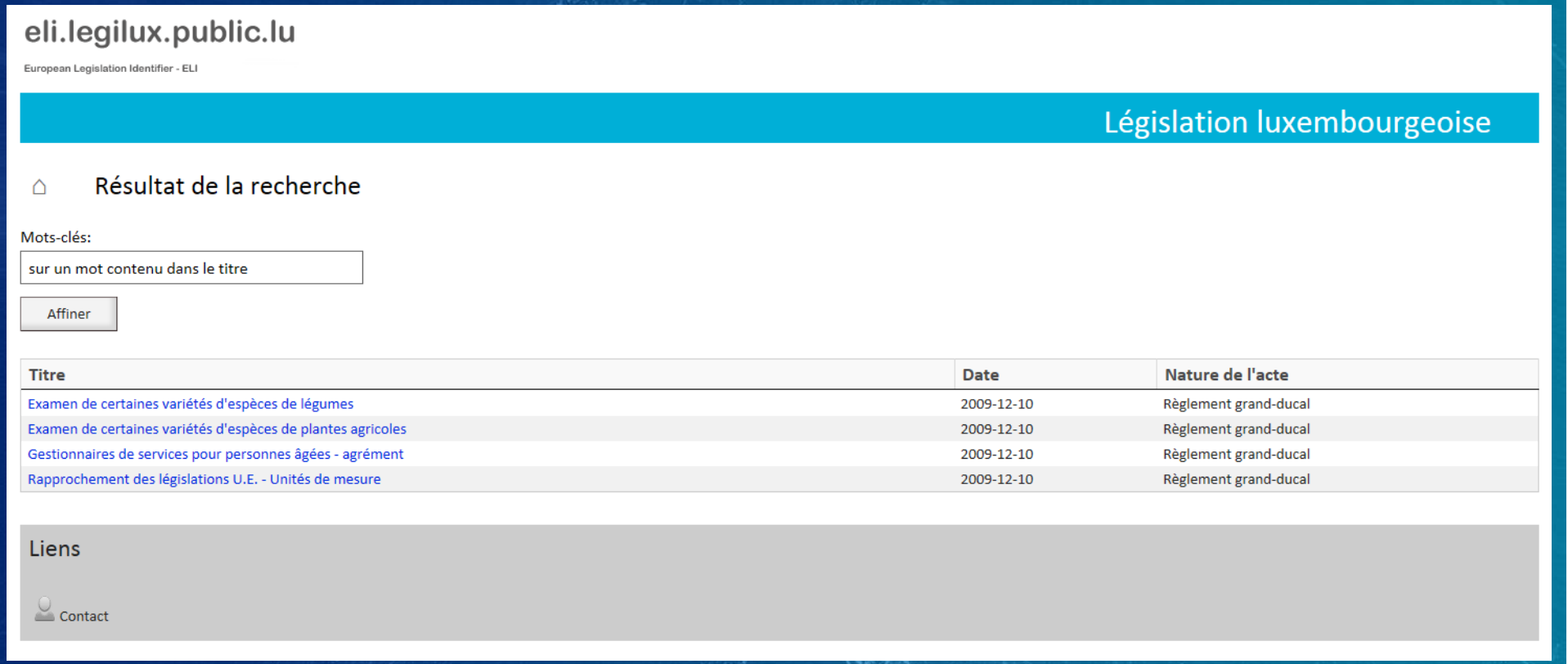
Construction of a semantic Luxembourg URI

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n1 (all the laws of this day)



