Semantic interoperability and Comparative Law for interconnecting the Land Registries in Europe*

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ABSTRACT

IMOLA is a follow-up project [3], very innovative from the juridical and technological view, promoted by the European Land Registry Association -ELRA- and created to facilitate the effective implementation of the European Regulations according to the following objectives:

- To make up a common template, the European Land Registry Document (ELRD) to share the Land Registry Information, providing support to the institutional action deployed by the European Commission regarding the Land Registry Interconnection project (LRI).
- To define a common semantic model applicable in the field of Land Registers, Core Context specific vocabulary for Land Registers (LRV), to provide harmonized Land Registry information within the European Interoperability Framework (EIF).
- To set up a multilingual thesaurus built upon semantic web architecture and technologies (I-KOS), increasing the transparency, certainty, and understanding as regards the legal meaning and effects of LR information
- To make possible the adaptation principle and other EU policies, such as preventing money laundering and European immovables single market.

There is a need to bridge the gap between national property rights and Land Registers Systems and EU law to allow Land Registers to deliver legal certainty at the EU scale. Hence more is needed to provide the necessary tools and semantic web technologies, to obtain all the potential advantages of interconnection.

The Land Registry Interconnection (LRI) is the last stage to close the schema to keep interconnected the different juridical, business, and population Registers in the EU, which should be completed with the LRI project. So, the LR Interconnection is a key issue in making daily life easier for European Citizens, given that cross-border transactions are increasing more and more. Trend analysis clearly shows that this cross-border component can also be perceived regarding the inheritance procedure and judicial resolutions enforcement.

The LRI is a task that implies a high level of complexity stemming from different factors:

- The great number of actors involved at different levels.
- The lack of competence of the EU regarding the management and the legal effects related to the registration of immovables, providing that this is an exclusive competence reserved to Member States (MSs) according to the article 345 of TFEU.
- The absence by the moment of a European legislative instrument referred to the Land Registry interconnection, such as one for Business Registers (BRIS Directive), or Insolvency (Regulation on Insolvency Proceedings), bringing about that LRI action by the moment running voluntarily.
- LRI and IMOLA are very innovative projects which require the intensive use of new technologies that means cultural and technical challenges and the application of comparative law methodologies.

To accomplish these burdens is necessary a task distribution among different actors, making up activities planned and coordinated by the Commission in order to ensure not only their performance but also later on integration and consolidation of results, along with national brokers connections with the EU platform (LRI). Also, to achieve the goals of IMOLA, it is important to join artificial intelligence, semantic interoperability, and comparative law disciplines to create a successful ecosystem.

IMOLA, in phases I, II, and III, showed that it is only the beginning of a following up project that will align the needs of the Land Registries in Europe with the EU commission's needs and EU Directives and regulations [1].

The different phases of IMOLA project have shown, with increasing intensity, that the core of any project of harmonization of Land Registry information is the creation of a common semantic model. This environment must be able to grant uniformity and flexibility at the same time, so as to integrate the legal and linguistic cultural specificities of the national legal systems into each EU Commission's instrument, elaborated to support the Internal Market. Together with comparative law methodology [2] [6], the interoperability tools provided by Dr. Prof. Anabel Fraga are indispensable to reach this aim and to make the results of any harmonization project accessible to the EU Commission and EU citizens, in a reliable and efficient way. Also, in this regard, ELRA not only is carrying on a pioneering

activity, but it has also made visible that the synergy between Artificial Intelligence technology and Comparative law methodology is a precious tool, which could be of a certain future interest in other domains, like, for instance, the elaboration of a European hermeneutical system for the application of a common EU legal terminology in the Member states.

Due to the innovations and detailed complexity of IMOLA approach, along with the wide diversity of LR National Systems existing in the EU, it has been conceived as a bottom up project, built upon the agreement of the actors involved and developed according to an incremental methodology, pursuing to define a common and shared semantic work frame, making feasible a deeply knowledge of LR National Systems, looking for to excite the debate in order that it could be used like foundation of agreement, making later on possible to design the ELRD common template, using and structured XML schema enabling the semiautomatic management of the LR information by means of semantic web architecture and technologies and artificial intelligence techniques.

The IMOLA specific context LR domain (possible future Land Registers core vocabulary) introducing legal definitions on the concepts listed as pivot terms and determining the relationships with the LR national concepts enriched with their metadata and attributes [4]. It is a controlled vocabulary composed by the specifics concepts/terms that apply on the LR field, referred to the legal meaning of property rights and their registration proceeding. The aim pursued in IMOLA approach is to agree on the legal definition of concepts listed as “pivot terms” in the ELRD like specific context Land Registers Domain. Their conceptualization and serialization by using semantic web technologies and languages will determine a harmonized and precise reusability of them in other fields when they come into relation with LR domain, assuring the transparency and fair understanding of their legal meaning and effects.

The ELRD, like harmonized LR specific context domain [7], will be used to link the “pivot terms” of this ontology, as main containers, with the other glossaries made up of different national concepts definitions and their attributes, (IMOLA KOS repository/thesauri). The Pivots are an innovative concept created for IMOLA that solves the issue of connecting similar legal concepts using an intermediate container called “pivot” (see Figure 1). This knowledge organization system (I-KOS) will facilitate not only the enrichment of LR information provided at national level, but also the efficient implementation of EU Regulations, above all the Adaptation principle based on the capability of mapping different national concepts according to the attributes assigned to each of them (formant methodology), labeled using SKOS and RDF-OWL languages.

After the analysis of semantic and technological requirements of the system, the next step was going to develop a knowledge manager technological tool customized for management of IMOLA Knowledge Organization System, (I-KOS).

Among the IMOLA outputs, there are various web services set up to make possible the exchange of information generated between the I-KOS repository, contact points and e-Justice portal, furthermore, the training platform, using in all cases standard architecture for the use cases studied (see Figure 2). The project is fully recommended and accepted by the EU commission [5] [8].

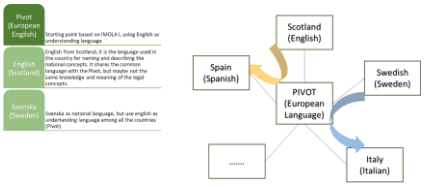

Figure 1: Pivot explanation

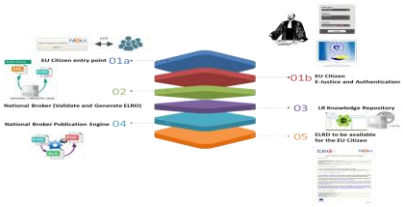

Figure 2: IMOLA use cases

KEYWORDS

Semantic interoperability, harmonization, land registry, comparative law.

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