This project is co-funded by
the European Union

ISBN: 978-2-9602448-0-9

IMOLA II Project

The European Land Register Document (ELRD):
A common Semantic Model for Land Registers Interconnection

ISBN: 978-2-9602448-0-9

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In conjunction with the European Land Registry Association (ELRA)

ISBN: 978-2-9602448-0-9

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Letter by Fernando de la Puente, ELRA President

It is for me, as ELRA President, an honor to have the opportunity to present this dissemination work of the IMOLA II Project (Interoperability Model for Land Registers), fulfilling one of the commitments acquired with the European Commission.

This new formula for dissemination opens the way for future initiatives focused on promoting the use of new technologies. ELRA has chosen this format given the importance that the IMOLA II project has in relation to the Interconnection of Property Registries and for the harmonization of Land Registry information.

IMOLA II has been a very important challenge for ELRA, both from a legal and semantic point of view, and from a technological and organizational one. And we are sure that we have successfully overcome it thanks to the efforts and collaboration of all the professionals involved in the project, especially to the feedback provided by the Contact Points (CPs) of the European Land Registry Network (ELRN), which constitute the basic pillar of the IMOLA II project.

Along with the CPs, there have been other fundamental contributions, such as those from several Professors and Academics who have participated in the learning seminars, providing the necessary knowledge and teaching material. These Academics have sometimes even discovered new horizons in the fields of Law, Semantics and Technology, starting interesting debates. A basic principle has been to maintain a practical and respectful vision of the competence framework established in the Treaty on the Functioning of the European Union (TFEU).

The management of a project such as IMOLA II has also been a considerable challenge for the association itself. Based on the Project Governance Plan, the IMOLA II Project has been managed through the collaboration and coordination of the Project Manager, Jesús Camy, and the Technical Director, Anabel Fraga, assisted by the Work Stream Coordinators, Jorge López and Mihai Taus, and the ELRA Secretariat.

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Nonetheless, IMOLA II would not have been possible without an institutional support, both internally from the Association, and externally from the European Commission.

In this regard, I would like to highlight the support given to the Project by the former Presidents: Wim Louwman, Alasdair Lewis and Jan Moerkerke. From the beginning, they knew how to facilitate the Interconnection of Land Registries in Europe and the harmonization of information to make it more transparent and understandable for citizens, Judicial Authorities, Notaries, Registrars, Lawyers, etc. In short, to provide a better service to citizens from the Land Register respecting the different national systems.

The financial and institutional support provided by the European Commission has also been essential. The IMOLA I and II Projects have been financed by the EC Justice Program, and ELRA has been in permanent collaboration with DG Justice and DG Digit-SEMIC, which have backed the development of the project in each stage.

IMOLA II has been a project based on the principles of collaboration and consensus, which are also reflected in this e-book. This is a collective work in which all the actors involved in the project have taken part. It has been designed to make the public aware of the advantages of the interconnection of the Land Registries. This interconnection of Land Registries is based on a harmonized registration information, based on a common semantic model, instrumentalized through the ELRD (European Land Register Document) as a common template, and aligned with the European Interoperability Scheme and a repository containing the Land Register context specific core vocabulary.

According to the previous considerations, the content of the IMOLA e-book has been structured in four large sections to facilitate the reading of the book and the correct understanding of the project.

The first section includes contributions of an institutional nature, starting with a work by Fidel Santiago (Project Manager of SEMIC), which shows the possible lines to follow in order to reuse the ISA Core Vocabularies in the field of Land Registry information (ELRD), together with the Land Register Context Specific Core Vocabulary. The

reflections of the former ELRA Presidents who have promoted the IMOLA Project since its beginning in 2014 have also been included in this part of the book.

Later, a series of works focused on the global management of the Project can be consulted. These works cover both the legal-semantic field, as well as the technological, requirements analysis, work methodology and fundamentals of the semantic web, as a support architecture for technological development. The authors are the people involved in the management or development of the Project (IMOLA II Team).

Articles from the Academics who have participated in the Project are also included in this e-book. Research works are essential in projects as innovative as IMOLA. Thanks to them, it has been possible to better understand the impact that Data Economy and Tokenization can have for Land Registry information and, in general, for disruptive technologies in Land Registry Systems (Professor Sjef van Erp), or the use of new methodologies, such as the "formants;" to define comparative schemes between different property rights systems based on the assignment of attributes to each National Concept, making it possible to comply with the information provisions of the European Regulations by facilitating the application of the adaptation principle (Professor Elena Ioriatti and her assistant, Sara Giacomini).

There are two important works as external academic collaboration from two professors who help to understand the importance of the ELRD as an essential element for the construction of a common semantic model in the field of Land Registry information (Professor Guillermo Palao from the University of Valencia), as well as the importance of the IMOLA Project for the harmonization, standardization and automation of information processes in the EU Land Registries (Professor Teresa Rodríguez de las Heras from the University Carlos III of Madrid).

Society and all professional fields are growing in an increasingly interconnected world, a trend that also affects Justice and Land Registries. It has never been so easy to have access to relevant information thanks to new technologies. Therefore, the quality and interoperability of data is essential to reuse and aggregate it, but always respecting the legislation that protects personal data.

  ISBN: 978-2-9602448-0-9

In this sense, it is very important to know the opinion of the Judges and members of the European Judicial Network (EJN). An important part of the metadata contained in the IKOS will support their professional practices respecting their respective jurisdictions. Furthermore, the contents of the judgments and judicial decisions will provide an important added value to the Land Registry data, clarifying its content and effects.

Therefore, the coordination of actions between the European Land Registry Network (ELRN) and the European Judicial Network (EJN) is another positive side effect of this project (networking), with the objective of promoting the effective application of European Regulations and creating an authentic legal LR Ecosystem. This vision of the EJN experts is also reflected in this e-book through the articles written by four EU Judges, specialist in the EJN.

The last section contains the works of the ELRN Contact Points, the project's cornerstone. As Land Registers experts, they are responsible for the creation and maintenance of the IMOLA repository (IKOS), whose database stores the information that configures the Land Register Juridical Ecosystem. Through the techniques and languages of the semantic web, this Ecosystem will enrich the national LR information, thanks to the legal metadata derived from the CPs feedback, and the formal retrieval and browsing using a specific link in the e-justice portal. This will give more transparency and understanding of the scope and effects of LR information. The project's scope, difficulties and perspectives are reflected in this e-book.

Finally, I would like to thank all the colleagues who have made possible with their work the dissemination of the IMOLA II project through this electronic book. I would like to highlight the work carried out by Jesús Camy, Professor Anabel Fraga, the ELRA Secretariat and the Colegio de Registradores de España, as main partner of the IMOLA II project, as well as the training support provided by the University Carlos III of Madrid.

IMOLA II has been an important milestone for the development of the interconnection of Land Registries and the harmonization of Land Registry information, but this is simply

the starting point of a long way to go: a path that will lead to new initiatives and research work in collaboration with the authorities of the European Union.

ELRA will continue enhancing the functionalities of the Land Registries, providing legal security to cross-border transactions for the benefit of European citizens and collaborating in the social and economic policies of the European Union.

ELRA former Presidents

ISBN: 978-2-9602448-0-9

Wim Lowman

"The inventing of IMOLA"

1. Introduction

On September 2012, I was driving in my car to an apartment in Italy. I was looking forward to my holiday. It should offer me a possibility to think about the answers to different questions involving ELRA. ELRA had signed a Memorandum of Understanding with Eulis[1] and agreed to cooperate in new projects. Now ELRA intended to start a project to standardize the output from national land administrations. We still had to decide on the organization of the project, the cooperation with EULIS, the financing of the project and the name of the project. When I arrived near Milan, the highway became busier and busier. Italian drivers seemed to assume they were driving in a Ferrari racecar. The result was a collision of cars and a tremendous traffic jam. I had to stop my car and waited hours before I could continue my trip. After cursing my decision to travel on the day before a Formula 1-race, my eyes were caught by traffic signs that guided to the nearby race circuit. The name was "IMOLA". Suddenly I knew the name of our new ELRA project. The "I" for Interoperability, the "MO" for model and the "LA" for Land Registers, together they formed the perfect abbreviation of our new project. After returning home I proposed the name to the board of ELRA, who fully agreed. Now we could focus on the other actions that were deemed necessary.

2. The actions necessary for IMOLA

One of the interesting aspects of being President of ELRA is the possibility to visit foreign EU Land Registries and collect information about their administration. The visits made me aware of the existing juridical differences and the cultural reasons for these differences. I learned that the registration systems and the content of broadly equivalent property rights could differ from one country to another. A mortgage-right in Spain was not the same as a mortgage-right in England, an apartment-right in the Netherlands was not the same as an apartment-right in Germany and so on and so on. Abolishing these differences should ask for a radical change of national legislations and that was no

  ISBN: 978-2-9602448-0-9

realistic option. However, the new EU Succession Regulation[2] and other future European Regulations asked for structured easy understandable output from Land Registers. So together with my colleagues from the Board of ELRA, I started searching for methods to provide this type of output without changing the existing responsibilities and legislation. Academics from the European Law Institute advised us to amplify the national administrations with placeholders for equivalent rights. A suitable ICT tool could export the placeholder to fixed positions in a standardized European Land Registry Document (ELRD). So it seemed possible to present an EU document with the same lay out in the language of each Member State. The placeholders could be linked to a glossary with descriptions of the registration and the exact content of the property-rights in each Member States. By presenting the ELRD together with these explanations, correct juridical information could be assured. This approach should allow national registrars to present ELRD's by means of their own ICT system. Access to the ELRD could be provided by the portals of national ICT-systems that could be connected to the European portal. So, no change of existing liability and responsibility was demanded. What was needed was a predefined ELRD, description and developing of proper ICT tools and a glossary with national explanations. In order to evaluate the progress of this project, conferences and seminars with legal scientists and training of registrars were esteemed necessary.

3. The organization of the project

ELRA considered it of crucial importance that local specialists should have an opportunity to comment on and guide the progress of the project. For that reason, we decided to repeat the type of project-organization that had proved successful during the previous CROBECO project. It consisted of a Steering Committee for overall management and separate project teams for specific topics. Because of the different national legislations, the IMOLA Steering Committee should consist of representatives from five Member States with different juridical systems. The ELRA President should be the overall project-manager. Specific project teams with specialists were foreseen for Land registry output, ICT solutions and seminars and conferences. The team for Land Registry Output should define the template of the European Land Registry Document. The team for seminars and conferences should focus on the glossary. The ICT solution

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team should govern the ICT activities and organize a tender to select a company for developing ICT tools. The selecting of this company should be the responsibility of the Steering Committee and be based on advice from the ICT project-team. This team should also control the progress and advise on payments by the Steering Committee.

4. No European super-registrar

After deciding on the actions, I started working on the text of the application for a grant from the Commission. A draft was sent to EULIS for comments. Nowadays EULIS does not exist anymore but in 2013 EULIS was still “alive and kicking”. They governed a portal for presenting output from several Land Administrations and should like to become the manager of the portal for IMOLA. EULIS answered that they preferred to keep IMOLA simple by limiting all the output from IMOLA to that of a registration that complied with the Land Administration Domain Model (LADM). [3] This model was developed for an integrated registration of a Cadaster and Land Register. However, this model did not exist in far most of the EU-Member States. [4] The differences between the two were of importance. For example, a supposed owner/payer of taxes according to the Cadaster was sometimes not the same as the entitled person according to the Land Register. A boundary of the Cadaster (administrative law) often did not coincide with the juridical meaning of a description of a boundary in the Land Register (civil law). Apart from that, in countries with a deeds-system the disclosure of recorded documents raised demands that were not met by the LADM. According to the model of a deeds-system, recorded documents in a pending conflict that is "*sub judice*", have to be disclosed by the names of all the parties. However, the LADM only supported disclosure by the name of one of the parties. The same omission occurred in case of in recorded disputes involving adverse possession. In these cases the LADM offered the option to add restrictions to the identification of the plot of land, but these restrictions are not disclosed by the names of the conflicting parties.[5] So ELRA answered that when IMOLA should be restricted to the LADM, IMOLA could lack important information from national Land Registers ELRA considered the LADM as one of several models that could be useful for developing countries but should never be mandatory. Rigid replacing existing registrations by the LADM even could cause severe problems and extra costs as was demonstrated in Greece.[6] A kind of “super-registrar”, who had the authority to exclude non-LADM information

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from IMOLA was unacceptable.

5. The overriding principles of IMOLA

For the financing of IMOLA, apart from the desired grant from the Commission, the ELRA board had reached agreements with EULIS and some ELRA-members. However just before the deadline of the application for the grant, EULIS informed us that they refused to pay when IMOLA should support separated Cadaster's and Land Registers and provide non-LADM information. I remember that the Board of ELRA was shocked by this demand. Was EULIS now trying to buy a position as "super registrar"? I felt ashamed and made excuses for the manager of EULIS, who was a fellow countryman. I explained to my colleagues from the Board that unfortunately sometimes Dutch people suffer from a kind of pedantry. A famous Dutch professor had even written a book about it.[7] In this book, called "looking for the Dutch identity", he explained full of self-criticism that Dutchmen sometimes know what other nations would need better than those nations themselves. ELRA decided to consider the reply from EULIS as a new example of such pedantry that should not be taken too seriously and started working on an update of the IMOLA project plan. The financial contribution from EULIS was erased and members were contacted with the request to raise their financial contribution. In the paragraph "ethical issues" the following overriding principles were added to the application for a grant.

1. IMOLA will encounter significant differences in national legislations based on different importance of different values. IMOLA does not aim to change that. There will be good historical, cultural or political reasons for the differences. Pursuant to article 345 of the consolidated version of the Treaty on the Functioning of the EU these differences should be respected[8]

2. IMOLA will also encounter questions of the need to change existing National organizations and IT solutions. These questions are out of scope. IMOLA will provide a framework that is suitable for different existing national organizations and responsibilities. It will be possible to produce ELRDs through the servers used by national land registries. Interoperability solutions will be suitable for merged as well as non-

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merged organizations of Land Registries and Cadaster's.

6. Completing the application for a grant

Because of the last-minute decision of EULIS to get out of IMOLA, we were facing a huge challenge. Within 24 hours we had to close a financial gap, change the draft of the application for a grant, have the new application signed by the partners and sent the updated application in time to the Commission. Thanks to the support of some members and the work of the ELRA secretariat we succeeded in doing so, By then I was ready for a new holiday and started to pack my car for a new trip to Italy. But first I made sure there was no Formula 1-race organized at IMOLA.

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[1] https://www.elra.eu/mou-elra-eulis/

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R0650&from=EN

[3] https://www.gim-international.com/content/article/land-administration-domain-model

[4] See Fernando Mendez, Cadastres and Land Registries in Europe, Merged Organizations or Separate Institutions https://www.conftool.com/landandpoverty2017/index.php/03-03-Mendez_Gonzalez-1091_ppt.pptx?page=downloadPaper&filename=03-03-Mendez_Gonzalez-1091_ppt.pptx&form_id=1091&form_index=2&form_version=final

[5] See W Louwman. Advantages and disadvantages of a merger organization: the case of the Kadaster-Netherlands. https://www.conftool.com/landandpoverty2017/index.php/03-03-Louwman-1133_paper.pdf?page=downloadPaper&filename=03-03-Louwman-1133_paper.pdf&form_id=1133&form_version=final

[6] See.Ioanna Tzinieri, https://www.elra.eu/the-present-landscape-of-land-registration-in-greece/

[7] The book is written in Dutch by professor Herman Pleij ISBN 9789035144675, https://www.google.nl/search?q=9789035144675&ie=UTF-8&oe=UTF-8&hl=en-gb&client=safari

[8] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12008E345&from=EN

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  ISBN: 978-2-9602448-0-9

Alasdair Lewis

"*IMOLA: the ELRA´s vision of Land Registers Interconnection*"

The European Union is built on four 'pillars' or 'freedoms'; the free movement of goods, services, capital and labour. These 'four freedoms' were enshrined in the 1957 Treaty of Rome and reinforced in the Single European Act in 1986, the 1992 Maastricht treaty and the Lisbon treaty of 2007. To exercise these freedoms to their fullest extent, European citizens need to be able to buy, sell and mortgage real property in every country of the Union. To this end, the European Commission and Council have sponsored and supported several projects to help individuals and businesses, and the professionals advising them, to obtain information regarding real property and to transact cross-border. As citizens have increasingly exercised their freedoms, and capital and people have moved across the continent, law enforcement agencies, insolvency practitioners, those involved in resolving matrimonial disputes and others have also needed to obtain information regarding real property located in other countries.

The EULIS (The European Land Information Service) Project, which started in 2001, built an on-line portal which allowed property professionals to order land registry information cross-border. The portal allowed the professional to place the order in their own language and pay for the information with their own currency. The initiative has been superseded by the Interconnection Project referred to below and the EULIS portal was closed in May 2017.

The CROBECO (Cross Border Electronic Conveyancing) Projects were led by ELRA (European Land Registry Association). The aim of the projects was to facilitate cross border conveyancing by allowing a suitably qualified professional (a notary) to prepare a deed in their own country and to then submit it electronically to a land registry in another country. The notary was provided with expert advice through an online resource called NetPRO. As part of the project a Cross Border Conveyancing Reference Framework was developed to give the notary the tools they need to transact cross-border.

ISBN: 978-2-9602448-0-9

The LRI (Land Registries Interconnection) Project is an initiative of the European Commission. The aim of the project is to provide, on the European E-Justice Portal, a single access point for searching and obtaining land property information from the land registers of member states of the European Union. This initiative is taking forward and building on the EULIS Project.

These projects have highlighted some of the issues that make it difficult to deal with real property cross-border. Some of these issues are easier to solve than others. For example, language can create barriers, but technology is increasingly making this less of a problem. The development of glossaries and 'reference information' can also help.

Differences in law can be more of a problem. Real Property law has not been harmonised across the Union and different countries come from very different legal traditions. However, in my view, it is easy to overstate the problems; at the most fundamental level all real property law is seeking the same outcomes and dealing with the same sorts of questions.

Each land registry has developed its own procedures and forms and each jurisdiction has its own rules prescribing who is allowed to prepare a deed and submit it to the registry. Sometimes it is very difficult to explain why such differences need to exist.

Privacy rules, which you would think should be harmonised across the Union, also differ greatly across the EU. Some countries have completely 'open' registers (where anyone can obtain land registry information, including price paid and mortgage information, about any property), some countries have 'closed' registers (where the consent of the owner must be obtained before information is released) and in some countries information is only released to those who can prove they have a 'legitimate interest'. These differences present additional challenges if you are trying to interconnect the land registries.

The original idea behind the IMOLA (Interoperability Model for Land Registers) Projects was that it would be beneficial for customers obtaining land registry information through the E-Justice Portal to have that information presented to them in a common format or template. This idea was explored by ELRA's European Land Registry Network (ELRN),

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a group of land registry experts. The ELRN comprises 29 ELRA members from 22 countries. The first question the Network set out to answer was whether the land registers maintained by the European land registries have enough commonality to enable a common template to be created.

The Network quickly established that every land register is organised following an 'A B C' format. This format applies not just to title registers (that are typically organised by property) but also to deeds registers (that are typically organised by person). The ELRN went on to run a number of workshops to look at each part of the register in turn.

The 'A' part of the register describes the property (or parcel) that is the subject of the registration. We found a number of different ways in which the properties are described, for example, property address, co-ordinates and unique reference numbers. Typically there is also reference to a plan, either a plan created by the land registry or a cross-reference to a cadastre. Very often these descriptors are used in combination, such as a property address together with reference to a plan.

The 'B' part of the register describes the "owner" of the property. Although different legal traditions use different ways to define "owner", the person named in the B part is normally the person who is entitled to deal with the title. The B part will also give notice of others who can control whether a dealing with the title can take place or to whom sale proceeds would have to be paid. All land registers record the full name(s) of the owner(s) plus other information allowing these individuals to be identified, such as addresses, marital status and national identity number. With corporate owners there is more consistency as all companies have unique company registration numbers that can be recorded on the register. The B part will also contain details of matters that restrain the ability of the owner freely to deal with the property. These are normally matters that you would not expect to remain on the register following a change of owner.

The 'C' part of the register contains matters that affect the title, examples being restrictions, rights, servitudes, easements and leases. We found a multitude of different legal interests recorded in the C part reflecting the differences in land law to be found in different jurisdictions. Most land registers record mortgages in the C part, although some

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registries move these into a separate part of the register (a 'D' part) or into a sub-register. Apart from mortgages, matters in the C part will normally remain on the register notwithstanding a change of owner.

The ELRN workshops established that, at least in theory, it would be possible to create a template for land registration data from any land registry. The technical challenge is how to take the relevant data from the land register and to re-order it to fit the template. It would be possible to do this as a manual process but, for the service to be sustainable in the longer term, it is necessary to automate the process. In order to create an automated process, you need to understand, at the technical level, how each land registry holds and organises its data and to what extent that data is 'structured'.

Another key issue that needs to be addressed is the legal status of the output represented by the template, in particular, whether that output is 'guaranteed' by the land registry providing it. In other words, is the template an 'official copy' of the land register? In many cases the customer merely wants to know "who owns that property?" Therefore, it would be useful to be able to use the template to present an 'extract' of the register that only contains key ownership information.

So, what lessons have we learnt? First, that the IMOLA template is feasible and potentially useful. Secondly, that, despite coming from very different legal traditions, the land registries in Europe have much in common and that the issues created by the differences are soluble.

It would be massive challenge to harmonise land law across the European Union. However, I believe it would make a lot of sense for the land registries to harmonise voluntarily their procedures and practices and to work together on matters such as form design. ELRA and the ELRN are perfectly and uniquely placed to lead such initiatives.

Despite BREXIT, I would strongly urge Her Majesty's Land Registry for England and Wales (HMLR) to remain a member of ELRA and to continue to play an active role in the organisation. Not only can HMLR contribute its common law perspective, it also has huge experience in how to handle the challenges and opportunities presented by an open

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register. It has been leading the way as regards Open Data. I am also convinced that HMLR has much to learn from continental initiatives.

I have always believed that every land registry has lessons to learn and knowledge and experience to share. ELRA is a shining example of such sharing and I was very proud to be its President for 4 years.

About the author:

Alasdair Lewis
HM Land Registry of England and Wales
President of ELRA from 2013 to 2017

  ISBN: 978-2-9602448-0-9

Jan Moerkerke

"IMOLA II, the ELRA´s commitment with European citizens: opening a collaboration framework with EU authorities".

The aim of this contribution is to situate the IMOLA II project within a broader context of the European legislation on property and real estate and the Land Registers Interconnection program, which is to be a part of the E- Justice platform. Although finally IMOLA II itself will not be too much in the picture, I hope the importance and the progressive approach of the program may become clear.

The world is becoming a village. We buy an electronic component at a low price at the Alibaba platform in China. We pay it through a smoothly working payment system. The platform contacts a company that can provide you with the goods and a few day later the parcel is delivered at your door, just in time as promised. During the whole process you can follow the status at all time.

Within Europe we might expect the same ease of action when it comes to real estate transactions and getting them registered properly. But unfortunately, that is not so.

As well as the platform economy has certainly generated economy as such, we may be convinced that a seamless way of trading real estate within the European Union would equally enhance the markets. But unfortunately, the actual situation is not at all ready for that.

Theoretically there is an open market, but practically many obstacles occur, preventing a trouble-free transfer of real rights. This is often a very frustrating situation for all parties involved. Cross border contracts and inheritances cause numerous problems due to differences in the national legislations and practices and also due to discussions on what may be the applicable law.

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It is obvious that the European Union and actors in het market produce efforts to improve this situation. First of all, there are het legislative initiatives of the European Union itself. Often it is regulations interfering in private contract law, applicable in the context of the transition of real estate as well. Next to that there are several efforts made to support policies in a more practical way for example by offering information on electronic platforms. Several professional organizations are co-operative and are able to launch projects favorable to integration, supported by the European Union. A few of them have resulted in operational tools. Nevertheless we must admit that the situation is not optimal and a lot of improvement still is possible.

In fact, it are the provisions of the Treaty of the European Union that have prevented the creation of a substantive EU property law. There is no European owner, no European ownership. The extend and the legal meaning of "Rights in Rem" may differ in the Member States. There is no European Land Register. The rules for registration and the guarantee the systems deliver differ, state by state, and so on.

Competence does exist to regulate transactional aspects of dealings with land, since land is a form of capital, but cross border acquisitions of land have rarely reached EU agendas. This is a sharp contrast with the effort devoted to ensuring that cross border acquisitions of goods are unrestricted. The difference perhaps stems from the facility with which movables can be transported from one Member State to another. Land is immovable and tied to its site and its location within a particular Member State. There is no compelling case for a single land law. Immovability prevents land itself, and most rights in land, from crossing a border from one legal system to another. Land is characterized by a fixed site. However, there are things which are legally immovable, but which can in fact cross national boundaries, one obvious example being mortgage lending.

This ties a particular parcel of land to a single Member State and determines both the law to be applied to disputes about the land and the forum in which disputes are to be resolved. Europe in fact respects the territoriality of its Member States in relation to land. Classification of a particular thing as an immovable determines the conflict regime, and its allocation to a particular property system according to its site. The land regime is based on site-based exclusive forums, the differentiation of property rights and personal

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obligation, selection of the land law of the site and the mutual recognition of property judgments.

On the other hand, we notice that recent legislations give the impression that this strict borders is starting to fade. The pressure of markets, professionals and public are so strong that sooner or later a more substantive part of the real estate market and securities may be organized at European level.

Up until now all national systems share a single conception of personal obligation whereas there are fundamental disagreements about the conception of property between civil law codes and the common law, so there can be no certainty that it would be technically feasible to codify a European land law. Whether or not this is the case, the political climate shows that a property codification is inconceivable.

All EU-28 Member States assert their territoriality through the enactment of a specific law regulating the land and sea ownership, as an essential pillar of their private law systems with effects in their administrative law (e.g. planning, taxation) and family and succession laws. Land laws, registers and conveyance systems are essentially site based. EU-28 has close to fifty land laws on account of the regionalism of many member states. This diversity is protected by the Treaty provision commonly described as the "Property shield' since, according to article 345 of the Treaty on the Functioning of the European Union: "The Treaties shall in no way prejudice the rules in Member States governing the system of property ownership".

Whilst the precise meaning of this provision is a matter of some controversy, it can to some extent be read at face value. It could clearly be used to block a full-scale land law code and it restricts more limited proposals. National systems are free in their essentials from European interference. No European element enters into pure property law such as the ownership right, the list of real rights recognized in each system, successions, and family law.

Strictly seen, as explained in succeeding articles of the Treaty, this provision only makes clear that decisions to nationalize or privatize enterprises are a matter as to which solely

  ISBN: 978-2-9602448-0-9

the Member-States have competence. All other areas of property law, provided of course that a positive competence exists, seem not to be exempted from EU law making. The impact of EU authority upon a national legal provision, considered to be in violation of EU law, is therefore, at least potentially, more far reaching! We take particularly in consideration violations of any of the freedoms of persons, services, goods, capital and lately also the free flow of non- personal data as well.

Consequently, it can be concluded that, although it appears that in daily practice most parts of property law are still purely national and that only some areas have become European through positive integration, it could be said that a grey or mixed area exists between, on the one hand, purely national law and, on the other hand, European law. National property law, not replaced as a result of the positive EU integration process, can only function within the limits set by the negative EU integration process. Hence, intervention in property law by the EU is permitted where it falls within some recognized head for intervention, such as conflicts rules and consumer protection. This explains why the property shield has not prevented all regulations.

So, there is EU competence with regards to cross border transactions when it comes to the transactional competence based on the freedom of capital, the facilitation of movement to engage in economic activity, the facilitation of Eu citizenship and perhaps mostly when it comes to consumer protection. We find examples in the Timeshare Directive (2008/122/EC), the field of the sale of a new build (Consumer Rights Directive, 2011/83/EU) (Unfair Commercial Practices Directive, 2005/29/EC), Mortgage finance and consumer credit (Directive 2014/17/EU of the European Parliament and of the Council of 4 February 2014 on credit agreements for consumers relating to residential immovable property).

In the past years four regulations have been adopted that do not only apply to real estate but are clearly very important for cross border situations in this field as well. Where the Rome I and II had their impact on the choice of applicable law in contractual and non-contractual obligations, they left land law related questions explicitly a national authority. With these Regulations a European impact on national legal systems becomes visible. we speak about:

- Regulation (EU) 650/2012 on jurisdiction, applicable law, recognition and enforcement of decisions and acceptance and enforcement of authentic instruments in matters of succession and on the creation of a European Certificate of Succession
- Regulation (EU) 1215/2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters
- Council Regulation (EU) 1103/2016 of 24 June 2016 - implementing enhanced cooperation in the area of jurisdiction, applicable law and the recognition and enforcement of decisions in matters of matrimonial property regimes
- Council Regulation (EU) 2016/1104of 24 June 2016 - implementing enhanced cooperation in the area of jurisdiction, applicable law and the recognition and enforcement of decisions in matters of the property consequences of registered partnerships

They all determine the rules on the applicable law and the choice of court. Except for the possibility of rejection in case of conflict with public policy, this choice can have its effect in another member state and even may set aside the relevant legislation of this state!

This is relatively new since formerly the international private law of the states, dealt with them. In fact, these are national laws, differing from each other.

So far, this legislative efforts enhance cross border conveyancing of real estate taking into account the existing restrictions. But also, on a more practical level we see efforts of the European Union to enhance the information on “Rights in Rem” at a European level, within the given legal reality.

Certainly in the domain of land registration the “Land Registers Interconnection” initiative is very important.

European e-Justice is to be described as the use of information and communication technologies in the area of justice at EU level. It serves to improve citizens' access to justice, to facilitate procedures within the EU and to make the resolution of disputes or the punishment of criminal behavior more effective.

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The most visible part of European e-Justice is the European e-Justice Portal. In line with the Multi- annual European e- justice Action plan 2019-2023 (2019/c 96/05) , the information and functionalities available on the Portal will be expanded between now and 2023.

The Land Registers Interconnection (LRI) project is explicitly referenced in this action plan. It is classified under the category of "Interconnection of national registers" that includes projects like the interconnection of criminal records, insolvency registers, commercial registers, registers of will, etc.

There is currently a high level of diversity and heterogeneity of land registrations systems among EU Member States, partly due to historical circumstances and the lack of a fundamentally unifying process. It is also important to note the difference between land registers and cadasters. The former is property rights oriented systems while the latter are land description oriented systems. Land registers list ownership and encumbrances such as mortgages, leasing rights, pre-emptive purchasing rights, and so on. Cadasters detail the physical aspects relating to a property, such as boundaries, areas, buildings and addresses. Many Member States employ both, but this is not necessary or required. To continue with the example in the disclaimer, England and Wales do not operate a cadastre. All of this demands a special approach.

One of the proclaimed functions of European e-Justice in its actions is to address issues like this by «providing access via interconnections to the information managed by the Member States in the framework of the public administration of justice…». The quality of justice itself requires that authoritative land data are available to justice professionals, as well as citizens that have a legitimate interest. Such interest may be expressed, for example, by the need to check the accurate registration of owned property, the acquisition of reliable information on property rights, the determination of succession rights, the establishment of guarantees on properties or the execution of court decisions. Importantly, such enquiries may be cross-border.

The Land Registers Interconnection (LRI) project addresses the above-mentioned issue of discrepancy, complexity and multitude of land registration systems, by providing a

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single access point, established within the e-Justice Portal, for the acquisition of land-related information of participating Member States. Through this access point citizens and professionals will be able to query and retrieve relevant information via a single, adaptive, multi-lingual interface. This will be achieved by establishing specific communication channels and services between LRI and the respective land registers of participating countries. In addition to this, the LRI will:

· provide extensive information to citizens regarding the legal value and up-to-dateness of retrieved information;

· ensure that conditions of national registers to provide information are met;

· incorporate a seamless purchase mechanism for land-related information and/or original documentation from multiple national registers;

· inform citizens on the differences in terminology and legal context amongst different Member States;

· comply with national and European laws and national register policies about data protection and privacy.

The Land Registers Interconnection (LRI) project deals exclusively with the implementation of a single access point within the e-Justice Portal that connects to the appropriate land property services in participating Member States. Users of the service will be able to request information from multiple search systems via an adaptive interface and retrieve information. All legal and financial requirements of Member States for the provision of data will be respected.

In the current state play of the program the basic IT provisions are met. For the upcoming period the attention will focus on connecting the national registers to the LRI application. A multi- language LRI query application will be launched on the e- justice portal. Also, an e- payment solution for payment of the different national fees will be built up.

But one thing is still missing. LRI may be able to retrieve information out of one land registry and deliver it to a citizen in another Member State. But even when legal terms are translated as correct as possible, this remains rough, potentially little useful and potentially misleading information; as long as it is not enriched with the national legal context of the term.

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An example: the Dutch and Belgian legal systems may be one of the closest to each other in EU context. When talking about “Usufruct” as a “Right in Rem”, the commonly used term is “Vruchtgebruik” in the Dutch language. Nevertheless, these two rights don’t cover the same content. This proves that it is absolutely necessary to explain the legal content of every, even meticulously translated, concept.

This is exactly where IMOLA II comes in, adding a semantic dimension.

By making the legal specification available at the LRI platform, in a structured and Multi-lingual format, it surely will enrich the information delivered on that platform.

However, it remains a problem that excerpts out of the national land registries will be properly translated, but delivered using the original text and explanation and also using the template, used in the issuing country.

So, it may demand some effort to consult the LRI platform in order to fully understand the legal meaning of the national concepts and rights in rem described in the excerpt.

It would be really nice if land registers information could be delivered as well on a pan-European template, including legal specification of the delivered information.
The European Land Registry document (ELRD) was already developed by ELRA in the IMOLA I project. It might be a very suitable and uniform template to be used next to the national formats that have different appearances.

So, there is still some work left in adapting the ELRD form, so that it automatically adds the relevant explanation to legal terms, when delivering information out of a foreign land registry. In this way this standard rough information will substantially be enriched.

This will be the working field for the IMOLA III project that recently has been presented for approval to the European Commission. We hope it will be accepted and that we can contribute further to the LRI project by upgrading the delivered information and making it more useful to the European citizen.

  ISBN: 978-2-9602448-0-9

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  ISBN: 978-2-9602448-0-9

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ISBN: 978-2-9602448-0-9

Fidel Santiago

"Reusing ISA core vocabularies in the European Land Registry Document -ELRD- schema"

1. Introduction

The main objective of semantic interoperability is that *what is exchanged is also understood*, paraphrasing the European Interoperability Framework. Thanks to the *interconnectedness* of today's society and the expectations of citizens and businesses, semantic interoperability is more important than ever. Land registries information is a valuable asset for our society in more ways than only from an economic point of view. In Europe, it is crucial to be able to exchange this information and to access it across language and cultural barriers.

The European Commission is aware of the importance of interoperability and the value of connecting public administrations. The European Commission has supported, and still does, efforts in this field through different European Union programmes such as ISA^2, ISA, IDABC, etc. One of the main outcomes of this investment is the creation and evolution of the European Interoperability Framework that recognizes the importance of semantic interoperability. Grandchildren of these programmes and framework are the e-Government Core Vocabularies. They are simplified, re-usable and extensible data models that represent fundamental building blocks when addressing any particular semantic interoperability challenge.

This chapter will address the relationship between the particular reality of semantic interoperability in land registries and these *simplified models*. The reader will learn about the European Interoperability Framework and the e-Government Core Vocabularies and their relationship to the European Land Registry Document. Due to its importance for interoperability in Europe in general, and for *semantic interoperability* in particular, the ISA^2 Programme and its SEMIC action will be described as well.

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2. The European Interoperability Framework

The European Interoperability Framework[1] (EIF) is a conceptual framework supporting interoperable[2] cross-border and cross-domain digital public services. It offers recommendations on how to improve governance of interoperability activities, establish cross-organizational relationships and streamline processes supporting end-to-end digital exchanges.

The EIF recommendations are organized and complemented by *interoperability principles*, an *interoperability model* and a *conceptual model*. The interoperability principles are '*fundamental behavioral aspects to drive interoperability actions*'[3] and provide guidance on the values behind interoperability decisions. The interoperability model includes '*(1) four layers of interoperability: legal, organizational, semantic and technical; (2) a cross-cutting component of the four layers: integrated public service governance; and (3) a background layer on interoperability governance*'[4]. (*See Figure 1.*)

[1] Communication from the Commission to the European Parliament, the Council, the European Economic Social Committee and the Committee of the Regions: European Interoperability Framework – Implementation Strategy (COM(2017) 134 final) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52017DC0134; https://ec.europa.eu/isa2/eif_en and the EIF brochure.

[2] In the EIF, interoperability is understood as '*the ability of organisations to interact towards mutually beneficial goals, involving the sharing of information and knowledge between these organisations, through the business processes they support, by means of the exchange of data between their ICT systems*' *EIF Brochure p. 5.*

[3] Ibid. p. 9.

[4] Ibid. p. 22.

  ISBN: 978-2-9602448-0-9

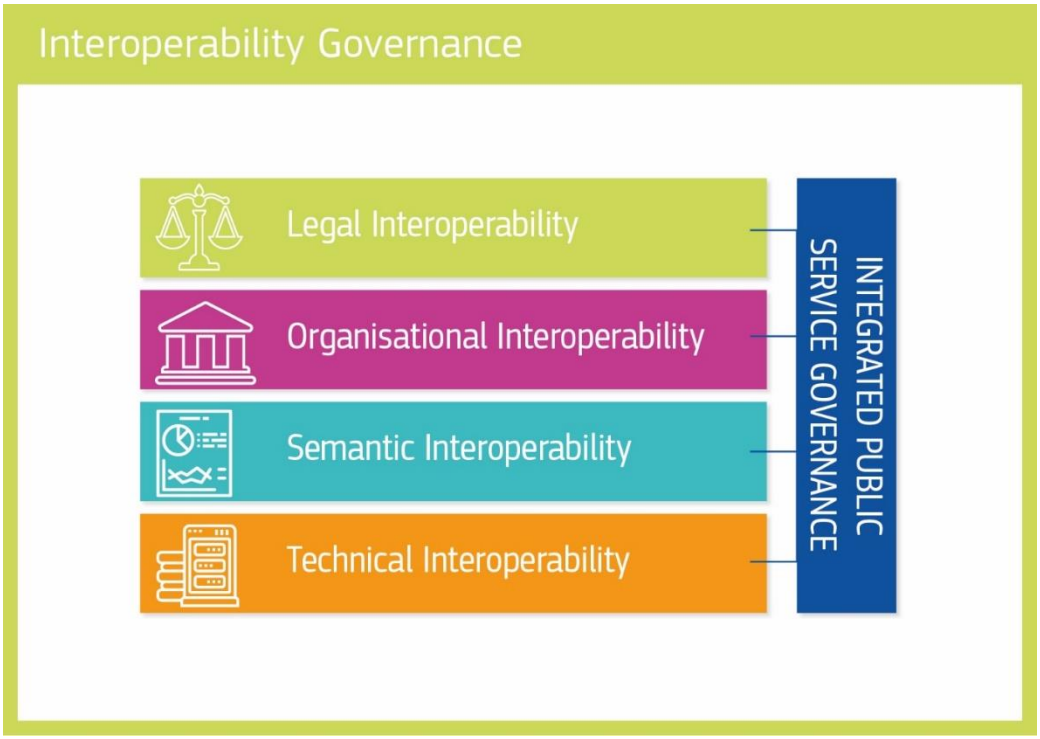

Figure 1 – EIF interoperability model

The conceptual model '*comprises loosely coupled service components interconnected through shared infrastructure*'[5]. The model's structure contains *(1) 'integrated service delivery' based on a 'coordination function' to remove complexity for the end-user; (2) 'no wrong door' service delivery policy to provide alternative options and channels for service delivery, while securing the availability of digital channels (digital-by-default); (3) reuse of data and services to decrease costs and increase service quality and interoperability; (4) catalogues describing reusable services and other assets to increase their findability and usage; (5) integrated public service governance; and (6) security and privacy*. (*See Figure 2.*)

[5] Ibid. p. 33.

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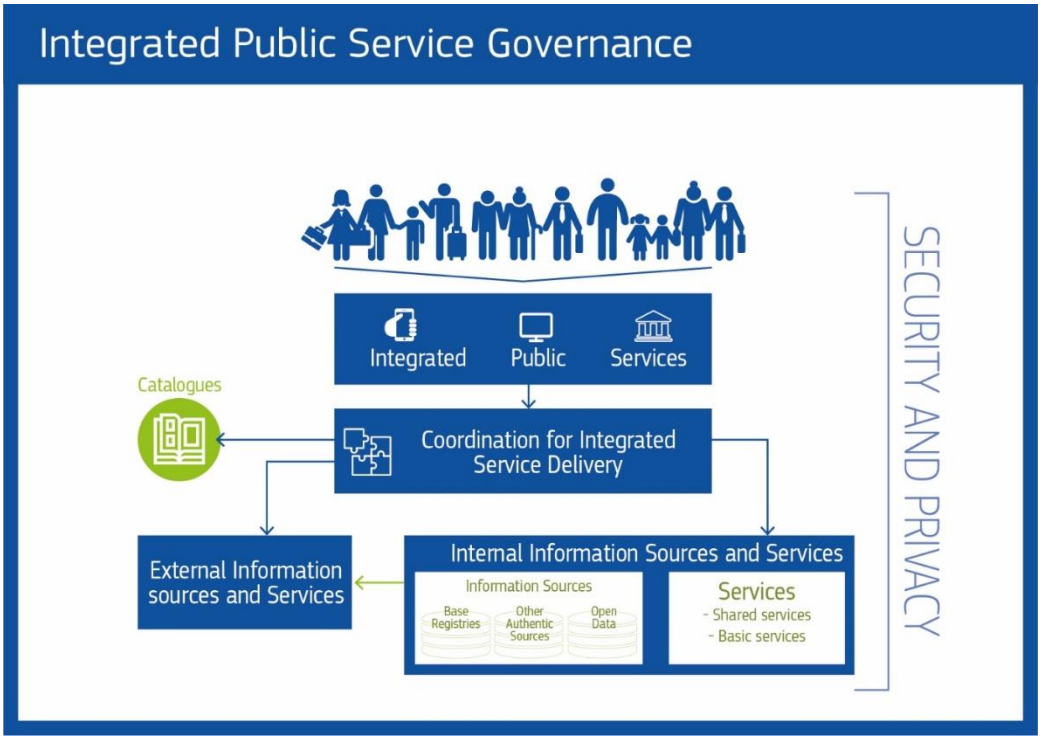

Figure 2 – EIF conceptual model

The EIF has a long history. It was developed in 2013 and published in 2014 thanks to a collaborative effort of the European Commission and EU countries represented in an expert group. This spirit and actual collaboration are maintained in the evolution of the framework. Since the EIF inception, different EU programmes dealing with interoperability and digital public services have supported the framework. In the past, it was IDA, IDABC and ISA, and currently it is ISA[2]. More information on these programmes is available below. In 2016, a public consultation on the EIF confirmed the need for an update. This public consultation addressed the considerable variety of stakeholders involved in the EIF: citizens, businesses and public administrations, as well as research centers, academic institutions or standardization organizations. The last version of the EIF puts more emphasis on how interoperability principles and models should be used in practice and has increased the number and detail of its recommendations with the aim to make them more practical.

The EIF is a powerful tool when considering interoperability of land registries. Even more if we take into account that land registries are entities specially represented in all the different layers of the EIF: legal, organizational, semantic and technical. Land registries operate in a regulated environment, being some of the basic pieces of our economic

  ISBN: 978-2-9602448-0-9

system. Also, being peers between them, any interoperability matter will require a profound and mature governance around it. The importance of the semantic layer of the EIF is actually the subject of this chapter. Until nowadays, focus has been put on technical interoperability to such an extent that this now seems to be the easiest part of any interoperability development. From all of this, the EIF is a very valuable reflection tool when dealing with interoperability. It provides a conceptual framework to better analyze interoperability issues, it is holistic as it considers all angles and goes beyond technical aspects of interoperability into the legal and organizational ones.

3. The e-Government Core Vocabularies

The e-Government Core Vocabularies are *simplified, re-usable and extensible data models that capture the fundamental characteristics of a data entity in a context-neutral fashion*[6]. They provide the foundation to build on when developing any kind of cross-border or cross-domain exchange in line with semantic interoperability. They also provide an example and a measuring rule to help public administrations in dealing with their own modelling efforts.

As one of the SEMIC's semantic interoperability solutions (*see below*), the e-Government Core Vocabularies were created under the ISA Programme by a group of Member State representatives and experts. They continue to be developed and maintained under the ISA successor, ISA^2.

The e-Government Core Vocabularies standard business cases:

- Information exchange: where the e-Government Core Vocabularies provide the underpinning agreement on which to build a specific solution for the exchange of information.
- Data integration: dealing with data integration as with an *interoperability problem* like in an information exchange and allowing different sources to provide common meaning.
- Data publishing: using the definitions and relationships contained in the e-Government Core Vocabularies to enrich the publication of data.

[6] http://data.europa.eu/w21/49169dd2-da9d-4c81-94b5-bba4604ded0a

- Development of new systems: when developing new systems, the use of the e-Government Core Vocabularies offers a *by default baseline* interoperability with other systems using them. In addition, the e-Government Core Vocabularies provide guidance and knowledge for other modelling efforts.

The e-Government Core Vocabularies can be used, mainly, in two ways: as a basis for new *domain specific* data models, providing the by default baseline interoperability mentioned before, or by mapping different data models to them and using them as a *lingua franca*[7].

To fulfil its intended purpose, the e-Government Core Vocabularies have some characteristics:

- Complete freedom from code lists or taxonomies in regard to the models.
- The relationships between the different elements of the data models and the elements themselves are suggestions to be adapted to specific domain models.
- Context-free models. Also, from a temporal point of view. They would serve any process or lifecycle by not incorporating information on neither of them.

As the e-Government Core Vocabularies, by design, cannot completely address all the requirements of a domain specific data model, they need to be extended to fulfil those requirements. This can be done in several ways:

- By adding or removing elements of the e-Government Core Vocabularies, either entities, their attributes or their relationships. These additions or removals will have an impact on the baseline interoperability: some information systems will not understand added elements and some others will miss the removed ones. Still, a certain level of interoperability will be maintained thanks to the generality of the e-Government Core Vocabularies.
- By specialising the elements of the data models. E.g., a *person* may be *specialised* into a *citizen* and a *civil servant* when developing a digital public service. Care needs to be taken so as not to change the meaning of elements that will still be common between the different specialisations: e.g. the *person* in the previous example.

[7] For more technical information on the e-Government Core Vocabularies and a guide about how to use them in practice regarding the business cases and uses, please see the *e-Government Core Vocabularies handbook* (https://joinup.ec.europa.eu/site/core_vocabularies/Core_Vocabularies_user_handbook/ISA%20Hanbook%20for%20using%20Core%20Vocabularies.pdf)

- Limiting the model, by adding *restrictions* on the number of elements in the model and their relationships (*cardinality*) or on the values the different attributes may contain, e.g. limiting the attribute *country* to a pre-agreed list of countries instead of allowing any text.

The e-Government Core Vocabularies can play a very important role concerning the European Land Registry Document (ELRD). By design, they need to be further developed to address the actual needs of land registries regarding the access to their data and the capacity to exchange them. This further development is represented by the ELRD, which, building on the foundations provided by the e-Government Core Vocabularies, answers the particular needs of land registries. At the same time, having the e-Government Core Vocabularies at its core, it facilitates the *meaningful* exchange of land registries information, allows for an easier integration of this information in other domains (e.g. taxation) and enriches the information provided for public access. The use of the e-Government Core Vocabularies also reduces the cost of the development of the ELRD by not *reinventing the wheel* and benefiting from the definitions already agreed for the same concepts.

4. The European Land Registry Document

The European Land Registry Association (ELRA)[8], through the European projects IMOLA I[9] and IMOLA II[10], has developed the European Land Registry Document as a model for standardized land registry information. The ELRD will enhance the transparency of land registries and, at the same time, the IMOLA Knowledge Organization System will enrich their information to improve the understandability and legal effect of given information.

Land registries specific business implies that land registries information goes beyond that specific domain and links with others like people, businesses or locations. In line with the EIF, the intention by ELRA is to provide such interoperability to be able to implement

[8] https://www.elra.eu/

[9] https://www.elra.eu/IMOLA/

[10] https://www.elra.eu/IMOLA-ii/

the Once Only Principle[11] and provide land registry information as semantically accessible as possible. This intention is made concrete by two means: on the one hand specific land registry concepts are *normalized* as *controlled vocabularies* and *taxonomies* (IMOLA *pivot terms*) so that other fields can benefit from them, their agreed definitions and the legal certainty that comes with it. On the other hand, the use of the e-Government Core Vocabularies improves the semantic interoperability of land registry information *vis-à-vis* other domains or information systems like population registries or cadasters.

5. The ISA^2 Programme and its predecessors

As mentioned, different EU programmes dealing with interoperability and digital public services have always supported the EIF. The last link in the chain of these programmes is the ISA^2 Programme: *a programme on interoperability solutions and common frameworks for European public administrations, businesses and citizens as a means for modernizing the public sector*[12]. The programme supports the development of digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services. As such, ISA^2, as its predecessors, provides a framework, a *platform*, that allows EU countries to co-design and co-create a complete and holistic toolbox to benefit from when developing efficient and effective cross-border digital public services.

The ISA^2 Programme's objectives are: (1) to develop, maintain and promote a holistic approach to interoperability; (2) to facilitate efficient and effective electronic cross-border or cross-sector interaction between European public administrations and also with businesses and citizens; (3) to contribute to the development of a more effective, simplified and user-friendly e-administration; (4) to identify, create and operate

[11] The Once Only Principle is about *ensuring that citizens and businesses supply certain standard information only once and public administration offices take action to internally share this data* (https://iate.europa.eu/entry/result/3567144/en)

[12] Decision (EU) 2015/2240 of the European Parliament and of the Council of 25 November 2015 establishing a programme on interoperability solutions and common frameworks for European public administrations, businesses and citizens (ISA2 programme) as a means for modernising the public sector (http://data.europa.eu/eli/dec/2015/2240/oj)

  ISBN: 978-2-9602448-0-9

interoperability solutions; (5) to facilitate the re-use of interoperability solutions by European public administrations; and (6) to ensure a common understanding of interoperability through the EIF[13].

The EU countries play an active role through their participation in the ISA² Committee, a governance body of the programme, and in the ISA² Coordination group, a technical body mandated to ensure horizontal coherence between the programme's actions. In addition, the country representatives participate and bring their own expertise and experience in many technical groups, working groups, meeting, events, etc.
Adopted in November 2015 by the European Parliament and the Council of the EU, the ISA² Programme runs from 1 January 2016 until 31 December 2020. The programme is managed by the Interoperability unit of DG Informatics at the European Commission (DIGIT.D2).

ISA² is the latest one in a long list of successful programmes devoted to the promotion of interoperability in the EU and, more generally, the improvement of digital public services. (*See Figure 3 – European interoperability timeline*.) As from 2021, European interoperability support will continue as part of the EU's planned Digital Europe Programme (DEP)[14].

[13] Decision (EU) 2015/2240 – Article 1.1 and 1.2.

[14] Funding available depending on final decision on European Multiannual Financial Framework 2021-2027 (https://ec.europa.eu/digital-single-market/en/news/commission-welcomes-agreement-digital-europe-programme-2021-2027)

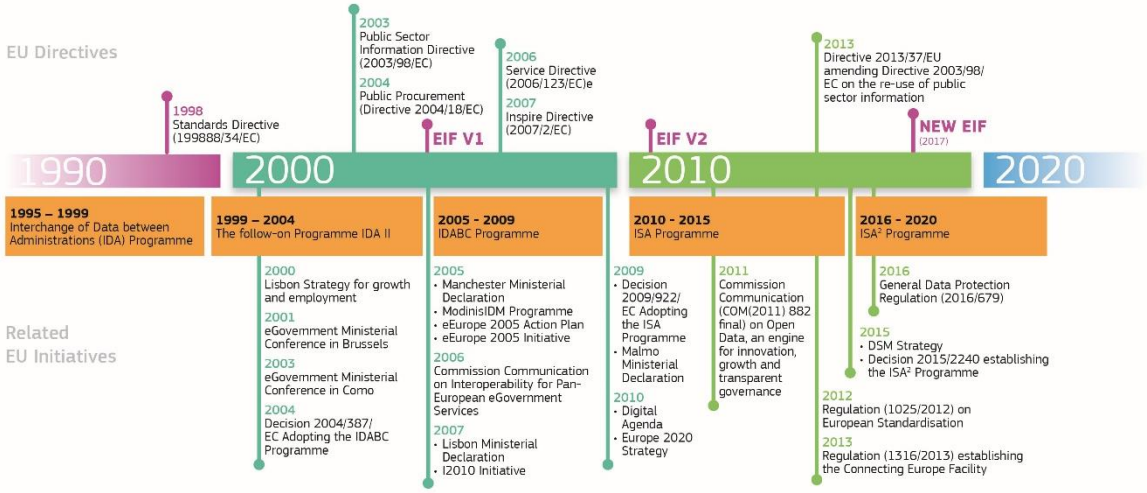

Figure 3 – European interoperability timeline

The predecessor of ISA[2] was the ISA Programme: a *programme on interoperability solutions for European public administrations, including local and regional administrations and Community institutions and bodies, providing common and shared solutions facilitating interoperability*[15]. The objective of the programme was '*support cooperation between European public administrations by facilitating the efficient and effective electronic cross-border and cross-sectoral interaction between such administrations […], enabling the delivery of electronic public services*'[16].

Before the ISA and ISA[2] programmes, interoperability was promoted through the IDABC programme: *a Programme for Interoperable Delivery of pan-European eGovernment Services to European Public Administrations, Community institutions and other entities and to European Businesses and Citizens*[17]. The objective of the programme was '*to identify, support and promote the development and establishment of pan-European*

[15] Decision No 922/2009/EC of the European Parliament and of the Council of 16 September 2009 on interoperability solutions for European public administrations (ISA) (http://data.europa.eu/eli/dec/2009/922/oj)

[16] Decision No 922/2009/EC – Article 1.2.

[17] Decision 2004/387/EC of the European Parliament and of the Council of 21 April 2004 on the interoperable delivery of pan-European eGovernment services to public administrations, businesses and citizens (IDABC) (Corrigendum to Commission Decision 2004/387/EC of 28 April 2004) (http://data.europa.eu/eli/dec/2004/387/corrigendum/2004-05-18/oj)

  ISBN: 978-2-9602448-0-9

eGovernment services and the underlying interoperable telematic networks supporting the Member States and the Community'[18].

All these programmes benefit from the opportunities and the needs shaped by new technologies to encourage and foster the delivery of cross-border digital public services and to improve the collaboration between European public administrations.

The programmes created, and still do, interoperability solutions to address specific requirements from EU countries and public administrations. E.g. *Joinup*[19], a collaborative platform and a catalogue of almost 2,800 interoperability reusable solutions for public administrations. Another example is the *Interoperability Test Bed*[20], a platform offering interoperability and conformance testing that provides *validation of content sent or received through various channels, conformance testing against a message exchange protocol and verification of a complex message exchange as one complete conversation*. An ISA[2] action especially relevant for ELRA and the ELRD is SEMIC. This action dedicated to semantic interoperability is the host of the e-Government Core Vocabularies.

6. SEMIC

SEMIC[21] is an action of the ISA[2] Programme[22] (see above) in the area of semantic interoperability. It facilitates a European community of semantic interoperability practitioners and provides solutions to help European public administrations in cross-border and cross-domain data *meaningful* exchanges.

[18] Decision 2004/387/EC – Article 2.1.

[19] Joinup: https://ec.europa.eu/isa2/solutions/joinup_en and https://joinup.ec.europa.eu/

[20] Interoperability Test Bed: https://ec.europa.eu/isa2/solutions/interoperability-test-bed_en and https://joinup.ec.europa.eu/solution/interoperability-test-bed.

[21] SEMIC: Promoting Semantic Interoperability amongst the EU Member States (2016.07) (https://ec.europa.eu/isa2/actions/improving-semantic-interoperability-european-egovernment-systems_en)

[22] Already present in both ISA and IDABC.

According to the EIF, semantic interoperability '*ensures that the precise format and meaning of exchanged data and information is preserved and understood throughout exchanges between parties, in other words "what is sent is what is understood"*'[23]. Semantic interoperability is provided by the agreement on common semantic specifications, *semantic interoperability solutions*, that set and clarify the meaning of the data exchanged between different parties. The reuse of existing semantic interoperability solutions is in itself a promoter and an enabler of semantic interoperability. When all parties already use the same semantic interoperability solutions, the exchange of information between them is *semantically interoperable*.

SEMIC provides several benefits to the ISA[2] stakeholders, mainly:

- A community of practitioners, the SEMIC community, to exchange knowledge and best practices on semantic interoperability and to co-create and co-maintain semantic interoperability solutions.
- A repository of knowledge and semantic interoperability solutions freely available, through the SEMIC collection in Joinup[24].

The benefits are provided through the main activities of SEMIC:

- Facilitating the SEMIC community, in particular by organising community-building events like SEMIC webinars[25] and the annual SEMIC conference[26].
- Identifying needs and addressing them regarding new semantic interoperability solutions through alignments and agreements on common semantic specifications.
- Promoting the use of ISA² specifications, such as the e-Government Core Vocabularies[6], DCAT-AP[27] or ADMS[28].

[23] *EIF Brochure p. 29.*

[24] https://joinup.ec.europa.eu/collection/semantic-interoperability-community-semic

[25] E.g. *SEMIC Webinar on Artificial Intelligence and Public Administrations* (https://joinup.ec.europa.eu/node/701756)

[26] https://joinup.ec.europa.eu/node/145999

[27] http://data.europa.eu/w21/ac376c94-74cf-4dd7-ade7-267d6a4ec4dc

[28] http://data.europa.eu/w21/8728c677-7764-4837-9706-9f8aab19215f

- Supporting projects executed by European Commission services and EU countries to promote semantic interoperability with pilots and expert advice.

As previously mentioned, SEMIC hosted and facilitated the creation of the e-Government Core Vocabularies and still supports their maintenance.

7. Conclusion

As described in this chapter, the EIF is a fundamental element for interoperability in Europe. It provides a knowledge base to reflect on interoperability opportunities and actually answers many questions that may arise. Land registries can benefit greatly from the holistic approach of the EIF to interoperability, especially at the level of legal and organisational interoperability. ELRA projects like IMOLA I and II are already addressing the challenge of semantic interoperability.

The long tradition of EU programmes promoting interoperability, such as ISA[2], ISA or IDABC, have supported and desirably continued to do so in the future DEP, both the EIF and initiatives on improving semantic interoperability: the SEMIC action. One of the relevant outcomes are the e-Government Core Vocabularies: fundamental building blocks to tackle semantic interoperability in many use cases, e.g. when exchanging information between peers, or making information publicly available in a rich, meaningful way.

The consideration and inclusion of the e-Government Core Vocabularies in the ELRD will contribute to the ELRD's objective of achieving greater interoperability between land registries and between land registries and other parties. They provide a neutral foundation to the ELRD and foster the re-usability of the information contained in those registries.

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[1] In the EIF, interoperability is understood as '*the ability of organisations to interact towards mutually beneficial goals, involving the sharing of information and knowledge between these organisations, through the business processes they support, by means of the exchange of data between their ICT systems*' *EIF Brochure p. 5.*

[1] Ibid. p. 9.

[1] Ibid. p. 22.

[1] Ibid. p. 33.

[1] http://data.europa.eu/w21/49169dd2-da9d-4c81-94b5-bba4604ded0a

[1] For more technical information on the e-Government Core Vocabularies and a guide about how to use them in practice regarding the business cases and uses, please see the *e-Government Core Vocabularies handbook* (https://joinup.ec.europa.eu/site/core_vocabularies/Core_Vocabularies_user_handbook/ISA%20Hanbook%20for%20using%20Core%20Vocabularies.pdf)

[1] https://www.elra.eu/

[1] https://www.elra.eu/IMOLA/

[1] https://www.elra.eu/IMOLA-ii/

[1] The Once Only Principle is about *ensuring that citizens and businesses supply certain standard information only once and public administration offices take action to internally share this data* (https://iate.europa.eu/entry/result/3567144/en)

[1] Decision (EU) 2015/2240 of the European Parliament and of the Council of 25 November 2015 establishing a programme on interoperability solutions and common frameworks for European public administrations, businesses and citizens (ISA2 programme) as a means for modernising the public sector (http://data.europa.eu/eli/dec/2015/2240/oj)

[1] Decision (EU) 2015/2240 – Article 1.1 and 1.2.

[1] Funding available depending on final decision on European Multiannual Financial Framework 2021-2027 (https://ec.europa.eu/digital-single-market/en/news/commission-welcomes-agreement-digital-europe-programme-2021-2027)

[1] Decision No 922/2009/EC of the European Parliament and of the Council of 16 September 2009 on interoperability solutions for European public administrations (ISA) (http://data.europa.eu/eli/dec/2009/922/oj)

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[1] Decision 2004/387/EC – Article 2.1.

[1] Joinup: https://ec.europa.eu/isa2/solutions/joinup_en and https://joinup.ec.europa.eu/

[1] Interoperability Test Bed: https://ec.europa.eu/isa2/solutions/interoperability-test-bed_en and https://joinup.ec.europa.eu/solution/interoperability-test-bed.

[1] SEMIC: Promoting Semantic Interoperability amongst the EU Member States (2016.07) (https://ec.europa.eu/isa2/actions/improving-semantic-interoperability-european-egovernment-systems_en)

[1] Already present in both ISA and IDABC.

[1] *EIF Brochure p. 29.*

[1] https://joinup.ec.europa.eu/collection/semantic-interoperability-community-semic

[1] E.g. *SEMIC Webinar on Artificial Intelligence and Public Administrations* (https://joinup.ec.europa.eu/node/701756)

[1] https://joinup.ec.europa.eu/node/145999

[1] http://data.europa.eu/w21/ac376c94-74cf-4dd7-ade7-267d6a4ec4dc

[1] http://data.europa.eu/w21/8728c677-7764-4837-9706-9f8aab19215f

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IMOLA Management

ISBN: 978-2-9602448-0-9

Jesús Camy and Anabel Fraga

"IMOLA II overall management vision"

1. INTRODUCTION AND AIMING

IMOLA II is a follow up project, very innovative as from the juridical as from the 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), in order to provide a 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 the prevention of money laundering and European immovables single market.

IMOLA II basically pursues to solve the problems stemming from the increased demand for Land Registers information to registration of foreign documents and judicial decisions, establishing local equivalents for foreign legal rights, in order to get an efficient implementation of EU Regulations on civil and commercial matters, what makes new demands on registrars, judges, academics, solicitors, notaries, lawyers, and citizens. They will need to have improved knowledge of foreign property rights, registration systems and legislation and to provide understandable information through the e-Justice portal. The European Court decision on 12/10/2017 (Kubicka case),

  ISBN: 978-2-9602448-0-9

regarding the scope of European Inheritance Regulation EU 650/2012 might be a good example of its utility.

Furthermore, when citizens and enterprises get involved in legal relationships or inheritance situations with immovable assets, their personal statute interacts with the real statute of property rights on land. The EU instruments in the field of civil justice take into account this situation and state that the nature of property rights, the registration rules and the effects of registration are out of their scope and remain under the national law of the Member States (MS). But it is also certain that all EU Regulations demand to be effective a wide information system based on judicial and registers networks, factsheets, official publications, and more. This aim is claiming to develop an information ecosystem integrated on e-Justice portal enhancing from it the framework of judicial cooperation on civil and commercial matters.

Therefore, there is a need to bridge the gap between national property rights and Land Registers Systems and EU law in order to allow Land Registers to deliver legal certainty at EU scale. Hence more is needed to provide the necessary tools and semantic web technologies, to obtain all the potential advantages from the interconnection. Thus, it is essential to define a common semantic model that makes understandable Land Registers Information supported by an explanatory material: glossaries and thesaurus as formal model vocabulary, called LRV.

2. A COMPLEMENTARY PROJECT FOR LAND REGISTRY INTERCONNECTION (LRI)

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, that should be completed with the LRI project. This institutional action which started with the Business Registers Interconnection System – BRIS Directive-, was followed by the EU Regulation 2015/848 on Insolvency Proceedings and more recently on the Beneficial Ownerships Register, whose provisions has been set out in the Directive (UE) 2018/843 of 30 May 2018 to prevent Money Laundering or Terrorist Financing, whose article 32.b envisages that Commission "*Shall submit a report to the European*

Parliament and to the Council assessing the necessity and proportionality of harmonizing the information included in the registers and assessing the need for the interconnection of those registers. Where appropriate, that report shall be accompanied by a legislative proposal", which must be raised by the Commission to the Conseil and European Parliament before 31 December 2020.

So, the LR Interconnection is a key issue to make daily life issues easier for European Citizens, given that the cross-border transactions are increasing more and more. Trend analysis is clearly showing that this cross-border component can be also perceived as regards the inheritance procedure and judicial resolutions enforcement.

LR Interconnection aims to enhance the effective implementation of EU basics freedoms, strengthen the legal certainty and the accessibility to the registration information from a single access point, e-Justice portal, crucial aspect to foster the European immovable single market and its financing within the schema of a digital Administration supported by an intensive use of new technologies. To this effect the Commission is developing a centralized platform providing a basic module of core services such as identification, authentication, taxation, invoicing and e-payment facilities, in all cases fully respecting the national legislation and authorization schemas for accessing LR information.

In this context, the main problems to be addressed by IMOLA II within the scope of LRI Large Scale Project are the following:

- Land Registry information is presented by the national systems in different formats, which results in greater difficulty for the users to understand it. To define a European standardized model for Land Register information -ELRD- has been a considerable step forward, but we cannot stop here. It is crucial to push forward looking for new horizons to get the interoperability of the information and metadata, (IMOLA Knowledge Repository), through web services, integrated on the e-Justice Portal and supported by a semantic common model and controlled vocabularies, by using architectures and technologies based on semantic web basis.

  ISBN: 978-2-9602448-0-9

- IMOLA II, as complementary action within the scope of LRI has created the ELRD, which can be considered as a common interface to share Land Registers information, trying to solve the problems stated on 7th September 2015 on the e-Justice Working Party document about Interconnection of Land Registers.
- Finally, national authorities and legal officers from Land Registers must be made aware of the new duties that the EU Instruments have imposed them as regards properties rights information and registration procedures and effects, in particular in the areas such as patrimonial, judicial and family law. Their involvement becomes more and more important, because Land Registers, as legal Institutions, can provide legal certainty at European scale, enabling the circulation of decisions and documents affecting immovable properties in Europe. Legal officers, registrars and legal staff from land registries are responsible for the decisions on the publication of property rights on immovable assets, granting the legal protection.

3. COMPLEXITY AND DIFICULTIES TO BE TACKLED

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

- The great number of actors involved at different levels. Each of them are in charge of crucial and complementary activities, which must be coordinated and integrated in the LRI overall schema.

- 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 an European legislative instrument referred to the LR interconnection such as there is one for Business Registers, (BRIS Directive), or Insolvency (Regulation on Insolvency Proceedings), bringing about that LRI action by the moment running on voluntary basis.

- LRI and IMOLA II are very innovative projects which require the intensive use of new technologies, that supposed a cultural and technical challenge.

To accomplish these burdens is absolutely necessary a task distribution among different actors, making up activities planning 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).
Figure1 shows a detailed schema according to which the distribution of activities among different actors involved has been distributed on IMOLA II approach.

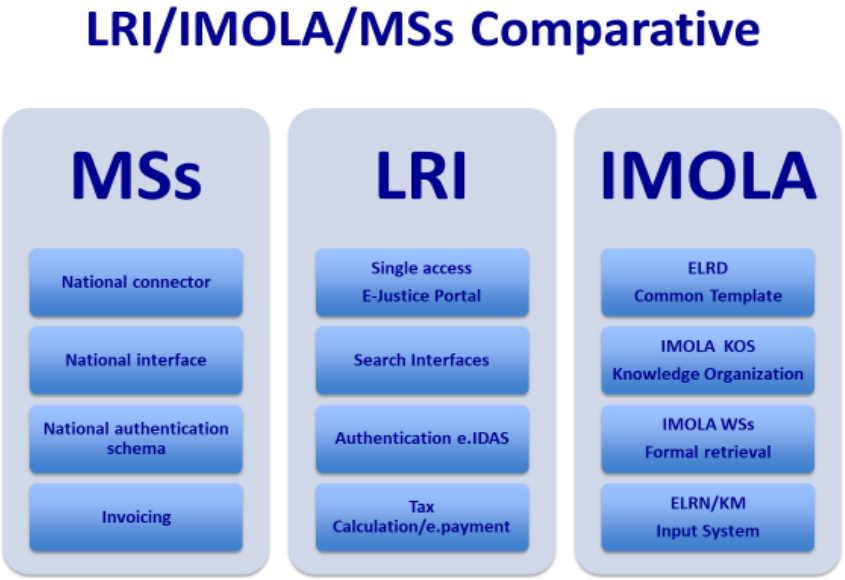

Figure 1 - LRI activities distribution schema

To this effect the Commission through e-Justice portal has assumed the development of a European Business Registers Interconnection Platform, supplying a common services module, which will be also extended with the necessary amendments to a future LR interconnection, what has involved an important effort.

On the other side, the competencies issue about Land Registers is rooted onto the article 345 of the TFEU, which sets out that all the questions related to Land Registers and Property Rights systems are reserved to MSs, but at the same time it is also true that access to LR information and its harmonization, enhancing the transparency and understanding. It is a crucial topic grounded on the four basics freedoms of TFEU and linked with other EU policies with great impact on the daily life of citizens, which are clearly under the EU competences, such as the single market (immovables and digital), the financing of housing and entrepreneurs; customers rights; digital Administration; prevention of money laundering; effective implementation of EU Regulations, about of all the adaptation principle, etc.

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That is why it is not also necessary but even urgent to take some actions related to the LR Interconnection based on the proportionality and subsidiarity principles, so that, on the one hand making possible accessing to LR information by means of a single entry point, and secondly to set up a common semantic model to get the harmonization of LR information, with fully respect to the LR National Systems features and competences.

So, it is according to this targets distributions and coordination planning among different actors involved, where IMOLA approach is destined to play a crucial role to get the LR Interconnection, given that only a project promoted and managed by a pan-European association as ELRA it is, made up to 32 Registrars Associations, can be able to cope with an impressive targeting like this, providing the Knowledge expertise of European Land Registry Net, -ELRN-, and permanent management an experience gained in other projects.

Figures 2 and 3 shows a detailed integration scheme among different activities to be deployed within the LR interconnection framework.

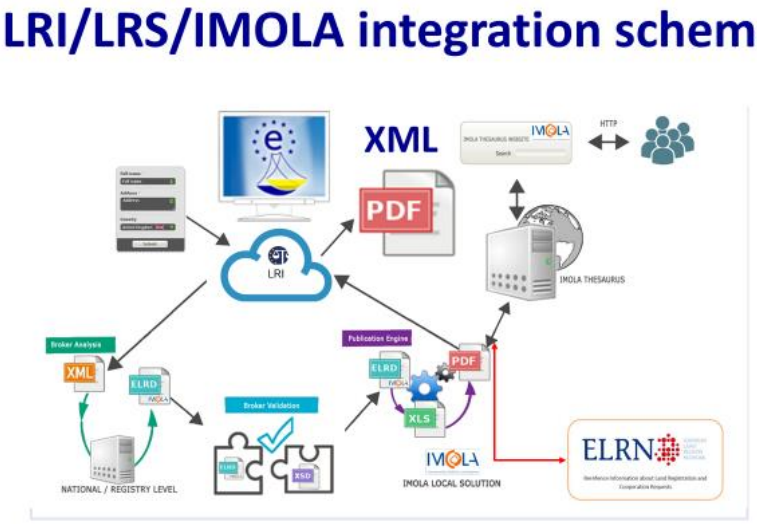

Figure 2 - IMOLA architecture schema

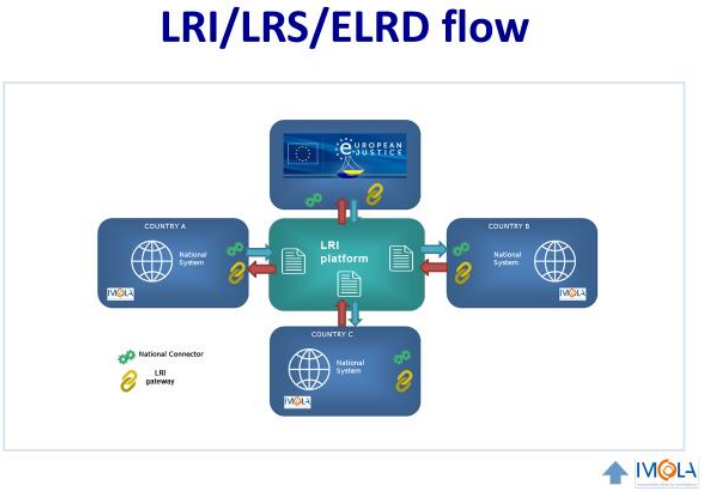

Figure 3 - LRI/IMOLA/MSs integration schema

4. METHODOLOGY: INCREMENTAL APPROACH

In order to develop IMOLA II, ELRA carried out a preliminary study in order to acquire an extensive background about the methodology necessary to ensure the success of the project, an exhaustive economic analysis to define the objectives, needs of human resources, choosing the right semantic and technological tools, assuming that being a pan-European project the interoperability and its integration into the e-Justice portal must be assured.

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 first target pursued was to make up a detailed analysis of the requirements of the system, on the technological view, (architecture, modelling and representation), on the

  ISBN: 978-2-9602448-0-9

semantic side, (controlled vocabularies, thesaurus and ontologies), along with a precise identification on the different activities by each Work Stream (WS) to be accomplished. The outputs were also defined to be delivered in time, introducing transparency and facilitating the coordination with the contractor, basically due to the intensive teamwork deployed by the Technical Director and the Project Manager, supported by the management expertise of ELRA Secretariat.

However, there has been a need to make deeper researches to integrate in the project new methodological techniques in the fields of comparative law study. The participation and strong involvement of professors from different European Universities has been crucial to discover new horizons, such as the case of the "formants methodology" (introduced by professor Elena Ioriatti); semantic web issues and ontologies (elucidated by professors Anabel Fraga and Juan Llorens); the impact of disruptive technologies in the LR systems within the Data and Token Economy framework (explained by professor Sjef van Erp), providing expertise to Contact Points (CPs) in the fields of comparative property law in Europe and semantic web technologies applied to create ontologies with legal concepts.

A realistic and properly designed Governance Plan has been other important issue from the methodological point of view, in order to comply with the Grant Agreement objectives and outputs. It was drawn up taking in mind the distribution of job and the best coordination of different actors involved (Motto: Team up Together). So that, political issues were in charge of Steering Committee; the semantic and technical issues were tackled at WS level by two coordinators, (Jorge Lopez and Mihai Taus), assisted by others Land Register experts, (Gabriel Alonso) and a high level of analysis and decision through the Executive Committee. The Technical Director and the Project Manager have deployed a side by side teamwork, fostering the relationship among ELRN CPs and Contractor, transferring mutual experience and knowledge, what has been essential to work coordinated achieving more efficiency.

The management of the project in charge of ELRA Secretariat is other keystone to be highlighted, which has been successfully worked out due to its experience acquired in previous projects and the permanent ELRA´s infrastructure. Overall management and

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coordination activities has been a very complex target demanding a precise planning of activities.

To keep in touch with the officers and authorities in charge of LRI project and SEMIC issues, has also been very enriching to enhance the communication with the Commission (DG-Justice and DG Digit -SEMIC-, officers), developing a collaborative and trusted environment and a coordination framework.

Summarizing, IMOLA II is fundamentally a juridical and semantic approach, but IT aspects are also crucial as well, since is conceived as a complementary project to be integrated on e-Justice Portal, although its effects also spreads to judicial cooperation framework in the field of civil justice. Institutional neutrality has governed its development and no model of registration or technological system is imposed. The methodology to develop IMOLA Knowledge Organization System, (I-KOS) is shown on figure 3, in which are detailed the targets and complementarity of different actions deployed on WSs.

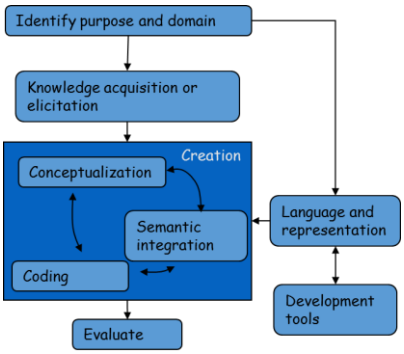

Figure 4 - Methodology for a I-KOS creation

5. RESULTS

5.1. SEMANTIC CORPUS

The Semantic Corpus is a very extensive and grounded document, aiming to make up the semantic foundations of the IMOLA II project, given that the main objective pursued is to define a common semantic model to share Land Registers information. To deal with semantic issues related to the LR domain, it has been a challenging task, that was

accomplished in different stages and levels, following an incremental methodology as a bottom up project based on the agreement of ELRN CPs.

The IMOLA Semantic Corpus comprises the primary semantic rules and the methodology factors taken into account to determine them, which have been the pillars to develop the European Land Register Document (ELRD), a common template to make public the LR information (enriched with the I-KOS metadata) and conceived as a flexible structure organized following the typical real folio A,B,C scheme preceded by a front page summarizing the main features of the document and disclaimers when necessary.

Part A is focused on "Land Registry Unit", elucidating about its legal meaning and the elements that should be encompassed, with a minimum common denominator (core of data).

Part B is devoted to the elements related to the entitlement and class of title, considering the proprietorship as the primary right and analyzing the restrictions affecting its right of disposal, the effects of conditions and deadlines.

Part C aims to itemize the encumbrances which are subdivided into four categories: Mortgages, property rights, judicial restrictions and other restrictions, organized by the criterion of date of registration.

In the second block of the Semantic Corpus is detailed how to assign attributes to the national concepts comprised on the ELRD, what has been one of the more difficult tasks accomplished. The "formants" methodology developed by professor Rodolfo Sacco and introduced in the project by professor Elena Ioriatti (helped by Sara Giacomini) has been the semantic tool to cope with this targeting. The objective pursued is to develop a semi automatized system to make possible comparative analysis among different property rights conceptual schemes, to facilitate the transparency and a deeper knowledge about their legal meaning and LR national systems, facilitating the effective implementation of the "adaptation principle" laid out in the EU Regulations.

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The third part of Semantic Corpus includes the set of sixteen guidelines issued by the moment, intended to give advising to the ELRN CPs about the more complicated topics. A wide range of questions have been tackled, offering practical and useful pieces of thematic information related to how to get used with the KM management in order to introduce national concepts definitions, relationships and attributes; elucidations about the structure of ELRD template, deeper knowledge regarding the use of "formants" methodology, quality test of data: "double flag" system, etc.

To go into a more detailed knowledge as regards IMOLA Semantic Corpus is strongly advisable to read the Jorge Lopez article available in the index of subjects in the IMOLA e-book.

5.2. ELRD

The complexity of dealing with property rights on immovable assets and to find common place holders -pivot terms-, and to set a glossary of equivalent terms, was a goal partially solved in IMOLA I by the first version of the ELRD template, but it has been necessary in IMOLA II to go deep inside with new semantic proposed measures and validation rules, based also on the strong commitment and participation of ELRN CPs (a network of legal LR experts in the field of property rights and registration law within the MSs).

The latest version of European Land Registry Document (ELRD) (XSD V 3.0), is a common template to share the Land Registry Information according to a harmonized format and enriched with I-KOS metadata, which is made up of two controlled vocabularies:

- Pivot terms, featured as abstracts definitions to be applied in the majority of MSs, based on the ELRN Contact Points agreement and devoted to sort out the different concepts and terms of the LR information, acting as containers of each piece of information supplied at national level.

- National concepts, defining their legal and practical meaning according to the national legislation, which are related to the pivot terms of the template by means of relationships determined according to the SKOS language.

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So that, the ELRD as common template defines the pivot terms which are the containers linked with the national concepts and their metadata, according to the semantic relationships established by the CPs by means of standard semantic languages, like SKOS (Standard Knowledge Organization System).

Therefore, the ELRD underlying semantic model and validation rules has been devised upon different data resources, sorted out like an ontology to facilitate its conceptualization and serialization in order to guarantee their interoperability and formal retrieval. Provided that LR immovables information, ELRD, has been organized from a semantic view in four main blocs of data, (Front page; LR unit; Proprietorship and Encumbrances), trying as far as possible to adapt the context specific LR domain into the EIF principles, insofar as ISA2 Core Vocabularies schema and INSPIRE terms can be reused in the LR field to enhance its interoperability and reusability, following the Once Only Principle -TOOP.

So, it is clear that in order to get and efficient LR interconnection system, to define a common semantic model with a pan-European vision is a prerequisite to accomplish the harmonization of LR information. This target demands a complex semantic process, being the first measure to cope with it to create a specific context for LR information and to adapt and reuse when possible the ISA2 Core Vocabularies schema. In the ELRD ontology is detailed the kind of source and nature of each data following this classification:

a. 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.

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 II 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

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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, 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 II that solves the issue of connecting similar legal concepts using an intermediate container called "pivot" (see Figure 5). 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.

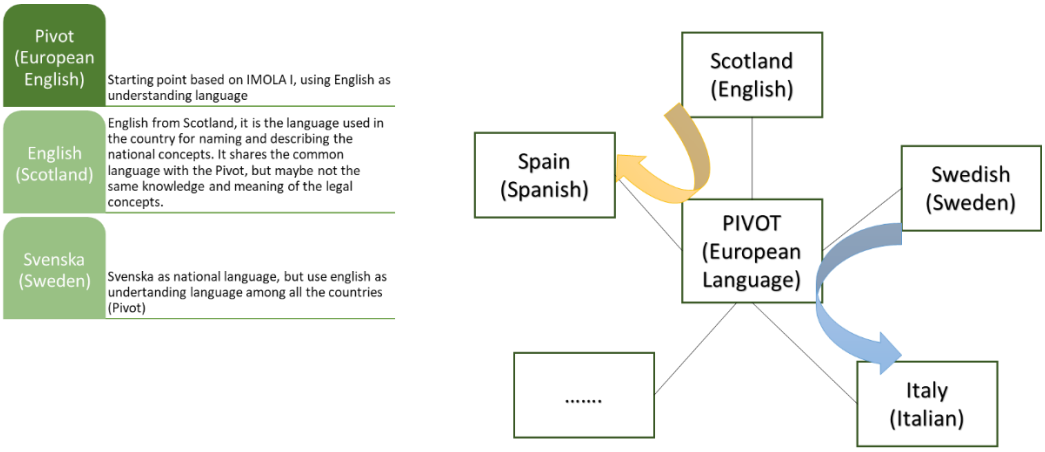

Figure 5 - Pivot explanation

b. ISA² Core Vocabularies are simplified, reusable, and extensible data models that capture the fundamental characteristics of an entity, such as a person or a public organization, in a context-neutral manner. They are used to attain a minimum level of cross-domain semantic interoperability. In the ELRD are contemplated the following ISA² Core Vocabularies:

- **Core Person**: captures the fundamental characteristics of a person, e.g. name, gender, date of birth, location.

- **Registered Organization**: captures the fundamental characteristics of a legal entity (e.g. its identifier, activities) which is created through a formal registration process, typically in a national or regional register.

- **Core Location**: captures the fundamental characteristics of a location, represented as an address, a geographic name or geometry.

They are needed on the ELRD for harmonizing the LR context specific domain with other data models related to it, within the EIF. The exchange of information in the context of European Public Services and business is challenging and comes with many semantic interoperability conflicts. Such interoperability conflicts are caused by discrepancies in the interpretation of administrative procedures and legislation, the lack of commonly agreed data models, the absence of universal reference data, etc.

ELRD template pursues to enhance the use of this semantic model within the scope of European Interoperability Framework, (EIF), which theoretically should be aligned with the National Interoperability Framework (NIF). The integration of different data used at national level to identify the persons and registered body along with addresses, in order to get a harmonized publicity of them would be a main objective to be tackled along with the reuse and interoperability of the specific context of LR domain.

c. Finally, other terms are used insofar as they are related with the specific context for LR domain, like INSPIRE to connect the LR information with cadastral parcel and environmental issues, or other resources to generical meaning concepts or included in other official list of vocabularies like FAO (Food and Agriculture Organization).

A partial view of the Poland LR information mockup may be appreciated in figure 6, which has been built upon the version 1.0 of ELRD schema given that the date of this e-book publication.

ISBN: 978-2-9602448-0-9

ELRN EUROPEAN LAND REGISTRY NETWORK

IMOLA Interoperability Model for Land Registers

LAND REGISTRY INFORMATION DOCUMENT

• REFERRED TO:

- **The land registry unit:** BI1B/000004582/5
- **The person:** xxxxxxx (personal folio systems) not in the Polish LR system
- **Issuing Authority:** Land Registry for Poland

• NATURE OF THE DOCUMENT

- *This is an official document containing land registry information*
- *This is not an official document, but an informative annex to the official document*

• LEGAL VALUE OF THE DOCUMENT

- The information contained in this document is certified by the issuing authority and it is taken as evidence of the legal status of the real estate in the Member State of origin.

- The information contained in this document is not certified. It is not taken as evidence of the legal status of the real estate but merely informative value.

- The information contained in this document is not certified. It is not taken as evidence of the legal status of the real estate. It must be taken as complementary of the official information document.

- The information contained in this document is not certified. It is not taken as evidence of the legal status of the real estate. A full copy of the register accompanies this document and you should read that in order to be sure that these brief details are correct.

• ATTACHED DOCUMENTS

- **Supplementary information:** (none)
- **Extended information:** (none)
- **Date of issue:** 21-01-2016
- **Time of issue:** 3:01 PM

This project is co-funded by the European Union

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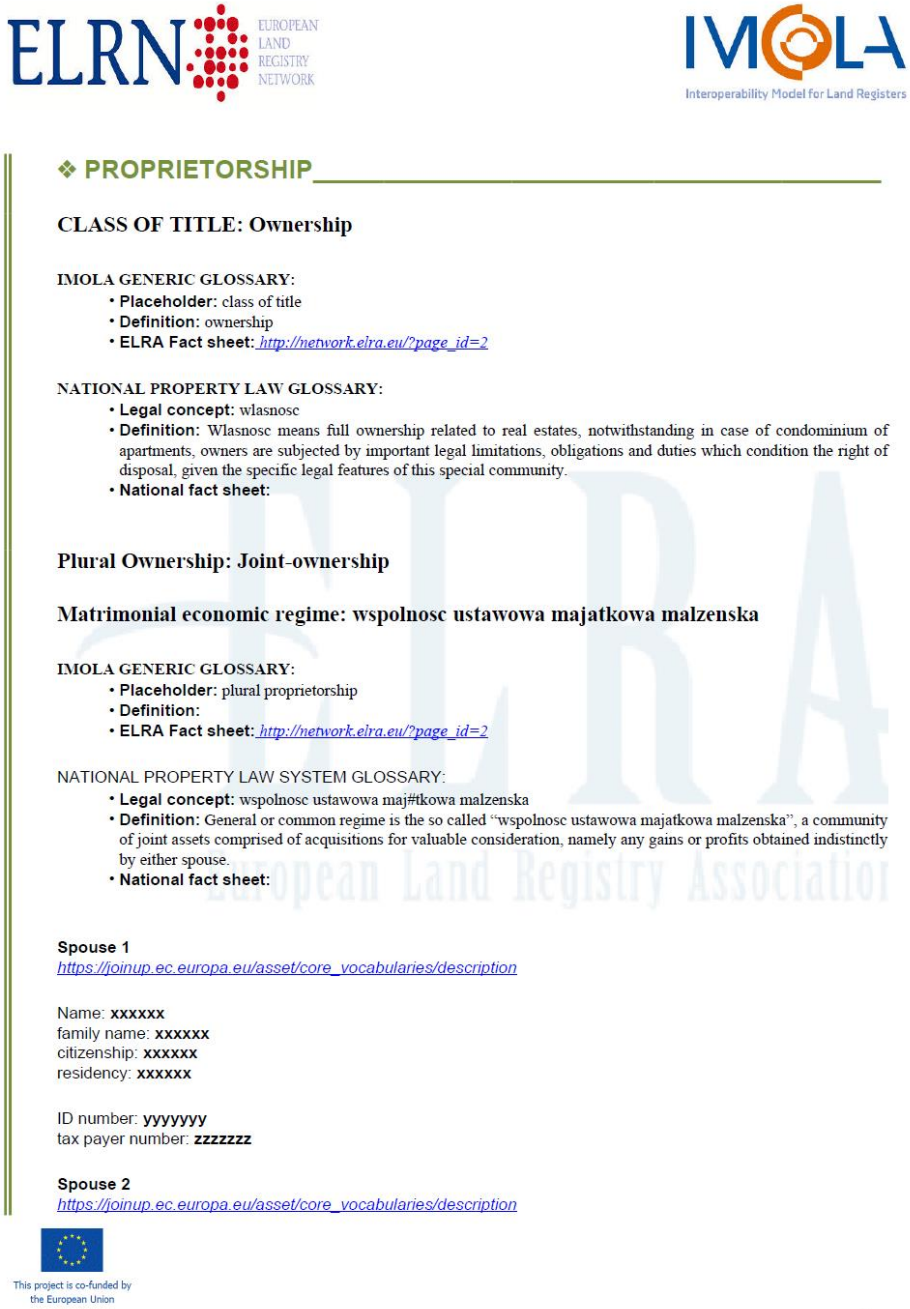

❖ PROPRIETORSHIP

CLASS OF TITLE: Ownership

IMOLA GENERIC GLOSSARY:
- **Placeholder:** class of title
- **Definition:** ownership
- **ELRA Fact sheet:** http://network.elra.eu/?page_id=2

NATIONAL PROPERTY LAW GLOSSARY:
- **Legal concept:** wlasnosc
- **Definition:** Wlasnosc means full ownership related to real estates, notwithstanding in case of condominium of apartments, owners are subjected by important legal limitations, obligations and duties which condition the right of disposal, given the specific legal features of this special community.
- **National fact sheet:**

Plural Ownership: Joint-ownership

Matrimonial economic regime: wspolnosc ustawowa majatkowa malzenska

IMOLA GENERIC GLOSSARY:
- **Placeholder:** plural proprietorship
- **Definition:**
- **ELRA Fact sheet:** http://network.elra.eu/?page_id=2

NATIONAL PROPERTY LAW SYSTEM GLOSSARY:
- **Legal concept:** wspolnosc ustawowa maj#tkowa malzenska
- **Definition:** General or common regime is the so called "wspolnosc ustawowa majatkowa malzenska", a community of joint assets comprised of acquisitions for valuable consideration, namely any gains or profits obtained indistinctly by either spouse.
- **National fact sheet:**

Spouse 1
https://joinup.ec.europa.eu/asset/core_vocabularies/description

Name: **xxxxxx**
family name: **xxxxxx**
citizenship: **xxxxxx**
residency: **xxxxxx**

ID number: **yyyyyyy**
tax payer number: **zzzzzzz**

Spouse 2
https://joinup.ec.europa.eu/asset/core_vocabularies/description

This project is co-funded by the European Union

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Figure 6 - Partial Polish ELRD information mockup (based on XSD v1.0)

5.3. THE ELRN Input System: Knowledge Management (KM)

To make up a common semantic model for Land Registers in the EU requests to coordinate a collaborative environment with many actors involved at different levels, there is the need of a back office for project management and maintenance, providing also training and support. But the core of the project is made up of Contact Points of the European Land Register Net (ELRN) who have the expertise to give scholar feedback regarding the features of each LR national systems, defining the national concepts, determining their correspondence and relationships with the ELRD pivot terms, and finally assigning attributes, using semantic web languages like SKOS (Simple Knowledge Organization System), using a high level software for that aim.

One of the main challenges to face off, once the concept definitions have been introduced in the system like controlled vocabularies, is to move from a natural language into a high modelled and serialized one using the architecture and technologies of semantic web. This targeting requires to cross along the "Spectrum of Knowledge", from the relational model used to create a typical glossary of concepts in a natural unstructured language (human being understandable), to a formal, structured and strong semantic language capable to support machine learning technologies and artificial intelligence solutions. In a nutshell, it is necessary to transform the traditional glossaries into an ontology.

This goal only must be achieved by means of a technological tool built upon the architecture and languages of semantic web, such as RDS (Resource Description System), SKOS, (Simple Knowledge Organization System), OWL, (Ontology Web Language), etc. On IMOLA II a customized knowledge manager technological tool (KM) has been developed to bridge this gap, which suits the needs requested for CPs feedback, aiming to evolve the national glossaries into ontologies.

So, one of the first goals was to get acquainted with the ontology concept. The simpler and known ontology assertion defines it like "specification of a conceptualization", (Gruber 1995), which can be elucidated detailing the meaning of its components oriented by a purpose to be created in order to be reused at low cost on any domain (Anabel Fraga 2018-2019):

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- Specification: a formal and declarative representation like controlled vocabularies, glossaries, thesauri, fact sheets, etc
- Conceptualization: abstract and simplify view of the world. The semantic transformation process based on the relationships among concepts by means of specific language and software.

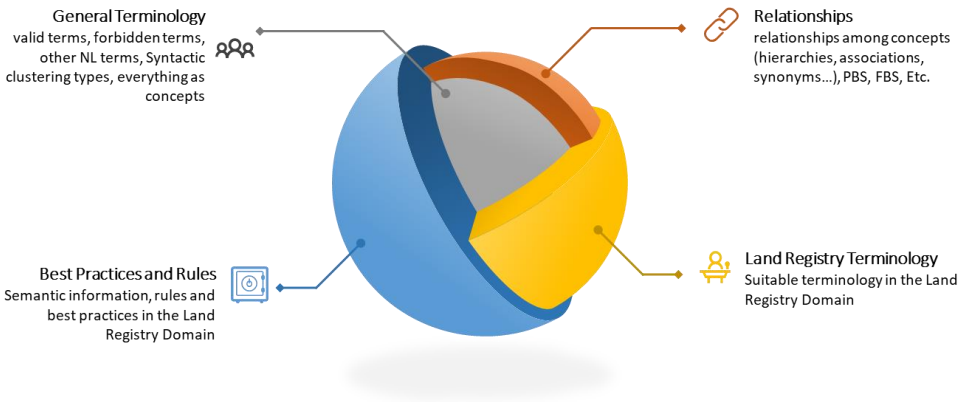

Figure 7 - IMOLA Knowledge perspective

The KM is a customized software that allows to transform the controlled vocabularies introduced by the ELRN Contact Points, using an informal natural language, into a formal represented one, strong modelled and serialized upon ontologies. The ontology proposed for IMOLA II would be formed by the following layers, each one using the information from inner layers and represent a defined aspect of the knowledge needed to perform high level services with an incremental view of semantics (shown in figure 7 and 8):

- Terminology: controlled vocabularies, glossaries, etc. Valid and forbidden terms
- Conceptual model: defining relationships among the terms (hierarchical, synonyms, associations, etc.)
- Pattern: matching patterns, natural language patterns and formal models to index and retrieve appropriately
- Semantic formalization: including new relationships once a pattern is matched
- Inference rules: creating new knowledge when indexing new Corpus

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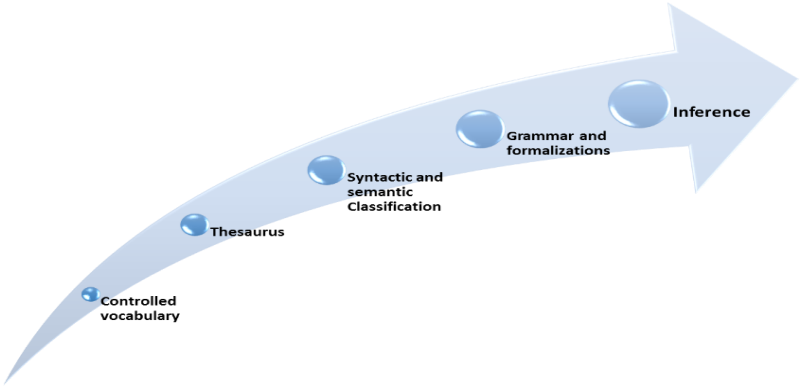

Figure 8 - Creating ontologies: incremental KOS construction

From the technical view one of the more important questions dealt within IMOLA II has been to give answer regarding how to organize LR information systems according to interoperability principles. The IMOLA Knowledge Repository (KR) is a KOS that comprises all valuable knowledge of the system and its lifecycle. It allows representing, storing, managing, retrieving and reusing relevant knowledge about the context specific LR domain (the Knowledge Base - KB). The Knowledge Base (KB) manages relevant knowledge around the LR domain. The way according to knowledge is organized (the predefined and formal schema) inside the KB, it is called the Conceptual Model (CM). The KB is implemented by representing knowledge inside as an ontology. The architecture diagram based on internal, external and maintenance roles is shown in Figure 8, where "I" means internal use, "E" means External use, and "M" means Maintenance purpose tool.

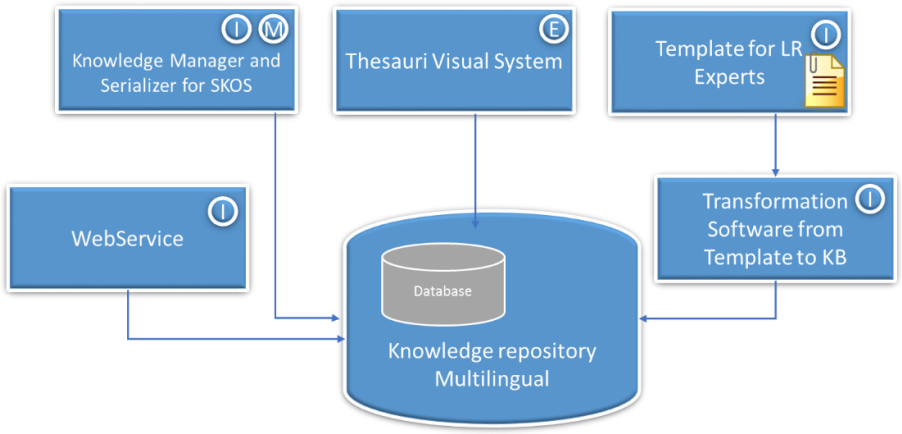

Figure 9 - System Architecture diagram for IMOLA II

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). After an exhaustive benchmarking resulted that KM was the tool that better suits to the scope and objectives of the project, tackling with following issues:

- Integration of the ELRD structure as common template to CPs feedback
- Transformation software from the natural language of the template into a knowledge storage system
- Multilingual Knowledge Repository data base
- Knowledge manager and serializer customized for SKOS labelling system
- Web service to support the data flow.
- Quality and security of data.

Hereafter the Conceptual Mode main screen of KM (CPs interface) displays the taskbar with the more important functionalities allowing the management of the terminology, conceptual model and data consolidation issues. On the left side the knowledge system is organized based on the ELRD ontology tree which can be drop down. The semantic features of each pivot terms selected on the ELRD ontology can be displayed and managed by means of semantic tools deployed in the right side of the screen, facilitating the browsing and CPs feedback.

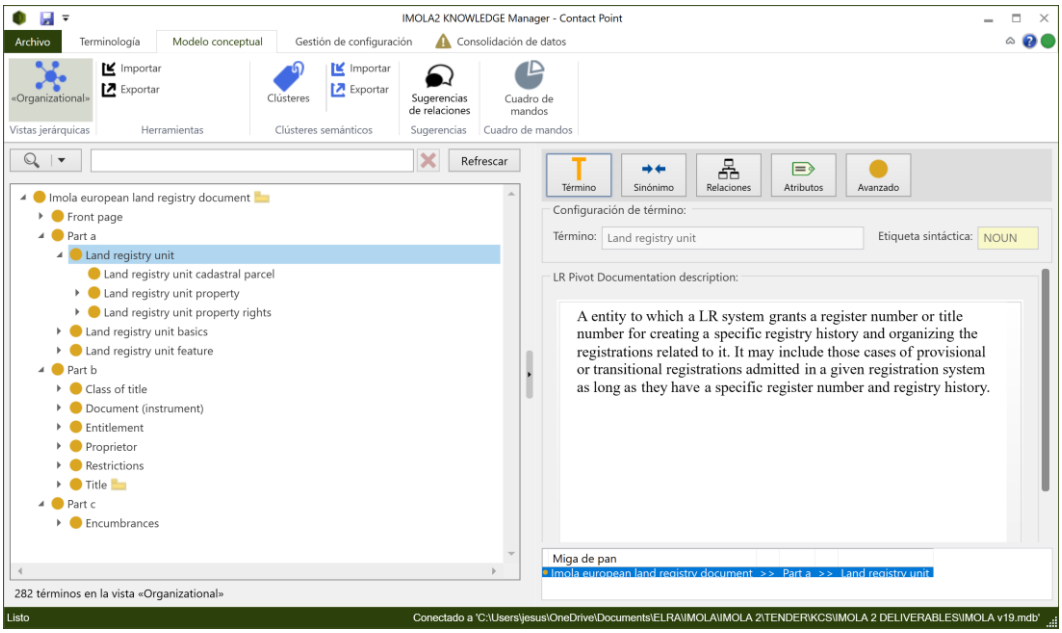

Figure 10 - Knowledge Manager Input System Conceptual Model screen

The interface is customized to the I-KOS in order to determine the relationships between the ELRD pivot terms and the national concepts according to the SKOS language. So that, there are specific buttons to make concepts definitions, to establish semantic relationships, to assign attributes, all of them can be easily represented even by means statistics and schemas.

5.4. IMOLA KNOWLEDGE ORGANIZATION SYSTEM: I-KOS

To define a common semantic model for LR interconnection is the main objective of IMOLA II, to be used within the scope of LRI project through e-Justice Portal. The KM is the technical tool to get it and the results is the IMOLA Knowledge Organization System (I-KOS), which is not only a multilingual repository of LR terms, neither a simple thesaurus. The I-KOS is a semantic evolution of both controlled vocabularies (glossaries and thesaurus), because the ELRD pivots terms and national concepts are structured and organized according to the semantic web architecture and technologies. That implies the following activities:

- To stablish the relationships among the ELRD pivot terms as LR information containers and the equivalent national concepts.
- The conceptualization, modelling and serialization of the concepts and attributes increasing the capability to be published on the web and be used to enrich the LR information provided at national level according to an automatized process.

The creation of I-KOS entails clear advantages in respect of the traditional thesaurus:

- Accessibility and interoperability of data by means of web services.
- Automatized extraction and reuse by mean of machine learning technologies to enrich the LR information
- Aggregation with other set of data
- Move into juridical ecosystems
- Mapping capabilities based on the attributes

From the technical view the I-KOS is stored in the KM centralized Data Base accessible by means of a customized web service. The configuration of the DB has taking into account the ELRD structure and it is made up of the different national data bases once

their concepts have been validated and consolidated according to the quality test process envisaged in the Knowledge Manager using a double flag check.

Finally, I-KOS is an applied ontology approach, which meant to solve different important semantics and technological questions thinking about its integration on e-Justice Portal and according to the following semantic web technologies and architecture, it all within the scope of LRI project, which use SKOS language to determine relationships among the terms of the ELRD.

The Semantic Web brings together a set of technologies, recommendations, practices and applications to make accessible structured data on the Web. Conventional Web is based on content and services designed for use by people. For its part, the Semantic Web focuses on the availability of structured data with a high degree of interoperability for reuse by applications. This approach uses existing technologies, especially the HTTP protocol used to access web resources, regardless of how or who (people or machines) use the data.

The essential component of the Semantic Web is the RDF data model that provides a semantic framework for describing resources. In RDF, elements are described as resources. This model represents the resource descriptions as statements that take the form of triplets (Triplets) composed of subject, predicate and object. Each resource is uniquely identified by an URI and described by assigning values to certain attributes or establishing relationships between two resources (W3C, 2014a). In the first case the resources are linked to the values using data properties. In the second case the resources are interrelated through object properties. Like resources, each property is uniquely identified with an URI. Therefore, the triplets form graphs, where the resources are represented with nodes, data values as literals, and properties are the arcs that connect nodes with literals or other nodes.

RDF statements must be expressed in a format that allows storage. For this there are several alternatives such as RDF/XML, Turtle, JSON-LD or RDF among others. The example of the statement to represent the title and creator of the wikidata entity of the figure using the Turtle notation.