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Construction of a semantic Luxembourg URI

http://eli.legilux.public.lu/eli/etat/leg/rgd/2009/12/10/n2 (all the laws of this month)

eli.legilux.public.lu

European Legislation Identifier - ELI

Législation luxembourgeoise

⌂ Résultat de la recherche

Mots-clés:

sur un mot contenu dans le titre

Affiner

Titre	Date	Nature de l'acte
Audit - conditions de reconnaissance de prestataires UE	2009-12-18	Règlement grand-ducal
Avenant au contrat collectif - travail intérimaire	2009-12-15	Règlement grand-ducal
Avenant à la Convention collective - travail intérimaire	2009-12-15	Règlement grand-ducal
Certificats de conduite de bateaux et attestations	2009-12-18	Règlement grand-ducal
Coefficients d'ajustement prévus à l'article 220 du CAS	2009-12-18	Règlement grand-ducal
Commercialisation des semences de légumes	2009-12-18	Règlement grand-ducal
Commission de surveillance du secteur financier - taxes	2009-12-18	Règlement grand-ducal
Convention collective de travail - UTOPIA et CARAMBA	2009-12-15	Règlement grand-ducal
Convention collective de travail pour le bâtiment - avenant	2009-12-15	Règlement grand-ducal
Convention du 25 juin 2009 - harcèlement et violence au travail	2009-12-15	Règlement grand-ducal
Demande de remboursement de TVA - État membre	2009-12-01	Règlement grand-ducal
Demande de remboursement de TVA en dehors C.E.	2009-12-01	Règlement grand-ducal
Droit d'accise autonome sur les tabacs manufacturés	2009-12-18	Règlement grand-ducal
Droits d'accises autonomes sur les produits énergétiques	2009-12-18	Règlement grand-ducal
Droits et obligations des voyageurs ferroviaires	2009-12-01	Règlement grand-ducal
Déclaration - Attribution d'un numéro d'identification TVA	2009-12-01	Règlement grand-ducal
Déclaration et paiement de la TVA	2009-12-01	Règlement grand-ducal
Enregistrement et Domaines, Douanes et Accises - coopération	2009-12-03	Règlement grand-ducal

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2nd pilar: Metadata

- Description of the essential characteristics of a legislative act *(31 properties describing legislative act)*
- Set of predefined components
- Shared syntax

Field Name	Description	Field identifier	Cardinalit
	Legal resource (language independ Any type of legal resource published in an Official Jo		
Unique Identifier	The identifier of the legal resource. New URI scheme can also be used	id_document	1
Local identifier	The identifier of the legal resource in a local reference system	id_local	0..*
Type of legislation	The type of a legal resource (e.g. directive, règlement grand ducale, law, draft propostion etc, Parliamentary act .....)	type_document	1
Territorial application	Territory that this legal resource is applicable for (e.g. EU, country / member state, region ....)	relevant_for	0..*
Agent / Authority	Member State or regional bodies, European Institutions, other bodies who initiated / adopted the legal resource (e.g. Luxembourg Government, European Parliament, Rheinland-Pfalz...)	agent_document	1..*
Sub-Agent / Sub-authority	Administrative hierarchical sub-structure. (e.g. Name of Ministry...)	service	0..*
Subject	The subject of this legal resource	is_about	0..*
Date of adoption	The official adoption or signature date of the document	date_document	1

For the data exchange to become more efficient, ELI metadata elements may be serialised in compliance with the W3C Recommendation 'RDFa in XHTML'

