

## DELIVERABLE

### D1.1 Ontology Tree with Topics and Entries

<b>Project Acronym:</b>	easyRights	
<b>Project title:</b>	Enabling immigrants to easily know and exercise their rights	
<b>Grant Agreement No.</b>	870980	
<b>Website:</b>	www.easyrights.eu	
<b>Deliverable Type:</b>	OTH (Other)	
<b>Version:</b>	1	
<b>Date:</b>	31 01 2020	
<b>Responsible Partner:</b>	DUK	
<b>Contributing Partners:</b>	DUK, POLIMI, UTH, LINKS, NTNU	
<b>Reviewers:</b>	<i>Internal Reviewers:</i> Francesco Molinari, Maryam Karimi, and Grazia Concilio (POLIMI) Inna Tolskaya (CAP)	
<b>Dissemination Level:</b>	Public	X
	Confidential – only consortium members and European Commission Services	



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 870980.

## Revision History

Revision	Date	Author	Organization	Description
0.1	21/01/2020	Lydia Roessl Christina Khoury	DUK	Initial draft in WebProtégé
0.2	21/01/2020	Francesco Molinari	POLIMI	Input by partners
0.3	22/01/2020	Giuliana Costa	POLIMI	Input by partners
0.4	22/01/2020	Lydia Roessl Christina Khoury	DUK	Changes and further developments in WebProtégé
0.5	22/01/2020	Maryam Karimi	POLIMI	Input by partners
0.6	23/01/2020	Lydia Roessl Christina Khoury	DUK	Changes and further developments in WebProtégé
0.7	24/01/2020	Francesco Molinari	POLIMI	Input by partners
0.8	24/01/2020	Lydia Roessl Christina Khoury	DUK	Changes and further developments in WebProtégé
0.9	24/01/2020	Olga Kehagia Eleftheria Nteliou Alexandra Doulkiaridi	UTH	Input by partners
0.10	27/01/2020	Maryam Karimi Grazia Concilio	POLIMI	Initial draft of the deliverable
0.11	28/01/2020	Giuseppe Rizzo	LINKS	Input by partners
0.12	28/01/2020	Lydia Roessl Christina Khoury	DUK	Further work on the deliverable
0.13	31/01/2020	Inna Tolskaya	CAP	Input by the reviewers
0.14	31/01/2020	Maryam Karimi Grazia Concilio Francesco Molinari	POLIMI	Review
1	31/01/2020	Lydia Roessl	DUK	Final editing

## Statement of Originality

This Deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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## Executive Summary

Task 1.1 delivers a common ontology that supports the framing of the legal and institutional borders of the immigration issue (laws, regulations, rights, welfare services etc.) at European level and in different countries of the pilots (notably Greece, Italy, Spain and UK).

The initial structure of the easyRights ontology is divided into 4 classes:

- *Institutions: EU/governmental and non-governmental*  
This class includes the main institutions on EU and national level being involved in legal matters and implementation. Furthermore the ontology offers a comprehensive overview of governmental and non-governmental institutions operating the field of immigration.
- *Regulations and laws: Anti-discrimination/Asylum/Foreigners/Integration/Nationality*  
Under Regulations and laws the concrete legal framework and legislation relevant to immigration is dealt with.
- *Residence Status: Regular & Irregular migration*  
Residence status includes an overview of different visas and residence permits on EU and national level divided into three further sub-classes: short-term residency/ long-term residency and no residence permit. That part is further related to different services (class services and benefits) that are accessible for holders of the respective residence permit or even without any residence permit.
- *Services and benefits: Education and language/ Employment and training/ Healthcare/ Housing & Reception*  
The class Services and benefits includes information on services and benefits in the fields of Education and language/ Employment and training/ Healthcare/ Housing & Reception.

All developed classes are linked to external web references through the use of *rdfs:seeAlso*. Altogether, these constitute the T-Box (terminological box) of the easyRights project.

The ontology represents a database with extensive information and sources that can be used within the project and continuously supplemented. Thus, the ontology is also a possibility to share information and make it accessible to the project partners and to achieve a common level of knowledge. Furthermore, the ontology serves as an orientation and basis for further tasks, such as the easyRights Mediation Grammar and the AI work (the ontology is used to create concepts that represent the so-called pathway - see point 1.2 in this document).

The ontology in its current form is on display on WebProtégé and reproduced at the following URL: <https://docs.google.com/document/d/1SY9xyvsadtGnDANqFcm82X2cbKK372sr/edit>.