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If we extrapolate this explanation in the Land registry domain, the result is shown as follows:

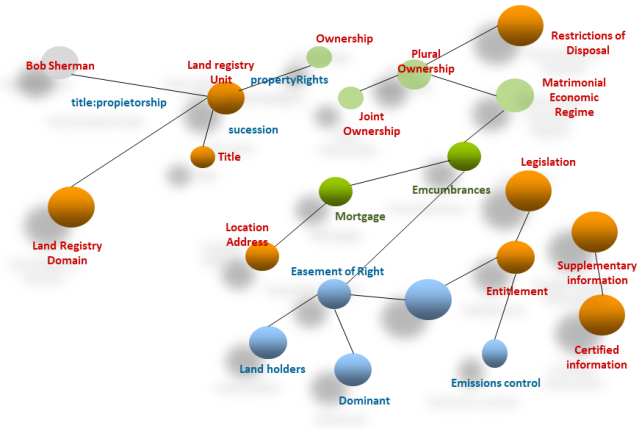

Figure 11 - Knowledge graph example in the Land Registry domain.

A simplified example of representation of the placeholder glossary could be as follows (the prefix is valid only as an example):

```
Prefix elra-eu: <http://glossary.elra.eu/> .
elra-eu:immovableProperty      rdfs:type                skos:Concept;
                                        skos:prefLabel  "Immovable property"@en;
                                        skos:definition  "..."@en ;
                                        skos:exactMatch          elra-es:bienInmueble ;
                                        skos:exactMatch          elra-nl:onroerendeZaken .
```

The Spanish glossary would be represented as follows:

```
Prefix elra-eu: <http://es.glossary.elra.eu/> .
elra-eu:bienInmueble           rdfs:type                skos:Concept;
                                        skos:prefLabel  "Bien inmueble"@es;
                                        skos:definition  "..."@es ;
                                        skos:definition  "..."@en ;
                                        skos:exactMatch          elra-eu:immovableProperty .
```

RDF can also define vocabularies for resource descriptions. Such vocabularies must include categories or classes to classify resources (taxonomy of classes or categories). It is also necessary to establish what kind of resources can be applied to a particular

property (domain). Also, the possible values of data properties or resources with which a relationship can be established in the object properties must be defined (range).

For all this RDF is expanded with RDF Schema and OWL. With RDF Schema (W3C, 2014b) it is possible to define new classes and properties, and hierarchies of subclasses and sub properties. RDF Schema allows develop "lightweight" ontologies that can be applied in resource description using simple description schemes. OWL (W3C, 2012) provides greater semantic expressiveness to establish cardinality constraints, define equivalences between classes from different ontologies, define inverse properties, etc.

The datasets that represent resource descriptions can be stored into text files in any of the RDF formats. However, to select and obtain data about specific descriptions of resources a search language adapted to RDF is required. This is something like the role that SQL plays when the information is represented with the relational database model. In the semantic web the search is based on definition of RDF triples patterns with SPARQL (W3C, 2013a). SPARQL defines both, the retrieval language and the format in which the retrieved data are obtained. People or machine can use specific web services known as SPARQL endpoint to send a query and retrieve the requested data.
SKOS (Simple Knowledge Organization System**)** is an OWL-Full ontology to represent knowledge organization systems using RDF. SKOS is an essential tool for IMOLA II. It is also important to highlight that the aim of SKOS is not to replace original conceptual vocabularies in their initial context of use, but to allow them to be shared, based on a simplified model, enabling wider re-use and better interoperability within the EIF. These representations are machine-readable by LR national systems and can be exchanged between software applications and also published on the Web, taking in mind that:

- SKOS provides a model for expressing the basic structure and content of concept schemes such as thesaurus and other types of controlled vocabulary.
- As an RDF application allows concepts to be composed and published on the Web and integrated into other concept schemes.
- The basics conceptual resources - concepts - are identified with URIs. and relationships can be specified by means of labels.
- Concepts can also be mapped across concept schemes and grouped into labelled

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or ordered collections.

- Concepts can be labeled in one or more languages.
- SKOS has also a very extensive documentation properties.
- Finally, SKOS is also aligned to the standard ISO 25964 thesaurus standard

As shown in Figure 12, a LR domain example using SKOS is given.

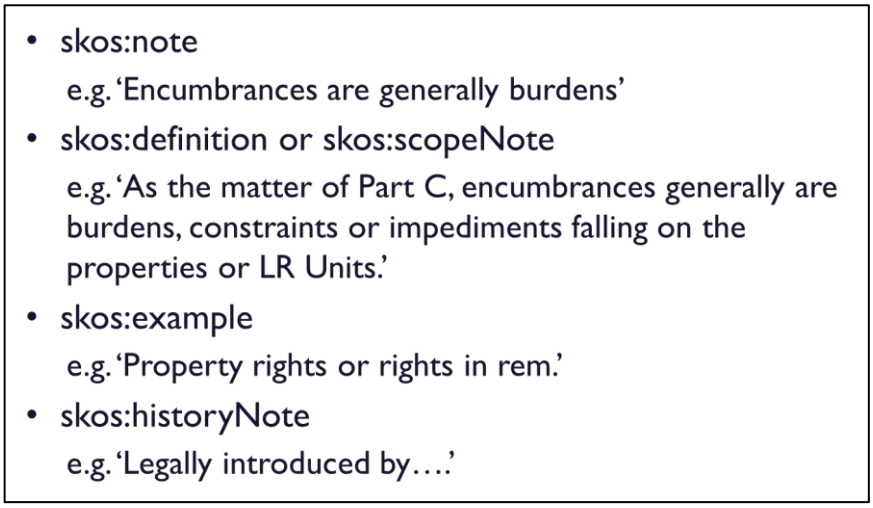

Figure 12 - Knowledge representation example (LR domain)

On the LR domain, some terms need to be treated as equivalent terms or synonyms, for instance: Encumbrances could be named Burdens. It helps the Semantic Web technology because improves search facilities and reuse like:

Concept-based search instead of text-based search, Reuse each other's concept definitions, Search across (institution) boundaries, and Standard software. Some indexers will use "Burdens" and others "Encumbrances" but searching for "Burden" does not give all the results expected if the Knowledge base is not prepared for that. In order to get a good result, it means when searching for "Encumbrances" or "Burdens" will offer the same results, then in the Knowledge Base an equivalence relationship among both terms must be created: one concept with different lexical labels (synonyms).

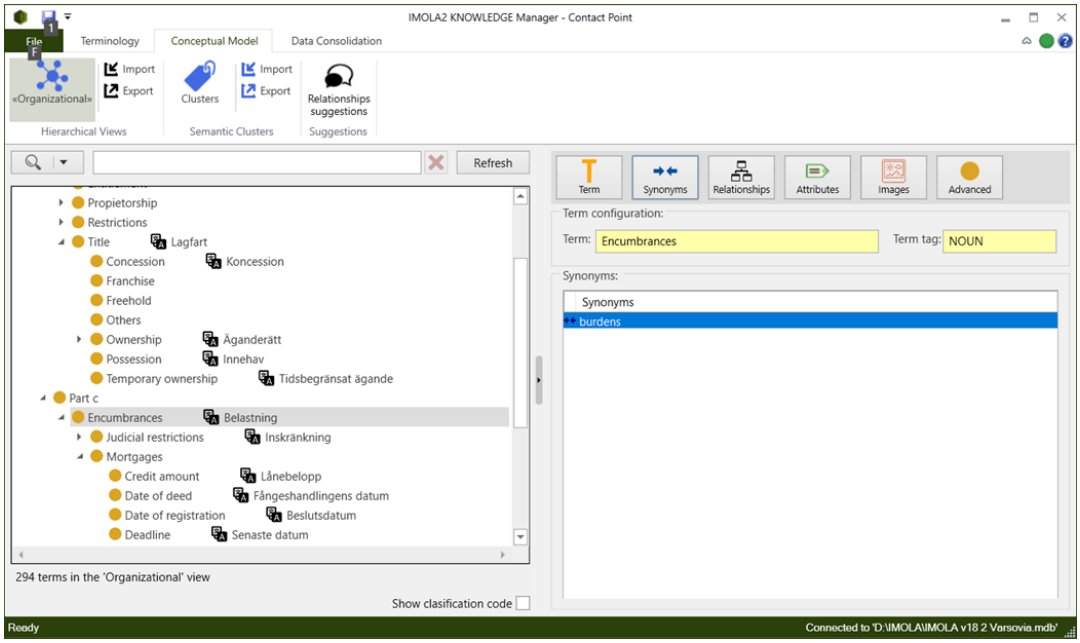

Figure 13 - Knowledge Manager: Encumbrances and Burdens.

As shown in Figure 13, in the Knowledge Manager an equivalence relation (synonym) was created between Encumbrances and Burdens. Also, because of the Knowledge Manager working language is Swedish for the example, it is possible to observe that *Encumbrances* is the same as *Belastning* in Swedish, meaning that if a view of different languages is set in the software, a legal equivalence can be assure between both terms of the diverse legal systems in Europe, and even more thanks to the attributes defined a very specific definition on each legal system could be inferred. For instance, *"In the event of condominium or horizontal ownership: in a national system, are the apartments independent units of the building of which they are part, so that each of them has a separate registry history?"*, that is a question, to which an answer (formant) could be formalized as an attribute in the Knowledge System: *independentUnitsRegistry* (Yes/No), with a Boolean value: Yes or Not. In case the value is yes, it can be represented as shown in Figure 14.

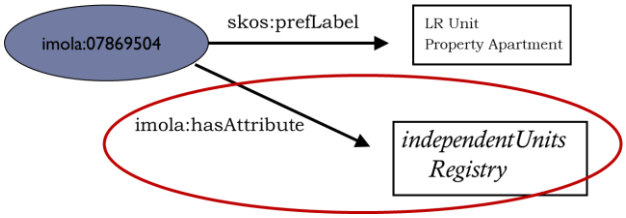

Figure 14 - Formal representation of an attribute using SKOS.

In the case of associations, it covers relationships between pairs of concepts that are not related hierarchically, but are semantically or conceptually associated to such an extent that the link between them needs to be made explicit in the KOS . The relationship is indicated by the tag "RT". If we generalize the idea to the Land Registry domain, the term "Land Registry Unit" is related to "Encumbrances" because diverse judicial restrictions may apply to a Land Registry Unit:

Land registry Unit
RT Encumbrances

Encumbrances
RT Land registry Unit

A general guideline for associative relationships is that whenever the preferred term for one concept is used, the other should always be implied within the common frames of reference shared by the users of the KOS. Moreover, one of the terms is often a necessary component in any explanation or definition of the other; the term "Land Registry Unit", for example, forms a necessary part of the explanation of "Encumbrances". It is particularly important to establish an associative relationship between concepts that overlap in scope in some contexts. There is no need to associate terms such as "Land Registry Unit" and "Land Registry Unit Feature" on the grounds that they share a common broader term.

As stablished on the ISO 25964 standard, some general guidelines when creating associations could be summarized as follows:

1. A discipline or field of study and the objects or phenomena studied.
2. An operation or process and its agent or instrument.
3. An action and the product of the action.
4. An action and its recipient or target.
5. Objects or materials and their defining properties.
6. An artefact and its parts, if they do not qualify for the hierarchical whole-part relationship (see 10.2.3 on the ISO 25964 guide).

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7. Concepts linked by causal dependence.
8. An object or process and its counter agent.
9. A concept and its unit of measurement.
10. An organism or substance bred or derived from another.

On the Knowledge Representation area, it is important to think big, start small and evolve incrementally. That is the key stone to succeed.

5.5. IMOLA II WEB SERVICES

Among the IMOLA II outputs there are three web services set up to make possible the exchange of information generated between the I-KOS repository, CPs and e-Justice portal, furthermore the training platform, using in all cases standard architecture, SOAP, (Single Object Access Protocol), WSDL, (Web Service Description language), HTTPS, (Hypertext Transfer Protocol Secure), etc.

The first Webservice (WS) integrated in the input system platform (KM) holds the exchange of data among the KM platform and CPs client's applications. The second one assures accessibility to Moodle platform for trainings and e-learning. But the more innovative of all is the KM WS created to facilitate the access and browsing through IMOLA II repository from the e-Justice portal.

It is worth to remember that I-KOS has two main functionalities:

- To enrich the LR information assembled and supplied at national level according to the ELRD interface.
- To access and browsing through the IMOLA II repository from the e-Justice portal according to Link Open Data Principles (LOD), facilitating the transparency and understanding of different LR national systems such as set out in the EU Regulations.

The latest web facility will make possible to request metadata information from IMOLA II repository, by asking queries not only in natural language but also in advance semantic

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web languages like SPARKLE. This KM web service will be integrated on the e-Justice portal through a link, being also accessible from ELRA web page.

Access and browsing are facilitated by means of a friendly interface customized to the ELRD ontology tree, whose main features are displayed in the following main screens:

a. Pivot based Hierarchical View

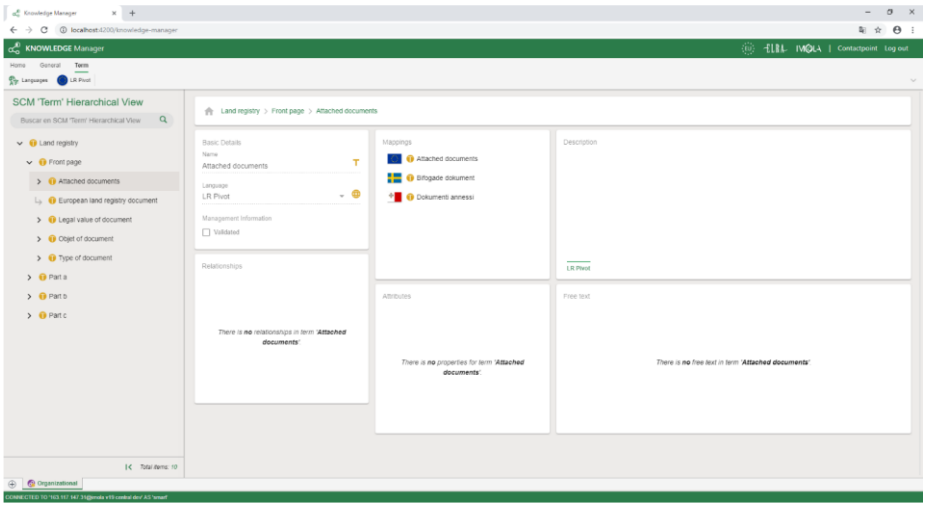

Figure 15 - KM browser WS pivot hierarchical view

This view shows in the left-hand side of the workspace the list of terms that fit the specific criteria selected by users when the view is created (as shown in Figure 15). This list is sorted out alphabetically. Clicking on any of the terms, the details of the selected one are disclosed in the right-hand side of the workspace. This set of details are shown in cards, including:

- Basic information about the selected term: the term descriptor, language and additional management information
- The *breadcrumb*: as an enumeration of the steps to reach the selected term
- The set of fields for the Pivot Term: description of the pivot, ISA² Core Vocabularies or other resources, associations, synonyms and mappings available per nation and languages.

- The set of fields for the mapped term (if exist on the working language): description of the national term in its native language and English, ISA² Core Vocabularies or other resources and attributes including its rationale. these fields, as well as the rest of the content shown in this application, is read-only.

b. The Relationships View: Main Elements

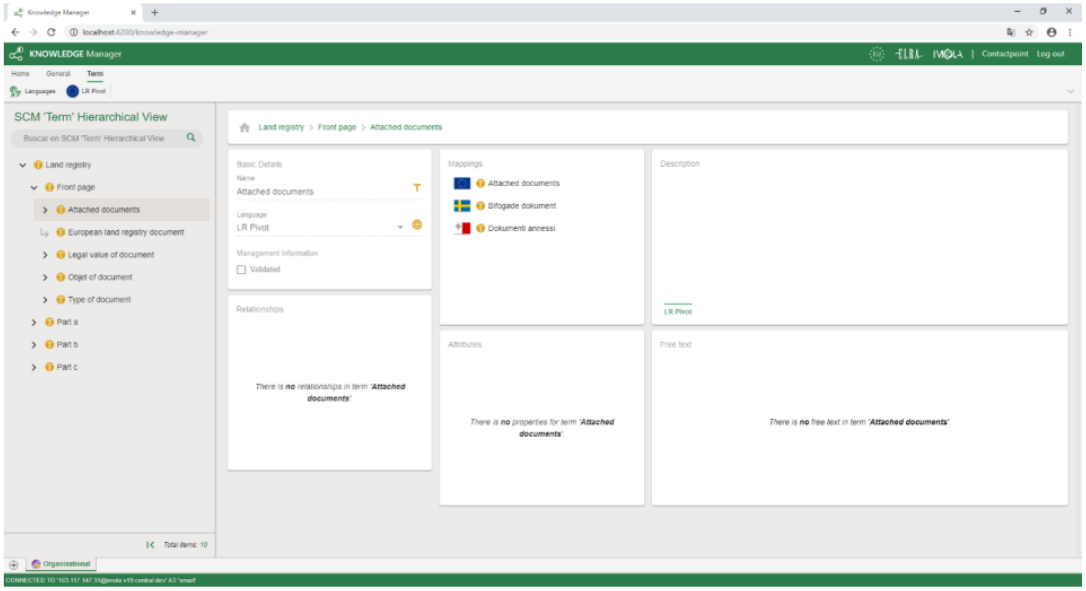

Figure 16 - KM browser WS: relationships view

This view shows a tree in the left-hand side of the workspace (as shown in Figure 16). This tree represents the relationships in the thesaurus whose relationship type corresponds with the type selected when the view is created.

On the top of this tree, the name of the selected relationships will be always visible. Below this name, the tree shows all the relationships. For example, in the case of hierarchical ones, the elements on the top must be considered as the *parents* of the relationships, the elements immediately below are the *children.* To this effect, the tree can be expanded, level by level, using the *Expand* bottom in the *Home* ribbon. It can be also collapsed using the *Collapse* button in the same ribbon.

c. Statistics and Dashboard

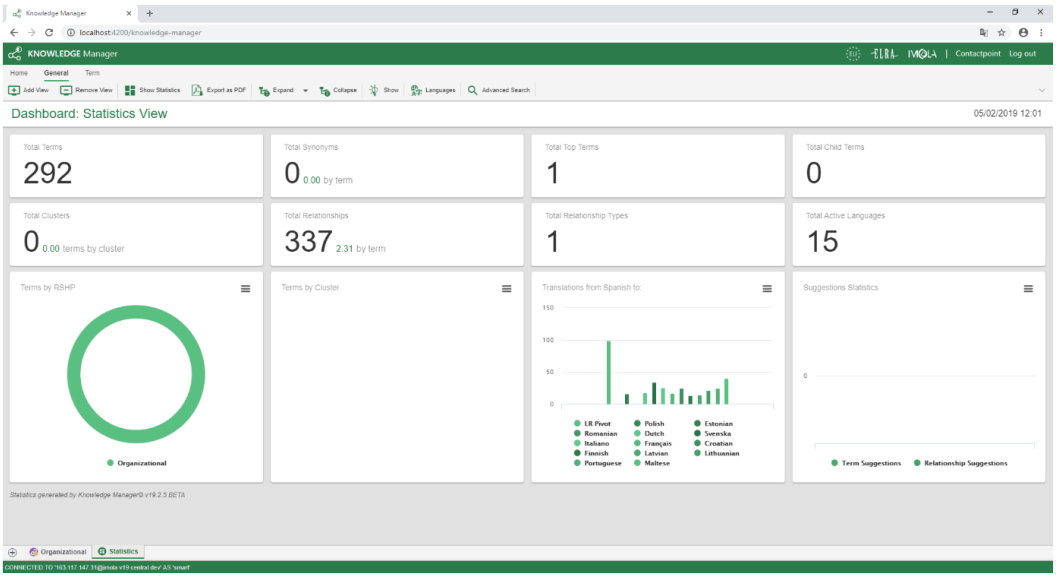

Figure 17. KM browser WS: statistics view

By clicking in the *Show Statistics* button (as shown in Figure 17), a new view is created showing some figures about the current content of the thesaurus.

Some additional details can be displayed just by hovering the mouse over any of the items in the charts. For example, hover the mouse over a bar of a specific language and you can get the number exact percentage of terms that have a translation into this language.

5.6. IMOLA TRAINING AND LEARNING PLATFORM

IMOLA II as very innovative project demands continuous training and learning. Face to face seminars are essential, above all at the starting of project and to introduce more advance acknowledgement. But bearing in mind that I-KOS is a long time data base which requires no only to be created but also to keep updated and adapted to the new technological and semantic advances, is necessary to develop a web platform providing permanent support to CPs. This is the target pursued with the IMOLA Moodle site (shown in Figure 18).

The aim has been to make up a permanent collaborative environment. A forum to debate and compare ideas, in which everybody can feel comfortable. The dashboard has a very

flexible and intuitive design, allowing an easy accessing and browsing through different sections. The access is restricted to ELRN CPs due to the main target is to support them with a customized and updated training and e-learning. Networking among CPs is encouraged including a directory with the list of names and e-mails of participants.

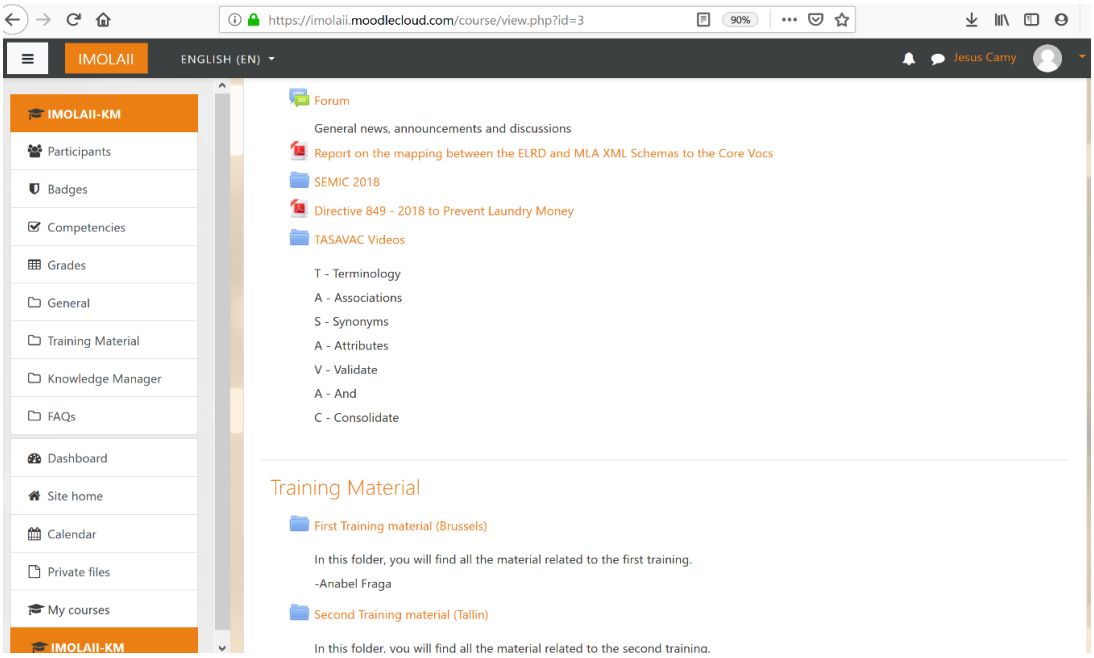

Figure 18 - IMOLA Moodle platform dashboard

To reinforce learning CPs will receive professional training at three levels: face to face sessions (workshops), videoconference and by the Moodle platform, including a WiKi engine, as very innovative web page input system. So that, CPs will have a continuous access into an updated explanatory material, which includes all the presentations and material used during the five seminars helds on the course of the projects, (Brussels, Tallinn, Warsaw, Dublin and Brussels). This make possible to refresh concepts and consolidate their knowledge.

Training and e-learning must be deemed as a permanent task what demands a stable and flexible solution affordable by CPs and compatible with their daily work. The only way to get it is by means of a technological platform accessible on the web and continuously evolved and updated by Land Registry experts and semantic engineers, coordinated by an efficient back office.

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Forum for discussion is one of the more appealing parts of the site, promoting the confrontation of ideas, basic issue in IMOLA II as bottom up project, making possible to generate a reciprocal flow of information, boosting the communication and exchange of knowledge among CPs and academics involved in the project.

There is a specific sub-section devoted to list and sort out the more frequent queries answers issued to CPs, creating a repository and search engine to facilitate a swift and standardized response as regards the more common questions arisen to CPs.

According to the experience acquired during the project, workshops presentations, guidelines and ELRA´s fact sheets need to be complemented with video material, particularly referred to the use of KM, which as technological tool request a more practical approach. To cover this gap videos have been uploaded (TASA-VAC series), giving to CPs this practical vision to get used in the management of the input system.

- **T**erms: how to introduce national concepts definitions.
- **A**ssociations: how to determines semantic relationships among pivot terms and national concepts
- **S**ynonyms: How to link equivalent terms
- **A**ttributes: how to assign attributes to national concepts using the attributes listed in the KM
- **V**alidation: how to verify the quality of the data by means a double flag methodology: interaction between the checker/validator and the CPs
- **C**onsolidation: how to commit the terms validated in order to make publish a new and consolidated version of national DB.

Other significant issue is to assure the quality of training material. The crucial role of the ELRN CPs is aforesaid, but to get the objectives pursued in the IMOLA II project, and at last with LR interconnection, requires developing a collaborative environment with many actors involved. So, the crucial expertise provided by the CPs must be complemented by the semantic and technical knowledge acquired with the involvement of other scholars, professors and technicians.

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IMOLA training seminars have been honored with the attendance and involvement of professors proceeding of three of the more important European Universities:

- Universidad Carlos III de Madrid (UC3M): professor Anabel Fraga: Technical Director of the project and in charge of the coordination of the work deployed by the contractor technicians, leading and overviewing the content of the material used for training and learning. She has taken also the support of professor Juan Llorens.
- Trento University: professor Elena Ioriatti whom has introduced and elucidated regarding the use of Formant Methodology to assign attributes to national concepts, which is a very innovative issue, essential to make comparative analysis among different concepts schemes (LR national systems). She has been helped by Sara Giacomini.
- Maastrich University: represented for one of the more important European Private law comparatists, professor Sjef van Erp, whom has illustrated about the consequences for the Land Registers derived from the use of new disruptive technologies to manage the information within a digital and token context.

Finally, the effort and very hard work requested to acquire the properly knowledge to create and keep updated the I-KOS has been recognized to the CPs who have participated in the project attending the training and learning sessions with and academic award issued by the Madrid University Carlos III in charge of the training seminars, which is not only and personal certificate accrediting the knowledge acquired, but also a sign of the quality and seriously work deployed.

5.7. QUALITY TESTS

Data is at the core of whichever information system. In accordance with a traditional vision the documents may be considered as an information container and to establish hyperlinks between them makes possible the access to others or an important set of articles related with specific topics. This has been the target of conventional web. However for the time being the center of gravity of the information systems has moved into the data, and documents are made up of a set of structured data organized following a predefined semantic model, allowing their interoperability, aggregation and the access

to specific pieces of information what implies many advantages, whose interoperation and publication are the goal aimed by the semantic web.

The architecture and technologies of the semantic web have been designed to facilitate and take the best of data usability. The added value and efficiency of data are strongly related to their interoperability and quality (data economy). According to these features each data may have a great importance by itself, but what actually increase the value is their capacity to be computerized by means of automatized process applying machine learning technologies and artificial intelligence (AI) solutions.

Reusability, aggregation and publishing are the main objectives of semantic web, but to reach these goals the data need to be transformed, modelled and serialized by means of ontologies and graphs. Formal languages and semantic schemas must be used to assure the reusability of data.

The other pillar of the information systems lies over the quality of data. Checking this quality has been one of the main priorities of the project, target that has been conceived as a permanent objective and concern.

Two levels of test have been devised: semantic and juridical.

a. The semantical tests process has been done because of the PDCA schema, (Plan-Do-Check-Act), as a best practice that comprises the following steps (see Figure 19):

Plan: Making your Knowledge plan. How is the knowledge to be acquired?

Do: Working on it. Perform the plan on time.

Check: Review Your Knowledge. Review the process.

Act: Make A revision based on improvements.

Furthermore, some semantic metrics for quality check of data according to the ISO 26964 have been performed:

- The length of the concepts should be less than 4 words, as far as possible, but in some cases, especially in a legal domain, some terms can be extended to indicate the real meaning.
- Use of singular as far as possible. Plural terms are avoided.

- Monosemic descriptor. All the descriptors should have a unique meaning and descriptor, avoiding duplicated semantics or diverse hierarchies that could produce a retrieval process problem in the future.
- Level of enrichment: ratio of relationships per concept.
- Ratio of descriptors with unspecified grammar.

b. But a juridical quality test is also essential to be done bearing in mind that the I-KOS is an important juridical knowledge organization system, whose data will be reused to enrich the pieces of LR information provided at national level, to enhance its transparency and understanding. But in this case, unlike the semantic quality test process on charge of semantic engineers, this is a target to be accomplished by the LR experts: the ELRN CPs.

After creating the specific context for Land Registry Domain aligned with the primary rules of Corpus Semantic, (I-KOS), and due to the significance and huge amount of national data linked to ELRD pivot terms, along with the participation of a large number of ELRN CPs, permanent quality checks must be performed. It means all concepts, hierarchies, associations or even attributes created by each Contact Point must be validated by another Contact Point acting as Checker Quality at the national level (double flag system), which is a functionality integrated in the KM input system demanding a double check to each data before to be consolidated in each of the national Data Bases (See Figure 20).

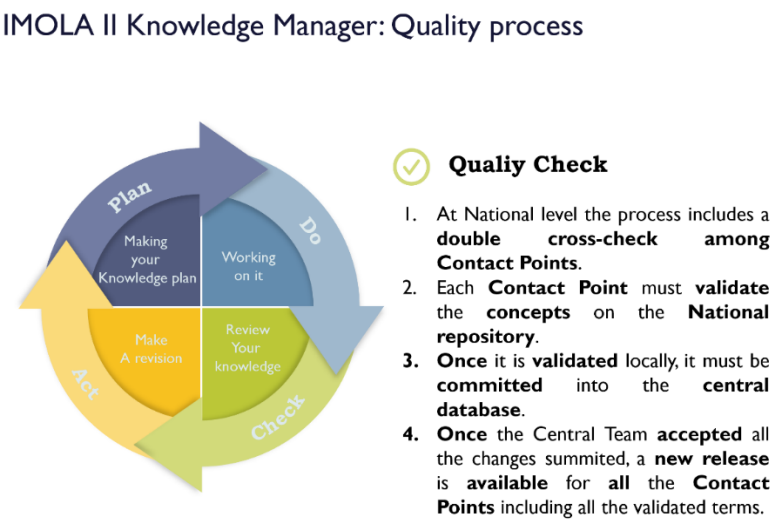

Figure 19 - IMOLA II quality test schema

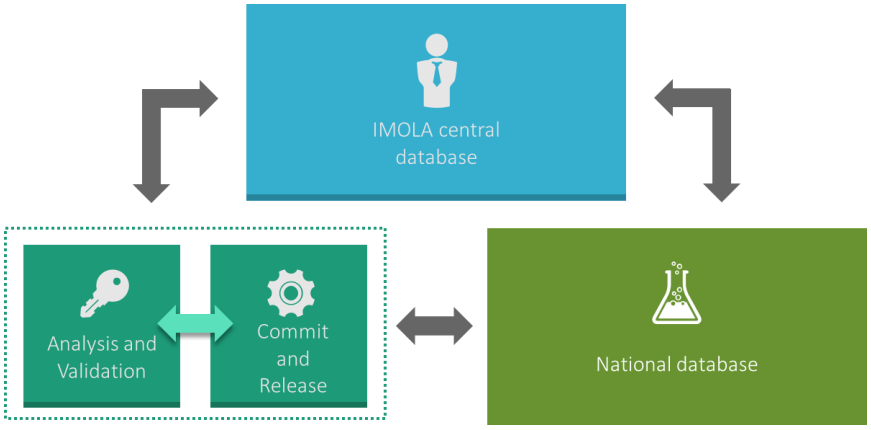

Figure 20 - IMOLA II quality test process cycle

Because of this process (see Figure 19), CPs are constrained to make the quality test, in order to verify that all the knowledge generated is valid, properly described, with the right attributes and the most appropriate description at national language and English. CPs are the experts on the domain of LR. In any case, terms must follow a double crosscheck process, these must be validated and consolidated. As shown in Figure 21, the columns Consolidated and Validated must be checked. In the example, the terms are consolidated but not validated yet.

IMOLA II Knowledge Manager: *Quality terms management* tab

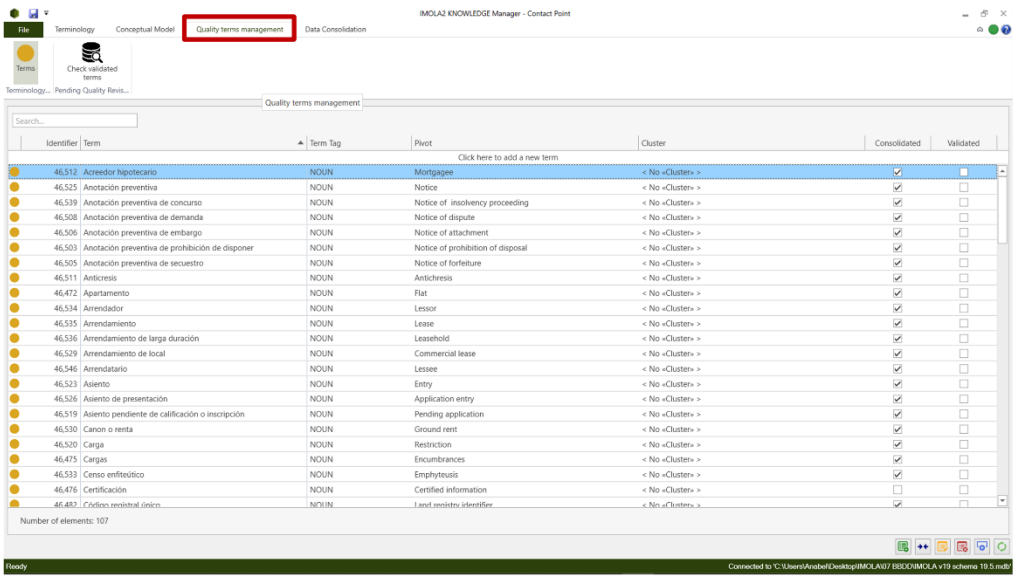

Figure 21 - Knowledge Manager Input System quality terms view

5.8. ISA^2 CORE VOCABULARIES TEST BED

ELRA by means of IMOLA II project aims to define a common semantic model to support the LR interconnection and the harmonization of the information. This is an approach envisaged within the EIF and aligned with ISA^2 Core Vocabularies, (Persons, Registered Corporate and Location).

For the sake of this goal different tests have been accomplished in the context of the ISA Action 2016.07 on promoting semantic interoperability amongst the European Union Member States (SEMIC).
One of the activities of the SEMIC is the development and promotion of Core Vocabularies which are simplified, re-usable and extensible data models that capture the fundamental characteristics of an entity, such as a person, a business, a location or a public service, in a context-neutral way.

A first report of the mapping between the ELRD schema (v 2.0) and ISA^2 Core Vocabularies was done on 2017/08/29 in the following context: " Data exchanges relating to cross-border public services in the European Union is a complex matter due to the environment in which they take place. Semantic interoperability conflicts arise due to differences in the interpretation of administrative procedures and legislation, a lack of common data models and universal reference data, etc. The Core Vocabularies are meant to help overcome these difficulties.

In the context of this task, the ELRD XML schema is analyzed followed by mapping the Core Vocabularies of it. This schema is XSD file generated in the context of IMOLA II project promoted by the European Land Registers Association (ELRA). This project involved developing an electronic template (the European Land Registry Document or ELRD), which can be used to display land registry information from Member States of the EU.

Mapping existing data models to the Core Vocabularies has the benefit of allowing the use of the Core Vocabularies as a common foundational data model which can help bridge different data models".

The objective is to analyses the XML to answer the following questions:

- What is the overlap between the schemas and the ISA^2 Core Vocabularies?
- Which concepts used in the given schemas are also used in the ISA^2 Core vocabularies?
- What are the differences between the given schemas and the Core Vocabularies?
- How often do commonalities appear in the given schemas?

Later on, a second mapping test was made over ELRD XML schema v3.0 on 2018/09/18. Next step has been to configure standalone validation service and test bed set up for ELRD. The plan is to use the ELRD v3.0 XML or highest as validator for IMOLA II. In the future testing community will be extended to others MSs providing information in the ELRD format to validate the interface used by each of them.

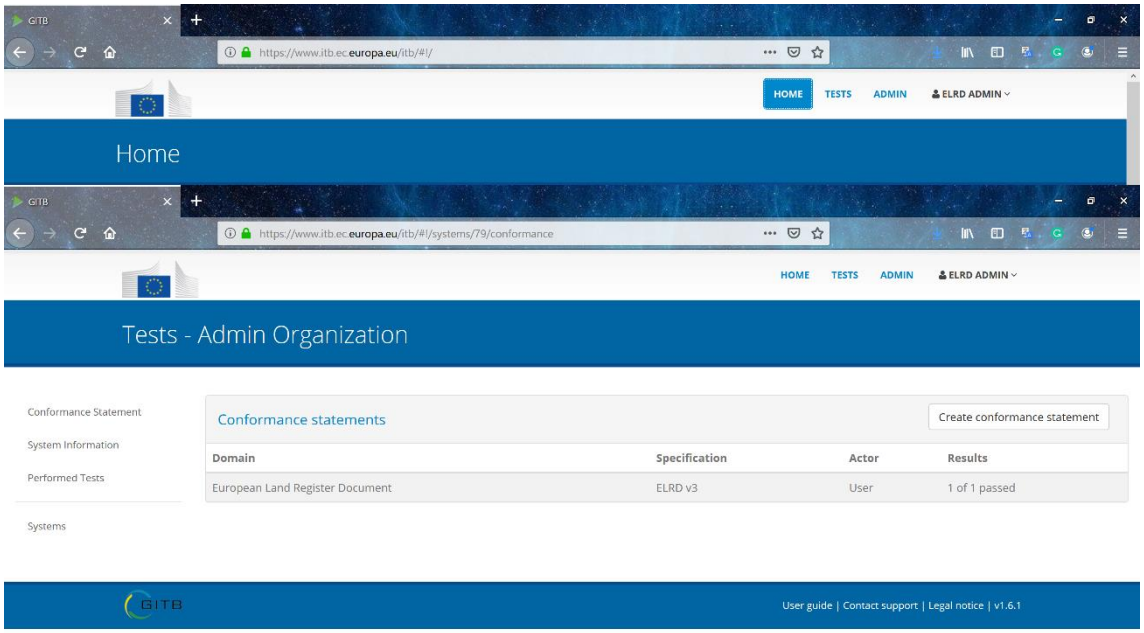

Figure 22 - SEMIC conformance test

6. NEXT STEEPS

Land Registers Interconnection and harmonization of the information is a long road to go through and still remain a hard work to be done. This a necessary and challenging job to be dealt with a collaborative environment -networking- on the next years. Hereafter some ideas are displayed setting up what might be considered as a roadmap to be discussed among different actors involved:

Collaboration with the Commission and coordination of activities.

It is important to increase the collaboration with the Commission to get the effective implementation of LRI, improving the harmonization of LR information and the access to e-Justice, along with the coordination of activities deployed by different actors related to the LRI.

To keep working side by side with DG Justice and DG Digit is essential to achieve the objectives aimed. The complexity of the actions to be taken and the activities to be coped with make unavoidable to strengthen the collaboration with the Commission.

Given that the number of actors involved and the need of teamwork it would be advisable to define a coordination planning in order to improve the efficiency and results.

Go forward with the Semantic Corpus

As juridical and semantic approach IMOLA II needs to go deep inside in the analysis of the primary rules which are the foundations of the ELRD. This will demand to carry on with new discussions to improve the methodology and knowledge to extend the Corpus Semantic adding to ELRD new pivot terms, introducing amendments and increasing the number of relationships.

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The assignation of attributes is other field to get on with new researches to enhance the mechanisms used to map out the main features of each national concepts, helping to delve into their legal meaning, seeking to make comparatives among different property rights system in order to facilitate the effective implementation of the adaptation principle.

These investigations will entail the improvement of I-KOS, not only regarding the quantity of data storage, semantically modelled and serialized, but also increasing their quality stemming from the methodological advances and the internalization of new test environments.

Training and learning

IMOLA II like whichever other project related to Land Registers Interconnection and the harmonization of information is so innovative that requires a life-long training and learning, what implies a complex task only affordable by means of ELRA infrastructure based on the ELRN and the experience and permanent support and back office supplied by ELRA Secretariat.

IMOLA II has set up the pillar to deal with this goal by means of a web site accessible to ELRN CPs. Although the dashboard is very intuitive and comprehensive, facilitating the browsing through the different sections, there are a broad-spectrum to be fulfilled with new contains and explanatory materials looking for a continuous updated and a better interaction between the ELRN CPs, supported by the expertise of scholars and new technologies. The training and e-learning should be at the core of future actions to be taken.

New technical developments

IMOLA II has brought about a considerable technological challenge, not only due to the number of outputs accomplished but also for the complexity of some of them. Considering that not user-friendly applications for final users based on Knowledge Organization Systems are easy to find, IMOLA II has provided an excellent environment to develop and adapt a Knowledge Manager (KM) software adapted to LR domain, test

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its feasibility and results. The ELRD XML schema, ELRN input system (KM), I-KOS repository, training and learning platform, KM web browser and quality test have been implementing and are running smoothly. But this is only a starting point, because grounded on these outputs new developments are necessary to consolidate and spread out the results of IMOLA II project and going forward with the objectives of the LR interconnection and harmonization of the information.

To this effect it will be necessary to strengthen the IMOLA platform, which supports the ELRN input system and the I-KOS management, in order to assure the flow of the information and the security and quality of data, at the same time as the accessibility of ELRN CPs has to be improved with new logging facilities and even more customized interfaces adapted to an extended ELRD according to Semantic Corpus new analysis and researches.

New WSs should hold coverage to a semantic interoperative environment, so as to facilitate the connection with the available brokers at national level and their architectural view, which would be linked to the existing system by these new WSs. A broker on each site should be connected in order to interoperate with the I-KOS repository and its web services. This is a key factor that must be accomplished as coordinated action with other actors, with a view to assure the LR interconnection and the harmonization of the information between MSs.

7. CONCLUSIONS

- The LRI is an essential institutional action to foster the basic TFEU four freedoms on the scope of EU immovables market, promoting the cross border transactions and the access of e-Justice, making also possible the effective implementation of EU Regulations in the field of Land Registers, based on a complete and trusted information and the Adaptation principle.

- The LRI need to be supported by others complementary projects like IMOLA II, whose objective is to define a common semantic model to provide an harmonized

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Land Registers information based on the ELRD as common template, assembled and enriched with I-KOS metadata at national level (see Figure 24).

- The LRI and IMOLA II also provide support to other EU policies such as the Prevention of Money Laundering, Immovable Single Market and Financing, Digital Administration within the EIF, immigrants integration, etc.

- The intensive use of new technologies like semantic web architecture and Artificial Intelligence solutions are crucial to manage the huge amount of information to be processed in order to create a LR juridical ecosystem, aligned with EIF principles.

- The strong collaboration with the Commission and the coordination of different activities involved in the LRI institutional action are a cornerstone for the success of the interconnection and harmonization of the information.

- IMOLA II has been a very important breakthrough to define a common semantic model as foundation of a harmonized LR information, whose results must be consolidated and extended with new research works and technological developments.

- The ELRD is a crucial artifact to supply a harmonized and enriched LR information aligned with ISA^2 Core Vocabularies, improving its transparency and understanding with the legal meaning of different concepts and pieces of information.

- The I-KOS repository built upon feedback of the ELRN CPs and semantic web architecture make up LR juridical ecosystem to enrich the LR information thanks to an interface adapted to the ELRD structure and new WSs to be developed.

- An EU legislative instrument would be very useful to provide support and coordination to LR interconnection and the harmonization of the information. For that purpose IMOLA II may be very useful to give the necessary background in order to make up the report set out in the article 32.2 of the V Directive to prevent

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Money Laundering for the Conseil and Parliament whose deadline is 31/12/2020, spreading the LRI to all MSs.

- Currently, although LR interconnection is an action accomplished on voluntary basis the number of MSs interested on this objective is very meaningful, such as can be noticed in the Figure 23 showing a core of fifteen MSs involved so far in IMOLA II.

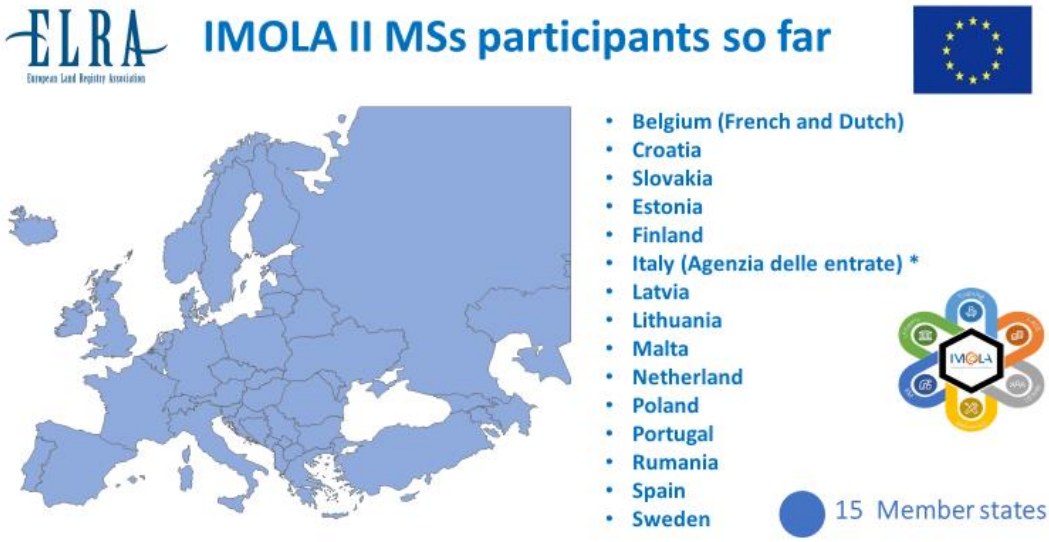

Figure 23 - MSs IMOLA II participants

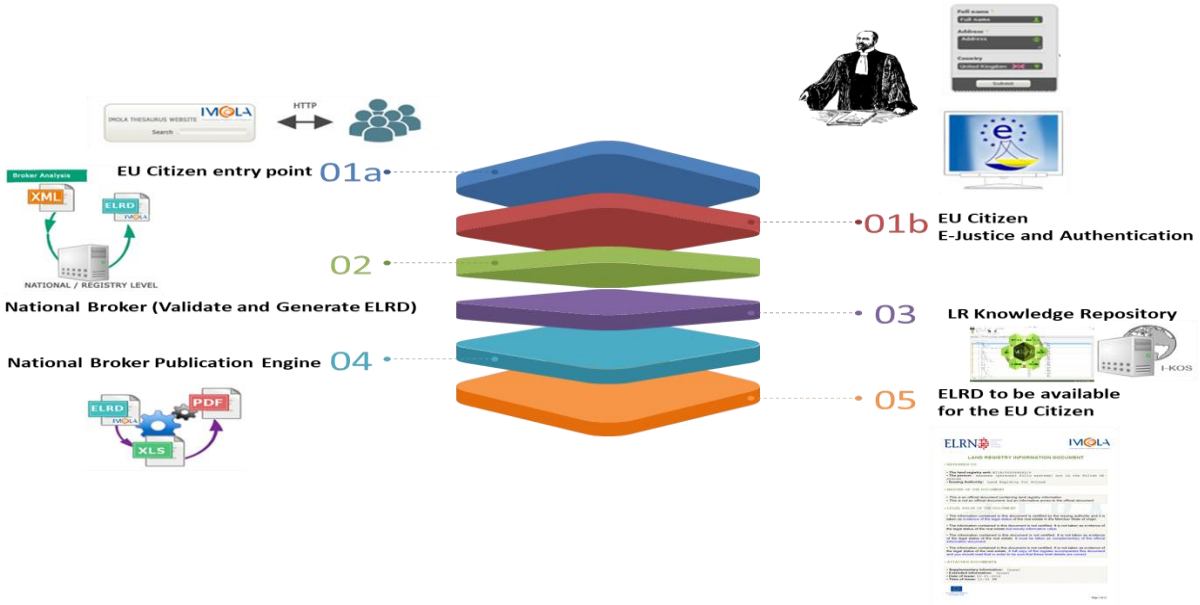

Figure 24 - IMOLA II interconnexion schema

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ISBN: 978-2-9602448-0-9

Jorge López

"*ELRD as a tool to organize registry information of any Land Register system*"

1. The primary proposal

Theoretically, a project of creating a tool for exchanging registry information at European level, a ELRD, would be open to different approaches. One of them would be to create an entirely new system, of course (something not very realistic). Another would be to impose one of the existing systems currently (inacceptable for the others). And there could also be a bottom-up approach starting from the mapping of the elements of every European land registration system. The latter is the IMOLA proposal. Such approach intends to include how many more European land register systems better.

In order to build an ELRD, the primary proposal of IMOLA entails:

1. to design a **structure** for the template in which information has to be organized, flexible enough to cover all systems if it is possible;
2. to decide **data fields** for endowing with content —admitting that it will be only provided insofar it is available in the different national systems— and
3. the use of **Semantics** in order to make information from one legal system understandable to another and create a shared vocabulary for land registration.

Semantics is extremely important for this project. We may start a way towards a European common registry language by means of the factorial description of the national concepts or national elements of information. This first step could well become a vocabulary KOS (knowledge organization system), gathering these national elements around *pivot-terms* or terms-archetypes, conceived with some degree of abstraction for facilitating the association of national elements to them.

  ISBN: 978-2-9602448-0-9

To approach the legal meaning of the national legal concepts (rights for example) IMOLA project is relying on the technique of *legal formants*, which has shown to be quite efficient for the aim pursued, since it allows inferring the content and effects of the elements or characteristics of the national information.

Somehow, Semantics is enabling the progress of legal techniques —so important for building European legal categories— such as the concepts of the closest equivalent rights *in rem* (EU Regulation 650/2012) or closest equivalent judicial measures (Brussels I recast). Not to mention the importance of semantic fields (or data fields) for gathering similar or nearby registry terms, which could be managed to create common pivot-terms, categories of information and labels.

From another point of view, it seems wise to take into account that information does not always have the same goals and interests. We can distinguish territorial information, mostly focused on the physical features of the land —such as use or environmental or urban classification—, from property information, particularly related to legal status —ownership and encumbrances— regarding to a particular plot or piece of land, that is to say, intended for legal purposes as an asset of the market for sales, mortgages, etc.

2. The template

As is well known, the land registration systems can be divided into title registration systems or deed registration systems, depending on the kind of organization they have. In the first case, the connecting factor of the registry organization or information, the axis of them, will be a property or real estate. In the second one, the connecting factor will be a person (natural or legal). In this regard, all registrations related to a property can be found duly ordered in a title system, while the deed system consists of a collection of the deeds concerning to a person. The title system is based on the real folio; the deed system, on the personal folio.

This fact —registry information is organized by real folio or personal folio— leads to an initial choice in order to define any land register information system. It is difficult to be neutral in this respect. The land register interconnection project (LRI project) has not been

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neutral. From the very beginning (terms of reference) LRI opted for a land/property template, although it did not ignore the differences between both systems.

Certainly, the most extended impression is that a title registration system is likely the best option. At international level it appears so. IMOLA project involves mostly a choice of a property template for organizing registry information. It can be explained by the international overview in land registration and the influence of the LRI —the first relevant European project in land registration matters— but also by the awareness of the majority of the members of ELRA.

However, the deed systems must be taken into account. Probably a property template is not the most natural environment for them, but IMOLA also involves efforts for including them in its schema. Besides, we should not exclude the possibility of organizing information based on the person. Definitely not because sometimes, simply, it is required that information from land registers is arranged in relation with a person and it presupposes a *personal* connecting factor. It happens so in legal situations of successions or insolvency. For these purposes, we can expect to courts —or legal practitioners— require information on properties but concerning to a person, for instance the deceased in a succession or the debtor affected by an insolvency procedure.

Anyway, the use of ELRD, even intended as a property template, is not unattainable for the deed registration systems. In fact, IMOLA 2 WS1 includes a specific guideline for their adaptation.

3. The structure of the template

Once settled that ELRD should be a property template and the properties the basis or connecting factor of the information, another crucial choice appears as a second step: what should be the structure of the template?

IMOLA has opted for a structure *ABC*, quite familiar for many European land registration systems. In this regard, remarkable commonalities can be found among our systems.

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In one way or another, the structure of the registry information actually responds to same needs (judicial cooperation, suitable marketability) and becomes quite similar, particularly in the *title registration systems*[29].

Such structure is divided into three parts or sections, respectively referred to the description of the property, the ownership and finally the mortgages, burdens or other restrictions that encumber the ownership.

This structure of land register information could be called *ABC*, where Section "A" is for the property, Section "B" for the ownership and Section "C" for the mortgages and other encumbrances.

Of course, there may be in these systems either other types of Sections or subdivisions, or other ways to denominate the Sections, or variations among them. Yet, from the IMOLA and ELRN perspectives, the structure ABC seems to be an acceptable *minimum common denominator* for the structure of the template of a ELRD. In IMOLA project, Sections "A", "B" and "C" are intended as Sections or Parts named respectively as "Description of property", "Proprietorship" and "Encumbrances".

Certainly, title registration systems are comfortable in an ABC schema or structure. There are also deed registration systems where it could be applied in some way. In any case, the *ABC* structure —not exclusive to European systems— may be considered a starting point for supporting the exchange of land registry information across Europe, at least with

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29 The title system operates on the principle of "title by registration" (granting a high indefeasibility of a registered ownership), tends to keep continuity of registration (chain of title) and is based on three principles: *Mirror principle* – the register (Certificate of Title) reflects (mirrors) accurately the legal status of the properties. *Curtain principle* – it is not necessary to go behind the Certificate of Title as it contains all the information about the title, ownership need not be proved by long complicated documents or procedures. *Indemnity principle* – provides for compensation of loss caused by errors. Classical explanations of title systems were given by *Ruoff, Theodore B.F. (An Englishman looks at the Torrens system (1957).*

respect to the title registration systems and provided that we do not forget the specifics of the deed systems.

4. The parts of the template

Once exposed this tripartite structure of information, it seems to be useful to add some explanations related to their main elements, properties, owners and encumbrances.

a. Part A: information related to properties (the object)

1. The importance of the connecting factor

Both registration systems, title system and deed system, are organized and based on land register units (hereinafter referred as *LR Units*). *LR Units* may be understood as all properties or entities with individual register and/or LR number or title number assigned in accordance with each Land Register system.

This definition is quite abstract, given that it does not prejudge whether the object is a property or a person and could be acceptable for both systems because it is formal and works regardless of the nature of the "unit".

That said, it is supposed that we should focus on a land/property template. In this respect, the meaning of Land Register Unit, LR Unit should be broad enough to cover any kind of entity or reality which has a specific registration number in any European land register system. A European overview shows definitely that there are diverse land register units or entities which in accordance with the legislations of the Member States may have a specific or individual register and/or title number so that each of them has assigned a specific folio (*real folio*) for the successive registrations or records which make up their registry history, and consequently provide information based on it.

Most of the Land Register systems show that a plot of land is the "unit" or "object" of registration. This plot of land could be rural or urban, it may have a construction or not, and it may also be defined by a map, or not. Now, in the Member States where there is a

cadastre, the properties or plots may coincide with a cadastral parcel or not, once that Cadastre and Land Registry could have different legal purposes (Cadastre has fiscal goals whereas Land Registries operate as the legal basis for ensuring the legal status of ownership and other legal rights over land). That is why the choice of considering exclusively or mainly the cadastral parcel as object of registration neither is realistic nor feasible, we would opt for a connecting factor too restricted in advance and it would lead to the consequence of excluding from the scope a significant part of the properties or registry entities. For the sake of a feasible system, the priority should be that information on the properties has to do with the interest of the parties, the properties considered as marketable objects or units for legal traffic (for sale, mortgage…), rather than administrative units, cadastral parcels, which often do not equal properties (dissimilarities in boundaries, size, etc.).

Mostly, but not only from the perspective of the *title systems*, we may distinguish different kinds of properties that work as land register units to be treated separately. An attempt to rank all this diversity would be the following.

1. *Properties*

In principle there are many types of properties, plots, pieces of land, buildings, building sites. Likely, we could deepen classifications according to their nature, but it requires further analyses and the idea is that property or plot has a rather broad and flexible meaning.

Properties once registered have generally a number or ID, which may coincide with cadastral ID or not, or not have cadastral ID at all. The properties sometimes have even got both (cadastral ID or fiscal number and property ID or title number).

2. *Cadastral parcel*

When plots are included in a public or official survey for purposes of tax effects or territorial mapping, they become cadastral parcels. The cooperation or participation of the private owners in the public surveys is uneven across Europe. There are cases in which

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the role of the owners seems irrelevant in order to describe the parcels or, in any case, less relevant as the role of the surveyors.

Cadastral approach is not the same across Europe. In some land register systems —not many— the law imposes the principle of conclusive boundaries, so that there would be only one object for the deeds or contracts and there would not be differences between parcels and properties, theoretically. In others, the corresponding cadastral parcel may be used for their private interest in an indirect way, laying down the boundaries on it. Hence, differences between legal boundaries and cadastral boundaries are admitted and taken into account. However, generally there are frequent divergences between properties and cadastral parcels, this is to say, the property considered as marketable object does not coincide with the cadastral parcel to which it is related to.

Anyway, cadastral parcels also appear as units. In other words, insofar as there are systems in which they are, they should also be considered as a class —subclass or subtype— of LR unit. As such, it can be expected that they have an ID or cadastral ID or reference for each one. But in the event that the parties define the boundaries on the ID the object of the deed or contract does not equal the unit. Nevertheless, in some systems definitely cadastral parcels are cadastral units but not land register units, which have their own land register ID.

3. *Apartments or flats*

Ownership of apartments is very important from the social and economic point of view (the object of transactions is often apartments) and probably the most common kind of ownership for European citizens. "Prevalence of flats" has just been stressed by a report for the European Parliament that includes statistics about the high average of European population accommodated in flats and also the high number of registered units per million population in the EU[30]. Likely this fact, and how important this kind of property is, should not need further explanation.

30 "*Cross border acquisitions of residential property in Europe*" *(Directorate General for Internal Policies Policy Department C: Citizens' Rights and Constitutional Affairs).*

Hence logical registry responses there could be expected in this sense. It is certainly widespread the fact that apartments or flats of buildings or blocks have independent registers or title numbers, reflecting the often-called *horizontal ownership*. As a matter of fact, a majority of the land register systems open a *real folio* for every flat endowing them with a title number[31]. Whereupon they are able to be sold or mortgaged (or embargoed by judicial decisions) in an independent or separate way, which neither interferes with the other condominium flats nor the ownership of the communal elements. So, this type of registry organization facilitates to a great extent a fluent marketability and legal traffic of this property and also transparency.

From the perspective of land registration the first step is to determine whether flats or apartments are considered property units or not, as seen above, and likely the second one is dealing with the specifics of the identification and description of this type of property, and within the relationship between the apartment and the block and location in it (storey or floor) or main elements of the condominium (share or number). European legislations that rule horizontal ownership usually deal with the legal situation of the apartments with respect to the block, identifying the apartments as units and indicating their shares in relation with the communal elements of the building or block. It would also seem useful to incorporate within the description of the apartment —once considered a marketable and specific type of property— some more information about the storey where they are located or a basic description of the layout or distribution. Semantics and technique of formats have also been revealed useful here.

Condominiums where apartments or flats lie are generally governed by statutes. But ELRN has found that information about them is not usually easy or direct. It seems worth working on this aspect in order to improve transparency for the sake of buyers or creditors, but it is beyond the scope of IMOLA (and ELRN) at the moment.

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http://www.europarl.europa.eu/RegData/etudes/STUD/2016/556936/IPOL_STU(2016)556936_EN.pdf

Page 93 and the following. See tables 19 and 20.

31 See ELRN fact sheet on Condominium: http://www.elra.eu/network/7147-2/

Apparently, apartments or flats do not have an easy connection with the cadastre. In the land register systems in which they are considered units or objects, having their own registry history, they have an individual register. On the contrary, it is not so frequent that apartments have an individual cadastral number, but that the reference or cadastral number is related to the building they belong to.

4. *Special properties*

There are special properties, often economically valuable, whose description or identification is complex because they are fragmented or discontinuous or too large. For example, mines, pipelines, ownership of waters or underground properties. They might comprise several parcels or plots or parts of them. It may also occur that a given special property embraces land and rights of diverse nature, for example private and public. For example, a shipyard may comprise ordinary private land and an administrative concession to occupy or use a part of the public domain of the coast.

Given that they might comprise several parcels or plots or rights of different nature, maintaining unity from the point of view of the legal traffic, they should be considered as land register units and endowed with an individual register. We may even expect these special land register units to reflect the entire parcel IDs of the parcels or plots they embrace and also describe which part is included and which not.

Moreover, it appears reasonable to seek means of identification as sophisticated as possible. Probably UTM coordinates and/or mappings are particularly appropriate here.

Thus, we understand that the potential complexity of these special properties justifies a separate category.

5. *Property rights*

LR systems and law of the Member States show different cases of property rights whose status is different than usual because they are recognized with an individual register or title number. For example, leases and leasehold (mostly); time-sharing units;

administrative concessions; *profit a prendre in gross*, franchise; likely the temporary ownership after being exercised a right to *superficies*[32] on a site; etc.

For these rights/properties or rights/objects identification or description are in practical terms the right itself, defined with respect to the legislation governing them.

In this event an cadastral ID is unlikely but it is taken for granted they will have received a register number given that they have arisen from a legal fiction (treating as property what is only a real right), but this legal fiction at the same time comes from the needs or conveniences of the legal traffic.

2. The description of the property

Within the model of the title registration systems, the properties —whatever their nature— appear as the connecting factor of the information because they are the axis of the registry folio (real folio) which the information is obtained from.

INSPIRE spatial data provide a framework but not the registration data itself. First and foremost, spatial data seem to be important with respect to the description of the registered properties or plots but not properly with respect to their legal status, that is to say, who the owner is and which restrictions or encumbrances correspond. Ownership and rights in rem cannot be considered spatial data or date within the scope of INSPIRE considering the terms of Article 8 or the Annex of Directive 2007/2/CE

Moreover, the results of the interoperability (Article 7 Directive 2007/2/CE) would enable the collection of territorial or land-related information, so relevant to enhance the description data of the properties embraced by the area of administrative units or cadastral parcels defined by the Member States.

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[32] The often-mentioned study on *Cross Border acquisitions* points out that "elsewhere on the continent most systems have long recognized some form of superficies, giving rights in the building but not in the land" (Page 82). Although the right of superficies normally in a first stage certainly gives a real right in land that encumbers it as any other right *in rem*. Once it is exercised on the land when it grants a real right —quite similar to a temporary ownership— on the building.

The European Land Register systems usually rely on methods for identifying and describing the properties as objects or units for purposes of registration and information, such as title plans or literary descriptions. Unless one has an exaggerated idea about INSPIRE developments, we cannot expect spatial data to replace the national methods but complement them. Geography may facilitate land registration but does not equal it.

An overview on the Land Register systems on this aspect, the description of their properties as object or units of registration and information, shows a significant diversity with respect to what land register units may be, what effects they may have, what their organization is like and what criteria of identification of description are observed. So, a pan-European perspective should take this into account firstly.

Land register systems use different methods to depict properties or pieces of land, more or less exhaustively, based on literary descriptions or backed by mapping. Although we may find commonalities, every system seems to have its preferences.

However, the main point, prior to a suitable description of their physical features, should be the identification of the properties so that they become an independent and unique object. In that sense, we could recognize at least two elements generally used for this purpose, which may be used as minimum common denominators of the LR units: *register number or ID* and *location*.

1. ID or individual register number or title number or identifier of each LR unit means its individuality and existence according to the organization and legislation under whose scope it was created.

2. Location, even geo location. It appears also as a minimum physical feature. ISA core vocabularies (*core location*) are useful in this respect. Boundaries or size of a given property may be debatable but as far as it is identifiable, the location of a property is much less debatable than those.

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A register number or identifier and the location are necessary, but it is useful to offer more information about the description of the properties. So, it would be the turn of the boundaries. It is inevitable to take into account a classical topic of discussions about land registration: the divergence between legal boundaries (fixed by mutual consent of the owners of adjoining properties or by means of an action at law) and cadastral mapping (as a result of the mapping performed by cadastres' surveyors).

Attempts to make cadastral boundaries prevail on legal boundaries have been considered abusive and to infringe on human rights (e.g. case Devecioglu versus Turkey)[33]. Apart from boundaries, other criteria will be handled. In any case, the method of the formants is fit to facilitate the comprehension. Description of properties in general —in addition to ID (LR unit number) and location— is enhanced when other descriptive data can be added such as nature (building, building site, plot…), land use, even size (metric system preferably) although boundaries should prevail in any case if they have been laid down by mutual consent of the parties and faithfully. Apartments or flats as land register units have specific aspects (relevant information about postal address of the building, storey or floor, housing use or different use, size and other data suitable for the relationship between the apartment and the block where it is located, such as share or average in the condominium and a reference to the title number or register ID of the building). Besides we must not forget that in the condominium there are also rights with respect to the communal elements, including the building site, albeit they are different types of properties or rights and involve different requirements for description. Due to their particular complexity, special properties often require exhaustive even technical descriptions that give a precise idea about them. In the event of uncommon extension or surface (a highway or pipeline), it would be appropriate to indicate their UTM coordinates and use maps as main data of description, so that their identification is able to be made on cartographic maps. For those special property rights which become LR Units, *nomen iuris* seems very relevant, but in this event the requirements of description are reduced to the right itself.

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[33] Decision European Court of Human Rights (Second section, Application no. 17203/03*)* —13 November 2008— stated that there had been "a violation of Article 1 of Protocol No. 1 to the Convention."

Certainly, the method of the formants could be useful to extract the legal characteristics of the information elements of each system so that they are understandable to others.

Definitely, territorial information can be provided in a global way, the property along with others (even deploying maps), whereas information about the legal status of a property demands to be focused individually on an individual property, precisely that which is the object of interest for a sale or a mortgage and from which we want to know its owner and the charges or mortgages that it has.

b. Part B: information related to owners (the subject)

In the structure of land register information that conventionally we call ABC, part of section B is devoted to including relevant data about the proprietorship. The paradigmatic kind of proprietorship is ownership but there are other main rights on the basis of which the registration information is structured, as discussed below. We may assume that the type of main right will be identified by the registry information. In any case, the following explanations are valid for any kind of proprietorship.

Information on who owns a property is crucial for the most elementary reasons. A land register system should unmistakably indicate who the owner of the properties is, object of the information. This is the main requirement. No registry information would be valid if it did not identify the right owner. However, knowing who the owner is appears a necessary but not a sufficient condition. Apart from the identity of the owner, efficient land registry information should also provide other relevant indications on the proprietorship such as those which qualify the extent of the title of the owner or the existence or absence of restrictions on his/her person.

Although this type of information on personal restrictions of the owner is not always available —it depends on the organization of every land register system—, the information will be inconsistent if it does not include indications like this it if it were available.

So, this would be that information about proprietorship that ELRD should include:

1. Kind of proprietorship or main right (ownership or other primary right)
2. Data of the owners (for purposes of an accurate identification). For instance, about a legal person: 1. Name (including kind of company). 2. ID. 3. Business address.
3. Entitlement conceived as the act or contract which is the basis of an acquisition. Entitlement should be included —as long as it were available—, once that sometimes legal protection depends on the fact that the acquisition was made for a valuable consideration or not.
4. Deed of acquisition (the document which led to registration, for instance a judgment or a notarial deed)
5. Restrictions that in a direct or indirect way may affect the ownership. A sale may be rendered useless if a legal restriction on the transferor, or on the property sold, has been ignored. There are different kind of restrictions: restrictions on capacity of the registered owner or legal inabilities, restrictions due to bankruptcy or insolvency; restrictions on owner's powers to disposal established by judiciary orders 8even injunctions). In order to find out the extension of such restrictions on the person of the owner or his/her entitlement, method of formants can be useful. Making suitable questions about a given restriction, we could get an idea of the legal effects of a registered restriction. For instance: Does it involve a limitation of disposal? Does it involve a loss of the possession? Does it imply an attachment to the result of a legal procedure?
6. Conditions and deadlines which can affect the entitlement: condition antecedent or suspensive or condition subsequent or resolutory.

c. Part C: information related to mortgages and encumbrances

Assuming the structure of registry information conventionally called *ABC,* its part of section C would be devoted to collecting all type of charges, burdens or restrictions encumbering the property or LR Unit, which is the "object" or connecting factor, axis of Section "A".

Legal diversity is huge in this scope across Europe. Property rights, charges or restrictions on properties —or other LR Units— have varied nature, origin and classifications and are

rooted in the legal traditions of the European countries. Certainly, there are cases of rights in rem shared by the different legislations, even to some extent closely equivalent judiciary restrictions in common, but differences are meaningful in any case.

This approach will include the main cases of potential elements of information of Section C. It must be admitted that this classification may seem somewhat generic. In the absence of further detailed study, the extreme legal diversity, so many particularities, do not allow us to be more specific without forcing the results or leaving out a part of the encumbrances or restrictions.

1. **Mortgages**

Mortgages in European systems can be collateral or not, and can even appear disconnected from the loan, but their importance is maximum for the legal traffic. One can expect all registry information to include this issue in a marked way.

In turn, information on mortgages should be as complete as possible, identifying its main elements. At this point, information is uneven because several factors, such as the nature of the mortgage in a given national property law or the availability of the data of the organization of a given land register system are relevant.

We may discuss what aspects of mortgages are adequate to provide an idea of their extent, but the land register systems do not coincide with them. Likely some main data on the mortgages are:

- Legal basis of the obligation guaranteed (e.g. a loan or other kind of obligation);
- sum or sums of responsibility guaranteed by the mortgage (some systems provide information distinguishing the amount corresponding to the main debt and the one to interest rates, or other amounts also guaranteed that are different from those, while some systems provide information on a global amount of the debts covered by the mortgage without distinguishing the different items guaranteed, others indicate nothing in this respect);
- duration of the mortgage, period of time it is in force;

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- Identification of the parties: suitable personal data about mortgagee/mortgagor; creditor or moneylender and borrower or debtor…

However, there are land register systems that do not even regard some of these data as a part of the information on the mortgages and others in which they are not available, although considered part of the ordinary content of the mortgages. So, flexibility should be paramount, and it would be wise to study the property law particularly in these cases.

Another relevant aspect of mortgages is their rank, relevant to know the legal preference, to put it this way, the hierarchy or priority of a mortgage with respect to the other burdens encumbering a given property. Information should allow us to know what the rank is between mortgages or between a mortgage and other registered rights in rem. This item of information seems crucial. Errors or ignorance about this potentially jeopardise the interests of the creditors. A sort of registry information including several mortgages (or other burdens, which may also be aggressive for a current ownership) without providing at a time enough information about their rank, would definitely be misleading.

Rank or legal preference of a given mortgage over other mortgages or rights will often come from the date of registration, but it may be modified by agreements or judicial alterations of it in accordance with each one of the LR legislations. If agreements existed, registry information should also cover or consider them to provide an accurate idea about legal preference. In any case, it seems unnecessary to insist more on this point, rank of mortgages is particularly regarded as relevant information for legal purposes and of the legal traffic of transactions.

2. **Property rights**

Property rights are also quite heterogeneous according to the systems. In the European systems, the more frequently quoted property rights registered may be the following. They would form part of this second box of Section C.

- *Servitudes or easements*

Servitudes or easements are widespread across Europe. First and foremost, they usually have a (shared) legal nature of rights in rem or property rights. Therefore, the suitable place for them within a structure ABC would be section "C", as a part of the real rights encumbering a given property.

However, sometimes they are taken to the description of the property (section A), appearing as limitations of such property. It happens particularly in the event that the servitudes are due to public interests.

- *Usufruct*

Usufruct is also quite widespread (although we should not forget that in Britain this right does not exist), albeit a broad casuistry may arise because its legal content varies depending on the national property law systems. It seems adequate to include it in the part of the information devoted to publishing encumbrances that we call conventionally section "C".

The nature of right *in rem* is indisputable; however, since usufruct is considered the part that is missing on the bare ownership, it is not unlikely or absolutely inadequate that usufruct appears in section "B" linked to a bare ownership given.

- *Use and habitation*

There is a variety of rights of use which fall on a dwelling or rooms within it, often intended for family needs, even linked with effects of the marriage. In principle they should be considered rights opposable to third parties in the broadest sense and included in the part of encumbrances (Section "C"), because in any case this involves limitations to the ownership.

- *Superficies*

The Study on *Cross Border Acquisitions* indicates that "elsewhere on the continent most systems have long recognized some form of superficies, giving rights in the building but

not in the land"[34]. The right of superficies normally in a first stage certainly grants a real right in land that encumbers it as any other right *in rem*. Once it is exercised on the land is when it gives a real right —quite similar to a temporary ownership— on the building.

So, it is to be expected that the creation of the right of superficies leads to a registration of it as a real right or right *in rem*, and consequently appropriate for the part of the information devoted to publishing encumbrances that we call conventionally section "C". Later, once exercised, the status of this right changes and may lead to a sort of a new main right, a temporary ownership that would lead to a new real folio and a new title or register number, of course marketable, therefore becoming a new object (to be considered for purposes of description of properties in section "A" and with repercussions on the part of information intended for proprietorship or main rights, conventionally called section "B".

For the sake of transparency, it seems relevant to clarify the possible stages of the superficies and probably to keep the relationship between all the sections of the information involved by exercising this real right.

- *Leasehold or lease*

Leaseholds or leases are usually registered when they are long leaseholds or at least they are granted for a period not too short. In principle they should be considered a right opposable to third parties, regardless of their nature of real right or not and, insofar as entered in land registers, included in the part of information intended for encumbrances (section "C".

However, leasehold may be the main right of registry information given that it may lead to (as in England and Wales) a marketable title in the event of long leaseholds, recognized in all European systems (according to the Study "*Cross border acquisitions of residential property in Europe*"[35]). So, leaseholds may be independent titles and marketable and

34 Page 82.

35 Page 82 (5.3.2.)

consequently it is logical for them to be considered as main rights in the so-called section "B".

- *Other rights in rem*

Across Europe there are other types of real rights, like diverse classes of real encumbrances, or emphyteusis or less common ones although potentially object of information. In some systems *trusts* could be considered as such.

3. **Judicial restrictions**

Given their decisive influence on the legal status of the properties, it is beyond any doubt that judicial restrictions established by judgements should be included in land register information, at least as long as they are available.

Of course, there might be some conceptual problems because judicial restrictions on the properties may come from legal actions either on the property or on the person of the owners. The latter theoretically would lack the effect *in rem* but in practice land registers should provide information about all types of restrictions insofar as available.

Regardless of the issues of the nature of actions that have caused registrations by means of judgements, from the strict perspective of the land registration, there are certain commonalities that in some way enable the suggestion of a classification of judicial restrictions or charges in their registry aspect as ***notices*** or ***caveats*** (LR entries made by virtue of judicial orders). ELRN has agreed a proposal of taxonomy trying to be useful for judicial cooperation. The types of registry *notices* would be the following:

1. Notices involving attachment or seizure of a property due to a court proceeding in which the fulfilment of debts or obligations is pursued (*notices of seizure/ attachment*);
2. Notices for purposes of claims about ownership of rights *in rem* about properties (*notices of claims or dispute*);

  ISBN: 978-2-9602448-0-9

3. Notices for purposes of freezing ownership or banning the disposal of the property (*notices of prohibition or limitation of the authority of disposal*);
4. Notices warning about the foreclosure or enforcement procedures affecting the property (*notices of foreclosure/enforcement*);
5. Notices indicating the confiscation or forfeiture of the property (*notices of forfeiture* or *confiscation*)
6. Notices warning about aspects of the proceedings of insolvency or bankruptcy (*notices of insolvency*).

This is a list of usual or more common *notices*, but not exhaustive, once that other types of notices/judicial orders can be registered or involve other effects. Moreover, it is the result of the use of formants that allow us to identify effects and interests of each one.

The usefulness of this classification may be to facilitate the implementation of guidelines of recent European legislation leaning towards the application of "***closest equivalent judiciary measures***", given that national legislations have measures with different proceedings but often with similar or equivalent purpose.

4. Other restrictions

The category of "other restrictions" is potentially very heterogeneous and a challenge for future developments of the structure of the template. It is aimed at

- Rights or interests affecting properties but either not included in previous categories or of controversial or indefinite nature.
- All kinds of administrative charges or limitations over properties. Maybe fiscal burdens among them (in this respect, we can observe very different legal answers of the European legislations: remarks, notices, real encumbrances, legal mortgages…).
- Privileges over the properties due to different legal sources.

  ISBN: 978-2-9602448-0-9

So, although allocating a part free seems advisable —even inevitable—, for the sake of transparency it would be important to continue building subcategories or subdivisions. Better than a hotchpotch in any case.

It would certainly be relevant to find criteria to organize encumbrances within the means of information (excerpts, certificates) and it seems clear that there is also a widespread idea about what registry rank or priority is, based on the rule of date of registration as a common criterion to set it.

Rank or priority amongst registered encumbrances appears a relevant question to lay down the legal status of the properties, and it would be very useful if land register systems provided information about this particular issue, allowing us to find out the paramount burdens as easily as possible. In several LR systems regular information indicates what the mortgage rank is, as a general rule or upon request.

Date of registration appears as the most usual way of finding out the preference of registered real rights or burdens, but it is important to warn about the possible changes in priority rank by means of agreements of the parties or as a result of judicial procedures. At this stage, date of registration is the only viable principle of order for organizing information on encumbrances.

Finally, information should be open to other relevant information, such as might be on pending documents, i.e., those deeds that have come to the registration of the property but have not yet registered. Unquestionably, such information is important to users of the land registries, who can expect the legal status of the property of interest to change as soon as the pending document is recorded.

Moreover, it is not necessary to stress the importance of legal warnings, and in particular those on data policy. Also, disclaimers play an important role in the information because they allow the user to know the exact legal value of the information provided.

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  ISBN: 978-2-9602448-0-9

Gabriel Alonso

"IMOLA: building an international land registration terminology"

1. Preliminary remarks: an understandable cross border land registry information

The cross border land register information (hereinafter LRI) only becomes useful when is properly understood, so citizens and authorities can make an effective use of it, and for this to happen an explanation about the meaning and legal value of its content must be given together with the information itself.

Previous experiences in Europe had shown that even when interconnection between the Land register's online publicity services is not only possible but relatively easy, the lack of a proper understanding of the legal meaning of the information deprives it from any practical use. In fact, not even a simple glossary of terms is enough to put the land registry information in action, in order to produce a real cross border economic exchange in the field of immovable property.[36]Nowadays this traffic is mostly domestic and conducted by local experts.

Moreover, citizens need not only to understand the meaning of the information but also its degree of reliance, the accuracy of legal information. Obviously this is closely linked to the nature and principles underpinning each land registration system. Hence, in a typical positive effect's land registry, the title systems, the information provided is entirely reliable, since the *bona fides* effects confers protection to any third party in good faith who enters in a legal relation with the holder of the right in the land registry, while in other type of land registration systems, typically the deeds systems, the information should have to be checked and completed with further investigations in order to achieve certain degree of accuracy.

[36]**The European Land Information Service (EULIS)**
https://joinup.ec.europa.eu/solution/european-land-information-service-eulis/about

  ISBN: 978-2-9602448-0-9

Although land registries systems were created to produce transparency in the immovable market by delivering legal certainty, they comply with this task in different manner depending on the role given in each national legal system, so to identify the specific land registry effects in each country and compare them with the ones produced by the others becomes a very sensitive but crucial issue, especially when the outcome from all of them are placed in a single point of access for citizens. The legal certainty delivered by the European land registration systems is different, and this is also another issue which must be tackled with in a European interconnection scheme.

The problem of a proper understanding of land registry information was addressed by the Commission implementing study of land registries interconnection,[37] by considering a uniform responses a necessary tool to deliver an effective land information system, so it facilitates adequate identification of the relevant information and translation issues.

2. IMOLA: a contribution of the European land registers to the European space of justice

IMOLA, a research Project developed by ELRA (European Land Registry Association) as a contribution to the EU registers interconnection action, represents the attempt of European land registry organizations to produce a unified and understandable cross border LR information model.

How has the IMOLA Project dealt with those constraints in order to produce a single and effective response from the MS? A single and harmonized land information document.
The leading principles of the Project has been: first, the respect to national system's legal rules and principles, the legal value of the document will be determined by each national organization, (whether the document becomes an official document with binding and legal value or just a document to circulate together with the official information, will be

[37]Land registry Interconnection Feasibility and Implemention study. EU Commission DG Justice Unit B2 https://publications.europa.eu/en/publication-detail/-/publication/831afdff-311c-4177-8d53-1d8d634b1d10

for each national land registry to decide); second, the bottom-up method, from the more generic to the more specific, so we have built only upon what is common for most systems, the minimum common denominator, and by doing so we are conscious we had lost preciseness in the definition of the concepts we have created in favor of a common outcome; and a third principle is the use of a non-dogmatic but a practical approach, we faced this comparative study looking at the LRI from the different MS having in mind their consequences and practical effects rather than their conceptual grounds and theoretical principles.

I'll try to briefly present in this article the main steps and basic rules we have developed to produce a uniform and understandable response, and by doing so we present the very first attempt to develop an international common language in the field of land registration.

3. The (formal) harmonized land registry information.

The uniform response from the land registries in Europe is the ELRD (European land registry document). The document is divided in three basic sections, following the scheme of the German Grundbuch. Section A describes the object, the immovable property, section B identifies the owner, and section C describes the burdens, restrictions, securities and other limited rights converging on the same immovable. The three sections are preceded by a front page, what we called the landing page, which will explain the nature and value of the document, since as we said before while some MS are ready to adapt their official documents to this scheme so the information delivered through this European form (ELRD) could be official, other are still against this form to produce same legal effects as the official certified copies of the registry, so the ELRD document will only complement the official one.

The structure is not always so simple or easy to settle, so the document is made up of rules agreed between the land registry's experts in order to allocate each piece of information. Let see an example. An easement, the right of way, for instance, burdens someone's immovable in favor of another, so in principle that piece of information should be included in section C. However, this depends on the point of view we consider. So from the view point of the dominant estate, the one which enjoys the right to way through

  ISBN: 978-2-9602448-0-9

another plot of land, this right is a quality of the parcel, so for this dominant estate the right to way will be place in section A as part of the description; but on the contrary if the estate is the servant, the one burdened with the easement, then it would be placed as a limited property right in section C.

Another example is the way we have dealt with the restrictions, very common in some land registries; we made a distinction, we called the personal restrictions those imposed directly to the proprietor, which would be listed in section B, since follow the proprietor's luck, meanwhile what we called objective restrictions, affecting the registered right or the immovable property irrespectively who the holder is, are located in section C.

By doing so not only we unified the location of different pieces of information, enabling an easy identification system, but it also some additional information about its nature is provided, developing in some cases an specific vocabulary to designate certain content which share those specific features that determines the allocation of the information in the document.

4. Building a common land registry vocabulary: the containers

The second step within the ELRD, and the first real step in the construction of the European land registry vocabulary, is the definition of what we had called the "containers". The containers are generic terms to name the main land registration's institutions; they are basic concepts we have created after analyzing the different legal information present in most land registries (LRs) in a specific area of each section.
These concepts are not specific legal institutions, which may vary form one MS to another, (even under the same *nomen iuris*), but are generic placeholders agreed between ELRA experts from the European land registries with the purpose to enable LRs organizations to identify where to allocate the different pieces of information.

To create this generic concept, the container should first be defined; the definition should be wide enough for all members to feel comfortable placing their registered rights in that box, but on the other hand it has to be specific enough to distinguish the right to place

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there from any other type of right recorded in the register. We used the minimum common denominator method, so we agree to include in the definition only those features shared in most land registration systems.

Let me introduce an example of a container we have produced for section B: “the title”.

1.- The title

As we ‘d said before, Section B comprises the information regarding the person, the subject, the proprietor. The nuclear information in section B is the proprietor, the person who holds the right on the immovable described in section A, however we learned from the different land Registry systems that the right of the proprietor described in section B could be not always the same. Obviously, ownership is the main right of the registered proprietor in most jurisdictions but not in all of them, in particular the common law systems do not know the civil law’s concept of ownership on land, instead they use the right of freehold which is unknown in the civil law systems. On the other hand, we learned that ownership was not always the right that links the subject to the object, since other type of rights, like a public concession, possession etc. could also create such a link in the land registry.

From that reality, researchers concluded with the need of a specific container to identify the nature of the right that links the person described in section B with the property identify in section A.

We agreed in the main common features of this right: It is a real right, usually the most comprehensive right the law grants on an object; it is the right that links the property described in section A with the person of the proprietor identified in section B it is the primary right in the Register, upon which other rights are created and registered, and finally it is a right capable of opening a real folio in the land registry.

These basic features are enough to define the container, the generic concept; they will allow to identify the right to place in the container, and is open enough to embrace all

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different type of rights under a common basic feature, the title is the strongest right of the land registry file.

Together with the definition, explanatory notes are also given, including some examples, to clarify the new concept. In the case of the concept "title", those would be as follow: "A real folio is an individual file, with its own number, opened to an specific immovable asset, where all affecting property rights are registered in chronological order. The most frequent title will be the right of ownership. However, in some jurisdiction property rights others than ownership are suitable for opening a new file in the register, that is the case of a long lease, a concession on a public domain immovable asset, a superficies right, even possession etc. What is essential is that the right to be placed in this "title" box must be the property right that opens a new folio and yet is considered a primary registered right over the immovable asset, so limited property rights can derive from it, and would be registered under the same folio."

The Word "title", then, is used in this vocabulary as a generic concept to express the right that the proprietor holds in the land registry unit and which is recognized by the land register as the main right that creates a new file.

Only one remaining thing, is to find a proper name for this container/generic concept. In the example we are presenting, different names were considered: main registered right (to emphasize its most important feature), primary right (following terminology adopted by scholars[38]. By doing so we underline the basic features of the concept, it is a property right, it is the main right in the registry file, it is the primary right of the propietor of the asset A. The resto f property rights and situations concerning the estate, derived or are linked to this main or primary right.

We also considered to use the word "title", since it is a notion very much linked to the land registration systems. Title, from the land registration perspective, refers the right or the power recognized by the law to a person, the proprietor, on an object, the immovable

[38] Cases, Materials and Text on Property Law (Ius Commune Casebooks for the Common Law of Europe) (Inglés) Ed Oxford and Portland, Oregon 23 jul 2012, Editors Sjef van Erp, Bram Akkermans.

asset, which is published and protected by the land registry as the main property right in the register. In some jurisdictions, where registration is part of the acquisition process, the title derives directly from the registration, while in others registration confers the *erga omnes* effect to the right, which is a basic feature when talking about a property right.

The concept of title must be separated from other similar notions, like instrument or entitlement. Title has also been used in some jurisdictions to designate the document where legal acts, declarations, decisions or contracts or legal agreements are written. In these jurisdictions, the word title is used to designate the instrument, the document, which is presented in the land registry and which directly backs the new entry in the land registry. But it must not be confused with the right itself. We have used the word "instrument" to designate the document, the deed or the authentic decision that modifies the Registry.

2.- Entitlement

From another perspective, title must also be identified as a different concept from entitlement. Although according to the Oxford dictionary of law entitlement means "The official right to have or to do something.", we had moved away from this meaning and for the purpose of the template, we agreed to use the word entitlement to designate not the right vested to the person but the legal act, decision or disposition that empowers him/her to the right, that is the legal ground that produces the acquisition of ownership or any other property right.

The legal ground of the registered right is not always reflected in the land books, and even it has different consideration depending on whether the civil and registration system is a casual or abstract one. It could be just an abstract consent expressed by the previous owner in order to modify the registry, or it could be the expression of the legal act,(contract of sale, succession…), by means of which the right has been acquired. Even more, some legal systems, although causal systems, demand a specific document and formalities for the transmission of the property right on land, the conveyance act, which is different from the contract of sale.

  ISBN: 978-2-9602448-0-9

From land registry perspective, entitlement could be in some jurisdictions a crucial issue to determine the degree of protection conferred by the law to the registered right, since in most title systems the bona fides effect, the assumption iuris et the iure derived from the land register publicity that the right belongs to the registered proprietor, only applies to those acquisitions for valuable consideration, being the most common the contract of sale and purchase.

3.- Class of title

A last issue related to the word *title* is referred to other concepts derived from or directly related to it, like the concept of "class of title", which is used in some jurisdictions with different kinds of registration's title.

Depending on the decision of the registrar after the assessment of the applicant's right and its legal grounds, a registration title is granted. But in some systems the title could be of different nature, so different types of titles are granted by the land registry. Each different class of registration title is given different effects and different degree of protection in the land registry by disposition of law.

This decision of the registrar is based on the quality of the title, its main features and those requirements the title meets or lacks. Generally, where title is fully investigated on first registration, absolute title is awarded which is the ultimate registration, and the majority of titles fall into this category. The other different classes of title vary from one land registration system to another, but in general we could acknowledge as most frequent the following: if the title has been established only for a limited period of time, or it is subject to certain restrictions, the law of the registry confers a qualified or provisional title; and if the applicant cannot prove a concrete title but only a pacific possession, then he would be granted with a possessory title in some jurisdictions. The land registration law establishes rules enabling the conversion of a limited registration title into a an absolute registration title after complying with certain requirements, being the pass of time in pacific possession, one of them.

5. Building a common land registration language: the pivot terms

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Following the bottom up approach, the third step to complete this IMOLA vocabulary, is to develop the content of each container with more specific concepts: the pivot terms, which I'll briefly present.

In the same manner that each section of the document is presented through different containers, each container introduces a second level of a more concrete concepts, directly related to a certain container since they share the common features of the container but they present additional ones which make them more specific. We call them "pivot terms", since having in mind the national concepts entered in the land register of each MS, they allow to create links between them. These pivot terms are spread enough along European legal systems to be represented in this vocabulary.

In the example we are presenting, the container title includes the following pivot terms: ownership, freehold, long term lease, concession, possession, temporal ownership. As we can see, these pivot terms are now very much close to what we called the "national concepts", which are those national rights and legal institutions published by each national land registry (the content of LRI).

Even when they are quite specific, the pivot terms don't belong to any concrete legal system, since although they are referred to legal rights and institutions existing in a significant number of them, they still present different details and features in each one, so in the project these pivot terms are defined in a neutral manner by compiling the common features they share in most jurisdictions. As we said the definitions of these specific concepts do not aim at reflecting concrete legal institutions of any national system, which might present specific features.

The purpose of these pivot terms is to compare and create relations between different national rights, the national concepts (the LRI), which are linked by means of placing them besides one of these pivot terms, so comparison between different national concepts becomes possible.

Obviously, the national concepts will present special features and differences with the definition contained in the pivot terms, but we tackled that problem using a method

  ISBN: 978-2-9602448-0-9

inspired in professor Rodolfo Sacco's Theory of the formants[39]. We produced a set of questions, specifics for each pivot term, to identify the main effects and features of the legal solution to be placed in each pivot term, in order to allow each MS to not only include the national definition, but also make clear the particular effects derived from it.

6. Conclusion

In the field of land registration, where accuracy is a prerequisite of legal certainty, the LRI document must reflect with exactness the content of the Register. To achieve this target there are no shortcuts, a single and harmonized form to present the LRI entails a huge comparative study of the European land register's content, rules and effects, this is IMOLA.

The research project has been performed by registrars, scholars and other legal professionals who have been working on it during the past four years. From the very first stages we realized that we needed a common and specific vocabulary, as an essential tool to progress in the project. This vocabulary is based on the agreements we reached in the different sections of the project. We are conscious that it is only a very first step, that it likely shall have to be refined and enlarged, but IMOLA's vocabulary represents a first attempt to create a common international land registration terminology.

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[39] Rodolfo Sacco, Legal Formants: a Dynamic Approach to Comparative Law https://academic.oup.com/ajcl/article-abstract/39/1/1/2580938?redirectedFrom=fulltext

Mihai Taus

"IMOLA: driving fast and safe to land registries interconnection"

National land registries are deeply rooted in the national legal environment and that's because their origins dates back to the time when humanity was consolidating national boundaries, it was the time when the accent has to be put on instruments desired to strengthen the relations between different national institutions in order to ensure a strong and functional identity of the state. Of course, examples of best practice were welcome (see the evolution of Torrens systems), but the land registry was always developed in alignment with the national legal framework, cross-border issues being usually ignored. A recent study made by ELRA highlights the applicability of the lex rei sitae principle in all European and registry systems. Even European legislation is elaborated having in mind this idea, land registry issues being out of the scope of regulations and left in the hands of national legislator. This is correct, since land registry is an expression of the state authority. However, people's increased freedom of movement, new technologies and new markets requires changes in approaching to the land registry. National boundaries are less and less relevant from the real estate transactions perspective. Now, land registry Information has to be available, understandable and reliable not only in a national environment, but also global.

We are living in a changing world. New technologies arrive, information is created, structured and manipulated at a speed and a volume never imagined before, human legal relations complexity increases and there is a need to cover areas which weren't spotted in the past. Increased mobility of the people led to increased number of cross-border transactions. Land registry information's value increase due to its versatility, actuality and completeness. As a consequence, all above, there is a need for new legal and technical tools to address the issues arouse by this new challenging environment.

In 2009, during one of the General Assembly of ELRA, hasted in Brussels, it was the first time when the concept of a "European land book certificate" was mentioned. Ten years later we already have the second project regarding the visionary interoperability model

  ISBN: 978-2-9602448-0-9

for land administration - IMOLA. The project has a button up approach and is based on the work done by work done by land registry experts. They are contact points of European Land Registrars Network who deal with land registry issues on their daily duties, therefor the information Step by step, IMOLA evolved from a common template for national land registries to a complex instrument for interconnection of the land registries, preserving the full respect for the national legislations.

In the first stage, the main issue was to build a structure of land registry information that fits to all national systems which is named European Land Registry Document - ELRD. ELRD represents an A, B, C structure which fits to all land registry systems in Europe. Common types of information were figured out and for specific information there are optional fields available. Even deed systems and use the IMOLA template.

The ELRD language is English. Therefor a special attention has to be granted to the translations of the national legal terms. That led to a different issue: national concepts. For a better understanding of the land registry, terms used in the ELRD has to be defined and explained in accordance with their native legal environment - the national system they belong to. Besides, answers to the questionnaires addressed to the members of ELRN and the discussions we had during seminars proved that although identical as legal term translation some information has different legal substance or legal effect. In such circumstances the risk of misleading information could affect the value of the ELRD.

When IMOLA I represent a technical restructure of information - an interface through which the interconnection of land registries has to operate, IMOLA II represent an important leap due to the added value represented by the semantic information. Moreover, IMOLA 2 "scanned" national land registry systems and mapped all the concepts. IMOLA is not only a common template for national land registries in Europe and a translation of the legal terms used in this field. For the first time, there is a conceptual and structural translation which ensure a real and efficient addressability to national land registries.

IMOLA II is a follow up project, based on European Land Registry Document –ELRD, aiming to make more understandable Land Registry Information provided by national systems. The interoperability of juridical metadata is the key issue. In order to get it, the

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technologies and the architecture of semantic web aid the creation of ontologies, what assures the reuse of LR information, not only by persons but also by machines using specific applications.

Ontologies were developed according to an incremental methodology which envisaged the following steps:

- Definition of the dominium affected,
- Developing of the glossary using Natural Language Techniques which should have to include the list of concepts and their accurate description, assembling a controlled vocabulary that constitutes the juridical background of the ontology.
- Include relationships, to set up a thesaurus to characterize and to relate the concepts and terms - included on the glossary, assigning labels to these conceptual relationships.

Controlled vocabularies are essential elements to ensure correct understanding and for achieving the semantic repository. IMOLA II uses a vocabulary which is aligned with ISA vocabulary, having a high rate of matching elements.

An important tool used to manage the ontologies is the Knowledge Manager, an instrument developed especially for this project. The scope of the Knowledge manager is to integrate national concepts and relate them with IMOLA's concept. It also manages hierarchical classifications in taxonomic rank.

The use of Knowledge Management was not an easy task for the contact points, because it requires adaptation from the legal area to technical area. However, the development of the Knowledge manager took into consideration that the input will come from people having a legal background and it was adapted for their requirements. All linguistic issues were managed: synonyms, duplications etc. For checking the accuracy of the concepts both native language and English are available. Explanatory fields were built in order to allow detailed explanation where necessary.

In order to ensure the best understanding of how to use the knowledge manager there were 5 training sessions. The contacts points benefit of explanatory materials and during

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the trainings there were examples of how to work with the knowledge manager. The contact points were requested to feed the system in order to build the knowledge repository and to create the Knowledge Organization System (KOS). Each contact point provided placeholders and free explanations both in English and native language.

Knowledge manager uses pivot terms to which national concepts are related. This allows comparative analysis of the concepts existing in different European legal systems. It also helped the abstracting required to move from the national definitions to a more general concept. The methodology also includes the use of formants. Formants, as during one of the training sessions, are groups of norms sharing the same characteristics in providing solutions for a specific legal matter.

Contact points has to learn the principle of adaptation not only as a legal principle, but also from a personal approach; they had to adapt to a work which is different than their daily duties. They slightly moved from the practical approach to the land registry to an academic approach to the same field. Defining the terms was not a matter of translation of a national legal term, but also to reformulate this definition in a wider approach. It was a real "legal thinking stretching". Changing the perspective enriched their professional expertise and gave them possibility to discover new skills and new valences of their land registry system and their professional potential as well.

IMOLA II represent a powerful instrument for both legal experts and non-specialized users and it was developed in perfect timing with European Commission's project LRI-Land Registries Interconnection. The interconnection of the land registries is useful from various reasons: judicial cooperation both on civil or criminal matters, preventing and fight against the money laundering, easier access to land registry information abroad etc. But interconnection cannot be just a technical process. It implies connections also from conceptual perspective. Otherwise, interconnection benefits are drastically limited. Interconnection needs a tool to make it effective. IMOLA represents the vehicle for the land registry interconnection highway. It provides conceptual connections of land registries in a controlled environment from all relevant aspects. Once such a vehicle is available, new horizons are opened. National land registries will adapt to the new European/global approach in its field. IMOLA will change the perception on the land

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registry and it will lead to significant changes in the benefit of the security of the civil traffic and international judicial cooperation.

We are not at the end of the road. We have just achieved a new goal, but the journey has to continue.

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  ISBN: 978-2-9602448-0-9

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ISBN: 978-2-9602448-0-9

Elena Ioriatti and Sara Giacomini[40]

"Comparative law and IMOLA II: the way forward"

1. Introduction

The current challenges of legal sciences are the identification of new solutions and strategies, as a response to the needs of a world that is under a constant and unstoppable change. In nearly every field, legal science is experimenting confrontation with the supranational situation and with an urge to harmonization, new technologies and the elaboration of new legal languages. In this framework, law is one of the instruments that contributes to the construction of new realities. However, the creation of rules, the amendment and updating of previous solutions, the effort of harmonization is not the only playing field in which every law discipline is, by now, definitely involved. These new law instruments need to be supported by methodologies too. In this regard, Comparative Law[41] is, and has always been, at the core of the discussion about method, to the point that comparative law was initially considered a method itself.

40 The different paragraphs of this Chapter refer to the Authors as follow: Elena Ioriatti Introduction, par. 3 and 4. Sara Giacomini par. 2 and Conclusions.

41 Comparative law developed as an independent science during the second half of the 20th century, and in this process the Italian School played a very important role. After that the study of comparative law became more and more popular across Europe and the world, bringing to a very rich and fertile academic production. A few of the many works that have recently been published in the area are for example: J. W. HEAD (2011), *Great Legal Traditions: Civil Law, Common Law, and Chinese Law in Historical and Operational Perspective*, Carolina Academic Press; M. A. GLAEDON, P. C. CARROZZA, C. B. PICKER (2015), *Comparative Legal Traditions in a Nutshell*, West Academic Publishing; K. ZWEIGERT, H. KÖTZ (2011), *Introduction to Comparative Law*, Claredon Press (Oxford); M. SIEMS (2018), *Comparative Law*, Cambridge university press; J. BOMHOFF, M. ADAMS (2012), *Practice and Theory in Comparative Law*, Cambridge University Press; A. GUARNIERI (2018), *Lineamenti di diritto comparato*, CEDAM. R. SACCO, A. GAMBARO (2010) *Sistemi Giuridici Comparati*, Utet Giuridica.

  ISBN: 978-2-9602448-0-9

Comparative law is a science and its primary and essential aim is to acquire knowledge.[42] As stated in the first Thesis of Trento, a Manifesto signed in 1987 by many of the most eminent comparatists[43], *"Comparative law, understood as a science, necessarily aims at the better understanding of legal data".* Comparative law studies precisely the plurality of legal models in order to be able to establish to what extent they are uniform and to what extent they are different[44]; furthermore, instruments and the methods developed in comparative law can nevertheless be helpful not only in the comparison among systems, but also to better understand a specific legal order, its composition and evolution[45].

The knowledge and understanding of a system are the first purposes of comparative law, but they are also vital to enable a further implementation of this science. From this perspective, the scope and method of comparison are intertwined. In general, many believe that comparative research does not follow a given methodology and think that the study of the research itself, and of the matters to focus on, determine which method is more suitable.[46].

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42 R. SACCO (1991), *Legal Formants: A Dynamic Approach To Comparative Law*, The American Journal of Comparative Law, Vol. 39, No. 1. , p. 6. On the non-essentiality of utilitarian claims in the purpose of comparative law see also R. SACCO, P. ROSSI (2015), *Introduzione al diritto comparato,* Utet giuridica, sesta ed., pp. 11 ss.; cfr. also Patrick Glenn, who qualified comparative law as an instrument of learning and knowledge, H. P. GLENN, *Aims of comparative law*, in J. SMITS (ed.)(2006), Eldgar Encyclopedia of Comparative Law, p. 57 ff. K. ZWEIGERT, H. KÖTZ (1998), *An Introduction to Comparative Law*, Oxford University Press, pp. 15 ss.

43 The Thesis of Trento, developed in 1987 by professor Rodolfo Sacco in the newly founded University of Trento, were signed by F. Castro, P. Cendon, A. Frignani, A. Gambaro, M. Guadagni, A. Guarnieri and PG Monateri, with the subscription of G. Ajani and U. Mattei.

44 See R. SACCO, P. ROSSI , *Introduzione al diritto comparato,* cit., p. 9; cfr. R. SACCO, A. GAMBARO, *Sistemi Giuridici Comparati*, Utet Giuridica, cit., p. 26-27.

45 R. SACCO, *Legal Formants*, cit., pp. 3-4; on the importance of comparative law for the understanding and improvement of national law see R. DAVID, J. E.C. BIERLEY (1978), *Major Legal Systems in the World Today. An Introduction to the Comparative Study of Law*, The Free Press, pp. 6 ss.

46 M. VAN HOECK, *Methodology of Comparative Legal Research*, at https://biblio.ugent.be/publication/7145504/file/7145530. V. GROSSWALD CURRAN, *Comparative Law and Language* (2005), *in* R. ZIMMERMANN AND M. REIMANN, *eds., Oxford Handbook of Comparative Law, Oxford University Press.* See also very recently U. KISCHEL, *Comparative Law* (2019), Oxford University

In this regard, it is well known, comparative law can support harmonization and the unification of law as much as it can be a precious tool for supranational courts and so on. Nevertheless, in defining the scope of comparative law as knowledge, even Trento's thesis specify that "*Further tasks - for example the promotion of the best legal or interpretative model - deserve the greatest consideration, but they represent only a possible end of comparative research",* it is known that scholars refer to a comparative methodology in search of innovative solutions. This is the case of the European Land Registry Association (ELRA) which considered the comparative methodology for the IMOLA II project.