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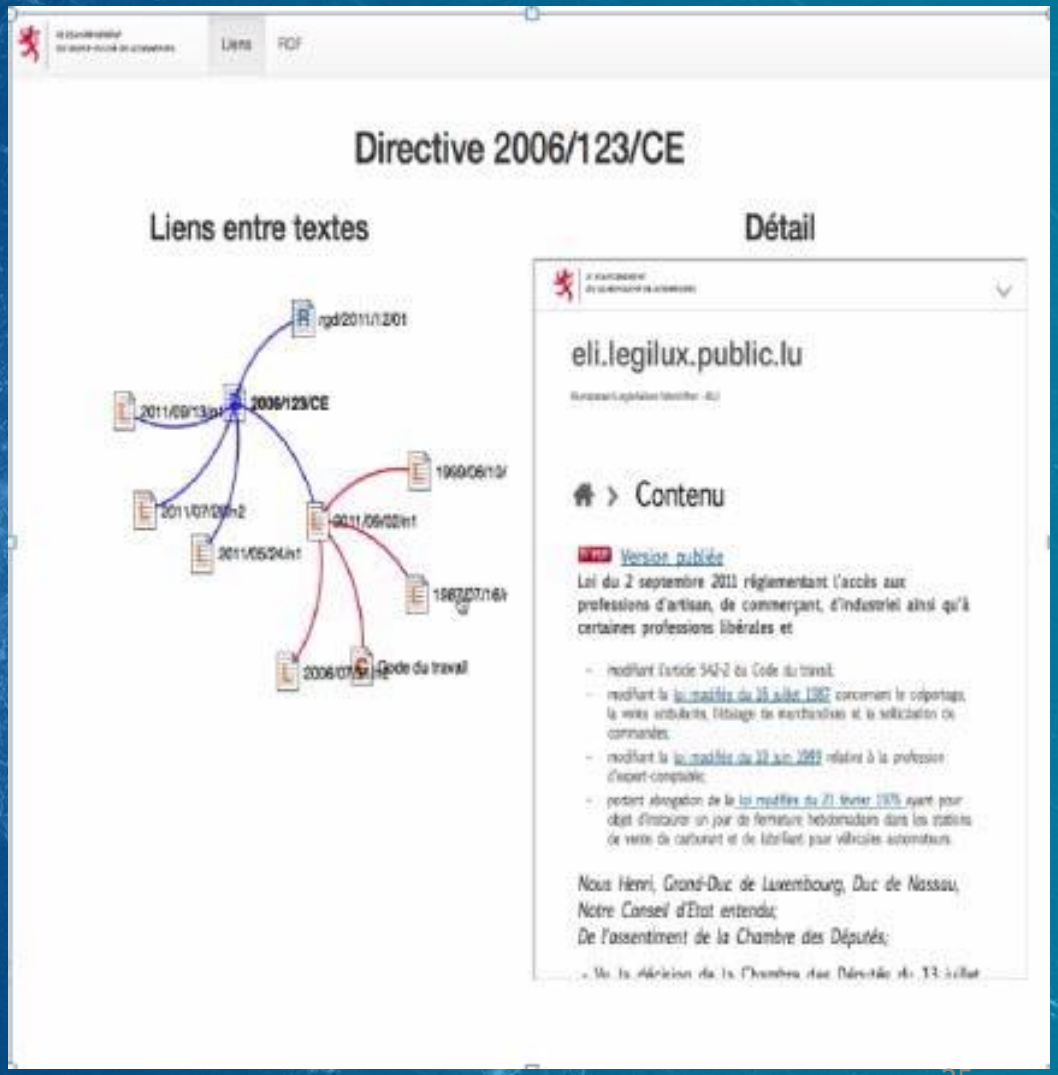
3rd Pilar : structure information

- ❑ **Possibility to view links**
- ❑ **Computerized impact analysis**
- ❑ **Information available to the needs of the audience:**
  - Public: consolidated acts in force
  - Experts: detailed information
  - Government
  - …