However, it must be seen as a living tool under continuous development.

# 1. Introduction

## 1.1. Aim of the document

The aim of Task 1.1 is the definition of a common ontology that supports framing the legal and institutional borders of the immigration issue (laws, regulations, rights, welfare services etc.) at European level and in the different countries of the pilots (Greece, Italy, Spain and the United Kingdom). This document summarizes the work done in the Task 1.1 since the beginning of the project and provides on the one hand an overview of the central categories of immigration and integration processes at EU and country level on a legal and institutional basis; on the other hand, it already offers the possibility to request, supplement and, if necessary, modify more detailed and further information.

The present document is aimed at introducing the easyRights Ontology tree that is considered an evolving output of the project as it will be continuously updated following both the eventual changes being introduced at EU level and at national levels in norms and procedures for migrants and immigrants and the pilots experiences in their project contexts. The ontology in its current form is on display on WebProtégé and at the following URL: <https://docs.google.com/document/d/1SY9xyvsadtGnDANqFcm82X2cbKK372sr/edit>.

However, it must be seen as a living tool under continuous development all along the project. In fact, the current representation of the ontology tree will be adapted according to the specific requirements of each Work package and task.

The ontology is related to further tasks of Work package 1 and contributes to the instantiation of the semantic model and deliverable 1.5, The easyRights Mediation Grammar, as well as for the AI work and the so-called pathway.

## 1.2. How the Ontology will be used

The ontology maps the legal framework in which easyRights is involved by listing archetypes (EU and local institutions) and laws defined as classes. All those will be linked to external web references through the use of "rdfs:seeAlso". Altogether, these constitute the T-Box (terminological box) of the easyRights project.

Conceptually, the ontology also includes one of the outputs that easyRights will produce, namely the so-called *pathway*: a pathway has the intent to summarize a (legal) procedure in a document with step-by-step instructions.

During the kickoff meeting an illustration of a draft pathway has been drafted as composed as an enumerator (1,2,3....) that lists for each item the "What", "Who", "When", "How" and will be further developed in the course of the project according to the documents to be processed.

## 2. The evolving Ontology Tree

### 2.1. easyRights Ontology first draft

The following figure represents a first synthetic visualization of the ontology developed for the easyRights project.

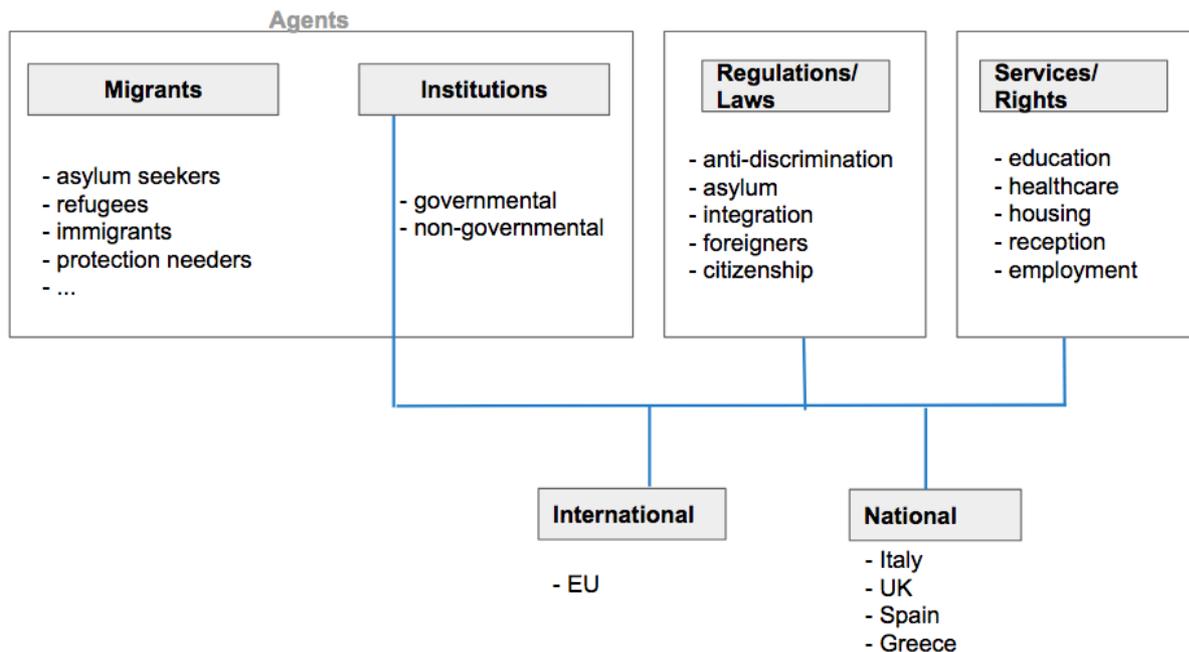


Figure 1: The easyRights ontology tree (first draft)