This paper will explain how comparative law, and some of its tools, are useful in the development of this relevant project and how it can help scholars involved in IMOLA II to keep a tight connection with the reality of the European legal world and consequently guide decisions. On the other hand, the dialogue of the European Land Registries has determined the approach – in particular the formants theory – acting as a testing group of the effectiveness of this methodology.

Just to start our consideration is important to be aware that, at present, no legal system of the current legal world is composed by norms enacted and formulated locally, by the system itself, but also by norms, institutions, solutions – in technical terms "models" – which were originated abroad. Every single legal system of the world is the result of a huge circulation of models and of their constant stratification and interrelation.

Only by studying the evolution of the different legal orders and by analyzing the way the legal models circulate and influence each other it is possible to really understand the "living law" and map its correct evolution.

As noted above, the circulation of different models among legal systems is a constant global phenomenon. In this panorama the methodology of comparative law seems to be

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Press.

the perfect path to follow in order to get a complete and rounder understanding of the role played by the European Union in the evolution of national private law.

Secondly, the way in which the various models interact in each legal system is crucial too, in order to have a clear view of how a system works in reality and to compare it with other realities. In this regard what is crucial is the awareness that, in a single legal system, there may be a dissociation among the rules enacted by the legislator, formulated in courts or elaborated by the legal scholars. As we will see in par. 3, according to the "theory of formants", elaborated by prof. Rodolfo Sacco[47], the more we study all the different rules enunciated (in their uniformity and in their contradictions), the better we can understand the living law of that legal system. If the comparative method is based on the observation of the elements at work in a legal system[48], the theory of the formants shows a different way to collect and process legal data and shed light on the inherent dissociation that may emerge among those data[49].
Finally, another instrument of comparative law that can be an effective support to the national jurist dealing with foreign models is "homologation".

This technique is very useful in order to verify whether two legal concepts (or institutes) of different legal systems are similar or not, and to measure the similarities, that is to say to the legal effects that are concretely produced in the two legal systems. As we will see in paragraph 4, in order to do that, the legal institute under analysis has to be reduced to more elementary concepts.

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47 Emeritus professor of Comparative law, University of Turin. Official member of the "Accademia Nazionale dei Lincei", Rome. Member of the Académie de France, Paris.

48 R. SACCO (1991), *Legal Formants*, p. 25.

49 The legal formants theory was elaborated by Rodolfo Sacco and gradually presented to the scientific community from 1964 till 1980. R. SACCO, *Définitions savantes et droit appliqué dans les systèmes romanistes*, in *Revue Internationale de Droit Comparé*, vol. 17, 4, 1965, p. 827 ss. R. SACCO, *Contratto e negozio a formazione bilaterale*, Studi in onore di Paolo Greco, II, Padua, 1965, p. 953. R. SACCO, *Les buts et les méthodes de la comparaison du droit*, in *Rapports nat. italiens au IX congrès intern. de droit comp.*(Theran) Giuffré, Milan, 1974. R. SACCO, *Introduzione al diritto comparato*, first ed., Giappichelli, Turin, 1980 (English version: R. SACCO *Legal Formants: A Dynamic Approach to Comparative Law*, in The American Journal of Comparative Law, Vol. 39, No. 1 (Winter, 1991), pp. 1 ff.

2. First example: the circulation of models and "Kubicka" decision

An example of how comparative law is useful in understanding the contribution of EU law for the evolution of national private law are the effects produced by the well-known decision of the Court of Justice of the European Union "Kubicka case"[50].

The decision represents the first opportunity the ECJ had to rule on the application of Regulation n. 650/12 on jurisdiction, applicable law, recognition and enforcement of decisions in matters of succession and on the creation of a European Certificate of Succession; and, as we will see, the Court did not lose the opportunity to establish an extensive interpretation of the Regulation, with effects that go far beyond what the reader can initially imagine.

The case arose after a Polish notary refused to draw a will for a Polish national, Ms. Kubicka, residing and married in Germany. Ms. Kubicka decided her will to be governed by Polish law (as allowed by Regulation 650/12) and, in particular, she decided to devise her 50% share of an immovable in Germany directly to her husband: according to German law, this clause is qualified as a *legatum per vindicationem* (legacy by vindication), an institution according to which the property of a specific good is directly transferred to the legatee upon the death of the testator. The legacy by vindication is present in a few EU Member States, such as France[51], Italy[52] and – relevant for the case

50 ECJ, 12 October 2017, C-218/16 (Kubicka)

51 See article 1014(1) of the French Civil Code, providing that every pure and simple legacy will give the legatee, from the day of the testator's death, a right to the thing bequeathed, a right transmissible to his heirs or assigns.

52 See article 649(2) of the Italian Civil Code, providing that when the subject of the legacy is the property of a certain thing or other right belonging to the testator, the property or right is transmitted from the testator to the legatee at the time of the testator's death.

  ISBN: 978-2-9602448-0-9

– Poland[53]; in other States, like Austria[54] and Germany[55], the only admissible type of legacy is the *legatum per damnationem* (legacy by damnation), which transfers the property of the good to the heirs, who in turn have an obligation to transfer the right to the legatee. The main difference lies therefore in the fact that through the legacy by vindication the legatee is immediately entitled of a property right (a right *in rem*), and not of a right *in personam*[56], as in the case of the legacy by damnation. According to the latter, the legatee would acquire a property right on the good only when demised by the heirs (with all the costs and difficulties that the double transfer can entail).

As it was undisputed that Germany did not recognize legacies by vindication[57], the notary refused to draft the will.[58] In response, Ms. Kubicka appealed against the notary's refusal and started a legal proceeding that ended in the Court of Justice of the European Union[59].

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53 Article 981(1) of the Polish Civil Code (Kodeks Cywilny) provides *"in a will drawn up in the form of a notarial instrument, the testator can decide that an asset to which a legacy relates shall pass to a specified person upon the opening of the succession".*

54 See article 649(1) ABGB, providing that *"By virtue of the legacy the legatee acquires a claim against the estate..."*

55 See BGB, section 2174 *"A legacy creates a right for the person provided for to demand delivery of the bequeathed object from the person charged."*

56 More precisely, the legacy by damnation only has "obligatory effect" while the legacy by vindication has direct effect and can therefore devise real rights and not only personal claims.

57 The Bundesgerichtshof (the German highest Federal Court) had explicitly expressed itself on the matter, stating that a legacy by vindication was incompatible with German law, and in particular with the principle that property can be acquired only according to the modes expressly provided by the law, BGH, Urt. v. 28.09.1994, Az.: IV ZR 95/93.

58 The Polish Notarial Code provided that notaries cannot draft a document that would be "unlawful": article 81 of the Polish Law on Notaries (Prawo o notariacie of 14 February 1991) provides that notaries shall refuse to execute unlawful notarial instruments.

59 It is interesting to note that a few of the scholars that commented the decision had the impression that the whole case was actually staged: this idea is supported by the fact that the notary who refused to draw Ms. Kubicka's will had published an article on the very same legal issue and the facts of the case could not have been more fitting in order to demonstrate the relevance of the legal issue (in this case the other heirs were minors and the legacy by vindication was necessary in order to avoid the formalities connected with the representation of the children); see J. P. SCHMIDT (2018), *Challenged Legacies – First Decision of the European Court of Justice on the EU Succession Regulation (ECJ, 12 October 2017, C-218/16 (Kubicka))*, European Property law Journal, vol 7(1), p. 18; C. DÖBEREINER (2017), *comment on the*

The point at issue was whether, under Regulation 650/12, a Polish citizen could transfer the property of a German immovable under the mean of a legacy by vindication, forcing the Court to decide if - with regard to the admissibility of a specific type of the legacy - the law chosen under the regulation (in this case Polish law) would have prevailed over the *lex rei sitae* (in this case German law). More precisely, the Court was asked to decide whether "*Article 1(2)(k) and (l) and Article 31 of Regulation No 650/2012 must be interpreted as precluding refusal, by an authority of a Member State, to recognise the material effects of a legacy 'by vindication', which is recognised by the law governing succession chosen by the testator (...), when that refusal is based on the ground that the legacy concerns the right of ownership of immovable property located in that Member State whose law does not provide for legacies with direct material effect (...)*".

As a matter of fact, with regard to the choice of law, article 22 of the Regulation expressly states that "*A person may choose as the law to govern his succession as a whole the law of the State whose nationality he possesses at the time of making the choice....*", therefore Ms. Kubicka's choice to have her succession governed by Polish law was perfectly legit. On the other hand, article 1(2) of the Regulation expressly excludes from its scope a list of subjects, and among these exclusions are listed the nature of rights in rem (letter k) and any recording in a register of rights in immovable or movable property, including the legal requirements for such recording, and the effects of recording or failing to record such rights in a register (letter l).

With regard to the *mortis causa* transfer of immovables, article 1(2) of the Regulation is particularly important, because it sets the boundary between the aspects that are governed by the succession regime chosen by the testator (*lex successionis*) and those that are still decided under the *lex rei sitae*[60]. The legal issue posed before the ECJ was exactly

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Kubicka decision, Zeitschrift für das gesamte Familienrecht (FamRZ), p.2060; S. BANDEL (2018), *Rechtsübergang und Rechtsbegründung durch ausländische Vindikationslegate in Deutschland*, Mitteilungen des Bayerischen Notarvereins, der Notarkasse und der Landesnotar- kammer Bayern (MittBayNot), p. 99.

60 See C. S. RUPP (2018), *The lex rei sitae and Its Neighbours – Debates, Developments, and Delineating Boundaries Between PIL Rules*, European Property Law Journal, vol 7(3), p. 287.

whether the admissibility of a specific type of legacy was to be placed on one side of the borderline or on the other.

The main obstacle to the admissibility of the legatee by vindication was connected to the recording of the property right in the Land registry: in Germany a legatee may be registered as owner in the Grundbuch only on the basis of a notarial instrument containing an agreement between the heirs and the legatee for the transfer of property, leaving therefore no space for the recognition of a legacy with direct effects.

The Court of Justice, with a decision that was much debated and – especially in Germany – even criticized[61], ruled that the law applicable (in this case Polish law) should govern the succession as a whole, as provided by article 23, which also specifies that the *lex successionis* governs the transfer to the legatees of the assets, rights and obligations forming part of the estate (art. 23(2) e).

The ECJ, following the opinion of the Advocate General[62], excluded that article 1(2)(k) and (l) article 31 of the Regulation could justify a refusal to recognize the material effects of a legacy by vindication, because the way a right is transferred (directly in the legacy by vindication and indirectly through a personal claim in a legacy by damnation) does not alter the content of the right to be exercised with regard to the asset. In other words, the Court stated that the nature of the right in rem (in this case property) is not influenced by the choice of legacy, leaving therefore no space also for the application of the adaptation principle stated in article 31 of the regulation[63].

With regard to the matters connected to the recording of the legacy in the Land Registry, even if recital 18 of the Regulation declares that the *lex rei sitae* shall determine the legal

61 See for instance J. WEBER J(2018), *Kubicka und die Folgen: Vindikationslegat aus Sicht des deutschen Immobiliarsachenrechts – Zugleich Anmerkungen zum Urt. des EuGH v. 2.10.2017* – Rs. C-218/16, Deutsche Notar-Zeitschrift (DnotZ), pp. 19-23

62 See in particular Opinion of the Advocate General Bot, para 47 ss.

63 ECJ,12 October 2017,C-218/16 (Kubicka), para 61et seq.; on the adaptation principle see A. BONOMI, P. WAUTELET, *Il Regolamento Europeo sulle Successioni. Commentario al reg UE 650/12*, Giuffré, pp. 413-421.

conditions for the recording of a right in rem, the Court ruled that *"the conditions under which such rights are acquired do not constitute one of the subjects excluded from the scope of the regulation under this provision"*[64], leaving therefore no obstacles to the recognition of a legacy by vindication and, according to some scholars, narrowing significantly the scope of the *lex rei sitae* as a private international law rule[65].

As mentioned above, the decision of the Court of Justice in the Kubicka case was commented by a number of jurists, both with regard to the restriction of the scope of the rule of the *lex rei sitae* in private international law, and more generally accusing the Court of having interfered too much in matters directly connected with the registration of rights *in rem*.

Regardless of the technical details of the case, the feeling that lingers after reading the decision is that the Court's interpretation of the Regulation has a very deep impact on national law, more than the concise text of the decision suggests.

The analysis of the decision with the eyes of the comparatist jurist - who searches for similarities and differences between legal models and studies their circulation among the systems - shows how the actual scope of the judgment goes far beyond the mere application of Regulation n. 650/12. The conclusion that the comparative scholar may reach is that the Court of Justice in the Kubicka decision has in fact taken a legal model (the legacy by vindication) from the Polish legal system and forced its recognition in a different legal system (Germany) in which that model was not applicable. Although the precedent set by the ECJ in the Kubicka case does not cover all *mortis causa* successions

64 ECJ,12 October 2017,C-218/16 (Kubicka), para 54.

65 On the shrinking of the scope and application of the *lex rei sitae* as a PIL rule after Kubicka see for example C. S. RUPP (2018), *The lex rei sitae and Its Neighbours – Debates, Developments, and Delineating Boundaries Between PIL Rules*, European Property Law Journal, vol 7(3), pp. 290 et seq; B. AKKERMANS (2018), *Lex Rei Sitae and the EU Internal Market – towards mutual recognition of property relations*, European Property Law Journal, vol. 7(3), pp. 262-266; on the "abandonment" of the *lex rei sitae* brought by Regulation n. 650/2012 see also C. MARTÍNEZ-ESCRIBANO (2017), *Consequences of the European Succession Regulation in European Property Law*, European Review of Private Law, vol 3-2017 , p. 264 et seq.

in Germany, but only those governed by Regulation 650/12, it is evident that the impact of the decision is groundbreaking, to the point of imposing the circulation of a new legal model in a State. Moreover, the circulation of the model in question is not limited to Germany but, due to the binding force of the case-law of the Court of Justice, it will be extended to all the Member States in which this model is not already in force. For example, after "Kubicka"the direct transmission to the legatee of a property right by means of a legacy by vindication must be considered admissible with regard to an immovable located in Austria[66] when invoked by an Italian citizen who chooses Italian law to govern his succession[67].

The circulation of a model from one legal system to another can usually be ascribed to two types of situations: either imposition or prestige[68]. A model is transplanted by imposition when a legal system or a legal culture has the political strength to force its imitation, as happened with European legal models during the colonization process. Circulation is instead connected to the prestige of the model when the receiving legal system decides to adopt it because of the authority and worthiness it has reached within the legal community[69]. In this regard, the comparative analysis of the Kubicka case is rather interesting as it may be seen as a new development in the circulation of models: the transplant of the Polish legacy by vindication in the German legal system is not precisely an imitation by imposition, as it is lacking the strength and willingness to replace one model with a new one. It is also not connected to the authority and prestige of the model itself. In the Kubicka case the transplant of the legacy was brought by the (European) judicial formant – the Court of Justice - and is connected to the strict relationship between the European Union and the Member States. In other words, in this scenario some aspects of both imposition and prestige are involved, but they are associated to the EU institutions and not the legal model itself.

66 See note 15.

67 See note 13.

68 R. SACCO, P. ROSSI (2015), *Introduzione al Diritto Comparato,* in *Trattato di Diritto Comparato*, a cura di R. SACCO, Utet Giuridica, p. 136

69 For more information on the elements that can promote the circulation of a legal model (such as the similarity between legal systems, the language, the political background of the model...) see R. SACCO, P. ROSSI (2015), *Introduzione al Diritto Comparato*, pp. 136-139.

The contribution that comparative law can bring to the IMOLA II project is not only the understanding of the mechanisms that allow legal models to circulate among the legal systems, but also the opportunity of seeing the interactions between EU and Member States, and the consequence of that network of relationships, in a more transparent way.

3. Second example: the formant and the decision "La Maison de Poésie"

As demonstrated above, comparative law helps jurists understand the extent to which the world of law is evolving, because of the interaction of national models and supranational formants. Thus, the consequences of the Kubicka case are more relevant than what might seem at a first glance, when analyzed as one of the examples of circulation of the national models through the law case of a supranational Court.

Not only might this approach enable jurists to glimpse the potential impact of models thorough the EU in terms of legal transplants but even to read – in retrospect - how the European legal system has evolved. As has been efficiently suggested already, comparative law contributes to legal history[70] and the EU is part of the history of national legal systems.

In this regard, a milestone in the development of the methodology of comparative law is professor Sacco's theory of the legal formants. The starting point of the theory is the result of a simple observation: as noted "in general, jurists have the tendency to presume that in a given legal system any specific legal matter is regulated by one legal rule, providing "the" solution. They assume that at a given moment, the rule enacted in the constitution or in legislation, the rule formulated by scholars, the rule declared by courts, and the rule actually enforced by courts, have identical content and are, therefore, the same. Jurists assume therefore the unity of each legal system, as if there were only "one legal rule" regulating a specific legal matter".

70 M. GRAZIADEI, *Comparative law, Legal history and the holistic approach to legal culture*, at http://www.jus.unitn.it/cardozo/Critica/Graziadei.htm

The premise of the theory is that it is misleading to analyze the legal rule in force in a country as if there were only one such rule[71]: this means that the "living law" is the sum of different elements such as statutory rules, judicial decisions and the work of scholars and that these elements, known as "legal formants", do not necessarily declare the same rule.[72] Thus, *Formants* are groups of norms sharing the same characteristics in providing solutions to a specific legal problem (or legal matter, question of law). As the solution to a question of law can be found in the legislation (legislative formant), in case law (judicial formant) and in the work of scholars (doctrinal formant), these groups of rules are the three main formants.

According to this method, "the unity" of a legal system is an illusion and a preconception, dominated by a fundamental idea that rules contained in the different formants have identical content. Thus, a realistic observation of the legal systems makes it clear that there can be situations in which the rule formulated in the civil code (legal formant) does not correspond to the rule enforced by the courts (case law – or judicial - formant) or to the one described by scholars (doctrinal formant)[73]. For instance, with regard to a specific legal matter, a norm formulated in legislation could be overcome by a rule enacted in Court (case law - or judicial - formant).

An interesting example is the decision by the French Cour de Cassation, Chambre civile 2012, known as *La Maison de Poésie.*

The material facts are the following: in 1932 the Foundation *La Maison de Poésie* sold a building to the *Société des auteurs et compositeurs dramatiques (SACD)*, with a provision included in the notary deed stating that the enjoyment and occupation by *Maison de Poésie* of the second floor of the building, where the Foundation was located, was not included in the sale.

71 R. SACCO, *Legal Formants*, cit., p. 21.

72 Idem, p. 22.

73 *Idem*, p. 21 ff.

In 2007 SACD, the only owner of the building, sued the *Maison de Poésie* Foundation, asking for its expulsion from the premises and for the payment of a compensation for the occupation, as they had occupied, without right or title, the second floor of the building. According to the French civil code (Article 543) there is a limited number of property rights available in the French legal system, which deals with rights of enjoyment, land services, the right of emphyteusis, usufruct, use and habitation.

Regardless the legislative "numerus clausus", the Cour de Cassation recognized the right of enjoyment or occupation of the second floor of the building in favour of Maison de Poésie, on exclusive basis and with no time limit. The Cour de Cassation explicitly established that the right granted to Maison de Poésie by the deed of sale was a right of perpetual exclusive enjoyment, and not a right of use and habitation (which have different characteristics and, when not granted to private individuals, may last only thirty years).

Notwithstanding the legislative formant, in 2012 the Cour de Cassation admitted the creation of a perpetual right to use. Thus**,** within a given, single legal system there is no guarantee that the *formants* are in harmony, rather than in conflict.

Not only is this method useful to scientific research, but also in the context of the IMOLA II project too. The project aims at formulating standard means of accessing basic land registry information within the EU, as well as defining a semantic model for a European Land Registry document (ELRD)[74]

Indeed, this is a project that masters together substantive law information on the law of property, legal languages and the land registry structure and requirements.

The task of the IMOLA project is the creation of a European land registry information system, able to store and show legal data of all immovable property and real rights already registered in the land registry of the legal systems involved in the project.

74 See https://www.elra.eu/IMOLA/ The elaboration of explanatory materials and the training of practitioners to improve the understanding of foreign legal systems is also part of IMOLA's scope.

Thus, extensive comparative research is needed, in order to analyse all the legal data included in the various land registries and organize them in the European model.

Structural analysis may be made in different ways, on the basis of a variety of methodological approaches. For instance, functionalism is a well-known method in comparative law, which is based on the assumption that concepts are different in the various legal systems, but quite often problems and questions are solved in a similar way[75]. With regard to IMOLA II, this method has the advantage of looking at concrete problems and adapting the research to the questions and interests that are at their basis. Even though such aspects of functionalism can be useful for an informational analysis of the various legal systems involved in the project, and also to an initial idea of what the common solutions could be, the limits of this method lie in the fact that the analysis is carried out independently from the doctrinal, cultural framework of each of the legal systems involved[76]. The different models of land registry, as well as the type of transaction that is subject to the registration in the land registry, and the effects that arose from this activity largely depend on the cultural and historical framework in which the land registry systems and the law of property is inserted.

A deeper level of analysis among legal systems may reveal that adequate comparison needs to be carried out by taking into account the concrete solutions of a specific legal matter, but without escaping the cultural environment in which this solution was adopted; here, with cultural environment we make reference to legislation, case law, scholarly opinion, praxis of the land registry offices. In land registry research it is not possible to disconnect solutions adopted in the different legal systems from the specific "formant" by which they are adopted.

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75 K. ZWEIGERT and H. KÔTZ (1998), *An Introduction to comparative Law*, Oxford University Press, Oxford. For an overiew of the academic discussions on this method see: J. HUSA (2013), *Functional Method in Comparative Law – Much Ado About Nothing*? European Review of Private Law, p. 4 ff.

76 On the relation between comparative law methodology and culture see: M. GRAZIADEI, (2019), *Comparative Law as the Study of Transplants and Receptions*, in M. REIMANN and R. ZIMMERMANN (eds.), *The Oxford Handbook of Comparative Law*, Oxford.

An example that illustrates the importance of the formants with regard to the Italian land registry system deals with the possibility to subject the *right of habitation to a mortgage* with the related transcription of that mortgage in the Italian land registry. Regarding the legal matter to be solved in the example: *"Can the holder of a right of habitation create a mortgage over that right and register it in the land registry?"* in the Italian legal systems, the formants provide different solutions.

According to the Italian Civil Code (legislative formant) the right of habitation is non-transferable (Civil Code, art. 1024); furthermore, this nominate right is not included in the list of goods and rights that can be subject to a mortgage (Civil Code, art. 2810).

However, the Italian Corte di Cassazione (Supreme Court)[77] ruled that the creation of a mortgage over a right of habitation is possible, under the condition that the bare owner gives consent (case law formant). This solution was approved by the majority of legal scholars (doctrinal formant).

Thus, in Italy, according to the *case law* and *the doctrinal formant,* the answer is YES.
To sum up, to the question whether the owner of the right of habitation can create a mortgage over that right, according to:

- the *legislative formant*: the answer is always NO;
- the *doctrinal* and *case law* formants: the answer is YES, but under the condition that there is the participation of the bare owner;

Thus, when the bare owner is not involved, the answer is NO.

However, it is interesting to note that in some territories of Northern Italy, in the context of the tabular system[78], even not admitting the registration of a *mortgage on a right of*

77 Cass n. 637/1960, Cass. n. 3565/1989, Cass. n. 4599/2006.

78 In some of the regions of Northern Italy, former Austrian territories, the land registry system (sistema tavolare, tabular system) is different from the system of the rest of Italy (sistema del pubblico registro immobiliare). In case of transfer of immovable property, inscription in the tabular register is an essential condition of the transfer, while in the rest of Italy the contract – and the expression of the agreement – has

habitation, the praxis admits the "postergazione" (posticipation) of the registration of the right of habitation, that can be postponed to the registration of the mortgage. The practical consequences are exactly the same and, according to scholars[79], allows the holder of the right of habitation to register a mortgage over his/her right.

Thus, in a part of Italy where the tabular system is in force, regardless of the fact that the legislative formant does not include the right of habitation in the list of goods and rights that can be subject to a mortgage, the *holder of this right can create a mortgage over it and register it in the land registry*; the praxis of the register offices makes this operation possible: in comparative law terminology, this is the *operational rule* - the final result in practical terms which has to be uncovered, regardless of the provisions formulated in the legislative formant.

This example shows how the creation of a shared European system of the data contained in national land registries implies a deep knowledge of operational rules, able to coincide with the law formulated by the legislator, but also, as in the example above, produce juridical effects that overlook, or even contradict the legislative formant.

4. Third example: homologation of "usufruct" in Italy and in The Netherlands.

Among the various methods of comparative law, the technique that has been suggested to uncover the different formants in the IMOLA II project is the use of questionnaires[80].

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to be formulated in written form, and this requirement is sufficient to the transfer of immovable property according to art. 1350 Civil Code.

79 C. CACCAVALE e A. RUOTOLO, *Il diritto di abitazione nella circolazione dei beni,* Studio CNN n. 2344 del 22 giugno 1999.

80 It is well known that the questionnaires were used for the first time in the 60s by Rudolph Schlesinger, who elaborated the so called "factual approach", at Cornell University, On the occasion of an extensive research on the conclusion of the contract, professor Schlesinger had to resolve the preliminary problem of how to obtain comparable answers to the questions he wished to ask about different legal systems. The main issues were that the answers had to be interpreted identically by all the jurists from the different states. The method he applied is called *factual approach,* and consists of the use of very detailed and self-sufficient questionnaires. Sacco, Idem. See *Formation of Contracts—A Study of the Common Core of Legal Systems: Introduction,* Cornell International Law Journal, Volume 2 Issue 1, Spring 1969, p. 1.

The questionnaires have favoured the collection of data which could be compared and consequently of the different formats. Thus, this *factual approach* has proved to be very useful in the first phase of the project, in which the tasks of scholars, supported by the analysis of the national "contact points" have mapped which institutes, as well as how and under which conditions the various legal systems record in the land registry.

After having collected all the possible data, a second step required a comparison of the data in order to link each national solution to the framework – substantive and semantic – which is at the basis of the European Land Registry document (ELRD).

For this, a well elaborated instrument of comparative law proved to be very valuable. This last method is called "homologation" and consists of splitting a national legal institute (for example, the usufruct in Dutch law) into smaller concepts (immovable property, enjoyment, right to consume etc.) and then measuring the similarities and differences of the same smaller concepts in, e.g., Italian Law.

This method allows a scientific comparison of the two institutes and facilitates the discovery of all differences that may be hidden behind the concept "usufruct", that is similar in both legal systems. This type of analysis underlines, for instance, that while under Dutch law the usufructuary has the right to dispose of and to consume the property subject to usufruct (Article 3:215 Dutch Civil Code), on the other hand, under Italian law the usufructuary has the duty to return the property (Article 1001 Italian Civil Code).

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USUFRUCT IN ITALY (Usufrutto)	USUFRUCT IN THE NETHERLANDS (Vruchtgebruik)
The usufructuary has the right to enjoy an object, but must preserve its economic destination. Art. 981 C.C. The usufructuary must **return the things** that are the object of his/her right at the end of the usufruct (…) Art. 1001 co. 1 C.C.	The right of usufruct provides the right to use things that belong to another person and enjoy the fruits thereof. Art 3:201 BW A usufructuary can **use** and **use up (consume)** the things under the usufruct in accordance with the rules made upon the creation of the usufruct, or where such rules are lacking, in accordance with the nature of the things and the local practice in respect to the use and using up. Art 3:207(1) BW

Once the comparison has been done, it is up to the jurist to measure whether and within which limits the two models – the Dutch and the Italian one – are "homologues", and consequently decide for the equivalence in terms of comparative law.

According to comparative law this standard has to be made by uncovering the *operational rule,* that is to say the final legal effects that an institute is producing in a legal system regardless of the formal definition. Here, it is interesting to underline that the Italian legal system too, within certain limits, allows parties to conclude a usufruct having goods to be consumed as the object. However, differently from Dutch law, this institute is denominated "quasi usufrutto" (nearly a usufruct) and it is not qualified a right in rem, but a contractual agreement. Again, behind the same definitions (usufrutto – Vruchtgebruik) different legislative formants are enacted, even if the relevant legal effect (operational rules) are similar.

This difference may be used as a strong argument, so that the researchers could leave aside the registration of a usufruct having as an object goods that can be consumed from the ELRD, as it being not qualified a *right in rem* in some of the European legal systems.

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5. Conclusion

In the development of the IMOLA II project the methodology of comparative law has become relevant and proved to be a useful scientific tool.

Firstly, the description of the formants and the understanding that the unity principle is an illusion has created a clearer view by the professionals involved in IMOLA II of how a legal system works in reality, beyond the theoretical and abstract definitions, on which scholars or legislators rely to communicate the norms and, in general, the law.

All this has favoured the elaboration of a research method founded on a more solid ground, the results of which could clearly reflect how a legal matter is solved in each specific legal system involved in the scientific investigation of IMOLA II.

Secondly, since the interoperability among the Land Registers systems, that is the main scope of IMOLA II, presumes a deep knowledge not only of the single land registry system, but also of procedural and substantive law of the legal systems involved, comparative law methodology proved to be the best method to collect and elaborate the rules in the legal systems involved.

Here the theory of the formants was crucial for legal professionals in order to understand the origin of a national solution and its real impact on the system (operational rules).

Furthermore, among the different tasks of IMOLA II, an important mission of the project is the semantic interoperability among the Land Registers' Information and use of controlled vocabularies as part of the descriptive metadata to characterize the content of the information object of the Land Registries.

Thus, the technique of homologation proved to be crucial to uncover the different attributes contained in the different formants composing the national terms.

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Finally, it is also important to underline that the legal formants could be useful within the context of the IMOLA projects not only to reach a more complete, detailed and comprehensive template, but also as a tool to keep the template updated.

As everybody knows, the law of a legal system is continuously evolving and changing, and this makes the constant monitoring, and eventually updating, of all the pivot terms and their attributes a challenge. Sometimes States modify the applied rules by means of the legislative formant (as for example by enacting a new statute or modifying an old one), but other times the changes are brought by a new praxis or by a new interpretation given by the courts (case law formant), like a judicial decision of a high state court (as the French Cour de Cassation in the Maison de la Poésie case) or the Court of Justice of the European Union (as in the Kubicka case).

One of the problems that the IMOLA project will have to deal with in the future is how to keep the template always updated, in order to maintain the correspondence between the template platform and the real base of law that is currently being applied within the legal systems involved. In this perspective, the study of the different formants can be a useful mean to maintain the digital template linked to the legal reality that it is supposed to represent. Furthermore, "*knowledge of a legal system entails knowledge of factors present today, which determine how cases will be resolved in the near future*" [81].

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"The Land registration and "disruptive" (or "trustworthy"?) technologies: Tokenisation of immovable property"

1. Introduction

In the past few years Internet technicians developed various new types of technologies, which, according to their creators and promotors, were "disruptive" for how we until then organised our economy (including the monetary and banking system), law (together with the role of legal professionals) and our political system. Highly sophisticated software, with the ability to learn by itself, would create a Copernican change in the way we would organise our society. The technologies I am referring to are: (1) Distributed Ledger Technology (better known as, but not limited to, blockchain and its most prominent representation: Bitcoin), (2) smart contracts (in spite of the words used not contracts, but self-executing computer programmes), (3) machine learning and Artificial Intelligence, supported by the massively collecting of data through all kinds of means, and in particular sensors, which more and more are connected to physical things such as cars and household appliances: (4) the Internet of Things, which data are being stored, combined and processed, in databases, resulting in (5) Big Data. The outcome of these developments is what we now call the data economy, because at the heart of all these developments are data. Software is data, smart contracts are data, machine learning and Artificial Intelligence is software and, consequently, data, and sensors collect data. The result is not only a mixed or hybrid, real and data, economy: We are beginning to live in a hybrid world. In this contribution to a collection of articles focussing on the IMOLA project, I will analyse how this hybrid world, where the "real" and the "data" economy together create the environment in which we live, affects or may affect land registration.

2. Do new IT developments really "disrupt" or, on the contrary, are they "trustworthy"?

When looking at English dictionaries what the word "disruptive" actually means one tends to get definitions such as "To be disruptive means to prevent something from

  ISBN: 978-2-9602448-0-9

continuing or operating in a normal way."[82] The essential question to be asked is, of course, what is the "normal" way? When qualifying these technologies as "disruptive", looking at these developments from the perspective of a legal system, we assume that they break into existing, established and well-justified, laws and practices and the role and function of legal practitioners. The term is certainly a clear expression of a legal system and legal professionals in the defence. But is this necessary? It is quite revealing to see how the legislature of the Principality of Liechtenstein recently adopted an Act that qualifies these technologies as trustworthy: The Law on Tokens and Trustworthy Technology Service Providers (Token and TT Service Provider Act; TVTG) 2019.[83] The terminology used in the Liechtenstein legislation almost speaks for itself. From the perspective of the Liechtenstein legislature the new IT technologies are opportunities to develop a digital economy next to the real economy. If the reaction might be that Liechtenstein is only a very small jurisdiction and therefore not a good example, it should be realised that in the world of data the physical size of a country is irrelevant. We now see a hybrid type of nation-state coming up, or perhaps even a different type of sovereignty. Who, from a public international law point of view, has sovereign power over data, which can flow anywhere? Who controls data sources and data flows? Border checks in the virtual world are difficult, although some countries attempt to create a firewall type of border to filter data. Liechtenstein might be only 25 km long, locked in between Austria and Switzerland, nevertheless physical size is irrelevant in the digital world. What matters is that Liechtenstein – and this applies to any other micro-state or, for that matter, de facto sovereign unity – will be able to attract IT businesses investors by offering an excellent IT infrastructure and a legal setting that at the same facilitates and regulates, thus creating for everyone involved not only an innovative, but also a reliable and trustworthy environment. This will support investment in data centres and establishing (branches of) IT companies. Looking at it from that perspective, it can be very profitable for a small jurisdiction to become, perhaps next to a "tax haven", a "data haven". In fact, a small jurisdiction seems to have an advantage over larger jurisdictions in that it can react far more swiftly as political and legislative debates tend to be less time

[82] Collins English Dictionary: https://www.collinsdictionary.com/dictionary/english/disruptive.

[83] See https://impuls-liechtenstein.li/blockchain-gesetz/. In the German original: Gesetz über Token und Vertrauenswürdige Technologien-Dienstleister (Token- und VT-Dienstleister-Gesetz; TVTG) 2019.

consuming and more targeted. The outcome is that Liechtenstein now seems to lead the way.

The Liechtenstein legislation will be further elaborated upon at the end of this contribution. However, first a few introductory remarks must be made about the causes, nature and consequences of the hybrid reality in which we now live, focussing on land registration. Historically, land registration was done by describing parcels of land in handwritten ledgers, where the size of the parcel was physically measured by surveyors who would draw maps on paper. The rights of people regarding such land were laid down in physical documents, drawn up by legal professionals, such as notaries and land registrars. Consulting the land registry meant that someone had to come in person to the land registrar's office and request a physical copy from the land book. Thus described, it seems almost natural to see land law as the law concerning the rights of natural persons regarding physical plots of land, ownership of which – at least after the French Revolution with its ideals of equality, liberty and fraternity – gave these persons the most complete freedom to do with the land what they wanted and to expel anyone from their land whom they did not tolerate on it. Land law and, consequently, land registration law is then seen in an almost materialistic way, focussing on the right holder and the object. That nicely fits with the Civil Law view on property rights as rights in rem: a right directly linked to an object and not, as in the law of obligations, a right against one or more specific other persons. It should be realised, however, that this is no more than a legal construct. The image of the right in rem is incorrect as a representation of social reality. Upon further analysis we see that land law, or more generally: property law, is always about a right which a particular subject has against a relevant and considerable group of other subjects, regarding an object. Land registration provides information about (1) the legal relations (rights, duties) regarding that (2) object (land, buildings), (3) the subject claiming a right (or bound by a duty) and (4) the subjects against whom that right can be invoked (or who benefit from the duty). It is just that, because all information focussed on the physical thing: land, and was laid down in physical (paper) format, and that if persons needed information they had to present themselves in person, the non-physical aspects were lost out of sight. This was even stronger in legal systems, such as Germany, where land registration is seen as creating the object, registration as the (re)confirmation of the size of a parcel, and not, such as in the Netherlands, as an indication – until proved otherwise

  ISBN: 978-2-9602448-0-9

– as to what the object in reality is. It was not realised that, at the end of the day, land registries focussed on information about subjects and objects. What we see today, at least looking at it superficially, seems to be a rather drastic change in the way we are thinking about land registries. The change, however, is far less fundamental than we might realise. The prime focus is changing from the physical object itself to the digitally available information about that object. This is caused by the fact that ledgers are no longer maintained manually, but in digital format, which simplify copying documents to a degree that was unimaginable only some decades ago, rising awareness that, indeed, we were copying information about land, where the land plots themselves remain unique. Furthermore, information is now stored in computerised databases, which allow quick changes (less manual labour necessary) and a more in-depth analysis of that information (for example differentiated overviews of sales prices in a particular period). With the rise of the Internet, databases are linked and a rapidly growing number of people have Internet access, frequently even multiple sources of access: standalone personal computers at home, but also laptop computers, tablets and mobile phones, making it possible to use the Internet disconnected from a physical location. This is the, what the World Economic Forum in Davos qualifies as, Fourth Industrial Revolution. From mass production and mass consumption we went to a world that became more and more digital. At the heart of that world is information and it is precisely information which is targeted by the technological inventions of today. IT developers who create software already think in terms of a screen reality: what matters is not what happens in the physical world around us (except, of course, the hardware which is needed to make the software run), but what we see on our screens as a result of computer programmes they write. It is a world where information is called "data", which could be software but also information needed as input for that software, and data that comes out of computer processes. Screen reality has become so realistic that the "real" world is supplemented by a realistic "digital" creation, resulting in the hybrid world earlier mentioned. IT developers – driven by the almost anarchistic idea that a new, virtual, totally equal and democratic world could be created uncontrolled by the state, its laws and legal actors – intended to develop highly sophisticated software that would leave the physical reality behind us and create a brave new data world of its own in which people would be free to roam. This is, in essence, the

  ISBN: 978-2-9602448-0-9

background of the Bitcoin software developed by Satoshi Nakamoto.[84] That software does two essential things: it re-establishes the uniqueness of a digital copy and stop uncontrolled multiplying (by making it possible to create an immutable and secured "block" containing specific data) and it makes it impossible to transfer that copy more than once (the "double spending" problem). The first element is the "blockchain", connecting digital documents ("blocks") secured by cryptography, the second element is the Distributed Ledger that stores the blocks, demanding that a majority of computers in the Bitcoin network ("nodes") approve the transaction ("proof of work") creating a new block. Added to the advance of the Bitcoin software was another development: smart contracts, developed by Nick Szabo.[85] These are self-executing computer programmes, which no longer need human intervention. If the community of users would be ready to accept that mutual trust was something of the past and could be replaced by digital truth creating software (the Bitcoin protocol in combination with smart contracts), then the block could be accepted as money: the Bitcoin. This proved to be true. Value is something people give to an object and it is irrelevant whether the object is physical or data. The resulting development of the data economy has come swiftly, an economy that in fiat money value now is exponentially growing.

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[84] See Satoshi Nakamoto, Bitcoin: A Peer-to-Peer Electronic Cash System, to be found electronically at https://bitcoin.org/bitcoin.pdf.

[85] N. Szabo, Smart Contracts: Building Blocks for Digital Markets, originally published in Extropy # 16, rewritten in 1996 to be found electronically at https://www.fon.hum.uva.nl.
In his article Szabo also discusses "smart property": "We can extend the concept of smart contracts to property. Smart property might be created by embedding smart contracts in physical objects. These embedded protocols would automatically give control of the keys for operating the property to the party who rightfully owns that property, based on the terms of the contract. For example, a car might be rendered inoperable unless the proper challenge-response protocol is completed with its rightful owner, preventing theft. If a loan was taken out to buy that car, and the owner failed to make payments, the smart contract could automatically invoke a lien, which returns control of the car keys to the bank. This "smart lien" might be much cheaper and more effective than a repo man. Also needed is a protocol to provably remove the lien when the loan has been paid off, as well as hardship and operational exceptions. For example, it would be rude to revoke operation of the car while it's doing 75 down the freeway.
Smart property is software or physical devices with the desired characteristics of ownership embedded into them; for example devices that can be rendered of far less value to parties who lack possesion of a key, as demonstrated via a zero knowledge interactive proof." This is what can now be seen in the Internet of Things.

  ISBN: 978-2-9602448-0-9

Applied to land registries the following conclusions can be drawn. The growing recognition that at the heart of land registries is not the physical object or subject, but information (more specifically: data) about that object and subject, and that such information can now be processed by using digital truth creating software replacing trust in the person of the registrar, made land registrars realise that perhaps also land registration might develop into a digital reality of its own next to the real world focusing on physical plots. Perhaps financial institutions, or even IT giants such as Google, Apple and Amazon might start taking over collecting, retrieving and processing data about land. In the United States this already happened. Mortgage Electronic Registration Systems (MERS), Inc., a private company established by US financial institutions and now owned by Intercontinental Exchange, Inc. (the parent company of the New York Stock Exchange), registers (electronic) mortgages in its own name in traditional land registries and only in its own computer system administers who the lending institution is and whether the loan has been transferred to another financial institution.[86] A clear example of a hybrid land registration.

3. The impact of data on our traditional way of legal thinking about property

Looking at property law – taken in a broad sense: so not just focussing on land, but also personal property – from a comparative viewpoint shows the following general characteristics. Property creates a sphere of freedom around an object. That sphere has both a positive and a negative side. It implies that the right holder can do with the object as he pleases, within limits set by the law, and can keep all others away. In legal terms – to formulate it in the Civil Law tradition – this means that the right is not just personal, i.e. between two or more specific persons (in other words: relative), but "real", i.e. against all others or at least against a considerable and relevant group of third persons (to put it differently: the right is absolute). Civil lawyers tend to call this a right in rem, stressing that at the heart of the right is not a particular other person having a duty, but an object. However this is nothing more than a phrase. Objects cannot have duties, only persons have duties. What is meant by using such an expression is that the right is against a

[86] See for more information: https://www.mersinc.org/index.

potentially unlimited and unknown group of other persons, who have the duty to refrain from interfering with the object. What comparative analysis also shows is that the number and content of property rights is limited, although this is not a strict rule but more a principle.[87] The types of object as to which a person can claim a property right are also limited, which limitation is written into the limited number and content of rights; the object qualifies the property right. This is the *numerus clausus* of legal objects.[88] It depends on the object which types of property right a legal system accepts. The Common Law shows a good example. The most complete right regarding land is the estate in fee simple absolute ("freehold"), whereas the most complete right concerning a movable is title ("the strongest entitlement to possession"). Another example is the distinction which legal systems generally make when they distinguish a general perception of ownership regarding physical objects from the most complete right which can exist regarding an apartment or intellectual property. Apartment "ownership" is usually a combination of, on the one hand, co-ownership of the land upon which the building is constructed and the so-called general parts of the building (entrance hall, staircase, elevator), and, on the other hand, the right of exclusive use as to a part of the building (the actual apartment). Intellectual property makes distinctions based on how human creativity was expressed, resulting in such rights as copyright (authorship), holder of a patent etc. Next to the numerus clausus of property rights and the numerus clausus of legal objects, property law only accepts that certain categories of persons can be right holders. Relevant subjects of property rights can only be natural or legal persons, which latter category includes both private and public law entities, such as companies and the states or units within a state. This applies to both who can be a subject claiming a property right (the right holder) and those against whom a property right can be claimed (duty bearer).

What we see happening is that this rather classical, 19th century, approach is now being questioned from the perspective of the hybrid reality described above. Can we accept "data" as an object of property rights? Can autonomously functioning computer systems

[87] Cf. B. Akkermans, The principle of numerus clausus in European property law (Antwerpen: intersentia, 2008).

[88] S. van Erp, Ownership of data: The numerus clausus of legal objects, Brigham-Kanner Property Rights Conference Journal 2017, p. 235 ff.

(such as Distributed Ledgers in combination with blockchain technology and smart contracts) be seen as a new type of legal subjects? The latter question I will leave aside, but is now complicating matters even further.[89] Aware of these complications, let me for now focus on data as a possible object of property rights, and the impact which a positive reply might have on land registration law.

Regarding the acceptance of data as a legal object the key question here is how to qualify "data" as a subset of "information", which again is a subset of "facts". Within "data" further distinctions can be made. We can distinguish various types of data, such as raw data, processed data, collected and assembled ("big") data etc. This classification focusses on how the data are created and used. Another classification focusses on the nature of the data from the perspective of the person who is the source of those data, the data subject. Such data are qualified as either personal or non-personal. If personal, the data subject is entitled to public law protection under privacy laws, in the European Union the General Data Protection Regulation (GDPR). If non-personal, the data fall under a new category of freedoms within the European internal market, next to the free movement of goods, services, persons and capital. Another sub-category now frequently used is "digital asset", as being a file that is created, recorded, transmitted or stored in digital or other intangible form by electronic, magnetic or optical means or by any other similar means. Whatever may be said about these classifications in more detail, it will be clear that they all have in common that data are non-physical objects, which can only exist in combination with a physical object or subject: the data carrier. Data cannot exist in a vacuum. This implies that, at least, we must distinguish three conceptual layers: (1) the semantic layer (information which can be understood by humans, such as the screen image of a website), the syntactic or code layer (the coded version of a website) and the

[89] It has been argued that we should perhaps think in, what I would call, transitory categories, in which such an autonomously functioning system in certain respects is not a subject and in other respects it is. See recently, A. von Ungern-Sternberg, Völker - und europarechtliche Implikationen autonomen Fahrens (International Law and Autonomous Driving) 2nd Edition (September 17, 2018). Bernd Oppermann/Jutta Stender-Vorwachs, Handbuch Autonomes Fahren, 2. Auflage, München 2019. Available at SSRN: https://ssrn.com/abstract=2874385.

physical layer.[90] It should be noted, however, that the third mentioned layer does not necessarily have to be a physical object. Also a "subject" can be a data carrier, because, for example, chips can be implanted in human beings, which then relay data (for example health data) to cloud servers. If, although limited to certain aspects, we would begin recognising autonomously functioning computer systems as legal subjects, we would then even be faced with non-physical data carried by a non-physical carrier. In any case, the need for a carrier even applies to the streaming of data, as such a process will not be possible without a sender and a receiver, both needing physical infrastructure.

The need to qualify the legal status and attribute rights to data independent from the carrier, results, given the non-physical nature of data, in a growing academic debate. This debate is in part of a public law nature, as it involves a human rights analysis: privacy protection regarding personal data, and in part of a private law nature, as we cannot deny the existence of data markets regarding non-personal data. Various questions can be asked. Which data are personal and, consequently, which data are non-personal? Is privacy protection so strong that it overrides any conceptualisation from a property law perspective and subsequently makes it impossible to accept "ownership" and the resulting marketability and property protection of such data? But then how to evaluate the possibility to simulate property solutions by using contract law, attempting to bind third parties to *inter partes* obligations? Can we apply the existing categories of general property law to zero's and one's? Does not intellectual property law deal with these problems, such as copyright and in the European Union also database law?[91] We, therefore, have several problems to solve at a more theoretical level, however at a moment that technical developments go incredibly fast and IT developers seem to overrun the law with their rallying cry that "(computer) code is law".[92] Answers to the questions asked above based on the desire to preserve a "status quo ante", meaning that the replies are based on the desire to keep things as they are, both dogmatically and from the perspective

[90] See I. Stepanov, Introducing a property right over data in the EU: the data producer's right – an evaluation, International Review of Law, Computers & Technology 2019, DOI: 10.1080/13600869.2019.1631621, to be found electronically at https://doi.org/10.1080/13600869.2019.1631621, p. 3, 4.

[91] Cf. the analysis by Stepanov, Introducing a property right over data in the EU.

[92] See L. Lessig, Code version 2.0 (New York: Basic Books, 2006).

of the particular group of legal professionals (judges, notaries, lawyers, land registrars and judicial enforcement officers), may result in interesting debates among lawyers, IT developers are just not interested and will proceed. If the law wants to take back control, legal actors, including academic writers, must be willing to first of all understand what is going on at a technical level and be ready to revisit and rethink existing categories and the tasks and practices of legal practitioners as they were developed before the Fourth Industrial Revolution. Not everything that is possible, should also happen. The law must balance the interests of all involved and protect those with, for example, unequal bargaining power, such as consumers. Legal professionals will face perhaps quite drastic changes in the way they work, but the "end of lawyers" will not take place so fast.[93] Human intervention will always be necessary, as not all situations can be standardised and brought back to universalist algorithms. If we are protected by algorithms, as IT developers make us believe as being the ultimate fair and democratic expression of truth and fairness, who then writes these algorithms? Or to use an old Roman saying, if programmers are the pretended guardians of such truth and fairness "*quis custodiet ipsos custodes*"?

From this perspective let me analyse some aspects of (future) data use in land registration processes, with an open mind as to how data can be used to promote digital wealth, asking the question in which cases such use should be limited in the interest of balancing interests and what the role of the law could and should be.

4. Land registry information in the data economy: tokenisation

Land registries have always been repositories of information relating to the physical object: land and buildings and regarding the rights which a subject has regarding that object vis-à-vis other subjects. But the object: land and buildings is no longer the sole source of value for its owner. Farmers, to give but one example, are more and more collecting data about, e.g., land quality as part of efforts towards what is called "precision farming" using the land in such a way that it produces the best crops. These data can be

[93] R.E. Susskind, The end of lawyers? Rethinking the nature of legal services (Oxford: Oxford University Press, 2010).

collected by satellites, but also by farming equipment such as tractors. The collected data are of such a value that they are extremely interesting for, next to suppliers of seeds and pesticides, buyers of farmland, who might be willing to pay for these data. Should land registries start registering land related data, given that these in an economic sense have become part of the traditionally registered physical objects: land and buildings? Perhaps a new information sheet should be added containing a "data passport". A problem might be that the data in this passport do not necessarily always have to belong to the farmer, as he may have sold these to others. Introducing land registry data passports therefore requires new legislation, demanding the registration of such data. Nevertheless, it should be realised that whenever government agencies, such as land registries, do not react quickly enough to market developments, the private sector will take over. There is already an example of this in Switzerland where a private so-called "proptech" company is setting up a "decentralized property register 'Property DNA'", a "blockchain-based record of all the data about a property, secured and stored in a decentralized way".[94]

A further impact of the data economy has to do with privacy protection. Land registration data could be partly personal and partly non-personal.[95] For those registries which are still completely open, in spite of the public law duty to protect privacy, arguing that such openness is a consequence of the demand that for property rights to be effective and

[94] https://www.ico.li/blockchain-real-estate-switzerland/, referring to an initiative by Elea Labs: https://www.elea.io/.

[95] See for a definition of personal data article 4 (1) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), OJ 4.5.2016: "'personal data' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person;". All other data are non-personal, see art. 3 (1) Regulation (EU) 2018/1807 of the European Parliament and of the Council of 14 November 2018 on a framework for the free flow of non-personal data in the European Union, OJ 28.11.2018, L 303/59, which reads: "'data' means data other than personal data as defined in point (1) of Article 4 of Regulation (EU) 2016/679;".

justifiable they must be made public, this raises enormous challenges.[96] Already when the fax machine came, things began to change in comparison to the situation in the "old" days when someone who needed information had to come to the registry in person and was given a handwritten copy or extract. That, by itself, limited access. The moment access became possible from any delocalised computer, by paying a relatively small fee, this *de facto* limit, indirectly protecting a person's privacy, vanished. Somehow open systems will have to create access limitations. Registration systems which were always more strict do not encounter that problem, but do need to build into their computer systems a check that fulfils the access requirements in light of the required privacy protection. Nevertheless, whatever the limitations on access to personal data, once data have been anonymised or at least pseudonymised these data are non-personal and can – and are! – sold to commercial parties. Only think of information regarding average sales prices. That by itself already has far-reaching consequences and shows a further impact of the data economy on land registries. But the new trustworthy technologies, which drive the data economy, go much further in their consequences.

A land registry seems to be an ideal "use case" for the implementation of blockchains as part of Distributed Ledger Technology in combination with smart contracts. Sellers and buyers of immovable property, at least in theory, can now transfer the property themselves, without being advised by real estate agents, and no need exists anymore for the intervention of any conveyancing specialist. The same could happen regarding the creation of a right of mortgage. Only the buyer and the bank will be involved in the transaction, again without the need to be assisted by any financial adviser or the involvement of a conveyancing specialist. The various countries in which this has been attempted show that in practice the conveyancing process proves to be far more complicated than software developers seems to think. Nevertheless, further attempts are

[96] A. Berlee, Access to personal data in public land registers: balancing publicity of property rights with the rights to privacy and data protection (The Hague: Eleven International Publishing, 2018).

made and it will only be a matter of time before the impact will become apparent. One example is England.[97] A comparable development can also be found in Finland.[98]

But developments do not stop there. Blockchain recordkeeping solutions exist in varying degrees.[99] The blockchain can, first of all, merely represent in cryptographic format information (documents, such as deeds) which are stored on what is called an originating system. The blocks are then the "finger prints" of documents stored elsewhere. A second type is that of digital records, where smart contracts create documents stored in blocks. The third type is storage of tokens. "Blocks" in a blockchain can be filled with information which derives its value from an underlying asset, such as land. Blockchains thus become value-communication technology.[100] The block then in a sense represents the land, not unlike derivatives in the world of finance (for example futures, options and swaps). This type of block is now more and more called either a "coloured coin" (a layer

[97] See for example the Annual Report and Accounts 2017/18 of HM Land Registry for England & Wales, entitled "Transformation Underway" (London: HM Stationery Office, 2018). In his foreword the Chair of the English land registry, Michael Mire, writes: "Transformation is well underway. 'Digital Street' has captured the imagination of lawyers, bankers and companies by defining how blockchain, artificial intelligence and machine learning can revolutionise the property market and make it the most efficient and frictionless anywhere. We have already reshaped the law to enable digital conveyancing and achieved a historic milestone by accepting the first ever digitally signed mortgage in the UK." The Annual Report and Accounts 2018/19 show that this development continued: Annual Report and Accounts 2018/19 of HM Land Registry for England & Wales, entitled "Transforming together" (London: HM Stationery Office, 2019), p. 28 ff.

[98] See The Finnish "DIAS platform" project (https://dias.fi/), according to Tomorrow Tech (https://tomorrow.fi/) a "digital trading platform for the residential real estate market", initiated by, among other participants, banks: https://yle.fi/uutiset/osasto/news/finland_transforming_housing_trade_system_to_digital_age/10532558.

[99] V.L. Lemieux, A typology of blockchain recordkeeping solutions and some reflections on their implications for the future of archival preservation, 2017 IEEE International Conference on Big Data (Big Data), Boston, MA, 2017, pp. 2271 ff., doi: 10.1109/BigData.2017.8258180.

[100] N. Kalyuzhnova, Transformation of the real estate market on the basis of use of the blockchain technologies: opportunities and problems, MATEC Web of Conferences 2018, 212, 06004; 2018 International Scientific Conference "Investment, Construction, Real Estate: New Technologies and Special-Purpose Development Priorities" (ICRE 2018) https://doi.org/10.1051/matecconf/201821206004, p. 4.

on top of the bitcoin software with specific, i.e. "colouring", features) or a "token", depending on the software used, and the development towards creating a derivative value in electronic format is called "tokenisation". Once a token has been created, it can be transferred using a smart contract, thus entirely computerising the process of transferring the value contained in immovable property or burdening it with a mortgage or other limited property right. No need for so-called intermediaries or trusted third parties: estate agents, notaries and land registrars. Here we see the original anarchistic ideas underlying these technologies surfacing, as in essence the argument is that people can take their own decisions in their own hands, particularly when it concerns the creation, transfer or burdening of value. In reality, projects which attempt to de-formalise the process as just described do not give the initiative to private parties, but to major financial and IT players: banks and companies such as Google and Apple, now introducing their own payments systems. What financial organisations can do relatively easy is create a, what might be described as, parallel universe not unlike the US MERS system, in which the distributed ledger itself is registered as the titled holder in the traditional registry and from that point on takes over, without the need to fulfil any requirements regarding land registration.[101] If this approach is chosen, any argument that tokens can only function as long as all the traditional conditions for registration have been fulfilled is, in fact, non-effective, because this is done when the genesis block (first block on a blockchain) is being created and for the rest any transaction will take place in the shadow land of the blockchain. Whenever a written deed still Is necessary, the builder of the blockchain will take care that such deed is registered in the name of a legal person that manages the blockchain and the smart contract. In case deeds can be submitted electronically, the process is even simpler. Any objection that tokenisation must remain within the existing numerus clausus of property rights and that data cannot be an object of entitlement and transfer in a land registry are then beside the point. The initial registration, transferring the property to the manager of the blockchain, fulfils the traditional requirements; it is from that point that the IT takes over. Of course this may result in risks. Buyers of the token will not be shielded by traditional property and land registration rules, which are aimed at protecting third parties in good faith relying on the register. If the underlying asset is transferred by the manager

[101] See, for example, the developments in Swiss law where a company called Blocimmo is tokenising property: https://www.blockimmo.ch.

or, if the manager becomes insolvent, by the bankruptcy administrator, the new owner of the underlying asset can ignore the token holders, unless they are somehow protected differently than through property and land registration law. For example when a legal system would qualify them as beneficial owners (as might happen in the Common Law tradition) or as lessees (as might be the case in the Civil Law tradition).

An alternative approach could be that the token itself is registered. This could happen by making the land registry part of (a "node" in) the Distributed Ledger. Although the land registry then will have a copy of the token, the result will be that in a static way it merely reflects what happens in the ledger, which by its very nature is dynamic but only in the hands of the token holder. The token holder would not have to fulfil the demands of land registration law, particularly stay within the numerus clausus doctrine. If transfers or the burdening of land, even represented by a token, could only take place in the form of a written deed, demanding such a formal requirement will not be very effective, given that the token transfer has to follow the protocols governing the blockchain and the tokenisation. A land registry could argue that the token is in fact not just a representation of the land, but the land itself and that for this reason all the traditional requirements of a land transfer or creation of a mortgage will have to be followed. This would, in fact, imply that the token holder has to fulfil double requirements. He will have to follow the applicable IT protocols and he will have to go to a notary or solicitor to obtain a transfer or mortgage deed. This raises the question whether the IT protocols could perhaps, for reasons of efficiency, replace the deed requirement. In today's legal environment transfers and the creation of limited property rights already are frequently done in electronic format. Still, even then a digital formal deed might be necessary, as a token created by Distributed Ledger Technology will most likely not qualify as such, unless the token is created by a Distributed Ledger in which the particular conveyancing professional itself is involved.

This may sound complex, but unfortunately difficulties do not stop here. A complicating factor are legal systems which follow the consensus approach to transfer. In such a system the agreement of sale itself transfers ownership between the parties. Registration is needed to protect the acquirer against third parties in good faith who may assume, on the basis of the land registry, that absent any registration of a transfer the registered owner

  ISBN: 978-2-9602448-0-9

still is the present owner. In a consensual transfer system the legal person managing the blockchain can buy the land without registration, if the manager takes great care that no one else registers a deed of transfer. That risk will most likely not be taken. However, it is still relevant to understand that in a consensual transfer system the managing company can start issuing tokens the very moment it concludes the contract of sale, even before the transaction reaches the desk of a conveyancing specialist, a notary, solicitor or land registrar, and is not acting fraudulently if it makes a statement that it owns the land. Under English Common Law the situation can become even more complex as in equity the buyer becomes entitled to the sold land and buildings from the moment the contract of sale has been concluded, but at common law registration of the deed at the land registry is necessary. Legal systems such as can be found in Germany, under which no ownership passes, even between the parties, until registration of the deed seem not to be troubled by these problems. However, in these systems frequently a possibility of preliminary registration of the sales agreement can be found, with quasi-proprietary effect, potentially creating a similar type of problems. A major problem area surrounding tokenisation, therefore, concerns the relationship to traditional land registration law and the condition, to be found in many legal systems, that such a registration can only be done in a particular format by a specialist conveyancer (notary or solicitor).

A further problem area is what happens after tokens have been issued, traded or used as security for a loan, and in the land registry a deed or a court order is registered which transfers ownership of the underlying asset: the immovable property. Are third parties who acquire in good faith against proper consideration then protected against the token holders? Land registry law will generally prevail over Distributed Ledger Technology and blockchains, because tokenisation does not fulfil one of the most fundamental principles of property law that property rights must be made public in order to justify their effect against third parties. When tokens are shielded from the land registry, third parties in good faith have a stronger claim for protection than token holders who hide under the veil of an inaccessible Distributed Ledger Technology based blockchain. It will be interesting, and revealing, to discuss the recently enacted Liechtenstein blockchain legislation and see how these problems are dealt with in an act aimed at promoting these developments.

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5. Tokenisation held against the light of recent legislation: Liechtenstein.

The Liechtenstein Law on Tokens and Trusted Technology (TT) Service Providers (Token and TT Service Provider Act: TVTG) has as its object and aim (article 1) to establish a civil law and supervisory legal framework for all transaction systems based on Trustworthy Technology (abbreviated as: TT), to "ensure trust in digital legal communication; in particular, in the financial and economic sector, and the protection of users in TT Systems" and "to create an excellent, innovation-friendly, and technology-neutral framework for rendering services rendered on or concerning TT Systems." Article 2 under a) defines what trustworthy technology is: "Technologies through which the integrity of Tokens, the clear assignment of Tokens to TT Identifiers and the disposal over Tokens is ensured"). The same article under c) defines what a token generally is: A "piece of information on a TT System which can represent claims or rights of memberships against a person, rights to property, or other absolute or relative rights, and is assigned to one or more TT Identifiers". This seems to encompass tokens which represent immovables and in the literature regarding the draft this has may have been suggested.[102] However, the Explanatory Memorandum is clear: Tokenisation of immovable property cannot replace the existing requirements, this can only be done with regard to a contractual right to transfer.[103] Article 2 under d) also defines payment tokens:

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[102] M. von und zu Liechtenstein, The tokenization of assets and property rights, Trusts & Trustees 2019, p. 630 ff., p. 631 ("In future, even public records such as the land register can also be administered decentrally via the blockchain, and property rights would then be certified in the form of tokens."). Most likely, the reference to tokenisation is meant as meaning that notarial deeds could be replaced by tokens. This might result in complex questions, as described above. See also Th. Nägele and P. Bont, Tokenized structures and assets in Liechtenstein law, Trusts & Trustees 2019, p. 633 ff.

[103] See Bericht und Antrag der Regierung an den Landtag des Fürstentums Liechtenstein betreffend die Schaffung eines Gesetzes über Token und VTDienstleister (Token- und VT-Dienstleister-Gesetz: TVTG) und die Abänderung weiterer Gesetze, p. 141: "Im Zuge der Vernehmlassung wurde die offene Definition als Kann-Bestimmung („Information, die Rechte verkörpern kann") begrüsst, da bestehende zwingende Formvorschriften der Tokenisierung bestimmter Rechte entgegenstehen. So sei eine Tokenisierung des Eigentums an Immobilien mit den zwingenden Vorgaben des Grundbuchs nicht vereinbar. Möglich scheine aber jedenfalls die Tokenisierung des relativen Forderungsrechts auf Übertragung des Eigentums. Die Regierung erwägt hierzu, dass die Definition in Form einer Kann-Bestimmung primär gewählt wurde, da Token nicht zwingend ein Recht beinhalten müssen. Bitcoin ist hierfür als führendes Beispiel eines

"Tokens that are accepted to fulfil contractual obligations and therefore replace legal tender in this respect." It is very interesting to see how Liechtenstein solves the conflict of laws problem. Article 3 states that the civil law rules as laid down in the status govern the qualification of tokens and their disposal on TT systems. The rules apply if "tokens are generated or issued by a TT Service Provider with headquarters or place of residence in Liechtenstein" or "parties declare its provisions to expressly apply in a legal transaction over Tokens". Article 4 adds that if "Liechtenstein Law is applicable according to article 3, the Token is considered to be an asset located in Liechtenstein". Jurisdiction is governed by article 37: "The Court of Justice shall have jurisdiction for claims of the transferee of a Token regarding the legal relationship with the Token Issuer with headquarters within the country." The Act then continues (articles 5 and 6) with rules on the disposal over tokens. It is interesting to note that the law speaks about the transfer of a "restricted in rem right (in the German original: " beschränkt dingliches Recht") to a token" (article 6 under 2, a). In essence the transfer requires *titulus*, an agreement, and *modus*, being the fulfilment of the blockchain protocols (article 6). The disposal over the token results in the disposal over the right represented by the token (article 7, under 1). Quite interesting is article 9 stating: "Those who receive Tokens in good faith, free of charge, for the purpose of acquiring the right of disposal, or a restricted in rem right, are to be protected in their acquisition, even if the transferring party was not entitled to the disposal over the Token; unless the recipient party had been aware of the lack of right of disposal, or should have been aware of such upon the exercise of due diligence." This provision seems to be crucial for online intermediary platforms, such as trading platforms. Frequently, the platform will act as a custodian for the client, holding the token for the client as a block on its node in the blockchain, thus most likely "possessing" it in the sense Liechtenstein law uses that term ("Verfügungsgewalt"), whereas the client only has a

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leeren Containers zu sehen. Generell ist zu beachten, dass zwingende Formvorschriften (wie beispielsweise bei Liegenschaften die bücherliche Eintragung) zur wirksamen Übertragung von Rechten jedenfalls eingehalten werden müssen. Die Regierung hält deshalb fest, dass ein liechtensteinisches Grundstück bzw. das Eigentumsrecht an einem Grundstück nicht von einem Token repräsentiert werden kann."

It must be noted that such a limitation on what can be a token can be easily circumvented by tokenising Liechtenstein immovable property outside the Principality. See also p. 170 of the Explanatory Memorandum, where the same argument can be found.

  ISBN: 978-2-9602448-0-9

personal right to the token. According to article 5 of the Liechtenstein Act the TT key holder – TT key by article 2 under f) being defined as "a key that allows for disposal over Tokens" – has the right of disposal over the token, however the person possessing the right of disposal also is presumed to be entitled to dispose ("Verfügungsberechtigte").[104] Taken together, the act seems to imply that if the platform, in violation of its agreement with the client, transfers the token on the blockchain the acquirer in good faith is protected and becomes the new token "owner". From a practical viewpoint this seems to be the best workable solution. It creates legal certainty and thus facilitates trade in tokens. This comes, however, at a price, which the client may ultimately have to pay. This could be an acceptable risk, but only as long as the client is clearly informed that he does not "own" the token, but has nothing more than a contractual (i.e. personal) right to it. In case of insolvency of the platform, the tokens will be part of the bankrupt estate and the client will have to satisfy himself with a – most likely: valueless – damages claim. A similar problem appears if the third party is not in good faith. That would imply that the client could ignore the transfer of the token. But what does ignoring mean if the client's status is that of a personal creditor and the token has been transferred and was passed on in the chain? Claiming re-transfer of the token will not be possible, as the client never was "owner" of the token. Nevertheless, the client might benefit in case the third party becomes insolvent, as the platform would then still be entitled to the token, although it has been transferred on the blockchain. To undo the transaction, however, and return the

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[104] The Explanatory Memorandum distinguishes, so it seems, even three categories regarding the power of disposition: (1) actual (or de facto) power, (2) possessing the power and (3) being entitled to the power. In the words of the Memorandum (p. 61/62): "Another central element is the so-called "TT key": Disposal over a TT key can be gained de facto by way of the tokens allocated to the associated TT identifier.
The TT key thus has a very important role in creating legal certainty on a TT system. The TT key holder herefore has the actual power of disposal of the token. Yet the holder need not be the person possessing the right of disposal. If a third party acquires a private key without authorisation, the third party gains de facto power of disposal over the token and can therefore initiate transactions. But from a legal point of view he/she is not entitled to dispose of it.
Consequently, a distinction is made in the Law between the holder of the power of disposal and the person possessing the right of disposal. To ensure that the applications are practicable on TT systems, the Law irrefutably assumes that the holder of the power of disposal is also the person entitled to dispose. In the
event of unauthorised acquisition, this assumption can be refuted."

token to the platform, a re-transfer would be necessary. In an insolvency situation that will not happen quickly, and the result would most likely be – again – a personal (in this case: unjust enrichment) claim of the platform against the third party, once more a claim of probably limited value.

The terms of the Act are extremely broad and open. It is clear that this was done deliberately to make the Act technology-neutral and sufficiently open to new developments. From a comparative property viewpoint it is interesting to note that legal systems which completely separate the (contractual) duty to transfer from the transfer itself, both *inter partes* and against parties, seem to have a legal system which fits with the new Internet technology very well. This would mean that the search for legal solutions should focus on abstract transfer systems, as applied in Germany, and the Torrens land registration system, as can be found in Australia and New Zealand. At the same time it is somewhat disappointing that the overall positive approach of the Liechtenstein Act towards blockchain technology and the token economy as "trustworthy" is absent when it comes to tokenization of immovable property. As anything can be tokenised, this will also happen to immovable property and it will be better for all involved to regulate it than to deny it, although it can be very well understood that this would entail fundamental changes to established rules and legal practices. Cleary, this Act is a very interesting step forward, but also shows characteristics of a law that may have come too early. Not all property law systems, not even in neighbouring European countries, follow the same property rules. A lessee has a property entitlement under English law, a personal right under the Civil Law, is possessor (albeit for someone else) under German law and a non-possessory holder under French law. Conflict of laws rules are, therefore, of utmost importance in this area. The conflict of laws rules in the Liechtenstein Act appear certainly workable, but it should always be realised that in the digital and token economy physical borders, at the end of the day, are frequently ineffective. What we need most is uniformity of law, not uniformity of conflict rules.

6. Final remarks

After a brief description of the impact of the Fourth Industrial Revolution on land registration law and some of the questions raised by these developments, an attempt was

made to find tentative answers. The focus was particularly on Distributed Ledger Technology, blockchains and smart contracts. “Blocks” can not only contain monetary value (the “Bitcoin”), but also represent value of an underlying asset. Here we pass to the digital economy and, more specifically, to the token economy. A first analysis was offered as to how tokenisation may affect land registration and first answers were provided, also looking at the recent trusted technology legislation in Liechtenstein. Although much is still uncertain, a more positive approach as can be found in the law of Liechtenstein, where the new IT technologies as a matter of principle are called “trustworthy”, seems to be more productive than negatively qualifying these technologies as “disruptive”. Unfortunately, the Liechtenstein Act excludes tokenization of immovable property, at least in the Principality itself. It will be worthwhile to watch developments.

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  ISBN: 978-2-9602448-0-9

External academic collaboration

ISBN: 978-2-9602448-0-9

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"*The European Land Registry document common semantic model as a necessary tool for the efficient implementation of the European Union Regulations in the field of Civil Justice*"

Abstract

The development of a European Judicial Space in Civil and Commercial matters has been the origin of several Regulations which, although their importance, do not totally solve all the complexities connected to cross-border real estate transactions in the European Union (EU). In such a legal challenging context, Bottom-up initiatives like the IMOLA Project must be very much welcome, in terms of enabling a sound coordination and interoperability of the Land registries systems from the Member states. This paper, makes a particular mention to the model European Land Registry Document (ELRD), as well as the benefits derived from the development of an ontology and the diverse tools related the use of the ELRD –in terms of neutrality, accessibility to information collected in Land registries or data protection-, as well as from the use of the Information and Communication Technology (ICT) instruments offered by the European e-Justice Portal.

1. Introduction

The development of a European Judicial Space in Civil and Commercial matters has amounted to the enactment of a quite an impressive number of legal instruments –mainly receiving the form of Regulations-, which are devoted to several and significant legal institutions affecting all sectors of Private International Law (PIL). Aimed at the enhancement and at the consolidation of the Internal Market, this productive legislative action certainly improves everyday life of European residents who operate cross-border within the European Union (EU) borders, and it also has an impact in significant questions like the construction of a integrated European real estate and mortgage market. However, although highly positive in terms of the objectives which pursues and of some of the results of this harmonization process, this coordinating effort can be characterised nor only for its limited material scope of application –particularly in respect to the legal regime and to the publicity of transactions related to immovable property, which are

  ISBN: 978-2-9602448-0-9

questions mainly left for the national legislator-, but also it must face the decisive role of the territoriality principle which informs real property and the still dramatic existing differences in the legal treatment of real state property form one Member State to the other (Van Erp, 2016). Thus, in order to overcome the possible legal uncertainties which this lack of harmonization can produce to hamper the rights of European residents, both the efforts of the European institutions and of the rest of stakeholders must meet, in order to achieve the necessary legal security which cross-border real estate transactions deserve in a highly integrated market.

2. European Cooperation in Civil and Commercial Matters and Land Registers: opportunities and legal risks

As it has been rightly underlined by institutions (European Systemic Risk Board, 2016) as well as authors (Wallis, 2011), the EU offers exceptional opportunities in respect to cross-border real property transactions, but also generates evident legal uncertainties which should be beard in mind, as they are able to undermine the accomplishment of the Internal Market objectives. Such legal risks are related inter alia to the existing disparities among Member States -which extent to significant questions like their legal framework for property, land recording and their publicity regimes, or the different level of transparency in their respective housing markets (Lindqvist, 2012)-, which even relate to the diverse legal concepts and terms Member States embrace and their problematic translation in practice (Miscenic, 2016).

Different types of actions have been conducted by the EU institutions to confront those difficulties. Firstly, those initiatives have led to the partial unification of the PIL rules which affect real property transactions, as shown in Regulations 1215/2010 (Brussels I (Recast) Regulation), 650/2012 (EU Successions Regulation), 2016/1103 (Regulation in matters of matrimonial property regimes) and 2016/1104 (Regulation in matters of the property consequences of registered partnerships). Nevertheless, it is essential to note that some of the key issues which are related to real property and its publicity have been left to national legislators. And this so, as long as real rights relating to property and the publicity and effects of their recording guaranteed by Land Registries have been excluded from the substantive scope of application of some of such relevant instruments, if arts.

  ISBN: 978-2-9602448-0-9

1(2) h) and l) EU Successions Regulation (Palao Moreno/ Alonso Landeta, 2015) and 1(2) g) and h) of both 2016/1103 and 2016/1104 Regulation (Rodríguez Benot, 2019), are taken into consideration.

Secondly, and apart from the enactment of the mentioned Regulations, several positive and decisive actions have been pursued by the EU institutions to overcome those legal uncertainties. In this respect, one can mention not only the autonomous and uniform delimitation of the concepts used by such Regulations by the European Court of Justice has proved to produce significant results –particularly in relation to 650/2012 Regulation (Palao Moreno, 2019)-, but also all measure related to the development of the European e-Justice Portal in order to facilitated the spread of accurate information collected in public Land Registers, which has eased the cooperation and interconnection among the different institutions and stakeholders related to European real estate dealings –notably, Land registers- (European Commission, 2018).

Nevertheless, in spite of the importance of such measures, neither of the key Up-bottom initiatives which have been mentioned have proved to be completely successful, as they enjoy a limited effect in relation to the actual needs of the UE real property market. Therefore, taking into consideration the above mentioned risks, as well the lack of common EU rules in relation to this crucial matter (linked to the problematic question of the legal basis, if any harmonization process could ever take place), the necessity to promote a close cooperation and coordination among the different stakeholders appears. A need of collaboration which has also been underlined by the European legislator, as clearly expressed in art. 66 (5) EU Successions Regulation –as well as it has been referred in Recitals 27 and 28 Regulations 2016/1103 and 2016/1104- (Carrión García de Parada, 2015).

3. The necessity to develop complementary actions in the field of European Land Registers interconnection: the IMOLA Project as an example of a good practice

As a consequence, and derived from the complex described situation, there was a real need of a Bottom-up neutral and complementary action form the different stakeholders to meet the cited goals, which benefited for the existing ICT resources and the European e-

Justice Portal. Thus, in view of this necessity, the different stakeholders involved in the consolidation of a EU real estate market have acted accordingly. In relation to this, and keeping in mind the experience gained with the previous CROBECO Project (I and II), the IMOLA Project continued with this positive initiative, although with a wider scope and with far reaching objectives.

In relation to this, and as far as the coordination, interconnection and interoperability of Land registries is concerned, one of the main challenges which the IMOLA Project faced –which is closely related to the transparency and to the accessibility to accurate and relevant legal information for citizens and professionals alike- was connected to the diversity of legal terms and concepts used in every Member State to have access to the information collected in public registers. Indeed, and from a more general perspective, such disparity appears as a common but difficult question form a multilingual EU perspective, which can impair the application of EU legislation (Somssich, 2019).

Hence the IMOLA Project aimed at the neutrality in questions of language, as well as to the respect of legal cultures and traditions –thus, avoiding the exclusive use of English as the lingua franca which, for instance, can provoke problems when delimiting the boundaries of concepts like “property” (Wilke, 2019)-. A complex linguistic situation which was not completely new, as shown by the judiciary and the interconnection of other public registers, in relation to which the European e-Justice Portal also proved to be strongly beneficial to enable the coordination at an EU level.

Therefore, the development of a multilingual ontology in the framework of the IMOLA project, which operates in connection to a model European Land Registry Document (ELRD), must be envisaged as a necessity for the success of systems interoperability –and, in the end, for the accomplishment of the objectives of the Internal Market-, so it has to be strongly supported (Lumsden, Hall, Cruickshank, 2011). As a consequence, this ontology –in connection to the guidelines, the explanatory material, the definitions, and the assistance tools the IMOLA Project offers- must be considered a practical neutral tool and a complementary Bottom-up action, which circumvents the problematic issue of a deeper harmonization process and the problematic question of its legal basis; while guaranteeing the access to accurate information, the data protection, and the registration

  ISBN: 978-2-9602448-0-9

of foreign documents for citizens and professionals, resulting also beneficial form an economic standpoint.

In the words of Wittgenstein: "Reality is Shaped by the Words we Use" (1922). This is also true and directly affects when a cross-border real property transaction is at stake, because the different concepts which are used in every Member State legal system involved in such transaction are strongly rooted in their different legal culture and traditions, and their use can hamper the effectiveness of those transactions in practice. Thus, an effective cooperation in the field of EU real property demands an agreement of the significance we are going to provide to each word, concept and term, as well as the meaning and value. In relation to this, is important to note that, although the existing complexity and the need to understand a foreign legal system, there are also common points between the national systems which are key. This consensus will prove to be, as a consequence, essential for the interconnection of Land registers and it has been reached thanks to the IMOLA Project, potentially benefiting citizens and the EU internal market as such.

4. Concluding remarks

As shown in this paper, the IMOLA Project derives from an actual necessity of the EU, which has been rightly approached to minimize all legal challenges which cross-border real estate transaction can face in practice, while offering clear benefits in terms of interoperability, transparency, accessibility, and data protection in the field of cross-border real property transactions. The development of a neutral ELRD and the ontology related to it, avoids questions related to the legal basis of such action, and also is going to be linked to a powerful infrastructure like the European e-Justice Portal and the ICT tools which it provides.

In this respect, and on the one hand, the development of an ontology –and the rest of Soft Law helping instruments connected to it- is going to facilitate the spread and use of the ELRD. Besides, on the other hand, this Soft Law and cooperative coordinating effort must also be envisaged as a European good practice –along the lines of the experience already gained by the judiciary through the judicial networks (Hess, Kramer, 2017)-, which is

  ISBN: 978-2-9602448-0-9

going to facilitate the full and efficient application of those Civil Justice Regulations –in particular those instruments linked to cross-border real property transactions- and, as a result, they will surely prove to be strongly beneficial for the achievement of a EU real estate and mortgage market. For all these reasons, the efforts conducted by the different stakeholders -in particular, the European Land Registry Association- have to be strongly welcome and supported.

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"IMOLA: Harmonization, Standardization, and Automation in EU Land Registries: Some Thoughts from a Legal Perspective"

Abstract

The aim of this Paper is to elaborate some thoughts and stir a forward-looking debate about the future of land registries in Europe based on the objectives and the outcomes of IMOLA Project. The discussion pivots on three key ideas aroused by the conception of the IMOLA Project: harmonization, standardization, and automation. These ideas have a profound impact on the legal configuration, structure, and effects of land registries. This Paper aims to open the discussion and prospect for possible future models for land registries under the three coordinates of harmonization, standardization, and automation. The Paper concludes first that the setting of standards (technical and legal standards) is a primary and fundamental - as it facilitates interoperability -, but not sufficient, prerequisite for harmonization, unless it is followed and completed by legal coordination, increasing uniformity in legal frameworks, and common principles. Secondly, standardization enables automation of a multitude of tasks, procedures, and even decision-making. Nonetheless, automation requires a thoughtful legal analysis to ensure legality, validity, and enforceability. Even more, the scope of automation is promising but limited in the legal domain and, in particular, in the land registry realm. These limits must be consciously considered and respected in order to guarantee that legal protection of rights and interests, as well as the values of legal certainty, predictability, and trust are not jeopardized.

Keywords: Standardisation, automation, interoperability, platforms, algorithm-driven system, smart contract, dynamic registration, legal certainty, land registry, electronic registries

  ISBN: 978-2-9602448-0-9

1. Setting the scene: one project, three vectors for a forward-looking debate on Land Registries' prospect

Accessibility and cross-border exchange of land registry information in the European Union is complicated, limited, and unsatisfactory. Complexities arise from legal disparities in domestic legislation, diverging registry practices, and intricacies naturally inherent to linguistic plurality. Standard means of accessing and exchanging information among European land registry systems is then needed. In acknowledging these intricacies, IMOLA aims to design and produce a model for standardised land registry output, paired with explanatory material and training programs to improve understanding of different legal systems in several languages. Therefore, IMOLA's key objectives are to increase accessibility, enhance transparency, and facilitate registration in cross-border situations. The project starts from the assumption that, despite the disparity between national legal system, common points can be identified and established as the base from which to define a standard structure of key information shared by most EU land registries.

IMOLA Project lays the foundations for opening a forward-looking debate on the future of registry systems under three main coordinates: harmonisation, standardisation, and automation. The successful outcomes of IMOLA Project invites a deeper and broader discussion from a legal perspective. The interplay between technological feasibility and legal admissibility defines the limits of an ongoing dialogue to accommodate the legal framework to technological disruption and harmonization at the EU level.

This Paper takes the IMOLA Project, its objectives and outcomes, as a trigger for assessing how technological solutions can contribute to the harmonization of the legal framework for registry systems in Europe; enhance standardisation as a solution to reduce legal discrepancies, increase effectiveness, and improve interoperability; and implement automation strategies in registry procedures to reduce costs, streamline processes, and optimize recourse allocation. The Paper is essentially a reflection on the extent and the limits of a digital transformation of registry systems starting from the actual technological possibilities that IMOLA produces and implements.

ISBN: 978-2-9602448-0-9

2. Interplay between legal harmonisation and standardisation: opportunities and risks

The main outcome of IMOLA is the achievement of a proof of concept of an ELRD (European Land Registry Document) based on the principles of legal neutrality, legal minimum and flexibility. The idea of producing a standardized interface enabling the accessibility of relevant registry data and facilitating transactions over properties provides a powerful tool to discuss how standardization promotes, contributes or even replaces the need for legal harmonization. As discrepancies between domestic laws and national registry practices and models[105] are the source of complexity and deficiencies in the cross-border exchange of information, the production of a standard model of collecting, sharing and exchanging relevant registration data is certainly conducive to overcome those hurdles.

Behind the IMOLA' achievements, there are two important debates. First, to which extent the standardization of data and information to be shared, under a semantic model, solves the legal disparity and which incidental risks emerge. Second, how technology (technological ecosystem) can provide new architectures for registry cooperation in Europe and new environments for data sharing.

2.1. Standardization and legal harmonization: promises and perils

Regarding the first question, IMOLA Project had to dealt with the well-known distinction between facts and legal concepts. Whereas facts (location, size, measures, address) can be easily standardized and, therefore, interoperable data-sharing policies are feasible; legal concepts (encumbrances, ownership, security interest, liens, charge, possession,

[105] Analysis and proposals for coordinating registry systems, in general, in Europe in: Pau, Antonio (2004). *La convergencia de los sistemas registrales en Europa*. Madrid: Colegio de Registradores de la Propiedad, Mercantiles y Bienes Muebles de España; Cámara Lapuente, Sergio (2004). Los sistemas registrales en el marco del Derecho privado europeo: reflexiones comparatistas sobre la inscripción registral como formalidad de los contratos. *Anuario de Derecho Civil*, Tomo LVII, 929–1001.

mortgage) embody legal regimes likely to differ among domestic jurisdictions.[106] Consequently, the standardization of terms does not ensure the harmonization of legal regimes.[107] Legal harmonization promoted by international organizations and formulating agencies (UNCITRAL, UNIDROIT, EU, OEA, etc) is familiar with disparities inherent to legal tradition[108] and has to struggle with similar intricacies inherent to the process of unification.[109] IMOLA is rightly based on a principle of legal neutrality to conceal the risks and criticism of 'legal transplant' in the context of diffusion of law and harmonization.[110]

The most immediate consequence of the previous consideration is that a standard model for accessing and exchanging registration information has to manage the legal disparity and avoid the risk of disguising legal harmonization as data/information standardization. Accordingly, IMOLA pairs the design of the ELRD with explanatory material and training. These helpful complements tend to attenuate the consequences of the legal disparity.

Considering that, it might be well worth wondering about the legal value of standardized registry information. There are at least three aspects to tackle in that regard. First, should the information provided by the ELRD regarding a registration in a specific land registry have equivalent legal effects as the registration itself. Second, how the 'legal translation' – from registration in Country A to standard form and standard form to legal effects in

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[106] David, Rene and Brierley, John E. C. (1978). *Major Legal Systems in the World today An Introduction to the Comparative Study of Law*. 2nd Ed., New York: The Free Press.

[107] Grosheide, F. W. (1994). Legal Borrowing and Drafting International Commercial Contracts. In Boele-Woelki (ed.) *Comparability and Evaluation: Essays on Comparative Law, Private International Law, and International Commercial Arbitration, in Honour of Dimitra Kokkini-Iatridou*. (pp. 69–83) The Hague: Kluwer.

[108] Gessner, Volkmar (1994). Global Legal Interaction and Legal Cultures. *Ratio Iuris* 7, 132–145.

[109] Estrella Faria, José Angelo (2009), Future Directions of Legal Harmonisation and Law Reform: Stormy Seas or Prosperous Voyage?. *Uniform Law Review* 14, 5–34.

[110] Watson, Alan (1974). *Legal Transplants: An Approach to Comparative Law.* Edinburgh: Scottish Academic Press.

Country B - is conducted from one legal jurisdiction to another. Third, who is responsible for the legal accuracy of the information and liable in case of mistake.

The three questions above arise from a remarkable observation. Technological solutions, as the laudable IMOLA's achievements, place a 'second layer' over the current registry systems. This second layer is a technological one but has legal implications. Therefore, it is legitimate to consider which additional risks create and how to allocate them among incumbent actors. That leads to a further question on the reasonable reliance parties seeking for the information – beyond registrars and professionals involved – expect to place on the standard information collected through the ELRD. Could the ELRD replace the consultation of the relevant registry information? Would the answer depend on the condition of the searching person? Could/should the information provided through the standard model be equally authenticated/endorsed/verified by the competent registries/registrars?

Acknowledging the pertinence of raising these issues implies a recognition of the extraordinary contribution that solutions and projects like IMOLA mean for the harmonization in Europe. Spotted risks and perils are not indeed unveiling insufficiencies of the standard model. On the contrary, they spotlight the need to complement it with a genuine legal rapprochement.

2.2. Coordination, harmonization and plurality of models

The second facet that the IMOLA's aims and outcomes inspire to think about is which is the preferred route to achieve the consolidation of a common land registry domain for EU. On the other hand, the right choice of legal neutrality as a principle preserves the plurality of registry models in Europe. On the other hand, the aspiration to settle a common registry system for Europe encourages to work on unification and harmonization in terms of structure and substance in detriment of plurality and disparities.

The former approach leads to reflect on the role of interoperability as a tool for consolidating.

  ISBN: 978-2-9602448-0-9

The intriguing proposition is then that technology is not only a tool but also an architecture. In recognizing this two-fold role of emerging technologies, the possibilities to reconfigure the land registry realm multiply. What if technological solutions are not only employed to make searches and consultations more efficient and standard, but also to create new structures for coordination and convergence. The rationale behind this hypothesis are elaborated below.

Unlike previous technological developments that were usually perceived by market players and understood by legislators as instruments or tools (electronic document, digital signatures, electronic money, etc.), today's emerging technologies do also offer new architectures or structures – from platform-based models[111] to distributed ledger technologies - to organize relationships and run activities of any kind. That structural dimension does also touch the spirit of the activity.

Network-based structures are a valuable contribution of digital technology, highly pioneer at the first stages of its advent, to enable cooperation among a plurality of actors or nodes. After several decades of evolution and profound penetration of digital technologies in our societies, network-based structures have gained sophistication. Today, the architecture of digital society and economy is shaped by the possibilities provided by digital technologies: from centralized platform-based models to decentralized DLT systems. But, from a functional point of view, and, definitively, from a legal viewpoint, architecture is not neutral. The choice of an architectural option is not innocuous. Therefore, the plurality of structural models to coordinate European registries does indeed represent important and varied policy decisions.

For ease of analysis, a mere comparison of the two extreme cases may illustrate the differing consequences and the policy implications. Whereas a DLT-based model could

[111] Rodríguez de las Heras Ballell, Teresa (2017). The Legal Anatomy of Electronic Platforms: A Prior Study to Assess the Need of a Law of Platforms in the EU. The Italian Law Journal 1/3, 149-176. Rodríguez de las Heras Ballell, Teresa (2019). Platform-based Models for Facilitating International Trade: A Legal Analysis. In Rai & Winn (Eds.) *Trade Facilitation and the WTO*. Cambridge: Cambridgee Scholars Publishing

enable coordination, facilitate data flow – specially, with the aid of IMOLA-inspired interfaces and common language -, and preserve plurality ('diversity in unity') of domestic registry systems: a platform-based model implies the setting up of a central operator who could be entitled to, not only coordinate, but also standardize, regulate, monitor, solve conflicts, and enforce decisions over joined registries. The latter model erects a central operator with a variety of functions. As it can be observed, both models help domestic registries in reinforcing coordination and both of them are likely to produce positive outcomes, the option for a platform-based model entails a crucial decision with legal and policy repercussion. A central actor emerges in the European Land Registries' realm. It is clearly a forward step towards integration without replacing plurality.

Should these alternative models based on different technology-enabled structures be connected with other ongoing efforts to enhance mutual coordination carried out to date, a staggered process can be traced. In achieving mutual coordination and even possible future integration, the European Land Registry Network was set up in 2010 by the member of ELRA.[112] Inspired by the EJN, the ELRN was designed as an information-based common system to facilitate contacts, exchange information, and share knowledge. It is an information-based stage towards coordination. At a second stage, the devising of an architecture to promote coordination, as it has been discussed above, is imperative. To that end, technology is a fundamental enabler as well. Finally, a system enabling information exchange and coordination action will lay the foundations to implement a possible integration, if that is the common goal.

Acknowledging that the real transformative power of modern technologies does indeed reside in its potential to reshape structures and provide new architectural options[113] for cooperation, interaction, and exchange invite two consequences. First, principles of functional equivalence and technology neutrality must be revised. Second, a new version

[112] Further information at https://www.elra.eu/european-land-registry-network/.

[113] Rodríguez de las Heras Ballell, Teresa (2019). Legal challenges of artificial intelligence: modelling the disruptive features of emerging technologies and assessing their possible legal impact. *Uniform Law Review* 1/2019, 1–13.

in terms of architecture of the above-referred principles in proposed in this Paper: a principle of architecture neutrality and a principle of architecture equivalence.

2.2.1. Principles of functional equivalence and technology neutrality revisited.

The classical application of these principles underlines the development of electronic documents, digital signatures, electronic evidence, and all transactional aspects of electronic contracting. Thus, digital medium and electronic means offers new effective instruments for storing data, providing evidence, documenting rights, concluding contracts or exchanging information. *Example: an electronic document has equivalent legal effects to those that the law attributes to 'writing' in a paper-based document insofar as it fulfils the same functions: namely, storing information and enabling subsequent accessibility thereto.*

The resulting impact in transactions is certainly revolutionary but it is however partial. If we understand, however, that digital medium and electronic means can not only emulate traditional (paper-based) institutions, but infuse them with innovative functions or possibilities, digital applications multiply. *Example: an electronic registration in a classical conception would simply reproduce the book-entry registration logic in digital medium. Thus, it would entail that registrations are made in digital format but mimic the book-like structure of a paper-based Registry. Entries are annotated in a time order. However, digital documents offer new possibilities for registrations. As digital documents are based on data, or more precisely, are indeed structured units of data, the idea of 'dynamic registrations based on the collection of updated data' could be envisioned and developed.*

It is then our proposal here that the traditional understanding of the principles of functional equivalence and technology neutrality should be revisited to go beyond a mere replica of paper-based institutions in digital format and exploit the appealing possibilities that digital technologies offer to reshape documents and registrations, collect and publish information, and organize data.

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2.2.2. New principles of architecture equivalence and architecture neutrality

As it has been mentioned above, the actual potential of digital technologies is related to the creation and the development of new architectures. New organizational models or new structures lead to new possibilities to carry out social and economic activities.

Under the traditional model, Registries use to be designed as repositories of documents or databases designed to provide information to third parties, usually, upon request (search). Today, the use of technologies such as electronic platforms or blockchain-based schemes (Distributed Ledgers Technologies) can incredibly enhance the performance of classical functions and enable new ones under innovative organizational models.

As further explained below, the devising of increasingly sophisticated technological ecosystems integrating emerging applications and developments can enlarge the functional scope of registries to unprecedented horizons. Transactional aspects (payments methods, taxation, negotiation), aggregating or comparison services, trusted added-value services (rating, ranking, inspection, recommender systems, etc) could be integrated in an ample multilateral platform gathering relevant actors in conveying transactions.

4. The promise of automation and its limits in and for Land Registries

The last line of thought that IMOLA project inspires is related to automation as a driving force to transform a multitude of activities in contemporary societies. The extraordinary advances in the European Land Registry coordination enabled by technology pave the path towards an increasing automation of registration-related tasks, processes, or even decision-makings. A synergetic combination of standardization, coordination-enhancing architecture, and data-driven processes prepares an ideal scenario for exploring the scope and the possibilities of automation.

The publicity-providing function of Registries hangs from two main components: data and accessibility/visibility tools. Emerging digital technologies greatly impact of both of them. Far from the monolithic model of classic registries solely fed by data provided by registrants and competent registrars, an interconnected electronic registry stirs the

  ISBN: 978-2-9602448-0-9

imagination to conceive a multi-source data provision through sensors, actuators, third-party providers, etc. Hence, registration could be fed by data collected, generated, or provided by different source, either machine-controlled or human ones. These possibilities sustain the original proposal[114] of future 'dynamic transactions. Registrations would be updated by data gathered, produced, or collected thought interconnected devices/sensors/actors.

The reference to smart contracts encapsulates a different perspective of automation: automated decision-making. There several limitations of automation arise. Those jurisdictions with substantial checking by the registrar will encounter difficulties in automating such stage of the registration process. The limitations of coding to capture indeterminate legal concepts; the loss of interpretation; the impossibility of resorting to general principles.

It can be envisioned at least three areas of interoperation between IoT solutions and smart contracts, integrating a more and more complex ecosystem of smart devices, smart contracts (more precisely, Distributed Autonomous Organizations) and humans.[115] Firstly, connected devices could capture and fuel into smart contracts precise and updated data in the formation stage in order to specify assets, locations, or parties' details. Secondly, smart or connected devices could help to detect subsequent changes in a set of pre-defined data and allow smart contracts to adapt agreed conditions in accordance to the new circumstances. Thirdly, smart devices could interact with the smart contract in case of breach of contract on a bidirectional basis: collecting data that upon incorporation into the contract prove non-fulfillment as well as reading the state of blockchain and reacting as agreed with a programmed response of the smart property (i.e. ignition suspension in case of delayed payments). Basically, IoT solutions would ensure a permanent flow of data throughout the lifecycle of the contract, whereas smart contracts would enhance efficiency, speed, and performance of transactions.

[114] Rodríguez de las Heras Ballell, Teresa (2017). A technological transformation of secured transactions law: visibility, monitoring, and enforcement. Uniform Law Review 22, 693-715.

[115] Swan, Melanie (2015). *Blockchain: Blueprint for a New Economy*, Sebastopol, O'Reilly Media.

A third ingredient can be added to this mixture of technology developments where smart contracts are besides implemented on a blockchain. Then the performance is not executed by a central entity by distributed among the network of nodes. Blockchain-based smart contracts are certainly more sophisticated than traditional automated and self-executed transactions insofar as they are independent and autonomous.[116]

5. Forward thinking

IMOLA Projects demonstrates the enormous value of technological applications to enhance mutual coordination in the European Land Registries. Precisely, digital technologies offer extraordinarily varied opportunities to enhance registry systems. The implementation of digital-technology solutions must be the result of a prior analysis of current systems and a thoughtful strategy based on a functional proposal. As a matter of fact, technology solutions can not only improve the performance of existing functions, but, interestingly, also enable the performance of new functions. Therefore, the devising of a functional profile is critical to trace a consistent digital transformation strategy for Registries.

Unlike previous technology advances, digital technologies perform in today's society a double role. Digital technology is indeed both an instrument and an architecture. Hence, digital transformation triggered by the implementation of digital technologies is likely to impact on two layers. First, the procedural and transactional layer, where technologies improves procedures, performance, and tasks. Second, the architectural or structural layer, where technology offers the possibility of reshaping traditional structures and create new environments for the performance of old and new functions

Tracing a strategy for digital transformation of registries and defining possible Registry model accordingly, requires first to explain two basic premises. First, to clarify three key

[116] As blockchain-based smart contracts do not depend on a third party to operate and cannot be controlled by anyone. As clearly explained by Wright, Aaron and De Filippi, Primavera (2015), Decentralized Blockchain Technology and the Rise of Lex Cryptographia (March 10, 2015). Available at SSRN: https://ssrn.com/abstract=2580664

concepts present in digital transformation options: electronic, digital, and automatic. Second, to elaborate our thesis that emerging technologies play today a double role: as an instrument and as an architecture and explore possible models.

5.1. First: explanation of three relevant concepts: electronic, digital, and automatic.

Digital transformation of registries involves three different, albeit interconnected, planes: electronic plane, digital plane, and automatic/autonomous plane.

'Electronic' simply relates to the use of electronic communications – in the meaning of the *2005 UN Convention on the use of electronic communication in international trade* - throughout the registration/modification/cancellation/search process.

'Digital' is a qualifier of the information. Therefore, digital information is codified, produced, transmitted, and stored in digital medium. Electronic means and digital medium are related and interdependent.

Finally, the term 'automatic' describes performance of tasks without human intervention. In conformity with pre-programmed instructions (and with a certain degree of decision beyond instructions in case of machine-learning and AI), the system carries out certain tasks and activities.

5.2. Second: tracing a possible evolution of traditional registers towards an automatic electronic register

A total transformation of a registry system into digital might be completed in one phase but surrounding circumstances, policy considerations, or strategical reasons could recommend that the process develops in several stages. A four-stage strategy is proposed here as an analytical framework to better accommodate available state-of-the-art technologies, budgetary considerations in each case, and training needs. Besides, a staggered process becomes more flexible and allows to test the progress and recalibrate the implementation where it is needed. Nonetheless, the proposal of four-stage process does not intend to mean that the process has to prolong in time and phases have to be

completed one by one, it does only describe a strategy to understand the different options to explore.

- Stage 1. An electronic register: use of electronic means and digital medium for all processes (registration, amendment, search, cancellation).

This first stage has been undertaken and widely completed in many jurisdictions. It does essentially entail the incorporation of electronic means and digital medium in part of and the entirety of the processes conducted through the Registry. Hence, registrations, amendments, searches or cancellations are made electronically. That basically requires the adoption of identification methods for registrants (and, where required, users) – electronic signatures or prior registration - and the recognition of the validity of electronic communication for the purposes of registry-related actions. Depending upon the Registry model, an electronic registry can be still based on documents (electronic documents) or entirely based on data.

- Stage 2. An active electronic register: Register may interact with registered users and proactively transmit relevant notices and communications (i.e. expiration date, detected errors, etc.)

The second stage can be easily achieved where the Registry operates in a fully electronic mode. But it entails the addition of an interesting proactive function of the Registry (as an institution, or Registrars, as the professionals in charge of the Registry). The information would fluently flow in both directions. The Registry would not be passive repository of relevant information registered by registrants and provided upon request, but it would become more proactive interacting with users and actively rendering the information public and accessible. Under this model, Registry could (automatically or case-by-case) transmit notices to users about registrations (expiration date, mistakes, connection with other registrations, missing data, etc). Interestingly, the real meaning of ‘publicity’ is better achieved.

- Stage 3. Registry system as a multilateral platform
    - Users participate in the registry and interact each other

- Multilateral communications are enabled
- All relevant data are available to parties on the same platforms
- All transactions are conducted through the platform

The third stage is based on the development of a multilateral platform managed and operated by the Registry where users interact each other and through which transactions could be partially or totally conducted: searching title on the land, verifying data, managing mortgage, paying taxes, etc. All relevant information would be processed within the platform. Confidentiality needs should be tackled and carefully manage. Information should be compartmented and would be accessible selectively on the basis of the user's condition.

- Evolved Stage 3 / Stage 4. A highly automated registry system in an ecosystem of smart contract, smart property and trusted third parties.
  - Dynamic registrations
  - Update data

The fourth stage is an evolved version of previously described phase 3. The performance of the platform-based Registry can be enhanced and highly automated with the incorporation of automatic tasks and procedures – smart contracts and algorithm-driven processes -, the continuous collection of data through smart property (Internet-of-Things applications, sensors, etc) and oracles responsible for feeding the Registry (cadaster, tax authorities, land authorities, meteorology services, etc). The level of automation and the scope of automated tasks will strongly depend upon the nature of the assessment to be conducted by the Registry: no assessment, formal assessment or material/substantive assessment. Whereas notice-filing models can easily automatize, other registry models encounter more intricacies and complexities to complete this process.

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ISBN: 978-2-9602448-0-9

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"*The use of ELRD as a complementary tool when assessing an application for a for the European Certificate of Succession (Art. 66.5 of the Regulation 2012/650)*"

1. Introduction

The aim of this chapter is to highlight how the results of IMOLA Project, namely the use of the European Land Register Document (ELRD), may be complementary to the operation of Article 66(5) of Regulation 650/2012 in the context of the examination of an application for a European Certificate of Successions (ECS).

According to the information in its website, the European Land Registry Association (ELRA) has developed the IMOLA I project to produce a model for standardized land registry outputs. The European Land Registry Document has been developed through an XSD/ XML scheme that allows semi-automatic processing of information through shared rules with metadata derived from a thesaurus. The ELRD gives homogeneity to the registration information which flows through the e-Justice portal and becomes the interface through which the interconnection of Land Registers may operate.

IMOLA II, as a follow-up project, provides a platform of semantic interoperability among Land Registers in Europe, using controlled vocabularies and a semantic shared repository (Knowledge Repository) integrated in the e-justice portal (Thesaurus). As a result, through a web page, National Land Registers´ Systems become costumers of this web service.

That said, Article 66(5) of Regulation 650/2012 (to which belong all the legal provisions or recitals mentioned hereinafter) provides for a cooperation mechanism at the stage of the examination of an application for an ECS, between the authorities competent to issue the ECS in a Member State and, as it may be the case, the Land Registers in another Member State.

  ISBN: 978-2-9602448-0-9

Article 66 (1) and (5) of Regulation 650/2012 reads:

"1 – Upon receipt of the application the issuing authority shall verify the information and declarations and the documents and other evidence provided by the applicant. It shall carry out the enquiries necessary for that verification of its own motion where this is provided for or authorized by its own law, or shall invite the applicant to provide any further evidence which it deems necessary.

(…)

5 – For the purposes of this Article, the competent authority of a Member State shall, upon request, provide the issuing authority of another Member State with information held, in particular, in the land registers, the civil status registers and the registers recording documents and facts of relevance for the succession or for the matrimonial property regime or an equivalent property regime of the deceased, where that competent authority would be authorized, under national law, to provide another national authority with such information."