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Machine readable

Human readable

```
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 DocumentURI="http://www.legislation.gov.uk/uksi/2013/283/made" IdURI="http://www.legislation.gov.uk/id/uksi/
 xsi:schemaLocation="http://www.legislation.gov.uk/namespaces/legislation http://www.legislation.gov.uk/schem
 xml:base="http://www.legislation.gov.uk/id/uksi/2013/283">
  ▼<ukm:Metadata xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dct="http://purl.org/dc/terms/" xmlns:atom
    xmlns:ukm="http://www.legislation.gov.uk/namespaces/metadata">
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      <dc:subject>Employment rights</dc:subject>
      <dc:subject>Employment regulations</dc:subject>
      <dc:subject>Business practice and regulation</dc:subject>
      <dc:subject>Legislation</dc:subject>
      <dc:title>The Parental Leave (EU Directive) Regulations 2013</dc:title>
      <dc:language>en</dc:language>
      <dc:publisher>Queen's Printer of Acts of Parliament</dc:publisher>
      <dc:modified>2013-02-15</dc:modified>
      <dc:subject scheme="SIheading">TERMS AND CONDITIONS OF EMPLOYMENT</dc:subject>
    ▼<dc:description>
        These Regulations implement Council Directive 2010/18/EU on the revised framework agreement on parental
        parental leave in the Employment Rights Act 1996 ("the 1996 Act") and the Maternity and Parental Leave
      </dc:description>
      <atom:link rel="self" type="application/xml" href="http://legislation.data.gov.uk/uksi/2013/283/made/data
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      Memorandum"/>
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      Memorandum Table of Contents"/>
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      Directive) Regulations 2013"/>
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          <ukm:DocumentMinorType Value="regulation"/>
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        <ukm:Number Value="283"/>
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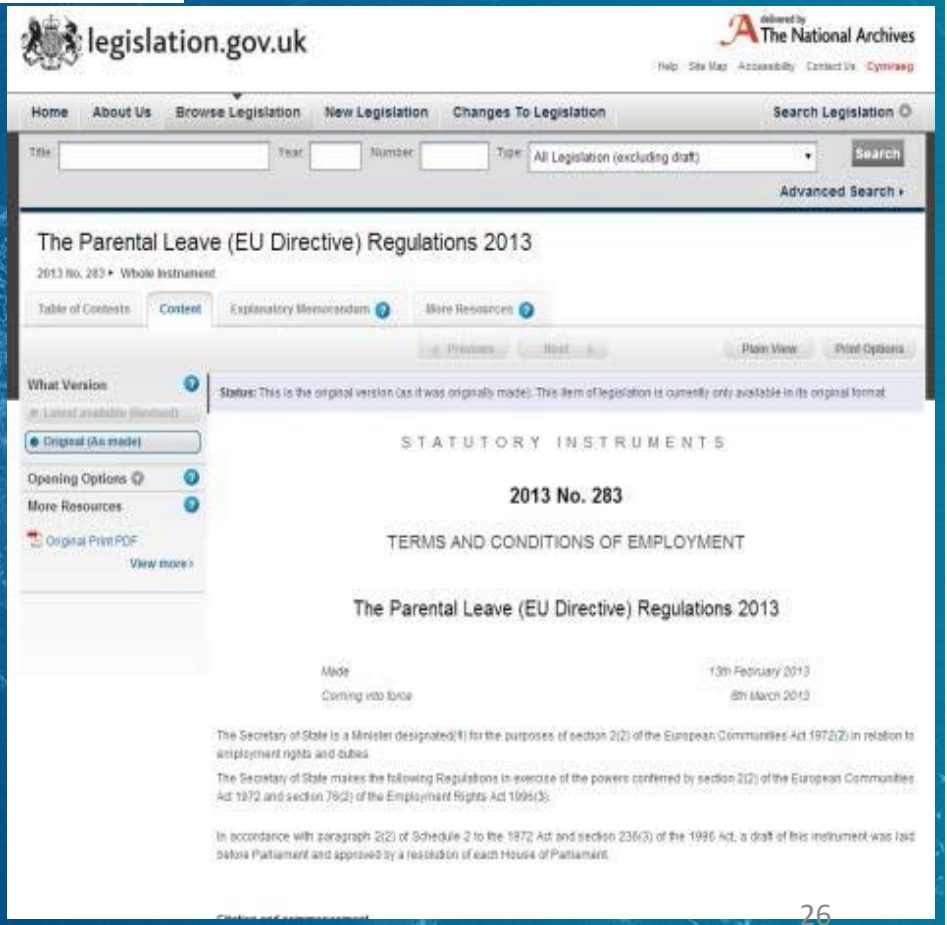

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The key benefits of ELI

- The ability to uniquely identify each legislative act
- A set of metadata to provide human and machine readable informations
- Facility of access for public, experts and machine
- Easy implementation on top of existing legal databases
- Implementation in gradual step by step manner of the 3 functionality

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Thank you for your attention