### 2.2. The development environment: WebProtégé

WebProtégé was developed by the Stanford Center for Biomedical Informatics Research at the Stanford University School of Medicine. It is a free, open-source platform that provides a growing user community with a suite of tools to construct domain models and knowledge-based applications with ontologies.

WebProtégé Desktop supports creation and editing of one or more ontologies in a single workspace via a completely customizable user interface. Visualization tools allow for interactive navigation of ontology relationships. Advanced explanation support aids in tracking down inconsistencies. Refactor operations available including ontology merging, moving axioms between ontologies, rename of multiple entities, and more (see the link for further information about WebProtégé [here](#)).

Therefore WebProtégé is perfectly suited to visualize and make structures, systems and processes traceable using general classes. In addition, comprehensive additional information can be linked to the classes. Thus, the program offers the possibility to start from a general level and arrive at comprehensive descriptions, framework conditions, country-specific features, and even differences between the legal framework and the respective implementation in practice (see the link of easyRights project on WebProtégé [here](#)).

### 2.2.1. Register yourself on the platform

1. In order to access the easyRights Ontology platform please log in to <https://webprotege.stanford.edu/> and press on *sign up for an account* to open a new account.
2. After you have created an account send a mail to [info@easyrights.eu](mailto:info@easyrights.eu) giving us the name, the e-mail address and the reason for the access request.
3. We will give access to the person who sent the request. Please press on the link you have received via email from one of our team members so you will be able to access the content of the project.
4. When you have done so, you will get access. Make sure you press on **easyRights\_ontology**

### 2.2.2. Guidelines to explore the easyRights Ontology

The initial structure of the easyRights ontology is divided into four classes as seen in the figure below:



Figure 2: Key classes of the easyRights ontology

To access one of the 4 classes listed above and see its content, press the grey arrow on the left side so that it is pointing downwards as seen (circled in red) in the figure below where we have exploded the first class (Institutions: EU/governmental and non-governmental).

The same you can do with sub-classes.

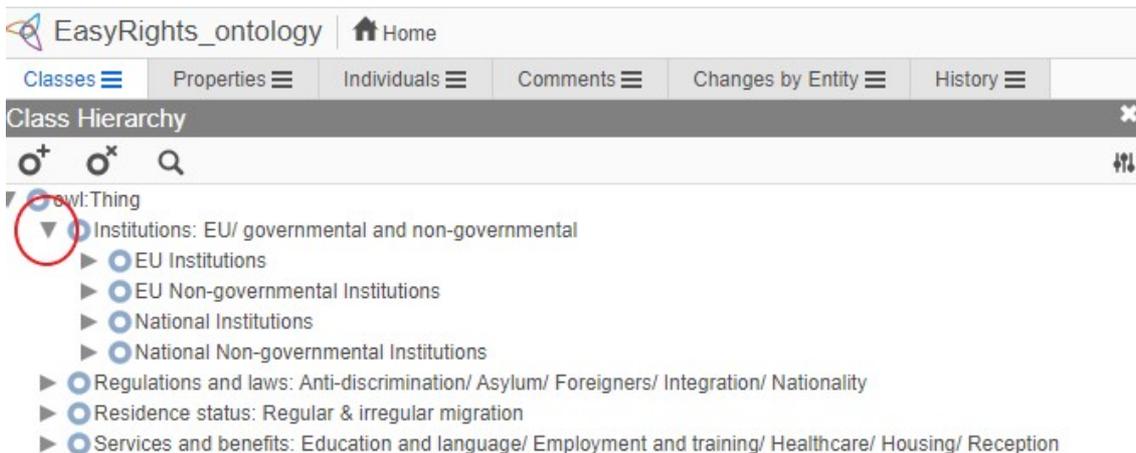


Figure 3: Exploding ontology classes

In order to see the content of a class or a sub-class, i.e. the description and any linked website to that class, you can press on the class itself and select the “Entity View” on the right side as per the image below (the picture is related to the view of the class “Court of Justice of the European Union”).