According to this provision, before issuing the ECS the competent authority shall verify the information, declarations, documents and other evidence provided by the applicant. These enquiries shall be made by the issuing authority of its own motion when its national law so provides or authorizes it. If not, the issuing authority shall invite the applicant to provide further evidence.

In the first scenario, when its national law provides or authorizes an issuing authority to carry on enquiries of its own motion, the request for information, namely information held by a Land Register in another Member State, is mandatory when it is necessary for the establishment of certain elements to be certified.

To make such a request for information, some conditions have to be met and some difficulties may arise.

The conditions that have to be met are the ensuing: (1) the national law of the requesting authority has a provision that authorizes or sets forth that it may carry out enquiries of its own motion; (2) the requested authority in the other Member State is authorized, under its national law, to provide another national authority with such information; (3) the

information is of relevance for the succession, or for the matrimonial property regime or an equivalent property regime of the deceased; the information is necessary for the establishment of certain elements to be certified in the ECS.

Implementing this cooperation mechanism may give rise to some difficulties in practice. It is not always easy to identify the requested Land Register in another Member State, namely in case of regional register systems which are not interconnected, or to know if there is a requesting form in use in the other Member State, or if that form is mandatory. To know if languages other than the official language of the requested Member State can be accepted to make the request, which are fees to be paid, if it is possible for some registers to issue certified information in another official language, if the search for information on the situation of an asset can be based on the name of the deceased or if it shall be based on the identifying elements of that asset, if in the requested Member State the purpose of the registry is only to publicize the legal status of assets or if it aims at publicizing which assets a person possesses, are additional issues that may need to be clarified to facilitate the execution of the request for cooperation under Article 66(5).

Moreover, the existence of separate cadasters and land registry organizations may lead to divergences between the information provided by each organization regarding ownership. This originates uncertainty about the information that shall be included in the ECS according to Article 68.

Encumbrances may or may not be included in the scope of the information: this can be relevant for interested heirs or immediate buyers of inheritance assets.

Also, data relating to a court decision in criminal proceedings ordering the provisional seizure of the assets, although sensitive, may be relevant for interested heirs or immediate buyers of the inheritance assets.

Finally, each Member State may have different requirements (formal and substantial) to register a change of ownership of registered property resulting from succession. The information required by the register authority in another Member State to identify the assets – that shall be included in the ECS – varies from one Member State to another. As

  ISBN: 978-2-9602448-0-9

registry information and its requirements are usually in national languages and mainly intended for national users, it is not always easy for the authority issuing the ECS to have access to that information in another Member State.

Although the requirements for the recording in a register of a right in immovable property are excluded from the scope of Regulation 650/2012, from a practical point of view it is important to recall that according to recital 68 "The authority which issues the Certificate should have regard to the formalities required for the registration of immovable property in the Member State in which the register is kept. For that purpose, this Regulation should provide for an exchange of information on such formalities between the Member States". In this regard, Article 77 of Regulation 650/2012 sets forth that Member States shall provide fact sheets listing all the documents and/or information usually required for the purposes of registration of immovable property located on their territory.

In this context, it seems that the ECS shall indicate the relevant identification details of the assets attributed to the heirs or legatees.

When the Commission Implementing Regulation 1329/2014 established the forms referred to in Regulation 650/2012, among which Annex 5 by means of which the ECS shall be issued, it explicitly mentions in the text of the ECS form, the need to indicate the identification details of the assets, namely those that are relevant for the registration of immovable property in the Member State in which the register is kept.

In Annex 5 – Form V and its Annexes I to VI – the European Certificate of Succession´s form – foot note 13 reads as follows: " Indicate if the heir acquired the ownership or other rights on the assets (in the latter case please indicate the nature of these rights and the other persons having also rights on the assets). In case of a registered asset , please indicate the information required under the law of the Member State in which the register is kept so as to permit the identification of the asset (e.g. for immovable property exact address of the property, land register, land parcel or cadastral number, description of the property (if necessary append relevant documents)."

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This information is necessary to fill point 9 of Form V –Annex IV (status and rights of the heirs) of the ECS.

According to foot note 15, the same information is necessary regarding the legatees, to fill point 5 of Form V – Annex V (status and rights of legatees having rights in the succession).

Thus, when the authority issuing the ECS is authorized by its own law to make enquiries of its own motion and the remaining requirements of Article 66(5) of Regulation 650/2012 are met, the use of the ELRD may prove very useful to obtain a quick, reliable and accurate information on the following issues: the exact address of the property; the land parcel or cadastral number; the description of the property; the nature of the rights acquired by the heirs or legatees, in order to respect the limited number (numerus clausus) of rights in rem known in the national law of the Member State where the register is kept; if there are other persons having also rights on those assets.

The knowledge repository integrated on the e-justice portal, the use of controlled vocabularies, the semantic interoperability, and the standardized common output that can be achieved through IMOLA will allow the authorities issuing an ECS to obtain a standardized piece of information regarding the elements to be certified in the ECS by means of a uniform European Land Register Document.

To that end, issuing authorities of the ECS different from Land Registers may have to be admitted as costumers of the web service provided by IMOLA trough a web page, for the purposes of Article 66(5) of Regulation 650/2012.

As ELRA explains in its website, the assistance tools complementing the single point of access within the e-Justice portal will enable an effective use of this information.

The ELRD and its model of interoperability should facilitate the task of gathering in the ECS information useful for the registration of succession property in another Member State.

ISBN: 978-2-9602448-0-9

By fostering cooperation between the registering authorities and the authorities competent to issue the ECS, located in different Member States, the use of ELRD may contribute to achieve one of the objectives of Regulation 650/2012 mentioned in recital 18, according to which the ECS should constitute a valid document for the recording of succession property in a register of a Member State provided it contains the information needed for registration as required by the law of the Member State where the register is kept.

Therefore, heirs and legatees who face difficulties in asserting their rights in the context of a succession with cross-border implications may take real advantage of the added value of the ECS in terms of speeding up the succession.

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  ISBN: 978-2-9602448-0-9

Francisco Martin Mazuelos

"*The ELRD. Registry information for purposes of judicial cooperation*"

1. THE ELRD

Any official Land Registry is intended to give authentic publicity to the rights in rem on immovable property, by recording either deeds or titles. Its main effect is the validity of a transfer or burden against the beneficiary of any non-recorded right, burden or interest. The transfer of property and the effects of a mortgage or any other charge or burden are thus assured, in favor of economic traffic and credit. A purchaser of a property, as well as a mortgagee, will have their rights protected by the Land Registry. A creditor who has recorded a claim for the payment of the debt may have the debtor´s property attached for that purpose, even if the debtor transfers or has his property encumbered later.

Any of those persons, with an interest to know beforehand the ownership and burdens of a property, the rights and limitations on it, may get information from a Land Registry, in accordance with the law of the State where the register is situated. If the property is situated in a different State, perhaps with a Land Registry system or with rights in rem not entirely equivalent to his own State's, the information given by a foreign Registry will almost certainly need a translation and even then its interpretation may be confusing.

Regulations 1347/2000 (repealed by Regulation 2201/2003) and 44/2001 found a practical way to facilitate the recognition of a judgment in another Member State. In order to certificate the judgment, they include Annexes, with forms that may be found in any official language and make available the meaning of any of its paragraphs. The issuing court, the parties to the proceedings, the legal aid if granted, the date of service, the enforceability and other particulars are just filled in. Annex I to Regulation 805/2004, as well as later ones, add details of the amount to be paid, instalments and interests, so that often no additional information is needed for the enforcement of the judgment and no costs of translation have to be afforded.

  ISBN: 978-2-9602448-0-9

The European Land Registry Document (ELRD) is, essentially, a form designed to supply the information available in a Land Registry. A standard template is not at all easy to achieve in this field. On one hand, it is well known that there are two main systems for the organization of Land Registries: the "title system" organized around the property or land plot and the rights on them, and the "deed system", around the personal folio and conveyancing. On the other hand, the rights themselves, the powers of the person entitled to them, and the systems of acquisition and transfer of those rights, are not entirely equivalent.

Fortunately, modern technologies help to overcome those difficulties. There is a tendency to coordinate the Land Registry and the cadaster (born for tax reasons), to make possible digital access to them and to include a cadastral reference in the deeds. Indexes of persons and of properties, which did not exist in the title and the deed system, respectively, may be afforded now with the help of information technologies. The ELRD states the reference to a certain person and/or property, as well as the effect that the national law attaches to the certification or document itself. Each item of information in the document may be linked to an explanation of its meaning. This means that a standard explanation of the notion of each right or limitation may be incorporated in the ELRD, as well as its effects, the effects of a deed or a judicial order, and of their registration in that particular registry. Quotation of links in the ELRD may facilitate access to further details on these subjects. A great effort has been made to build that support and to produce a template, so that the information available in each Registry may find a place in it and the applicant receives a result as exact as possible.

It is easy to understand how this standard document is able to help the circulation of information and, in the end, safer economic traffic and the recognition of judicial decisions. In my opinion, this is not the proper place to give a more complete or a technical explanation, which is the subject of other papers, so that the aforesaid notions may be enough to supply an idea of the content and possibilities of the ELRD.

The application for getting the information is an important subject too. The European Land Registry Network, coordinated with the e-justice site of the European Union, will certainly play an important role. There are differences as to the persons entitled to get

  ISBN: 978-2-9602448-0-9

information from a particular registry, either authorities (courts, notaries) or private persons, whether and how an interest needs to be justified, or a fee has to be paid. The form of the application, what information has to be supplied by the applicant and which information may be supplied by the registry need to be known. A common access and the interconnection among registries are the aims, and steps have been already taken.

2. REGISTRY INFORMATION FOR PURPOSES OF JUDICIAL COOPERATION

International judicial cooperation has two main meanings:

One of them is referred to obtaining from the authorities of another State the same aid as could be expected from national authorities. Regulations that rule transmission of documents and obtaining evidence belong to this category. In a number of situations, a court may need information about the ownership of property, its burdens, and charges.

The other meaning implies setting rules for the decision of civil matters, in order to avoid the conflicts that may arise if different States claim to have jurisdiction with the risk of giving different judgments on the same subject. The certainty on the courts with jurisdiction within the European Union ensure a second step, the effects of that judgment in every Member State. Those are the conditions to protect the rights, both economic and individual, of natural and legal persons. Judicial decisions, such as those that affect the validity of a contract or the right of succession, may have effects on rights in rem. In general, procedures of several kinds are related to registered rights in rem.

As far as the first meaning is concerned, for example, a court or a notary may receive an application to declare who are the heirs and their rights, not only for issuing the certificate of succession under the rules of Regulation 650/2012, but in national proceedings for issuing a national certificate. That national certificate may be considered a judgment, not only if issued by a judge or tribunal but by a notary too. It is important to notice that, in the Regulations, judgments are not only given by national courts. Especially in family matters, Regulations 2201/2003 (paragraphs 1, 3 and 4 of art. 2), 4/2009 (art. 2.2), 650/2012 (art. 3.2) and 2016/1103 /1104 (art. 3.2) include in the term "court" other

  ISBN: 978-2-9602448-0-9

authorities and even legal professionals, and proceedings include non-contentious ones (Recitals 22 and 59 in Regulation 650/2012). In Spain, notaries have been included in the list of those authorities and legal professionals (as well and in Belgium, the Czech Republic, Croatia, Greece. Hungary and Portugal); Italy and Portugal include Civil Registrars in matters of matrimonial property regimes. In Spain, notaries decide on the persons with a legal right to inherit, even against the will of any person who claims to have an interest, without prejudice to applying to the competent court against that decision. The procedure notaries have to follow, in order to issue the national certificate, is very similar to the provisions for issuing a European certificate, and to those that, in former times, Spanish courts had to follow when they had jurisdiction on the matter (no more after 2015). Rules on international jurisdiction apply to proceedings concerning the issuing of national certificates of succession (Oberle judgment of the ECJ, 21 June 2018, C-29/17).

A notary may always use the Regulation 1393/2007 for the service of documents (cases Roda Golf, C-14/08, and Tecom, C-223/14). If considered a court, a notary may use the Regulation 1206/200 for the taking of evidence (Cfr. art. 66 of Regulation 650/2012).

Nothing prevents a court of another Member State to seek information on assets in Spain from the Spanish Land Registry with the assistance of a Spanish court, in accordance with the Regulation on taking of evidence. But, evidently, a direct application, available on line, either by the court or by the person with a legitimate interest, is a much simpler way. Perhaps a court may ask for information on personal data too, if the national law allows it. The answer to the application, intended to have effect in another State, will be more easily understandable if the ELRD is used.

For the purpose of issuing the certificate of succession provided for in Regulation 650/2012, the issuing authority may request the competent authority of another Member State to provide with information held, in particular, in the land registers (article 66.5). The issuing authority may be other than a court (in the wide sense of article 3.2), as allowed by articles 64(b) and 78(c) of this Regulation.

ISBN: 978-2-9602448-0-9

In family matters, a court and other authorities may ask directly for evidence acting in their own motion. Regulation 4/2009, on maintenance obligations, rules in article 51, within the cooperation between Central Authorities, that it is a role of such Central Authorities, to help obtain relevant information concerning the income and, if necessary, other financial circumstances of the debtor or creditor, including the location of assets, in particular pursuant to Articles 61, 62 and 63 … to the extent permitted under the law of the Member State concerned. The information in article 61 includes the debtor's assets for the purpose of having a decision recognized, declared enforceable or enforced, so that information on an immovable property may be applied to land registries, and supplied by land registries by filling in the ELRD.

In the course of criminal investigation, the competent authorities may need information on the assets suspected to be related to criminal activities. If situated in another Member State, the Directive 2014/41/EU, regarding the European Investigation Order, designs a system for addressing the "authority having competence to recognize an EIO and ensure its execution in accordance with this Directive and the procedures applicable in a similar domestic case" (article 2(d)).

The recognition and enforcement of judgments is the second field of judicial cooperation. A number of Regulations provide for the recognition and enforcement of judgments in a Member State different from the Member State in which they have been given. The mutual recognition of judicial and extrajudicial decisions in civil matters, abolishing all intermediate measures, is one of the principles adopted in the Stockholm Programme (December 2009). It has been already summarily explained in this paper that judgments are not only given by national judges and that they include non-contentious decisions. This is true in family matters, and also in civil and commercial matters in general, the subject of Regulation 1215/2012 This Regulation states, in articles 1.1 and 2(a), "whatever the nature of the court or tribunal", "whatever the judgment may be called, including a decree, order, decision or writ of execution, as well as a decision on the determination of costs or expenses by an officer of the court", including provisional and "protective measures".

  ISBN: 978-2-9602448-0-9

Judgments –in this wide notion– may be brought to public registries and be the reason to enter a record in them, as far as they declare, create or limit rights and legal status. The consequence is that they may bring a change in the registry that will be contained in the ELRD.

In my opinion, producing a judgment of another Member State leads to recognition by the registrar, without a previous decision by a court. All Regulations contain an article stating that recognition does not need any special procedure. In words of the Court of Justice, recognition means "conferring on judgments the authority and effectiveness accorded to them in the State in which they were given" (Gothaer Allgemeine Versicherung judgment of 15 November 2012, C-456/11) and registration may be included among these effects. A procedure for recognition becomes necessary only if an interested person, the registrar or another authority does not accept the effects of the judgment.

Some Regulations give examples of recognition and registration:

- Regulation 2015/848, on insolvency proceedings (recast): "The insolvency practitioner's appointment shall be evidenced by a certified copy of the original decision" (Article 22). Where "the law of a Member State in which immovable property belonging to the debtor is located, requires information on the opening of insolvency proceedings referred to in Article 28 to be published in the land register, company register or any other public register, measures shall be taken to ensure that registration (article 29). "Judgments handed down by a court whose judgment concerning the opening of proceedings is recognised in accordance with Article 19 and which concern the course and closure of insolvency proceedings, and compositions approved by that court, shall also be recognised with no further formalities", as well as "judgments deriving directly from the insolvency proceedings and which are closely linked with them, even if they were handed down by another court" and "preservation measures" (article 32).

- Article 21 of Regulation 2201/2003, on matrimonial matters:
"1. A judgment given in a Member State shall be recognised in the other Member States without any special procedure being required.

2. In particular … no special procedure shall be required for updating the civil-status records of a Member State on the basis of a judgment relating to divorce, legal separation or marriage annulment given in another Member State …".

- Regulation 1215/2012 allows a party to invoke a judgment before a court "or authority" in another Member State (articles 37 and 38). Pursuant to article 54, if the "judgment contains a measure or an order which is not known in the law of the Member State addressed, that measure or order shall, to the extent possible, be adapted to a measure or an order known in the law of that Member State which has equivalent effects attached to it and which pursues similar aims and interests … Any party may challenge the adaptation of the measure or order before a court".

Although recognition of decisions appears the easiest way to enter a record in a registry, the same effect may be obtained through enforcement, which entails a procedure governed by the procedural law of the Member State of enforcement, after a declaration of enforceability in this State if direct enforcement is not allowed by the applicable Regulation. Registry law of the State applies to the requirements of registration, especially the production of complementary documents.

It may be objected that rights in rem in immovable property are a subject of exclusive jurisdiction, according with article 24(1) of Regulation 1215/2012, and in this case international jurisdiction may be revised (article 45.1(e)(ii)). One may think that a contentious judgment on a right in rem may not be given in a court situated in a Member State other than the one where the property is situated, and only the courts of this Member State may enforce the judgment (article 24(5)), so that, the judgment will be given, enforced and recorded in the same State. This is true, as far as the action "seek[s] to determine the extent, content, ownership or possession of immovable property or the existence of other rights in rem therein and to provide the holders of those rights with protection for the powers which attach to their interest" (Schmidt judgment of 16 November 2016, C-417/15). But a national decision may decide a claim on a right in personam, that can be claimed only against the debtor, such as those actions that seek the annulment of a contract on transfer of immovable property, for example because of fraud to the creditor (Reichert judgment of 10 January 1990, C-115/88, actio pauliana) or

  ISBN: 978-2-9602448-0-9

incapacity of a party to the contract. Jurisdiction on the contract is ruled by articles 4.1 and 7.1, and the indirect effect on the registry of a judgment on the contract would be a consequence of its recognition or enforcement. In case the claim includes a specific decision on the right in rem too, only the courts of the State where the property is situated have jurisdiction for both actions pursuant to articles 24.1 and 8(4) of Regulation 1215/2012 (Schmidt judgment).

The courts of a Member State with jurisdiction on succession or matrimonial property will decide on rights to succession or common property, even if situated in a different Member State. These rights may be registered.

In a similar way, a judicial protective measure, e.g. attachment of a property to guarantee the payment of a debt, or notice on the existence of proceedings on the validity of a contract to transfer a property, may be recorded in the registry either by recognition or enforcement of the order issued by a court with jurisdiction situated in another State. Article 42.2 of Regulation 1215/2012 gives details to be certified when a party applies for the enforcement of a provisional or protective measure, and the same certificate shall be produced for its recognition (article 37.1).

Rules on adaptation of measures are found in Regulation 1215/2012, as in article 54 quoted above, and not only of measures but of rights in rem themselves, in Regulation 650/2012 (on successions, article 31), 2016/1103 and 2016/1104 (on matrimonial property and property of registered partnerships, articles 29). Adaptation may be necessary because of the legal differences between measures or rights in rem between the Member State where the decision is given and the Member State where the property is situated. A measure or a right may have a different name and not coincidental effects, or may be even unknown in a system with a numerus clausus of rights in rem. Regulations do not give details on the competent authority to carry out the adaptation. It may be done by the enforcing court, or by the registrar, especially in case of direct recognition, a live example of cross-border cooperation between authorities of different nature.

In any case, adaptation is not easy and may bring doubts, delays and challenges. As to provisional or protective measures, all the Regulations that deal with recognition and

  ISBN: 978-2-9602448-0-9

enforcement of judgments foresee a way to avoid these difficulties. Each of them contains an article that allows these measures to be taken under the law of a Member State, even if the courts of another Member State have jurisdiction as to the substance of the matter. Measures on immovable property may be applied for, adopted and registered in the State where the property is situated, under the umbrella of the same law, while a court of another State deals with the main proceedings.

In the course of criminal investigation, Council Framework Decision 2003/577/JHA addressed the need for immediate mutual recognition of orders to prevent the transfer or disposal of evidence. This Decision, as regards freezing of evidence, is now replaced by Directive 2014/41/EU regarding the European Investigation Order (articles 32 and 34.2). Its recital (34) states that "any item, including financial assets, may be subject to various provisional measures in the course of criminal proceedings, not only with a view to gathering evidence but also with a view to confiscation".

These notions intend to show how registration in a Land Registry, after recognition or enforcement of decisions given in another State, the result of judicial cooperation, will be included in the ELRD as a valuable information to be properly used.

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  ISBN: 978-2-9602448-0-9

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"The ELRD as a source of information for courts in Cross-border matters"

The work of a judge has changed and developed a lot in the last years: until a few years ago it concerned only the national sphere and only rarely transnational relationships were taken into consideration; today, instead, judges deal every day with what we refer to as the real "European juridical area".

As it can be inferred, this situation involves many difficulties and challenges.

First of all, the ruling in a dispute with cross-border elements requires not only knowledge of the legislative sources (such as statutes, regulations, constitutions...) of the foreign State, but also the acquisition of the relevant jurisprudence.

The knowledge of foreign legislative and judicial sources - however complex – is in any case facilitated by the existence of official collections and specialized law magazines which, beside the mere linguistic difficulties, help providing a clear and complete overview of the legal issues that are the object of the decision.

On the other hand, this type of support is often not sufficient in order to suitably resolve a controversial cross-border dispute, as the solution of a judicial proceeding passes necessarily through the knowledge of other information and secondary sources that are more difficult to acquire.

Among these other set of information can be ascribed also the registries that the Member States hold in connection to different kind of legal areas, such as, for example, the Register for Criminal Records, the Civil Status Registry in family law, the Business Register in commercial law and the Land Registry.

  ISBN: 978-2-9602448-0-9

The prospect of making the data contained in those registries available and accessible to all the citizens, even outside the strictly national context, is a challenge that the European Union has long contemplated and which encouraged the creation, for example, of the ECRIS (European Criminal Records Information System) and the BRIS (Business Registers Interconnection System).

These last two registers[117] are characterized and can properly function thanks to the legal obligation for the Member States to interconnect their national registers to the central European platform.

A similar solution could not be adopted with regard to Land Registries, which are characterized, as is known, by two fundamental rules, namely the application of the *lex rei sitae* with regard to the regulation of rights *in rem* and the *lex auctoris* with regard to the effects that the registration can produce. As it can be imagined, this scenery makes it very problematic to even imagine a real interconnection among Land Registries at the European level.

Nevertheless, the need to become acquainted with these type of data and to allow their circulation outside the national context is unquestionable, and the best demonstration of this necessity can be found in the milestone Regulation (EU) No 650/2012 of the European Parliament and of the Council of July 4, 2012 on jurisdiction, applicable law, recognition and enforcement of decisions and acceptance and enforcement of authentic instruments in matters of succession and on the creation of a European Certificate of Succession.

In article 1(2), the Regulation expressly excludes from its scope:
k) the nature of rights in rem; and

[117] see for example the COUNCIL FRAMEWORK DECISION 2008/675/JHA of 24 July 2008 on taking account of convictions in the Member States of the European Union in the course of new criminal proceedings and directive (eu) 2017/1132 of the European Parliament and of the Council of 14 June 2017 relating to certain aspects of company law (codification)

(l) any recording in a register of rights in immovable or movable property, including the legal requirements for such recording, and the effects of recording or failing to record such rights in a register

Accordingly, also the recitals number 18 and 19 exclude from the scope of the Regulation the requirements for the recording in a register of a right in immovable or movable property.[118]

[118] Recital n. 18 of Regulation 650/12 declares that: *"The requirements for the recording in a register of a right in immovable or movable property should be excluded from the scope of this Regulation. It should therefore be the law of the Member State in which the register is kept (for immovable property, the lex rei sitae) which determines under what legal conditions and how the recording must be carried out and which authorities, such as land registers or notaries, are in charge of checking that all requirements are met and that the documentation presented or established is sufficient or contains the necessary information. In particular, the authorities may check that the right of the deceased to the succession property mentioned in the document presented for registration is a right which is recorded as such in the register or which is otherwise demonstrated in accordance with the law of the Member State in which the register is kept. In order to avoid duplication of documents, the registration authorities should accept such documents drawn up in another Member State by the competent authorities whose circulation is provided for by this Regulation. In particular, the European Certificate of Succession issued under this Regulation should constitute a valid document for the recording of succession property in a register of a Member State. This should not preclude the authorities involved in the registration from asking the person applying for registration to provide such additional information, or to present such additional documents, as are required under the law of the Member State in which the register is kept, for instance information or documents relating to the payment of revenue. The competent authority may indicate to the person applying for registration how the missing information or documents can be provided."*
Recital n. 19 instead states that: *"The effects of the recording of a right in a register should also be excluded from the scope of this Regulation. It should therefore be the law of the Member State in which the register is kept which determines whether the recording is, for instance, declaratory or constitutive in effect. Thus, where, for example, the acquisition of a right in immovable property requires a recording in a register under the law of the Member State in which the register is kept in order to ensure the erga omnes effect of registers or to protect legal transactions, the moment of such acquisition should be governed by the law of that Member State".*

However, the rules quoted above are in open conflict with other provisions of Regulation 650/12, which makes it clear that the exclusion from the scope of the act of the nature of rights *in rem* and their recording in a Land Registry is more illusory than real.

For example, the controversial article 69 (5) provides that *"The Certificate shall be valid for the registration of succession property in the relevant Register of Member States, without prejudice to points (k) and (l) of Article 1 (2)",* introducing an inherent contradiction between the abstract idea and the concrete scope of the Regulation that – according to many authoritative and influential scholars – can hardly be solved.

Moreover, the Succession Regulation 650/12 shows us also how sometimes the legal rule declared in a normative act does not necessarily coincide with the operational rule that is actually applied in the courts by judges.

An interesting example of this kind of inherent incoherence is given by article 31 on the adaptation of rights in rem, stating that *"Where a person invokes a right in rem to which he is entitled under the law applicable to the succession and the law of the Member State in which the right is invoked does not know the right in rem in question, that right shall, if necessary and to the extent possible, be adapted to the closest equivalent right in rem under the law of that State, taking into account the aims and the interests pursued by the specific right in rem and the effects attached to it".*

The European Court of Justice recently had the opportunity to deal with the adaptation principle in the Kubicka Case[119], and in the future will probably encounter with a certain frequency other cases in which the adaptation of rights *in rem* may be the object of discussion.

In my opinion, the huge effort and the astonishing results accomplished by ELRA and by all the contact points in the design and elaboration of the ELRD will allow the achievement of great results, especially in making approachable and applicable a

[119]*See Case C-218/16, Judgment of the Court (Second Chamber) of 12 October 2017, Aleksandra Kubicka.*

principle so vague and elusive as the adaptation of rights *in rem*, formulated in the Succession Regulation and referred to - more generally - in other European normative acts.

Through a bottom-up approach[120] and the identification of a lowest common denominator[121] it is, in fact, possible to fully understand the operational rules that are the foundation of the single circumstances that are at stake and, therefore, to provide a fundamental piece to the solution of the single legal problems; in particular when relating to transnational disputes dealing - directly or indirectly - with immovables. This is fully in line with the provisions and ambitions enunciated in recital n. 16 of EU Regulation 650/2012[122].

Another area of law in which the ELRD may gain exceptional relevance for the practical work of judges is the recording in the Land Registry of judicial proceedings with cross-border implications.

It is well known that every single legal system provides for the possibility of recording a few types of judicial proceedings connected with immovables (for example, annulment of contracts or preliminary agreements, simulation, termination, revocation, reduction of testamentary dispositions...). Those rules have the obvious scope of making the existence of the legal proceedings connected to the immovables knowable to third parties,

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[120] *As explicitly explained by ELRA in the presentation of the IMOLA I Project, the method developed is a strictly bottom-up approach of the European LR systems, based on the principle of legal neutrality (and therefore not the imposition of one model of those existing in the European Union)"*

[121] *The presentation of the IMOLA I project in paragraph n. 3 identifies the so-called "legal minimum: ELRD should contain sufficient legal information to provide an adequate idea on the legal status of the land register units or properties. Information is not useful if relevant aspects of it are omitted".*

[122] *"..... For the purposes of determining the closest equivalent national right in rem, the authorities or competent persons of the State whose law applied to the succession may be contacted for further information on the nature and the effects of the right. To that end, the existing networks in the area of judicial cooperation in civil and commercial matters could be used, as well as any other available means facilitating the understanding of foreign law*"

especially to purchasers of the goods and, in some cases, even to make the decision opposable to third sub-buyers.

As a consequence, from a purely practical point of view it can be extremely useful to know with certainty whether the plaintiff has correctly publicized the existence of the legal proceedings in the competent Land Registry, which may be located in a different Member State that the one where the judge having jurisdiction is deciding over the transnational dispute.

It is self-evident how in a situation like the one described before the ELRD is the most appropriate and important tool that can allow judges to have a direct knowledge of the information recorded in foreign Land Registries and therefore effectively operate in the "European juridical area" almost as if they were operating in the "national juridical area"[123].

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[123] *of course, all the theoretical problems that arise in connection with the different functioning of the rules of opposability in the various Member States remain unsolved, on this topic see Petrelli, Pubblicità legale, apparenza e affidamento nel diritto internazionale privato, in Trattato di diritto internazionale privato e comunitario, UTET Giuridica, Torino, 2011.*

  ISBN: 978-2-9602448-0-9

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"Polish matrimonial property regime – how to get the information and how to understand it from the point of view of an EU registrar"

Being a member of the EU demands from its organs understanding the law systems of all the member states. This principle refers also to the organs responsible for land registers.

Keeping this in mind I will show how Polish system (as far as the matrimonial property regime is concerned) works, how to receive the information about real property and how to understand it from the point of view of an EU organ.

1. The main principles of the Polish matrimonial property regime.

The statutory matrimonial property regime is the community of property, which takes effect upon conclusion of the marriage. It includes assets acquired by the spouses both individually and jointly during the regime (community property). Assets excluded from the community property belong to the personal property of each spouse (art. 31 § 1 of the Family and Guardianship Code).

Community property includes, in particular:

1) remuneration received for work and income from other profit-oriented activities;
2) income from the community property as well as from each of the spouses' personal property;
3) financial benefits from an open or employee pension fund (art. 31 § 2 of the Family and Guardianship Code).

Household appliances used by both spouses also form part of the community property if they were acquired by inheritance, bequest (legacy) or donation, unless the testator or donor stipulated otherwise (art. 34 of the Family and Guardianship Code).

The personal property of each spouse includes (but is not limited to) the following:

  ISBN: 978-2-9602448-0-9

1) assets acquired before the community of property regime took effect, assets acquired by inheritance, bequest (legacy) or donation unless the testator or donor stipulated otherwise, assets which exclusively serve one spouse's personal needs, assets obtained as a reward for a spouse's personal achievements, and assets acquired in exchange for personal assets unless particular provisions provide otherwise;
2) property rights resulting from a joint ownership of property subject to separate regulations (e.g. joint ownership in a civil law partnership or commercial partnership);
3) inalienable rights to which only one person may be entitled;
4) assets received as damages for bodily injury or a health disorder or as a compensation for harm suffered. This does not, however, include disability benefits received due to the partial or total loss of earning ability of a spouse or due to his/her increased needs or decreased prospects for future;
5) claims for remuneration from work or for income from other profit-oriented activities;
6) copyrights and related rights, intellectual property rights or other rights of a creator (art. 33 of the Family and Guardianship Code).

Either spouse may individually possess and use the assets which form part of the community property (art. 341 of the Family and Guardianship Code). During the statutory community of property regime, neither spouse may request the division of the community property. In addition to this, neither spouse may dispose of or undertake to dispose of a share of the community property or of a particular asset thereof that would fall to him/her when the statutory regime ceased (art. 35 of the Family and Guardianship Code). Spouses are obliged to cooperate in the management of their community property (art. 36 para. 1 of the Family and Guardianship Code). Either spouse may manage the property alone, but such management excludes the activities described below (i.e. activities requiring the consent of the other spouse). A spouse may object to the management of community property by the other spouse, except for acts concerning everyday matters, acts intended to satisfy the everyday needs of the family, or an act performed as part of a profit-oriented activity (art. 361 § 1 and 2 of the Family and Guardianship Code).

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If requested by one of the spouses, the court may, for an important reason, deprive the other spouse of the right to manage the community property on his/her own. The court may also decide that its authorization will be required instead of the spouse's consent for acts stipulated in art. 37 § 1 of the Family and Guardianship Code.

The consent of the other spouse is required for:

1) any legal transaction concerning the disposal, encumbrance or purchase of immovable property or of the right of perpetual usufruct or any other legal transaction concerning the use and exploitation of the immovable property;
2) any legal transaction concerning the disposal, encumbrance or purchase of a right in rem on a building or premises;
3) any legal transaction concerning the disposal, encumbrance, purchase or lease of an agricultural farm or an enterprise;
4) donations made from the community property, except for customarily accepted donations (art. 37 § 1 of the Family and Guardianship Code).

Any agreement entered into by one spouse without the required consent of the other spouse is null and void, unless it is subsequently approved by the other spouse. A unilateral legal act by one spouse without the required consent of the other is also null and void (art. 37 § 2-4 of the Family and Guardianship Code).

Both spouses are jointly and severally liable for debts incurred by either of them in order to meet the everyday needs of the family (art. 30 of the Family and Guardianship Code). If either of the spouses incurs a debt with the consent of the other spouse, the creditor may demand that the community property also be used to settle the debt. If either of the spouses incurs a debt without the consent of the other spouse, or if the debt does not arise from a legal transaction, or if the debt was incurred before the community of property regime took effect between the spouses, or if the debt relates to personal assets, the creditor may only demand that the debt be settled from the debtor's personal property or from specific assets belonging to the community property (e.g. remuneration for work) (art. 41-42 of the Family and Guardianship Code).

2. The consequences for the Polish Land Registry and EU Land Registry.

  ISBN: 978-2-9602448-0-9

Summing it all up one might say that – in general – a property acquired in the course of marriage belongs to both spouses – even if only one of them is a party to the contract; the object of this property belongs to the community property.

All of this finds its reelection in the Polish land register.

In section II of Polish land book one can see the entries concerning property, and the actual one; you'll see the name, the surname of the owner/s and the personal identity number (so called PESEL).

If it is spouses who are the owners of the real estate, you can find their names with PESEL and the additional notice that the object of the property is a community property.
In general – there should be both the spouses mentioned in the land register, but it might happen that only one of them is included (e.g. only one of them was the party to the contract).

This does not mean that only one of the spouses is the owner – the other one might file a lawsuit in which s/he would demand putting his/her name altogether with the other one as the co-owner (art. 10 of Land and Mortgage Registers Act), but unless s/he does so, only one of the spouses is considered to be the only owner (the rule of warranty of public faith of Land Registers - art. 5 of Land and Mortgage Registers Act).

3. The source of information

In the situation that a registrar in another EU member state needs information on whether the spouses are the owners of a specific real estate in Poland, s/he should visit the website: https://ekw.ms.gov.pl/, where you need to enter the number of the land book and check section II.

If you don't know the number of the land book, then you have to find it out. In that situation you should know where the real estate is situated, and afterwards ask the court

  ISBN: 978-2-9602448-0-9

(right locally according to the place where the estate is located) to get the number of the land book.

This kind of procedure should be done by using Regulation (EC) No 1393/2007 of the European Parliament and of the Council of 13 November 2007 on the service in the Member States of judicial and extrajudicial documents in civil or commercial matters (service of documents), and repealing Council Regulation (EC) No 1348/2000 and Council Regulation (EC) No 1206/2001 of 28 May 2001 on cooperation between the courts of the Member States in the taking of evidence in civil or commercial matters.

4. The consequences of death of one of the spouses.

When one of the spouses dies, the statutory matrimonial property stops, and it transforms into fractional co – ownership; in this case both the living and the dead are entitled to half of the ownership.

As for the dead one – of course it is not him who is the object to the ownership, but his heirs; to prove that you're a heir you need to go the public notary and to get the act of inheritance certificate, from the court the confirmation of inheritance acquisition or the European Certificate of Inheritance (also from the court) – according to Chapter VI of Regulation (EU) No 650/2012 of the European Parliament and of the Council of 4 July 2012 on jurisdiction, applicable law, recognition and enforcement of decisions and acceptance and enforcement of authentic instruments in matters of succession and on the creation of a European Certificate of Succession.

When the heirs get one of the above-mentioned documents, they are entitled to fill in the form to the Land Register to put their names as the co – owners (with the fractions).

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  ISBN: 978-2-9602448-0-9

ELRN Contact Points

ISBN: 978-2-9602448-0-9

Agostina Lodde, Agenzia delle Entrate (Italy)

"*The Italian Land Registration System and the IMOLA Experience: How to harmonize diversity*"

Abstract

In the European legal context, the land registration system in force in Italy is an exception. In fact, it represents an intermediate model between the original deed system, derived from the Napoleonic one, and others civil law systems evolved in title systems, that are the majority in Europe. The peculiarity of the Italian registry of transcriptions, implanted and maintained with the technique of the personal folio could have been an obstacle to the adoption of the ELRD shared scheme. However, the development of information technology has allowed, also for the Italian system, to imagine possible solutions to be part of the ambitious project carried out by IMOLA.

Keywords: Italy- Deed system -Registry of transcriptions- Personal folio -IMOLA - ELRD

1. The Land Registries Interconnection to boost the European single market

The land registry systems protect the fundamental human right to property of the citizens and provide legal certainty in the circulation of immovable property, setting the conditions for the development of an efficient and more transparent market. But what has been achieved in the last two decades at the national level must now be able to be achieved at a pan-European one as well, through a more widespread use of the information technology and secure communication platforms.

In the European context, there is a widespread need for standardised tools to rapidly and efficiently access to information held by the national property registries. This need, strongly felt mostly by justice professionals, like notaries, lawyers, judges, corresponds to the aspiration of every citizen for obtaining, when necessary, reliable information on property rights beyond national borders, verifying whether the registration of these right

  ISBN: 978-2-9602448-0-9

is valid, for example, to purchase or sell a property; to the banks' request for loaning money in a secure way; to the need of the judiciary for investigating and bring to justice the perpetrators of serious tax and economic crimes. In one word, to boost the European single market.

2. The interconnection of European Land Registries: brief history and current status

The various associations that operate in the sector of land registration, and among these mainly ELRA (European Land Registry Association) with its network of experts in the field of real estate registration called ELRN (European Land Registry Network), have for many years engaged in initiatives to laid the foundations for a harmonisation of the rules and instruments for cross-border access to real estate information.

All initiatives and projects move in the framework of an expressed European desire to make cross-border access to information on real estate faster and more efficient, in implementation of the principle of free movement of persons and their assets and rights in the common space of freedom, justice and security.

To that end, in implementation of a specific decision of the EU Council, as early as 2010, the European Commission has activated, and progressively implemented, a European Justice Portal (https://ejustice.europe.eu), “destined to become an electronic one-stop-shop in the area of justice. According to the declared intent of the Commission, the final objective is to make the lives of the citizen easier, providing information on justice systems and improving the access to justice throughout the EU, in 23 languages”.

Among the various sectors of information present in the portal is the entry “Registries”, aimed at facilitating the possibility of taking advantage of the opportunities offered by the opening of borders and the European internal market, through the access of sellers, creditors, commercial partners, and consumers to documents and reliable and official information. This item is divided into three different categories: business registries; land registries and insolvency registries.

ISBN: 978-2-9602448-0-9

With regard to the land registries, the portal currently presents only information sheets drawn up by individual Member States, containing a brief description of each national land registry, with a link to the website of its institution.

The strategy outlined by the EU Council in matters of European electronic justice 2014-2018 then envisages, with regard to the theme of the registries, the need to focus the action "on the interconnection of the registries that are of interest to citizens, private companies, legal professionals and the judiciary". Therefore, "the necessary technical and legal preconditions should be ensured to make such interconnections possible".

Consequently, the 2014-2018 multi-annual action plan regarding European electronic justice has indicated a series of actions to be undertaken in the sector of the registries, among which it marks as a priority project (category A) that of carrying out a specific feasibility study on the interconnection of the land registries.

The study - which ended in August 2014 - was carried out by a consultancy firm through the administration of three different questionnaires to the competent national administrations, in order to analyse the existing situation within the Member States, by identifying the possible digital network for connection and proposing potential solutions for the management of payments.

The results were discussed with a favourable outcome from the Working Party on e-Law (e-Justice), and 8 Member States (to which Northern Ireland should be added) have so far confirmed their interest in participating in the pilot project from the outset. In the course of 2015, the business case and the project document have been prepared, including the definition of the scope, time frame, costs, organisation and deliverables. Following the approval of the project document, which took place in the month of January 2016, the implementation phase now opens, which includes the development of applications in an experimental context.

A key point of the project is the exclusion of regulatory amendments to the national laws: the objective consists in making it possible to have cross-border access to real estate data for users in other Member States under the same conditions as those laid down for

  ISBN: 978-2-9602448-0-9

domestic users, by expanding the existing national capabilities to a pan-European level. Thus, for example, the various provisions regarding access will be complied with (including the protection of privacy and the provision of differentiated access levels according to categories of users); the information and the documents provided may have a different legal value according to the national system in force; the payment of the required fees for the release of the information, where provided, will be maintained.

The analysis of user needs carried out by the Commission has highlighted the primary requirement of receiving information from the different Member States in a format that is unified to the greatest possible extent, regardless of differences that exist between national systems, including linguistic differences. To this end, the solution proposed provides a preliminary mapping of the information stored at the national level, so as to establish a correspondence between the data contained in the registries of the Member States and the predetermined fields in a common model, through which information would be provided in the user's preferred language, chosen from among those used by the e-Justice portal.

The system will also give the possibility of downloading in digital format the original documents present in the national registries in the language in which they are stored. Wherever this is not possible, a request can be made for delivery by mail.

In order to give a concrete contribution of expertise and experience in respect of interconnection of the registries, ELRA obtained financing for the development of its project, called IMOLA (Interoperability Model for Land Registries). The first part of this project, concluded in 2015, showed the possibility of creating a common model to use for the release of information of the property registries by any member state. Since the information is presented in a common model, which has considered the technical and legal meaning attributed to the same information from each national system, it has been found necessary to provide glossaries and descriptive forms.

3. The European Land Registry Document -ELRD-, a common template to harmonize the Land Registry information

As said before, the legal and technical complexity of this project is determined by the numerous differences that can be found in the national legislations of the different countries in the field of real estate registration. This complexity therefore requires a conscious approach of high scientific value.

To that end the IMOLA project, in a first stage, availed itself of the contribution of contact points of the ELRN (European Land Registry Network) for processing the support material - Fact sheets and questionnaires - to the better understanding of each information system. Furthermore, through the conduction of seminars and workshops, which saw the participation of various experts, stakeholders and jurists, it came to the elaboration of a "prototype" for an interoperable model called ELRD (Electronic Land Registry Document). As any standard model, the prototype developed by IMOLA had to take into account the fundamental differences in the various national organisations but has also attempted the concrete possibility of defining a structure of "key" information shared by the majority of the Registries involved.

4. The Italian Registry of Transcriptions and the ELRD

Apart from the differences among the various legal systems, regarding the inspiring principles of the registration of property[124], in general, under the profile of the format, there are two basic types of registration: the registration of rights (Title systems) always follows the technique of the "real folium" while the registration of the deeds (in Deed system) follows, not without some exceptions, that of the "personal folium".[125]

[124] As regards the effects of registration, for example, a fundamental distinction must be done between the mere "negative" effect of enforceability, belonging to the Deed systems and the "positive" effect, belonging to the Title systems; as regards the subject of the registration, the *numerus clausus* principle does not apply to real rights in all legislations; as regards the formal requirements to register a deed, the difference between systems that admit only authentic documents and those that accept a simple private writ, and so on.

[125] According to the personal folio criteria, the contract by which the right on immovable property is constituted or transferred is to be registered in relation with the persons that are parties in the agreement (for example the buyer and the seller in a purchase contract). The history of the immovable (the object of the contract) is therefore to be found in the registry of transcriptions by going back from the latest to the

The profound difference between the two systems requires a prior analysis of the same in order to highlight the common traits and build a model that returns the information in an understandable way, exact and therefore useful for real estate transactions within Europe. As we will report below, the ELRD model (European Land Registry Document) processed through the IMOLA project was designed to harmonise the set of information obtainable from a large part of the European land registries and taking into account the fact that in the majority of the systems the real folium has a similar structure, consisting of three distinct parts containing: a) the description of the property, b) the ownership of the title c) rights and burdens, sometimes distinguished in rights of use and rights of security.

With regard to the Italian legal system of transcription, in force in the greater part of the national territory, we can say that it represents an exception in the European framework of immovable registration. In fact, like the French and Belgian registries, it was set up according to the Napoleonic model; but while up to the post-unification code it had not deviated much from the Napoleonic system, starting from the issuing of the new Civil Code of 1942 and up to the more recent legislative reforms, it has been widely corrected and evolved itself in a different new model, more respondent to the social and economic evolution of the country[126].

Under the profile of the organization of information, although the personal folio technique has been adopted since the unification of the Kingdom, from the year 1985 the information is organised according to separate sections or blocks and, thanks to the automatization, the research is facilitated by the possibility of crossing the subject/property data. Nevertheless, an adaptation of the model as shared by the majority of registries across Europe is still necessary, especially in order to make apparent to third

original acquisition, not without consulting the cadastre which is the necessary complement for any reliable search in the Italian system.

[126] For a more complete description of the Italian system, see https://www.elra.eu/contact-points-contributions/italy-agenzia-delle-entrate/ and, as regards the legal effects of transcriptions, https://www.elra.eu/contact-point-contribution/italy-agenzia-delle-entrate/legal-effects-of-registration-9/

parties the effects that registration produces in the concrete case. In fact, In the Italian system of transcription, the ownership of the right is not guaranteed by the registration, and only by fact the transcription can approach the so-called positive systems, that indeed are based on the protection of good faith and on the conclusiveness of the purchase title[127]. Despite to the conceptual differences between title systems and deed systems and the current designed structure of the ELRD (ABC), the electronic techniques and the contribution of the expertize of the contact points in the ELRN can facilitate new developments for IMOLA, enabling new possibilities.

The proof of concept realized at the end of IMOLA1 project has shown the feasibility of this latter assumption. Although in the personal folio or deed systems the core is not a property or unit of land, in practice Deed systems legislations in force have been envisaging the criterion or guideline of that the deeds related to transactions of properties have to include references to the cadastre and the cadastral parcel.

[127] The effect of the transcription of actions (for example an action for the nullity of a contract) is brought to light by art. 111 paragraph 4 of the Code of Civil Procedure, which lays down the principle of the insensitivity of the process in regards to disposal deeds of the right in dispute. By virtue of this principle, the unfavourable judgment to the defendant also upsets any purchase made by third parties. The process however is considered in course only at the moment of the transcription of the application, so that if third parties (purchasers) have transcribed before the transcription of the action, their purchase will be saved (2652 - 2653). The effect of the transcription consists then in a reservation of the effects of the judgment, which although intervened after the possible purchase by the third parties, shall prevail over the latter if the document starting the proceedings (the judicial claim so called "CITAZIONE") had been transcribed before it. Vice versa, if the judicial claim was transcribed after the purchase by the third party, this shall prevail even if free of charge and in bad faith (nos. 1 and 8 of art. 2652).
The cases envisaged by no. 6 of art. 2652 (Application for a declaration of invalidity and revocation) then provide an important exception with respect to the general scheme of invalidity that involves the non-applicability of statute of limitations of the action and enforceability *erga omnes*. In this hypothesis it speaks of constitutive effect of the transcription. In other words , the course of 5 years from the transcription of the purchase by third parties, makes the purchase itself definitively without prejudice and effective. However this particular effect takes place only on the purchase by the third party in good faith (who has transcribed his valid purchase although precedent title has been declared invalid by judgment), without prejudice therefore to the invalidity of the deed of the predecessor that shall be enforceable against anyone else (for which in the case of conflict between invalid and valid title the latter always prevails).

However, it cannot be overlooked that some steps have yet to be taken in order to better understanding the information obtainable from the Italian registry.

5. The further development of the project: IMOLA II

Once recognized the utility of the ELRD developed in IMOLA I, which can be considered as the interface through which the interconnection of land registers has to operate, a more complex work remained to be made. The next steps were to deal with the interoperability problem among partners and to take advantage of the implicit knowledge encoded in the different national registries.

So, the main aim of IMOLA II, as a follow-up project, has been that to provide an interoperability platform among Land Registers in Europe. To that end, controlled vocabularies were considered essential elements as a starting point for achieving the semantic shared repository, (Knowledge Repository). A real and complete information model to be used within the scope of the LRI project through the e-Justice Portal needs, in fact, to be directly linked to the semantic domain represented by IMOLA controlled vocabularies, glossaries and thesaurus.

Thanks to the Web Service (Knowledge Manager) related to the Knowledge Repository, developed by the experts of the Carlos V University of Madrid and those of the Reuse Company, contact points had worked on a web platform in order to precisely define the national legal terms related to those of the IMOLA shared vocabulary. To this end an input system by means of a web page has been developed to support the feedback of Contact Points as Land Registry experts.

At the end of this complex work, according to the main IMOLA II project aims, the semantic interoperability among the Land Registers' Information will make it possible the implementation of the ELRD as a standardized common output. The Knowledge Repository will be integrated on the e-Justice portal as a controlled vocabulary (Thesaurus). The use of such vocabulary as part of the descriptive metadata is in fact a key issue to characterize the content of the information objects of the Land Registries.

ISBN: 978-2-9602448-0-9

This because the metadata may be invoked by mean of web service as by National Land Registers Systems as customers by a web page.

6. The Italian System of Transcription: how to face differences and similarities

Facing the work requested by the IMOLA II feedback project, considering that the Italian system of Transcriptions works with cadastral references, when I had to deal with the questions solved with the indication of the formant, I focused on the those of the LR Unit-cadastral parcel to establish the role of this unit to refer information to it. In particular, I found adequate questions like "Is it mandatory for the parties to accept the existing description of the cadastral plot when drawing up the deeds in which they are interested? "Are the interested parties entitled to define the boundaries of the property in the deed to be recorded?"

As regards to the basic data, bearing in mind that a given LR Unit for exclusive purposes of IMOLA template has to have two minimum or basic data: an identifier and a location, in the Italian system the identifier might be the cadastral code or cadastral reference indicated in the deed with respect to the properties comprised in the transaction. Location might be that one indicated in the description of the deed, necessarily corresponding to the cadastral reference or code.

As regards the structure of the template, the current designed structure of the ELRD (ABC) shouldn't represent a problem without solution because the electronic techniques can facilitate new developments for IMOLA, enabling new possibilities, even changing the order of the same information, turning ABC into BAC or getting BAC from a previous information by ABC, as long as information is provided according to the same criteria.

7. Experience acquired and global overview

The work carried out in recent years as an ELRN contact point has offered to me the precious opportunity to confront and collaborate with representatives of the academic world and with other experts of the institutions operating in the field of real estate

  ISBN: 978-2-9602448-0-9

registration, thus contributing to the dissemination of fundamental legal principles and organizational elements that constitute the back ground of the Italian transcription system. But not only this! I learned the importance of working in team to achieve a common and shared goal and I also deeply understood the value of my contribution in an apparently so different context from the system I know and that is so familiar to me. Beyond national borders, my self-referencing convictions and my particular legal culture have given way to the pride of being part of a wider community committed to translating the principles of freedom and security, which are the foundations of our European common home, into concrete actions.

We are all architects committed to build this great common space in which each individual nevertheless feels at home.

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  ISBN: 978-2-9602448-0-9

IRN and ASCR from Portugal

"IMOLA – a joint effort in European integration"

1. The Portuguese Land Registration System

The Portuguese land registry is essentially intended to publicize the legal situation of immovable properties, in view of the security of the real estate legal trade. It is through the information provided by the registry that one can find out the ownership and charges (mortgages, easement, attachment, etc) over an immovable. It is a legal publicity in the sense that guarantees the accuracy of the immovable legal situation. The principle of publicity means that any person has the right to request information on the ownership and other real rights entered in the register and on their content. This is so more important as the increase of cross border transactions within the European Union.

The land registry publishes the information, after a previous control of legality provided by the Registrar, a legal professional. The inscription of any right or burden constitutes a legal presumption that the right exists and belongs to the registered owner, in the precise terms in which the register defines it – principle of public faith (*iuris tantum presumption).* It is correct to say that the Portuguese system respects the curtain principle and it is considered to be a title system.

The rule in the Portuguese registry system is that registration is declarative with the exception of the mortgage registration that is constitutive. Apart from few exceptions, all the facts subject to registration shall only have effect against third parties after their registration.

One of the main registration principles is the priority of registry, which means that the right entered in the first place shall prevail over those which follow it in respect of the same asset – *priore tempore potior iure*. It is the prevalence criterion of the right fist registered, regardless the antiquity of the title.

ISBN: 978-2-9602448-0-9

Portuguese civil and registry law is based on the *numerus clausus* principle. Facts subject to registration are pre-determined by law and the registration rules with which they must comply and are based mainly on the Civil Code.

Land Registry system is ruled by the principle of enchained transmission – also called the *tractu sucessivo* principle – associated to the legitimation principle which implies that a new registration depends on the previous one in the name of the transferor.

The system organization is a *real folio*, meaning that all rights and charges are inscribed in a specific file which identifies the immovable based in the information provided by the interested party according to its previous declaration for taxation purposes. This information as regards to rural property is based on the cadastral data for about 50% of the national territory. Recently, the geo-referenced information is also part of the immovable physical information and it will soon be mandatory to perform any further inscription of ownership.[128]

Portuguese land registry also carries out specific other functions, in addition to the publicity of the real rights, such as tax control, harmonization with the cadastre regarding the area of the land and article of the plot, prevention of money laundering, interconnection with public administration in order to control the housing or using license of the building or the existence of technical file of habitation.[129]

In the last decade Land Registry knew a technological evolution and, nowadays, it is completely computerized. This evolution allows more proximity to citizens, better speed and efficiency and the possibility of implementation of new online services. Now it is possible to require the registration online and to access the information via webservices (www.predialonline.pt).[130] In addition, in Portugal, since 2008, some conveyancing

[128] Law 78/2017 dated 17/08 first in force only in 10 municipalities, but soon in all country

[129] Executive Law 281/99 dated 26/07 and Executive Law 28/2004 dated 25/03

[130] Since 2009, when the online land registration applications became available, 3.311.197 have been required.

As regards to information requests – the called "permanent certificates" since 2009 is about 15.000.000.

proceedings have been allocated to the Registrars, aiming to serve a kind of *one stop shop* for, partition, mortgaging or purchasing purposes.

This modernization effort by Ministry of Justice is transversal to all areas of its domain, in particular land, business, vehicles and civil registry, and allowed the development of new services, with emphasis in land registry.

As above referred, recently is ongoing a project that aims to reinforce the geographical identification of the land associated with its geo-reference data, allowing the accessibility and visualization of the land configuration in a platform especially created that interconnects different types of immovable relevant information[131], such as cadastral, taxation, environmental, nature protection and ownership..

In Portugal Land Registry, Business Registry and Civil Registry (including the attribution of Portuguese citizenship) are all in charge of Registrars. The recent change to the professional statute of the Registrar performed in 2018, ended up with the distinction between the three different carriers of Registrars and merged them in only one with competence do all different areas, despite still existing different kinds of services (which will probably be merged in a near future).

All Registry Services work under the surveillance of The *Institute of Registries and Notaries, I. P. (IRN, IP)*, which is a national public institute integrated in the Ministry of Justice with administrative autonomy, whose mission is to execute and follow the policies related to registration.

The *Association of Registrars (ASCR)* is an organization, made up by registrars which represents the rights and interests of its members, aiming to promote the professional quality and to defend the Registry Systems throughout studies and participation on policies regarding Registries and Professional issues.

[131] I tis the BUPi – Balcão Único do Prédio, in English "Unique On line Counter on Immovable Information"

The *joint venture* formed by IRN, IP and ASCR in the IMOLA Project aims a close collaboration in the representation of the country's legal system at the European level, which has proved to be an efficient way of working

2. The IMOLA Project

All over Europe, Land Registries legal purpose is to publish the legal status of the immovable properties, therefore the Land Registries Interconnection schema has necessarily a minimum common denominator.

The scope is to set up a property right core vocabulary that provides accepted placeholders to categorize Land Registry information.

We have found different land register units, properties or objects of land registry information in the existing European legal landscape. The choice of only one of them would be a basic error towards an efficient organization of the legal information on registered properties or rights.

Attempting to achieve common grounds respecting each national system it seems to be of crucial importance for IMOLA to be a bottom up project.

3. The Land Registers Interconnection to boost the European single market

In a borderless single market based on the assumption of the free movement of persons, goods, services and capital and the abolition of internal borders between Member States, there are strong cross-cutting integration challenges.

Overcoming these challenges requires the implementation of mechanisms to facilitate the implementation of common public policies, the need to keep all institutional and non-institutional actors in contact and to establish cooperation between the Member States.
In an European space where assets cross the borders, where citizens have the right to freely travel, live, study, work and therefore establish themselves anywhere, it is imperative to create facilitating and encouraging mechanisms.

  ISBN: 978-2-9602448-0-9

In this context, the interconnection of the land registries is assumed to be a powerful tool to remove, or at least mitigate, the practical effects due to the existence in Europe of several different legal systems.

Therefore, the interconnection of land registers is a key factor in the development of the European Single Market.

It is important to create mechanisms that allow citizens to know the content of the laws that rule their rights and duties.

In the global information and technological age, it is urgent to create a fast, safe and efficient mechanism to allow sharing information on the existing different laws. It would be a legal tool of union and security, for the States and for the citizens, who cannot, thus, hide themselves in the ignorance of the applicable law.

The land registry interconnection is a key that will protect MS, providing the necessary means to make information available for secure real estate transactions, to be used as proof in court and to prevent and fight money laundry, among others.

This is furthermore relevant as we watch an increasing in the number of citizens who choose to live outside their home countries. Portugal has a long history of emigration, but recently the number of foreign citizens with residence in our country has raised almost for the double.

The free movement of persons within the space of the EU, has brought up the need to regulate at European level several civil matters. The EU Regulations, 4/2009, 10/01/2009 on maintenance obligations; 1259/2010, 20/12/2010 on divorce and legal separation; 650/2012, 04/07/2012 on succession; 2016/1103 and 2016/1104 both 24/06/2016 on Matrimonial Property Regime and Registered Partnerships, all in force, are examples of the *professio iuris*, now a trend at European Level, which demands information interconnexion.

ISBN: 978-2-9602448-0-9

Especially debated on ELRA was the Regulation (EU) 2016/1103 which came into force on January 29th, 2019. The property consequences of marriage differ from one MS to another. In some legal systems marriage does not carry any patrimonial consequence for the spouses, while in others once married, the spouses step into a special patrimonial regime, either it is defined by law or established by arrangements between spouses. It is of much interest to know how matrimonial economic regime interacts with land registry.

4. The European Land Registry Document – ELRD – a common template to harmonize the Land Registry information

At European level there is a multiplicity of organisational forms of land registry, a multitude of ways to access information, which necessarily rises difficulties in the interpretation by the different parties.

Besides, the legal background of the systems is widely different: deed systems and title systems, real folio systems and personal folio systems, all with deep reflexes at several levels. The ELRD, as a common model for an information document for the land registry, appears as an enabling mechanism of the interconnection process, despite the different systems.

It is necessary to underline that ELRD, which is part of the IMOLA project, will support the exchange of information in the land registry and aims to increase its accessibility cross borders.

In addition to a common format in the way information is presented, ELRD also aims to provide legal knowledge, explaining and allowing the comparison of the terms used in the different countries, whether in a common language or in each national language.

The goal of IMOLA II, as a follow-up project, is to provide an interoperability platform among Land Registers in Europe. The results of the project have been published as a contribute to more efficient, transparent and effective use of information.

ISBN: 978-2-9602448-0-9

Being the Portuguese system organized as a real folio, the structure of the ELRD based on the land registry unit is a benefit, that makes organizational mutual understanding easier.

The ABC structure, although no longer used in the Portuguese system, is closely acquaintance to Registrars and other legal professionals, since it is very similar to our previous organization in the land books. Therefore, no further difficulties will arise.

A new IT tool, the IMOLA platform, can become an important instrument for the proper functioning of the freedom of movement and establishment within the European Union, hence it guarantees accurate information on fundamental rights related to property[132], such as the right to marry, purchase and sell, encumber or mortgage and credit foreclosure, cross borders.

5. The European land registry Network a basic institution to create and maintain the I.KOS — Thesaurus

The ELRN has been conceived as an organization/instrument to provide legal and comparative information as regards to property rights. It aims to reach a common denominator to each legal concept widely accepted throughout all MS in a common language. The information is fulfilled with the national definition in each MS language, in order to enlighten any possible questions arising from translation.

Furthermore, the information on the ELRD is supposed to be enriched with doctrine and case law, whether national or European, to make it more useful for professional purposes, accomplishing the aim of the e-justice portal, with which it would be connected.

The actual and future work of the ELRA contact points will also enable the continuous and crucial update of the information provided, an essential task for the effective use of the network.

[132] Considered a fundamental right in European Convention on Human Rights

Land Registry information is widely used, mainly by professional – lawyers, notaries, and judges – but also by companies and citizens who need to rely on secure data in order to make decisions whether in their investments or related to their professional and private interests.

ELRA has been developing continuously, workshops and seminars connecting not only contact points (Registrars from MS) but also academics and judges who share their knowledge and experiences in matters focused on land registry publicity or with it connected such as the application of the European Regulations, registry publicity and data privacy, smart contracts, globalization, property as a fundamental right, and others, all in the registry interconnection perspective.

6. Experience acquired and overall overview

We feel like concluding this experience referring some of our best literature sentences: *"There are two words that cannot ever be used: one is always, the other is never", José Saramago, Nobel Prize in Literature;*
After several *brainstorms*, too much *law shopping*, *kick off studies*, *data access* debates and *semantic matching*, the overall overview is *"Everything is worthwhile when the soul is not small", Fernando Pessoa*

About the authors:

  ISBN: 978-2-9602448-0-9

Teresa Touriñán

"The Spanish Land Registration system and the IMOLA project"

1. Brief idea of the Spanish Land registrations systems: Its strengths and weaknesses to implement the ELRD and IMOLA Project

The Spanish law defines the land registry System as a purely causal title registration system. There is one single land registry System for the whole country, managed by "Colegio de Registradores" on behalf of the Spanish Justice Minister...

As a title tittle, registration implies always the ownership or real right contained on the public or authentic document, not the document or deed itself, which is not archived neither copied in the Land Registry. The title system is as well reinforced with several principles which give the rights published and the information given strong effects.

For any transfer of ownership of a plot of land to produce effect against third parties in good faith, it has to be registered. This implies that, when a public document is entered for registration, the registrar has the task to ensure that only legally valid changes are registered. To this end, the registrar will indicate what documentation is required and once presented for registration a legal assessment takes place before the entry is done. Similarly, any interest which affects or limits the ownership rights of the registered owner, such as a mortgage, can also be noted on the register. There are legal rules which regulate the rights and powers of each of these interests in relation to each other and in relation to third parties. For the owner who registered his right the most important principle is the chain title principle. This means that no transfer can be done without the consent of the registered owner or a judicial statement set in a procedure in which the owner has been party. For the third parties who trust in the information published the main principle is the bona fides one, which in this case implies that any party who conveys in accordance with the registry publicity formally issued will be always protected, that means, that the third party will always be kept in his acquisition and no other real right, encumbrance or charge which is not registered can be allege against that third party.

  ISBN: 978-2-9602448-0-9

Spanish land registrars also carry out specific several functions different from those developed in other countries such as the following ones:

- Urbanism control: The land registry acts as a preventive control urbanism authority as for the registration of buildings (which is possible in our systems) the registrar checks the compliance with all administrative licenses or building permits required. They also give notice of any urbanism process that is taking place over a certain registry plot.

- Tax Control: In addition, prior to registration they check the compliance with tax obligation and in villages, it is also committed for tax collection (succession taxes, land transfer taxes and some municipality taxes).

- Interconnection with other public administration: Once an entry is practice, the registrar can check the inscription of the owner's company in the Business registry, it is foreseen the same interconnection with the Civil registry (which is relevant in case of succession transfer or matrimonial property regime changes). It is also connected with the cadastre, so that any change made in the registry plot is then automatically updated in the cadastre mapping model[133].

And, (especially useful for foreign transactions) it is in permanent communication with the urban authority which is obliged to notify the registry any urban restructuring action plan or any process to recover urban legality over the buildings registered.

The land registry is organized on a territorial base. There are as many registries as registry districts. In charge of each registry there is always a registrar, which is a civil servant,

[133] The Spanish cadastre is an administrative structure created for fiscal purpose (land taxes collection and management) on a territorial mapping base. There is one national cadaster for de 90% of the spanish terrotory and 4 independent regional cadaster for Alava, guipuzcoa, Vizcaya and Navarra, Information aon ownership offered by the cadastre gives no prove of evidence for transaction and mortgages.

expert in law who has passed a strong qualification Estate exam and who is responsible of the management of the office. Every Land Registry has its own district with exclusive competence and every Registry has its own database regarding the land included in their territory.

However, every data base is interconnected, so although there is not a purely centralized data base, there is a central search server so that information regarding any property registered can be done with a unique access point and with a unique request. There is an online solution is available 99.996% of the time in any given month, 24 hours a day 365days per year. The solution serves 50.000 user queries (not formal requests) per month, using the system 30.000 user on average and rising up to 60.000 at a maximum.

Nevertheless, take into account that as the Spanish platform gives asynchronous answer (due to our property and mortgage law requirements and data protection rules) that will mean that the time to answer the requests made will depend on the opening hours of the land registries. Land registries are open in the whole Spain from 9:00 to 17:00 form Monday to Friday. The legal answering time is 24hours since the request is received in the registry. But the average answering time is one hour for the entire country. The solution is ready to accept additional number of searches due to international users. The current solution, with minor additional changes due to the maximum number of database concurrent connections, would be able to manage up to 200.000 queries per month.

2. The Land Registers Interconnection to boost the European single market

As the European authorities already know, the land registries interconnection is a key issue to boost the European single market. In the first days of the Commissions interconnection Project, the following business cases were identified:

"- Providing information on burdens (such as buyers or a seller's creditors) that may affect a given property;
- Legal/economic investigation on bankruptcy, credit, solvency or responsibility;
- Legal investigation on object, court proceedings, tax liability, ownership or limitations;
- Investigation for contracting or mediation of shares (inheritance);

- Judicial protection of a person's rights in case others challenge his/her possessions (e.g. in Divorce cases).”[134]

All of them are examples of transactions and in any transaction the basic and more important information is ownership (not graphical information, neither territorial information).

In any transaction there are risk for both parties the seller and the Buyer. S, seller wants to get a price and get rid of the taxes and obligations of the property tenancy when selling, and B as the buyer wants to be sure that he acquire good ownership from B that is, that the S Seller is the true owner (I) and can transfer the property with no charges or limitations(ii).

The expectation of B (buyer) of acquiring good property can be limited by to main rules: no one can transfer more that he has, that is, if S (seller) is not the owner he cannot transfer the ownership, and if the S (seller ownerships has a certain burden over the property (mortgages, servitudes, or easements for example) he cannot transfer the property as free of charge.

Registration system where developed in the XIX century as a la limit to these rules in order to encourage transactions. A first group registries, let’s say the Registries of Documents, (deed recording systems) established the rule that unpublished documents cannot serve as evidence against published documents. They do not provide evidence of who is the holder of a Right but grant priority to some documents above other documents. To this first group belong the French civil code and the states with a civil legislation based on it such as France (except Alsace and Mosel), Italy (except Trento and Alto Adige) and Belgium, for example.

Other States developed strongest registration effect systems (title registration systems) which will provide B (as the buyer) with a good title for his acquisition in the case the

[134] WORKING DOCUMENT BY THE SERVICES OF THE COMMISSION Working Party on e-Law (e-Justice) Brussels, 26 September 2013

party acquires a property by onerous title and in good faith from the seller (s) which appears as the owner in the registry. These are registries of rights or titles. To this group belong all German traditional law-based mortgages law such as the actual German BGB, the Swiss registry, the polish, Slovenian, Austrian and the Spanish one for example.

Without considering the particularities of the common law, to this kind of registries belong the and registries of England, Scotland, Ireland and Northern Ireland. All these countries have recently moved from their ancient deed recordation systems to the land registration system.

What I am trying to say is that every country has a registration system as a data base of ownership and burdens. No mutter its strongest or soft effects; the land registry is a property registry data base containing legal information. In addition, some countries decided to merge this information with territorial or legal information, but this additional information cannot constrain or ignore the original functionality of land registries and its core value, which is to give juridical certainty to transactions helping to the development of mature mortgage markets.

In addition to these business cases, IMOLA has identified several other pilot-cases were land registry publicity is needed at a European level. The exchange of legal data regarding ownership and charges among European states (with the special goal of European judicial cooperation) is a requirement for putting in practice European legislation such as amendments in regulation 44/ 2001, Cross boarder insolvency proceedings, Succession regulation and Draft on matrimonial economic property regime.
In the first one, judges are supposed to take judiciary provisional measures over real estate set in another country without any executor procedure and directly sending its judicial statement to the national authorities of the country where the property is. For this purpose, the first thing that the foreign judge needs is to know where a certain person has properties. For the judge what is important is ownership, so that the judicial measure is taken only over properties belonging to that person, the kind of ownership (that is, joint tenancy, single ownership, a certain share of a good… which may oblige according to national regulation to notify this people) and burdens and charges, so that the judge can

  ISBN: 978-2-9602448-0-9

know if his attachment or seizure (or any other judicial measure) is the first burden over the good or not.

For this purpose, what is important is to set a hub where countries can send their answers to the question "if there is any property belonging to "X" and basic identification of that property.

In addition, the Succession regulation which entered into effect in August 2015th has introduce a new pan European succession title which is the certificate of succession. This is a document with European recognition and when the national authority issues it, he or she needs to know which properties have been registered under the name of the deceased. Additional pilot cases for IMOLA ELRD Project where identified during the seminars and all of them cope to the boosting of the European single market such as cross border insolvency proceedings. In this last case, whenever a judge of a certain country needs information about properties of the bankruptcy company over all Europe, the IMOLA ELRD will offer him a fully comprehensible solution.

Further European regulations have also made reference to the cross-border queries on ownership of real state such as the recently approved regulations on matrimonial economy regime and registered partners. In both regulations, they pay special attention to the liquidation of common assets while the matrimony or registered couple is Split and therefore, the inventory of common assets may comprise properties over all Europe.

3. The European Land Registry Document -ELRD-, a common template to harmonize the Land Registry information

Certainly, in my opinion, the ELRD is a suitable template to show in a harmonized way the land registry information, which nowadays, is given in more than 27th different ways. From the Spanish point of view, it has been not that easy to adapt to the IMOLA projects due to the particular characteristics of the Spanish land registrations System. At the beginning, some characteristics of our national System seem to be very difficult to aligned with the IMOLA scope, especially because previous difficulties shown in the first steps

  ISBN: 978-2-9602448-0-9

of the Commission interconnection Project[135] : The fact that Spain has 1000 land registries spread along the whole country, an asynchronous data base and non-ABC structure in their land books; seem to be difficulties to implement the initial approach of IMOAL Project. However, the high-level online publicity solution, the current degree of integration of the land registry data bases, the *numerous apertus* principle as a way of recognizing foreign real rights seem to be very helpful to implement a pan-European publicity scheme model.

Finally, we cannot forget the fact that, the Spanish real estate market is probably the one with the highest degree of internationalization in the whole European Union. Cross border transactions are increasing day by day and cross border land registry publicity is very common in our country[136].

Let's analyse some of the key moments that the Spanish land registry had face to implement IMOLA Project:

A. How to face and ABC template structure of the ELRD with non-ABC structure of the land books.

As mentioned before, the Spanish land books are based on the real folio principle. This means that the criteria of organizing information in the land registry is according to the land registry unit of file. In the same folio or file it will appear a full description of the

[135] Spain has found several difficulties on the first questionnaires of the Interconnection Project, according to my opinion, as former Spanish representative of the ministry of justice in this project, due to a lack of understanding of the difference between juridical data and geo spatial data of the first coordination team of the Interconnection project, and the lack of communication between them and the member states. Due to this sharp start, a strong refuse to the Project arise and even a common manifest against the interconnection Project has been signed upon by France and Germany. Fortunately, the latest steps taken in the Interconnection Project seem to have solved this difficulties, staking into account different national sensibilities to reach a common goal and I feel, form now on, it will gather a stronger support from member states.

[136] Spanish land registry factsheets can be directly applied and served in English language through online requests since 2010th www.regsitradores.org.

property itself linked to a geo-referential mapping in some cases, all registered information on ownership and burdens as well as side notes on urban, tax or environmental details. This information will be registered according to the principle "*prior in tempore potior in iure"* in temporary order, taking into account the day of entering the registry better that the date of issuing the registered deed.

However, our Mortgage law regulates in a very open and broad manner the content and form of the certification[137]. There is not a law tightly fixed format to issue certifications. The only formalities needed are name, signature and seal of the registrar and if issued in paper format, used a series approved model, place and date of issuance. Take into account that there is no other mandatory statement which regulates strictly any other formalities about the certification and that any information in the land registry can be certified by the Land registrar with the only limit of the data protection rules. The Registrar is responsible of any information certified by him so that any damages caused by any irregular or inexact certification will be compensated by the Registrar. Not certified information is the so called simple informative note (simple excerpt) and it is just comprehensive.

The structure of the template, A, B and C is adequate to the Spanish Land Registries, it covers all the rights and legal situations published in the Spanish Land Books. The simple note, which is the main form of publicity has a different structure, it contains a description of the piece of land, dwelling, apartment etc. followed by the identification of the owner and the encumbrances in a very wide sense of the meaning, which will be divided between B and C according to the structure of the template.

B. The land registry unit as the basic criteria of identifier of the land registry information.

[137] Spanish Mortgage law 8 February 1948. Please consider that our mortgage law although it last from the XIX century, just slight changes were needed in order to be updated to the electronic certification process. The current certification paper formats are approved by our national authority, Land Registry and Notaries General Director by means of an internal Instruction or rule. The Registry and Notaries General Director is an administrative authority depending on the Ministry of justice, just under supervision of the State´s Justice Secretary. No parliament law modification neither ministerial order is needed to take a new model.

According to Spanish legal system the land books are organized following the real folio principle. Each real folio it is also identified by a CRU (Unique registry code) which is automatically assigned by electronic means and it is unique for each land registry unit in the whole country and cannot be changed or modified. The description of the LRU according to Spanish legal System will include a basic set of data as mandatory such as location or address, boundaries and measurement and land use in addition, other physical features might be registered as well and cadastral reference can also be taken into account to help identifying the property. Almost all modern properties have attached to the literature description some graphical information. The geo-spatial information is provided by the land registry and is rather based on the mapping of the cadastre as well as on mapping issued by professional topographers, architects or engineers or geographical institutes[138].

The election of the LRU as core pillar of the ELRD has been a key issue for the Spanish legal System to ensure the fully implementations of the IMOLA outcomes in the Spanish land registry system. The broad definition of LRU agreed by the ELRN contact points makes possible that countries with non-cadastral description of the parcel such as Ireland, countries totally cadastral based as the Netherlands, or countries that are under a non-mandatory coordination progresses of the data base of national cadastres and land registries such as Spain, can ,all of them, share the ELRD.

A narrower definition of the LRU or a purely geospatial perspective would have made impossible to reach a common end. The LRU fits perfectly with systems that include a mapping and a geolocation as part of their information of the LRU but also allows to apply IMOLA ELRD for countries that keep a literal description of the plot in their system. In addition, searching engine of the ELRD gives fully respect to this approach as it allows searches based on personal and LRU data as well as does not excludes searches based on geospatial location.

[138] Please check Law 13/2015 which regulates coordination between cadastral and land registry information. The use of cadastral geospatial information is only mandatory in case of first registration. In any other case independent authorities or professionals

The fact that in some countries the provider of the graphic information on a territorial mapping base is the same than the provider of the legal information does not imply that both always need to be linked. It is up to each national State to given them together or not, but neither in terms of data protections rules nor in terms of open data policies legal data and territorial data have the same regulation according to European directives.
Therefore, IMOLA ELRD gives a simple solution to cover a high range of necessities to bost up the European single market as well as to implement the different regulations on successions, matrimonial economy regime or insolvency, causing the least interference possible with the national management of the land registry systems.

C. Data protection rules:

One of the key points to join the ELRD has been the compliance of the schema with the Data protection regulation and national provisions on data protection rules.

Several approaches were discussed coming from the open data-based countries to the ones that consider property rights linked to personal data as highly sensitive information. From the Spanish point of view, information on property rights has to meet the needs of the immovable and mortgage market, being accurate, fast and cheap. However, our law would not accept an immediate total access with no prior control to the land registry data base.

Spanish Land Registries (LRs) are public for all those who have a legitimate interest in the state of registered properties or real property rights.

Whoever wishes to obtain information regarding the content of the Registry will need to certify having a genuine interest in it before the registrar. There is a presumption of assignment in the persons and entities developing their businesses in connection with legal proceedings regarding real estate property such as financial institutions, lawyers, legal representatives, account auditors, administrative managers, real estate agents and other professionals developing similar businesses, as well as the Public Entities and detectives, provided that they declare the reason for such consultation and this is in agreement with the purposes of the Registry.

  ISBN: 978-2-9602448-0-9

The data protection regulation is very relevant as implies not direct access to the data (but necessary control of the legitimate interest and is very restrictive with mass publicity requests.

D. ELRD as a fully comprehensive template for land registry national information Systems

One of the initial discussions of IMOLA I was the need of choosing between two opposite ways of understanding the ELRD.

One perspective was to design and ELRD with the minimum basic information that all countries could give no mutter the different affects their registries have or the different fields its data based was made of.

The first approach was promptly rejected because if no fully information of the land registries could be shown in the ELRD the incomplete information will be the same as lack of information and mistakes will arise and no practical use of the ELRD will possible as national systems should always be latterly consulted.

From the Spanish point of view, as strong effects are linked to the land registry and huge variety degree of information (juridical, spatial, and descriptive) is uploaded in the land registry data bases, a full comprehensive ELRD is a good solution. Furthermore, the different categories attached to the information in the ELRD (basic data, complementary data, supplementary data) are very helpful to have an overview of the degree of development and information existing in each land registry System.

E. The use of a common vocabulary and a basic vocabulary.

The development of the European Land Register Document (ELRD) requires the use of a common vocabulary from the European registration systems.

  ISBN: 978-2-9602448-0-9

To avoid this common vocabulary sacrificing the richness of legal terminology and, above all, generating misunderstandings derived from the way in which each language and legal system understands a specific concept, it is necessary for each country, through the contact points of the European Land Registry Network (ELRN), to define each concept.

Obtaining these national concepts in the common working language (English) along with identifying the characteristics of these concepts achieved with the technology of the trainers will allow:

- To enrich the publicity of the Registries of the Property facilitating its understanding.
- To carry out analysis of the legal institutions of the different European countries.
- To identify the common elements of the European legal institutions, within the framework of the Land Registry and, through these common elements or lowest common denominator, to promote the construction of a European Civil Law.

F. Towards a Land Registry ISA Vocabulary

In identifying the common vocabulary of the Land Registries, the common vocabularies created through the ISA2 program have become fundamental. However, shortcomings have been observed in the existing basic vocabularies in relation to the vocabulary used by the Land Registries. The identification of these deficiencies will allow, starting from the existing Core Vocabularies, to complete a common language. The registral common language, having as object national legal institutions, must respect the special characteristics of certain national concepts that will be able to be identified through the formants with the help of the contact points and the technological tools put at their disposal.

4. The European Land Registry Network a basic institution to create and maintain the I.KOS -thesaurus-

In broad terms, the Land Registrars, in the name of the State guarantee the accuracy of the register and undertakes to compensate those whose rights are adversely affected by

  ISBN: 978-2-9602448-0-9

an administrative error. Claims for compensation are very rare due to the previous legal control. Land registrars manage not only the registration on land books but as well deal with the publicity issued by land registries in their own countries. For this reason, it seems that the national bodies in charge of the land registry publicity will be the one dealing with the IMOLA ELRD maintenance project or with any interconnection project on land registration publicity.

However, this is the role of a regular lad registrar, but land registrars who are as well ELRN contact points have acquire some extra capabilities due to the work made in the ELRN.

A great achieve for the contact points participating in the IMOLA Project is that for more than 5 years, they have constantly keep familiarised with the real rights and property law concepts not only in the national domain but in a pan. European scale. The relevance of this knowledge has grown its importance in the IMOLA II workshops as a specific training on comparison law has been given and brief notions of ontology and web semantic have been acquired. This very rare mix of training make the contact points of the ELRN association the natural supporters of the ELRD IKOS-and Thesaurus.

The land registrars in their own country are the professional committed with issuing the land registry publicity, and according to ELRA status, the ELRN contact point designated by national association belonging to ELRA should be a land registrar with proved skills and knowledge on juridical matters. In addition, the ELRN contact points participating in the IMOLA projects I and II have get all this extra knowledge on comparative law and European property law as well as the practical management of the KM management. We may not forget that all the information uploaded to the KM has been developed and validated by the contact points and they are kept being responsible of their accuracy and updating.

5. Experience acquired and global overview

Taking all these features into account, form the Spanish point of view, it may seem that an asynchronous system with a fragmented data base, and non-open data land registry

System would very difficult fit into an interconnection Project or manage to cope with an ELRD pan-European information sheet. However, things are different as they seem, when all parties involve make efforts to share interest and achieve the same goal. Neither the interconnection Project is ended neither the IMOLA Project nor its ELRD is a final product, but both ongoing projects seem to be suitable to gather the support of the Spanish land registry and make Spanish country full part of its final result.

I feel, that the IMOLA Project has been developed from bottom up approach, fully respectful with national countries independence and current legal system, minimizing impact at national level. At the IMOLA I, the methodology of questionnaires and meetings has been very suitable to raise a common a template in which every country can feel comfortable. The open table methodology of the meetings and the queries launched by raised hand role in the workshops have offer the contact points the opportunity not only to express their requirements to fit the ELRD with their national systems but as well to get a broad knowledge about the other countries land registry systems. Additionally, a deeper knowledge on the land registry vocabulary has been achieved with the help of the professors who have participate in the Project adding a more academic rather than practical or professional point of view.

For all these reasons my personal feelings about the project are very positive and I hope it will further on turns into a practical tool that definitely helps European citizens to feel while acquiring properties or inheriting abroad as confident as in their own countries.

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  ISBN: 978-2-9602448-0-9

David Fridh

"*The Swedish Real Property Register and the IMOLA II project*"

1. The Swedish Real Property Register and land registration

Lantmäteriet is the Swedish mapping, cadastral and land registration authority. Lantmäteriet manages and is responsible for the Real Property Register. There is one single digital register for the entire country and all properties are covered in the register. The land register is an integrated part of the Real Property Register.

All land in Sweden is divided into real properties called property units. A property unit includes land and fixtures. Property fixtures are e.g. buildings, utilities and vegetation. A real property can include a water area; both inland and in the coastal areas. Areas belonging to several properties jointly are called joint property units. The property areas including the boundaries are presented in the digital cadastral map which is part of the Real Property Register. Properties can be found also as three-dimensional properties; e.g. underground or as a specific type of ownership apartment also classified as real property.

The Real Property Register contains vital information about the immovable property. The part of the property register that covers the land register, contains for example information about the registered owner of the property and eventual mortgages, site leaseholds and registered property rights such as usufructs and easements.

Ownership of immovable property is not dependent on registration in Sweden. If all legal requirements have been fulfilled, the ownership of the property is transferred when the deed has been signed by the contracting parties.

Sweden does not have a notary system and the deeds are not authorized. Any transfer of property should be registered in the land register part of the Real Property Register through an application for registration of ownership. This should be made within three months of the transfer being completed. The registration creates publicity and

  ISBN: 978-2-9602448-0-9

transparency about the ownership and provides certain rights in rem effects. For example, only the registered owner can apply for registration of mortgage or registration of property rights (such as easements and usufructs). Registration can also protect against third party claims. Bona fide acquisitions are possible but there are also some exceptions where this is not possible, even if the proprietor has been in good faith about the information in the land register.

In 1995 the whole of Sweden was included in the digital unified Real Property Register as a result of the Land Data Bank Reform and also a reform as to property designations. The Land Data Bank Reform included the transfer of information from earlier books to the Register and the introduction of the registration system. The technical environment and channels for dissemination of information has developed continuously thereafter and are today evolving as to e.g. smarter processes between authorities.

2. The Land Registers Interconnection to boost the European single market

Land registry publicity is needed at a European level in many different cases and for different reasons. The exchange of legal information about ownership, mortgages and property rights is required in cases of cross boarder insolvency proceedings. Other examples are the EU regulations about succession and matrimonial property regimes and property consequences for registered partnerships.

The scope of the IMOLA project is to become one of the main cornerstones for realizing the Land Registers Interconnection, including accessibility and understanding of the registers between different member states.

3. The European Land Registry Document -ELRD-, a common template to harmonize the Land Registry information

There are many similarities between the different countries and many of the pivot terms, definitions and formants are known and used within the Swedish system.

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However, some characteristics of the Swedish system made it difficult to understand or describe some of the terms and definitions. Some of them are not known or included in the Swedish system and are non-applicable. This has in no way been a major obstacle.

A high-level online publicity solution and a developed integration of the land registry data bases via LRI should provide a good base for implementing a pan-European model in the future.

One of the key points for LRI will be compliance with data protection regulation and national legislation.

From a Swedish point of view, property information has to meet the needs of the society, being accurate, fast and accessible.

In accordance with the principle of public access to official registers, the Swedish Real Property Register is public and legitimate interest does not have to be proved to get an excerpt or selected information from the register. Register information can be administered in both paper- and electronic form but the authority only has an expressed obligation to provide the information in paper form and direct access to the real property register is only permitted for certain purposes. For various forms of customized or adapted information there are resellers specialized within different areas.

As a property owner it is possible to use an e-service free of charge which gives digital access to information regarding your own property/-ies.

4. The use of a common vocabulary and a basic vocabulary.

The development of the European Land Register Document (ELRD) requires the use of a common vocabulary from the European registration systems.

Similar vocabulary is sometimes used with different meaning. It has been necessary for each country to define each concept and identifying the characteristics.

  ISBN: 978-2-9602448-0-9

It is important to consider the various systems of harmonization already existing; e.g. Inspire and ISA. This area of harmonization between concepts was included at a general level in IMOLA II.

5. The European Land Registry Network a basic institution to create and maintain the I.KOS -thesaurus-

The contact points participating in the IMOLA Project have familiarized themselves with the real rights and property law concepts from a pan European perspective. The relevance of this knowledge has grown its importance in the IMOLA II workshops. The workshops have included specific training on comparative law and brief notions of ontology and web semantics. It also included training on practical management of the Knowledge Manager database. The database has been updated with information on the Swedish system during the project. It is important that the database is kept up to date in the future.

The workshops also provided good opportunities to exchange ideas, learn about the different European systems and discuss common topics.

Lantmäteriet participated in the IMOLA II project with contact points from the land registration and geodata divisions. The contact point from the land registration division participating as an expert on land registration and the contact point from the geodata division participating as an expert on the Real Property Register.

6. Experience acquired and global overview

Participating in the IMOLA II project has been educational and enriching on many different levels. We have not experienced any significant problems and have managed to work systematically with the ELRD pan-European information sheets, the definitions and the formants.

The work within the IMOLA II Project has been managed in a joint fashion with the Knowledge Manager, standardized templates, definitions and sheets. At the same time a lot of the practical work has been managed independently by the national contact points.

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We hope that the pan-European cooperation will continue and that it will make it easier for European citizens to access understandable information about properties and land register information in Europe.

About the authors:

David Fridh
Lantmäteriet (Sweden)

  ISBN: 978-2-9602448-0-9

ANEXES: SEMINARS

ISBN: 978-2-9602448-0-9

Land Registers Interconnection

ELRA IMOLA II Kick-off Meeting

Gabriel Sima
European Commission, DG Justice and Consumers

28 February 2018

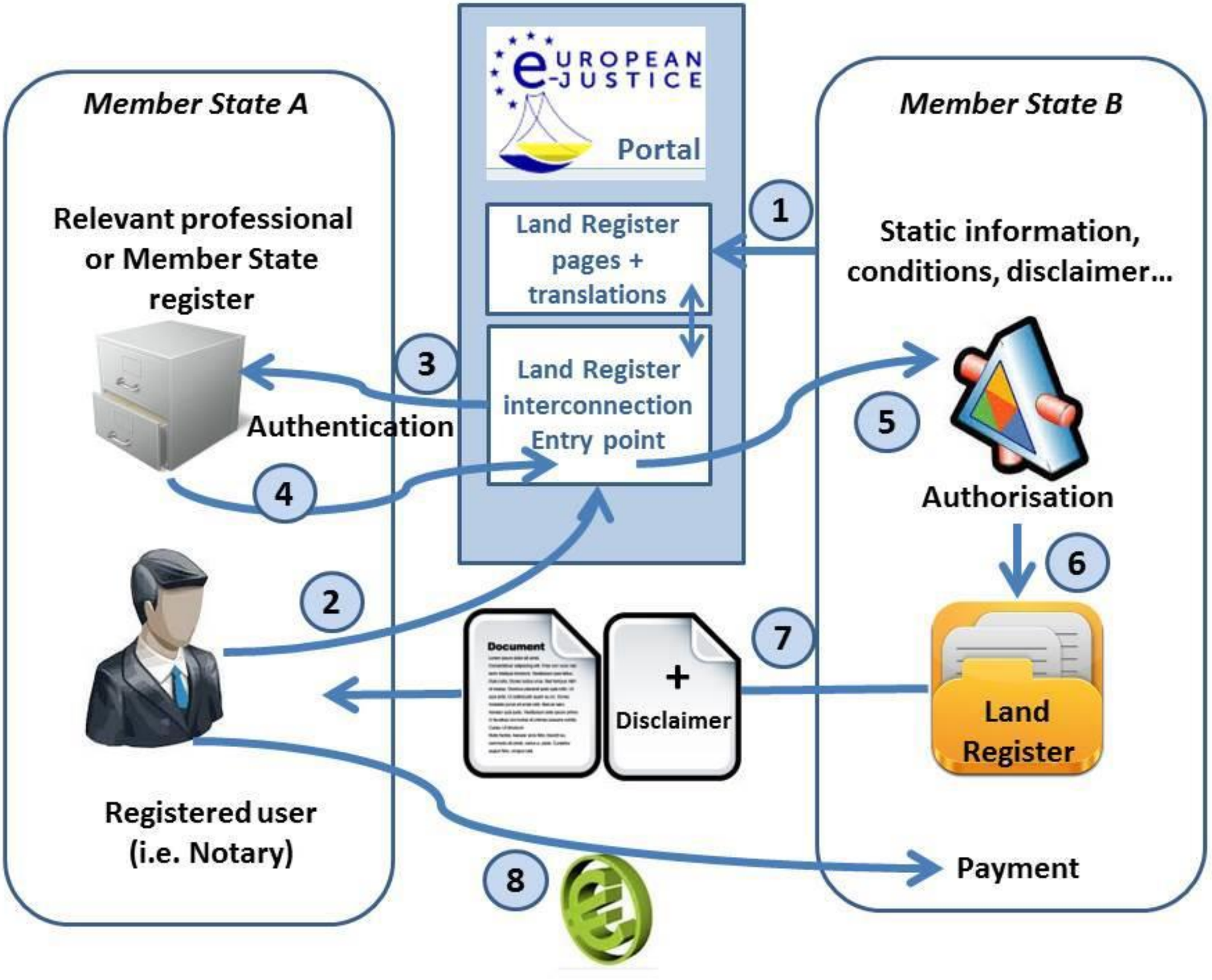
Justice

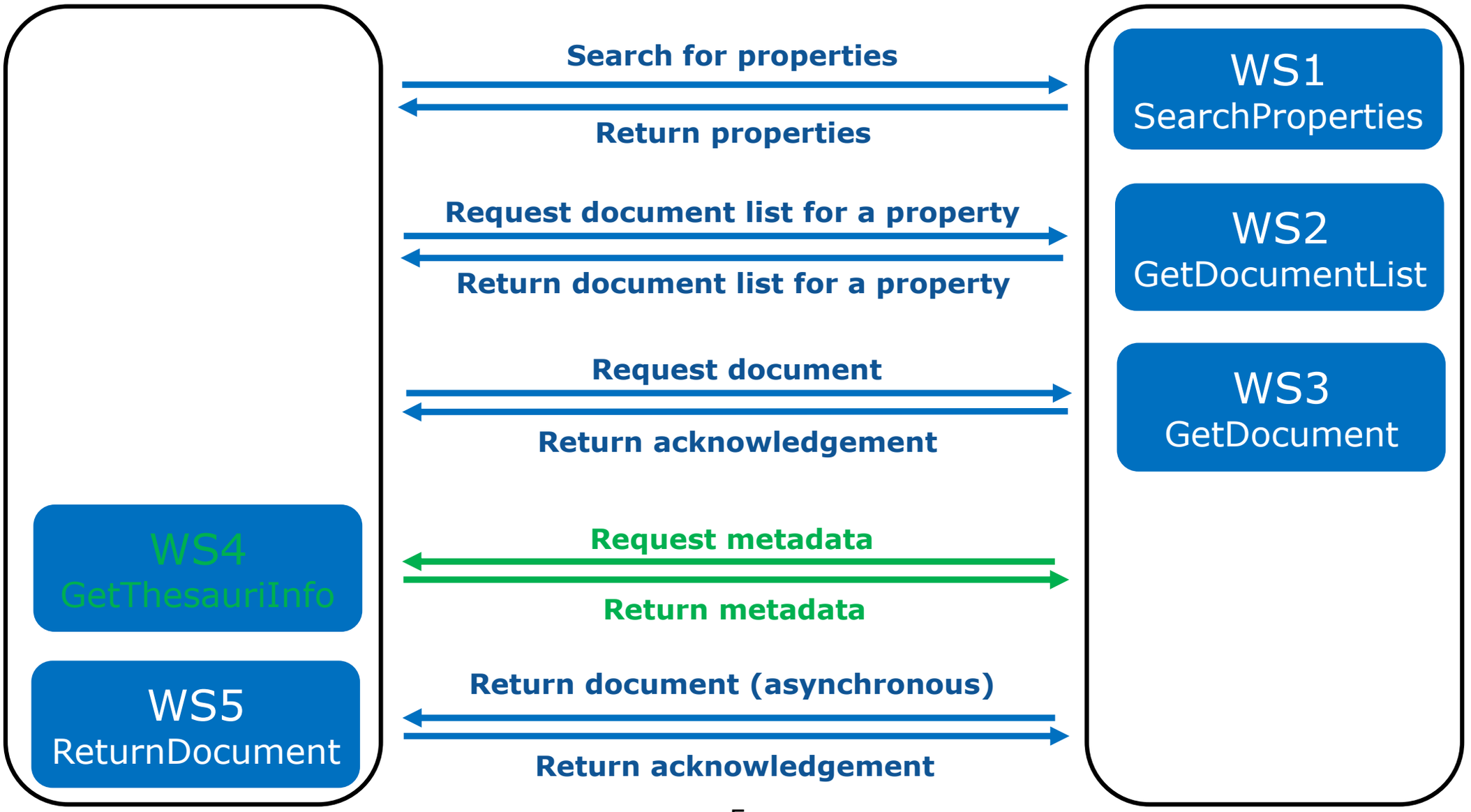
Context

The Land Registers Interconnection (LRI) project aims to provide a single access point within the European e-Justice Portal to the land registers of participating EU countries. This will address the current issues of discrepancy, complexity and multitude of land registration systems amongst Member States. Through this access point citizens and professionals will be able to query and retrieve relevant information via a single, adaptive, multi-lingual interface, in compliance with the national legal and technical capabilities.

State of play

- **Phase I available for integration testing with Member States in December 2017**
- **Phase II will feature a circle of trust authorisation mechanism, and reference information – Q3 2018**
- **Implementation of an electronic payments system, pending contracting of a commercial payment provider**
- **Austria and Estonia are initiating interconnection work based on a European Commission grant**


Member State A
Relevant professional or Member State register
Authentication
Registered user (i.e. Notary)
EUROPEAN e-JUSTICE Portal
Land Register pages + translations
Land Register interconnection Entry point
Member State B
Static information, conditions, disclaimer…
Authorisation
Land Register
Payment
Document
Disclaimer
1
2
3
4
5
6
7
8


LRI
Land Register
Search for properties
Return properties
Request document list for a property
Return document list for a property
Request document
Return acknowledgement
Request metadata
Return metadata
Return document (asynchronous)
Return acknowledgement
WS1
SearchProperties
WS2
GetDocumentList
WS3
GetDocument
WS4
GetThesauriInfo
WS5
ReturnDocument

Ongoing actions

- **Tax Calculation Module that will allow implementing the payment system, for documents subject to a fee**
- **Selection of a Payment Services Provider**

LRI Phase II

- **Planned Q3 2018**
- **Circle of trust authorisation mechanism**
- **Static glossary of terms from EULIS**
- **Change requests from Member States**

Next steps

- **Integration work with Austria and Estonia**
- **Participate in defining IMOLA II specifications for compatibility with LRI**
- **Review of ELRD document by DIGIT ISA for interoperability with member state systems**
- **EuroGeographics: evaluation of European Location Services for LRI**
- **Implement the payment solution**

- **Integrating LRI and IMOLA II will add value to both initiatives and will encourage Member States to join**

- **DG Justice collaborates with ELRA to ensure interoperability of LRI and IMOLA II deliverables, and smooth transition to a possible Commission hosting of the IMOLA II service**

- **DG Justice will review the IMOLA II technical architecture and messaging model as the project progresses**

- **How could the benefits of IMOLA II be extended to those Land Registers which are not yet compatible with ELRD?**

Grants for integration with LRI

- **Grant awarded to Austria and Estonia**
- **New grant available in 2018, timing to be decided**
- **Priorities for grants for 2019 have not been decided yet**

Thank you

Land Registers Interconnection (LRI) project

IMOLA
Interoperability Model for Land Registers

ELRA
European Land Registry Association

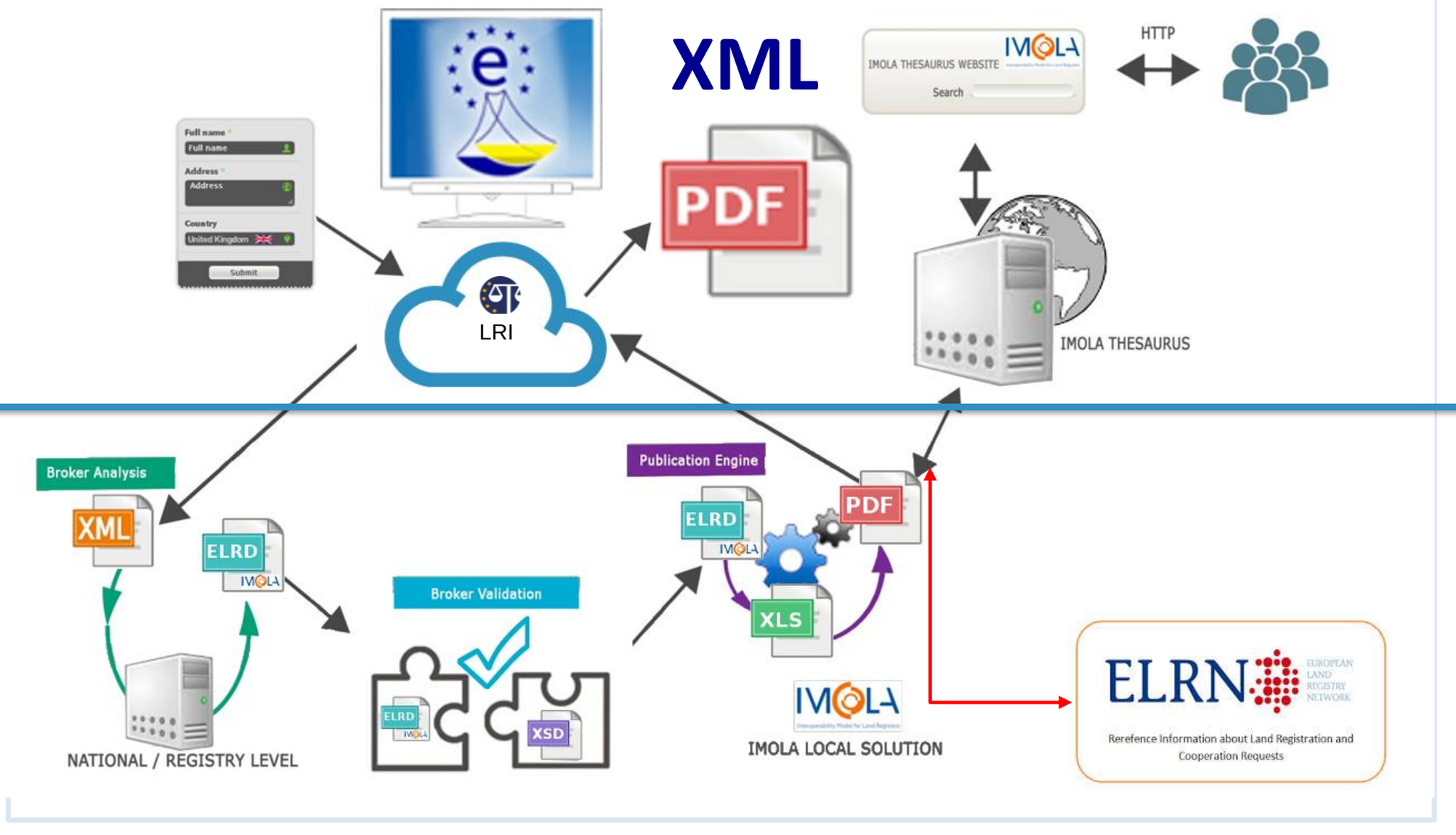
European Commission

Global Visión of IMOLA Project: objetives and results

Kick off Conference, Brussels 28th February 2018

Jesús Camy Escobar (Project Manager)

LRI/LRS/IMOLA integration schema



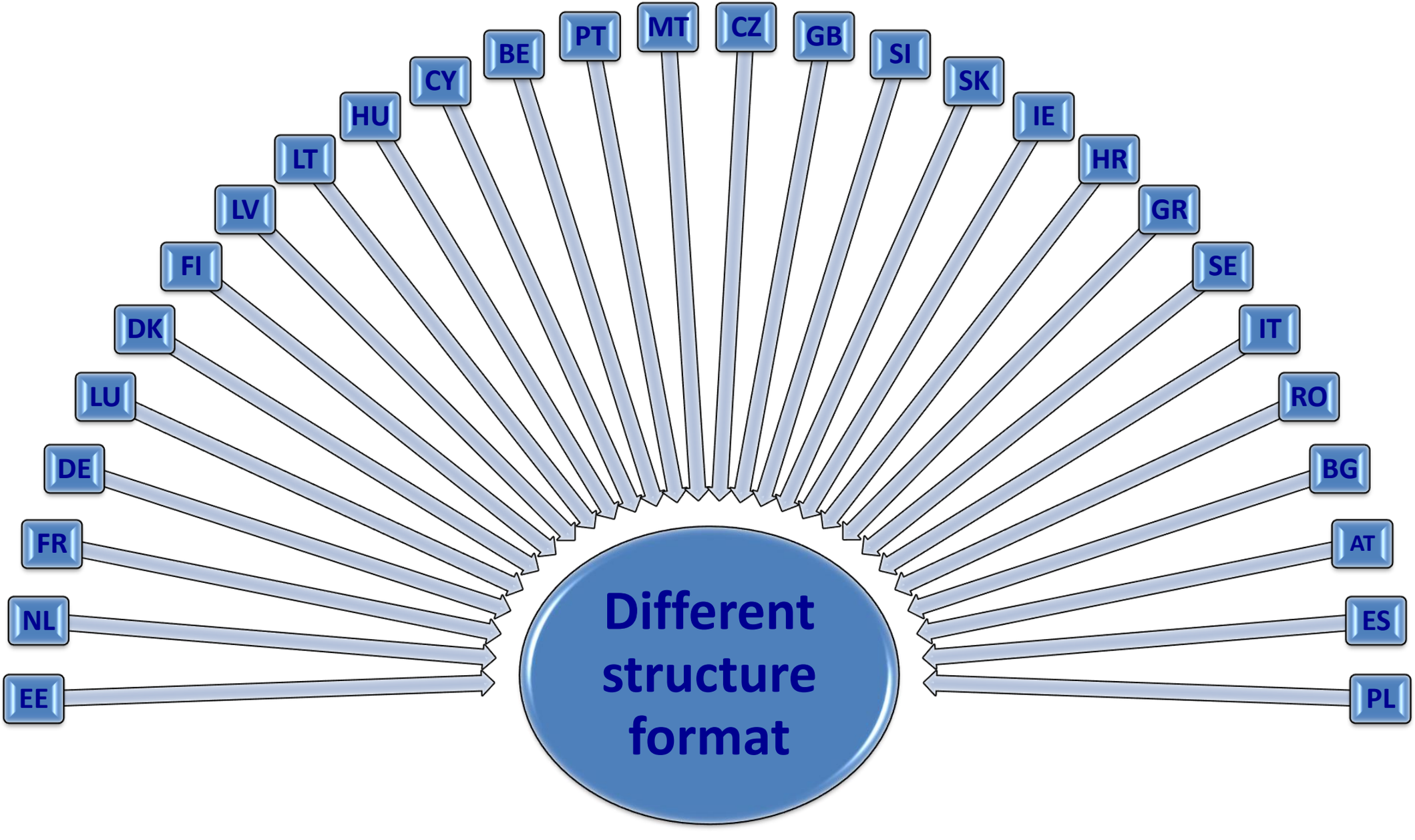
Objetives

Exchange information on the framework of LR systems, according to a shared data model integrated on e-Justice

Descriptive metadata to characterize the content of the information objects of the LR systems

Concept scheme to map European property rights systems

LR information: current situation



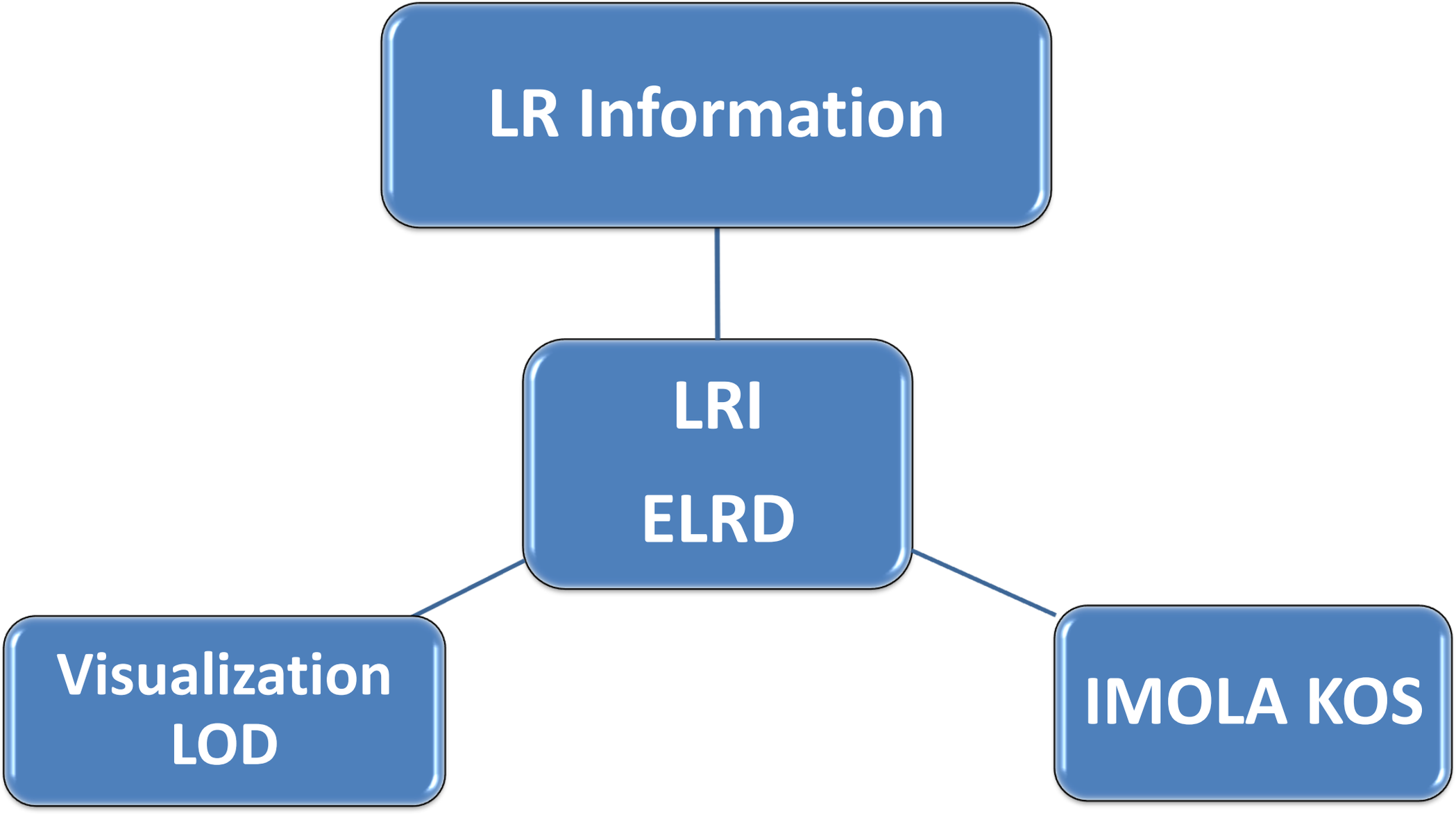
Results

ELRD XSD: common template

IMOLA KOS: reference information

IMOLA WS: data interoperability

LRI/ELRD common template + metadata



LRI/IMOLA/LRS COMPARATIVE

LRS

- National connector
- National interface
- PAS
- Payment

LRI

- Single access
- Search Interfaces
- Authentication
- Payment/Tax Calculation

IMOLA

- ELRD
- IMOLA KOS
- Formal retrieval
- ELRN/Input System

ELRD Integration

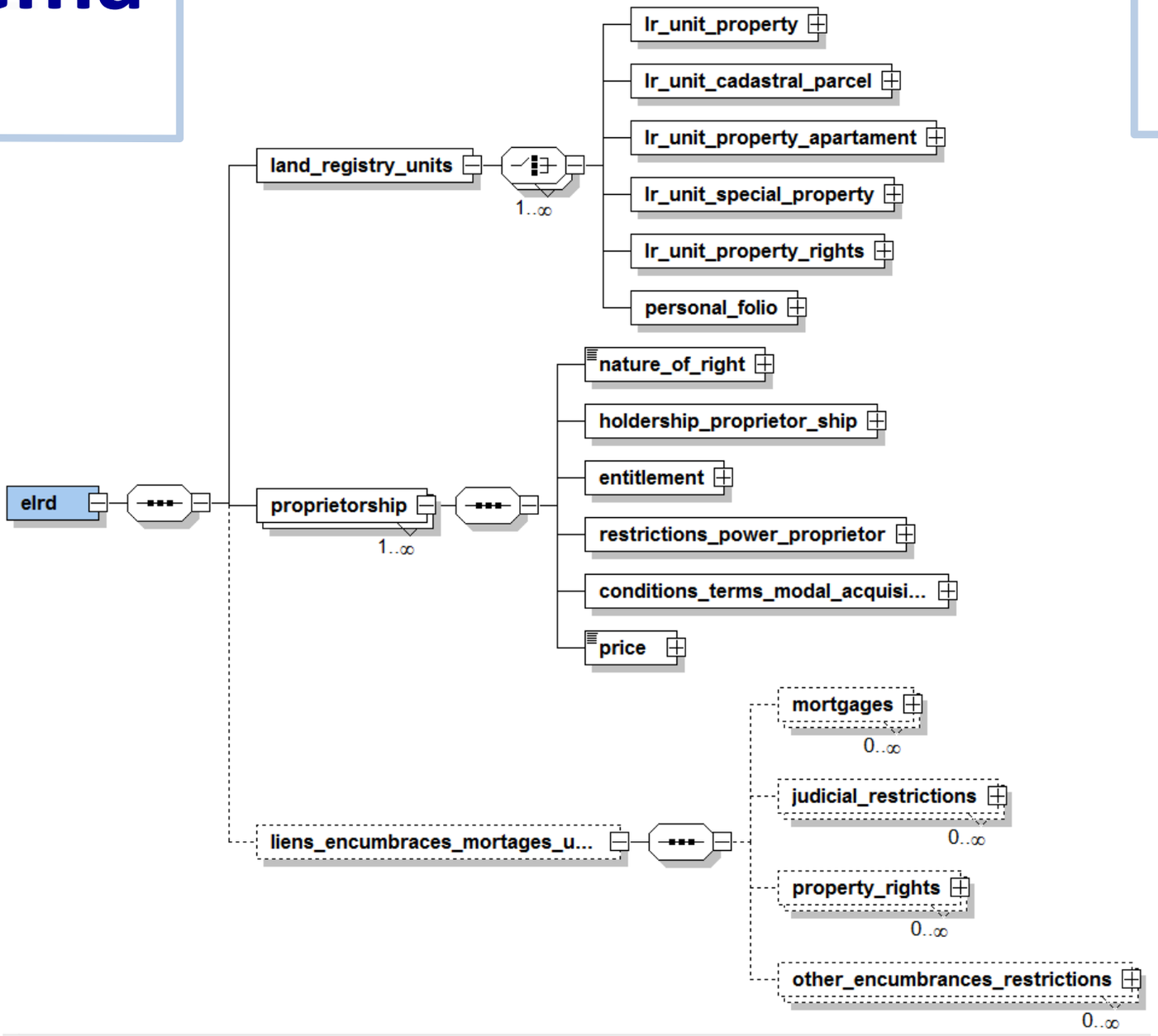
LRI: ELRD definition on messaging and communication model. Different formats: PDF, XML, etc

LRS: integration XSD into national broker.

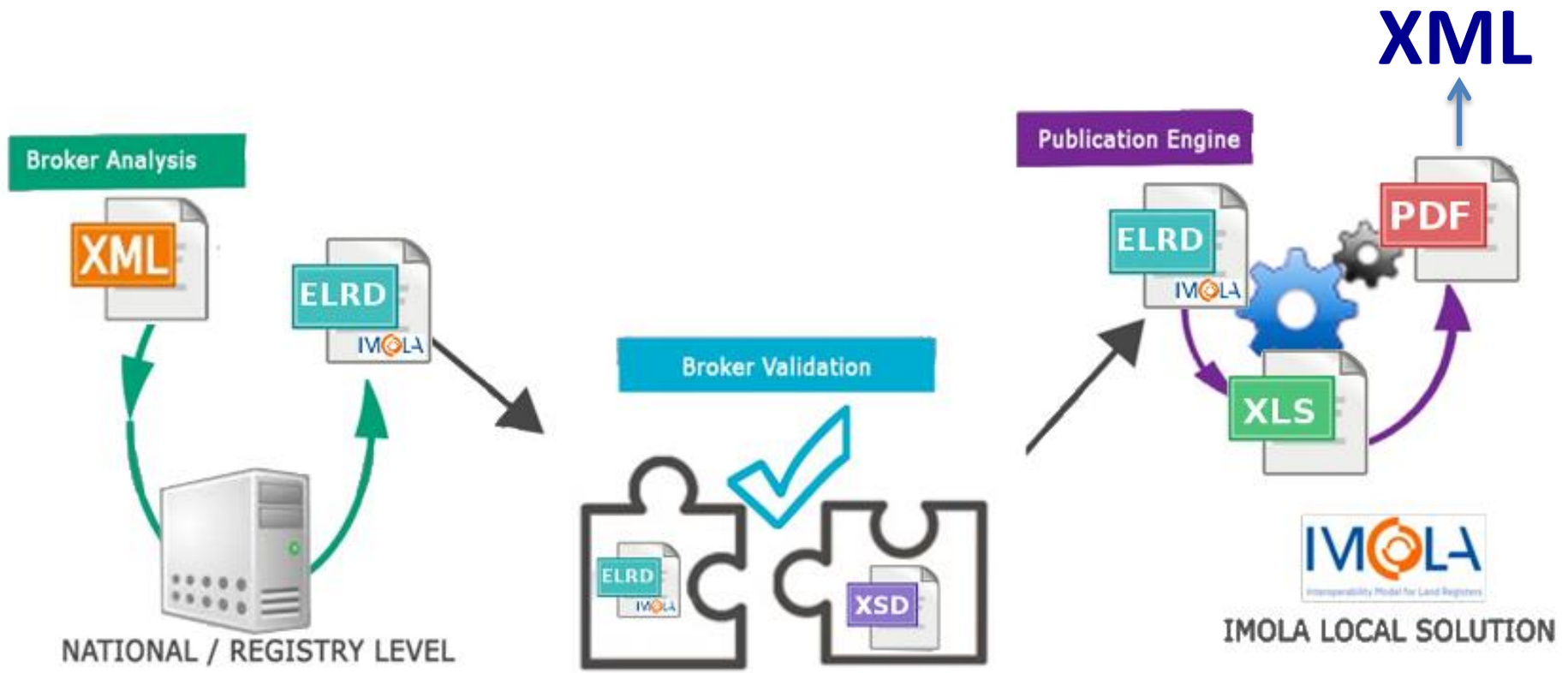
LRS: adaptation internal interfaces. Configurable set of validation rules.

ISA alignment

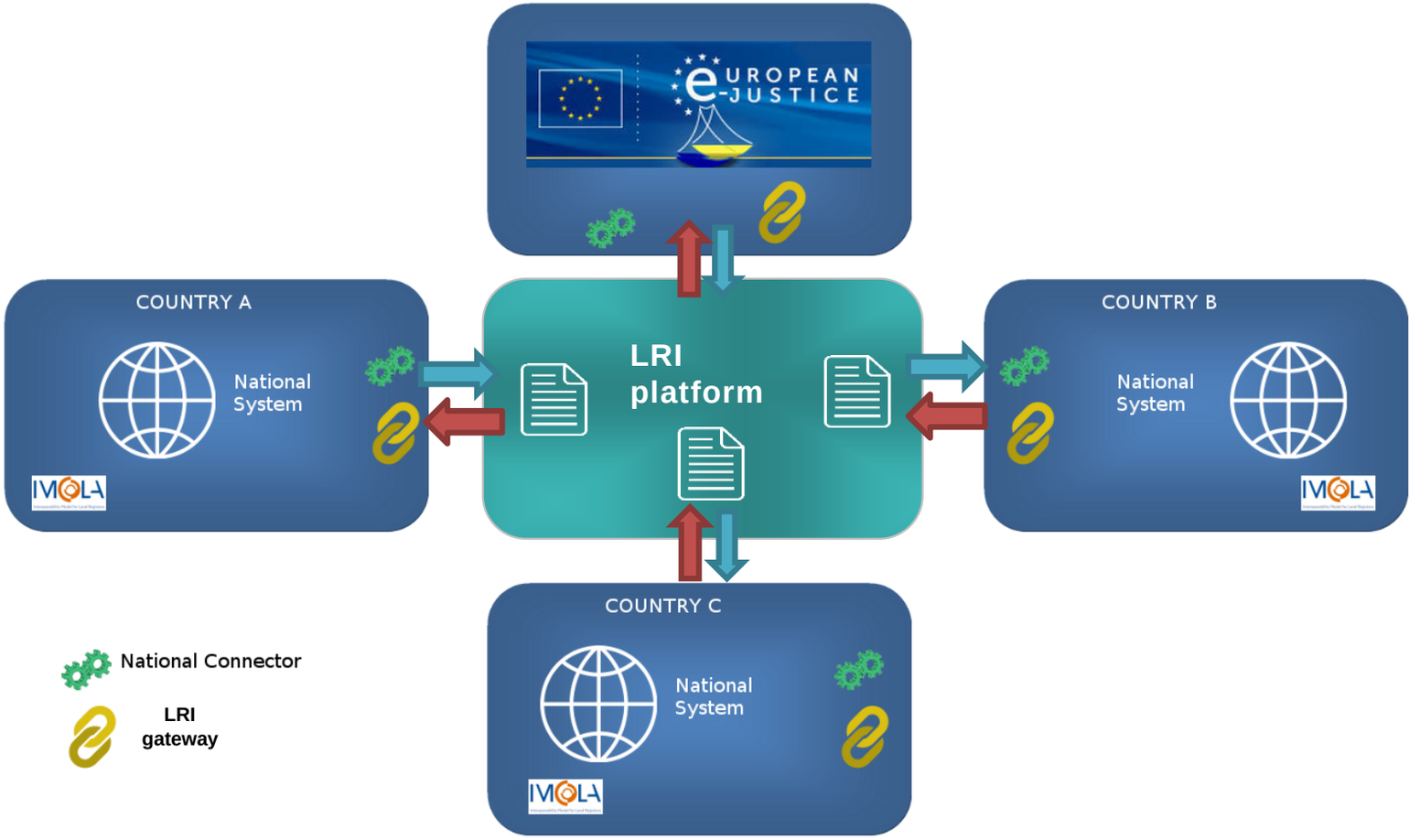
XML Schema


elrd
land_registry_units
1..∞
lr_unit_property
lr_unit_cadastral_parcel
lr_unit_property_apartament
lr_unit_special_property
lr_unit_property_rights
personal_folio
proprietorship
1..∞
nature_of_right
holdership_proprietor_ship
entitlement
restrictions_power_proprietor
conditions_terms_modal_acquisi...
price
liens_encumbraces_mortages_u...
mortgages
0..∞
judicial_restrictions
0..∞
property_rights
0..∞
other_encumbrances_restrictions
0..∞

LRI/IMOLA GetDocument broker



LRI/LRS/ELRD flow



Interoperability

Standard alignment with ISA and Core Vocabularies

CORE PERSON V	LEGAL PERSON V	CORE LOCATION	IMOLA CORE V	PUBLIC SERVICE V
▪ Name ▪ Gender ▪ Date of birth ▪ …	▪ Identifier ▪ Activities ▪ …	▪ Address ▪ A geographic name or geometry ▪ …	▪ LRI property rights ▪ Semantic model ▪ Thesaurus	▪ Service offered by a public administration

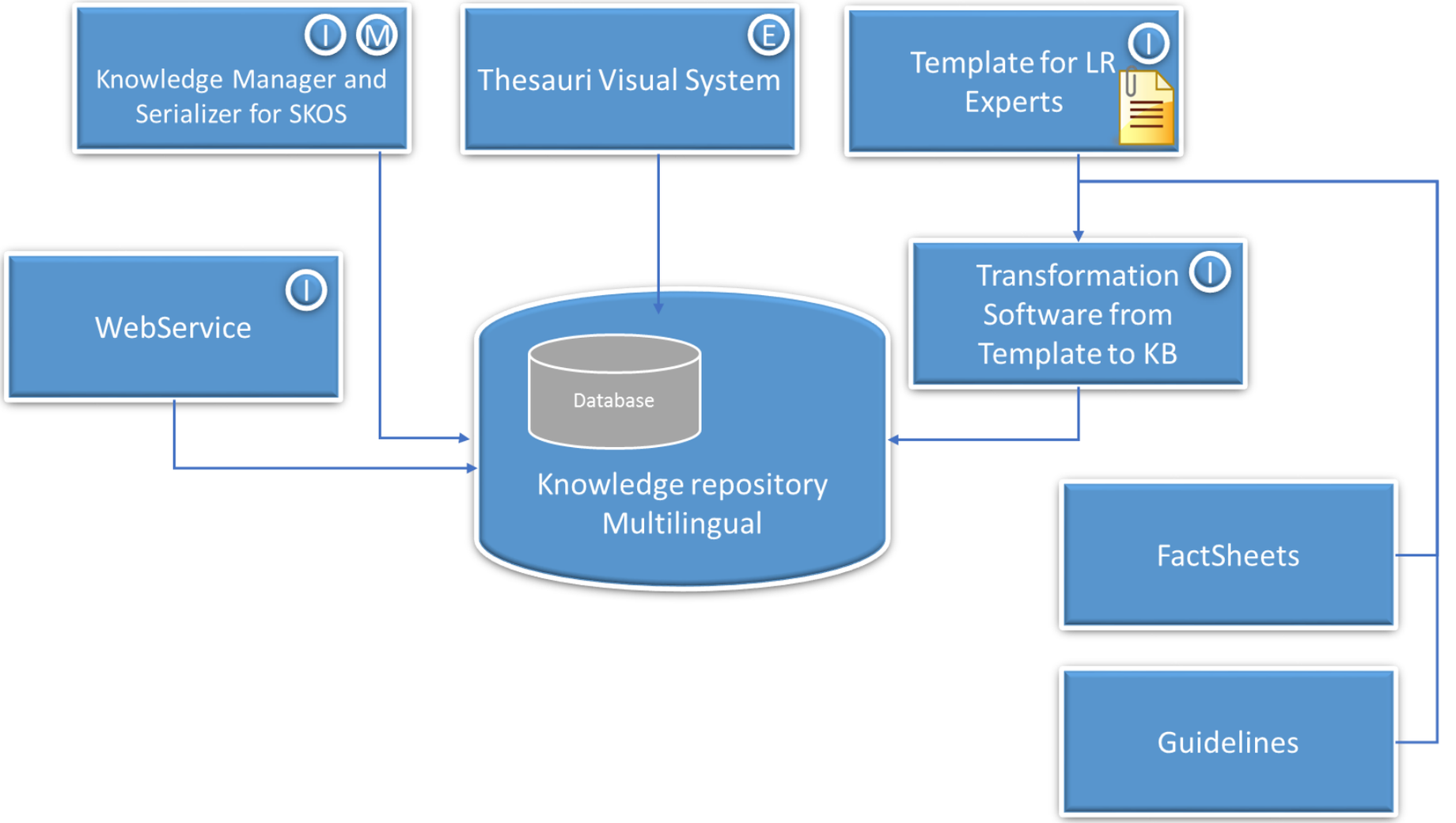
IMOLA KOS Integration

Creation KOS by means of input and transformation system

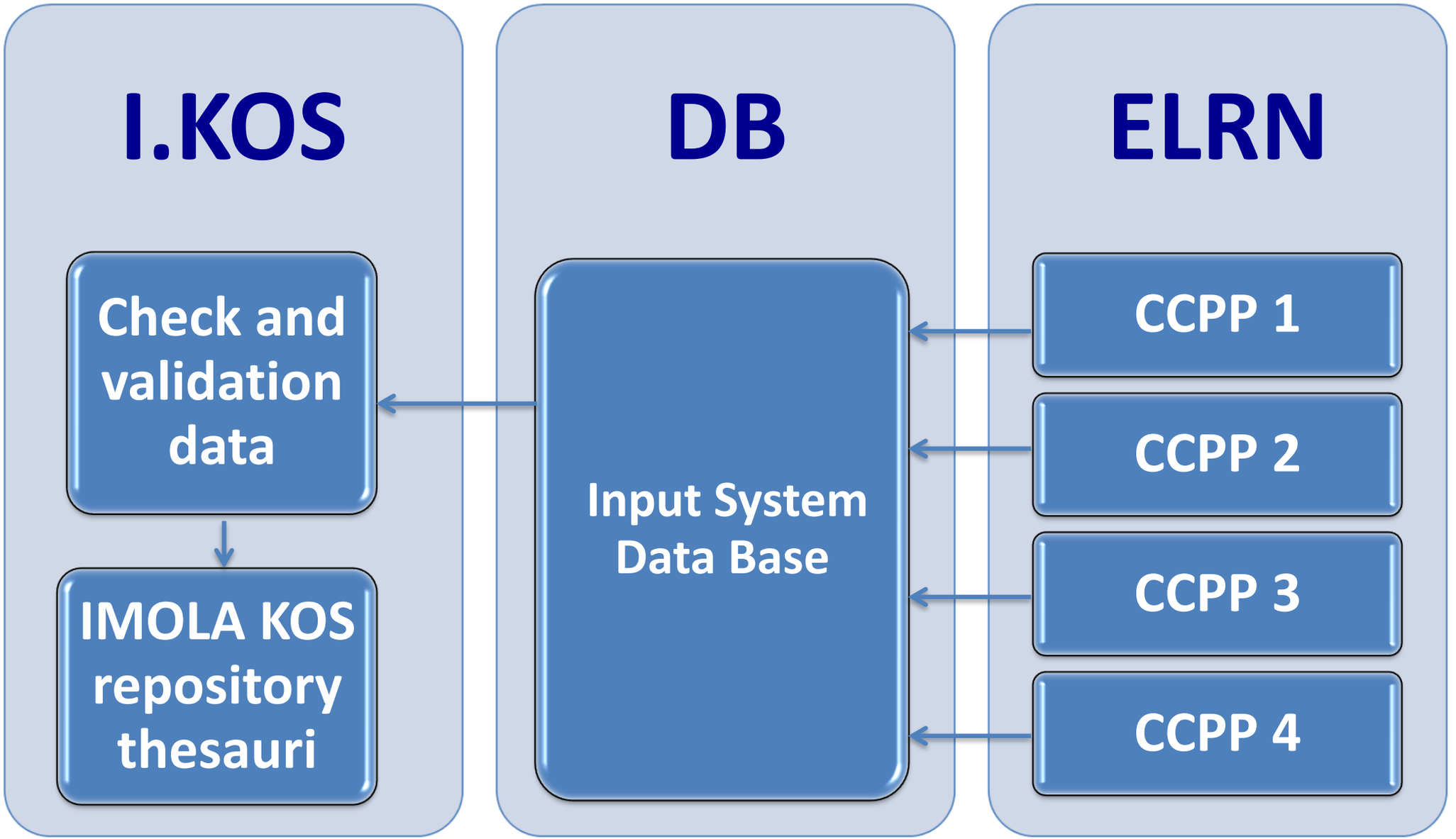
KOS Customized to ELRD

Hosting and maintenance

ELRN Input system



IMOLA KOS feedback



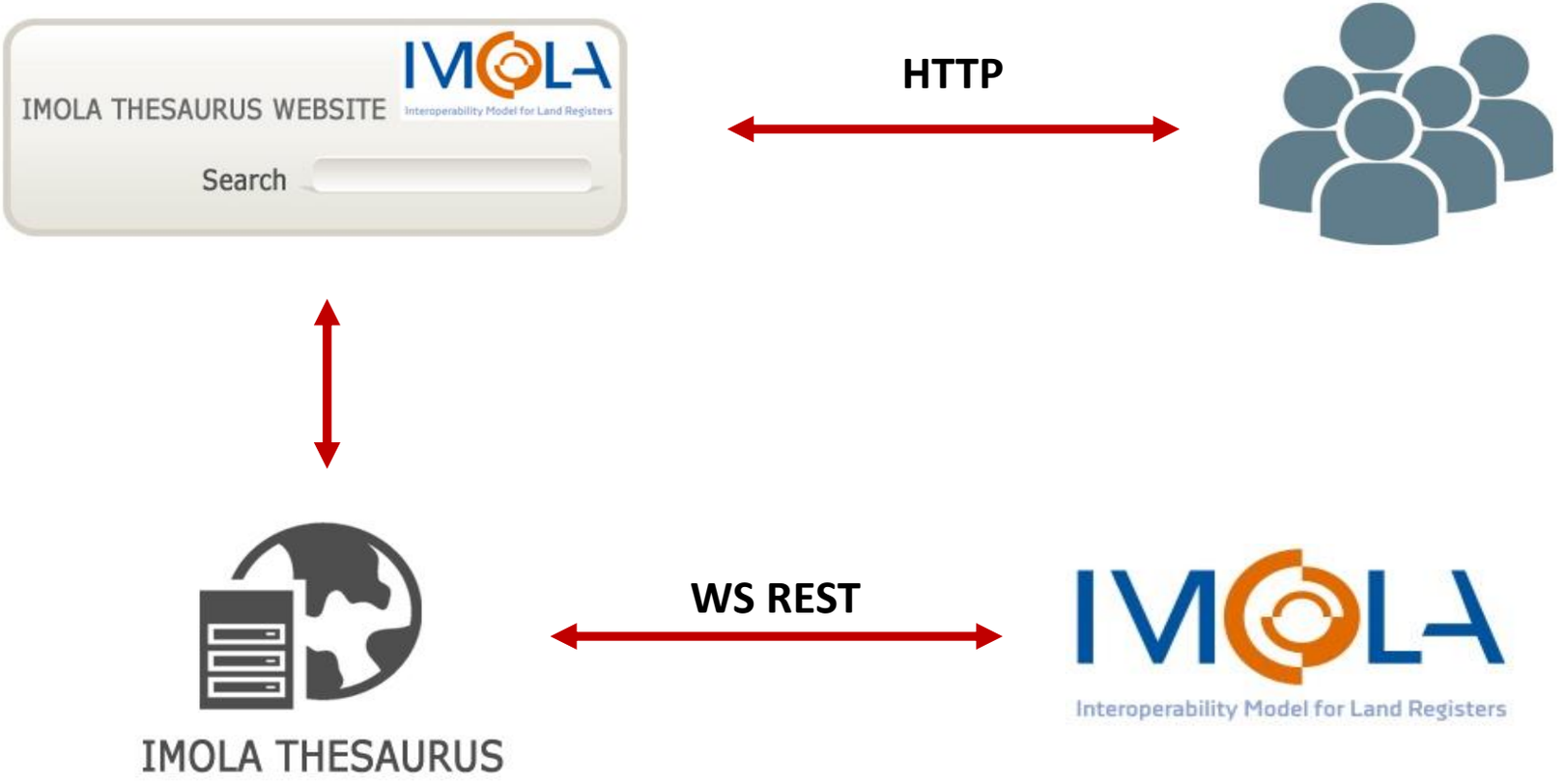
WS Integration

LRI: formal retrieval and visualization system

Definition of messaging and communication model

Land Registers: Interface adaptation.

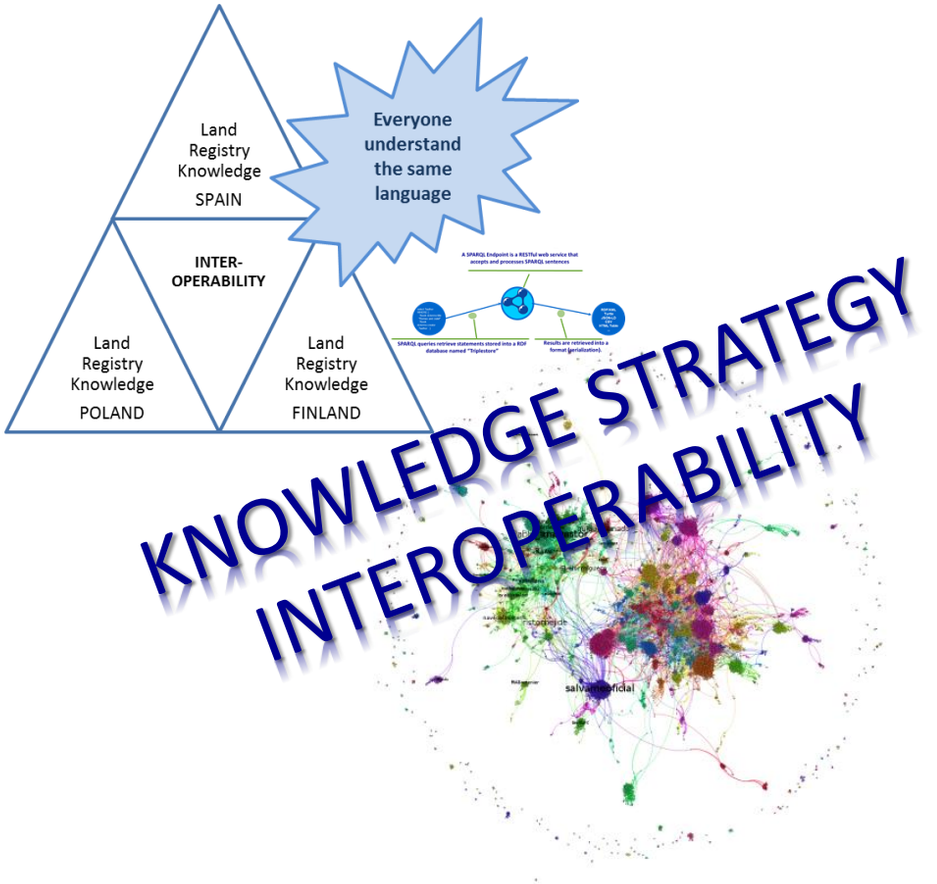
IMOLA KOS formal retrieval



Glosary and Knowledge Repository

Placeholder	National synonym	Rules on national descriptions
Immovable property [ ]*	Bien Inmueble	Article 334 of the Spanish Civil Code.. The following are immovable property: 1. Land, buildings, roads and constructions of all kinds which are joined to the ground. 2. Trees and plants and pending fruits, while they are joined to the earth or form an integral part of an immovable property. 3. Anything which is joined to an immovable property on a fixed basis, so that it cannot be separated therefrom without breaking the material or impairing the object. 4. Statues, reliefs, paintings or other objects of use or ornamentation, placed on buildings or on land by the owner of the immovable property, in such a way that reveals the purpose of uniting them to the land on a permanent basis. 5. Machines, vessels, instruments or utensils destined by the owner of the property to the industry or undertaking performed in the building or landed property, and which are directly destined to satisfy the needs of the undertaking itself. 6. Animal farms, dovecotes, beehives, fish tanks or analogous hatcheries, when the owner has placed or preserved them for the purpose of keeping them joined to the property or forming part thereof on a permanent basis. 7. Fertilisers destined for the cultivation of landed property, located in the land where it is to be used. 8. Mines, quarries and dumps, while their matter remains joined to the source, and flowing or stagnant waters. 9. Docks and constructions which, even if they float, are destined, as a result of their purpose and conditions, to remain in a fixed point of the river, lake or coast. 10. Administrative concessions to perform public works, and easements and other rights in rem pertaining to immovable property. They are not considered inmovable nor the boats, the planes or the wind milds neither the manufactured homes.
Full ownership [replacing the English legal term Freehold]	Pleno Dominio	*Pleno dominio* means full ownership related to real estates, notwithstanding in case of condominium of apartments, owners are subjected by important legal limitations, obligations and duties which condition the right of disposal, given the specific legal features of this special community

STATIC VIEW



Messaging model

- Document defining WS messaging and communication model
- Coordination among constructor, LRI developer and LR technical teams.

LRI integration test

- Hosting and maintenance
- Integration test of ELRN input system
- Integration test of formal retrieval on LRI demo platform
- Integration test of IMOLA KOS visualization system on LRI interfaces

LRS XSD adaptations

- Define a coordination framework with LRS, (AT/EE project)
- ELRD/XSD integration/adaptation at national level
- Integration test on LRI demo platform

KCS activities

Assessment

- IMOLA KOS and technical system requirements
- Integration with e.Justice and ELRD

Design

- Input system for CCPP transformation software to KB
- Transformation software for input data (corpus) to KB
- Serialized KOS vocabulary into RDF formal serialization

Construct

- Input system
- IMOLA KOS customized to ELRD
- IMOLA WS/visualization system

Many Thanks

Methodology: Creation of IMOLA KOS

Jorge López
WS1 Coordinator

KICK OFF CONFERENCE, BRUSSELS 28 FEBRUARY 2018

Starting point: IMOLA (1st) Proof of Concept

WS 1

- Design of ELRD with structure «ABC»
- A list of placeholders for managing the template

WS 2

- Design of a Broker: ELRD XML

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ELRD		
Section A: ***Land Register Unit***	*Section B:* ***Proprietorship***	Section C: ***Encumbrances***
1. Property 2. Parcel 3. Apartment 4. Special properties 5. Rights *in rem* 6. Person (deed systems)	▪ Proprietor • Title/Main Right • Entitlement • Restrictions • Conditions • Deadline • Price	1. Mortgages 2. Property Rights 3. Judicial Restrictions 4. Other encumbrances or restrictions

ELRD in IMOLA 1

- A tool for facilitating the implementation of the **EU legislation** and judicial cooperation
- Based on **placeholders** designed as **categories** for ELRD to manage LR information from the systems of the Member States
- Set guidelines for **organizing** the register information
  - Selection of the type of LR Unit
  - Information data of the proprietors. Selection of the kind of proprietorship
  - Priority of the encumbrances: date of registration and rank

New step: GLOSSARY-THESAURUS-IMOLA KOS

- Two glossaries, two elements:
  - ELRD **placeholders** + National **concepts**

***IMOLA placeholders*:**	***National concepts:***
WS1 task	ELRN CCPP task (using personalized templates)

- **IMOLA KOS** will be the result of the controlled match of placeholders and national concepts

(Construction of a core registry vocabulary seems possible)

IMOLA placeholders glossary

- Description of each one of the **placeholders** as categories.
  - Placeholders will be defined as models for purposes of including as many national concepts as possible
  - Although some placeholders are not shared by all systems, they should be in the list if they are particularly relevant (e.g. *freehold*).

    (Likely not all the LR systems will use all the placeholders)

- **SKOS vocabulary** to organize knowledge:
  - *glossary → creation of ontologies→ e-reading*

IMOLA: National Concepts Vocabulary

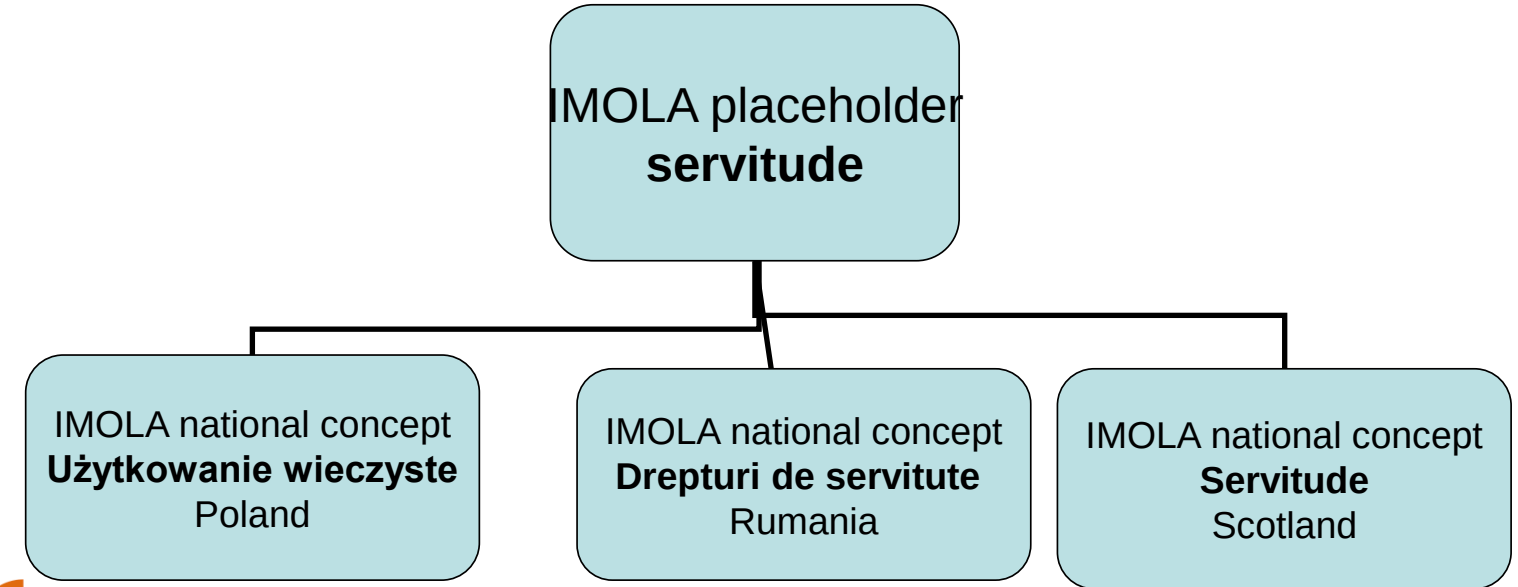
- Specific Property Law System Glossaries at national level (to be developed by every one of LR Systems)
- It will be decided at national level (by CCPP)
  - which the ELRD placeholder is corresponding to a national **concept** given;
  - which *properties (attributes)* this national concept has

It is not compulsory to associate all national concepts to placeholders, or fill up all the placeholders: only those concepts which find a suitable placeholder, in opinion of national Contact Points

Distribution of Tasks

- **WORK STREAM 1 task**
  - Definition and clarification of placeholders
  - Coordination with the network of CCPP (ELRN)
- **ELRN CONTACT POINTS task**
  - To match placeholders. Selecting a ELRD placeholder suitable for a *national concept*
  - To describe national concepts. Describing their attributes (properties)
    - Tools: personalized templates for the task of the Contact Points

CCPP will match their national concepts with IMOLA placeholders and point their properties



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Thank you for your attention

Interoperability Model for Land Registers

European Land Registry Association

LRI - Land Register Interconnection

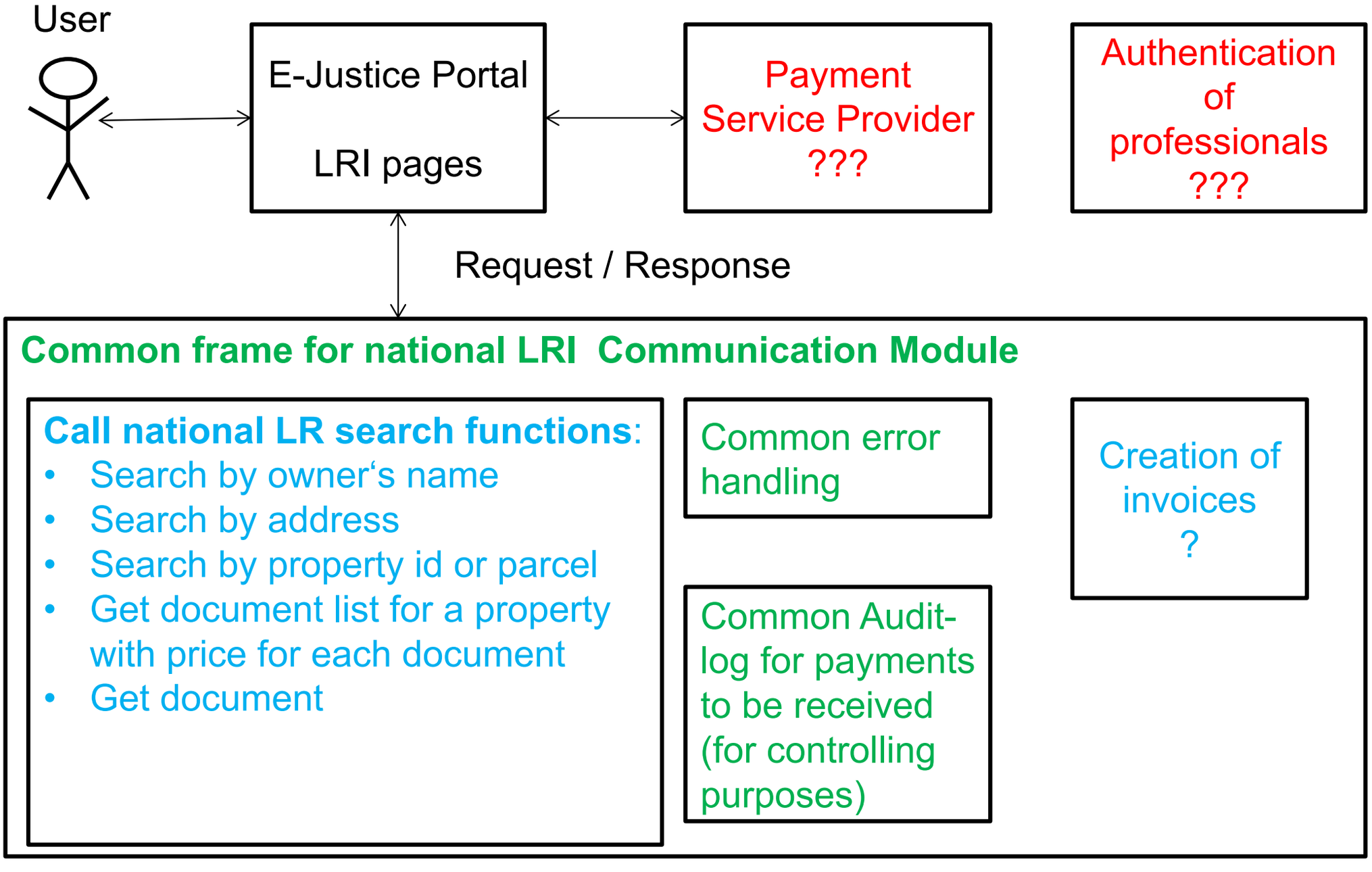
The Austrian View

Manfred Buric
c/o Federal Ministry of Justice, Austria

Working Packages:

WP Number[9]	WP Title
WP1	WP1 MANAGEMENT AND COORDINATION OF THE PROJECT
WP2	WP2 BUSINESS ANALYSIS AND SOLUTION DESIGN FOR LRI REQUESTS/RESPONSES
WP3	WP3 DEVELOPMENT, TEST AND DEPLOYMENT OF NATIONAL COMPONENTS FOR LRI REQUESTS/RESPONSES
WP4	WP4 ADAPTION OF THE NATIONAL AUTHENTICATION PORTAL FOR COURT PROFESSIONALS
WP5	WP5 PUBLICITY AND DISSEMINATION OF DELIVERABLES

LRI Components – draft for discussion



WBS – Work Breakdown Structure (1)

1.	Creation of the national Web services for communication with LRI platform at the e-Justice Portal	
1.1	Analysis of LRI Request messages (Use cases): if they can be mapped to national LR functions : • Search by owner‘s name: returns list of properties • Search by address: returns list of properties • Search by property id or parcel number: returns property excerpt • Get document list for a property: returns list of documents – with a price for each document • Get document: output document	Each partner
1.2	Design of common frame module for the national Web service and interface to national functions	
	…	
	… to be extended and completed ….	

WBS – Work Breakdown Structure (2)

2.	Implement Authentication mechanism for specific group of professionals	
	Currently there are no specifications available. Precondition for doing this is some analysis and design work! • So currently here we should **not** include any implementation work for this in a grant application. • At a maximum we could include doing some analysis work.	

Project Data

- Start: March 2018
- Kick off in Vienna on March 14th
- Duration: 18 months
- Closing Ceremony in Estonia

National deliverables

- Connection
- Data-exchange (mapping)
- Austrian part of Authentication
- Austrian part of Payment System

Information flow

- ELRA
- IMOLA II
- EC Working Group
- Technical Working Group

TECHNICAL DEVELOPMENT OF THE NEEDED SOFTWARE DESCRIPTION AND WORK METHODOLOGY TO BE DEVELOPED

KICK OFF CONFERENCE, BRUSSELS 28 FEBRUARY 2018

FACTS:

- INCREASED DEMAND OF LAND REGISTRY INFORMATION
- DIVERSITY OF LAND REGISTRY SYSTEMS
- COMPLICATED WAYS TO GET AND UNDERSTAND LAND REGISTRY INFORMATION
- DYNAMICS OF THE CIVIL TRAFFIC (INCLUDING CROSS-BORDER TRANSACTIONS)
- LAND REGISTRY INFORMATION NEEDED ABROAD (i.e. COURTS)
- DYNAMICS OF THE LEGISLATION

REQUIREMENTS:

- BETTER UNDERSTANDING OF LAND REGISTRY INFORMATION
- EASIER AND FASTER ACCES TO INFORMATION
- HOMOGENEOUS STRUCTURES OF INFORMATION
- NO PREJUDICE TO NATIONAL LEGAL SYSTEMS

IMOLA II - METHODOLOGY:

- IDENTIFICATION OF DOMAIN AND PURPOSE
- IDENTIFICATION OF LANGUAGE SYNTAX AND SEMANTICS
- EXTRACTING KNOWLEDGE
- CREATION OF KNOWLEDGE ORGANISATION SYSTEM
- EVALUATION OF RESULTS
- TOOLS DEVELOPMENT

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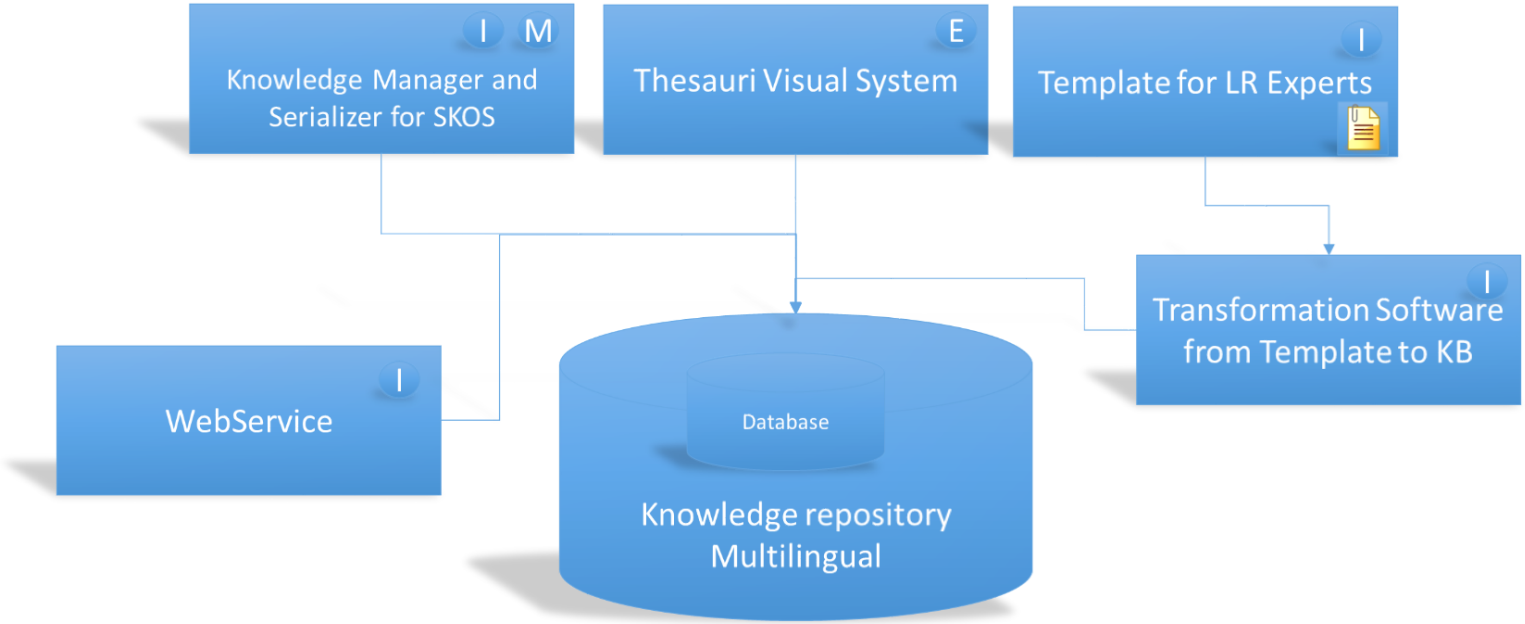
MILESTONES

- KNOWLEDGE REPOSITORY
- INTEGRATED WEB SERVICE interconnecting other systems to KOS (knowledge organisation system)
- ELRN INPUT SYSTEM to create, maintain and update the knowledge repository
- SUPPORT AND TRAINING

THE NEED FOR AN INPUT SYSTEM

- LAND REGISTRY EXPERTS need to feed the system in order to build the knowledge repository and to create the KOS
  - Web system as an entry point for information
    - Wiki – users can add or update information
      - FS updating procedure required
    - Standardised feed - template related to the MS LR
    - Controlled vocabulary
- TRAINING MATERIALS
- FAQs

ELRN INPUT SYSTEM



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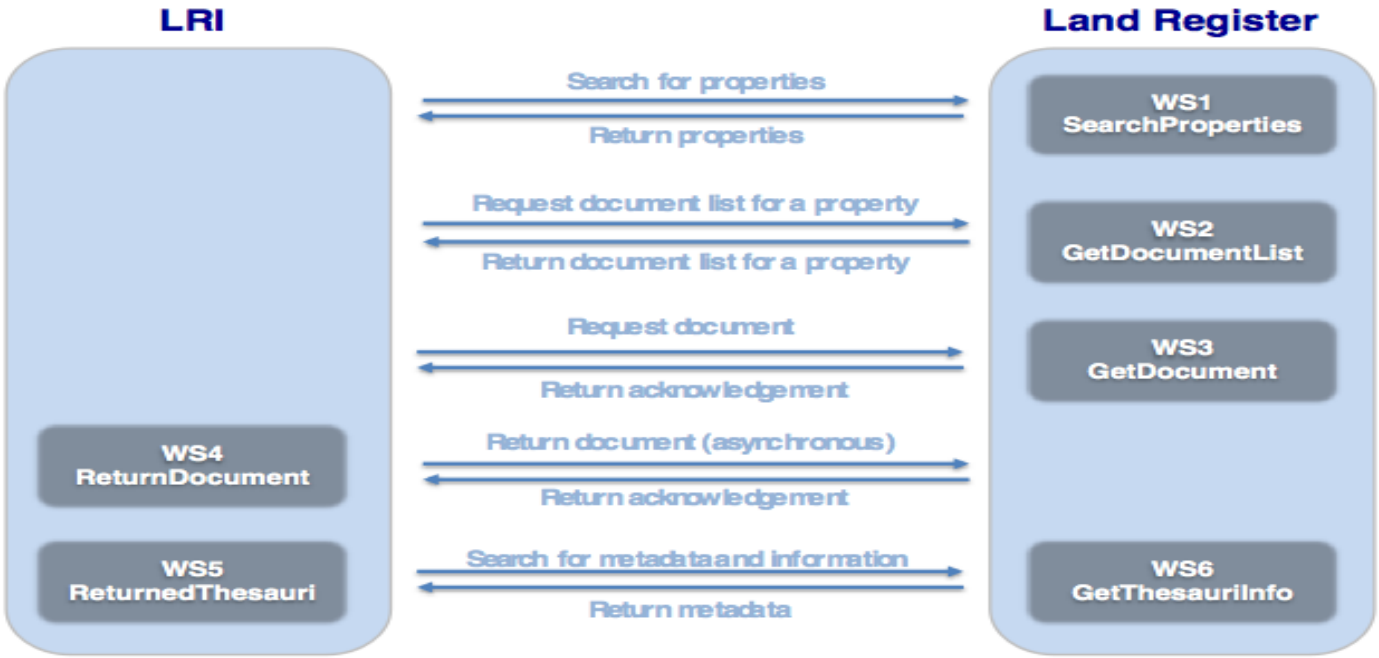
TECHNICAL DEVELOPEMENT:

- WEB SERVICE FOR INSERTING, UPDATING AND RETRIEVAL OF INFORMATION FROM SKOS (SIMPLE KNOWLEDGE ORGANISATION SYSTEM)
  - Exchanging protocol – SOAP, Transport security enhanced, EU LOGIN authentication can be used
- CUSTOMISATION OF THE KNOWLEDGE MANAGEMENT SYSTEM
- VISUALISATION OF THE SEMANTIC STRUCTURE. DEVELOPMENT OF A SYSTEM WHERE LRE OR INTERESTED AUDIENCE IN THE FIELD CAN CHECK THE SEMANTIC STRUCTURE (THESAURUS)
  - DEVELOPMENT OF THE WEB-BASED SYSTEM FOR VISUALISING THE SEMANTIC STRUCTURE AND NAVIGATE THROUGH DIFFERENT CONCEPTS AND CONCEPTS RELATIONS

TECHNICAL DEVELOPEMENT

- DEVELOPEMENT OF A SYSTEM/INTERFACE FOR SHOWING THE THESAURUS AS:
  - CONCEPTS WITH THEIR GENERAL DESCRIPTION,
  - SYNONYMS,
  - RELATED CONCEPTS
  - SPECIFIC INFORMATION FOR EACH MS (UP TO DATE)
- TEST CASES FOR CHECKING ALL THE FUNCTIONALITIES

IMOLA integrated web service



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Thank you!

Ontologies and ontological analysis:
basic tools and application perspectives
(in the land registers domain)

Nicola Guarino
Institute for Cognitive Sciences and Technologies (ISTC-CNR)
Applied Ontology Laboratory (LOA)
www.loa.istc.cnr.it

Applied Ontology:
an emerging interdisciplinary area

Applied Ontology: an emerging interdisciplinary area

- Applied Ontology builds on *philosophy*, *cognitive science*, *linguistics* and *logic* with the purpose of understanding, clarifying, making explicit and communicating ***people's assumptions*** about the nature and structure of the world.

Applied Ontology: an emerging interdisciplinary area

- Applied Ontology builds on *philosophy*, *cognitive science*, *linguistics* and *logic* with the purpose of understanding, clarifying, making explicit and communicating ***people's assumptions*** about the nature and structure of the world.

- This orientation towards ***helping people understanding each other*** distinguishes applied ontology from philosophical ontology, and motivates its ***unavoidable interdisciplinary nature***.

Applied Ontology: an emerging interdisciplinary area

- Applied Ontology builds on *philosophy*, *cognitive science*, *linguistics* and *logic* with the purpose of understanding, clarifying, making explicit and communicating ***people's assumptions*** about the nature and structure of the world.

- This orientation towards ***helping people understanding each other*** distinguishes applied ontology from philosophical ontology, and motivates its ***unavoidable interdisciplinary nature***.

(applied) ontological analysis: study of **content** (of these assumptions) ***as such*** (independently of their *representation*)

Applied ontology and conceptual modeling

Conceptual modeling is the activity of ***formally*** describing some aspects of the ***physical*** and ***social*** world around us for the purposes of ***understanding*** and ***communication***

(John Mylopoulos)

The problem: subtle distinctions in meaning

The problem: subtle distinctions in meaning

The e-commerce case:

"Trying to engage with too many partners too fast is one of the main reasons that ***so many online market makers have foundered***.

The transactions they had viewed as simple and routine actually involved many ***subtle distinctions in terminology and meaning***"

Harvard Business Review, October 2001

Subtle distinctions in meaning...

Subtle distinctions in meaning...

- What is a ***parcel of land***?

Subtle distinctions in meaning...

- What is a ***parcel of land***?
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The key problems

- content-based information access *(**semantic matching**)*
- content-based information integration *(**semantic interoperability**)*

Semantic Interoperability is considered to be ***the problem of this decade***…[currently] costing productivity, lives and billions of dollars annually…the overall human and financial cost to society from our failure to share and reuse information is ***many times the cost of the systems' operation and maintenance***

Desirability: Big data

Michael Stonebraker

MICHAEL STONEBRAKER: All of the fancy social benefits we expect from big data depends on seamless data integration. Solving the problem of how to improve data integration is going to be key in getting the most benefit from all the data being created.

JUNE 2017 | VOL. 60 | NO. 6 | COMMUNICATIONS OF THE ACM

When subtle distinctions are important: *fine prints*

***An ontology is like a contract's fine print**, one of those things which require a very precise technical jargon, which you might ignore in many cases, but which **can save your business in critical situations**.*

World Trade Centre insurance

Bad forms

Timekeeper reading list | E-mail | Reprints & permissions | Print

After a rancorous trial, relief for many insurers of the twin towers

May 6th 2004 | From the print edition

IT WAS a $3.5 billion question: was the crashing of two aeroplanes into New York's twin towers in September 2001 one event or two? One, many insurers are relieved to know. On May 3rd a jury ruled that Swiss Re, the world's second-largest reinsurer, which wrote about a quarter of the coverage for the World Trade Centre, was bound by a form that classed such attacks as a single occurrence. Last week the same jury had reached a similar verdict for several Lloyd's of London syndicates and seven other insurers. The loser was Larry Silverstein, the centre's leaseholder. He had argued that another form was valid, in the hope of claiming around $7 billion for two events. Now he may get only half that.

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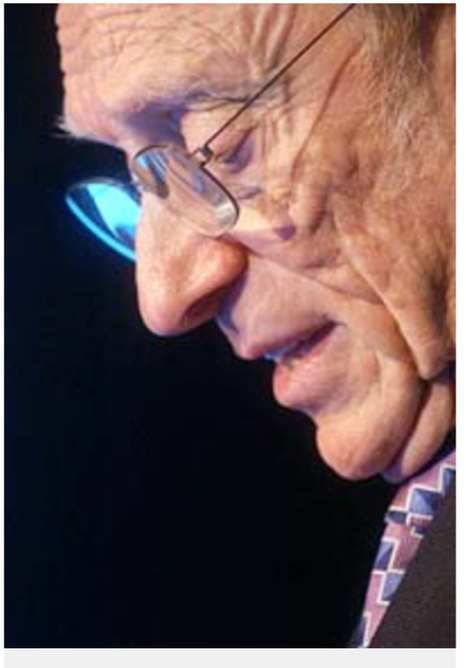

Silverstein's the loser

In most disaster insurance, “occurrence” is carefully defined. Earthquake coverage typically treats all shaking

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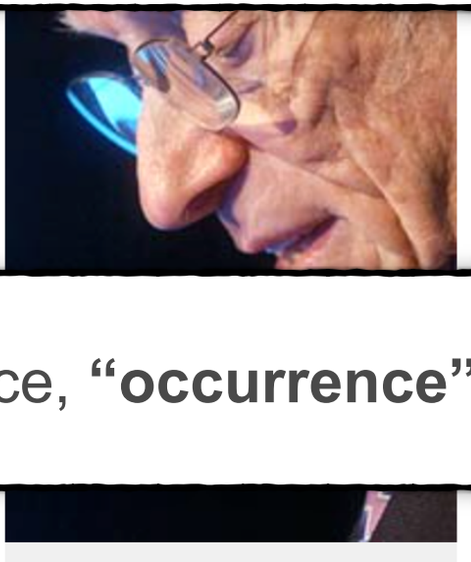

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How can we answer these questions?
Through *Ontological Analysis*

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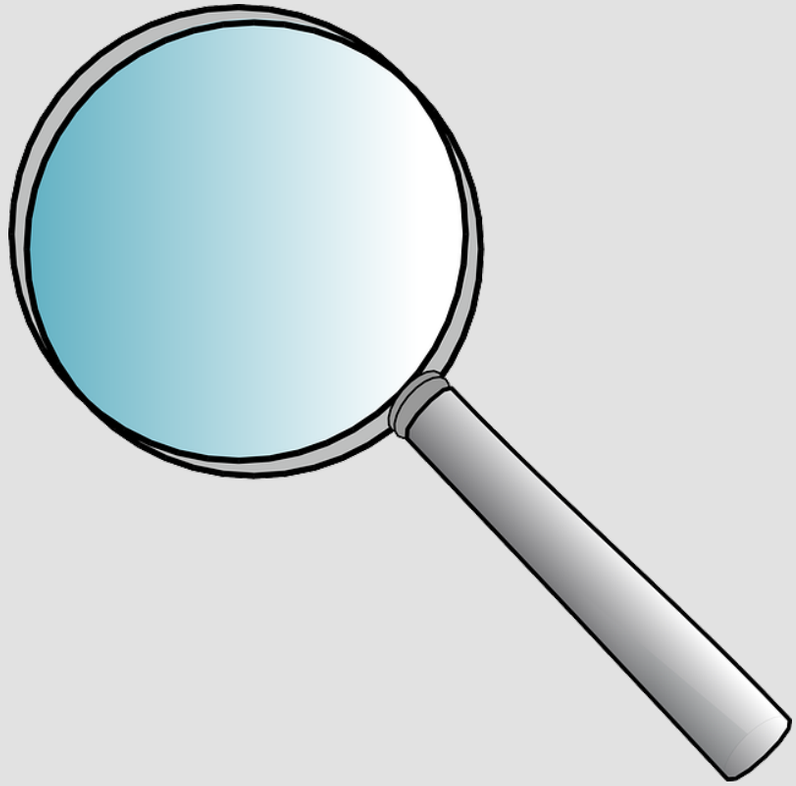

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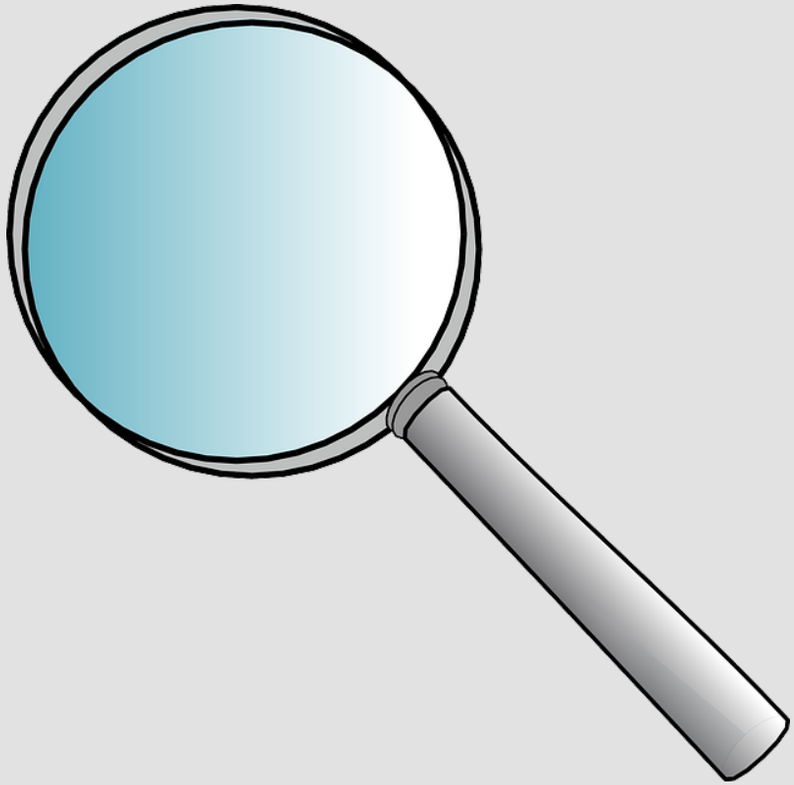

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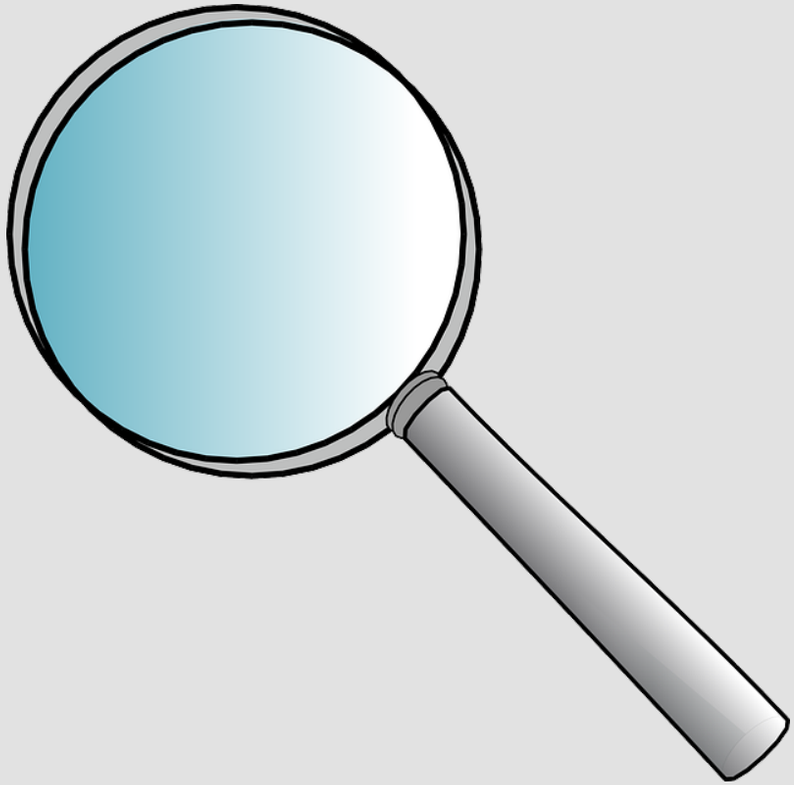

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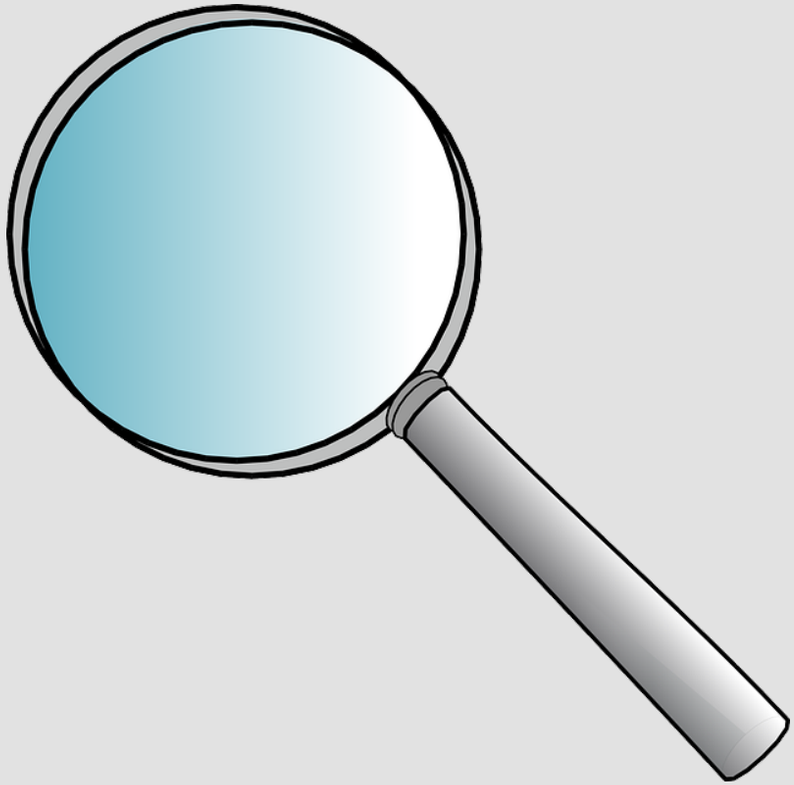

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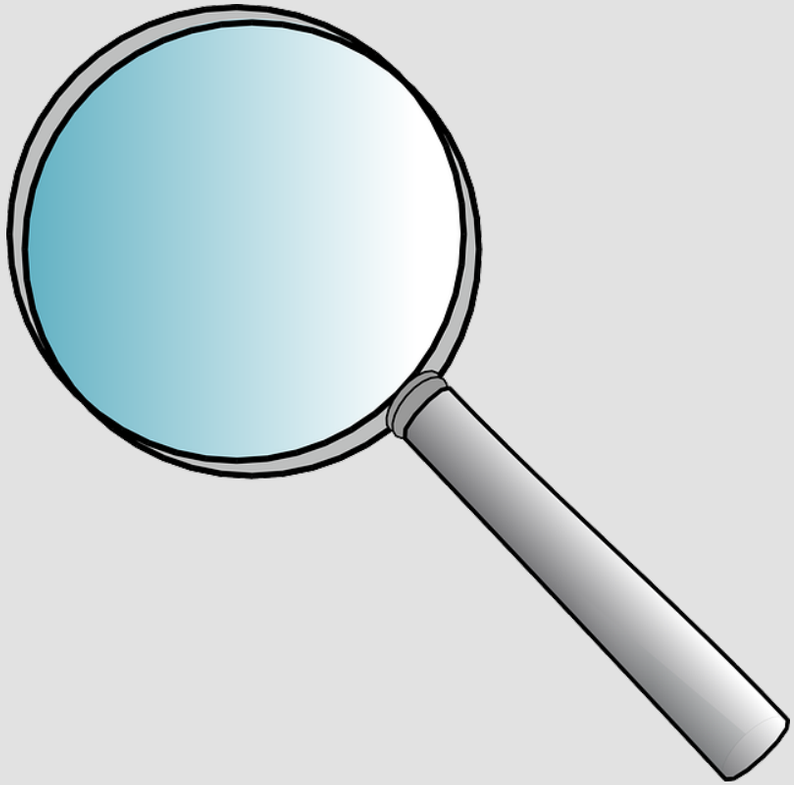

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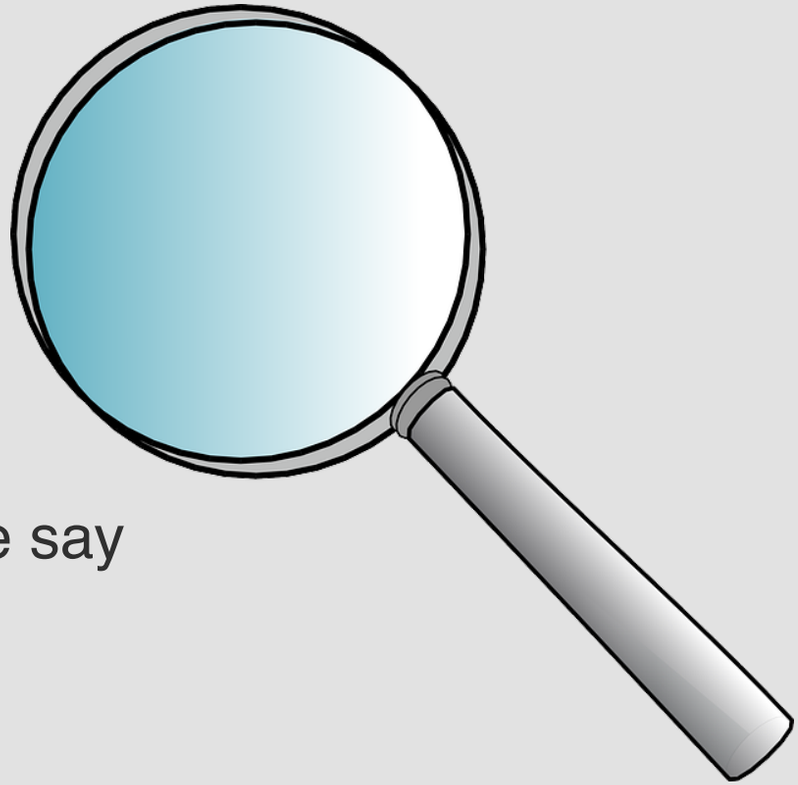

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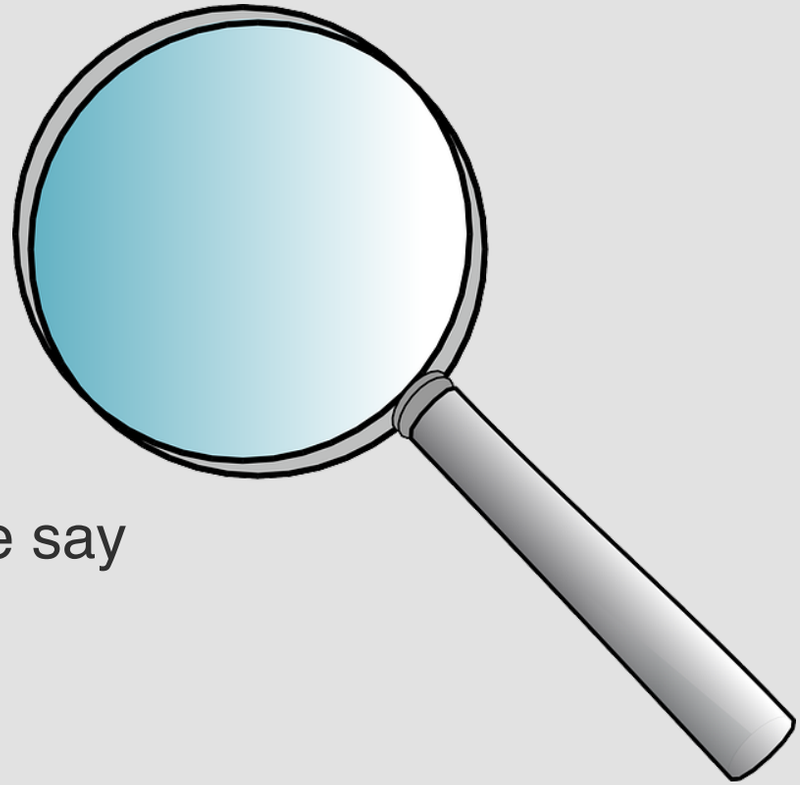

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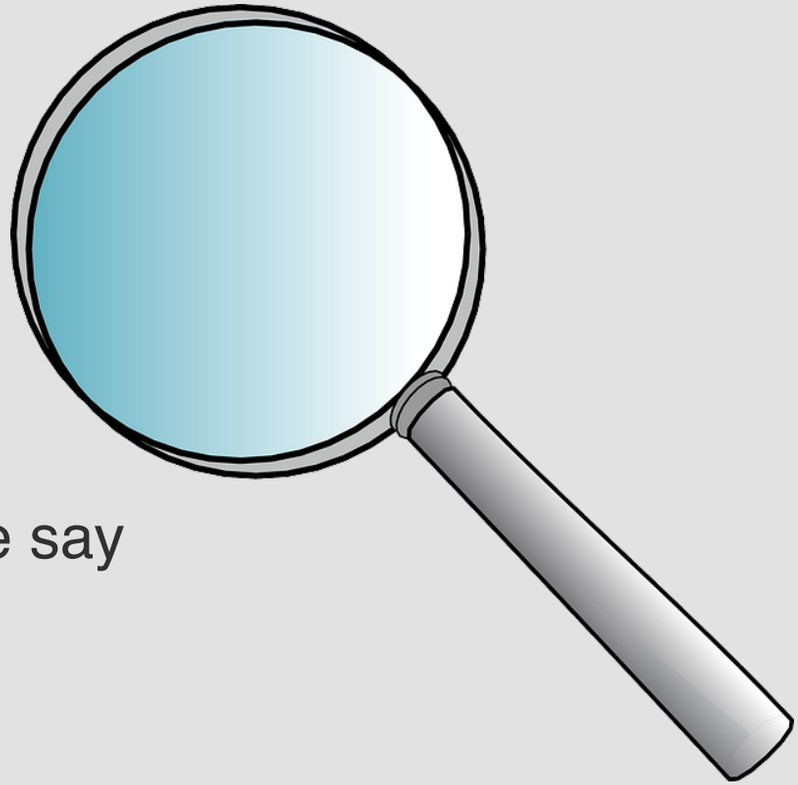

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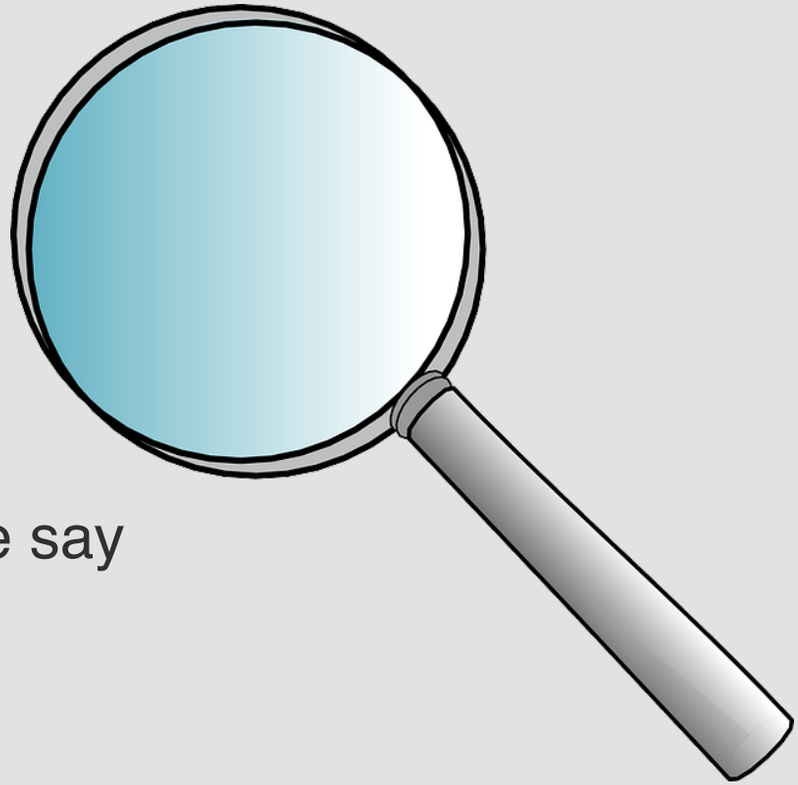

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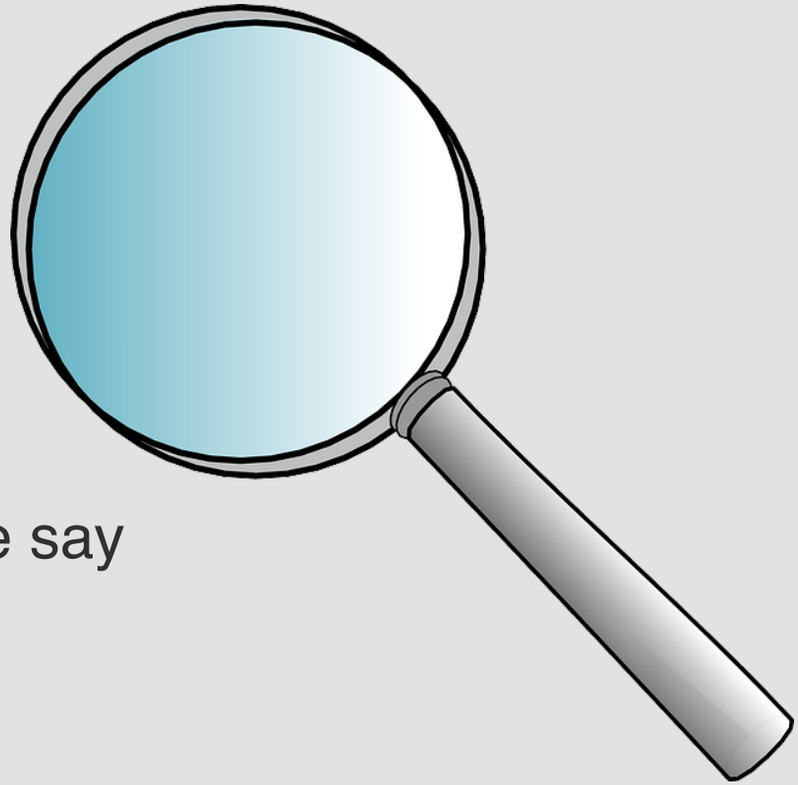

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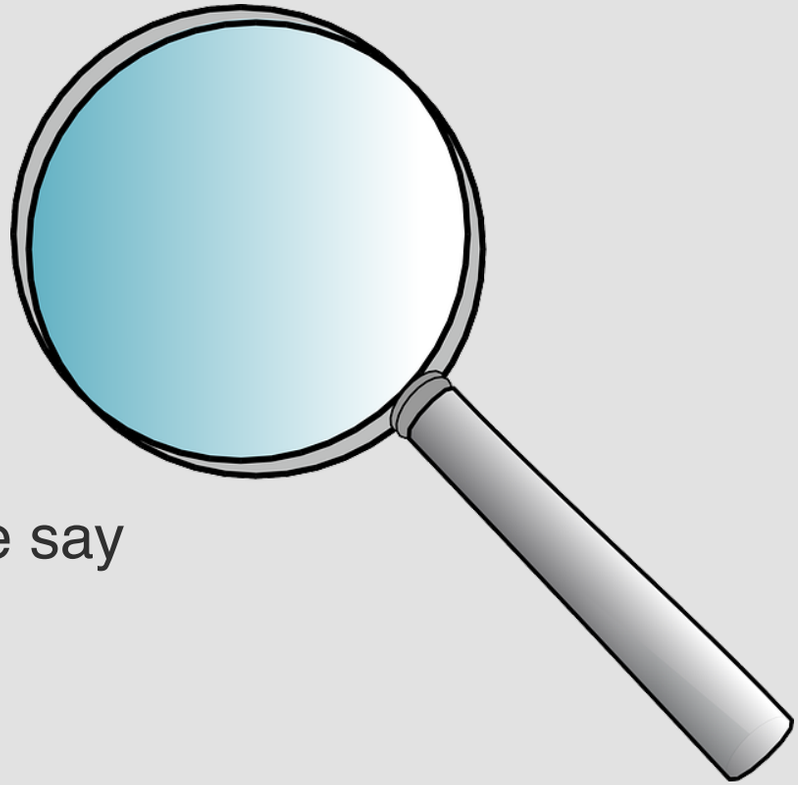

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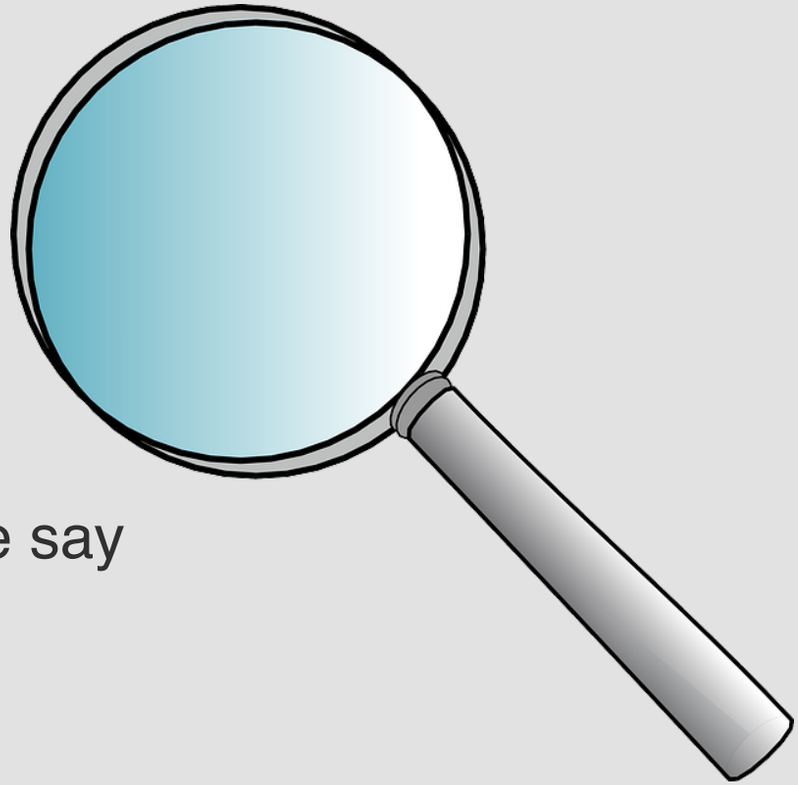

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- Ontological analysis is all about ***making truth-makers explicit***

The double ontological nature of land ownership

- A classic case of ***social reality***
- Whether or not a person owns the land requires that people believes (***collective intentionality***) that this is indeed a right.
- Such belief (typically resulting from an property acquisition act) is usually documented in a ***register***
- But also the very nature and extent of ***what*** the person owns (the land itself) is the result of social conventions, and needs to be properly documented.

B. Smith and L. Zaibert, The Metaphysics of Real Estate, Topoi 2001

Philosophical ontologies

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  - Study of ***what there is*** (being qua being...)
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    content *qua* content, *independently of the way it is represented*

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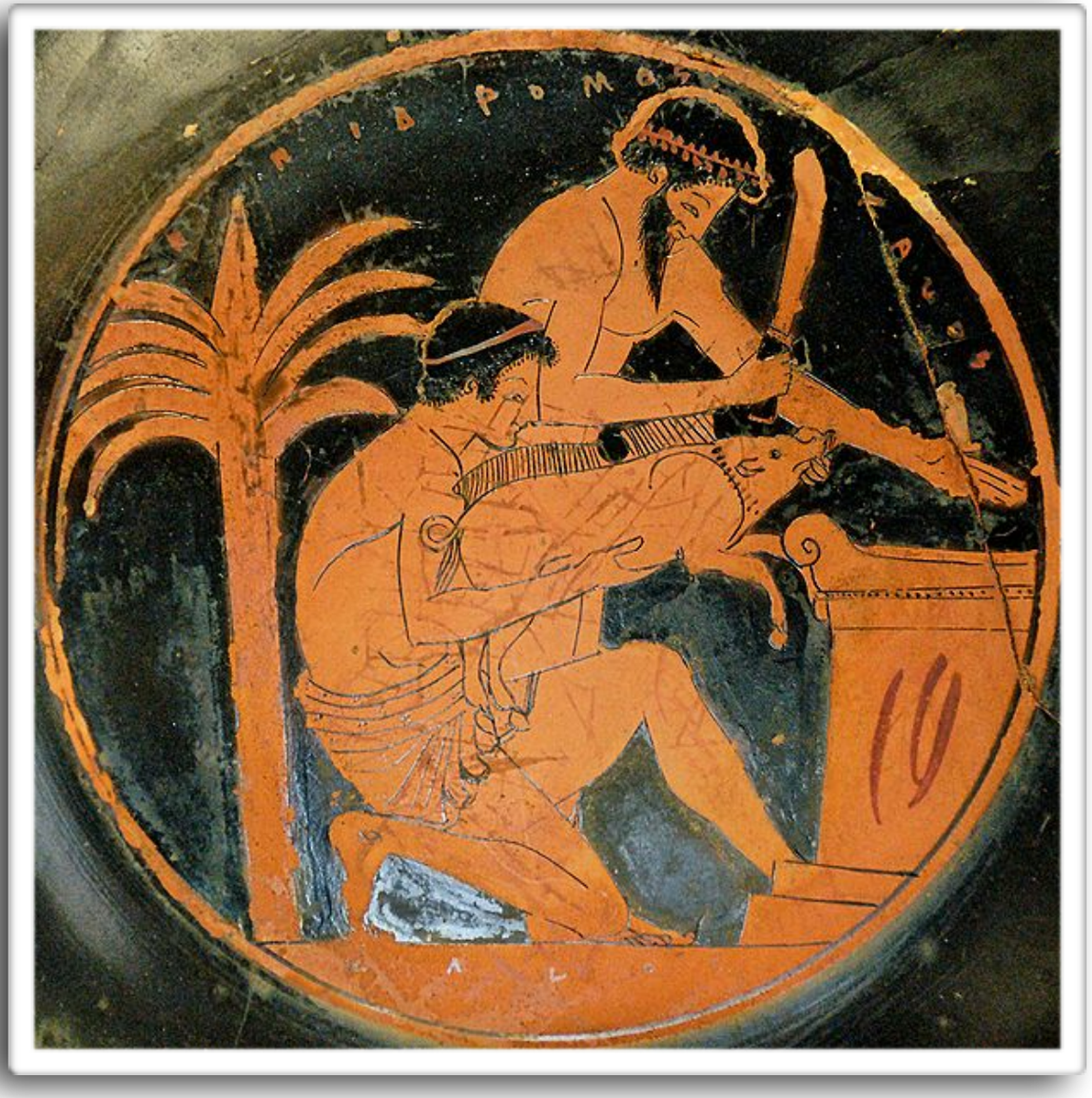
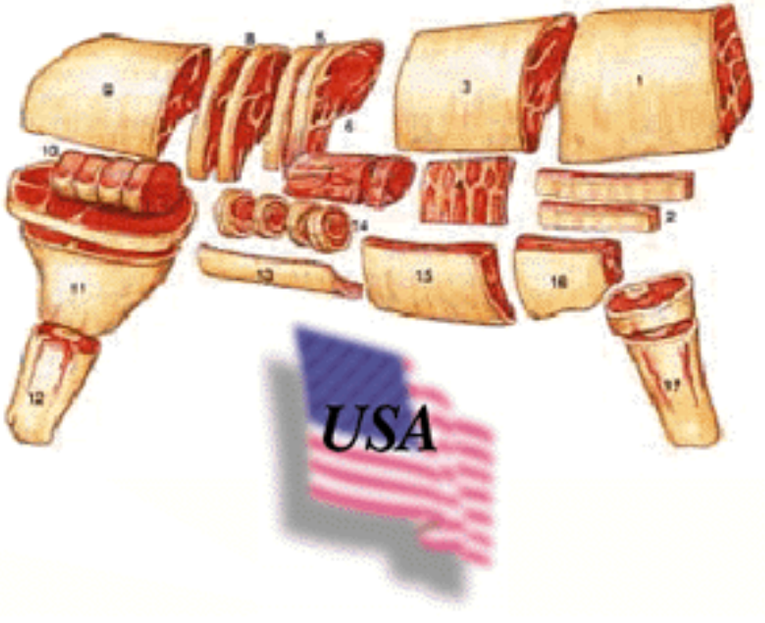
  - Study of the ***nature*** and ***structure*** of "reality"
- ***A (philosophical) ontology:*** a structured system of entities assumed to exists, organized in categories and relations

Is applied ontology *just* about "carving reality at its joints" (Plato)?



Preserving the joints, still multiple reality cuts are possible…



What is an ontology

The unavoidable descriptive stance of computational ontologies

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A computational ontology is a specific artifact expressing the ***intended meaning*** of a ***vocabulary***

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Gruber (93): "Explicit and formal specification of a ***conceptualization***"

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Gruber (93): "Explicit and formal specification of a ***conceptualization***"

Computational ontologies, in the way they evolved, unavoidably mix together philosophical, cognitive, and linguistic aspects.
Ignoring this ***intrinsic interdisciplinary nature***
makes them almost **useless**.