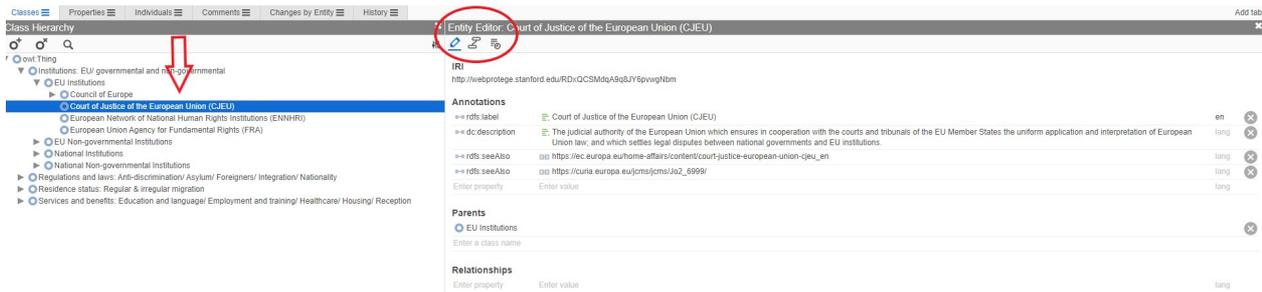


Figure 4: Accessing the “entity View” in the easyRights ontology

If you want to have a graph visualization of the ontology hierarchy, select the “Simple existential graph” on the right side.

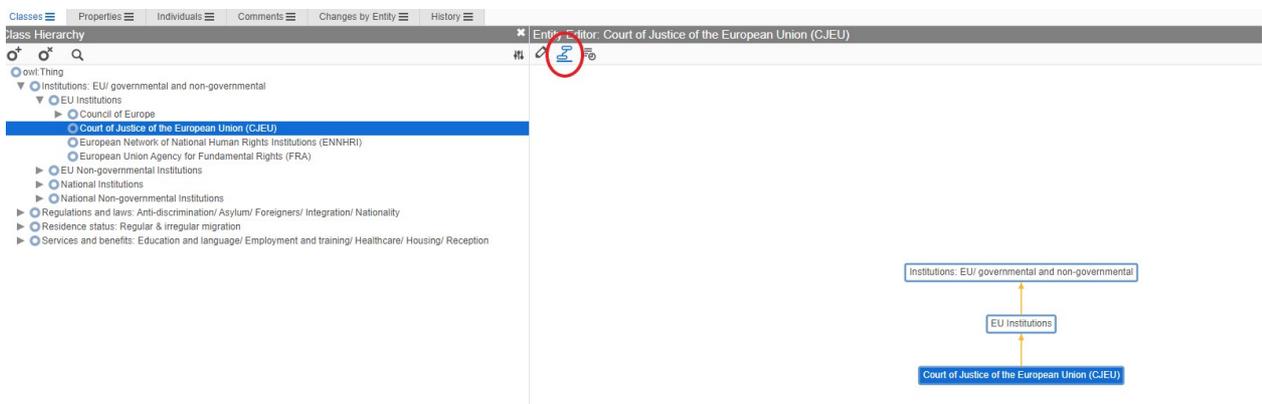


Figure 5: Viewing the hierarchical graph of the easyRights ontology

### 3. Conclusion

The development of a draft ontology in the first month of the project allows drawing some early conclusions and reflections on the ontology itself as well as the cooperation in interdisciplinary teams. The development of the ontology has shown the high degree of complexity of the forthcoming work and the underlying logic. The development of superordinate classes based on detailed and further-reaching information and background information enables the use of the ontology in two main directions:

- As a database with extensive information and sources that can be used within the project and continuously supplemented. Thus, the ontology gives also a possibility to share information and make it accessible to the project partners and thus to achieve a common level of knowledge.
- As an orientation and basis for further tasks. The ontology in its current form must therefore be seen as a living tool under development and as a starting point for further developments and concepts, such as the easyRights Mediation Grammar and the AI work.

The different approaches and perspectives on what the ontology has to offer increases the need for further agreements and efforts to find common consensus. The chosen development platform WebProtégé has so far proved to be a suitable tool for this purpose.

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- Aalborg University, Department of Architecture, Design and Media Technology (AAU)
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