What is a conceptualization

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- Formal structure of (a piece of) reality *as perceived and organized by an agent*, *independently* of:
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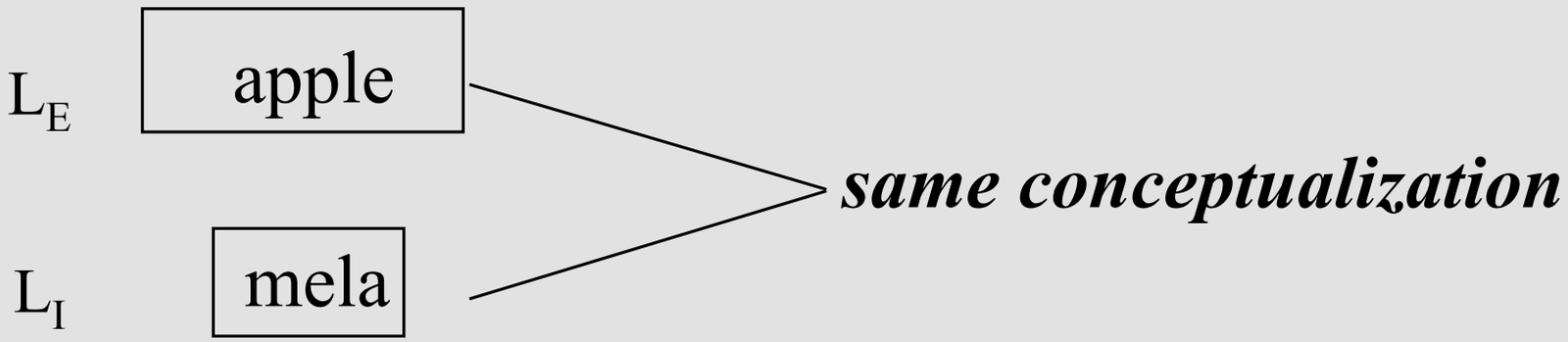

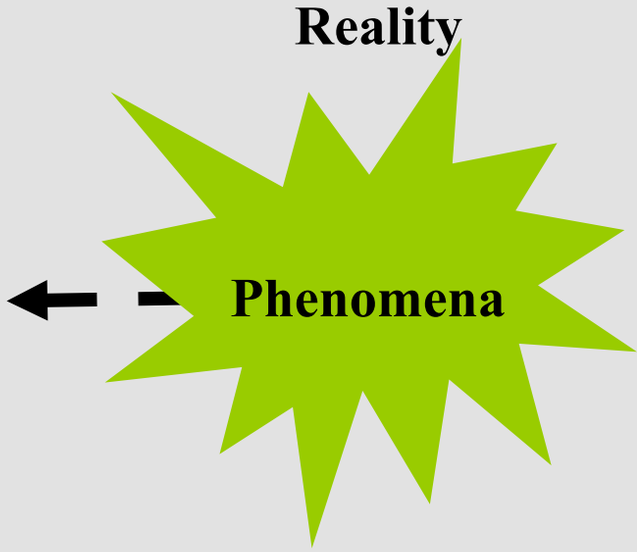
Reality
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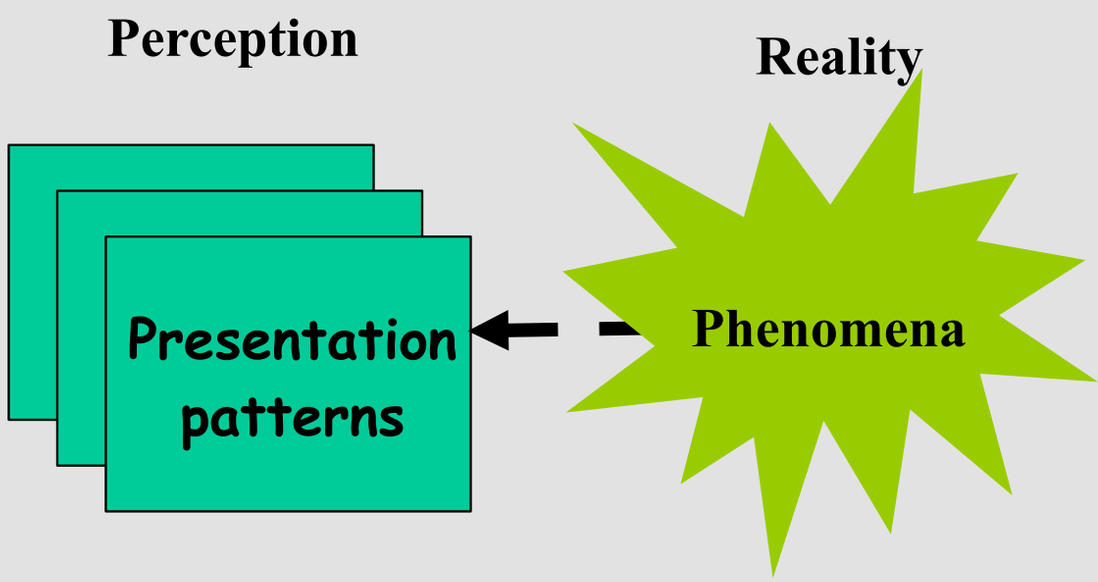
Perception
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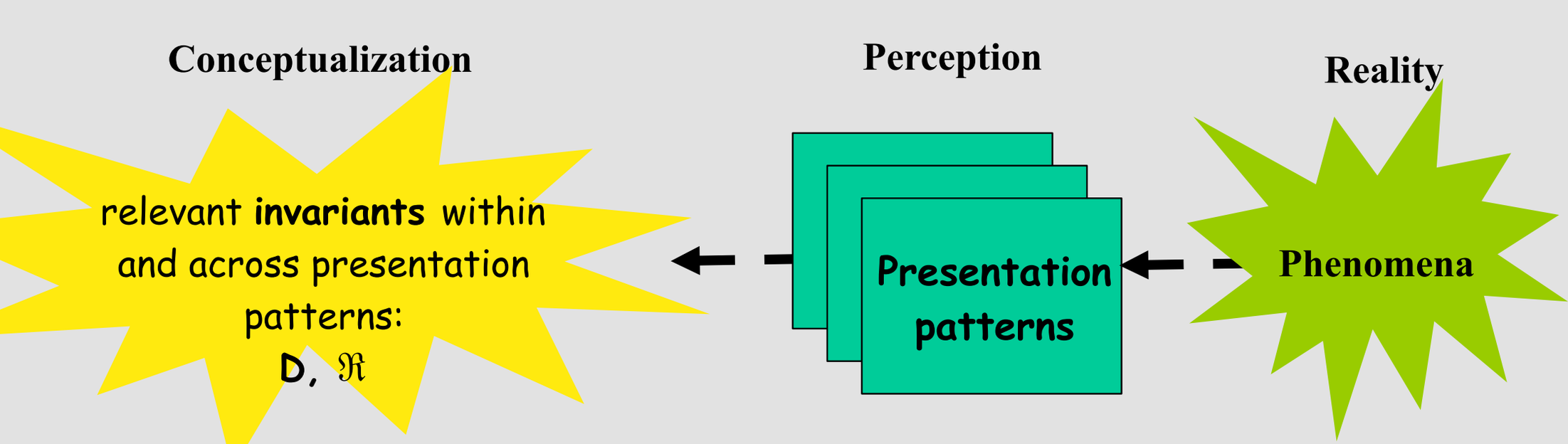
Conceptualization
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relevant **invariants** within and across presentation patterns:
D, ℜ
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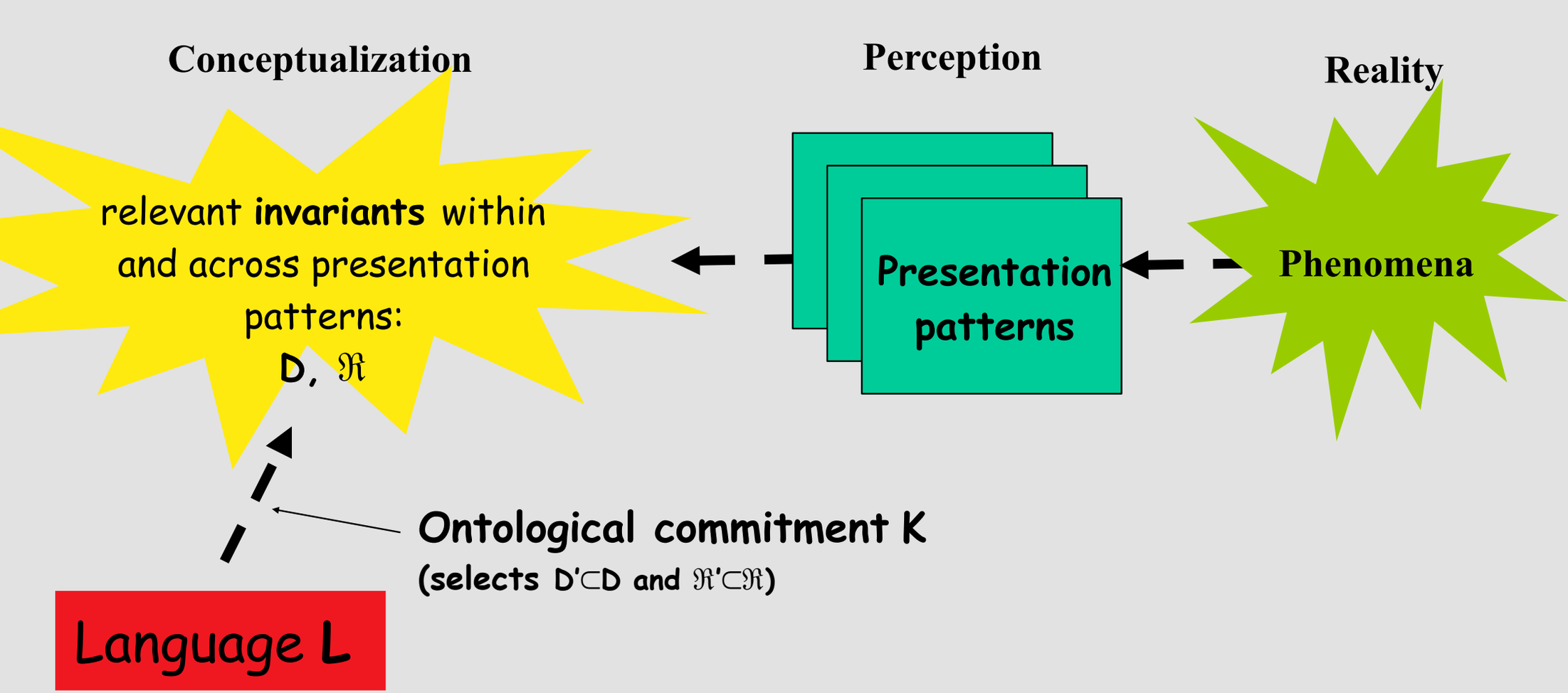
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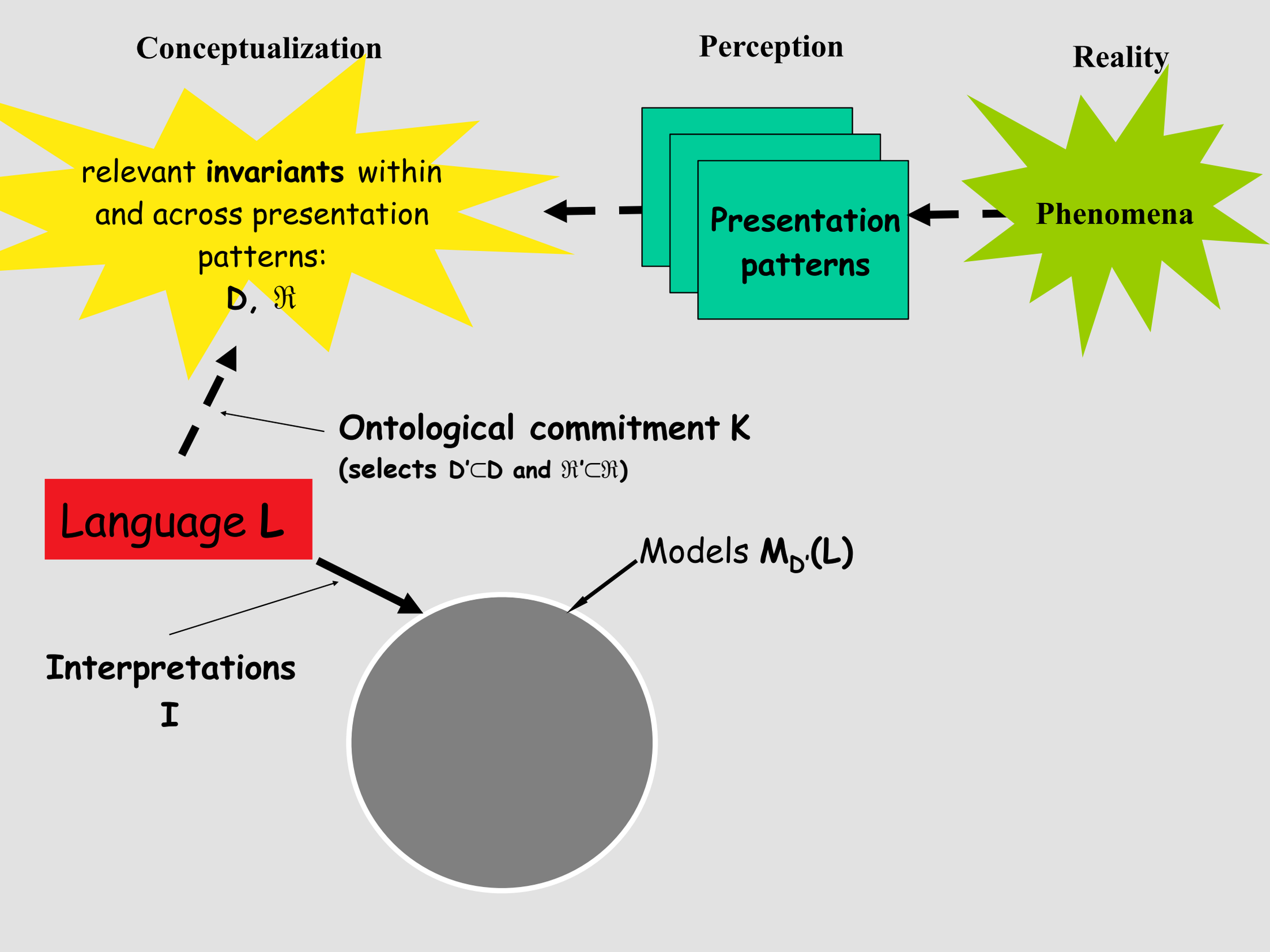
Ontological commitment K
(selects D'⊂D and ℜ'⊂ℜ)
Language L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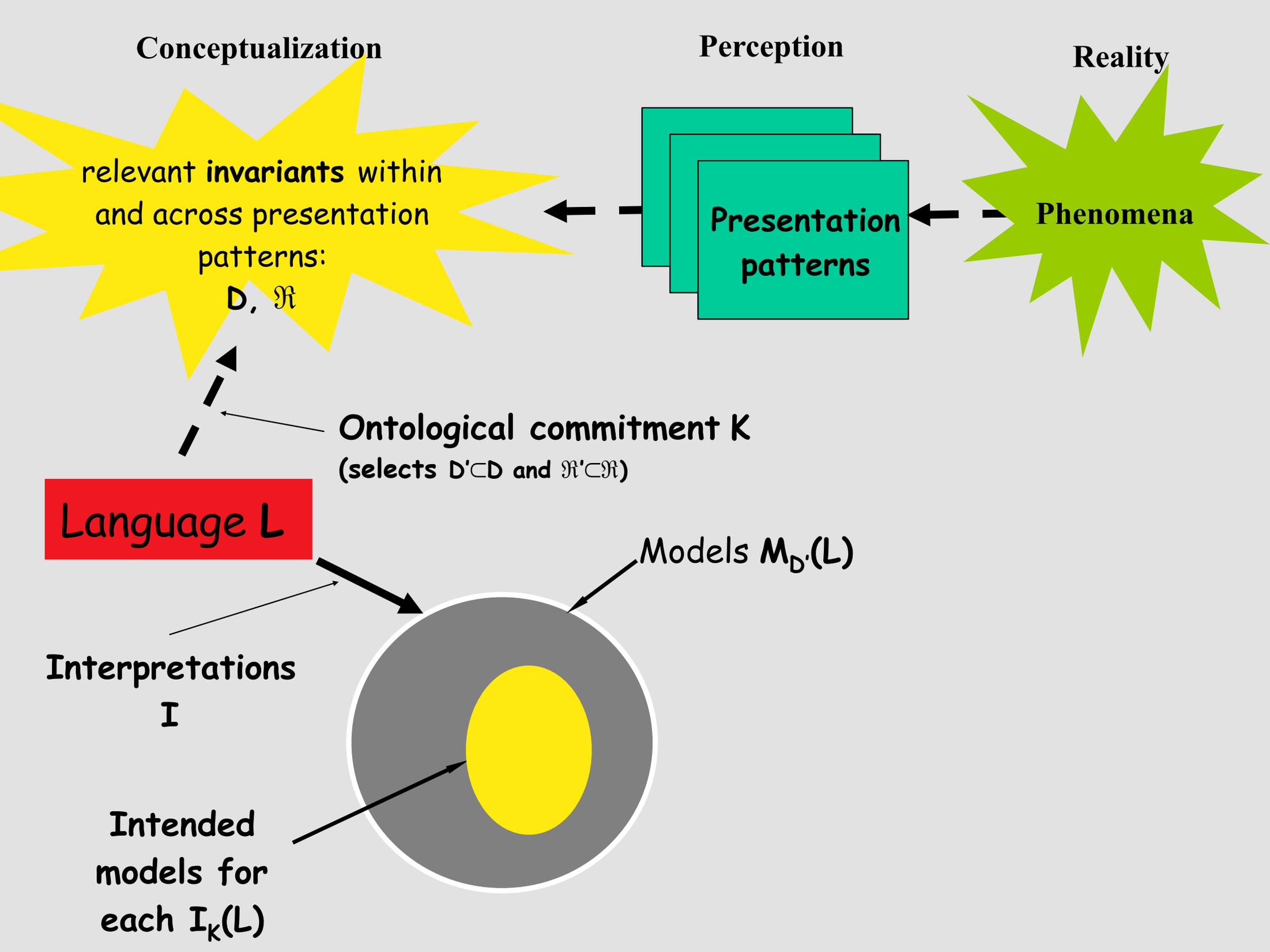
Interpretations
I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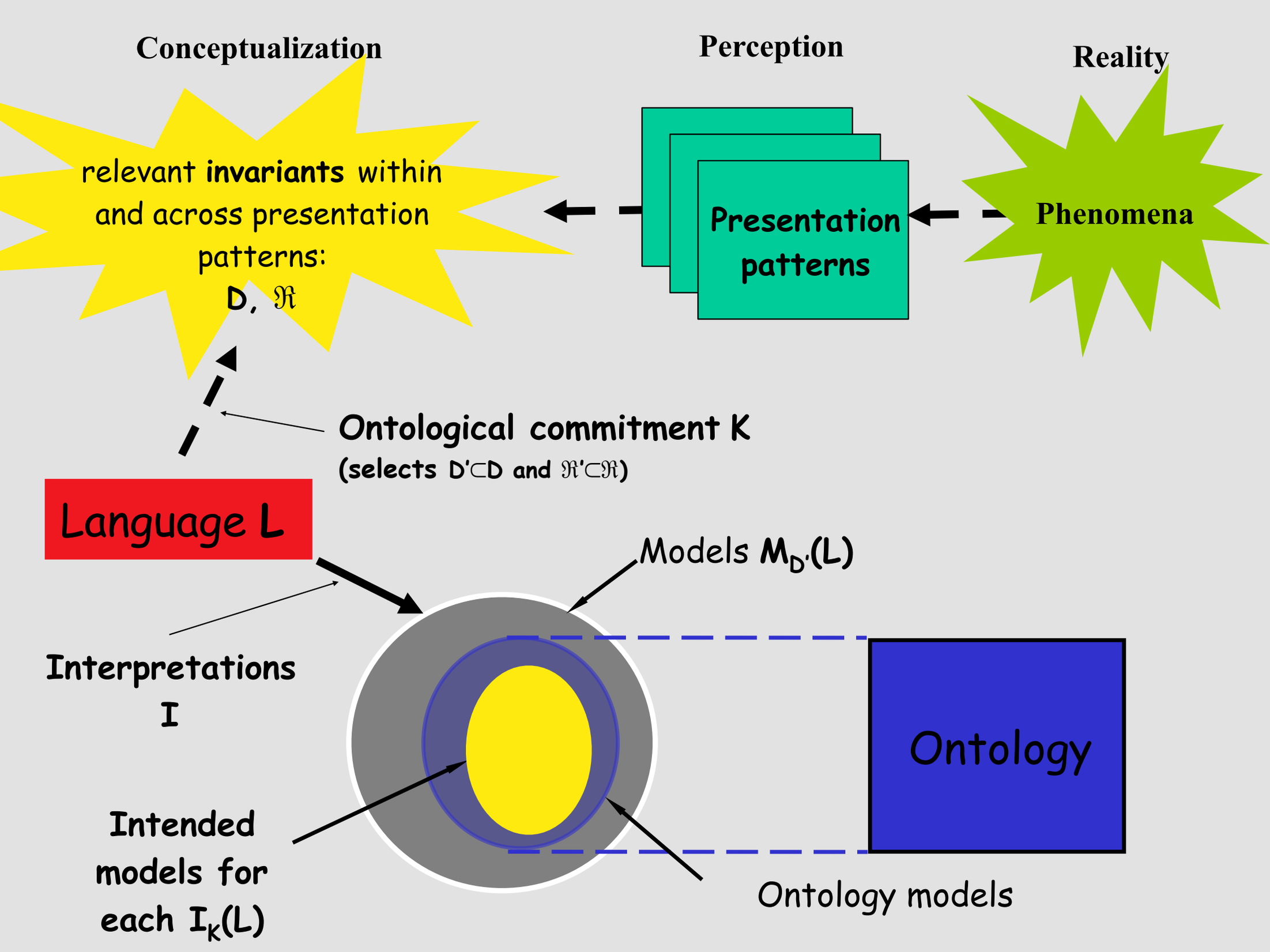
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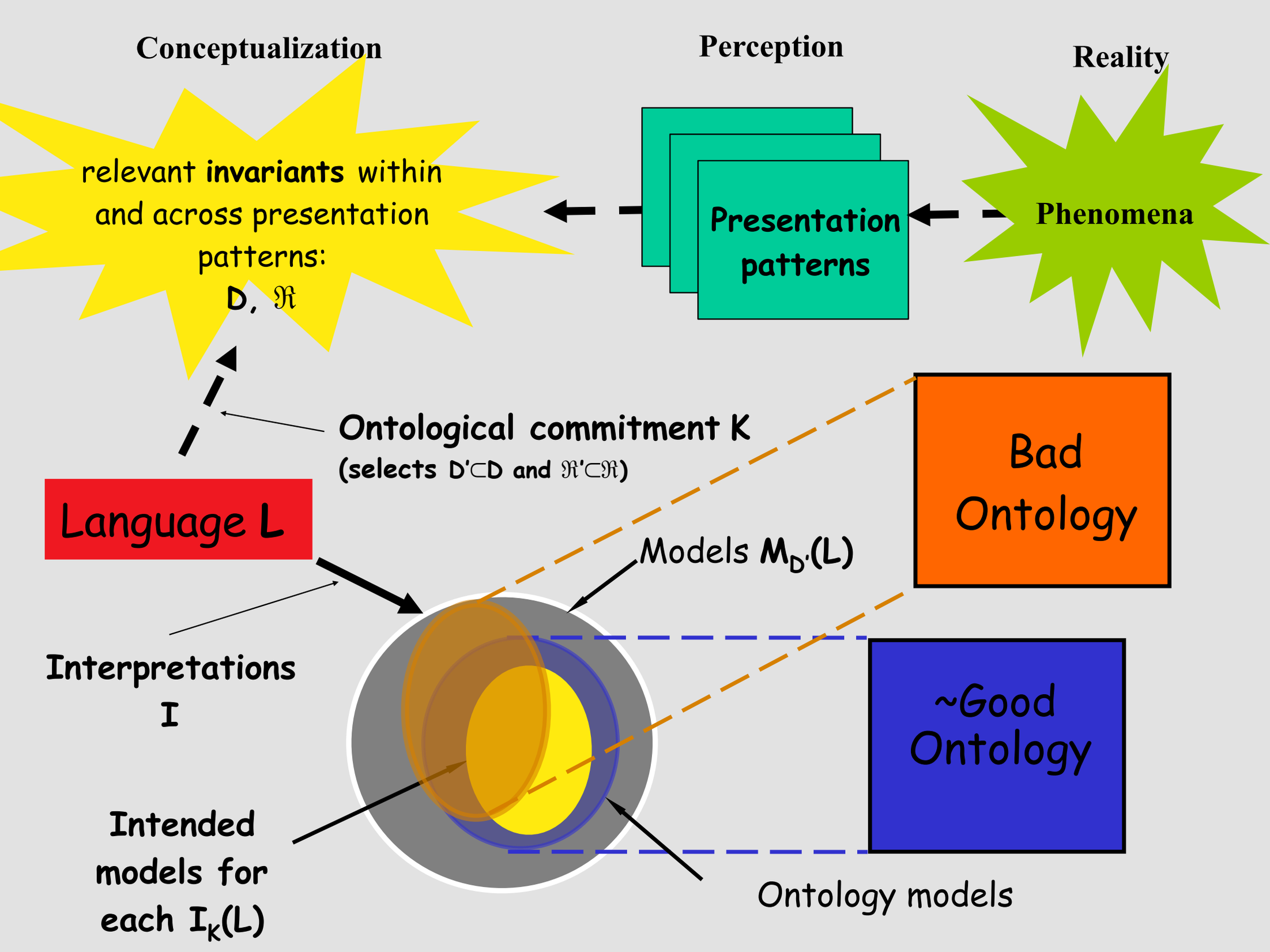
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Ontology Quality: Precision and Correctness

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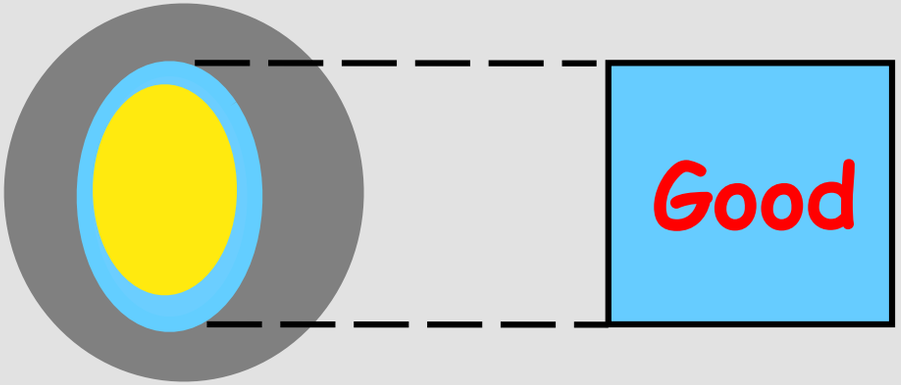

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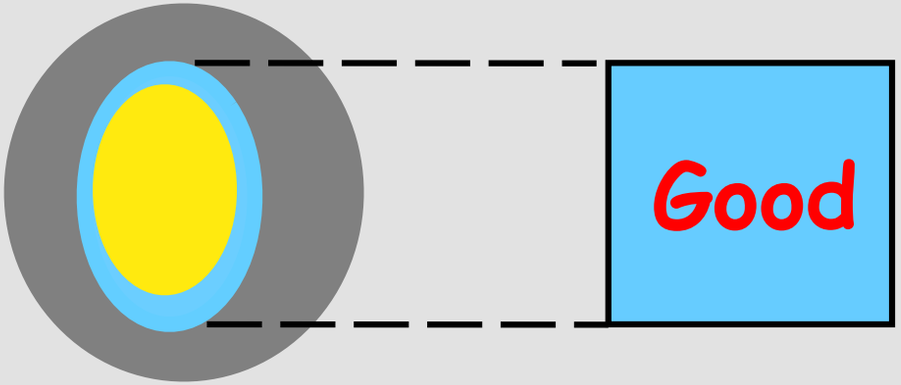

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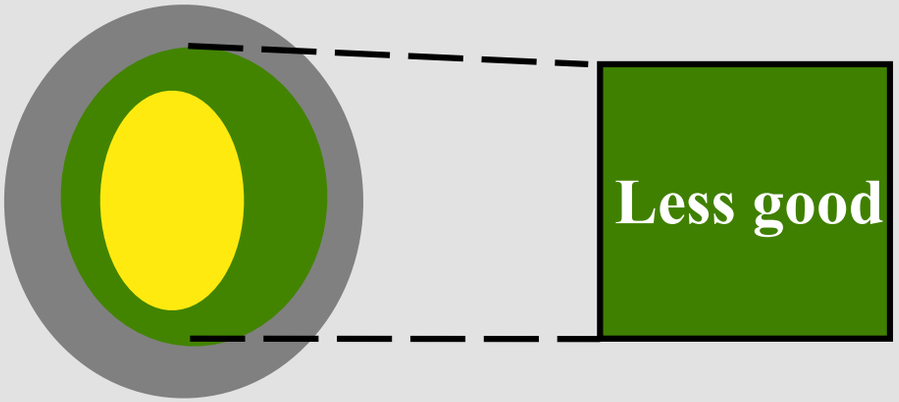

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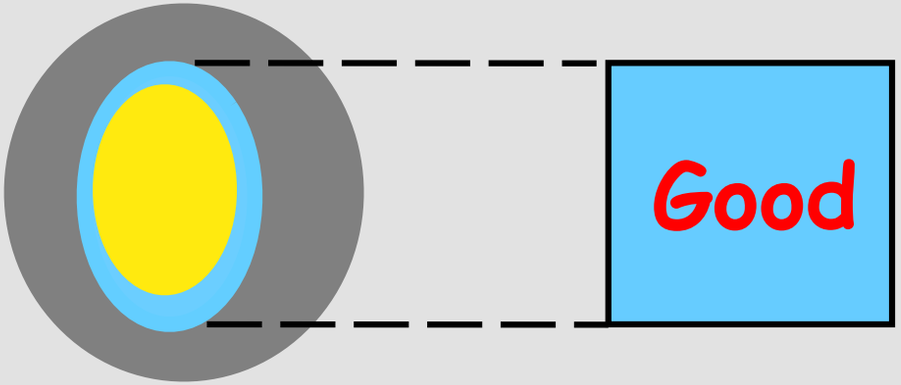

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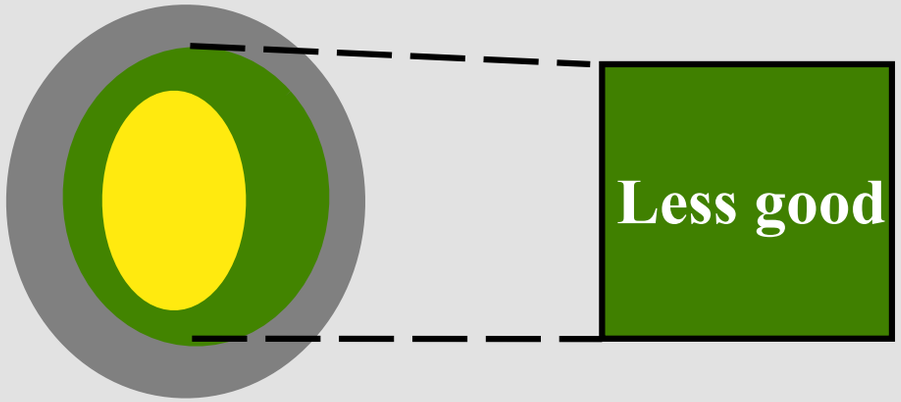

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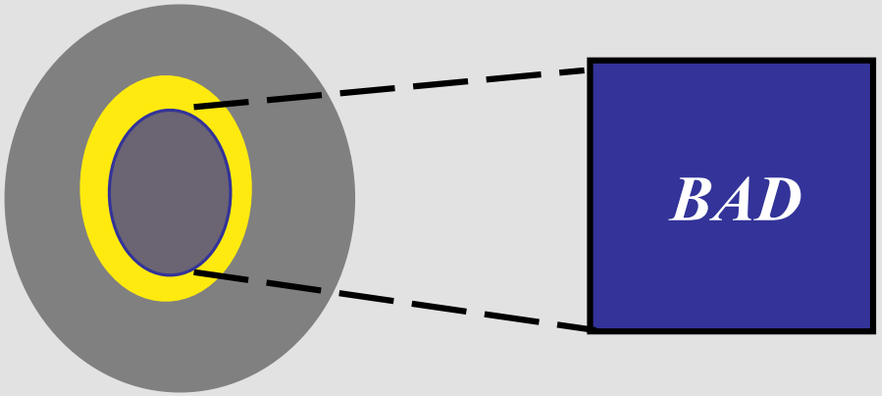

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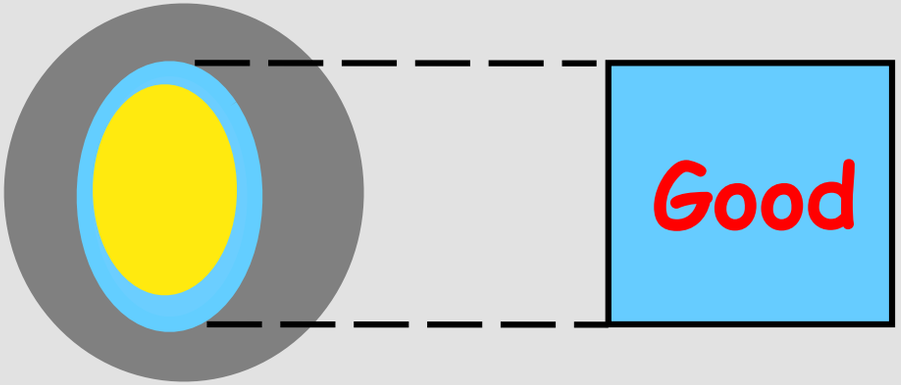
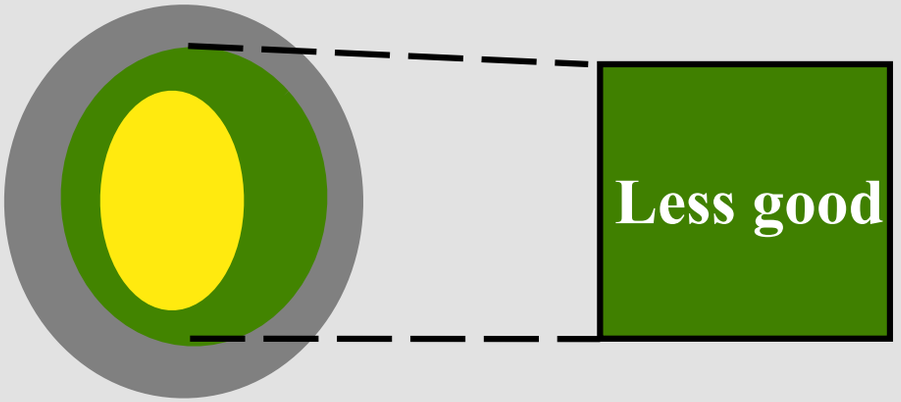
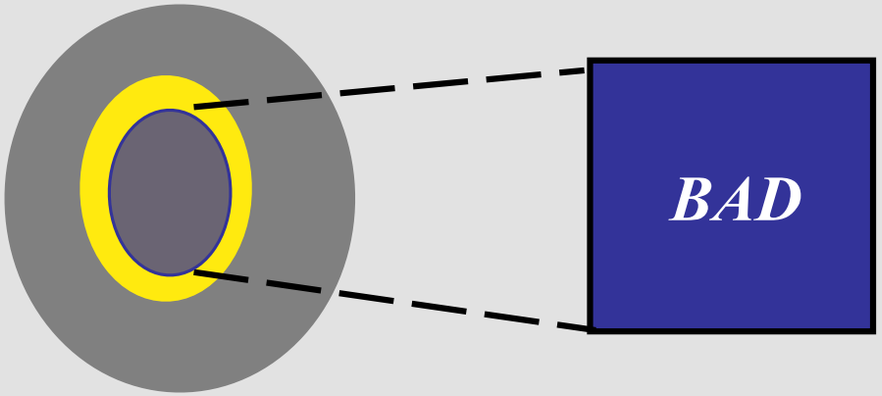


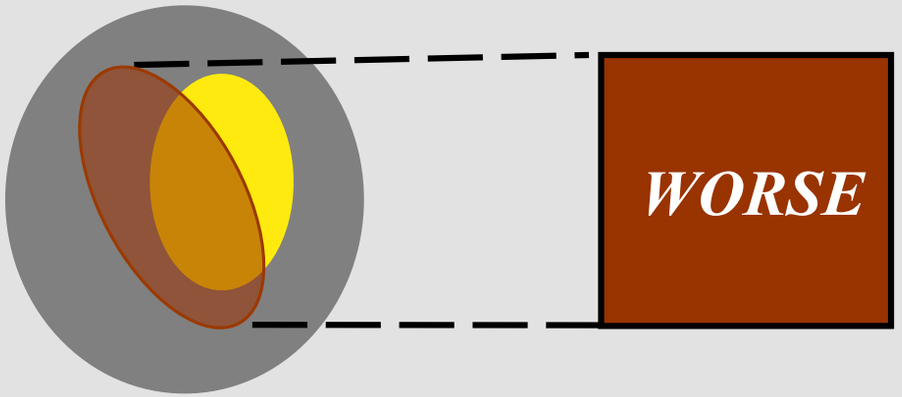
High precision, max correctness



Low precision, max correctness



Max precision, low correctness



Low precision, low correctness

Why ontological precision is important

Database A: keeping track of fruit stock

Variety	Quantity
Granny Smith	12
Golden delicious	10
Stark delicious	15

Database B: keeping track of juice stock

Variety	Quantity
Granny Smith	12
Golden delicious	10
Stark delicious	15

SALES

Availability at: 05-02-2014

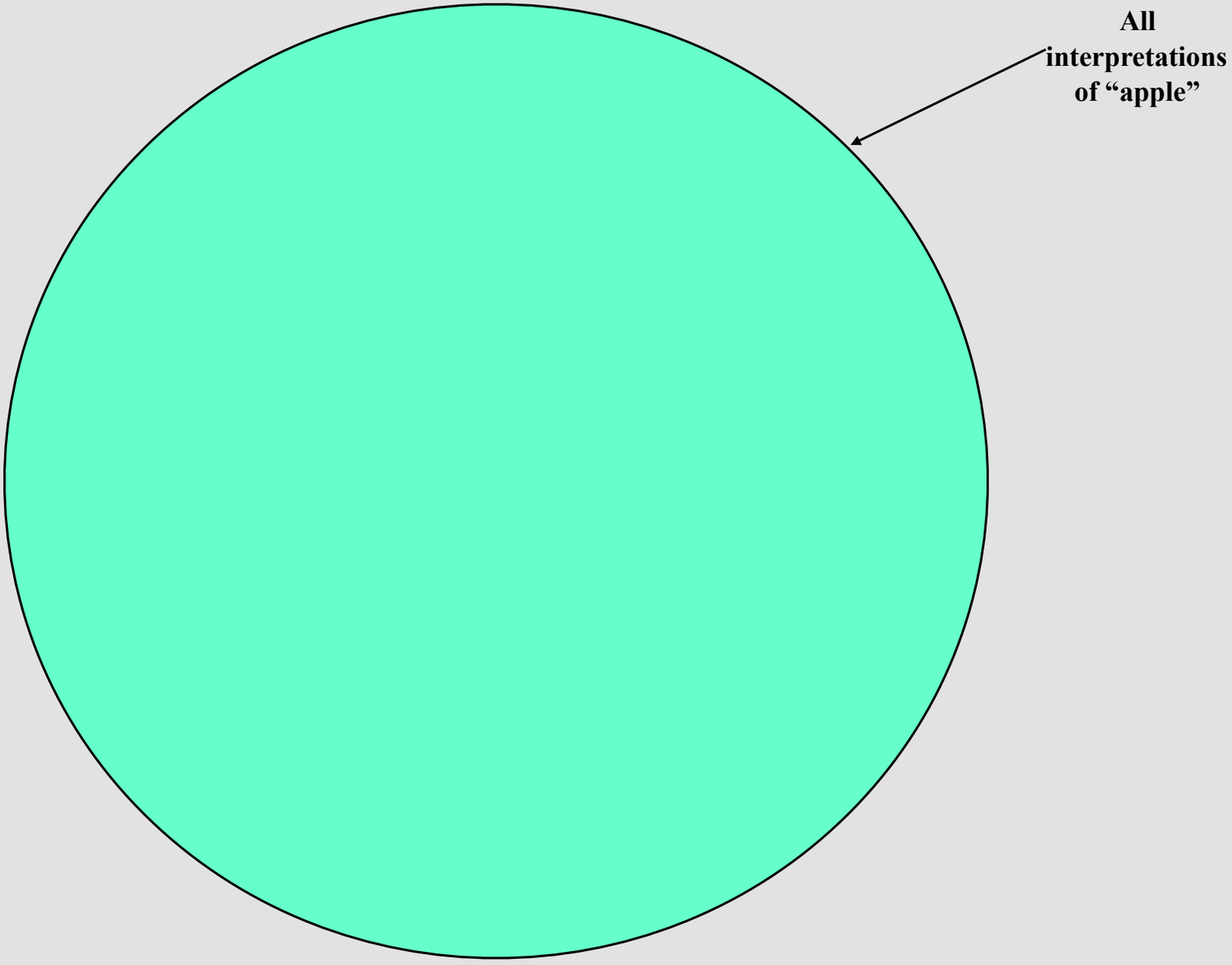
Wholesale

Varieties	Fresh	Available	industrial use: purée	industrial use: juice
Golden Delicious	√	yes	---	---
Red Delicious	√	yes	---	√
Gloster	√	no	---	---
Morgenduft	√	no	---	---
Jonagold	√	no	---	---
Royal Gala	√	yes	---	---
Braeburn	--	no	----	---
Florina	√	no	----	---
Granny	---	no	---	---

Conservation, sorting, packing and shipment directly from our farm - Contact us for actual prices

Packing	Sorting	Delivery
Usual packing	Sorting of our apples in foll. size grading: 65- 85 mm. packaging: 13 kg. boxes.	Pallets - (n°.60 boxes/pallet)
Other packing	7 kg plateau - 1 range.	Pallets - 90 pl/pall.

Why ontological precision is important



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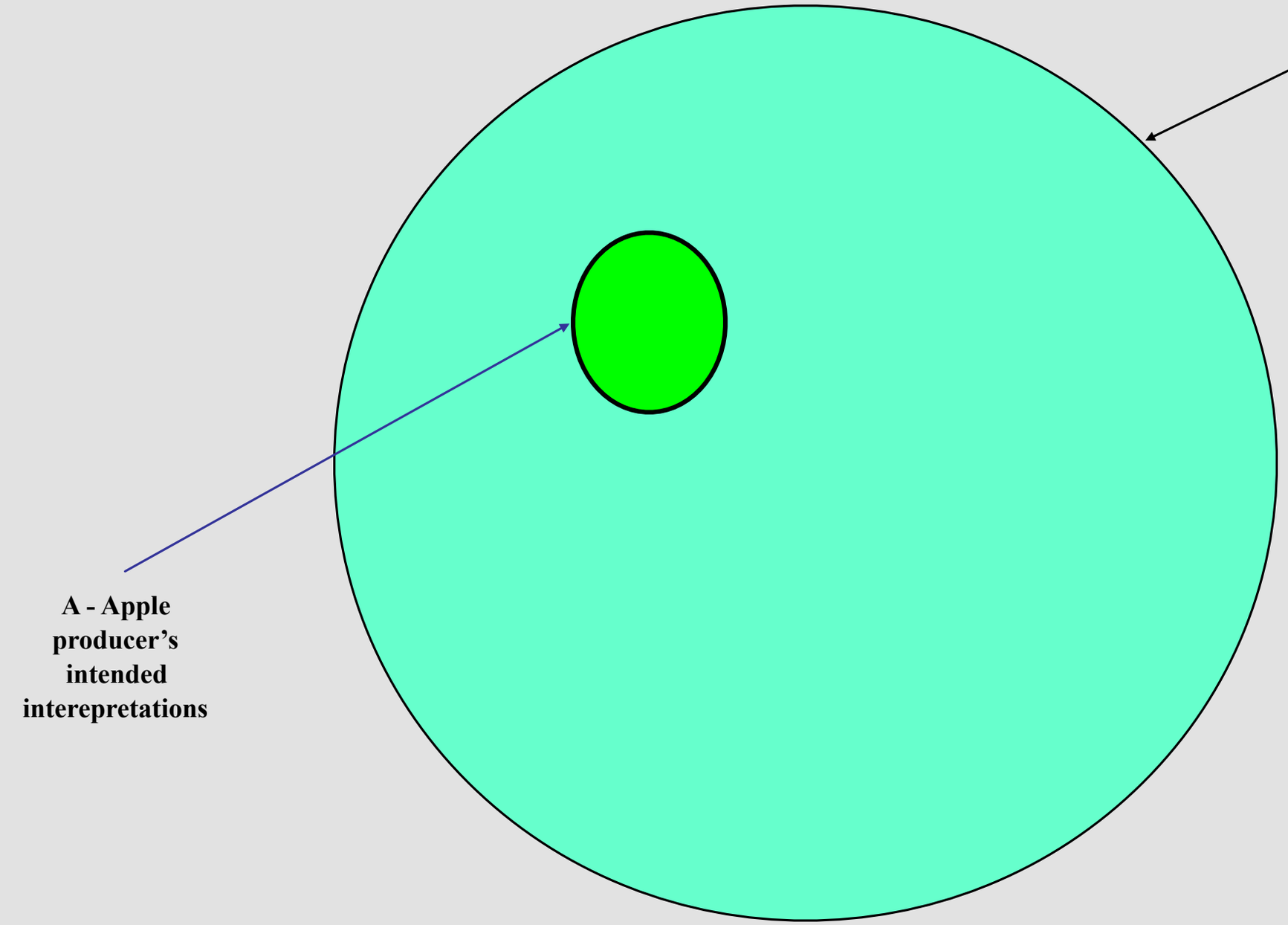

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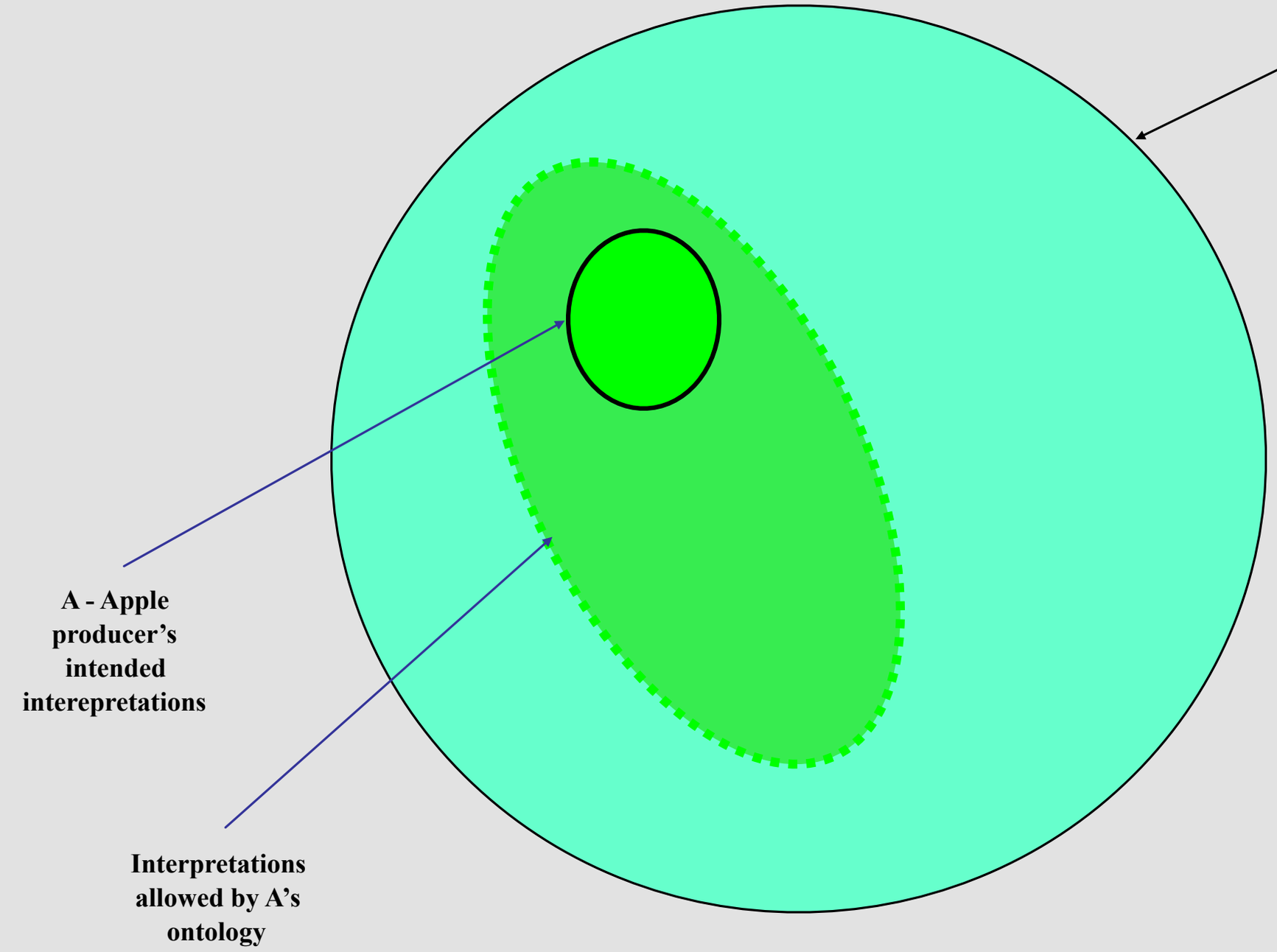

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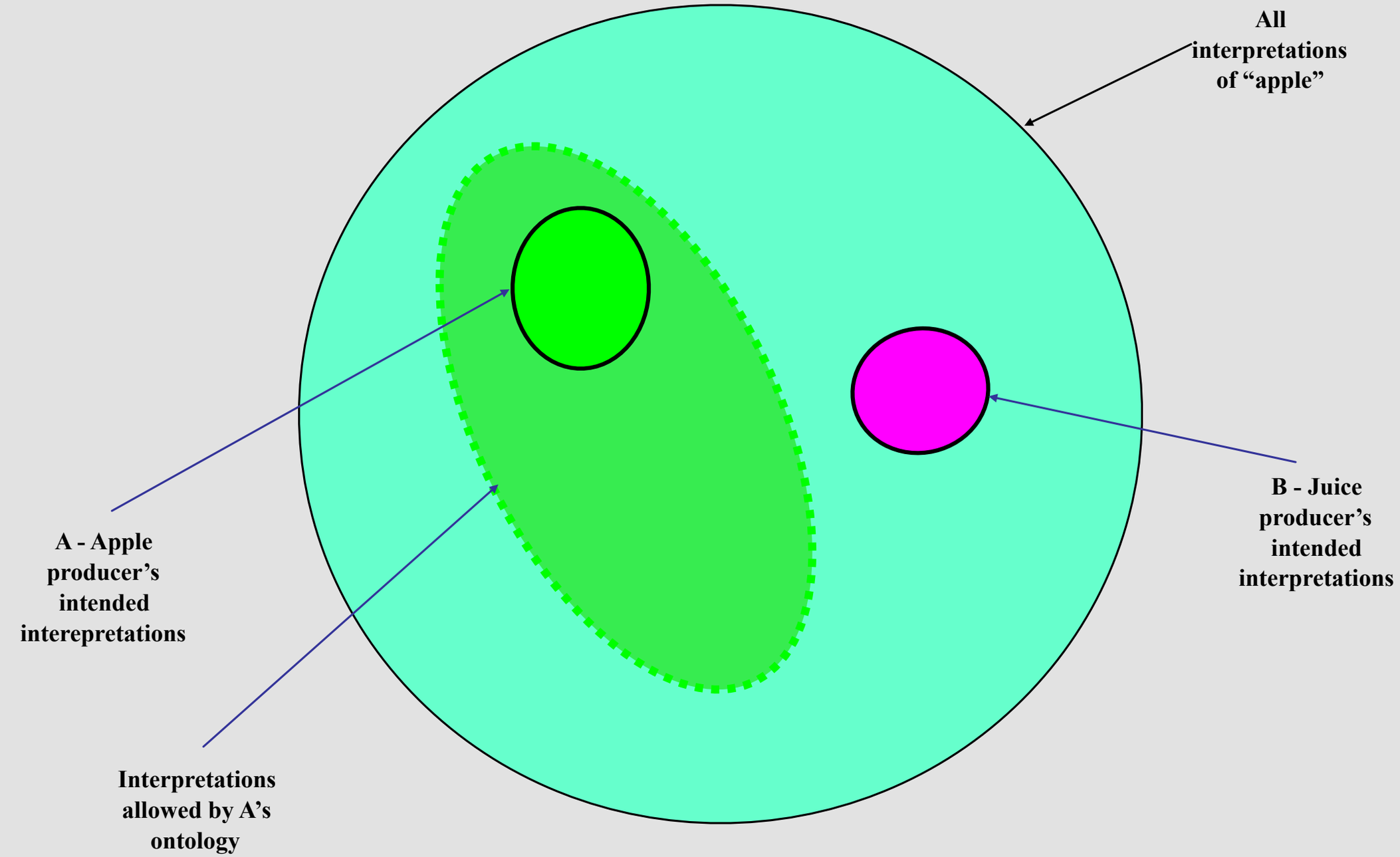
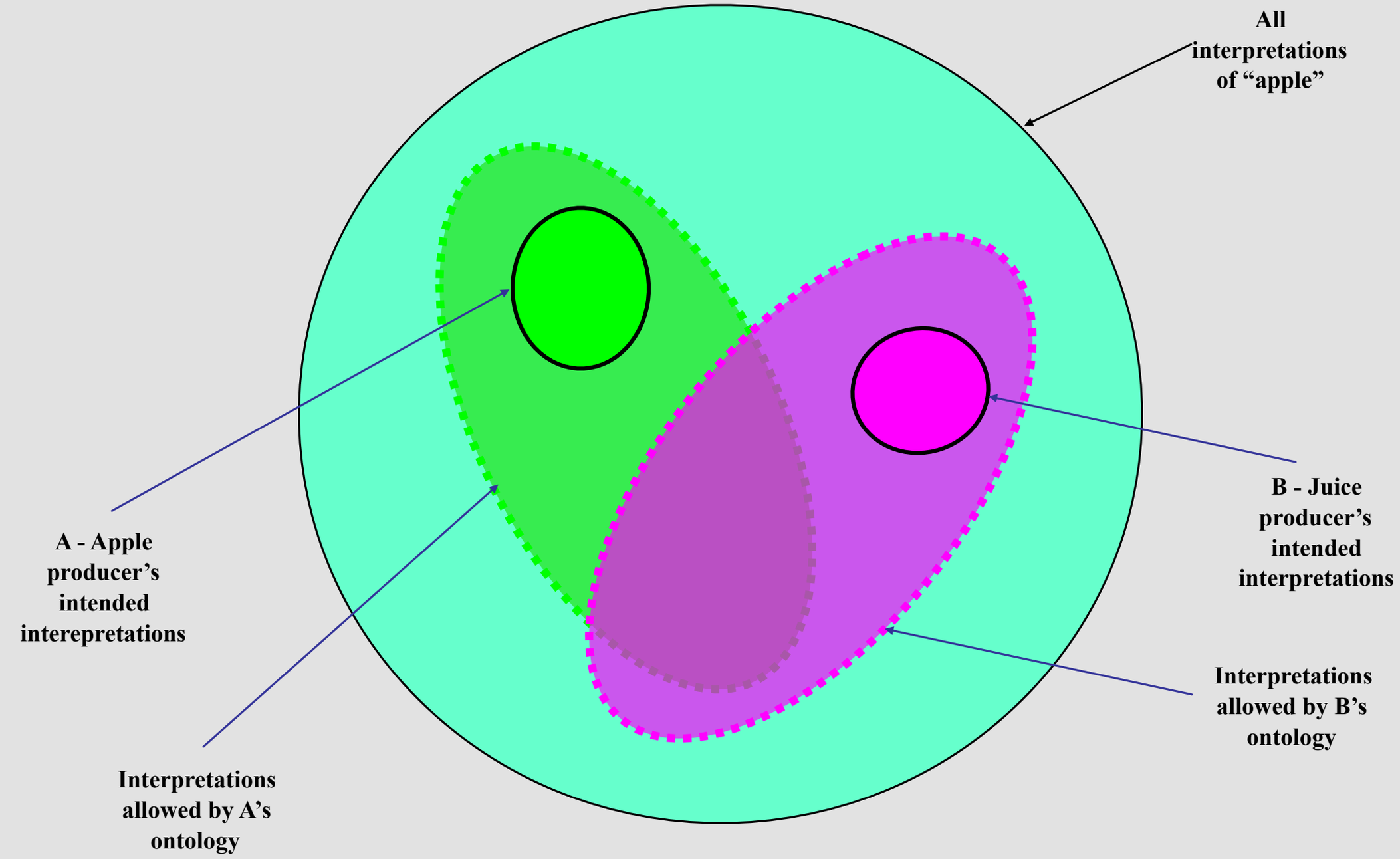
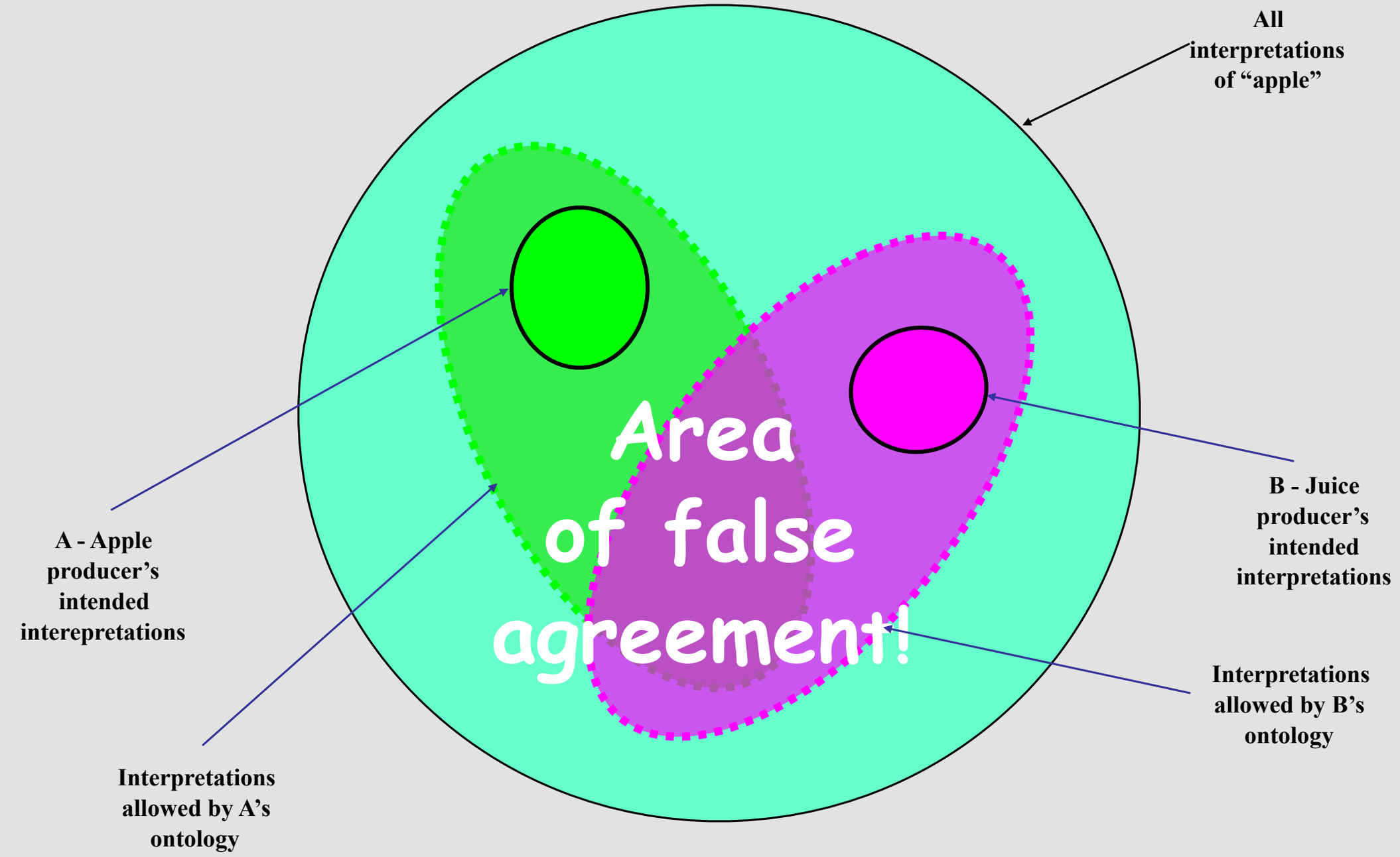


Why ontological precision is important



Why ontological precision is important



When is a precise (and accurate) ontology useful?

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1. When *subtle distinctions* are important

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When is a precise (and accurate) ontology useful?

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2. When *recognizing disagreement* is important
3. When *careful explanation and justification* of ontological commitment is important
4. When ***mutual understanding*** is more important than interoperability.

The two fundamental scenarios for semantic integration

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The two fundamental scenarios for semantic integration

1. *Same domain, same terminology, same conceptualization:* e.g, different processes within a very small, family-managed enterprise (everybody does everything)

2. *Same domain*, *shared terminology*, *different conceptualization*: e.g., different branches of a big company with a strong organization structure..

Computational ontologies have been born for 2, but, they are actually used for 1: ***just shared*** *data schemes*. The result is the so-called "**data sylos**" **effect.**

How to come up with the *right* meaning postulates?

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- **Theory of Parts (Mereology)**
- **Theory of Unity and Plurality**
- **Theory of Identity and Persistence**
- **Theory of Essence and Modality**
- **Theory of Dependence**
- **Theory of Properties and Qualities**

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The tools of *formal ontological analysis*

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- **Theory of Properties and Qualities**

The tools of *formal ontological analysis*

Idea of Chris Welty, IBM Watson Research Centre, while visiting our lab in 2000

Maastricht University Leading in Learning!

IMOLA II

A comparative view from an EU perspective

A comparative view from an EU perspective

- I. Introduction
- II. Brief comparative overview
- III. EU perspective
- IV. Unintended impact?
- V. Concluding remarks

A comparative view from an EU perspective

- II. Brief comparative overview (1)
  - A. Several distinctions possible
  - B. Substantive land law and land registration law
    - EU law follows its own path (cf. the Kubicka case, interpreting the Succession Regulation)

A comparative view from an EU perspective

- II. Brief comparative overview (2)

  - C. Positive v. Negative systems
  - D. Title v. Deeds
  - E. Role of the registrar
  - F. Who has access (privacy, role of GDPR)
  - G. Evidence

A comparative view from an EU perspective

- III. EU perspective (1)
  - Land registration data may come within the ambit of the EU's new 5th freedom: free flow of data
    - See the draft *Regulation on a framework of non-personal data in the European Union*

A comparative view from an EU perspective

- III. EU perspective (2)

"The world is witnessing a dramatic increase in the amount and variety of data being produced. Alongside the data created by billions of people using digital devices and services for personal and professional reasons, and the data generated by the increasing number of connected objects, there is data from research, from digitised literature & archives and from public services such as hospitals and land registries. This "Big Data" phenomenon creates new possibilities to share knowledge, to carry out research and to develop and implement public policies.

Communication on a European Cloud Initiative, p. 2

A comparative view from an EU perspective

- III. EU perspective (3)
  - Technology is bypassing both positive and negative EU integration
  - Although land registries provide information on (rights in) immovables, the digital format of that information ("data") makes that information a movable and thus of a potentially cross-border nature

A comparative view from an EU perspective

- III. EU perspective (4)
  - This was, in fact, the background of the CROBECO project
    - However, CROBECO came too early (and did not fit very well within the practice regarding art. 345 TFEU: no integration without reciprocity), but did raise awareness

A comparative view from an EU perspective

- III. EU perspective (5)
  - CROBECO was based on three pillars:
    - Technological developments (interoperability)
    - National acceptance, flowing from private international law
    - No change of substantive law was envisaged

A comparative view from an EU perspective

- III. EU perspective (6)

  - The aim of IMOLA is to create a European Land Register Document +

    "*Implement a publication engine that takes a request and formats the results in a standard predefined form*".

A comparative view from an EU perspective

- III. EU perspective (7)
  - IMOLA does not link land registries, but provides a uniform extract
  - However, any uniform extract in digital format demands interoperability
  - The form will have to be accepted by each national legal system
  - No substantive law changes are envisaged

A comparative view from an EU perspective

- IV. Unintended impact? (1)
  - Could IMOLA result in crypto-harmonisation?
    - Digitalisation cannot take place without standardisation: IMOLA will create a standard e-document
    - Once a document has been standardised, non-lawyers might not perceive the different legal background and different degrees of evidence

A comparative view from an EU perspective

- IV. Unintended impact? (2)
  - Could IMOLA result in crypto-harmonisation?
    - The extensive comparative legal research underlying the form as such is unknown to its users
    - Users my invoke the standardised (for them: "EU") nature of the document as an argument that the information is meant to circulate ("data") and can be relied upon

A comparative view from an EU perspective

- IV. Concluding remarks
  - Comparative overview
  - EU perspective
  - Crypto-harmonisation?

A comparative view from an EU perspective

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Ontologies and Semantic Web

the REUSE company

uc3m | Universidad Carlos III de Madrid

Thursday, February 22, 2018

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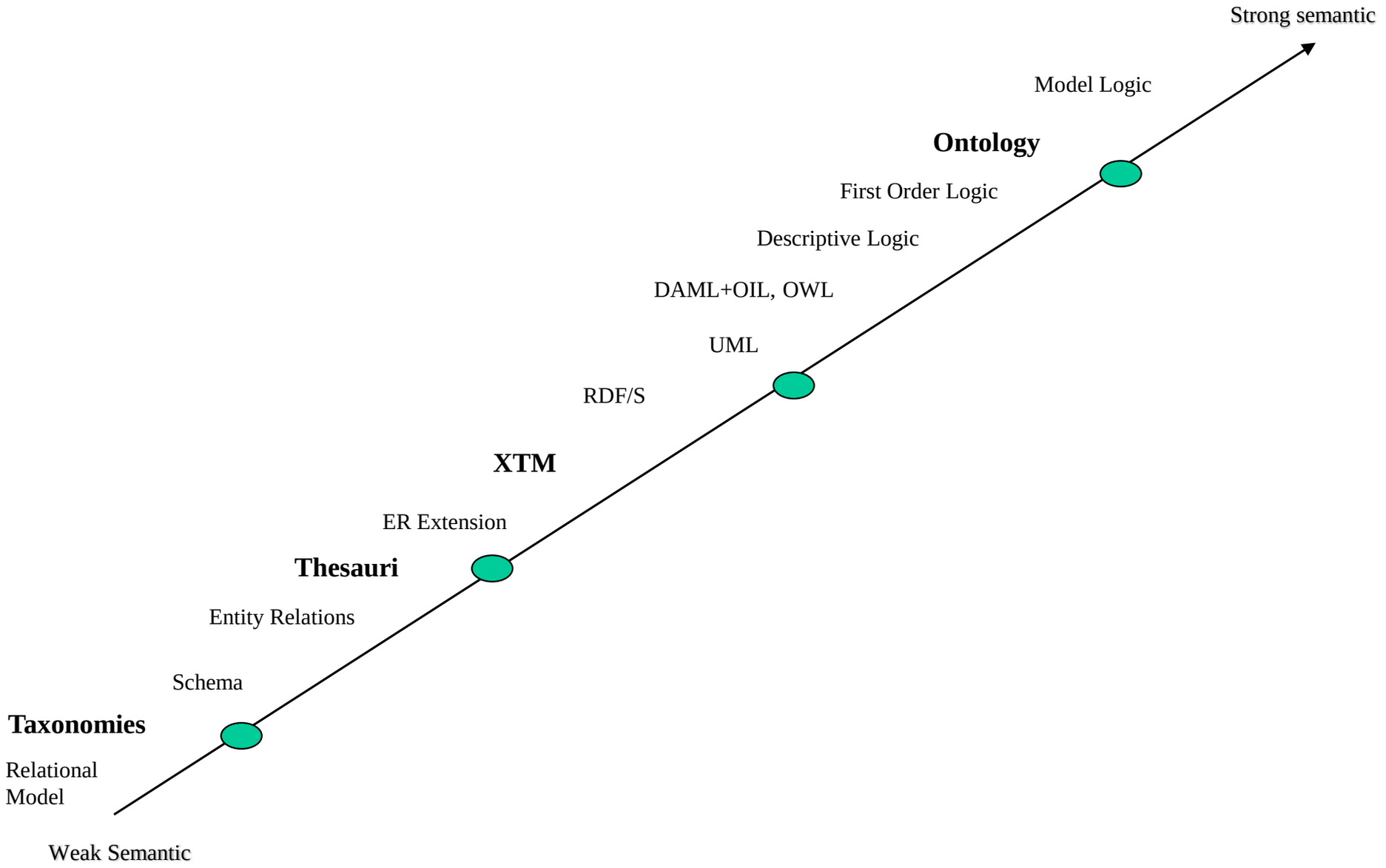
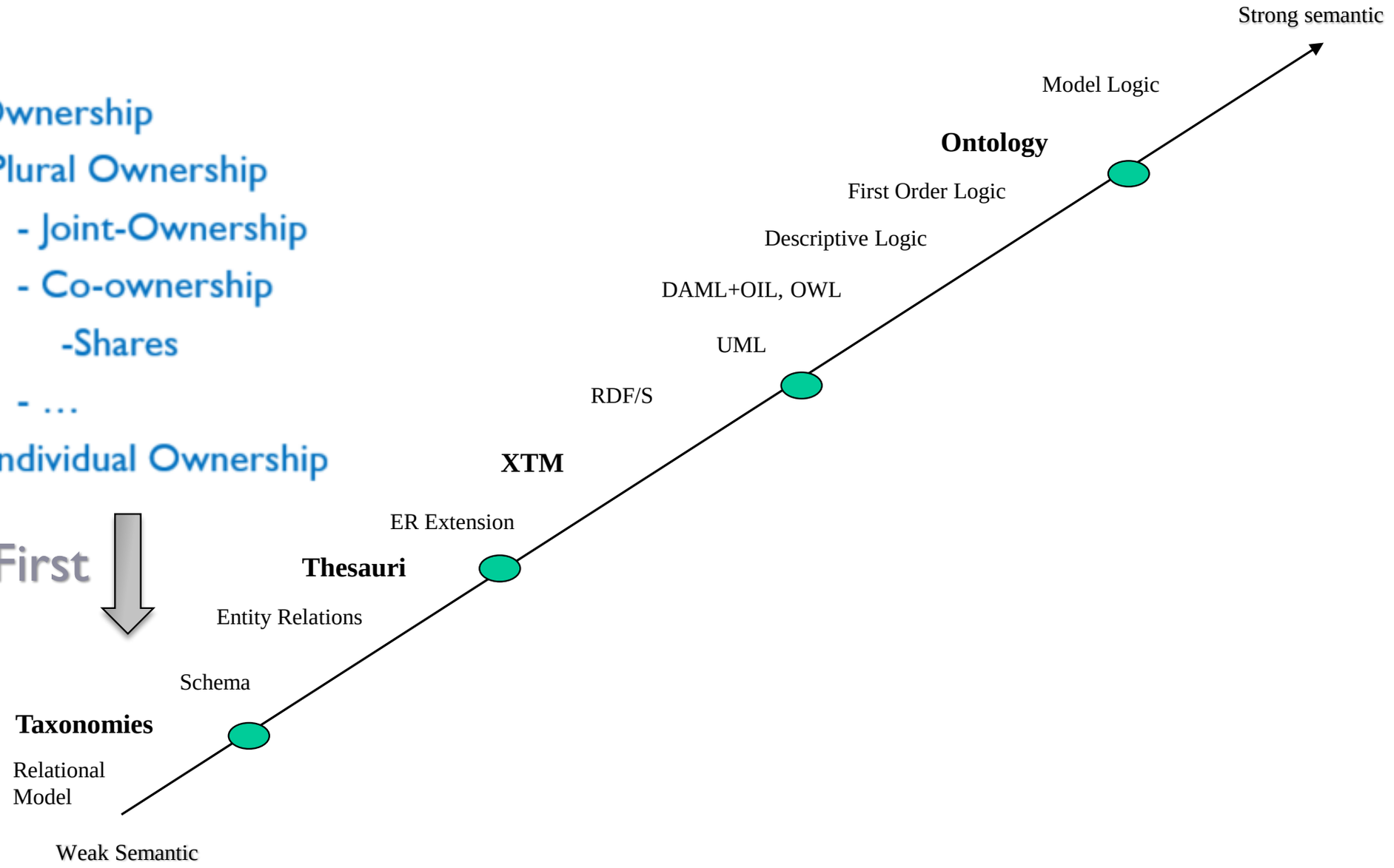
Spectrum of Knowledge



Spectrum of Knowledge

Ownership
-Plural Ownership
- Joint-Ownership
- Co-ownership
-Shares
- …
-Individual Ownership

First



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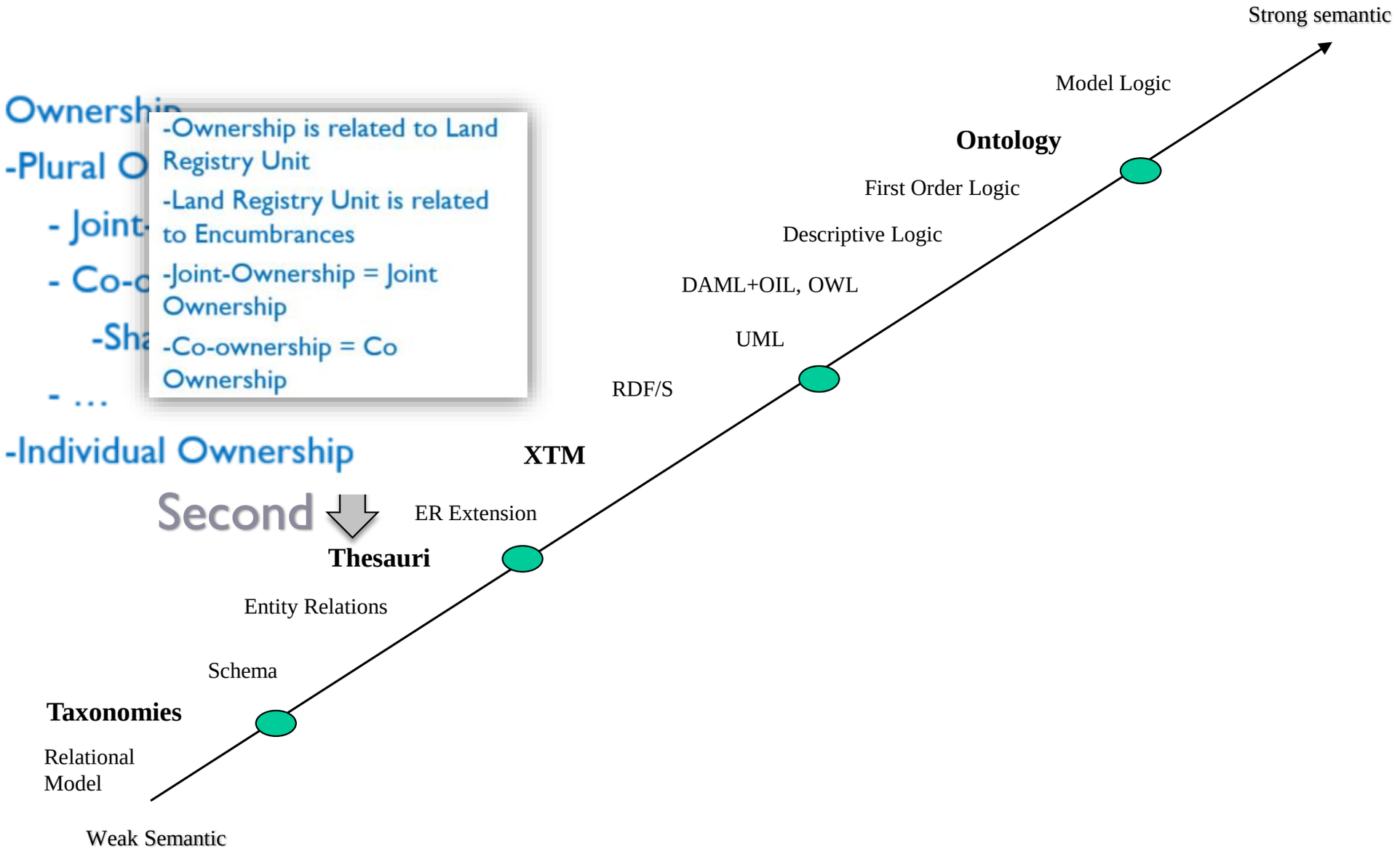

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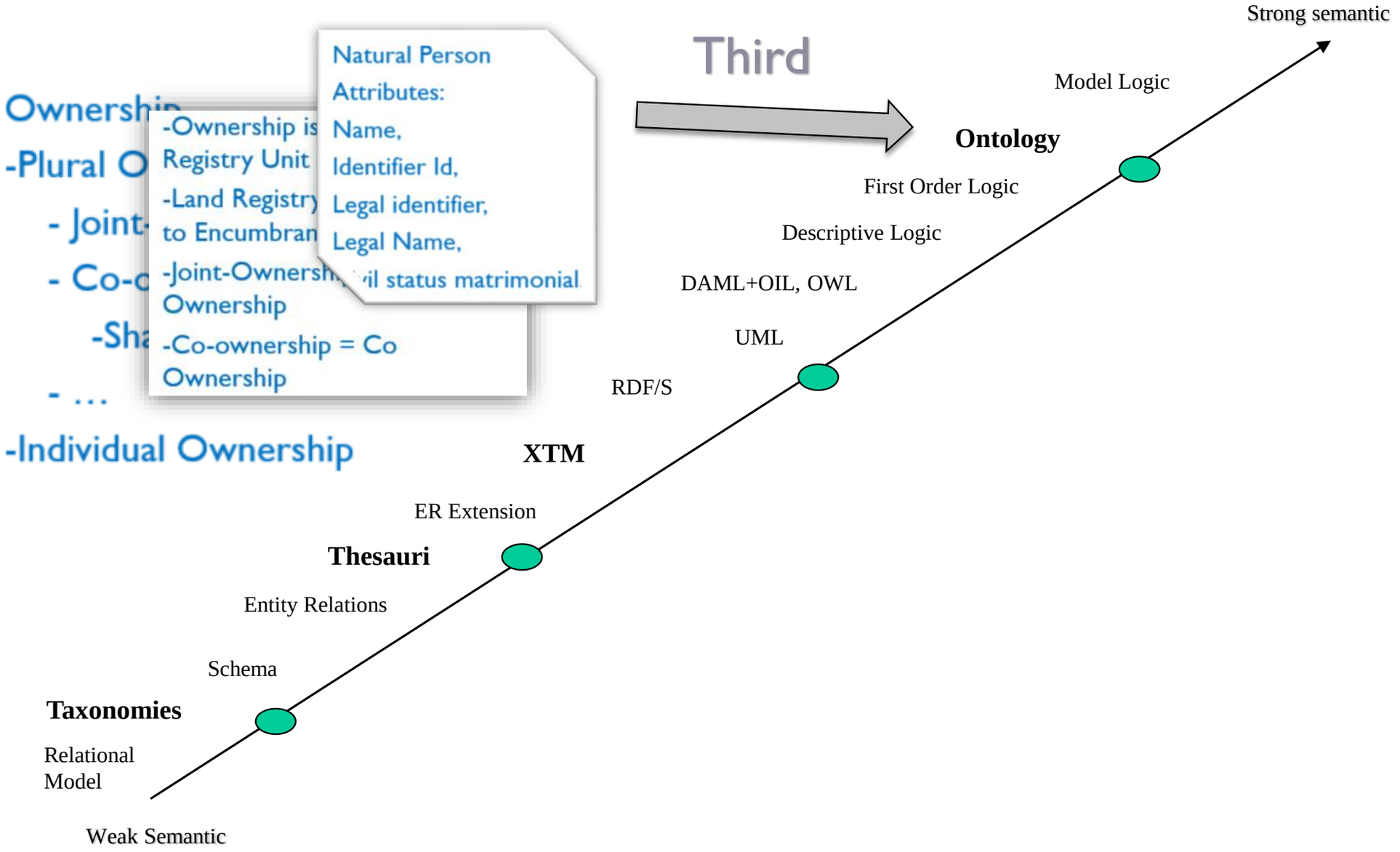

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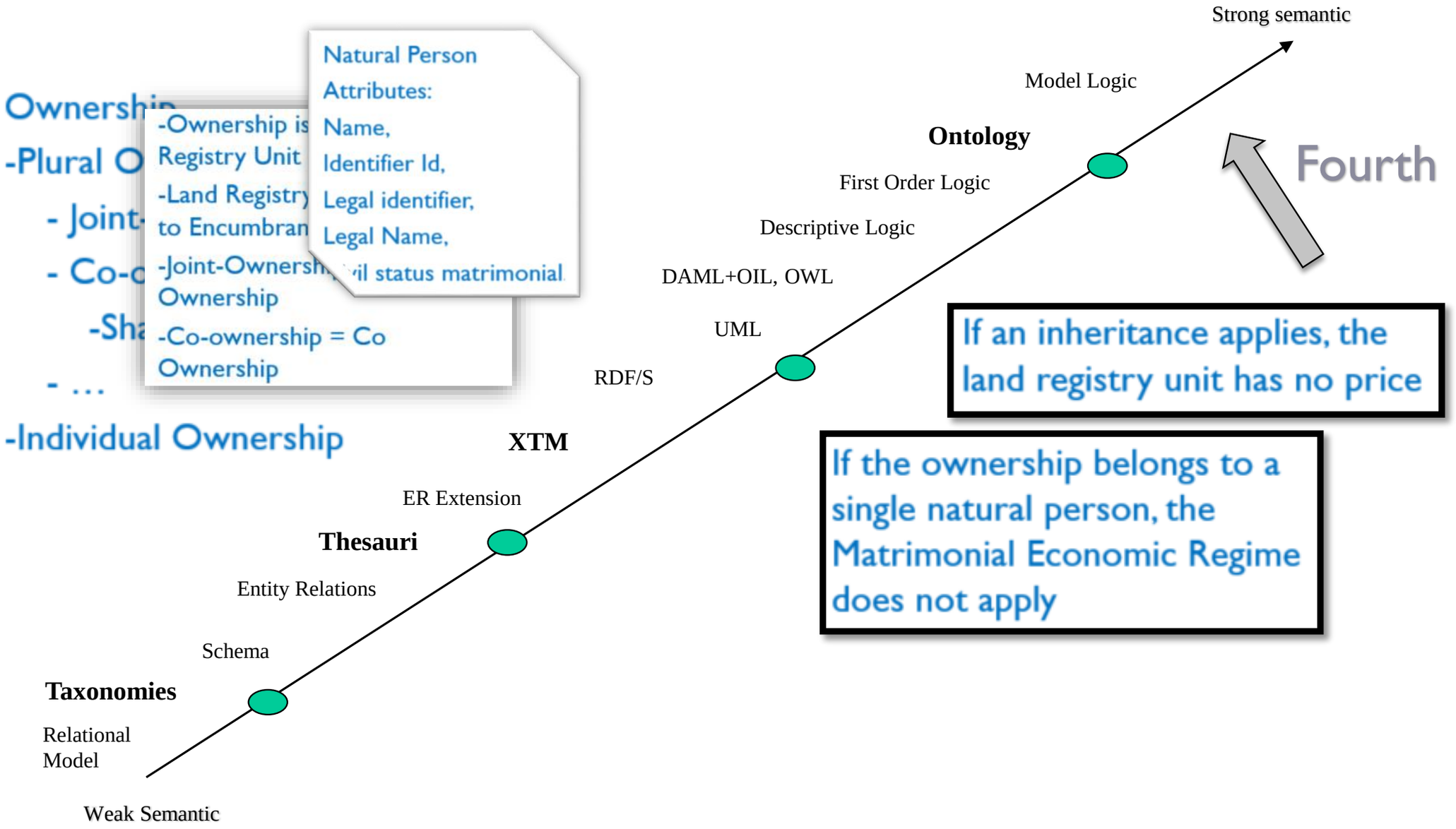

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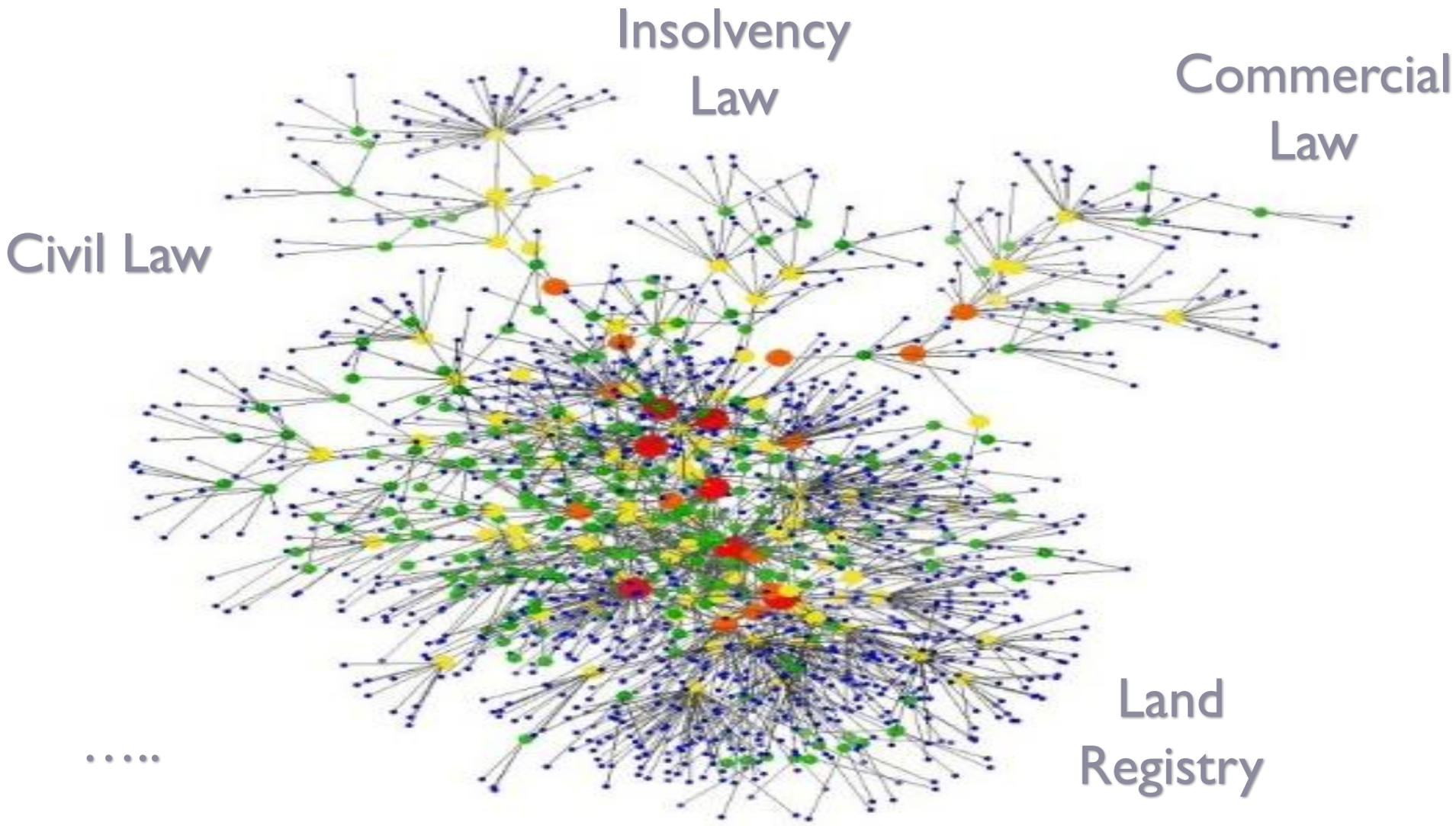

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A bit of History (1/4)

- The term "Ontology" originates from ancient philosophy.
- Philosophy of existence: essence vs. existence.
- Ancient Greece: They wanted to find the essence of things, even through changes:
  - What happens with a seed that germinates and grows to be a tree? When does it stop being a seed?
  - Parmenides: There are no changes; something that exist, never stops existing (the seed does not transform, its our senses that perceive them in a different form).
  - Aristotle: The seed is a non completed tree. The tree simply has changed its mode of existence (never stopped being a tree).

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A bit of History (2/4)

- Middle Ages : focuses on the "universals", in contrast to "individuals".
  - In the modeling of knowledge:
    - Universals: Man, Book, Computer. (a type, a property, or a relation)
    - Individuals: Anabel, this book, my computer. (refers to a person or to any specific object in a collection)
  - William of Ockam (English Franciscan friar and scholastic philosopher) : Only individuals exist, rather than supra-individual universals. These are the products of abstraction from individuals by the human mind.
- Modern Age: The essence comes from the perception.
  - José Ortega y Gasset: The world depends from the person that perceive it.
  - Information Systems: Every system can represent the world in different forms, depending on its purpose.

A bit of History (3/4)

- Contemporary Age (XX-XXI): The focus of attention is on the Information Sciences.
  - Theoretical bases appear with Formal Ontology: Axiomatic, formal and systematic development of the logic in all the forms and modes of existence (formal properties, entities classification, categories for modeling the world, etc.).
- Ontological Engineering: Activities that concern the process of ontology development, methodologies, techniques, languages etc.

A bit of History(4/4)

- At the beginning of the 90s: Efforts have started on the construction of ontologies from scratch, on reusing other pre-existing ontologies, and for semi-automatizing methods for reducing the knowledge acquisition phase.
- Every group used its own principles.
- The absence of some common guides impeded its development.
- In 1996: The 1st Congress on Ontological Engineering.
- In 1997: The 2nd Congress: Use of methodologies for the design and evaluation of ontologies.

Systems of Knowledge: advantages & disadvantages

Ontologies advantages for Applications

- Improve reusability and interoperability
- Improvement on Searches
- Improvement of navigation
- They can permit inferences
- Contribute coherence and consistency rules

Ontologies disadvantages for Applications

- More useful when more complex, but:
  - Increases the creation difficulty
  - Visualization problems
  - It is difficult to find ready-made ontologies to match user's need.
  - The size of the resource (ontology) is inversely proportional to its specificity.
- All methodologies have 2 great problems:
  - Bottleneck on the knowledge acquisition
  - Difficulties on validation by domain engineers.

Definition and components (1/2)

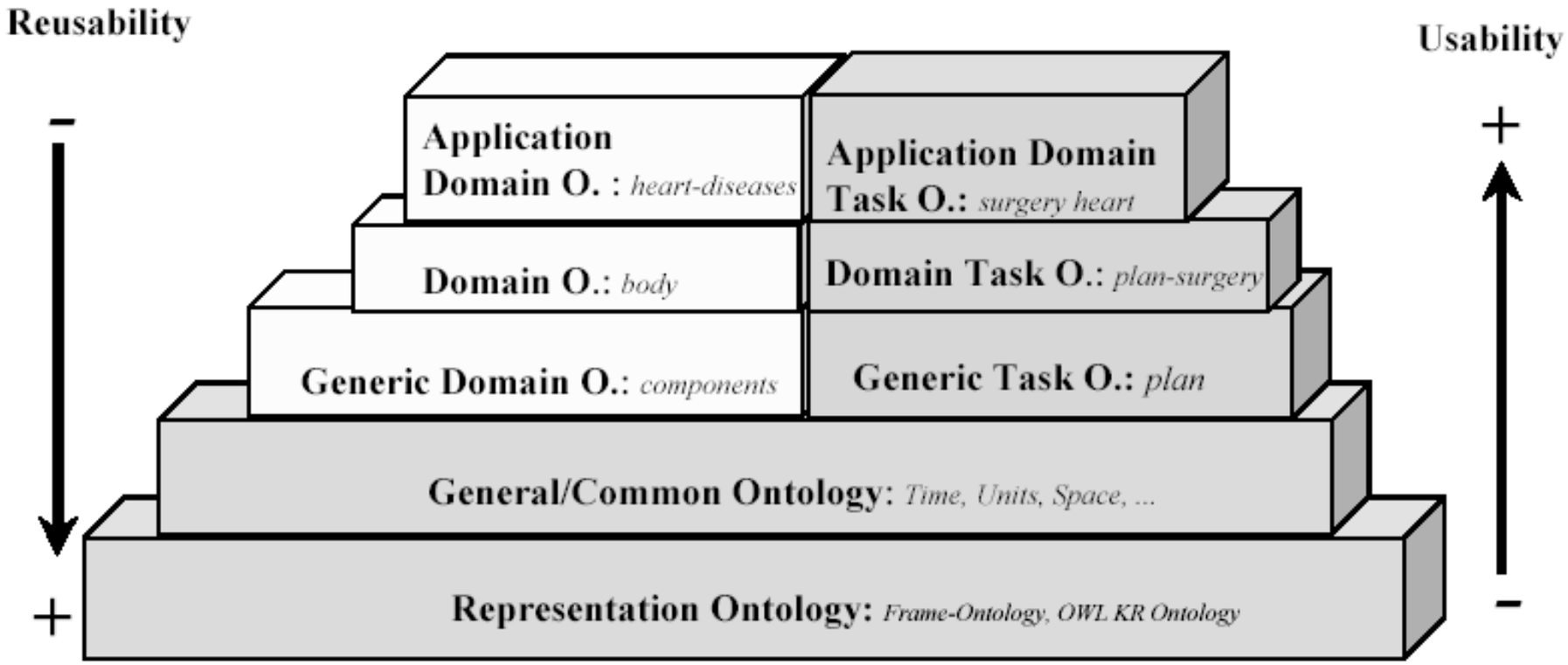
- Distinct definitions of "ontology":
  - Defines the terms and concerning relationships on a vocabulary of a determined area, and the rules for combining terms and relationships for extending the vocabulary. (Neches et al., 1991).
  - Is an explicit specification of a conceptualization (Gruber, 1993).
  - Is a formal specification of a shared conceptualization (Borst, 1998).
  - Is a formal and explicit specification of a shared conceptualization (Studer et al., 1998):
    - Conceptualization : Abstract model of a phenomenon of reality with its relative concepts.
    - Explicit: the concepts, their types and restrictions are explicitly defined.
    - Formal: Readable by a machine.
    - Shared: with consensual knowledge (accepted by a community).
  - Is a set of logical axioms designed for understanding the required significance of a vocabulary (Guarino, 1998).
- Heavy ontologies vs. Light Ontologies (only indicate subsumption relations between concepts).

Definition and components (2/2)

- Ontology Components:
  - Classes: Concepts, abstract or specific. Classes in an ontology should be organized in taxonomies.
  - Relationships: Association between domain concepts. Protegé supports only binary relationships: `rel(domain, range)`, which are represented by "object properties" (*slots*).
  - Functions: Is a special type of relationship in which one of the relationship's elements is the result of a formula
  - Axioms (restrictions) / Rules: Used for modeling sentences that are true. They represent knowledge that can not be formally defined with the rest of the terms. Should be used to preserve consistency.
  - Instances: Used for representing elements or individuals of an ontology.
  - Properties (and their values) of the above components

Ontology Types

- Equilibrium amongst reusability & usability:



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Design Principles

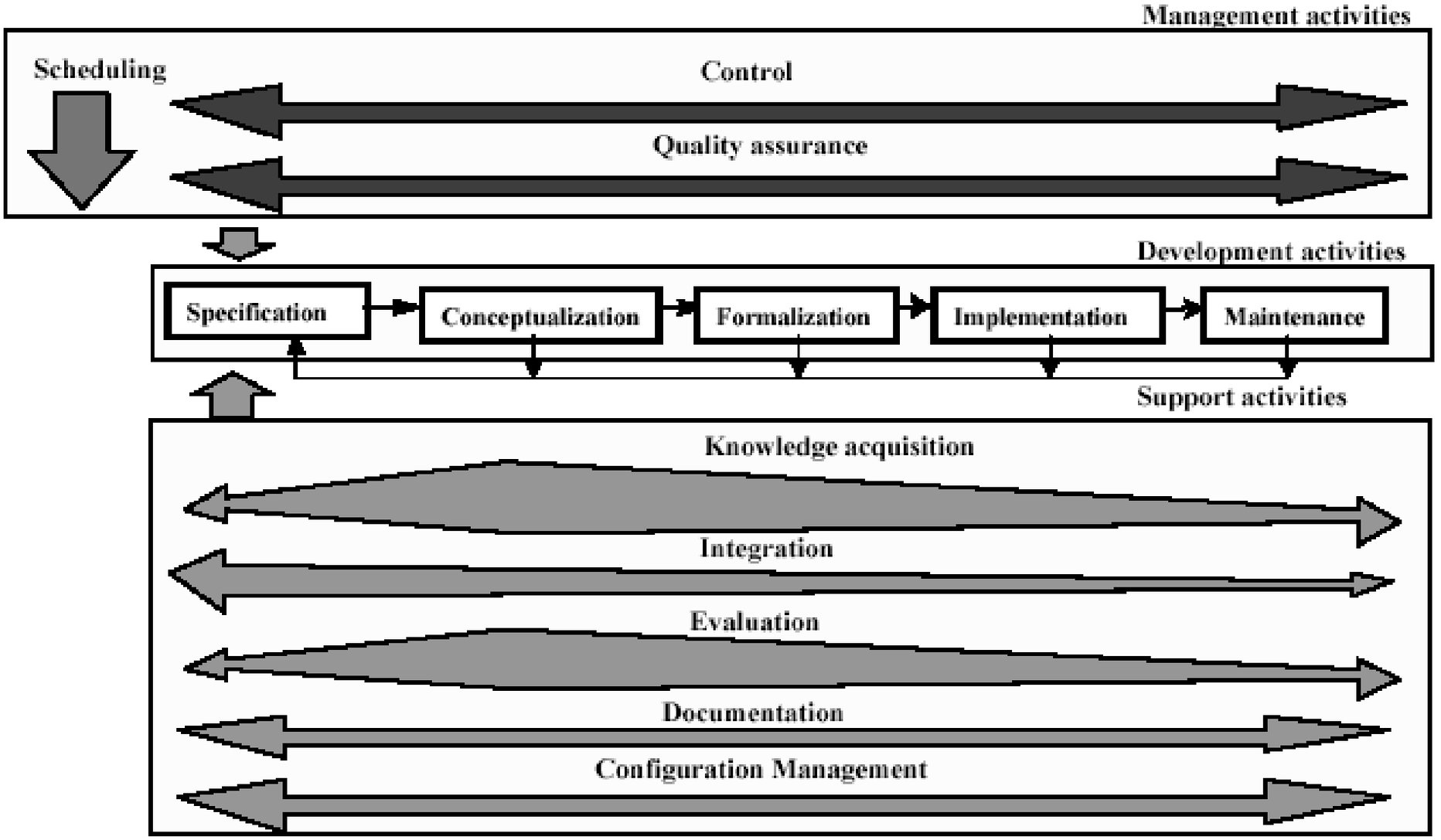
- Clarity: Communicate the significance of terms.
- Be language independent.
- Extensibility: Anticipate the shared use of the vocabulary.
- Coherence: The inferences that are realized should be consistent with the definitions of the ontology.
- Minimal ontological compromise: Compromises should be kept to a minimum, but guaranteeing the essentials. (Dates in American or English format)
- Other principles:
  - Classes and their subclasses should be well defined with disjunctive and exhaustive knowledge.
  - Name standardization

Methodologies

- Methontology: is a series of activities for realizing a methodology. Complicated but very near to the world of Software Engineering. Useful in dynamic and complex domains
- Uschold's methodology
- OTK Methodology
- Toronto Virtual Enterprise (TOVE): It has management properties and is used when the purpose is clear.
- Descriptive Ontology for Linguistic and Cognitive Engineering (DOLCE)

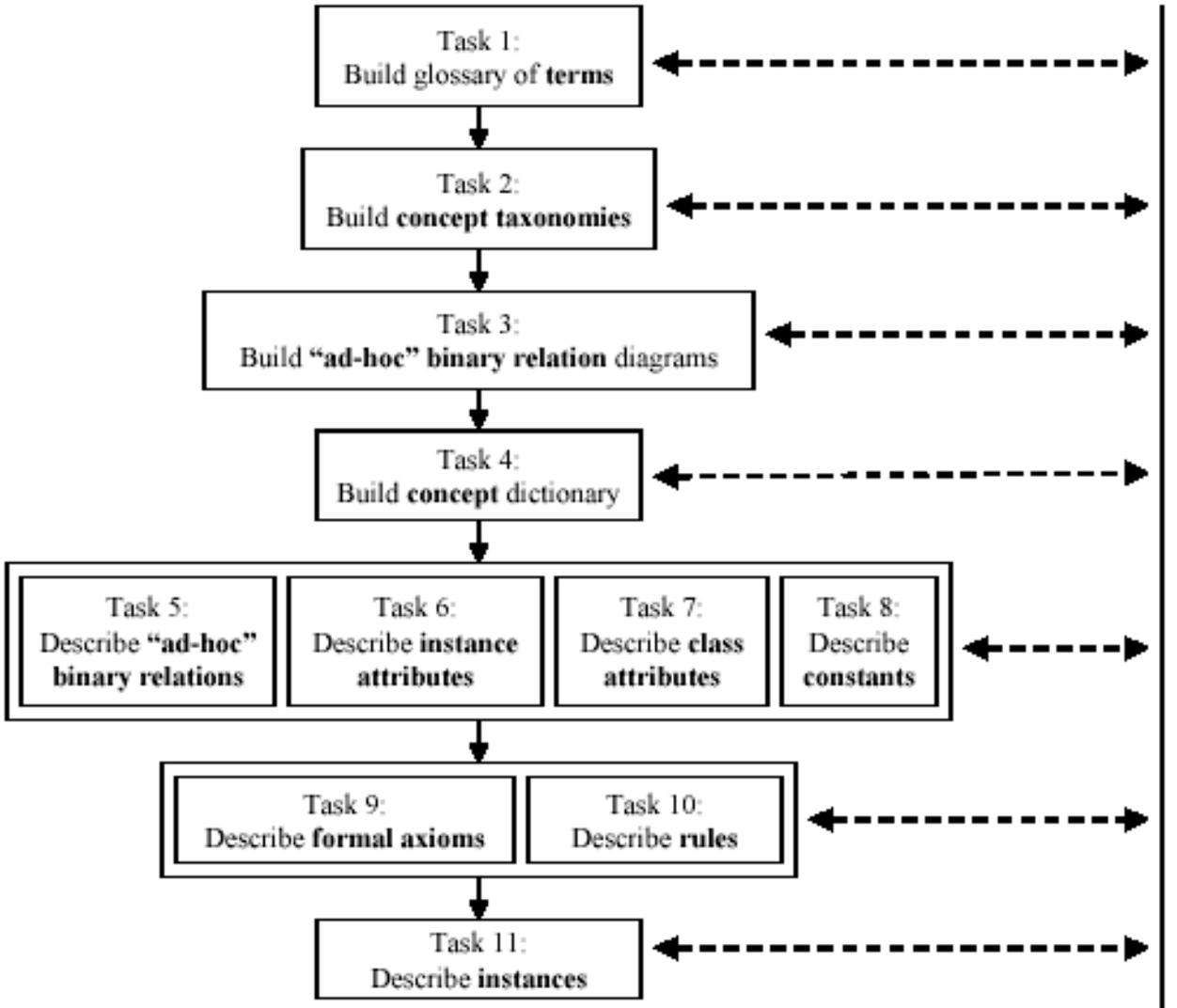
Methodology METHONTOLOGY (1/6)

- Gómez-Pérez et al.



Methodology METHONTOLOGY (2/6)

- Conceptualization Tasks:



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Methodology METHONTOLOGY (3/6)

- TASK 1: Construct a glossary of terms. Every term that will be part of the ontology should include a brief definition such as synonyms and acronyms, their type etc.

- TASK 2: Construct taxonomies in order to classify concepts.
- Result: One or more taxonomies where the concepts are classified .
- The taxonomy should be created according to the relationships:
  - Subclass-of.
  - Disjunctive decomposition.
  - Exhaustive decomposition.
  - Partition.

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Methodology METHONTOLOGY (4/6)

- TASK 3: Describe the existing relationships amongst concepts of the ontology, or amongst other existing ontologies. This will give rise to the **relations diagram**.
- TASK 4: Construct the **concepts dictionary**, in which the principle instances of concepts are included, the class and instance attributes, and their relationships with other concepts.

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Methodology METHONTOLOGY (5/6)

- TASK 5: describe in detail every relation that appears in the relations diagram (Task 3). This will give place to the **relations table**.
- TASK 6: Describe in the table of instance attributes each instance attribute that appears in the concepts dictionary (Task 4).
- TASK 7: Describe in the table of class attributes each class attribute that appears in the concepts dictionary (Task 4).
- TASK 8: Describe in detail each constant in the table of constants. These constants are information relative to the stable domain, similarly to mathematical constants.

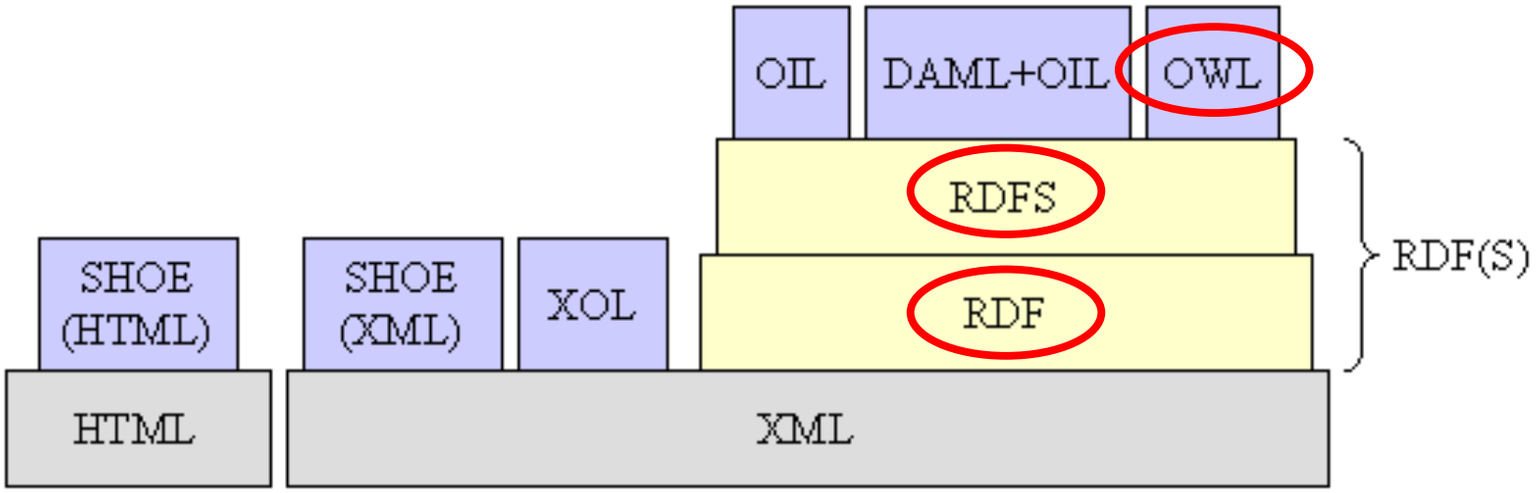
Methodology METHONTOLOGY (6/6)

- TASK 9: Definition of formal **axioms** for specifying **restrictions**.
- TASK 10: Definition of **rules**, for **inferring knowledge**, such as inferring values in the attributes, instances of relationships, etc.

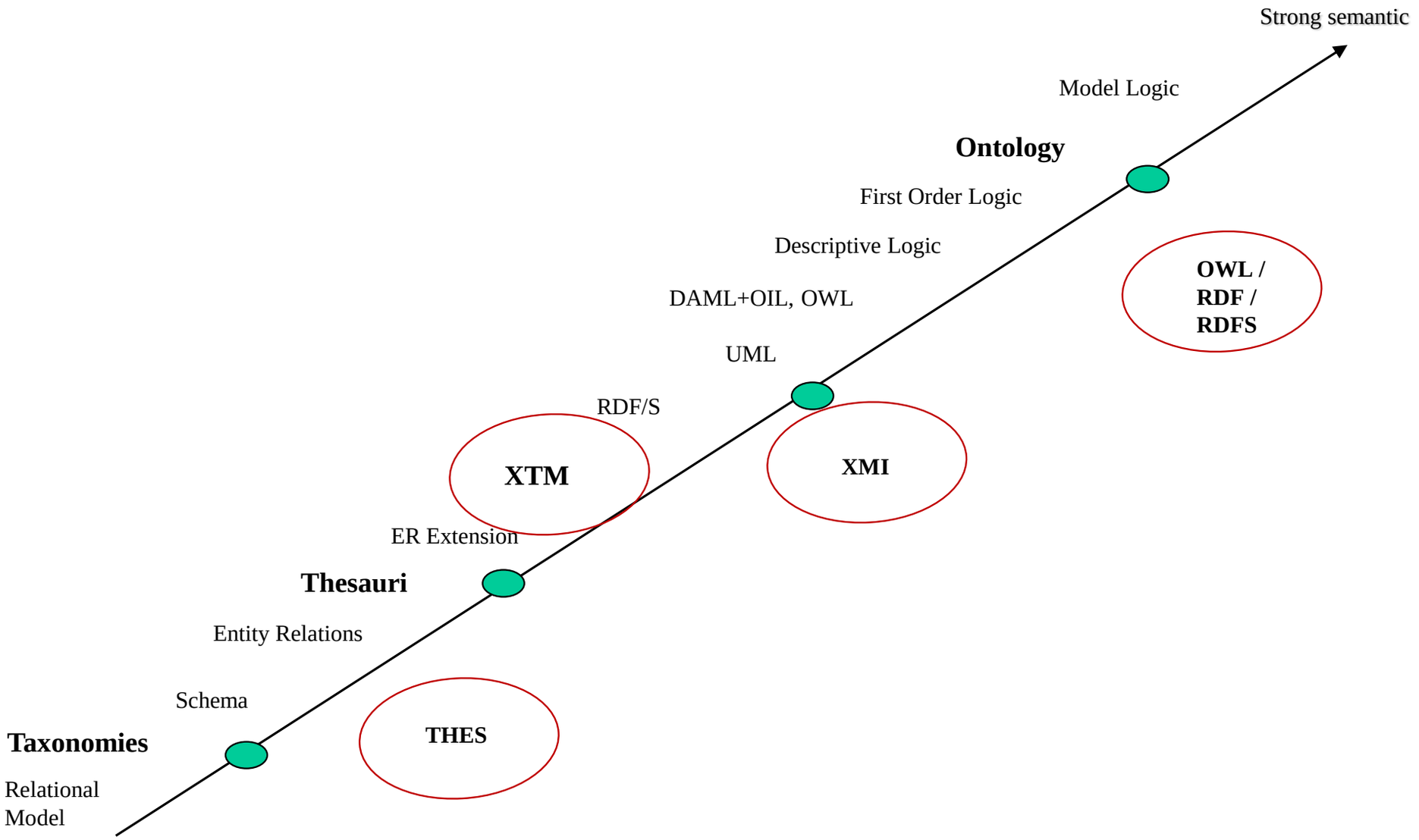
TASK 11: Describe some instances of the ontology. (optional)

Languages Evolution (1/2)

- Ontologies markup languages:



Spectrum of Knowledge



Languages Evolution (2/2)

- Remember:
  - Ontologies' languages should permit the writing of explicit and formal conceptualizations.
  - The main requisites are :
    - A well defined syntax.
    - Possibility of efficient reasoning.
    - Sufficient semantic wealth.
  - The richer the language, the more inefficient is its reasoning, up to the point of being "incomputable".
    - We need to compromise amongst those two things.

OWL

- Web Ontology Language (OWL) (2004): is based on RDF(S).
- Has 3 layers:
  - OWL Lite: Small subset based on frames, but with some reasoning.
  - OWL DL: Subset of First Order Logic (FOL) named *Description Logics*. Its inference capacity is now potent and decision based.
  - OWL Full: RDF Extension, permitting metaclasses.
- Various Syntaxes:
  - Abstract syntax (conceptualization): Corresponds to the common Description Logic (DL), easy to read and write
  - RDF/XML (implementation): Can be written as an RDF document.

SKOS

- SKOS (Simple Knowledge Organization System) is an OWL ontology to **represent knowledge organizations systems (KOS)** such as thesauri, classifications, subject headings, taxonomies, etc.
- SKOS consider those systems as **sets of concepts identified** with URIs and grouped into a concept scheme.
- SKOS concepts can be **linked** to each other using hierarchical and associative semantic relations.
- SKOS concepts can be **documented** with notes of various types: scope notes, definitions, editorial notes, etc.
- SKOS concepts can be **grouped** into collections, which can be labeled and/or ordered.
- SKOS concepts of different concept schemes can be **mapped**. SKOS provides four basic types of mapping link: hierarchical, associative, close equivalent and exact equivalent.

Core Vocabulary: Dublin Core

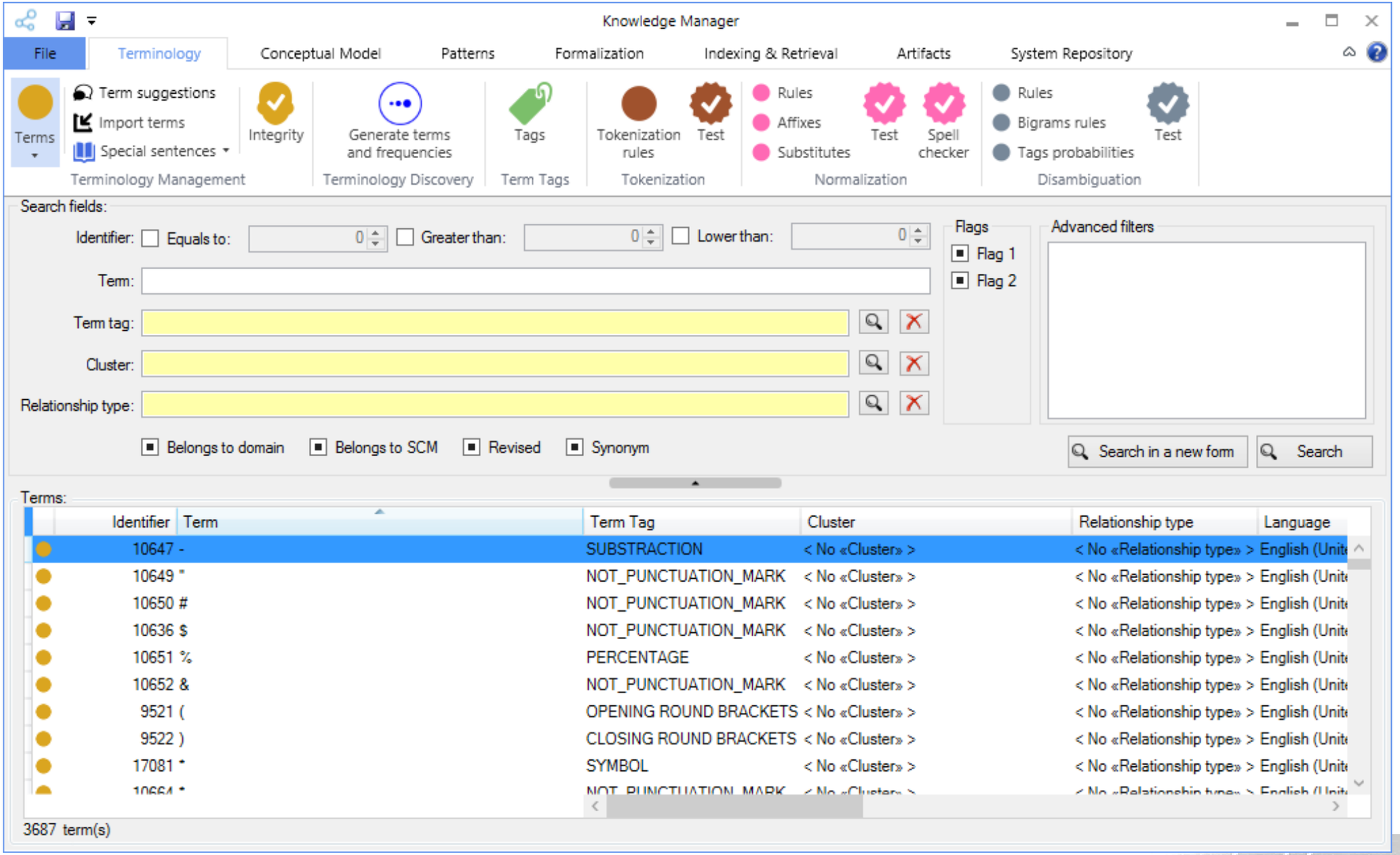
- Metadata for discovering resources: administrative, descriptive, use, preservation, structural or technical detail information.
- Open standard
- Fifteen core elements:

Creator	Title	Subject
Contributor	Date	Description
Publisher	Type	Format
Coverage	Rights	Relation
Source	Language	Identifier

Reasoning and Inferences – Its importance

- Why is reasoning important?
  - Tests the consistency of the ontology and its knowledge.
  - Test the consistency of the relationships
  - Classifies automatically instances in classes.
- When is it important?
  - When we design big ontologies, and we are many.
  - When we integrate and/or share ontologies from various sources.
  - When we edit/change the ontology
- So we need:
  - Semantic is a prerequisite in order to support inference.
  - Use automatic reasoners that already exist for those formalisms.

Development Tools



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Legal terminology and comparative law: the role of the operational rules

Prof. Dr. Elena Ioriatti

Trento University (Italy), Faculty of Law

Comparative Law

Comparative law as a science (20° century)

- «Society of comparative law» (London) and «Société de Legislation Comparée» (Paris)

- Comparative law was introduced in Italy in the 20° Century by prof. Rodolfo Sacco (University of Turin, Accademia Nazionale dei Lincei)
- Academic chairs in comparative law

Comparative Law

- Science
- Knowledge
- Methodology

Knowledge

Data = legal rules (norms)

The operational rules

Show as the system really works……

…beyond definitions and the legal language

-

A) Methodology: the Theory of the Formants

Legislation, constitutions, decrees (legislative formant)

Case law (case law formant)

Scholarly writtings (doctrinal formant)

R. SACCO, *Legal Formants: A Dynamic Approach To Comparative Law*, in *The American Journal of Comparative Law*, Volume 39, Issue 1, 1 January 1991, p. 1 ff.

The formants

Legal rules can be found in the different formants of the various countries (legal systems)

Example 1: l'erede apparente

A person who believes himself to be heir disposes of property (he has inherited) to a third person, who is in good faith.

The transfer is valid in Italy, under the definition «trasferimento dell'erede apparente al terzo»)

R. SACCO, *Legal Formants: A Dynamic Approach To Comparative Law*, in *The American Journal of Comparative Law*, Volume 39, January 1991.

The formants

Italy

Code art. 534: yes | Case law: yes | Doctrine: yes

France

Code: X* | Case law: yes | Doctrine: no

Belgium

Code: X | Case law: no | Doctrine: no

*This is a theoretical case. Note that the legislative formant might have changed after the French reform of the law of contract of 2016.

The operational rules

The definition «trasferimento dell'erede apparente al terzo» is present only in the Italian legal language, but the same operational rule exists in France too (case law formant).

The operational rules

The theory of the formants draws a distinction between the operational (working rules), the real practices of a legal system…

……and the definitions (legal language), the symbolic, linguistic set utilized by the jurists to decribe the legal rules.

Example 2: medical malpractice

In American law medical malpractice is classified as a Tort, whereas in France it is considered a Breach of Contrac.

French law on contractual liability is strict, so that the victim does not need to prove that the doctor was in fault.

In Usa tortious law medical malpractice is based on negligence and so the victim has to prove the doctor's fault.

The two systems are apparently at opposite

P.G. Monateri, *The ABC of comparative law: legal formants and comparison*, at https://www.researchgate.net/publication/290574779_ABC_of_Comparative_Law_Legal_Formants_and_Comparison

Medical malpractice

French case law has introduced a distinction between two different kind of contractual obligations : *obligations de moyen* and *obligations de resultat:*

- in routine medical operations a doctor is under a duty *de resultat* and so the victim of a damage has not to prove the fault of the doctor;
- in non routine operations the doctor is under a duty *de moyen*, which means that he just promised to use his professional skill, and so the victim of a damange must prove a doctor's fault, to be compensated.

P.G. Monateri, *The ABC of comparative law: legal formants and comparison*, at https://www.researchgate.net/publication/290574779_ABC_of_Comparative_Law_Legal_Formants_and_Comparison

Medical malpractice

American courts (case law):

in routine medical operations the courts apply the doctrine *res ipsa loquitur*, so the victim's damage is evidence of the doctor's fault and the victim is not required to prove it.

Res ipsa loquitur is not applied in non routine operations, and so the victim must prove that the doctor was in fault.

P.G. Monateri, *The ABC of comparative law: legal formants and comparison*, at https://www.researchgate.net/publication/290574779_ABC_of_Comparative_Law_Legal_Formants_and_Comparison

The operational rules in medical malpractice

The definitions (legal language) are different ……

Usa: tort (tortius iability)
France: contract (contractual liability)

…….and assume different legal rules:
France: victim has not to prove the doctor's fault;
Usa: victim needs to prove the doctor's fault.

The operative, working rules are the same in Usa and France:
In routine cases victims do not need to prove the fault.
In non routine cases victims must prove the doctor's fault.

B) Methodology: the Factual approach

How operational rules are collected

- Questionnaires;
- National answers and reports;
- Final reports.

The Factual approach

- Level 1:

Mr. White believes himself to be heir and disposes of property (he has inherited) to Mr. Blue, who is in good faith.

1: Is this transfer of property valid in your legal system?

2. If yes, where is the rule formulated?

3. If no, can Mr. White recover property? If yes, under which conditions?

Opertive rules of all the countries (legal systems) involved.

C) Methodology: genotypes and fenotypes

The construction of the common system

- Genotype

Elements that are fundamental of a specific category.

- Fenotype

The real characters of the operational rules present in the different legal systems.

When some of those characters coincide with the fondamental elements of the genotype, the operational rule belongs to that specific category.

- R. Sacco, Legal Formants: A Dynamic Approach To Comparative Law, in The American Journal of Comparative Law, Volume 39, January 1991.

Genotypes and fenotypes. Example n. 1

The Construction of the common system

- **GENOTYPE**

- Transfer of property by someone acting as an heir.
- Good faith of the receiving person.

- **FENOTYPE**

All the countries in which these elements are present……..

….regardless other characters, for instance the good/bad faith of the pretended heir and other detalis.

The Factual approach

- Level 2:

In 2017 Mr. Green underwent an appendectomy (routine operation) but contracted an infection during the operation.

1. Can Mr. Green take action for compensation against the doctor?
2. If yes, what is Mr. Green required to prove?
3. Particularly, must Mr. Green prove the doctor's fault?

The Factual approach

- Level 2:

In 2017 Mr. Green underwent an heart transplant (non routine operation) but after the surgery he needed the support of the heart machine anyway.

1. Can Mr. Green take action for compensation against the doctor?
2. If yes, what is Mr. Green required to prove?
3. Particularly, must Mr, Green prove the doctor's fault?

Genotypes and fenotypes. Example n. 2

The constraction of the common system.

- **GENOTYPE**

Routine operations no doctor's fault to be proved

Non routine operations doctor's fault to be proved

- **Fenotype**

All the countries in which these elements are present……..

….regardless the legal classification of the responsability is tort or contract, regardless the kind of action, regardless the prescription….

kadaster

BLOCKCHAIN & REAL ESTATE

Opportunities, lessons & next steps

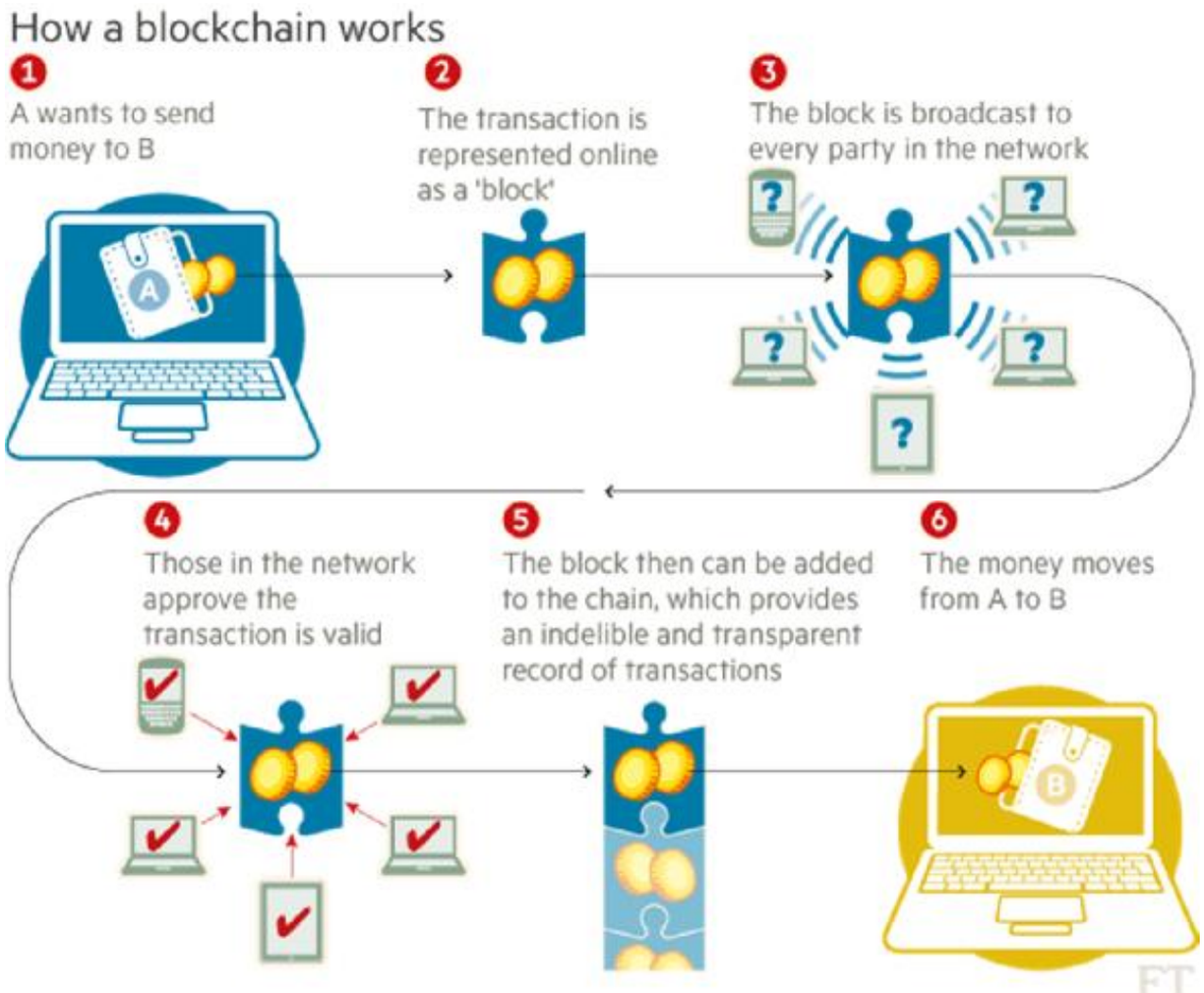
ELRN WORKSHOP 01-06-2018, Tallinn

Jacques Vos, Kadaster

kadaster

Last year…

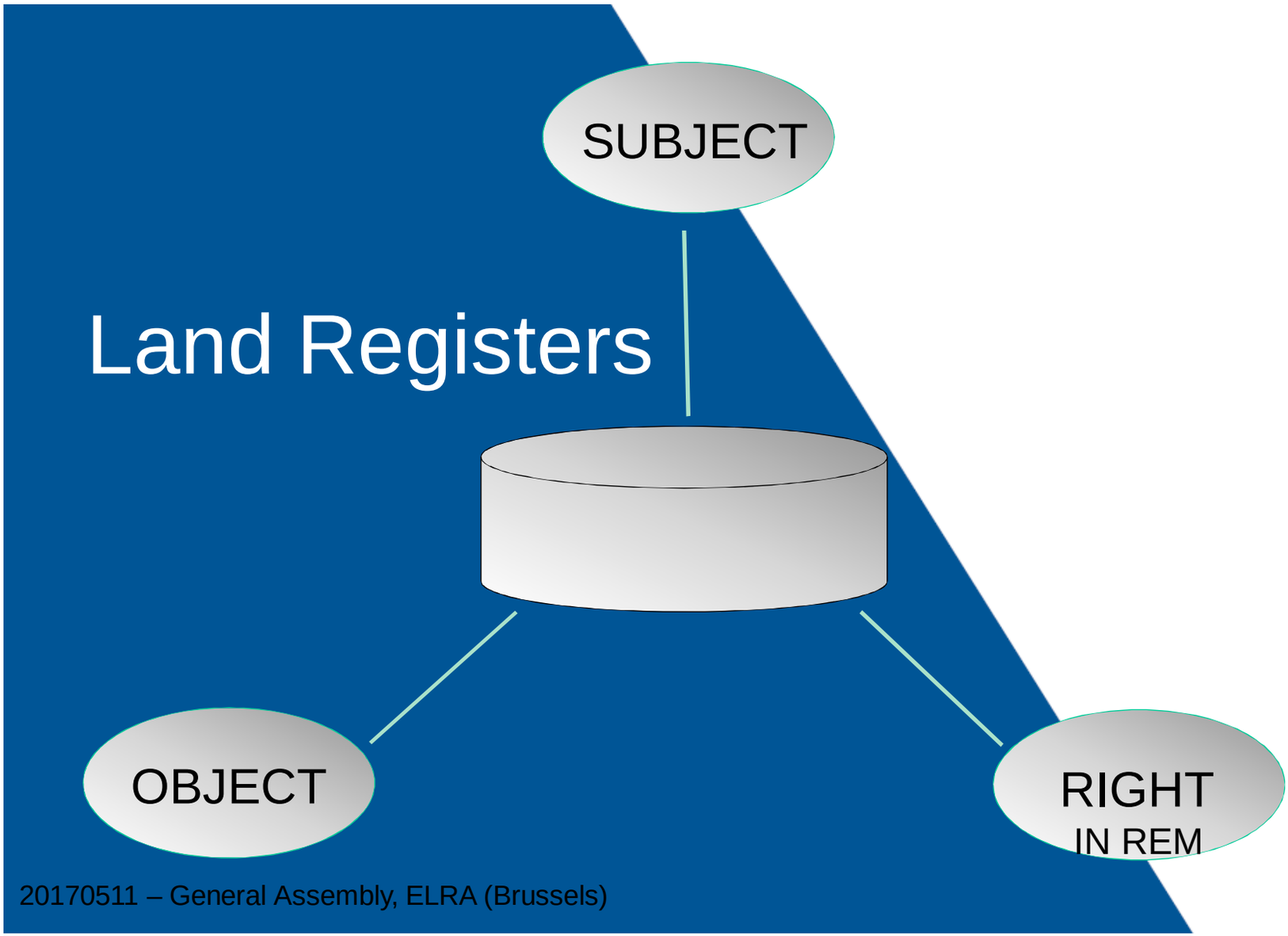
“Land Registry and Commercial Registers – they will become obsolete.” (Emerce)

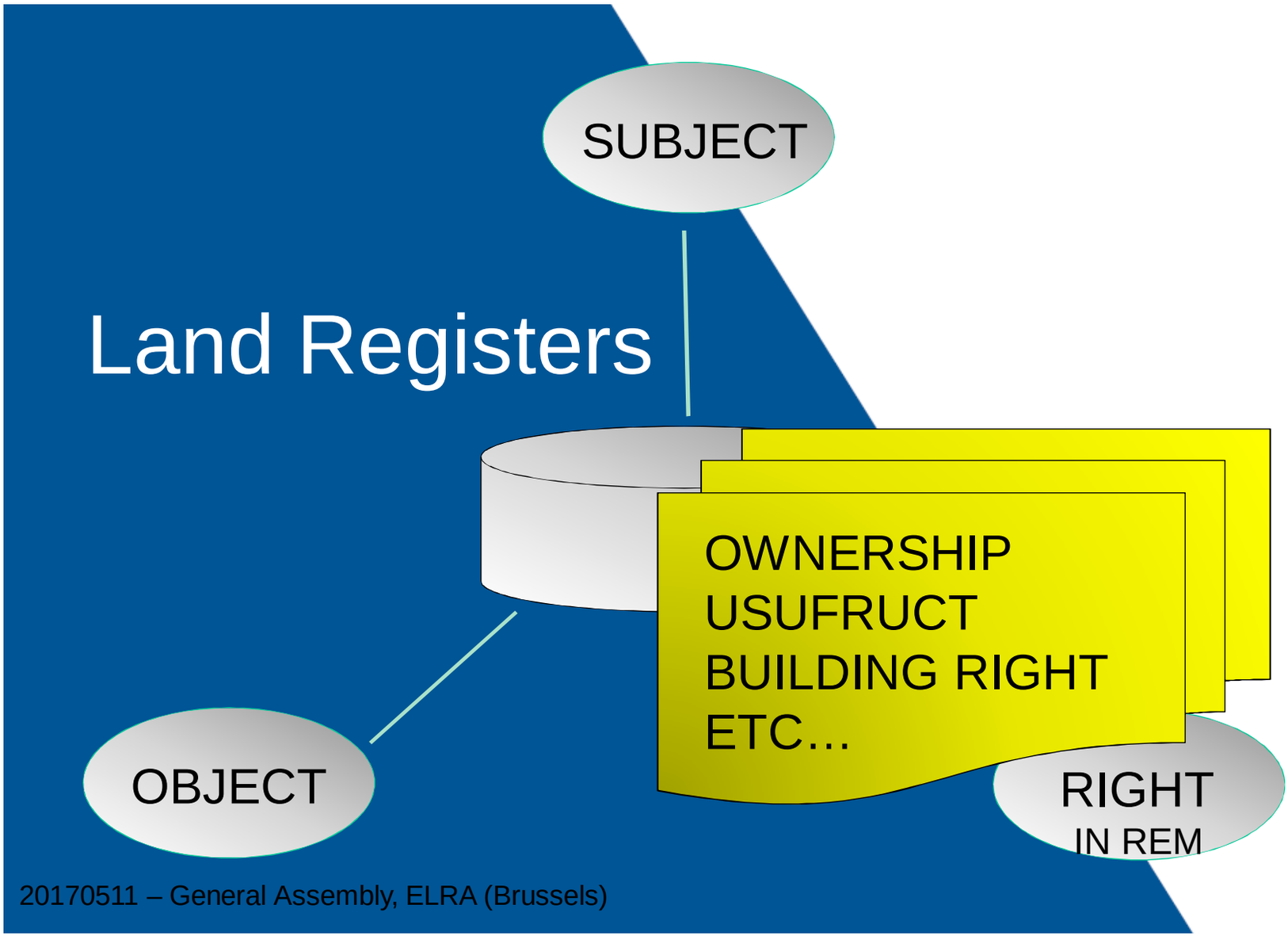


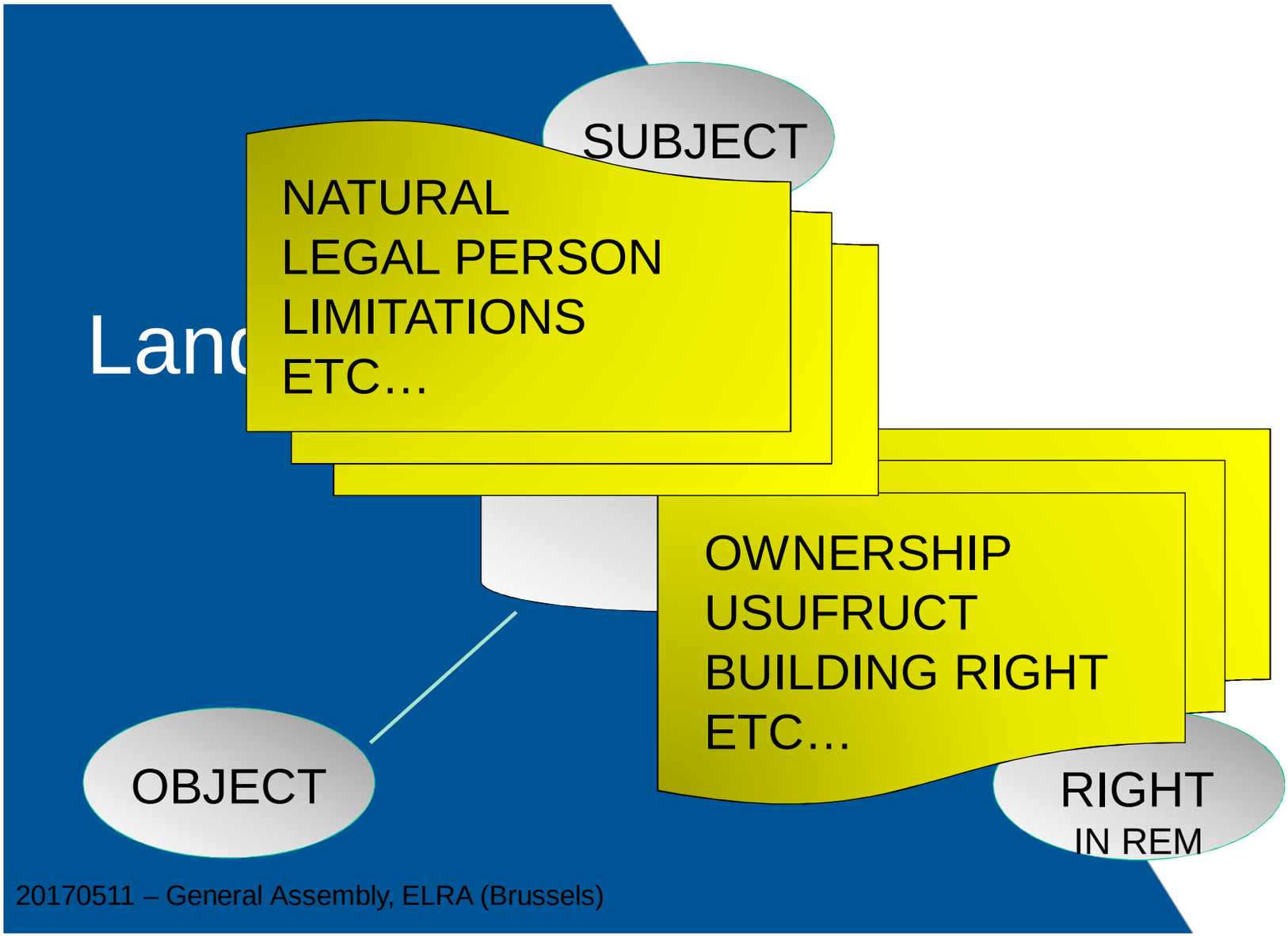
source: ft.com

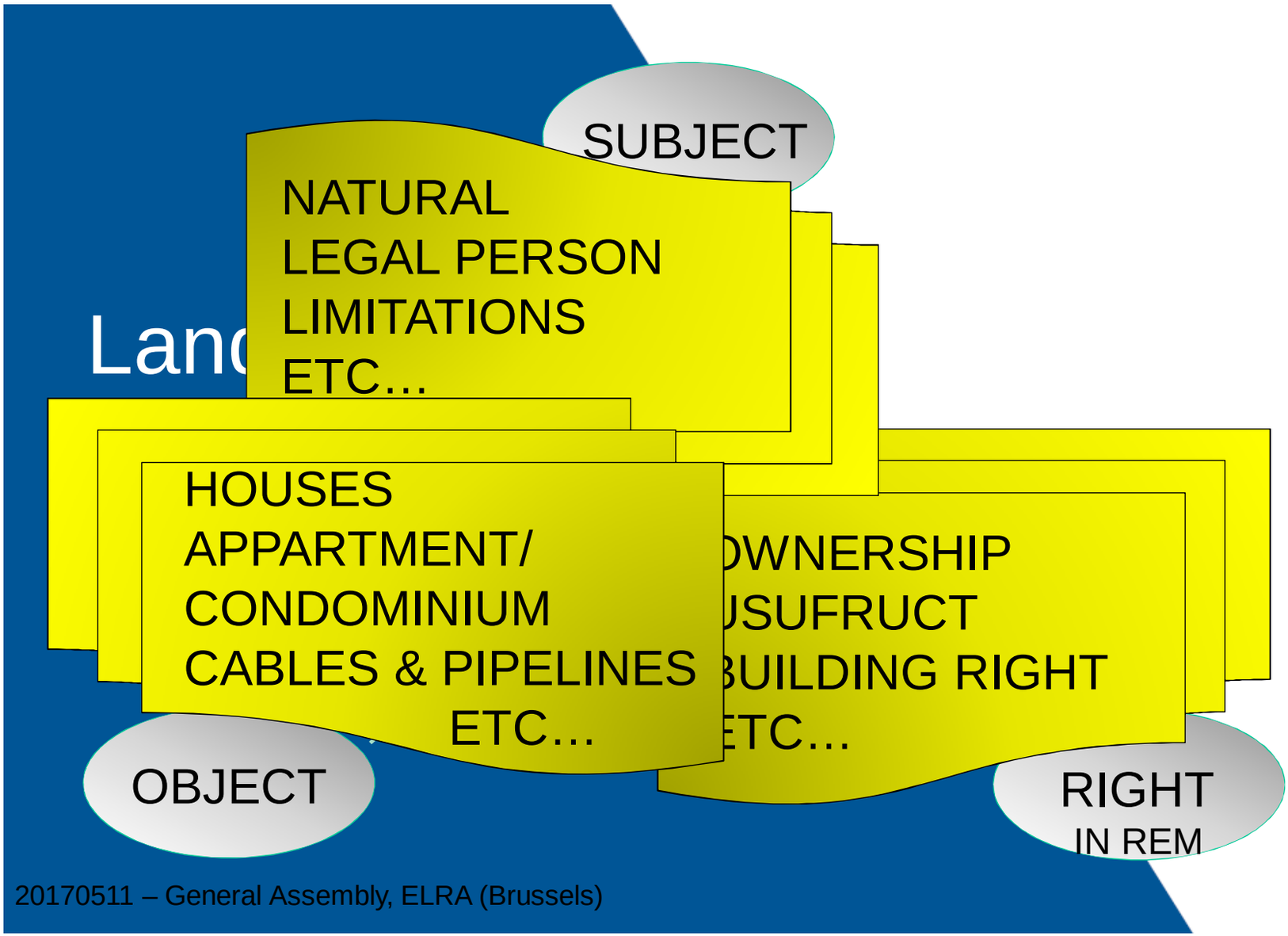
BLOCKCHAIN WILL BRING …

- INFORMATION SYMMETRY
- IMMUTABILITY
- TRANSPARENCY


SUBJECT
Land Registers
OBJECT
RIGHT
IN REM


SUBJECT
Land Registers
OWNERSHIP
USUFRUCT
BUILDING RIGHT
ETC…
OBJECT
RIGHT
IN REM


SUBJECT
NATURAL
LEGAL PERSON
LIMITATIONS
ETC…
Land
OWNERSHIP
USUFRUCT
BUILDING RIGHT
ETC…
OBJECT
RIGHT
IN REM
20170511 – General Assembly, ELRA (Brussels)


Land
SUBJECT
NATURAL
LEGAL PERSON
LIMITATIONS
ETC…
HOUSES
APPARTMENT/
CONDOMINIUM
CABLES & PIPELINES
ETC…
OBJECT
OWNERSHIP
USUFRUCT
BUILDING RIGHT
ETC…
RIGHT
IN REM

Blockchain (1)

ARCHIVE	Yes, hash/pointer
REGISTRATION	No, too complex
INFORMATION	No, data retrieval

Blockchain (2)

Genesis-block	Who? Quality- issue
Governance?	DAO, indemnity
Smart contracts	Code = **law = code**

Blockchain (3)

Vendor lock-in?	Who owns data
Bitcoin-based?	PoS & no PoW
Complete?	No, data retrieval

Trust as a fairytale?

SECURE DATA	C.I.A.? D.I.Y.?
IMMATURE	PoW? PoS? DAO?
OPEN & TRANSPARANT	Transparant: yes, open?

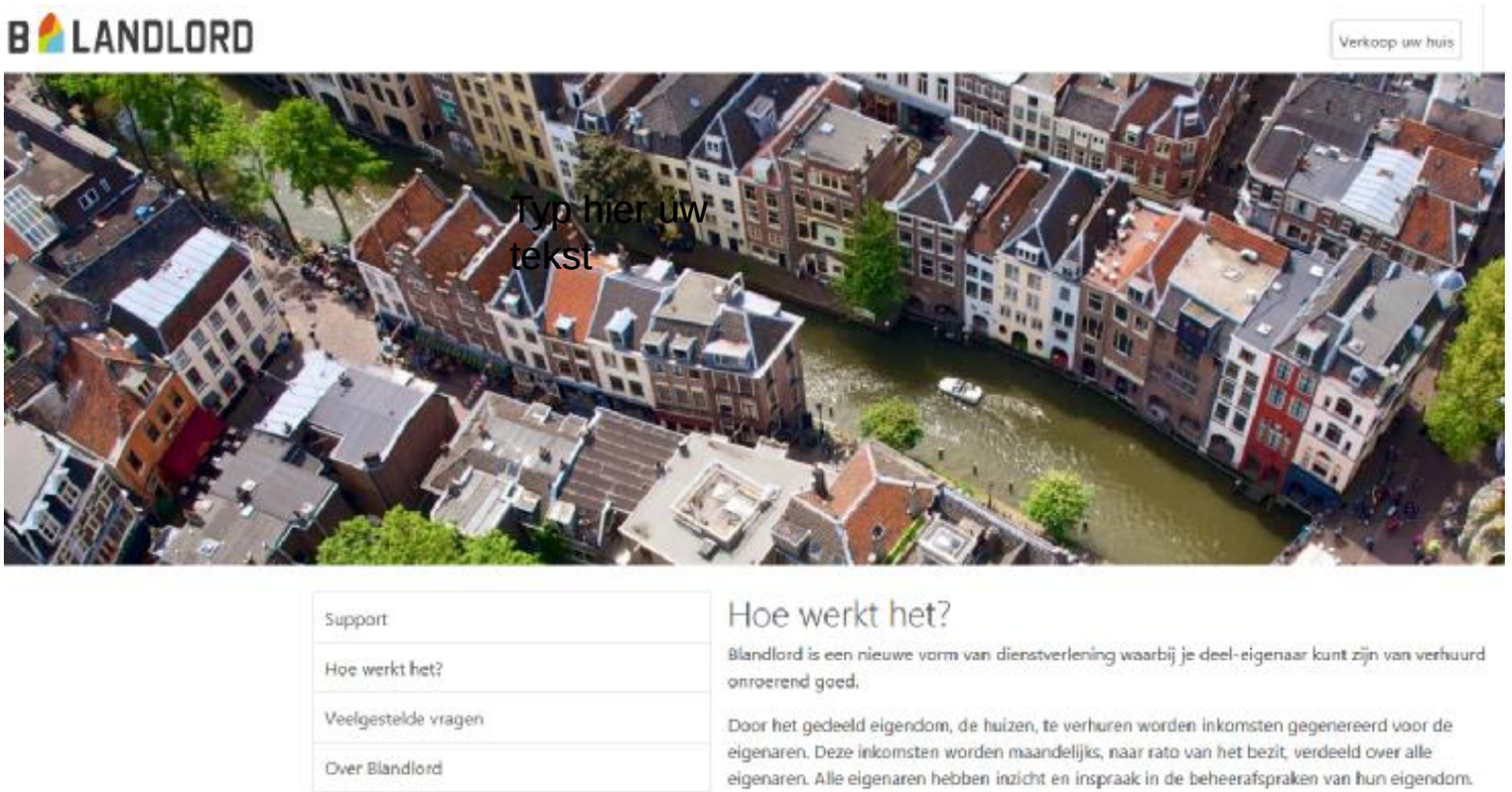
In Future?

VARIOUS INITIATIVES	Redundancy & privatization!
STANDARDIZATION	ISO/TC307, BIM, etc.
SMART CONTRACTS	Not all legal aspects

TRUSTED THIRD PARTIES…

- VALIDATE TRANSACTIONS
- GUIDE A CERTAIN PROCES
- DRAFT CONTRACTS
- IDENTIFY OBJECTS & SUBJECTS
- ARE AN INDEPENDANT WITNESS
- PREVENT FRAUD

FRACTIONAL OWNERSHIP



BRICKLAND
BRICKHOUSE
BLOQHOUSE
ETC.,
ETC

This year…

‘BLOCKCHAIN WILL REPLACE EVERYBODY’

- REMOVE SLACK FROM PROCESSES	à	STREAMLINING PROCESSES
- INCREASE TRANSPARENCY	à	KADASTER-ON-LINE
- IMPROVE PRIVACY	à	SELF- SOVEREIGN IDENTITY…?
- PREVENT FRAUD	à	GARBAGE IN …
- A NEW CHAPTER FOR A DIGITAL INFRA	à	POSSIBLE WHAT WAS NOT POSSIBLE, TOO COMPLEX OR TOO EXPENSIVE

‘BLOCKCHAIN WILL PERHAPS REPLACE EVERYBODY’

- SCALING: (INTER)NATIONAL
- STANDARDISATION (SEMANTICS)
- IDENTIFICATION
- ACCESS & CONTROL
- GOVERNANCE: QUALITY, RULE OF LAW, ENFORCEMENT
- TECHNOLOGY/ ARCHITECTURE
- SECURITY

‘BLOCKCHAIN WILL NOT REPLACE EVERYBODY’

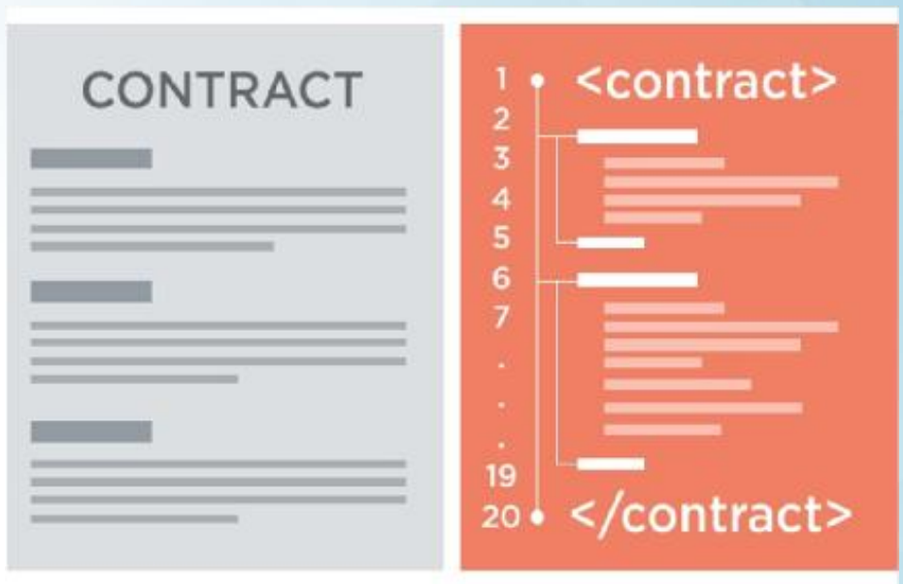
- ONLY PART OF THE SOLUTION:

  A. PROCESS OPTIMALISATION

  B. ORGANISATION FORM

  C. GOVERNANCE

  D. SEMANTICS



‘BLOCKCHAIN WILL REPLACE HARDLY ANYBODY’

- BUT: CRITICAL VIEW ON OWN ORGANISATION & ROLE
- AND: CRITICAL VIEW ON THE WHOLE (REAL ESTATE) CHAIN
- AND: STANDARDISATION IN SCOPE
- DIFFFICULT:
  ‘ISLANDS’ (SECTORAL, NATIONAL & INTERNATIONAL)

WHEN TO START WITH BLOCKCHAIN?

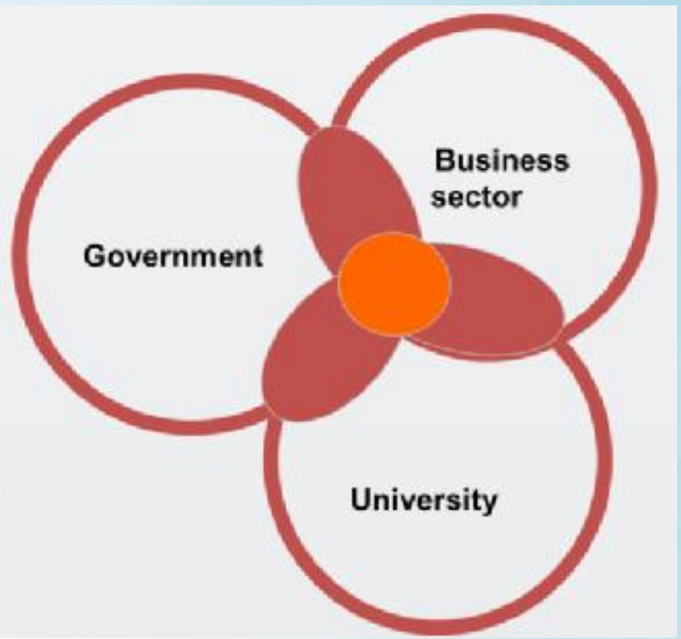
WHY IS BLOCKCHAIN INTERESTING?

- MULTIPLE OWNERSHIP
- NO NATURAL (UNWANTED) CENTRAL AUTHORITY
- RELIABLE EXCHANGE OF INFORMATION
- EASY INTERPRETABLE (à EASY TO AUTOMATE) RULES

WHAT ELSE DO YOU NEED?

- OTHER WAYS OF ORGANISINGG & SHARING INFORMATION
- UNIQUE ID FOR OBJECTS & SUBJECTS
- (POSSIBLE) CHANGE OF LEGISLATION & POLICY
- ‘SHARED PRIVATE DATA’ SOLUTION

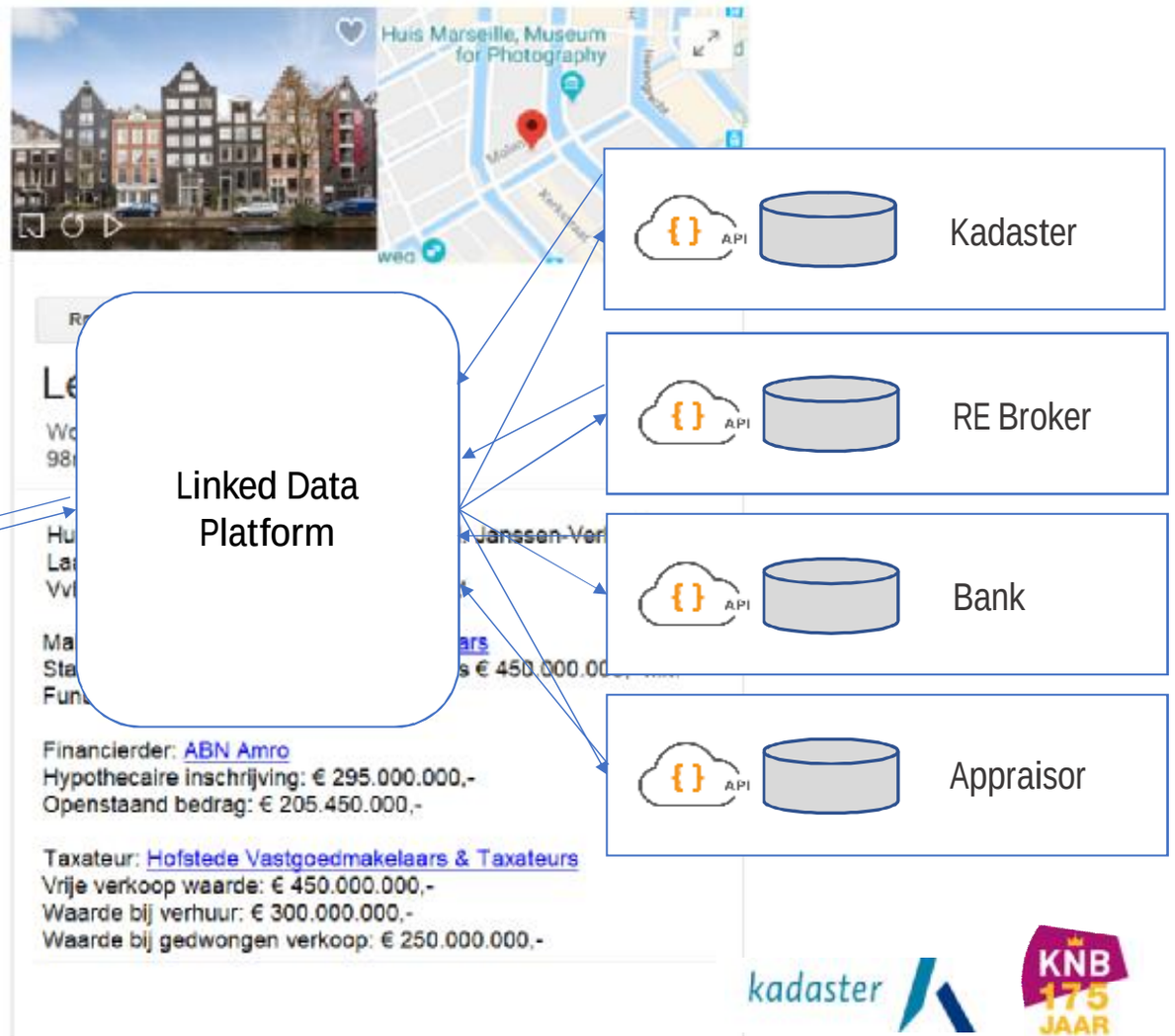
à NEW DIGITAL INFRASTRUCTURE



TOWARDS AN INFRASTRUCTURE OF SMART OBJECTS

Vastgoed

Leidsegracht 82n, Amsterdam

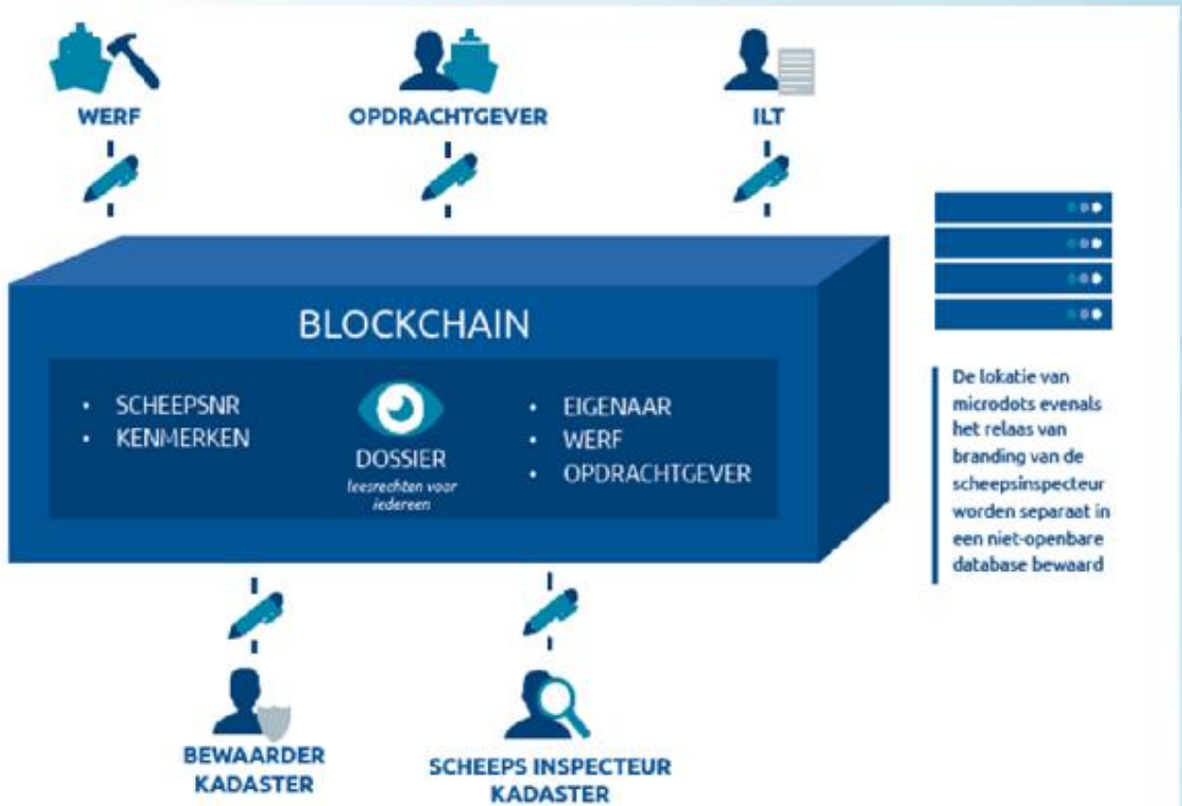


kadaster

KNB 175 JAAR

FIRST TESTS: DBC-PILOTS

1ST REGISTRATION OF A SHIP



FIRST TESTS: 1ST POC: REQUEST PERMIT

A. VALIDATE ACTUALITY OF INFORMATION

B. VERIFY PROVISION BY SOURCE (KADASTER)

C. VERIFY USE OF INFO (BY USING *HASHES*)

D. CONCLUSION: BC INTERESTING, BUT COOPERATION NEEDED

Niet veilig | eenvoudigbeterbouwen.nl/#

Eenvoudig beter bouwen | Account | Aanvraag | Dossiers | Controleren | Blockchain | Jasper

Nieuwe aanvraag

ZOOM VERDER IN OM TE STARTEN

Proof of concept by kadaster

FIRST TESTS: 2nd POC: BUILDING FILE

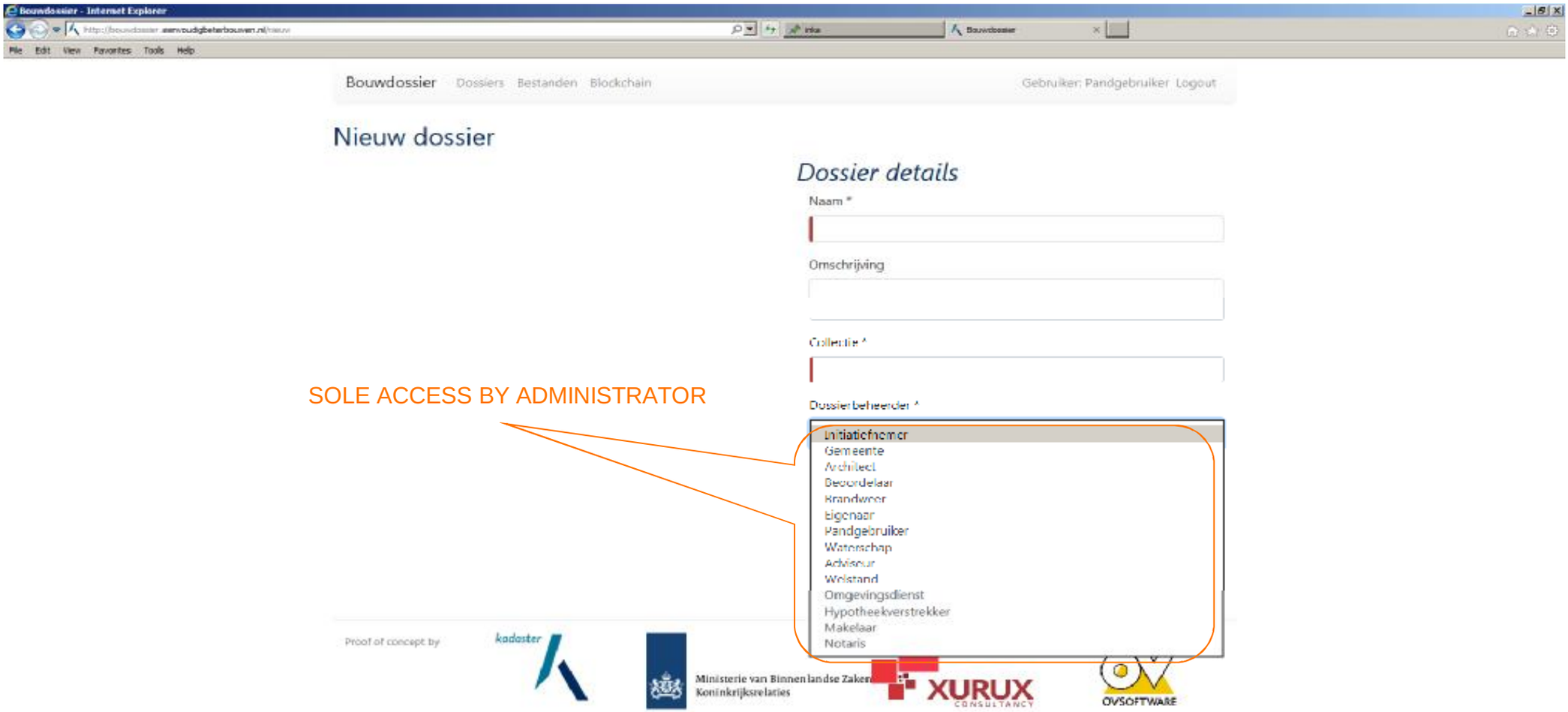
A. DECENTRALISED SOLUTION FOR BUILDING FILE

B. EVERYBODY CAN START A FILE AT ANY MOMENT

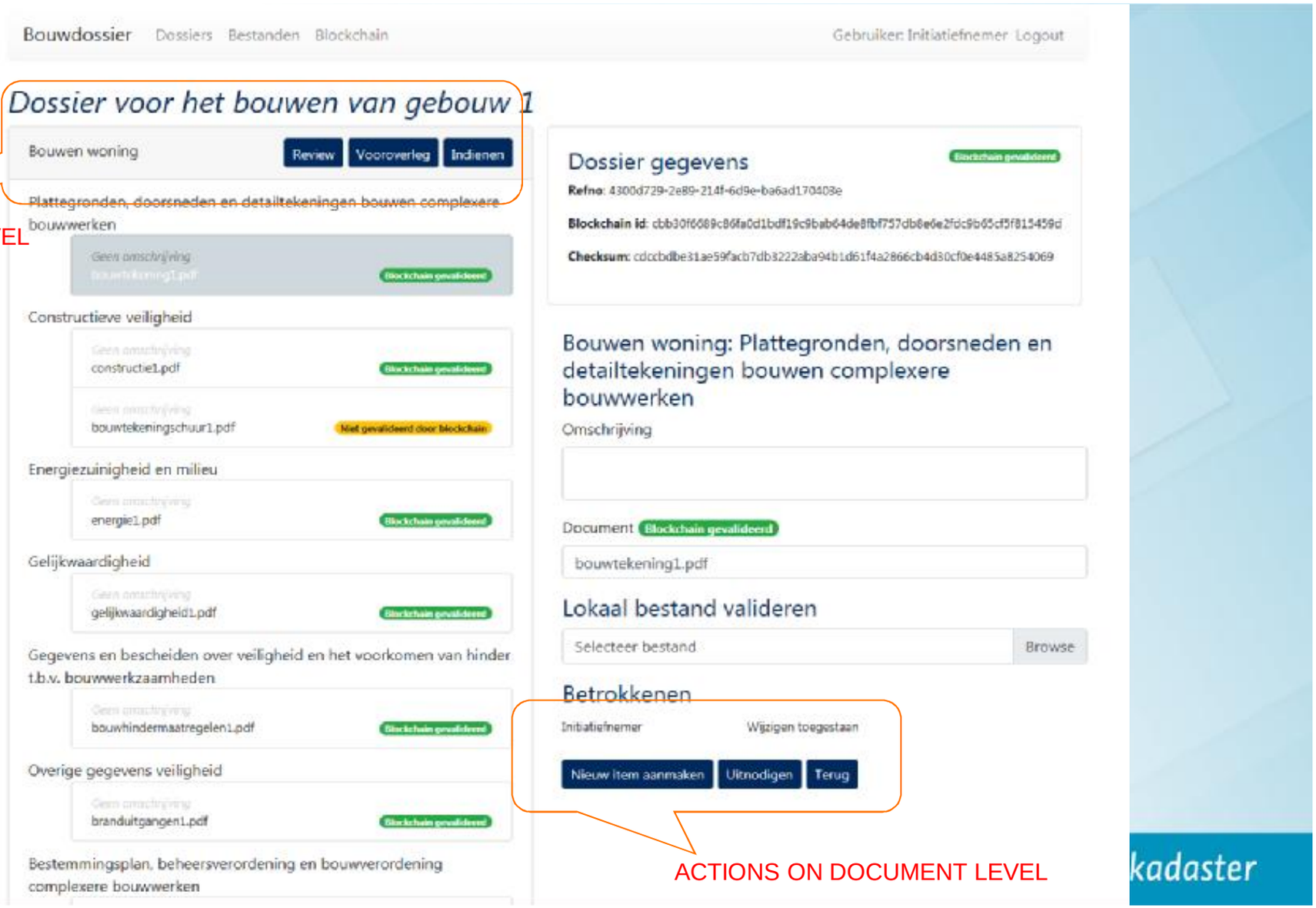
C. BC USED TO KEEP THE STATUS OF DOCUMENT/ DATA

D. VERIFICATION METHOD

EVERYBODY CAN START A FILE



SOLE ACCESS BY ADMINISTRATOR

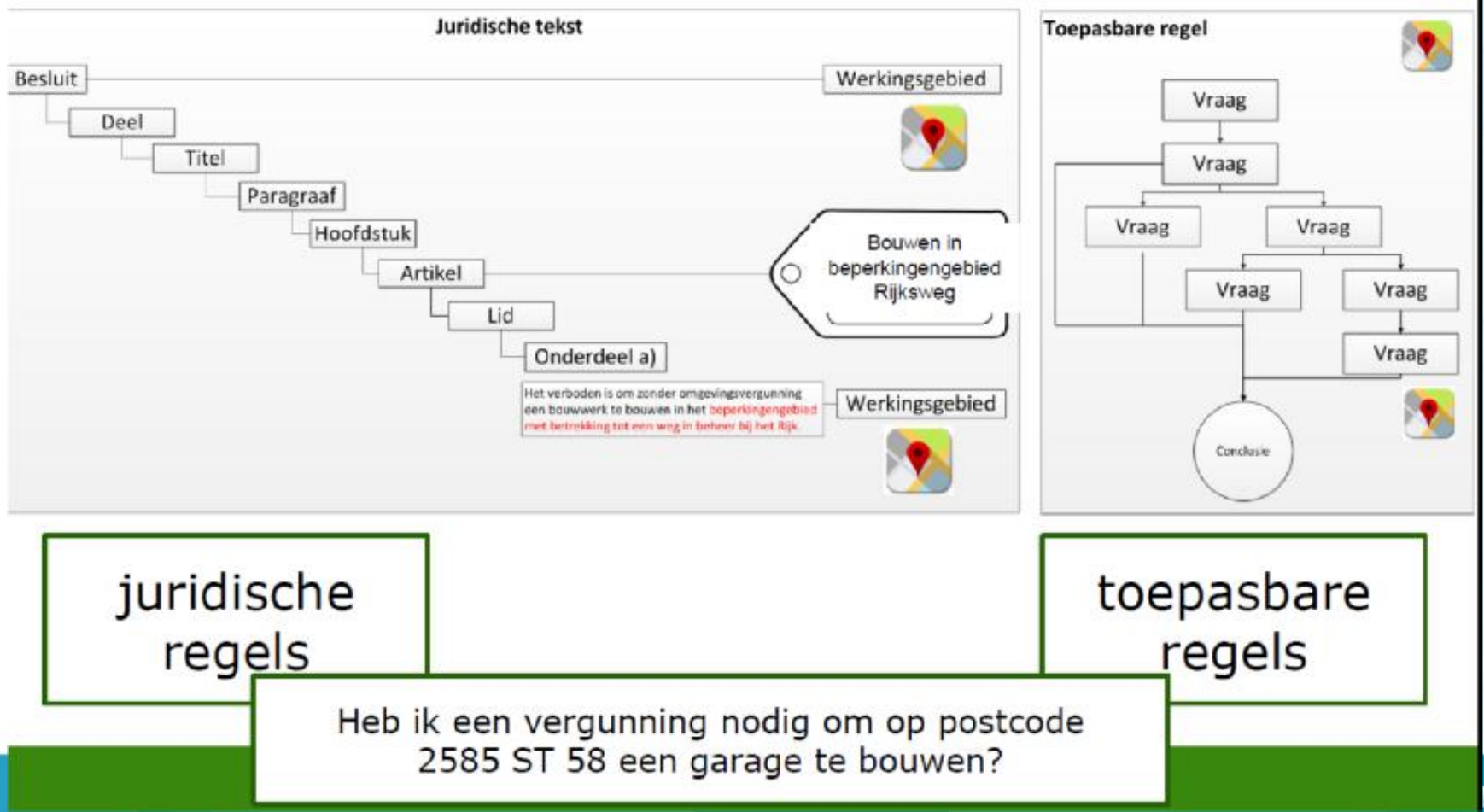


ACTIONS ON FILE LEVEL

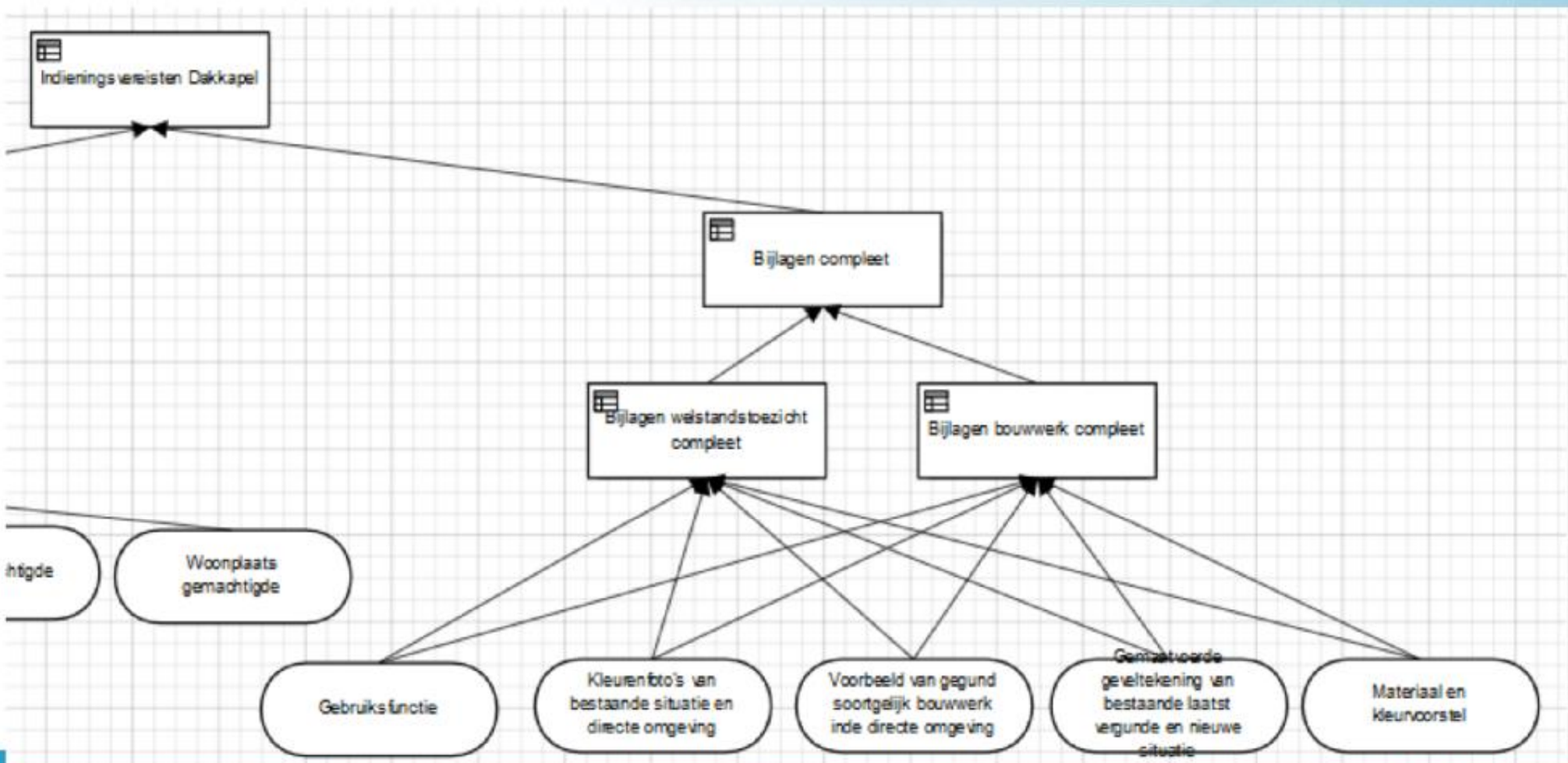
ACTIONS ON DOCUMENT LEVEL

kadaster

UNDER THE HOOD …



AND UNDER THE HOOD (2) …



FIRST TESTS: 3rd POC: BLOCKCHAINGERS

A. KADASTER *TRACK SPONSOR* WITH ‘CHALLENGE’

B. ‘CONSCIOUS HOUSE’

C. BC USED TO SHARE INFORMATION ON OBJECTS

D. DEMONSTRATOR (THE LEDGER)

ecouser

Current role: user

- My House
- House information
- Service history

[+ Uitloggen

My house

Marked as done
Offer is done with hash:
1227f56ef085d2f634d09ff71c051fe28f9

View house →

B+

Eco score

View eco score →

Wallet

€27307.50
House balance

Latest Transactions

Payment
€1000

Boiler check-up
€-200

€900 ▲
This month

€17890 ▼
This year

View wallet history →

What you missed 5

Payment transfered — 3 days ago
€200 was transfered to the account of "Boiler and sons ltd".

Boiler check-up — 3 days ago
Boiler check-up has been validated by the home owner

Boiler offer accepted — 3 days ago
Boiler offer by "Boiler and sons ltd." has been automatically accepted

Boiler offer requested — 5 days ago
Boiler offer has been automatically requested. Price threshold was lower than €1000

Your boiler will need a new check-up in 2 weeks — 2 weeks ago
Your boiler is due for it's yearly check-up.

Upgrades

In progress

Solar panel installation
Installation by Solar Inc. for 100

Mark as done

Suggestions

Solarpanels — €200
Solarpanels are installed covering at least 50% of the roof

Insulation — €500
Insulation with a thickness of at least 24cm

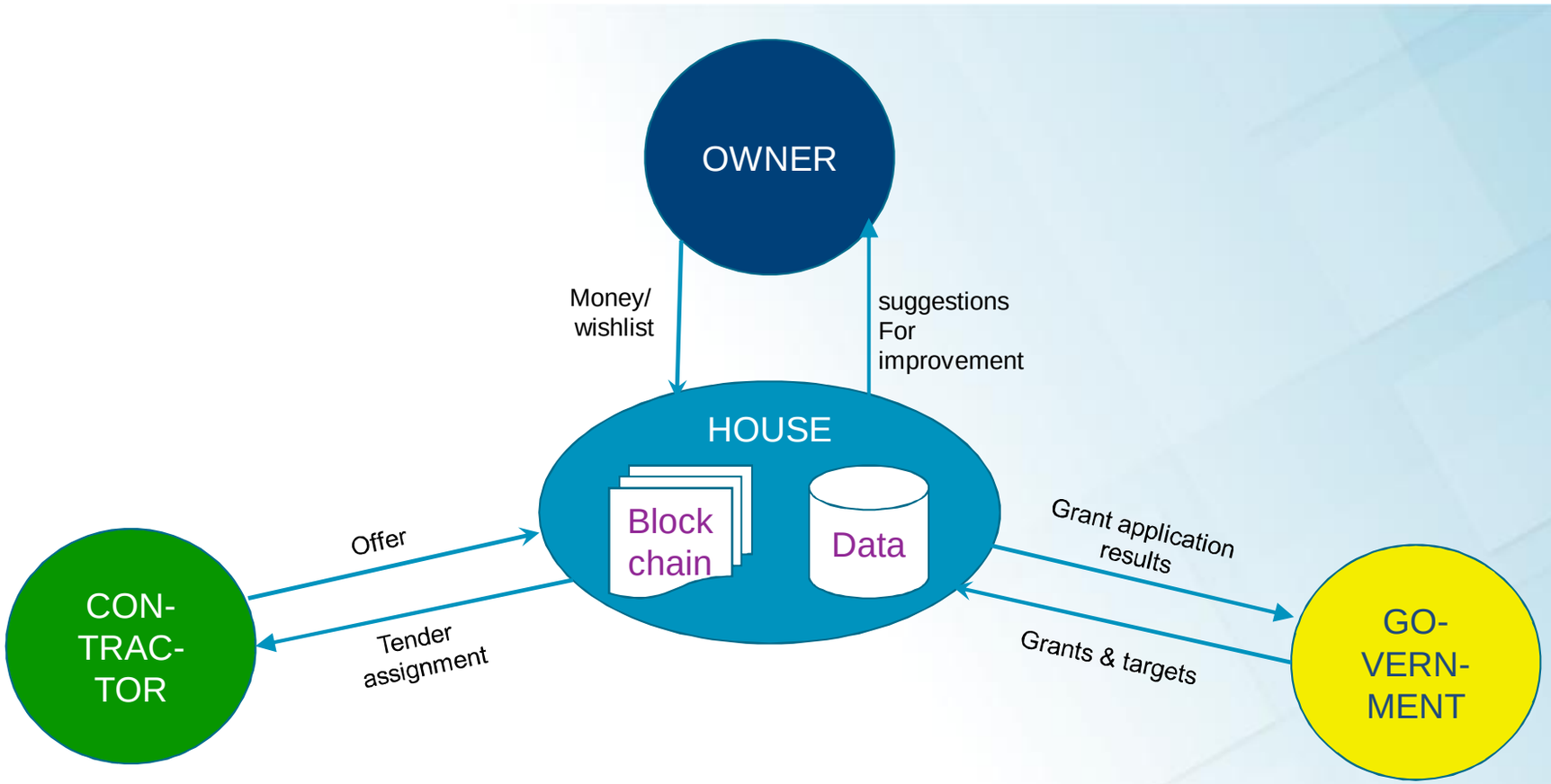
View all potential upgrades →

Service history

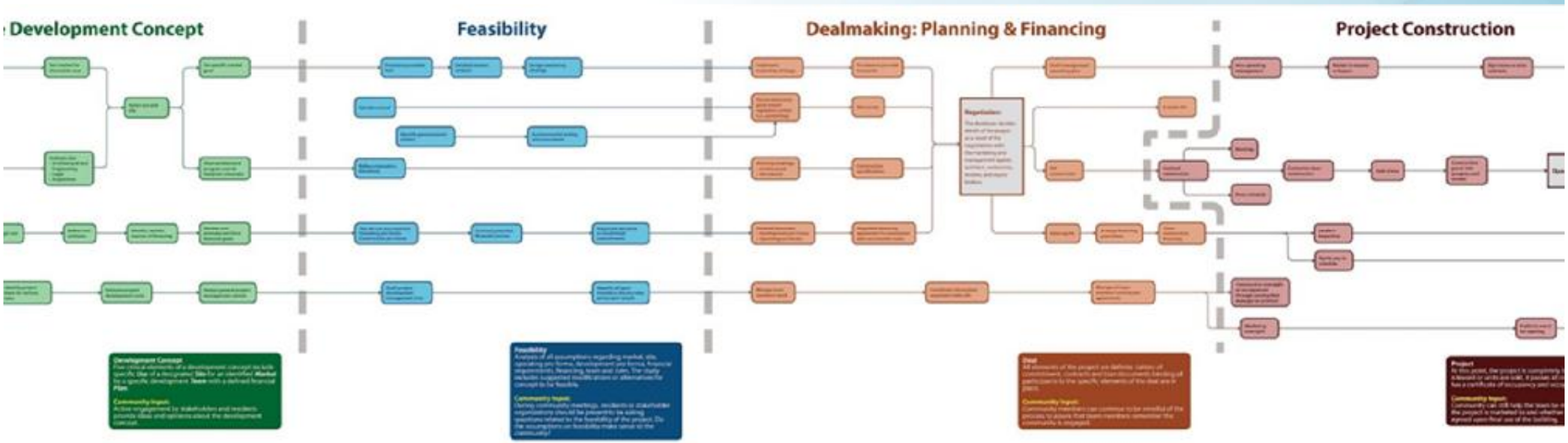
Solar panel installation
10 mins ago

Boiler maintenance
4 months ago

Porch installation
1 year ago


OWNER
Money/
wishlist
suggestions
For
improvement
HOUSE
Block
chain
Data
Offer
Tender
assignment
Grant application
results
Grants & targets
CON-
TRAC-
TOR
GO-
VERN-
MENT

FROM SHARED PROCESS



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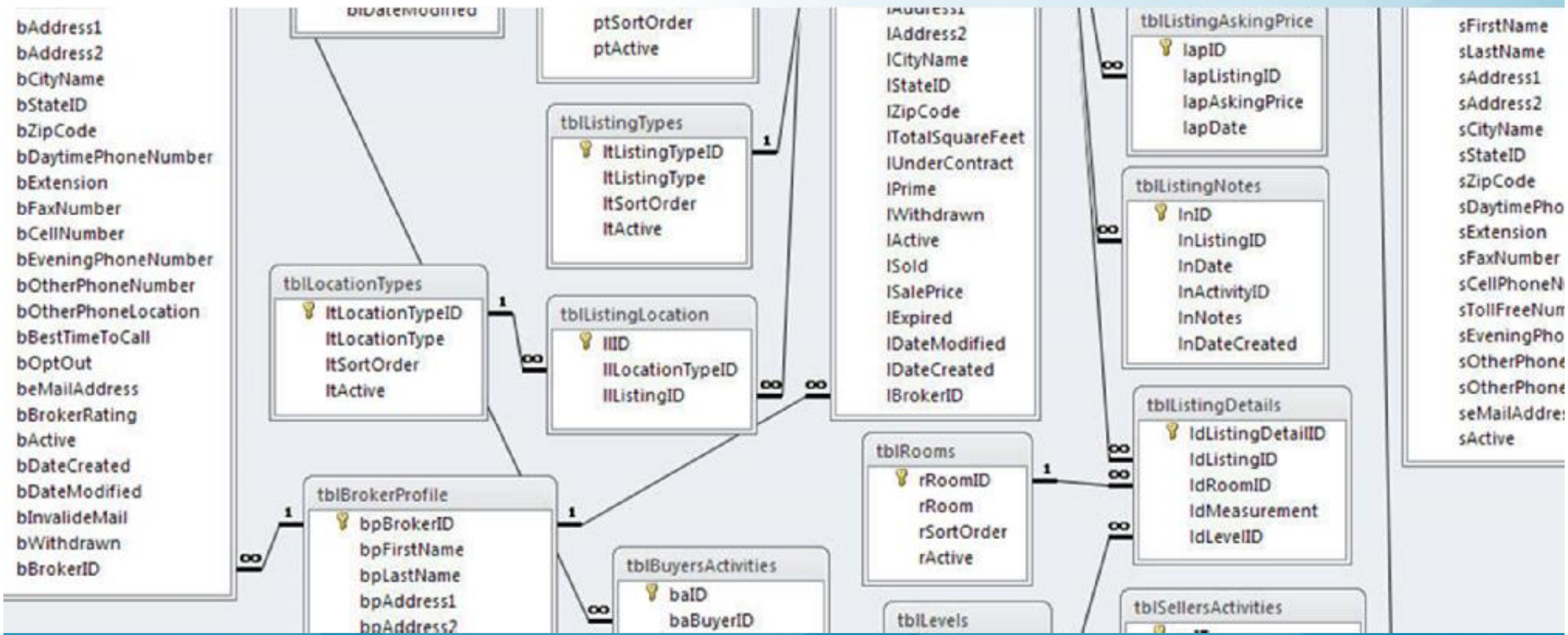
TO SHARED DATA



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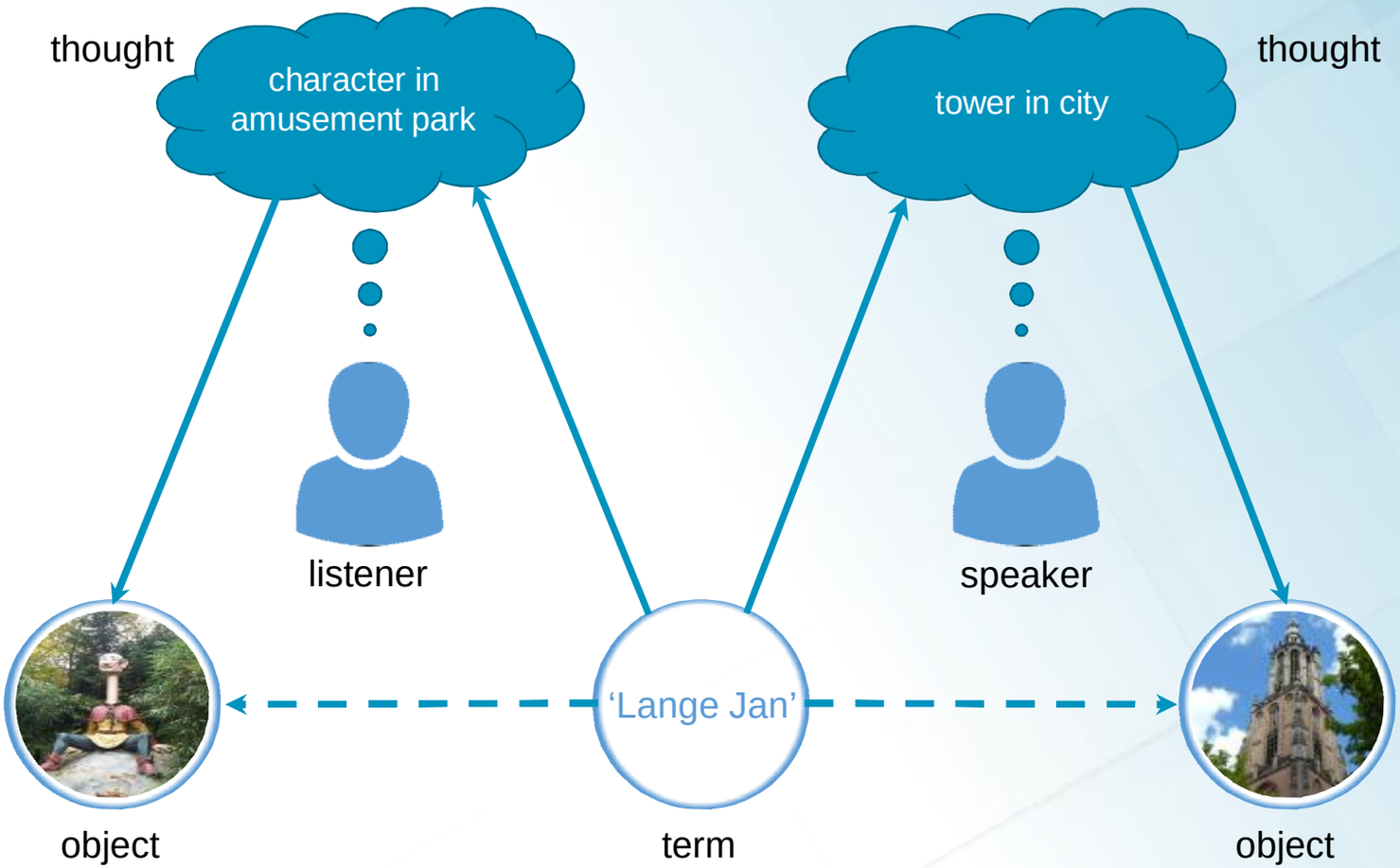
BUT BEFORE WE WILL BE REPLACED …

1. OPEN SOURCE (TRANSPARANCY, ACCEPTANCE)
2. ANALYSIS ADDED VALUE (ALTERNATIVE TECHNOLOGY?)
3. CONFIDENCE WITH PARTIES INVOLVED
4. MEANING OF DATA (AGREEMENTS & DESCRIBING)

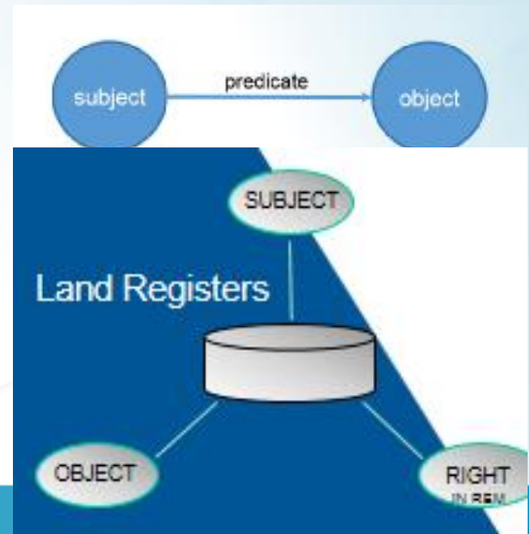

thought
character in amusement park
tower in city
thought
listener
speaker
‘Lange Jan’
object
term
object

1. TECHNOLOGICAL DEVELOPMENTS (2)

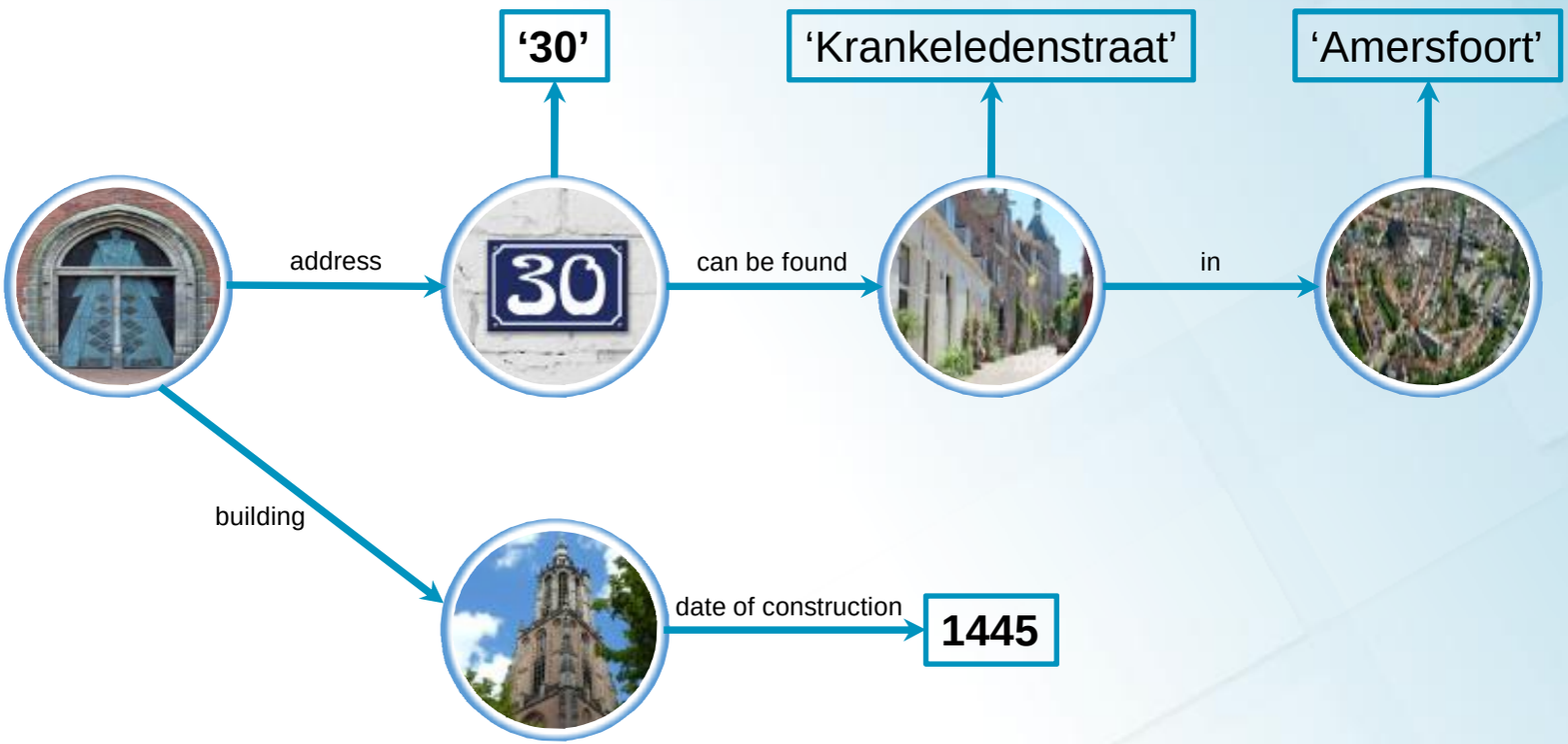
- Linked Data
  - Makes use of ‘URI`s to name (identify) things
  - 3 realities:
    - ‘Natural’ reality
    - Institutional reality
    - Administrative reality **à** triples:

1. TECHNOLOGICAL DEVELOPMENTS (2)

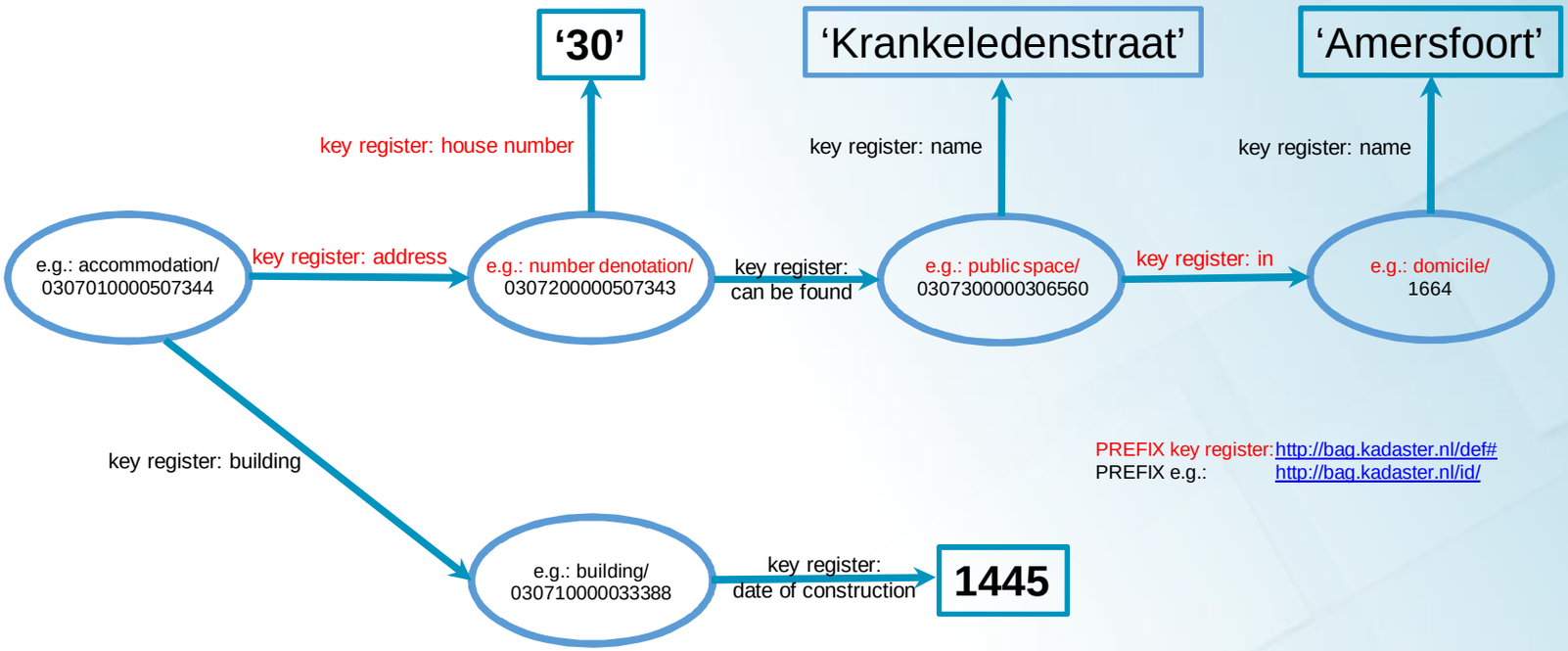
- Linked Data
  - Makes use of ‘URI`s to name (identify) things
  - 3 realities:
    - ‘Natural’ reality
    - Institutional reality
    - Administrative reality **à** triples:



kadaster

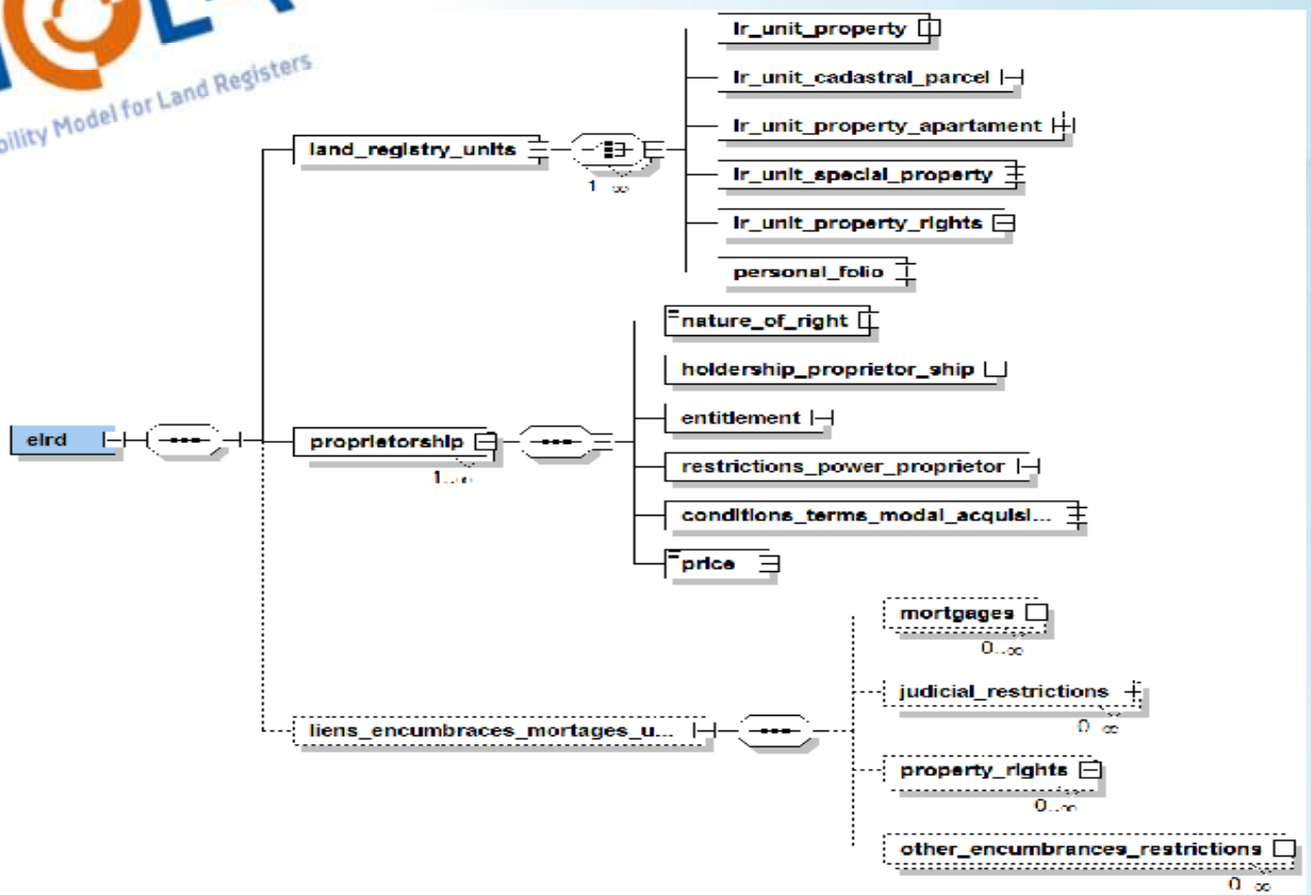


Source: Brattinga, et al



Source: Brattinga, et al

XML SCHEMA



Source: IMOLA project, Jesus Camy


1N73LL1G3NC3
0141587H3158
43481L17Y480
7004D4P7870
183CH4NG304
-ST3PH3N H4WK1NG

ELRN EUROPEAN LAND REGISTRY NETWORK

ELRA European Land Registry Association

Tallinn
June 1, 2018

Digital Transformation of Registry System Opportunities of a Technological Ecosystem

ELRN Workshop.
Session: *Blockchain of Real State*

Teresa Rodríguez de las Heras Ballell
Professor of Commercial Law, Universidad Carlos III de Madrid
2017 Chair of Excellence, CLC, Harris Manchester College, Oxford University
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uc3m | Universidad Carlos III de Madrid

1.- Rationales for registration – The Roles of Land Registers

Agreement and other situations related to real property

REGISTRY SYSTEM

CERTAINTY

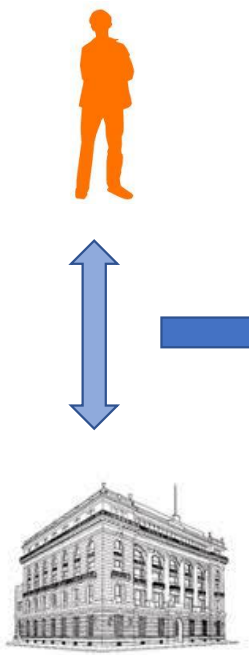
- *Accuracy*
- *Existence and priority*
- *Due diligence costs*

EFFECTIVENESS

- *Against third party – irrespective of actual knowledge*
- *Presumed validity*

TRANSPARENCY

1.- Rationales for registration – The Roles of Land Registers



REGISTRAR / REGISTER

- **INFORMATION PROVIDER ?**
- **TRUSTED THIRD PARTY ?**
- **LEGAL VALIDATION-GIVER ?**

A.- The Roles of Technology – APPLICATIONS AND USES

AS AN INSTRUMENT

AS AN ARCHITECTURE

THEORETICAL FRAMEWORK TO FACE TECHNOLOGY APPLICATIONS.
The Case of Blockchain as an illustration :

1.- Is then Blockchain a new instrument enabling a more effective performance of same functions?

2.- Is Blockchain a new instrument enabling the performance of new functions?

3.- Is Blockchain a new architecture? Does it enable to perform same functions?

4.- Is Blockchain a new architecture enabling the performance of new functions?

A.1.- Technology as instrument in transactions – PRIOR DISTINCTION OF RELEVANT TERMS

PRINCIPLE OF TECHNOLOGICAL NEUTRALITY

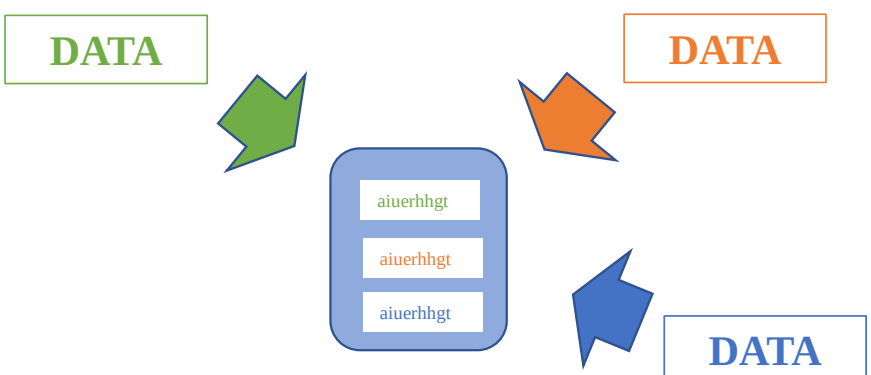
Transactions

Order
number 8
Quantity
Delivery
+++++++
``````````

Components

**PRINCIPLE OF FUNCTIONAL EQUIVALENCE**

**'DYNAMIC OPEN RECORDS/DOCUMENTS'**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A.1.- Technology as instrument in transactions – PRIOR DISTINCTION OF RELEVANT TERMS

ELECTRONIC

Use of electronic communications throughout the process

DIGITAL

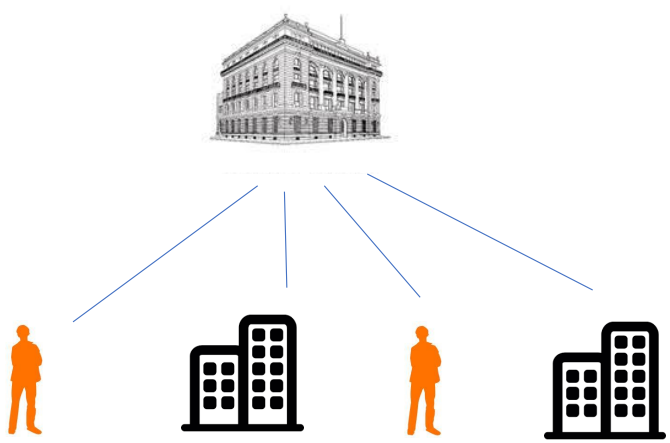
Information codified, produced, transmitted, and stored in digital medium

AUTOMATIC

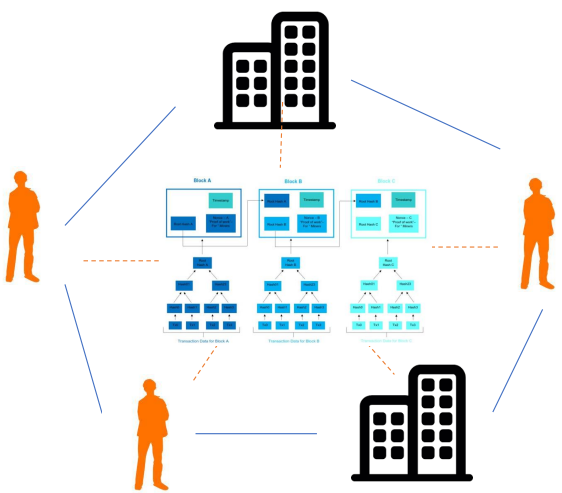
Performance of tasks without human intervention: programming of instructions

A.2.- Technology as Architecture – UNDERSTANDING TECHNOLOGY ARCHITECTURE

PRINCIPLE OF TECHNOLOGICAL NEUTRALITY



PRINCIPLE OF SYSTEM/ARCHITECTURE NEUTRALITY



PRINCIPLE OF FUNCTIONAL EQUIVALENCE

PRINCIPLE OF SYSTEM/ARCHITECTURE EQUIVALENCE

2.- Electronic Registry System as a Platform: Defining the Model A

2.- Electronic Registry System: Defining the Model - FEATURES

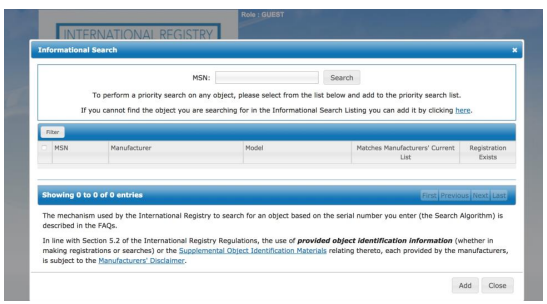
An electronic version of Registry

a). Use of electronic means and digital medium for all processes:

- Registration
- Further amendment and cancellation
- Search

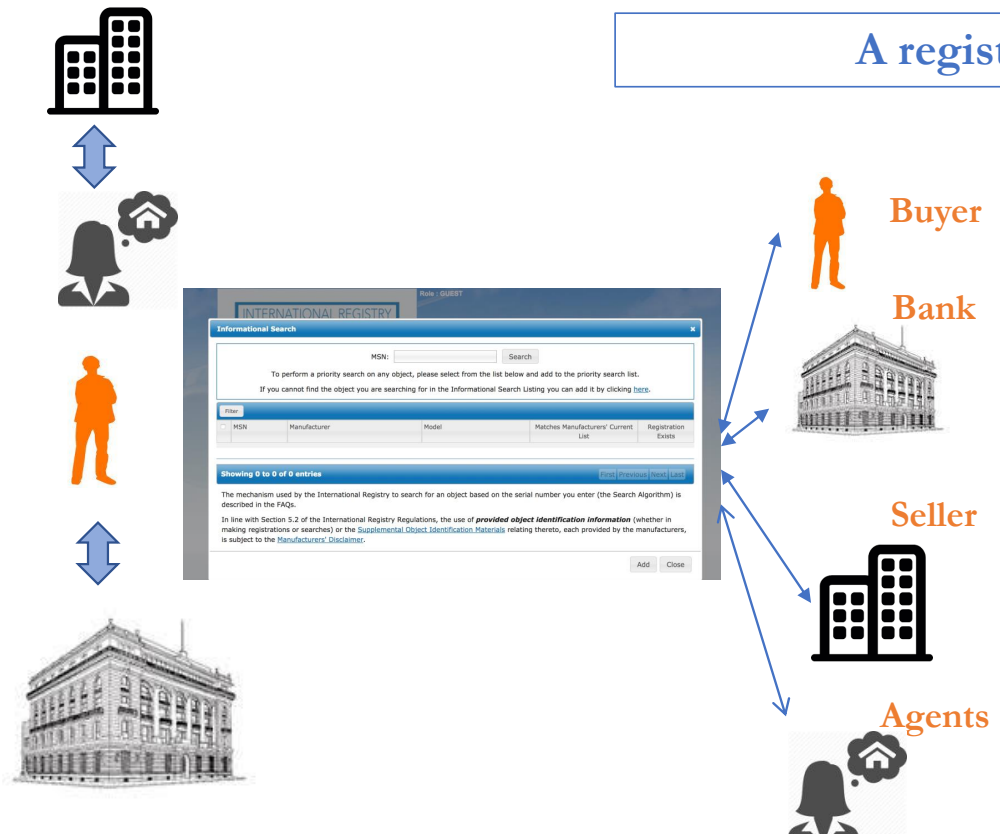
2.- Electronic Registry System: Defining the Model - FEATURES

An active registry model: bilateral flow of data



b). Register may interact with registered users and proactively transmit relevant notices and communications (i.e. expiration date, detected errors, etc)

2.- Electronic Registry System: Defining the Model - FEATURES



A registry system as a multilateral platform

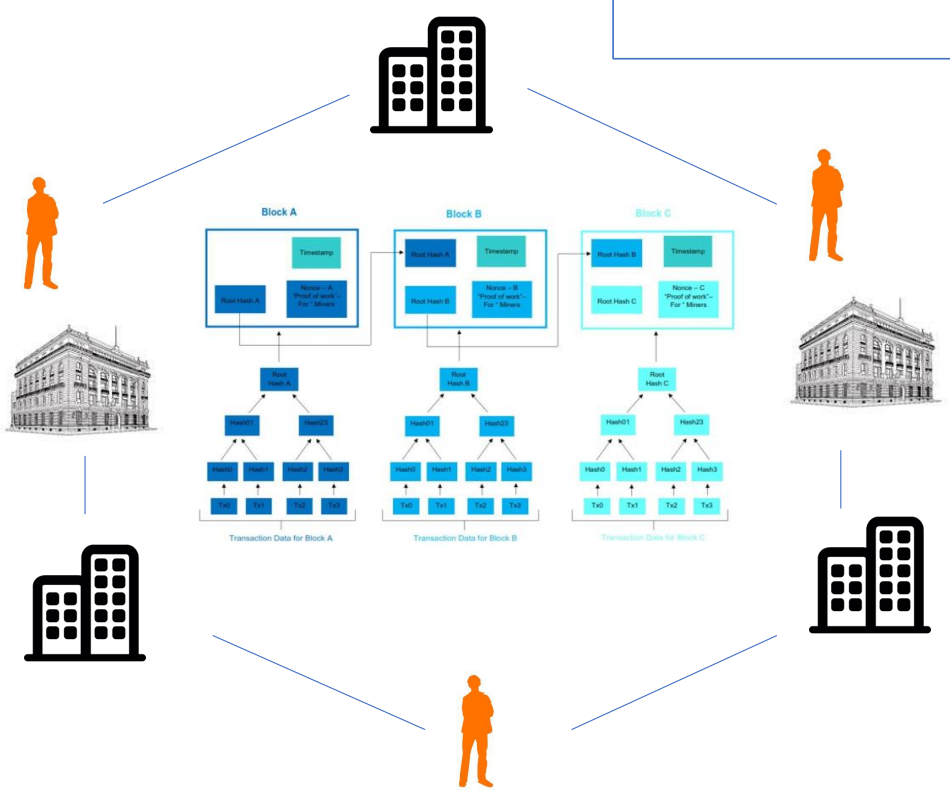
c). Users participate in the registry and interact each other

Multilateral communications are enabled

All relevant data are available to parties on the same platforms

All transactions are conducted through the platform

2.- Electronic Registry System: Defining the Model - FEATURES



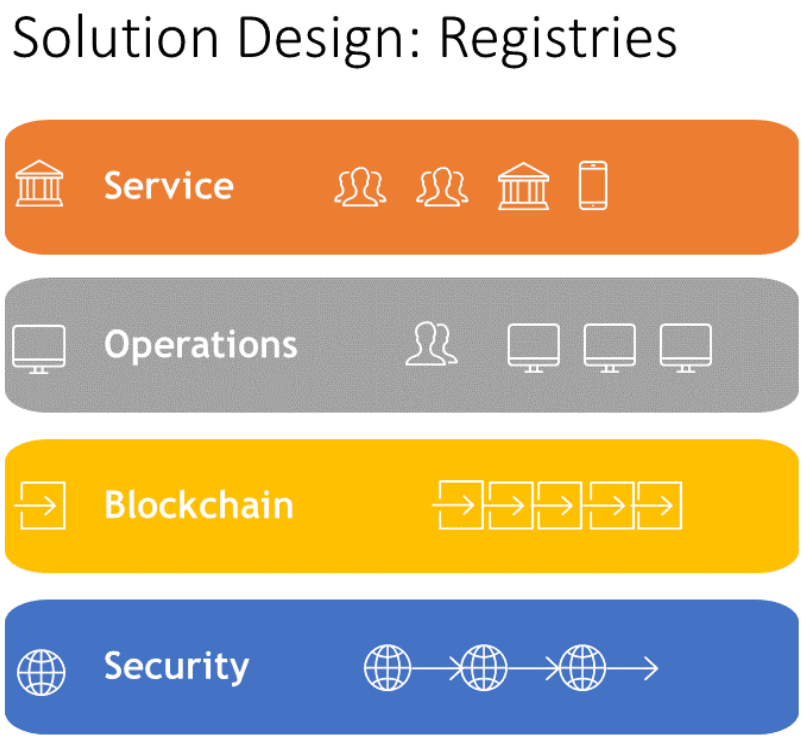
A decentralized registry?

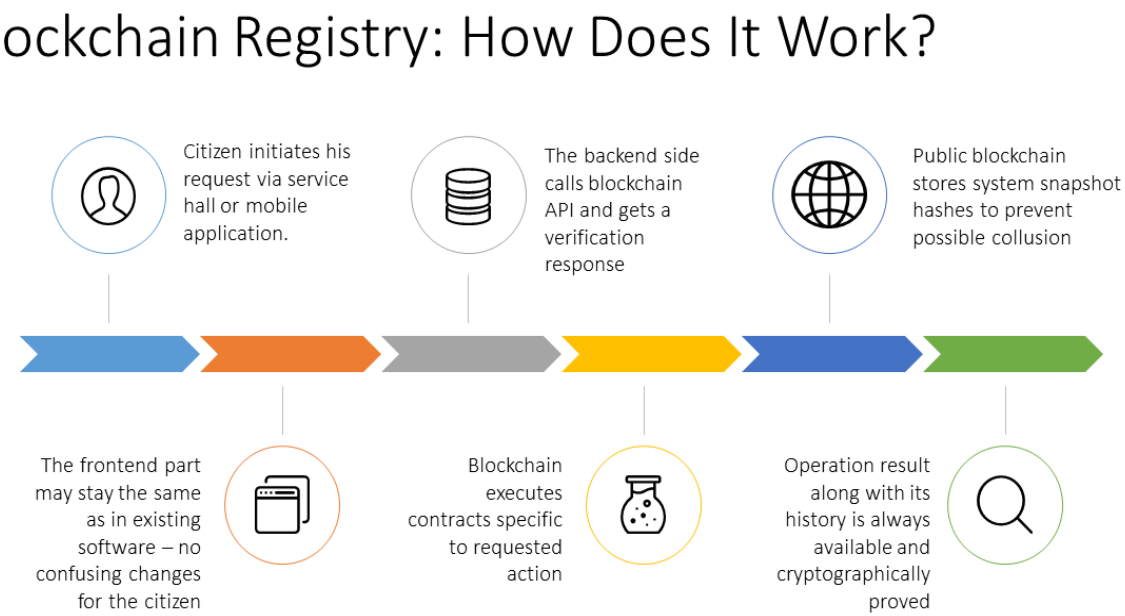
X). Might a blockchain-based registry be an option?

Y). Is blockchain operation compatible with legal design for secured transactions register?

** See next example for mixed models*

*** Example of Blockchain-based register design: BitFury for Georgia – a combination of descentralizaded and centralized schemes**





2.- Electronic Registry System: Defining the Model - FEATURES

A decentralized registry?
DECODING A BLOCKCHAIN-BASED MODEL

DECENTRALIZED SYSTEM:
disintermediation

DISTRIBUTED TRUST:
public / private / hybrid models

CRYPTOGRAPHY

VALIDATION

SCALABILITY

\+ **AUTOMATION**

\+ **SELF-EXECUTABLE TRANSACTIONS**

2.- Electronic Registry System: Defining the Model - FEATURES

A highly-automatic registry model in a ECOSYSTEM OF SMART CONTRACTS, SMART PROPERTY, AND TRUSTED THIRD PARTIES

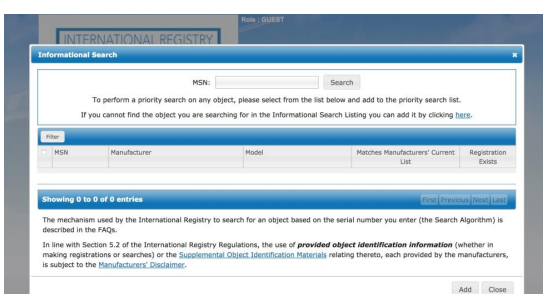
REGISTER AS A PLATFORM

Smart Property

Oracles

Feeding and verifying data

Other Registers



Flow of data

3.- Opportunities of a Technological Ecosystem

I.- Understanding Technology as an Instrument and as an Architecture

3.- Opportunities of a Technological Ecosystem

I.- Understanding Technology as an Instrument and as an Architecture

II.- Assessing Roles of Registries prior to Implementing Technological Solutions

3.- Opportunities of a Technological Ecosystem

I.- Understanding Technology as an Instrument and as an Architecture

II.- Assessing Roles of Registries prior to Implementing Technological Solutions

III.- New Opportunities for Registry Legal Design and Registrar Roles

- Registry as a Platform – multilateral interaction
- Proactive Registry
- Automation of Processes and Tasks
- Dynamic Registrations – Updated data

3.- Opportunities of a Technological Ecosystem

I.- Understanding Technology as an Instrument and as an Architecture

II.- Assessing Roles of Registries prior to Implementing Technological Solutions

III.- New Opportunities for Registry Legal Design and Registrar Roles

- Registry as a Platform – multilateral interaction
- Proactive Registry
- Automation of Processes and Tasks
- Dynamic Registrations – Updated data

IV.- Regulatory approach and policy options:

- General enabling legal framework based on functional-equivalence principle
- Registry-specific legal rules setting out principles, legal design, and legal effects
  - ** option 1: attributing legal effects to legal design*
  - ** option 2: attributing legal effects to reliability standards for technology*
- Second-level regulations defining processes, tasks, and outcomes

ELRN EUROPEAN LAND REGISTRY NETWORK

ELRA European Land Registry Association

Tallinn
June 1, 2018

ELRN Workshop.
Session: *Blockchain of Real State*

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“The methodology of formants to define the attributes of concepts in the IMOLA project”

Elena Ioriatti
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and
Sara Giacomini
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The aim of Comparative Law

«Comparative law is like other sciences, in that its aim must be the acquisition of knowledge».

R. SACCO, *Legal Formants. A dynamic approach to comparative law*, American Journal of Comparative Law, Vol. 39 No 1, 1991, p. 4.

Comparative law as a science

Science

Knowledge

Methodology

Methodology

The *Factual approach*

R. Schlesinger (ed.) Formation of Contracts: A study of the Common Core of Legal Systems, 2-3 (1968).

Donald E. Claudy, *Formation of Contracts a Study of the Common Core of Legal Systems*, Cornell Law Review, Volume 54 Issue 3 February 1969.

The Formants

- R. SACCO, *Définitions savantes et droit appliqué dans les systèmes romanistes*, in Revue Internationalede Droit Comparé, vol. 17, n. 4, 1965, p. 827 ss.

- R. SACCO, *Les buts et les méthodes de la comparaison du droit*, in Rapports nat. italiens au IX congrès intern. de droit comp. 1974.

- R. SACCO, *Legal Formants. A dynamic approach to comparative law*, American Journal of Comparative Law, Vol. 39 No 1, 1991. pp. 1-34.

Methodology

Functionalism

Structuralism ↔ *The formants*

The unity of the legal system

«It is misleading to speak of «the legal rule» in force in a given country as though there were only one such rule».

R. SACCO, *Legal Formants. A dynamic approach to comparative law*, American Journal of Comparative Law, Vol. 39 No 1, 1991, p. 21.

The unity of the legal system (?)

In a given country at a given moment the rule contained in the constitution or in legislation, the rule formulated by scholars, the rule declared by courts, and the rule actually en forced by courts, often haven’t an identical content and are not therefore the same.

The formants

Instead of speaking of "the legal rule" of a country, we must speak instead of the rules of constitutions, legislatures, courts, and, indeed, of the scholars who formulate legal doctrine.

Methodology

The Formants:

groups of rules sharing the same characteristics (legislative, case law, scholarly opinions/legal doctrine) and providing answers/solutions to a specific legal matter/problem.

Example

A person who belives himself to be heir disposes of property he has inherited by transaction to a third party in good faith.

Is the transaction effective?

R. SACCO, *Legal Formants. A dynamic approach to comparative law*, American Journal of Comparative Law, Vol. 39 No 1, 1991. p. 23.

The formants

Italy

Legislation: yes(art. 534 cc) Case law: yes Legal doctrine: yes

Belgium

Legislation : x Case law: no Legal doctrine: no

France

Legislation: x Case law: yes Legal doctrine: ?

The formants and the attributes of concepts in EU law and at IMOLA II

One

Supranational/common/uniform definition

Many different

National meanings

EU Terminology – IMOLA Terminology

- IMOLA Terminology: uniform terms expressed in a common language (English).
- EU Terminology: uniform terms expressed in all the official national languages (24 idioms).

EU Terminology

Neologisms (legal concepts)

…….“regulation” – “règelement”- “Verordung” – “regolamento” – ……..

Inter-lingual synonyms

WAGNER, J.C. GÉMAR, *Materializing Notions, Concepts and Language into Another Linguistic Framework,* International Journal for the Semiotic of Law, 2013.

EU Terminology

Uniform legal meaning is reached across languages, horizontally, among these neologisms (concepts) and through the form of their linguistic/semantic expression, but regardless the language chosen.

J.G. TURI, *Le droit linguistique et les droits linguistiques*, Les Chaiers de droit, Vol. 31, n. 2, 1990.

EU Terminology – IMOLA Terminology

The problems of the attributes of concepts to uniform definitions are similar!

Example: the formants and the EU concepts

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste

«possession»

Art. 3 (definitions) “waste holder” means the waste producer or the natural or legal person who is in *possession* of the waste.

The meta-concept

- UK ↓ Possession
  IT ↓ Possesso
  DE ↓ Besitz
  FR ↓ Possession
  NL ↓ ↓ ↓ Bezit

- Possesso (ITA)/Bestiz (Austria)/Possession (France).....material control on the good <u>with animus domini</u>

- Detenzione (ITA)/Innehabung (Austria)/ Détention (France)..... material control on the good <u>without animus domini</u>

The meta – concept and the national interpreter

The national formants

Italy (case law)

Decision of the *Tribunale Amministrativo Regionale* (29/01/2018) on Directive 2008/98/EC.

"The Italian notion of "**possesso**" and "**animus possidendi**" is not applicable as the cost of waste provided in the EU directive is not grounded on the intention of the holder/possessor to behave as an owner (with animus possidendi) but on the duty of care owed by him".

The national formants

Belgium (legislative formant)

- Décret 23/12/2011 relatif à la gestion durable de cycles de matériaux et de déchets (transposition de la Directive 2008/98/CE du Parlement européen et du Conseil du 19 novembre 2008).

- “The possessor is also the person who has not the physical possession of the waste” (qui n'ont pas la ***possession*** physique des *déchets*).

The EU concept

UK	IT	DE	FR	NL
↓	↓	↓	↓	↓
Possession	Possesso	Besitz	Possession	Bezit

possession in EU law (Directive 2008/98/EC) **:** material control on the good without animus domini

↑ ↑

National law and case law (formants)

Prof. E. Ioriatti, The EU multilingual legal system: top down or bottom up?, Faculty of Law and Governance, Utrecht University, 2018;
Prof. E. Ioriatti, Legal formants and EU terminology, General Congress of the Bar association, Trento, 2018.

XXI General Congress of Comparative Law (Fukuoka, July 2018)

Uniform definitions are not *final* (my definition: consolidated legal concepts and not meta – concepts) until they haven't been implemented through their application to material facts at the national level (national formants).

IMOLA NATIONAL CONCEPTS TEMPLATE

Real servitude

Real servitudes in IMOLA CONCEPT TEMPLATE

Real servitudes are treated as limited property right and always placed in C section, irrespectively of their content.

The real servitude in Italy

Article 1027 Civil Code: *A real (predial) servitude is a burden upon a land (plot) for the benefit of another land (plot) belonging to a different owner.*

The fundamental elements

Italy

Therefore a real servitude can be defined “as the relationship according to which Tizio, as owner of the land A, must tolerate the action of Caio, as owner of the land B”.

The fundamental elements

Italy

- 1) Tizio must tolerate not as such, but **“because he is the owner of land A”.**

- 2) Caio can act not as such, but **“because he is the owner of land B”.**

The fundamental elements

In Italy the servitudes are typical and, as all the other real rights, belong to a fixed *numerus clausus.*

Furthermore, transcription in the land registry is justified by the effect *erga omnes* of the servitude.

The fundamental elements

Italy

Until 2012, the presence of both the dominant and the servient lands (plots) were necessary elements for the creation of a real servitude and for its transcription in the land registry.

The legislative formant

Art 2645-quater Italian Civil Code

Need the registration in public records all acts if they have as their object real estate, acts and contracts of private law, even unilateral, as well as the agreements and contracts with which they are established in favor of the State, the region, the other local public bodies or bodies carrying out a service of public interest, constraints of public use or any other constraint for any purpose required by state and regional regulations, municipal urban tools as well as by the consequent territorial planning tools and by the urban conventions related to them .

The case law formant

The rule declared by courts, and the rule actually enforced by courts in Italy on article 2645-quater c.c. leaded the tabular praxis to register the servitudes for public use as servitudes in favor of public administrations or other legal entities.

The case law formant

Italy

Example: a servitude for public use in favor of a public administration (as the local municipality) which allows to place a garbage bin in the property of Tizio (servient land/plot).

The application of this practice does not require the existence of a dominant land (plot).

The tabular praxis

Italy

Before 2012 the servitudes for public use were registered on the servient land thanks to a fiction (inventing a fictional/theoretical dominant land).

According to the new practice instead it is nowadays possible to register a servitude for public use on a servient land without the identification of a dominant land.

IMOLA NATIONAL CONCEPTS TEMPLATE

Real Servitudes are treated as limited property rights and will always be placed in section C, regardless of their content.

The servitude for public use should therefore be placed in section C of the Imola Template, as according to Italian law it can be qualified as a real servitude (yes or no answer).

IMOLA NATIONAL CONCEPTS TEMPLATE

It follows that in section A of the Imola Template there would be no mention of a dominant land/plot, as it may not exist under Italian law.

IMOLA NATIONAL CONCEPTS TEMPLATE Definitions

The meta – concept

Real servitudes

the definition implies the presence of a dominant and a servient land for the creation of a real servitude and for its transcription in the land registry

IMOLA NATIONAL CONCEPTS TEMPLATE Definitions

The concept

Real servitude:

~~*burden upon a piece of land for the benefit of another piece of land belonging to a different owner.*~~

burden upon a piece of land for the benefit of……..

↑ ↑

National law and case law (formants)

Italy	France	Spain	The Netherlands ……and so on……
No dominant land/plot	?	?	?

The formants

Two suggestions:

- General definitions are necessary, but the attributes of concepts must take into account the national formants as components of the definition (and not simply as linked to it), regardless the semantic aspect of the definition.

- Questionnaires are necessary, but alongside yes/no answers the national formants might be showed so as to give dynamicity to IMOLA CONCEPT TEMPLATE.

Blockchain, smart contracts, Internet of Things: Land registration and the data economy

Sjef van Erp

Maastricht University

Blockchain, smart contracts

- 1. Introduction
- 2. What are ‘smart contracts’?
- 3. What is ‘distributed ledger technology’(‘DLT’, or ‘blockchain’)?
- 4. What/who are ‘oracles’?
- 5. Who are ‘trusted third parties’ (‘TTP’)?
- 6. Does Artificial Intelligence (‘AI’) play a role?
- 7. What is the ‘Internet of Things’ (‘IoT’)?
- 8. Legal framework
- 9. Do we still need ‘trusted third parties’?
- 10. Object/subject: a diffuse world
- 11. Summary and conclusions

Blockchain, smart contracts

- Digitalisation of information
- Interconnectivity (Internet)
- Collecting data: big data and databases
- Connecting databases
- Connecting “nodes”
- Self-executing software
- Artificial intelligence

Blockchain, smart contracts

- What do you think of these statements?

  - You are no longer a person, you are your data
  - You no longer exist when you stop adding data to Google's servers
  - Objects and subjects can no longer be clearly separated

Blockchain, smart contracts

“The data they collect includes tracking where you are, what applications you have installed, when you use them, what you use them for, access to your webcam and microphone at any time, your contacts, your emails, your calendar, your call history, the messages you send and receive, the files you download, the games you play, your photos and videos, your music, your search history, your browsing history, even what radio stations you listen to.”

Dylan Curran: Are you ready? Here is all the data Facebook and Google have on you (The Guardian)

Blockchain, smart contracts

CODE

and other laws of cyberspace

Lawrence Lessig

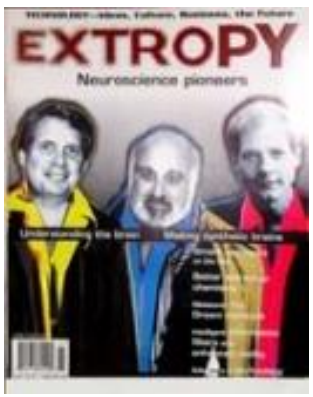
Blockchain, smart contracts

- Two (or more?) worlds:
  - IT and law (Lawrence Lessig ‘code is law’)
  - Standardised (form based, and yes/no) thinking v. reflexive thinking
  - Younger v. older generation
  - Yes or no access to the Internet

Blockchain, smart contracts

- New developments build upon existing architecture:
  - Internet protocols: TCP/IP
  - Blockchain: Examples are Bitcoin, Ethereum
  - ‘Decentralised app’ (‘Dapp’) framework (cf. more traditional apps, such as Gmail or Uber)
  - ‘Dapp’ applications by using these apps

Blockchain, smart contracts



Blockchain, smart contracts

```
1 contract Puzzle{
2   address public owner;
3   bool public locked;
4   uint public reward;
5   bytes32 public diff;
6   bytes public solution;
7
8   function Puzzle() //constructor{
9     owner = msg.sender;
10    reward = msg.value;
11    locked = false;
12    diff = bytes32(11111); //pre-defined difficulty
13  }
14
15  function(){ //main code, runs at every invocation
16    if (msg.sender == owner){ //update reward
17      if (locked)
18        throw;
19      owner.send(reward);
20      reward = msg.value;
21    }
22    else
23      if (msg.data.length > 0){ //submit a solution
24        if (locked) throw;
25        if (sha256(msg.data) < diff){
26          msg.sender.send(reward); //send reward
27          solution = msg.data;
28          locked = true;
29        }}}}
```

Figure 3: A contract that rewards users who solve a computational puzzle.

Blockchain, smart contracts

- 2. Smart contracts: Nick Szabo

  - Self-executing programmes
  - Example: insurance against flight delays

Blockchain, smart contracts

Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto
satoshin@gmx.com
www.bitcoin.org

Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

1. Introduction

Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust based model. Completely non-reversible transactions are not really possible, since financial institutions cannot avoid mediating disputes. The cost of mediation increases transaction costs, limiting the minimum practical transaction size and cutting off the possibility for small casual transactions, and there is a broader cost in the loss of ability to make non-reversible payments for non-reversible services. With the possibility of reversal, the need for trust spreads. Merchants must be wary of their customers, hassling them for more information than they would otherwise need. A certain percentage of fraud is accepted as unavoidable. These costs and payment uncertainties can be avoided in person by using physical currency, but no mechanism exists to make payments over a communications channel without a trusted party.

What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party. Transactions that are computationally impractical to reverse would protect sellers from fraud, and routine escrow mechanisms could easily be implemented to protect buyers. In this paper, we propose a solution to the double-spending problem using a peer-to-peer distributed timestamp server to generate computational proof of the chronological order of transactions. The system is secure as long as honest nodes collectively control more CPU power than any cooperating group of attacker nodes.

Ma

Blockchain, smart contracts

- 3. DLT: Satoshi Nakamoto (?)

  - The name is meant to hide the real person(s)
  - Block chain technology is far more than “just” ‘bitcoins’ = cryptocurrency

Blockchain, smart contracts

- 3. DLT (continued)

  - Several technologies (example: Ethereum)
  - Public and private block chains
  - ‘On chain’ and ‘Off chain’

Blockchain, smart contracts

- A ‘smart contract’ adds information to a block and by doing so creates a new block and thus a ‘block chain’.

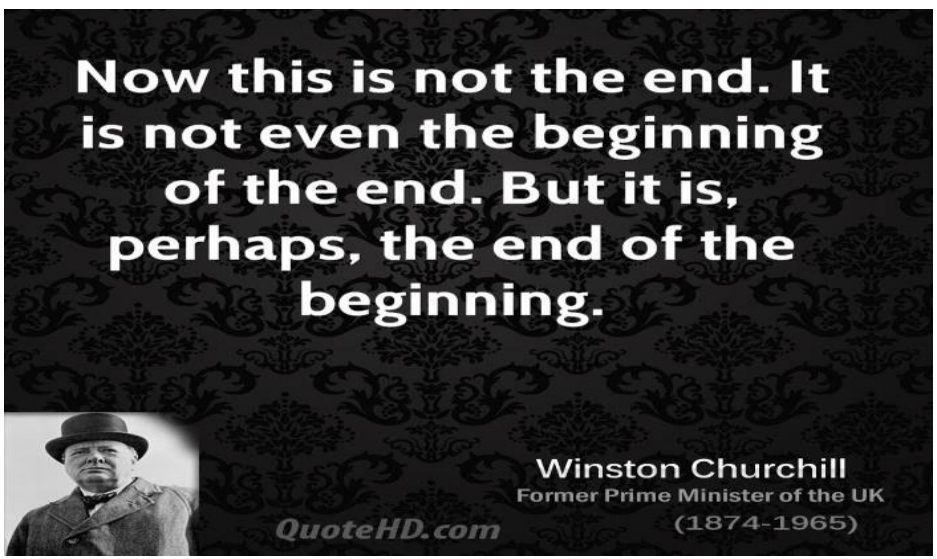
Blockchain, smart contracts

- Information in the block cannot be changed and – for the time being? – not be hacked.

  - Question: What does this mean for the ‘right to be forgotten’ under the new GDPR?

Blockchain, smart contracts

- ‘Blockchain and Property in 2018: At the End of the Beginning’: Is this exaggerated?



Blockchain, smart contracts

- Public blockchains are not supervised by a central authority, such as governments
  - ‘Initial coin offerings’ (‘ICO’s’)
- At the same time: A government can use blockchain technology to control its citizens
  - Privacy!

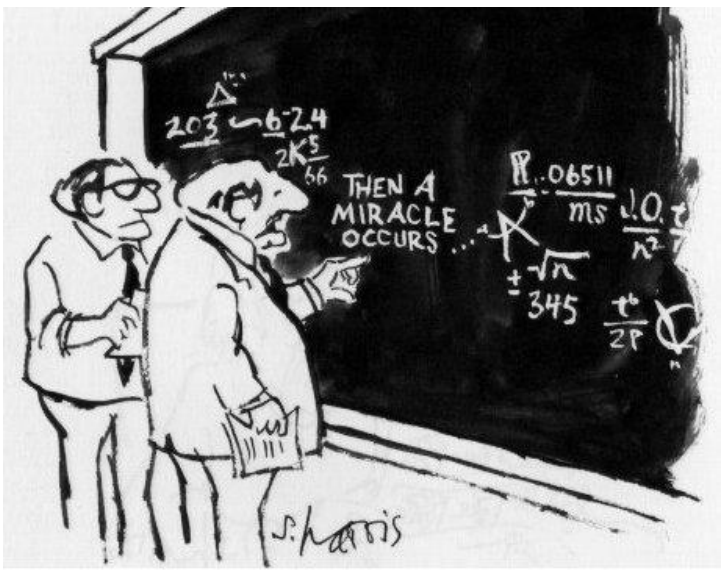
Blockchain, smart contracts

Blockchain, smart contracts

- 4. ‘Oracles’

  - Third parties (human persons, but especially also computer systems: ‘agencies’)
  - Judges, mediators, notaries, land registrars

Blockchain, smart contracts



"I think you should be more explicit here in step two."

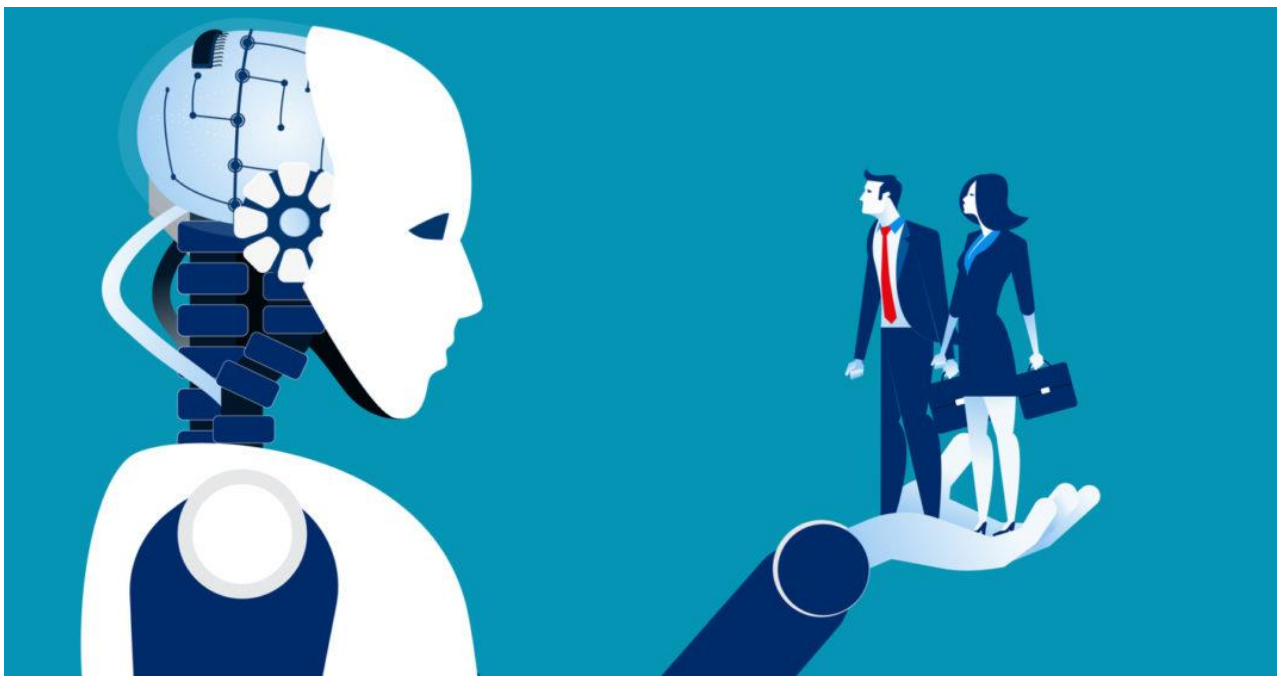
from *What's so Funny about Science?* by Sidney Harris (1977)

Blockchain, smart contracts

- 5. Trusted third parties

  - A third person, necessary to verify that a particular transaction is correctly performed
  - Is there a role left for land registrars?

Blockchain, smart contracts

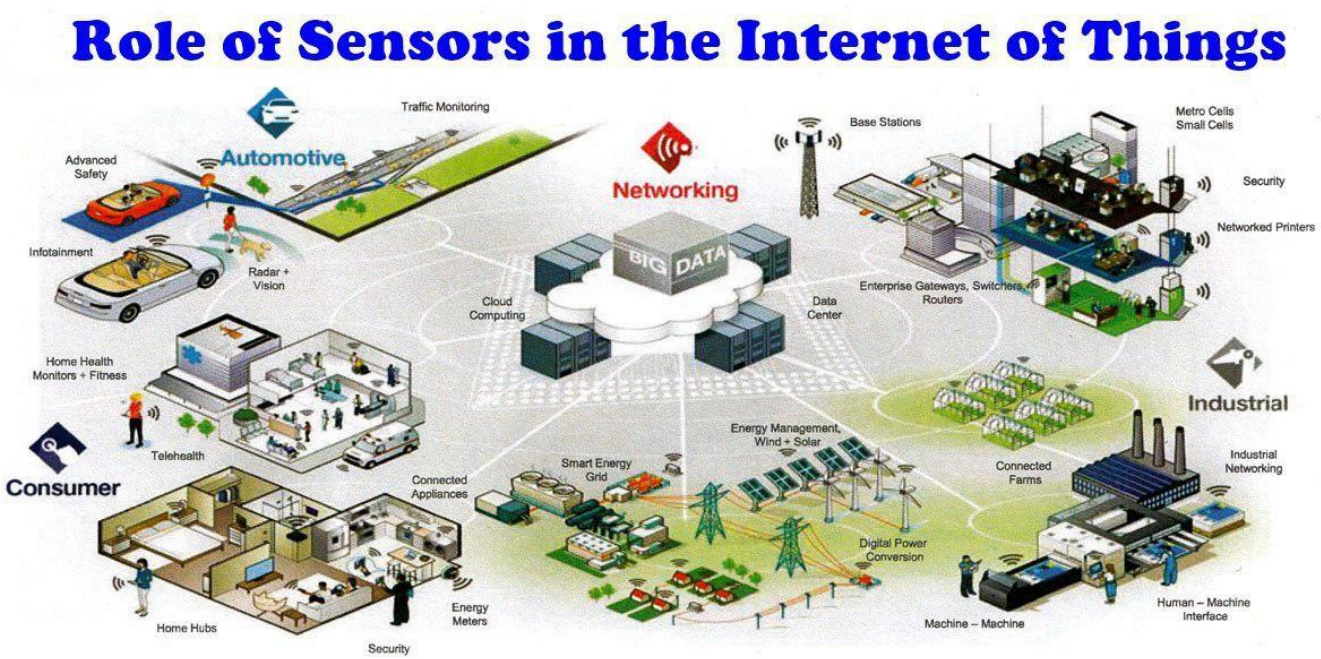


Blockchain, smart contracts

- 6. Does Artificial Intelligence ('AI') play a role?

  - Developments go further and faster than we perceive
  - Google's 'Deepmind': www.deepmind.com

Blockchain, smart contracts



Blockchain, smart contracts

- 7. ‘IoT’

  - Collecting data: ‘big data’
  - Sensors collect data, but for which purpose?
    - To better describe an object?
    - Data analysis (targeting, customer specific)?
    - To check whether a person is acting within the limits of the law?

Blockchain, smart contracts

- 8. Legal framework

  - Why is a ‘smart contract’ binding?
  - Who is liable for mistakes in a ‘block’?
  - Who is liable in a diffuse real/virtual world (e.g. for measuring mistakes made by sensors)?

Blockchain, smart contracts

- 9. Do we still need ‘trusted third parties’?

  - Yes, in any case for complicated transactions and as ‘gate keeper’ for what is happening ‘off chain’

Blockchain, smart contracts

- 10. Object/subject: a diffuse world

  - Are data part of a parcel or do they belong to the parcel's "owner"?
  - What is the "object", who is the "subject"?
  - Can we separate the real object from the digital data?
  - Which IoT data should be registered in a land registry?
  - Should we accept different types and degrees of ownership?

Blockchain, smart contracts

- 11. Summary and concusions:

  - Block chain, smart contracts, IoT
  - Which data “belong” to a parcel (object) or to the owner (subject)?

Blockchain, smart contracts, Internet of Things: Land registration and the data economy

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The *formants* and IMOLA II: the way forward

Elena Ioriatti (Professor of Comparative Law) and Sara Giacomini (PhD candidate) Trento University, Faculty of Law (Italy)

The theory of the *legal formants*

R. SACCO, *Définitions savantes et droit appliqué dans les systèmes romanistes*, in *Revue Internationale de Droit Comparé*, vol. 17, 4, 1965, p. 827 ss.

R. SACCO, *Contratto e negozio a formazione bilaterale*, Studi in onore di Paolo Greco, II, Padua, 1965, p. 953.

R. SACCO, *Les buts et les méthodes de lacomparaison du droit*, in *Rapports nat. italiens au IX congrès intern. de droit comp.*,1974.

R. SACCO, *Introduzione al diritto comparato*, first ed., Turin, 1980.

The theory of the legal *formants*: core

The *unity* of the legal system *v.* the *dissociation* of the legal formants

Rodolfo Sacco, *Legal Formants: A Dynamic Approach to Comparative Law,* in The American Journal of Comparative Law, Vol. 39, No. 1 (Winter, 1991).

The legal *formants*

"Within a given, single legal system there is no guarantee that the *legal formants* are in harmony, rather than in conflict".

R. Sacco, *Legal Formants: A Dynamic Approach to Comparative Law, cit.*,

Cour de Cassation (French Supreme Court) Judgement «Maison de Poésie»

Cass., 3e civ., 31 ottobre 2012, in Rec. Dalloz, 2012 and in Sem. Jur., éd. gén., 2012.

France: the legislative formant

Article 544

La propriété est le droit de jouir et disposer des choses de la manière la plus absolue, pourvu qu'on n'en fasse pas un usage prohibé par les lois ou par les règlements.

"Ownership is the right to enjoy and dispose of things in the most absolute manner, provided they are not used in a way prohibited by statutes or regulations" (unofficial translation).

France: the legislative formant

Article 543

On peut avoir sur les biens, ou un droit de propriété, ou un simple droit de jouissance, ou seulement des services fonciers à prétendre.

"One may have a right of ownership, or a mere right of enjoyment, or only land services to be claimed on property" (unofficial translation).

France: the case law formant

Cour de Cassation (judgement «Maison de Poésie»).

The owner can freely establish a **right of perpetual enjoyment.**

France: the legislative formant

Art. 619

"A usufruct which is not granted to private individuals may last only thirty years"

Art. 625

"Rights of use and habitation are established and lost in the same manner as usufruct"

France: the case law formant

- Unexpectedly, the Court of Cassation reversed the decision of the Court of Appeal, stating that the owner can freely establish **a right of perpetual enjoyment** and that **the right granted to the Maison de Poesie** by the deed of sale was **a right of perpetual exclusive enjoyment,** and not a right of use and habitation

- The Court of Cassation ruled that the principle of legal certainty recognized by the law of the European Union and by Article 6 § 1 of the European Convention on Human Rights requires that the legitimate expectations of the parties be respected. This principle therefore precludes, where the parties conventionally provide for the existence of a perpetual right, that the court may assign to that right a term prior to the date on which it rules.

France: the case law formant

The operative rule: the ***Maison de Poesie*** has the **right of enjoy and/or occupy, on exclusive basis and with no time limit,** the second floor of the building, where the Foundation was located.

The theory of the formants

- Does a perpetual right of enjoyment exist under French law?"
- legislative formant: no: real rights are typical and limited
- case law formant: yes, both operative rule and declaration
- foreign doctrine (Akkerman): yes: a new type of property right

Formants and IMOLA II: a clear view of how a legal system works in reality

In the development of the IMOLA II project, the methodology of comparative law has become relevant and proved to be a useful scientific tool.

- Firstly, the description of the formants and the understanding that the unity principle is an illusion has developped a clearer view by the professionals involved in IMOLA II of how a legal system works in reality, beyond the theoretical and abstract definitions, on which scholars or legislators rely to communicate the norms and, in general, the law.
- This has favored the elaboration of a method of research founded on a more solid ground, which results could clearly reflect how a legal matter is solved in each specific legal system involved in the scientific investigation of IMOLA II.

Formants and IMOLA II: analysis of one single legal system

Secondly, until today the formants were used in IMOLA project:

- to uncover the rules of any single national system, which could be found in enacted legislation, case law or praxis.

- to make clear that in a single legal system the operative rules (applied rules, praxis) might not coincide with the definitions (legislation, formal sources).

Formants and IMOLA II: analysis of one single legal system

Secondly, in IMOLA II comparative law methodology proved to be the best method to collect the rules in the legal systems involved.

Here the theory of the formants was crucial for legal professionals to understand the origin of a national solution and its real impact on the system (operative rules).

Formants and IMOLA II: analysis among several legal systems

Reminder n. 1:

Legal formants are very useful not only within a single legal system – as noted above – but also to identify differences and similarities among several legal systems.

Formants and IMOLA II: analysis among several legal systems

Similar operative rules can be found in the formants of different legal systems, beyond the lack of definitions.

«Trasferimento dell'erede apparente al terzo»

A person who believes himself to be heir disposes of property (he has inherited) to a third person, who is in good faith.

The transfer is valid in Italy, under the definition «trasferimento dell'erede apparente al terzo»

R. SACCO, *Legal Formants: A Dynamic Approach To Comparative Law*, in *The American Journal of Comparative Law*, Volume 39, January 1991.

«Trasferimento dell'erede apparente al terzo»

Italy

Civil Code art. 534 par. 2 : yes | Case law: yes | Doctrine: yes

France

Civil Code: X | Case law: yes | Doctrine: no

Belgium

Code: X | Case law: no | Doctrine: no

*This is a theoretical case. Note that the legislative formant might have changed after the French reform of the law of contract of 2016.

Beyond the definition

The definition «trasferimento dell'erede apparente al terzo» is present only in the Italian legal language, but the same operational rule exists in France (case law formant).

Regardless the definition

Different operative rules can be found in the formants of different legal systems, regardless formal definitions are similar or identical

Regardless the definition

Usufruct under Dutch law

Article 3:215 Dutch Civil Code (BW) the usufructuary has the right to dispose and to **consume** the property subject to usufruct

Formants and IMOLA II: the *ELRD pivot (pivot terms)* are meta - concepts

The comparative method is founded upon the actual observation of the elements “at work” in a given legal system, it concerns with what is real and effective.

Dynamic approach to a legal system!

Formants and IMOLA II: the *ELRD pivot (pivot terms)* are meta – concepts (meta – definitions)

Reminder 2:

ELRD Pivot terms are meta- definitions (meta - concepts)

Semantic aspect: immediately final

Legal effects: not final until all national formants are included in the pivot definitions.

Formants and IMOLA II: the *ELRD pivot (pivot terms)* are meta - concepts

France

«real property rights» : right of enjoyment, land services, the right of emphyteusis, usufruct, use and habitation.

After 2012 the definition “real property rights” even if semantically untouched comprehends further legal effects because of the right to create a **perpetual right** of enjoyment (operative rule).

Formants and IMOLA II: keeping the template updated.

- Finally, it is also important to underline that the legal formants could be useful within the context of the IMOLA projects not only to reach a more complete, detailed and comprehensive template, but also as a tool to keep the template updated.

- It will be important, in the future, to maintain the correspondence between the template platform and the real base of law that is currently being applied within the states. In this perspective, the study of the different formants can be a very useful mean to maintain the digital template linked to the legal reality that is supposed to represent.

Formants and IMOLA II: the supranational level

Eu private law (substantive law harmonization)

Private international EU law (regulations)

Formants and IMOLA II: the supranational level

EU private law (substantive law)

Reminder:

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste

«possession»

Art. 3 (definitions) “waste holder” means the waste producer or the natural or legal person who is in *possession* of the waste

Formants and IMOLA II: the supranational level

EU private law (substantive law)

UK	IT	DE	FR	NL
↓	↓	↓	↓	↓
Possession	Possesso	Besitz	Possession	Bezit

possession in EU law (Directive 2008/98/EC) **:** material control on the good without animus domini

↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑

National law and case law (formants)

Formants and IMOLA II: the supranational level

Private international EU law

Regulation (EU) No 650/2012 of the European Parliament and of the Council of 4 July 2012 on jurisdiction, applicable law, recognition and enforcement of decisions and acceptance and enforcement of authentic instruments in matters of succession and on the creation of a European Certificate of Succession

Regulation (EU) No 650/2012

The rule introduced by the regulation is that of habitual residence and not that of the citizenship of the deceased.

Thus, problems may arise when the lex successionis is invoked in a Member States different from that in which the property is located (lex rei sitae).

As a consequence, it might happen that the right *in rem* in question is not regulated by the law of the Member State in which the right is invoked and it is then unknown.

The adaptation principle

Article 31

Adaptation of rights *in rem*

Where a person invokes a right *in rem* to which he is entitled under the law applicable to the succession and the law of the Member State in which the right is invoked does not know the right *in rem* in question, that right shall, if necessary and to the extent possible, be adapted to the closest equivalent right *in rem* under the law of that State, taking into account the aims and the interests pursued by the specific right *in rem* and the effects attached to it.

The adaptation principle

The international private law scholars commenting the regulation suggest to rely on the methodology of comparative law in order to verify the applicability of the adaptation principle.

The instruments of comparative law

Comparative law methodology

1) homologation (legal translation)
2) operational rules

CJEU, 12 October 2017, judgment “Kubicka”

The referring Court asks, in essence, whether Article 1(2)(k) and (l) and Article 31 of Regulation No 650/2012 must be interpreted as precluding refusal, by an authority of a Member State (Germnay), to recognise the material effects of a legacy ‘by vindication’, which is recognised by the law governing succession chosen by the testator in accordance with Article 22(1) of that regulation (Poland), when that refusal is based on the ground that the legacy concerns the right of ownership of immovable property located in that Member State whose law does not provide for legacies with direct material effect when succession takes place.

35

CJEU, 12 October 2017, judgment “Kubicka”

- In the present case, both the legacy ‘by vindication’, provided for by Polish law and the legacy ‘by damnation’, provided for by German law, constitute methods of transfer of ownership of an asset, namely, as the Advocate General noted out in points 46 and 47 of his Opinion, a right *in rem* that is recognised in both of the legal systems concerned. Therefore, the direct transfer of a property right by means of a legacy ‘by vindication’ concerns only the arrangement by which that right *in rem* is transferred at the time of the testator’s death, which, according to recital 15, is precisely what Regulation No 650/2012 seeks to allow, in accordance with the law governing succession.

CJEU, 12 October 2017, judgment “Kubicka”

- Article 31 of Regulation No 650/2012 does not concern the method of the transfer of rights *in rem*…….

…..herefore, in so far as the right *in rem* transferred by the legacy ‘by vindication’ is the right of ownership, which is recognised in German law, there is no need for the adaptation provided for in Article 31 of Regulation No 650/2012.

The consequences of the decision in Germany

The *Rechtspfleger* and the legacy

The operative rule in Germany

After «Kubicka»

In the German legal system the *operative rule acting* is the effective transfer of a legacy with direct material effects.

Comparative law

- After Kubicka
- A new «model» in Germany, that is a substantive law institute (rule)

The formants

In a legal system must be observed not only how courts have actually resolved cases. Knowledge of a legal system entails knowledge of factors present to day which determine how cases will be resolved in the near future.

R. Sacco, *Legal Formants: A Dynamic Approach to Comparative Law,* cit., p. 47.

The formants

- The CJEU is introducting de facto new substantive law rules in the Member States!

IMOLA II and the formants: the way forward

- IMOLA II ant the formants are usefull not ony in the harmonization of the land registry sytem, but also to uncover the right solution applicable in the framework or the adaptation principle (in various regulations) and so to support civil justice in Europe.
-
- The study of the different formants will be crucial for the updating of the digital template, so as to keep it linked to the legal reality that each template is supposed to represent.

- Informatic instruments are crucial (but experts should manage informatic data and not the opposite).

Land Registers Interconnection

Gabriel Sima
European Commission, DG Justice and Consumers

7-8 February 2019

European e-Justice Portal

European Commission

Contents

- Context
- LRI project status
- Integration with IMOLA II
- Payment solution
- User authentication and authorization
- Grants

Context

The Land Registers Interconnection (LRI) project aims to provide a single access point within the European e-Justice Portal to the land registers of participating EU countries. This will address the current issues of discrepancy, complexity and multitude of land registration systems amongst Member States. Through this access point citizens and professionals will be able to query and retrieve relevant information via a single, adaptive, multi-lingual interface, in compliance with the national legal and technical capabilities.

LRI project status

- **Phase I is available for integration testing with Member States since December 2017, at contractor's Demo site (multilingual):**
  https://dg-justice-portal-demo.eurodyn.com/ejusticeportal
  -> Registers – Land Registers Interconnection (LRI)

- **Phase II will feature an authentication and authorization mechanism – Q3 2019**

- **Austria and Estonia are working on interconnection with LRI based on a European Commission grant**

Integration with IMOLA II

- **Participation in defining ELRA - IMOLA II specifications for integration with LRI**
- **Review of ELRD document by DIGIT ISA for interoperability with Member State systems**
- **Supporting the adoption by Member States of the ELRD standard for facilitating LR document exchanges**

Central payment solution

- **New call for tenders to be launched for contracting a Payment Services Provider**

- **VAT: Tax Calculation Module (TCM) ready by end of March 2019**

- **Invoicing: Member State survey for BRIS shows a wide preference for option 3: e-Justice Portal gathers the invoicing information from the Land Registers, generates the invoice on their behalf, and delivers it to the user.**

User authentication and authorization

- **Working on the specifications with Digit, DG CNECT, Austria and Estonia**
- **Integration with AT and EE Identity Providers as a first step in preparation of full eIDAS compatibility**

European Commission

Grants

Justice Action Grants opened on 31st January 2019, with a deadline for submission of project applications 13th June 2019 (17:00 Brussels time)

Thank you

- **Questions and discussion**

IMOLA
Interoperability Model for Land Registers

kadaster

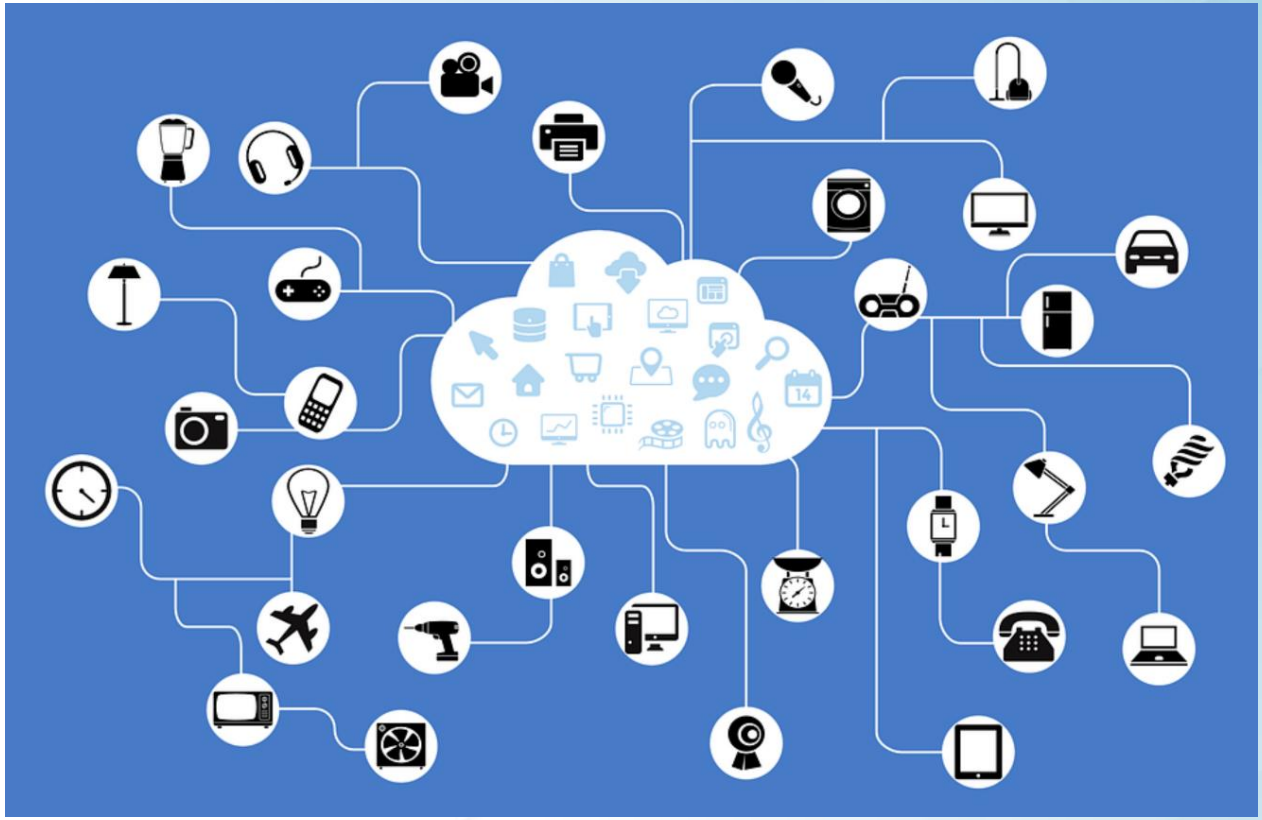
A National Linked Data Model

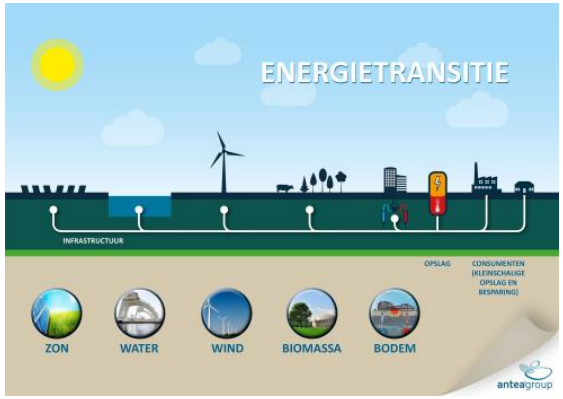
The Dutch Experience

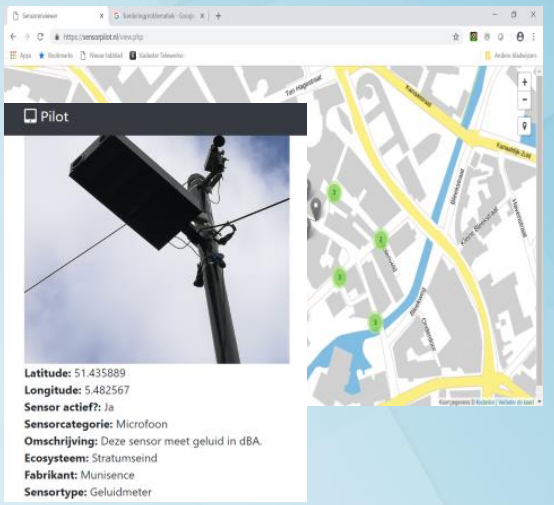
Jacques Vos

IMOLA
Interoperability Model for Land Registers

TOWARDS AN INFRASTRUCTURE OF SMART OBJECTS

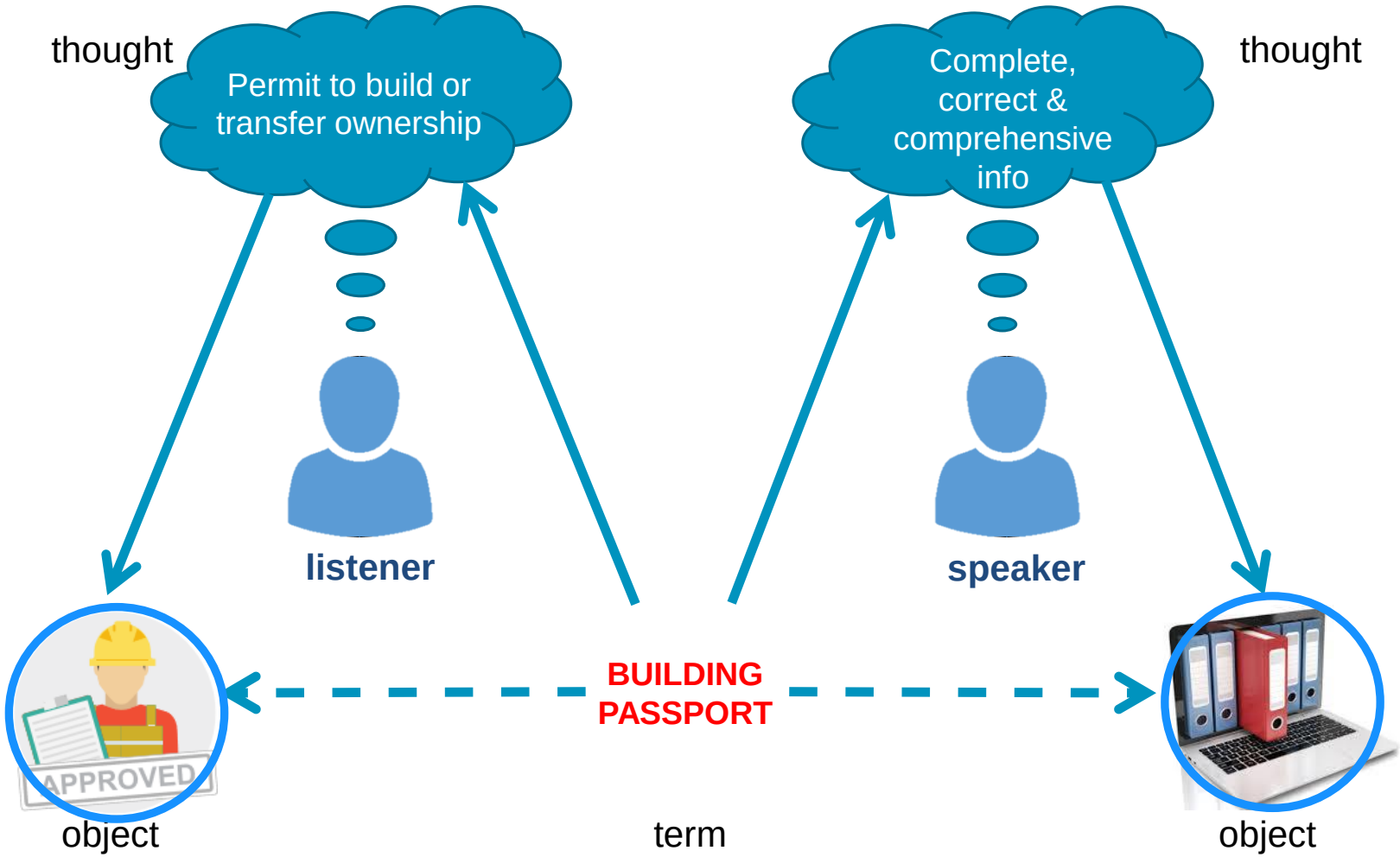






WE ARE ALSO FACING

SOCIETAL CHANGES..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Permit to build or transfer ownership
Complete, correct & comprehensive info
thought
listener
speaker
APPROVED
BUILDING PASSPORT
object
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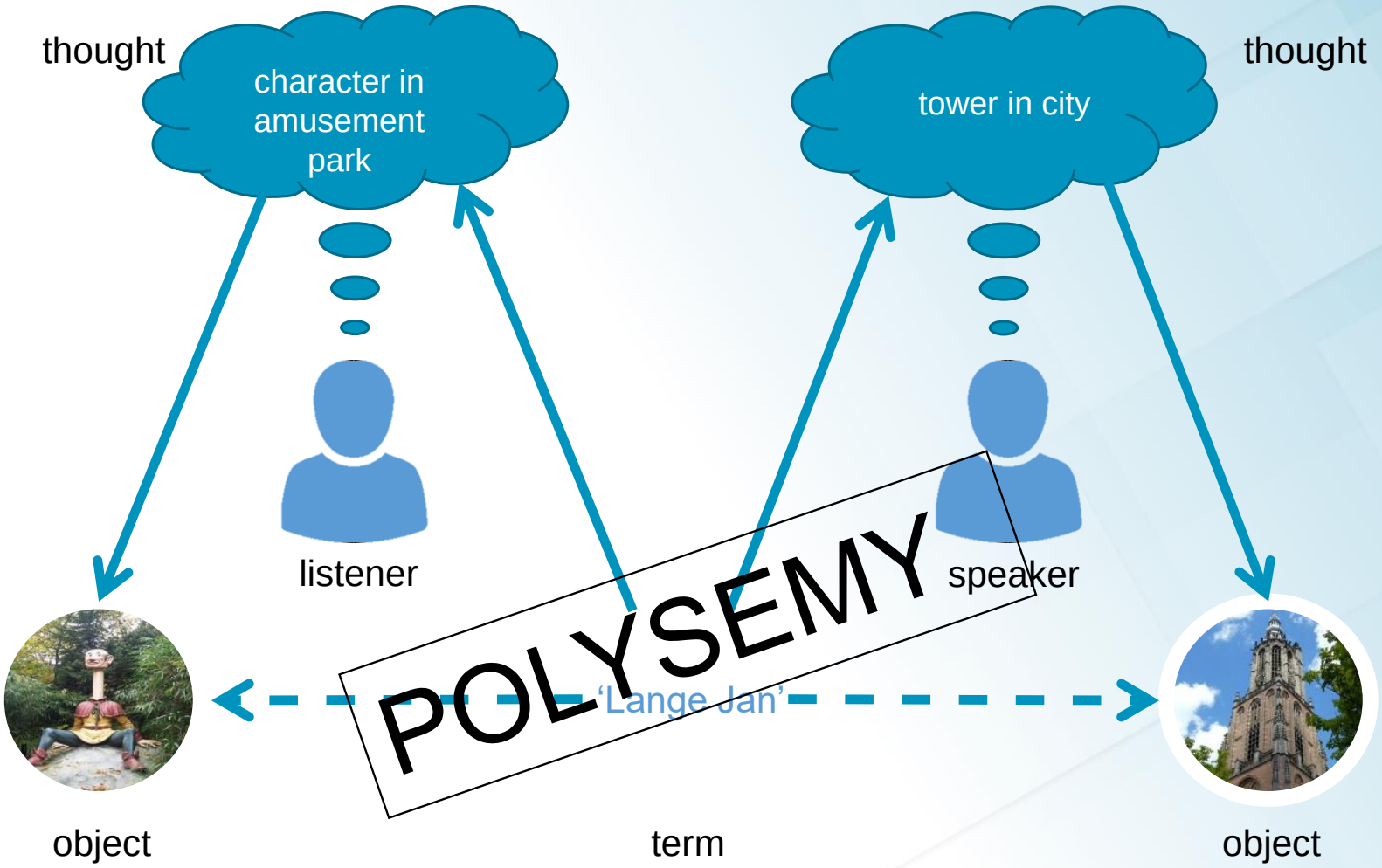
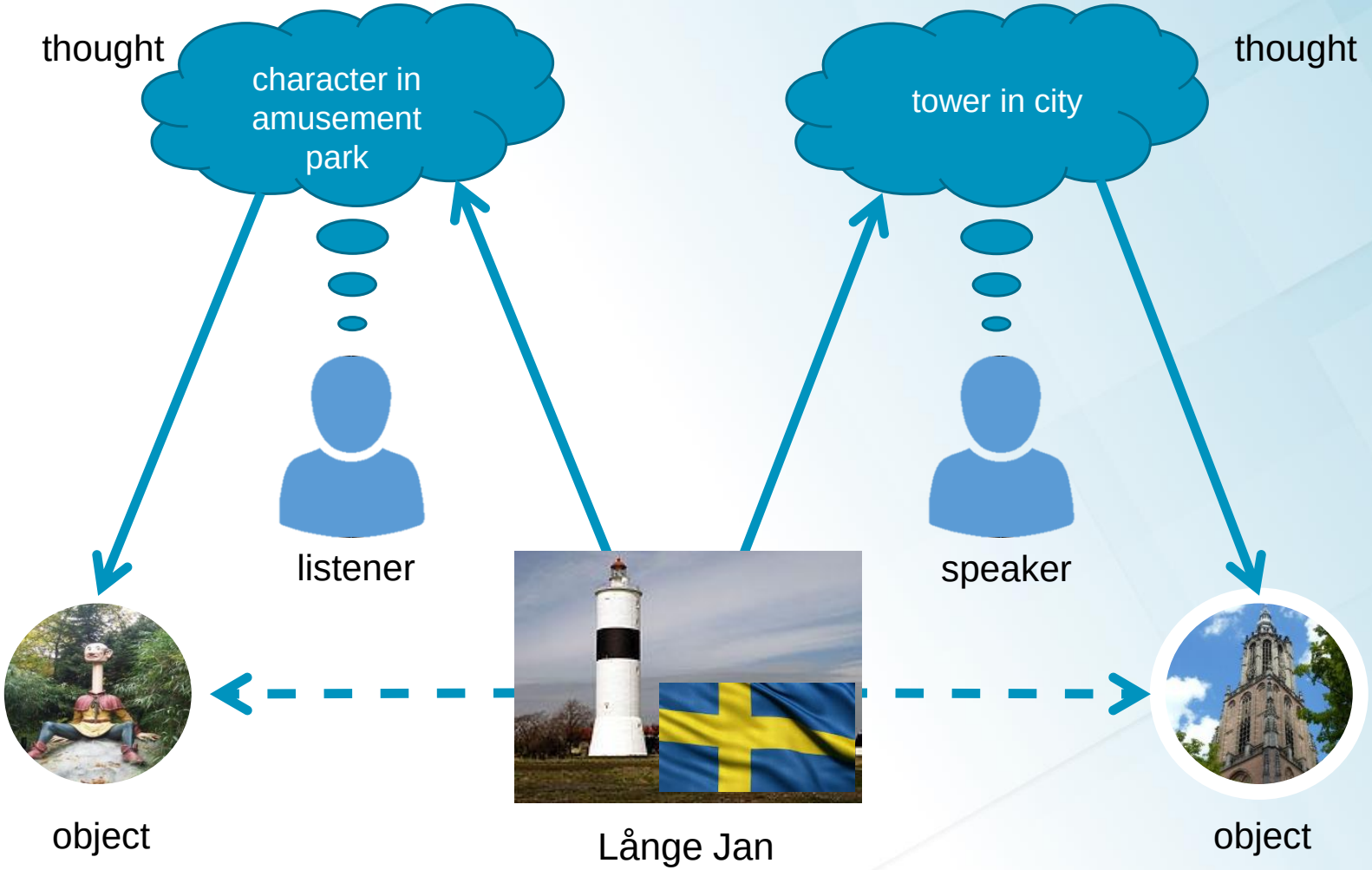


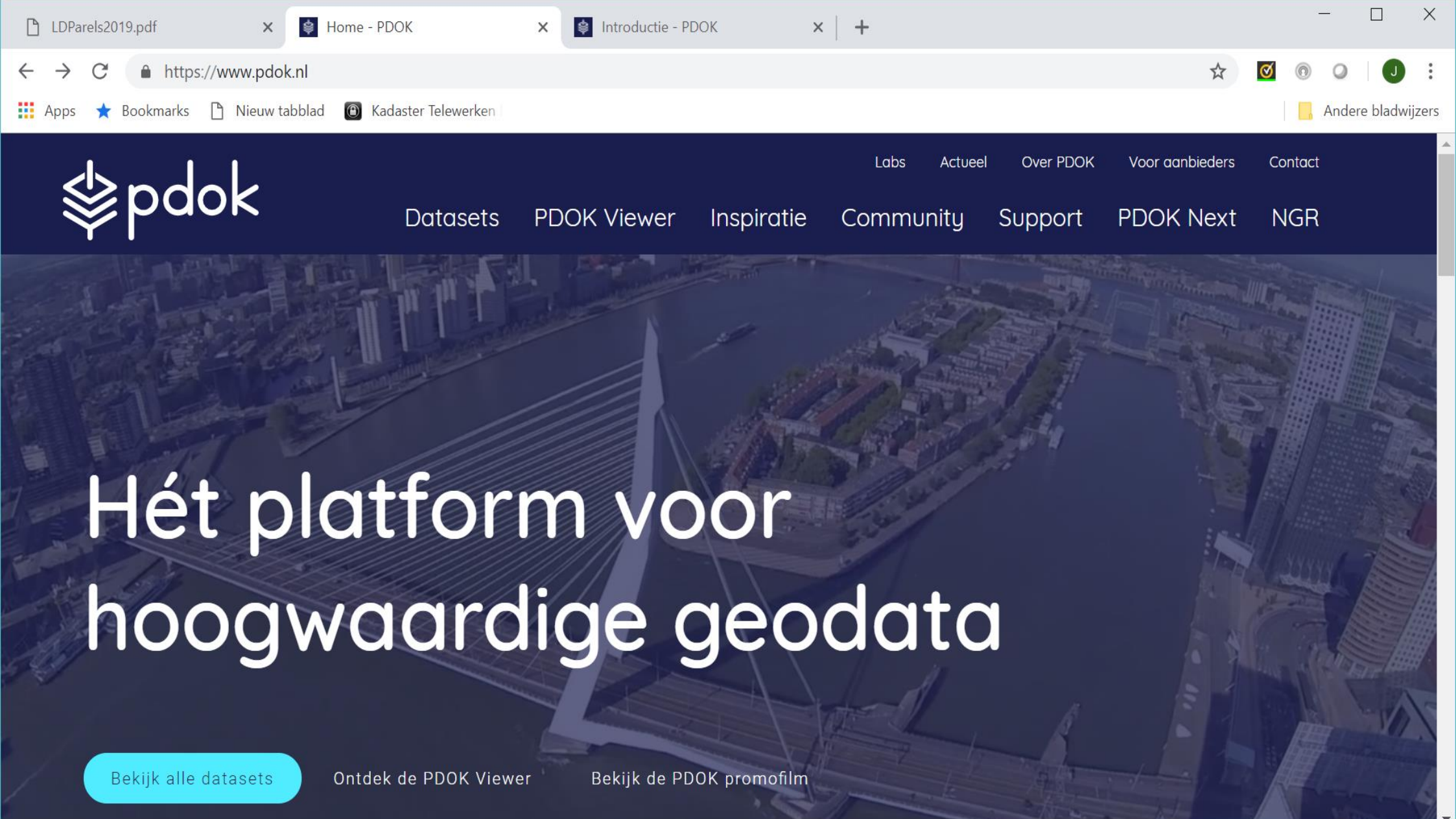
Source: Brattinga, et al



Source: Brattinga, et al

THE MEANING OF LAND REGISTRY DATA

- QUALITY
- OWNERSHIP
- USE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Contact
Datasets
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Hét platform voor hoogwaardige geodata
Bekijk alle datasets
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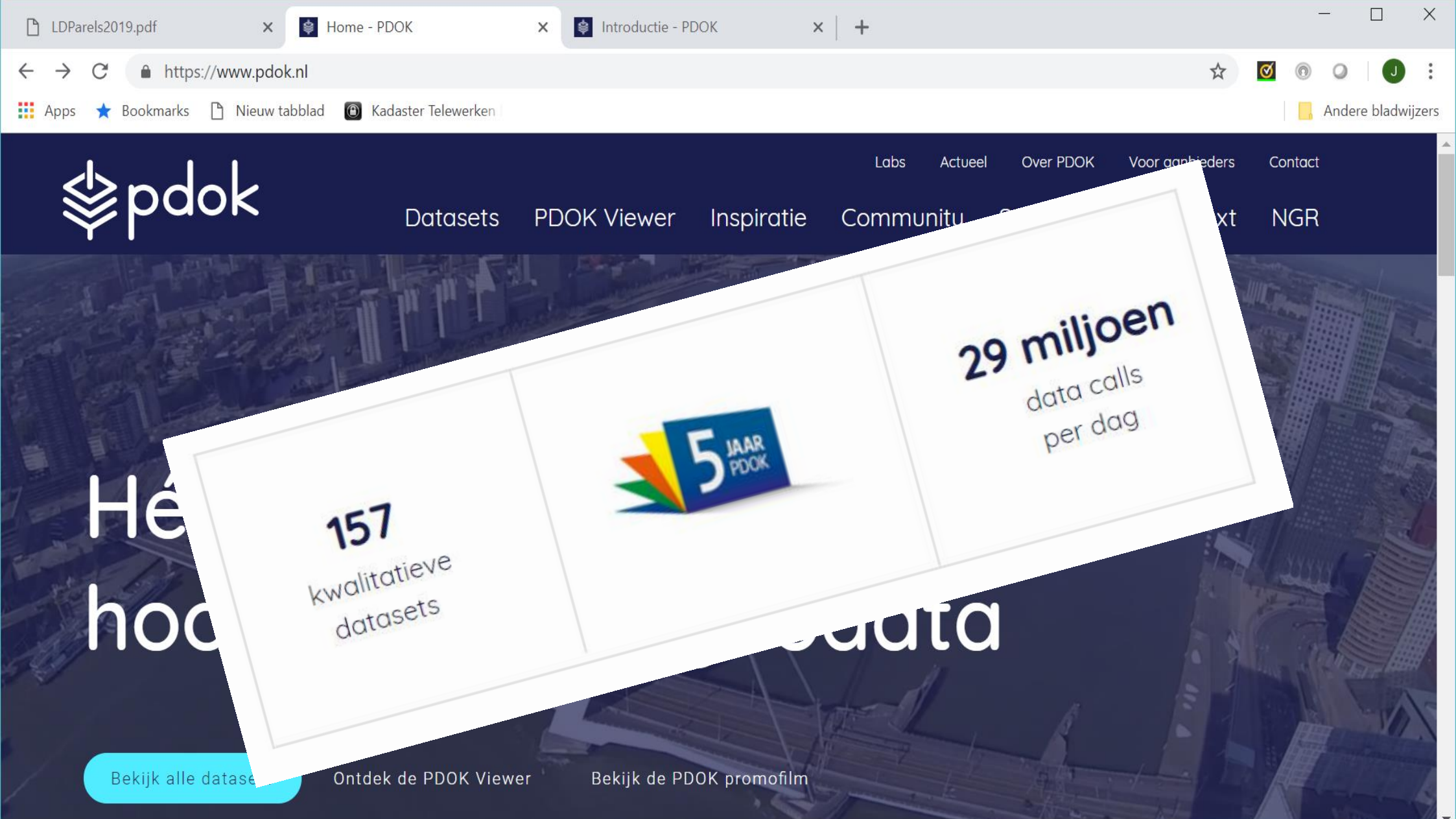
Bekijk de PDOK promofilm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Voor aanbieders
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Datasets
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Inspiratie
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157
kwalitatieve
datasets
5 JAAR PDOK
29 miljoen
data calls
per dag
Bekijk alle datase
Ontdek de PDOK Viewer
Bekijk de PDOK promofilm

Thema

- (Civiele) Structuren
- Binnenwater
- Economie
- Geo Wetenschappelijke Data
- Grenzen
- Hoogte
- Landbouw en Veeteelt
- Locatie
- Maatschappij
- Natuur en Milieu
- Oceanen
- Planning Kadaster
- Referentie Materiaal Aardbedekking
- Spreiding van soorten
- Transport

Zoeken

datasets zoeken

3D Kaarten

3D kaart NL is een digitaal topografisch bestand waarin alle objecten uit TOP10NL driedimensionaal worden weergegeven. Het bestand is een combinatie van de 2D-informatie uit TOP10NL en hoogtepunten.

Thema
Hoogte

Organisatie
Kadaster

Ontsluitingen
Downloads

Details bekijken

Actueel Hoogtebestand Nederland (AHN1)

Het Actueel Hoogtebestand Nederland (AHN) is een hoogtebestand vervaardigd door middel van laseraltimetrie.

Linked Data browsers

- Bevolkings Browser
- Bier Browser
- BRT Browser
- Economie Browser
- Energie Browser
- Grondmarkt Browser
- Monumenten Browser
- Nationaal Archief Browser
- Woningen Browser

Archiefviewer

PDOK Labs

BETA

Bekijk op GitHub

Bekijk onze datasets en SPARQL service!

Laatste wijzigingen:

Basisregistratie Grootschalige Topografie (BGT)

De Basisregistratie Grootschalige Topografie (BGT) is dé gedetailleerde grootschalige basiskaart (digitale kaart) van heel Nederland.

Thema
(Civiele) Structuren

Organisatie
Kadaster

Ontsluitingen
Geo Services / Downloads

Details bekijken

Basisregistratie Kadaster (BRK)

De Basisregistratie Kadaster (BRK) bestaat uit de kadastrale registratie en de kadastrale kaart.

Thema
Grenzen

Organisatie
Kadaster

Ontsluitingen
RESTful API / Linked Data / Geo Services / Downloads

Details bekijken

Basisregistratie Ondergrond (BRO)

De BRO bevat gegevens over de diepe en ondiepe ondergrond. De gegevens zijn onderverdeeld in

Dataset: Basisregistratie Kadaster (BRK)

De Basisregistratie Kadaster (BRK) bestaat uit de kadastrale registratie en de kadastrale kaart.

Omschrijving

Het Kadaster is houder van de Basisregistratie Kadaster (BRK). Onderdeel van de BRK is de Digitale kadastrale

Run in Postman

LDParels2019.pdf | Begrippenlijst - PDOK | Introductie - PDOK

https://www.pdok.nl/begrippenlijst?articleid=1949811

Apps | Bookmarks | Nieuw tabblad | Kadaster Telewerken | Andere bladwijzers

De Basisregistratie Kadaster (BRK) bestaat uit de kadastrale registratie en de kadastrale kaart.

Introductie | Geo Services | Downloads | RESTful API | Linked Data | Begrippenlijst

A-Z

A

A
B
C
D
E
F
G
H

Administratief — Voorlopige kadastrale grenzen ingebracht door een Kadaster medewerker

Aanschrijving woningwet — Een Aanschrijving woningwet is een schriftelijke beslissing van de gemeente die verplichtingen stelt aan het onderhoud, beheer en gebruik van een bouwwerk, open erf of terrein.

Aantekening — Een Aantekening is een aanvulling op de registratie van een registergoed met betrekking tot een rechtsfeit dat gevolgen kunnen hebben voor de uitoefening van de rechten uit registergoed.

Aanvaarding nalatenschap — Een Aanvaarding nalatenschap is een positieve beslissing met betrekking tot een nalatenschap door het afleggen van een daartoe strekkende verklaring ter griffie van de rechtbank van het sterfhuis door de erfgenaam.

Aanvaarding nalatenschap onder voorrecht van boedelbeschrijving — Een aanvaarding nalatenschap onder voorrecht van boedelbeschrijving is een aanvaarding nalatenschap waarbij de erfgenamen de nalatenschap slechts aanvaarden voor zover het saldo van de nalatenschap positief is.

CONCEPTS (>900!):
- **Main concepts**: begrippen
- **Legal facts**: rechtsfeiten
- **Annotations**: aantekeningen

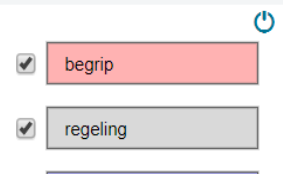
Akte

label	Akte
Uitleg	Een akte is een ondertekend document dat gebruikt wordt als bewijs.
Definitie	Een akte is een ondertekend geschrift bestemd om tot bewijs te dienen.
Toelichting	Een akte is authentiek of onderhands. Een authentieke akte is een openbare akte in de vereiste vorm en bevoegdelijk opgemaakt door ambtenaren aan wie bij of krachtens de wet is opgedragen op die wijze te doen blijken van door hen gedane waarnemingen of verrichtingen. Een onderhandse akte is een akte die niet authentiek is. Een notariële akte is een authentieke akte. Notariële akten kunnen zijn partij-akten of proces-verbaal-akten. Partij-akten bevatten waarnemingen van de notaris, verklaringen van partijen en eventueel bevestigingen daarvan door getuigen. Proces-verbaal-akten bevatten slechts waarnemingen van de notaris en eventueel bevestigingen daarvan door getuigen
Rationale	Ontleend aan het Fockema Andreae's Juridisch woordenboek en de Wet op het notarisambt, Titel V.
Bron	Artikel 37 Wna

Erfgenaam	Een erfgenaam is een persoon die voor het geheel of voor een evenredig deel in de vermogensrechtelijke positie van de erflater treedt.
Erfpacht	Erfpacht is een Zakelijk recht dat de erfpachter de bevoegdheid geeft eens anders onroerende zaak te houden en te gebruiken.
Eigendom	Eigendom is een Zakelijk recht dat het meest omvattende recht is wat een persoon op een zaak kan hebben.
Eigenaar	Een Eigenaar is een persoon die het meest omvattende recht op een zaak heeft.
Erfdienstbaarheid	Erfdienstbaarheid is een last, waarmede een onroerende zaak - het dienende erf - ten behoeve van een andere onroerende zaak - het heersende erf - is bezwaard.
Echtgenoot	Een echtgenoot is een persoon die door het huwelijk verbonden is met een andere persoon
Einddatum recht	Een einddatum recht is een datum waarop een recht vervalt.
Eis tot vastlegging eigendom netwerk	Een Eis tot vastlegging eigendom netwerk is een inschrijving in de openbare registers als aantekening van het feit dat een partij een eis heeft ingediend ter vaststelling van het eigendom van een netwerk
Electriciteitsnetwerk	Een Elektriciteitsnetwerk is een netwerk bestaande uit een of meer kabels of leidingen bestemd voor de transport van elektriciteit.

Eigendom

label	Eigendom
Uitleg	Eigendom is het meest omvattende recht dat iemand of een organisatie op een zaak kan hebben.
Definitie	Eigendom is een Zakelijk recht dat het meest omvattende recht is wat een persoon op een zaak kan hebben.
Toelichting	Het staat de eigenaar met uitsluiting van een ieder vrij van de zaak gebruik te maken, mits dit gebruik niet strijdt met rechten van anderen en de op wettelijke voorschriften en regels van ongeschreven recht gegronde beperkingen daarbij in acht worden genomen.
Rationale	Ontleend aan het Burgerlijk Wetboek, Artikel 5:1 lid 1
Bron	Artikel 1 BW Boek 5
Specialisatie van	Zakelijk recht
Gerelateerd aan	Persoon Zaak



Zakelijk recht

label	Zakelijk recht
Uitleg	Een zakelijk recht is het recht dat iemand op een zaak heeft en dat iemand anders niet aan kan tasten.
Definitie	Een Zakelijk recht is een absoluut recht op een zaak dat tegenover iedereen te handhaven is.
Toelichting	Met een zakelijk recht wordt bedoeld een recht dat samenhangt met een zaak of een goed. Dit in tegenstelling met een persoonlijk recht, een recht dat samenhangt met de persoon. Om het verschil tussen beide rechten duidelijk te maken een voorbeeld. Eigendom is een zakelijk recht. Dat betekent onder meer dat het recht niet eindigt door het overlijden van de eigenaar. Als een eigenaar overlijdt vallen al zijn eigendommen in zijn nalatenschap. Huur is een persoonlijk recht. Door het overlijden van de huurder eindigt in principe wel de huur. Zakelijke rechten zijn, behalve het recht van eigendom, de rechten van erfpacht, opstal, vruchtgebruik, gebruik en bewoning en erfdienstbaarheid. Een Zakelijk recht kan zijn een zakelijk genotsrecht of een zakelijk zekerheidsrecht
Rationale	Ontleend aan het Juridisch Woordenboek, Fockema Andreae's
Specialisatie van	Vermogensrecht
Gerelateerd aan	Zaak

Zaak

label	Zaak
Uitleg	Een zaak is een tastbaar iets dat is ontstaan door de natuur of door een mens.
Definitie	Een zaak is een voor menselijke beheersing vatbaar stoffelijk object
Rationale	Ontleend aan het Burgerlijk Wetboek
Bron	Artikel 2 BW Boek 3

skos:definition	
URI:	http://www.w3.org/2004/02/skos/core#definition
Definition:	Section 7. Documentation Properties
Label:	*definition*
Super-properties:	skos:note
skos:editorialNote	
URI:	http://www.w3.org/2004/02/skos/core#editorialNote
Definition:	Section 7. Documentation Properties
Label:	*editorial note*
Super-properties:	skos:note
skos:exactMatch	
URI:	http://www.w3.org/2004/02/skos/core#exactMatch
Definition:	Section 10. Mapping Properties
Label:	*has exact match*
Super-properties:	skos:closeMatch

DATA ARE IN SKOS

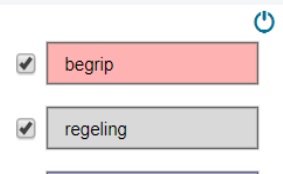
Wishlist:
Ex- & import functionality

BUT: no exact match; only close match

Eigendom

label	Eigendom
Uitleg	Eigendom is het meest omvattende recht dat iemand of een organisatie op een zaak kan hebben.
Definitie	Eigendom is een Zakelijk recht dat het meest omvattende recht is wat een persoon op een zaak kan hebben.
Toelichting	Het staat de eigenaar met uitsluiting van een ieder vrij van de zaak gebruik te maken, mits dit gebruik niet strijdt met rechten van anderen en de op wettelijke voorschriften en regels van ongeschreven recht gegronde beperkingen daarbij in acht worden genomen.
Rationale	Ontleend aan het Burgerlijk Wetboek, Artikel 5:1 lid 1
Bron	Artikel 1 BW Boek 5
Specialisatie van	Zakelijk recht
Gerelateerd aan	Persoon Zaak

PIVOT: The most comprehensive right a person can hold to a corporeal or incorporeal asset, or even another right or a claim (...)



MEANING OF USE OF CONCEPT

- USE OF MAINSTREAM STANDARDS AS **SKOS**
- SKOS: W3C STANDARD
- EVERY TAXONOMY/ THESAURUS ENGINE ABLE TO INTERPRET SEMANTIC STRUCTURE OF THE DATA

MEANING OF USE OF CONCEPT

- EVERY CONCEPT = SKOS-CONCEPT
- WITH A FORMAL LEGAL DEFINITION AND
- UNDERSTANDABLE EXPLANATION FOR ”NON-LEGAL PEOPLE”
- INCLUDING SEMANTIC RELATIONS:
  - ‘is specialization of’
  - ‘is generalisation of’
  - ‘is related to’
- → EVERY CONCEPT CAN BE MAPPED ON OTHER VOCABULARIES (e.g. IMOLA-core vocabulary)

CHALLENGES

- MOST CONCEPTS NOT 1:1 EQUIVALENT IN IMOLA
- FORMAL (LEGAL) MEANING OF EACH CONCEPT:

  - IN CONTEXT OF LAW

  - (THEREFORE) IN NATIVE LANGUAGE

  - WITH IMPLICIT CONNOTATIONS

BUT… USING SKOS

- SEMANTICALLY CORRECT MATCHING OF NATIVE CONCEPTS (E.G.)
  - ‘specialization of’
  - ‘generalisation of’ or
  - ‘almost the same as’

- EXPLAINING MEANING OF NATIVE CONCEPTS IN ENGLISH CAN BE DONE THE SAME WAY AS WE EXPLAIN THE MEANING IN NON-LEGAL NATIVE LANGUAGE

Example: the concept ‘Perceel’

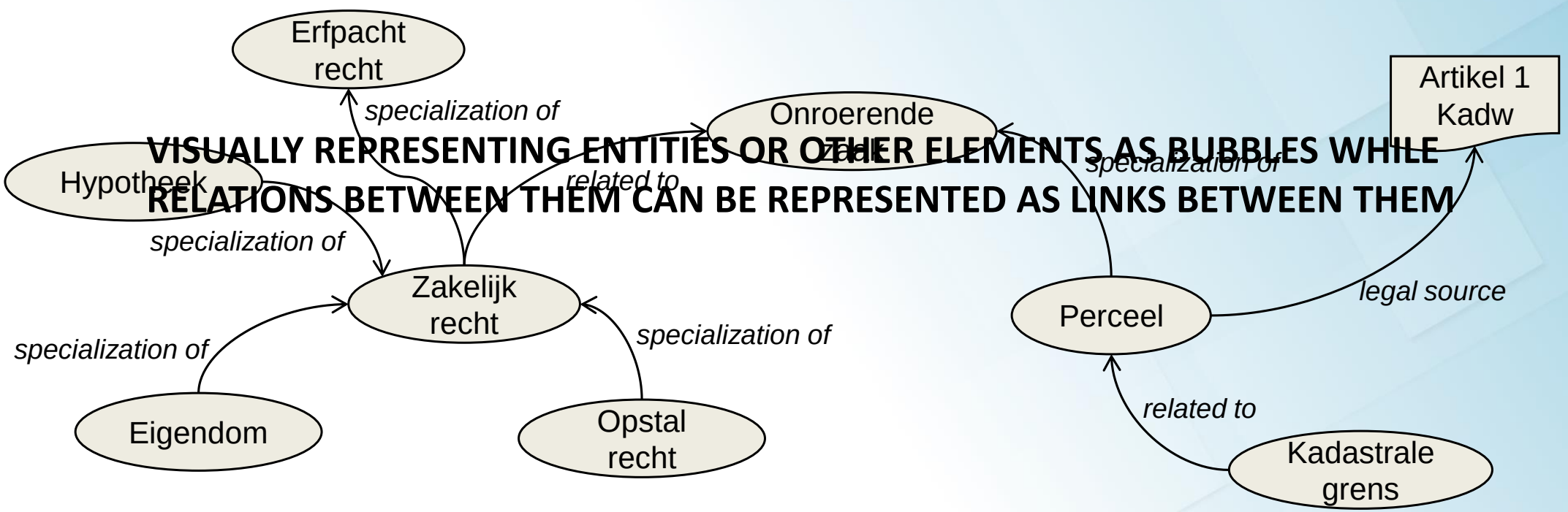
Perceel

Term:	Perceel
Imola term:	Property *(broader match)*
Explanation (nl):	Een perceel is een stuk grond waarvan het Kadaster de grenzen heeft gemeten en dat bij het Kadaster een eigen nummer heeft.
Explanation (en):	
Legal definition:	Een perceel is een begrensd deel van het Nederlands grondgebied dat kadastraal geïdentificeerd is en met kadastrale grenzen begrensd is.
Legal source:	Artikel 1 Kadw

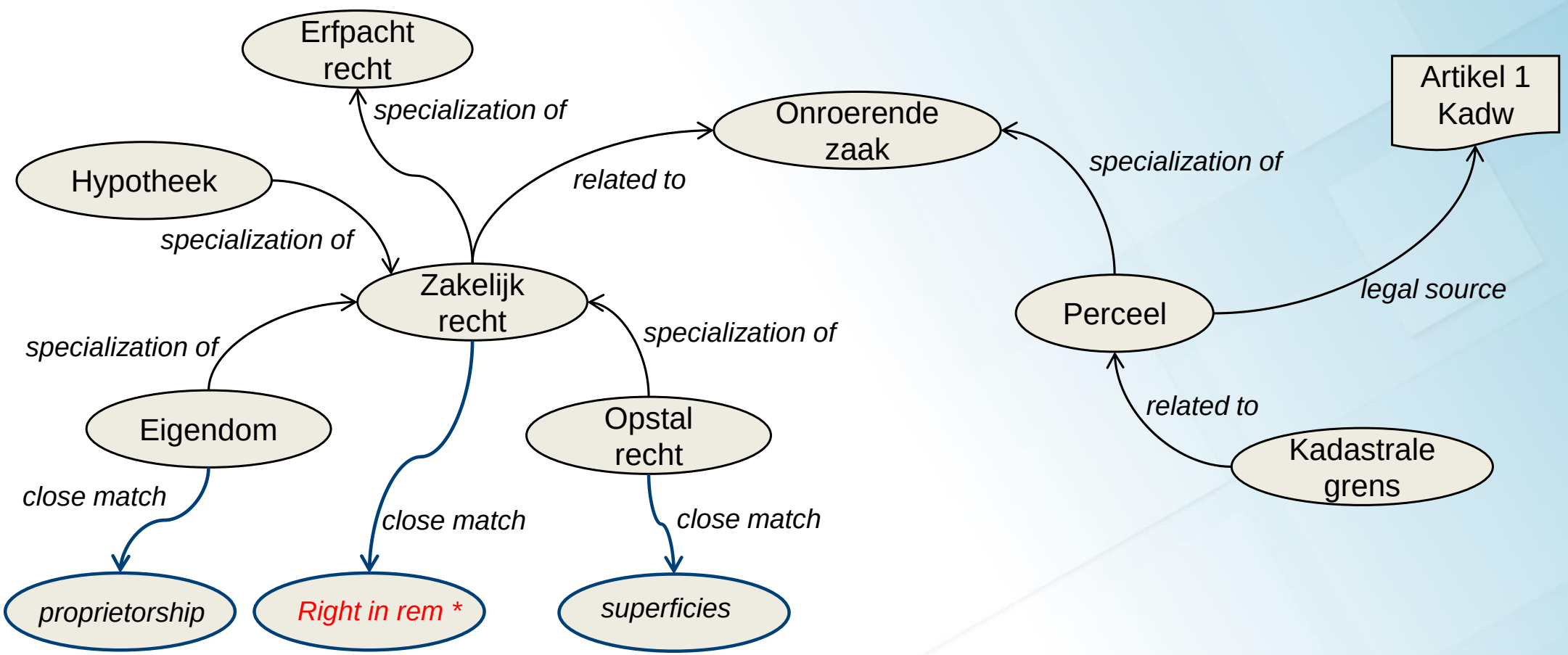
Semantic relations

Specialization of:	Onroerende zaak
Related to:	Kadastrale grens
	Zakelijk recht

Semantic network

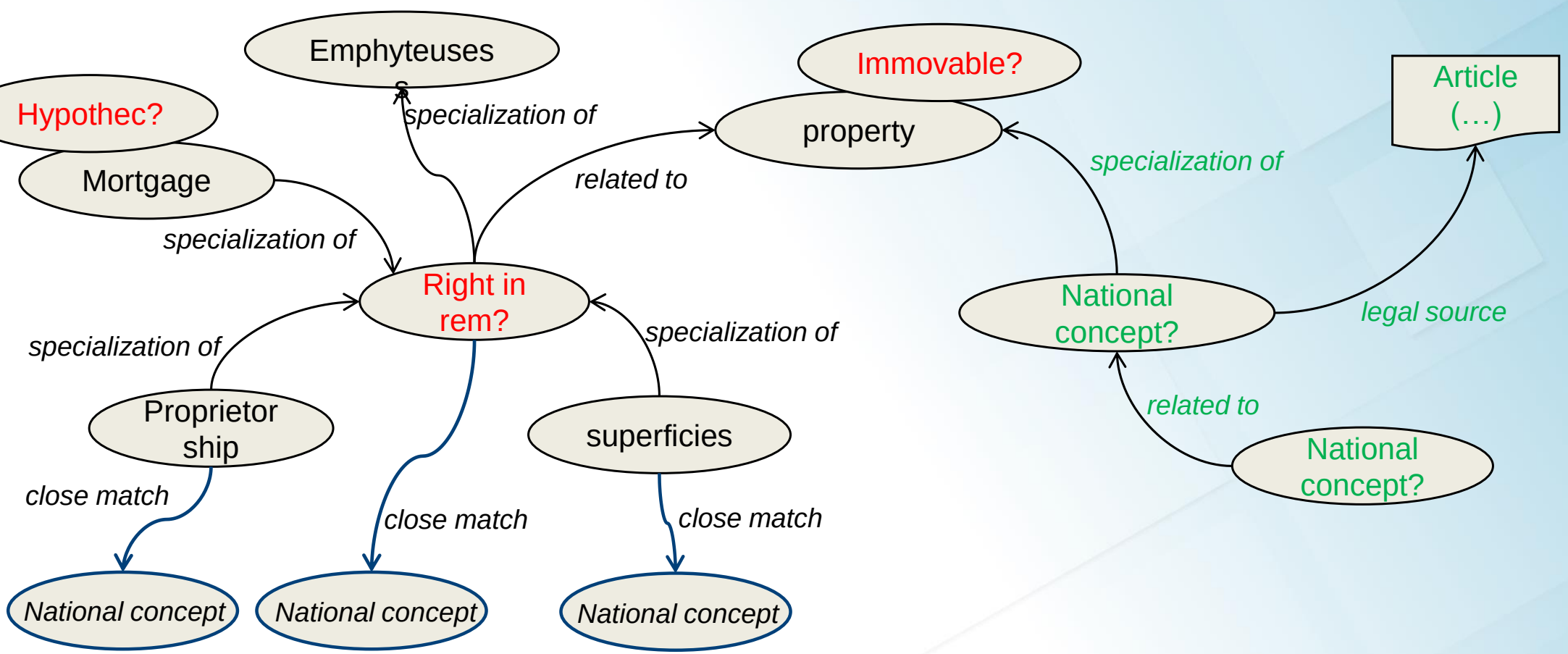


Match with IMOLA Core Vocabulary



* Not known in Pivot?

No National Core Vocabulary?



MOVING ON FORWARD

1. CREATE (NATIONAL &) IMOLA VOCABULARY

2. CREATING IMOLA- URI`s (Uniform Resource Identifiers)

3. DISCLOSE VIA E-JUSTICE

4. MATCH WITH NATIONAL URI`s

5. CONNECT TO R.E. MARKET (URI`s):
   - BIM, XBRL, ECB, etc.

- TO CREATE A BUILDING PASSPORT (?) -

Jacques Vos
Registrar @ Kadaster

European Land Registry Association

Interoperability Model for Land Registers

IMOLA II 4th Training Seminar
Dublin 7-8 February 2019

State of play and training seminar objetives

IMOLA II Team

Data economy

Thankfulness

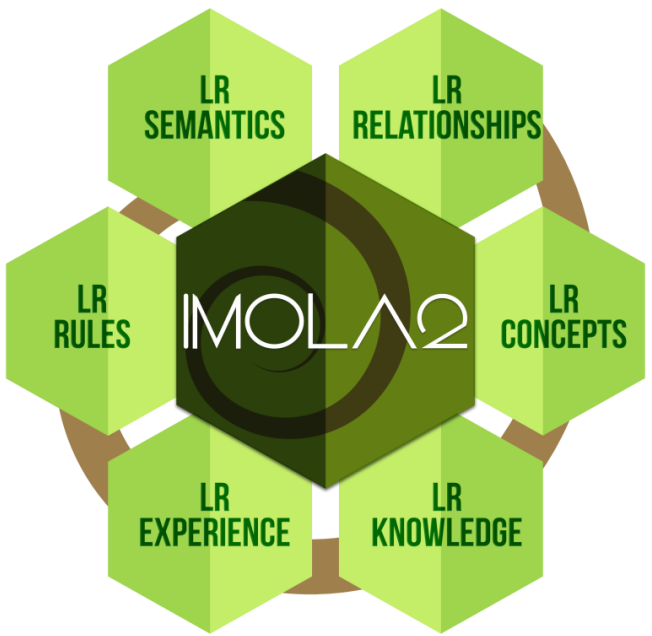
Collaborative environment

Objectives

- Consolidation IMOLA KOS
- Associative relationships
- Baselines
- Quality of data
- KM new developments
- LRI integration: IMOLA web service
- Collective electronic book

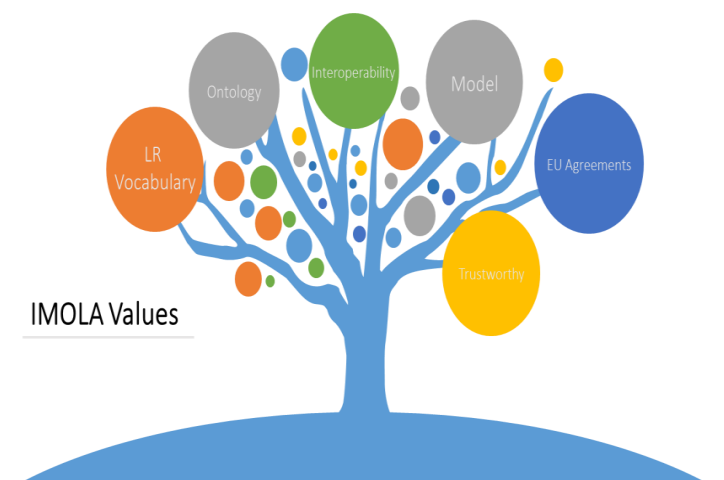
IMOLA II Milestones

- **I.KOS: Thesauri**
- **Input System: technological tool (KM)**
- **LRI integration: retrieval and visualization**



I.KOS Thesauri: activities fulfilled

- ELRD XSD/XML V2.0
- Technical requirement analysis
- Conceptual model: Corpus Semantic
- Four Training Seminars and explanatory material
- Academic feedback
- Commission collaboration: DG justice (LRI)/DG Digit (ISA)
- CPs web platform



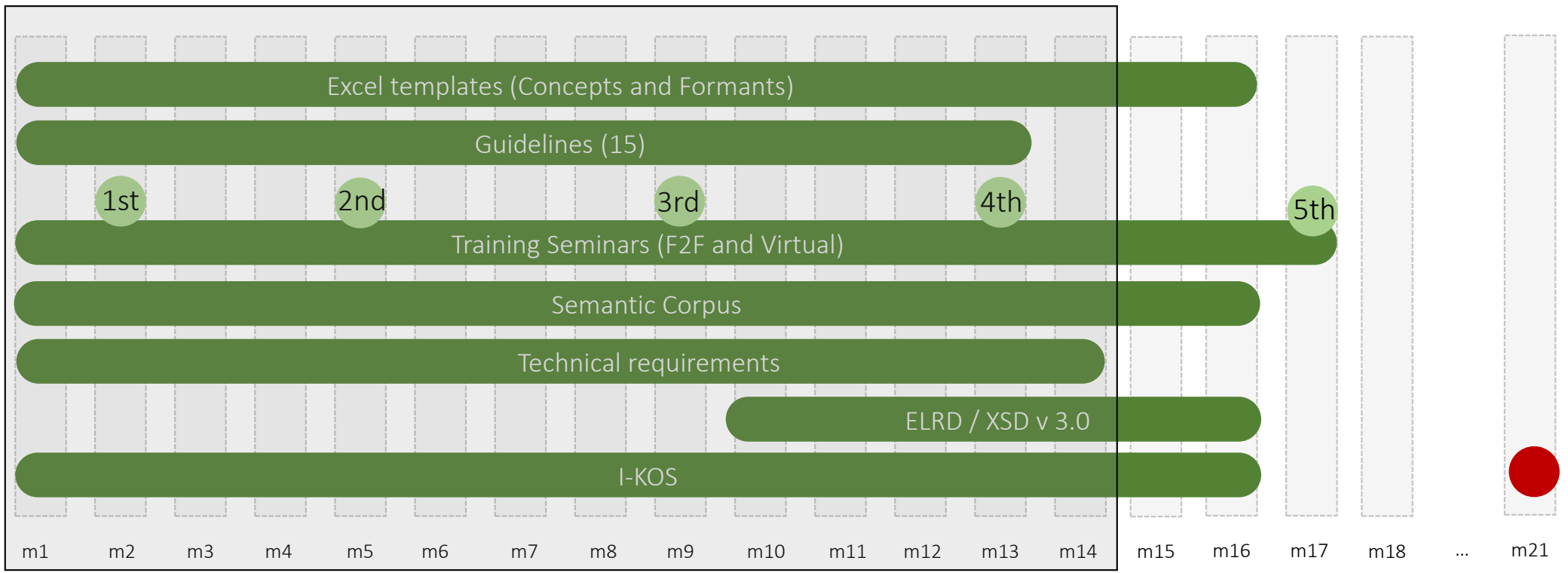
Input System: activities fullfilled

- KM customized technological tool V 19.2
- Handbook
- Web service and Data Base for storage
- Multilingual capabilities
- ELRD conceptualization and formalization

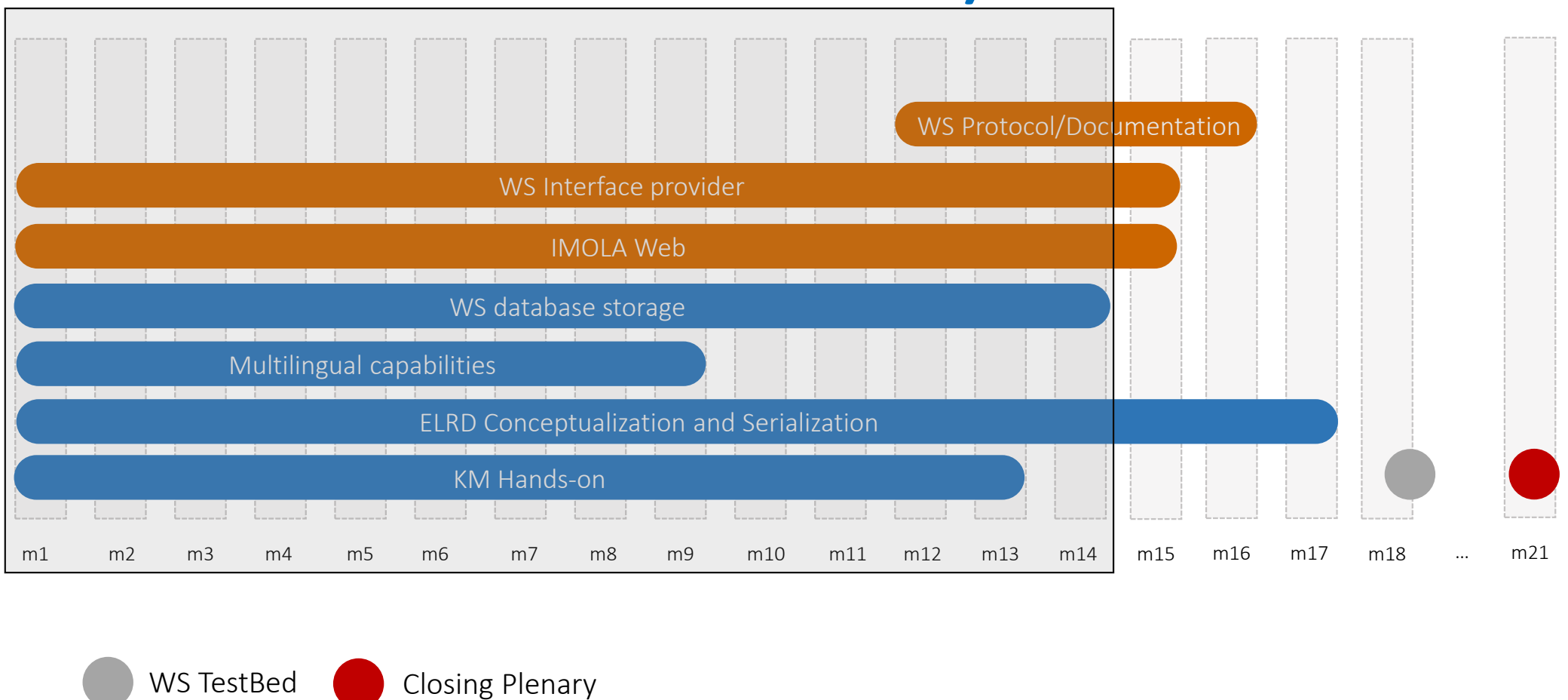
LRI/e.Justice integration: retrieval and visualization

- IMOLA web services
- Interface
- Data Exchange protocol
- Test bed

Overall achievements (I-KOS)



Overall achievements (Knowledge Manager Tool and Visualization)



Next steps

- Closing definitions
- Completing Formants/atributtes
- Quality checks
- Get familar and use IMOLA ICT
- Participate in the IMOLA Knowledge collective book

ELRA
European Land Registry Association

IMOLA
Interoperability Model for Land Registers

Many thanks

Team up together!

Data mining, immovables and commodification: Towards a “land data passport”?

Sjef van Erp

Maastricht University

Data Passport

- 1. Introduction
- 2. New legal objects
- 3. New legal subjects
- 4. New legal relations
- 5. To whom “belong” the data?
- 6. Data mining regarding immovables
- 7. Commodification of immovable property data
- 8. Towards a “digital passport”?
- 9. What should the passport contain?
- 10. Concluding remarks

Data Passport

- Problems to be analysed from a property viewpoint:

  - I. New legal objects?
  - II. New legal subjects?
  - III. New (types) of legal relations?

Data Passport

- A common vocabulary: What is ‘property law’ about? A comparative law answer:

  - *Property law is about (a) legal relations between (b) a subject and a substantial and relevant group of other subjects regarding an object*

Data Passport

- New legal objects (1)

  - Numerus clausus of objects
    - Physical things
    - Monetary claims
    - Human creativity
    - Data?

Data Passport

- New legal objects (2)

  - How to define ‘data’?
    - Data are non-rivalrous (can be copied)
    - From ‘facts’, to ‘information’, to ‘data’, but which data (specificity)?
    - How to define ‘facts’, ‘information’ and ‘data’?

Data Passport

- New legal objects (3)

  - Personalised data
    - Privacy protected (‘personal’ data)
    - Non-privacy protected (‘non-personal’)
  - Non-Personalised data (‘non-personal’ or ‘anonymous’ data)

Data Passport

- New legal objects (4)

  - Raw data
  - Metadata
  - Derived data
  - Processed data
  - Data in a hybrid world (‘Internet of Things’)

Data Passport

- ISO definition of data (ISO/IEC 2382-1, revised by ISO/IEC 2382:2015 – Information technology – Vocabulary):

  “Reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing."

Data Passport

- Article 4(1) Data Protection Regulation:

"'personal data' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person"

Data Passport

- Article 3 (1) Regulation on Free Data Flow of Non-Personal Data:

“'data' means data other than personal data as defined in point (1) of Article 4 of Regulation (EU) 2016/679;”

Data Passport

- New legal subjects (1)
  - Persons in the ‘real’ world
    - Natural persons
    - Legal persons
  - Electronic personality: Robots (self-driving cars, computer trading)
  - Persons in a ‘hybrid’ or ‘blended’ reality (‘avatars’)

Data Passport

- New legal subjects (2)
  - Legal subjects have a ‘patrimony’, their shadow of assets, representing economic wealth
    - Does a robot have a patrimony?
      - A self-driving car or a computerized trading system ‘has’ data, which have economic value

Data Passport

- New legal relations

  - New types of ’ownership’ or ‘possession’?
    - Different answers based on:
      - Area of law (private law, public law)
      - Type of object (tangible, intangible, digital)
      - Purpose (full control, security, management)
      - Nature of the data carrier (physical, human)
      - Distance of data from a subject (‘dispossession’)

Data Passport

- Who can still perceive the difference between AI, a human being, an object or a subject?

  - Example: The next Rembrandt

Data Passport

- Data mining regarding immovables

  - Satellites
  - Farming equipment (‘Internet of Things’)
  - Mobile phones

Data Passport

- Commodification of data: data as an object of trade

Data Passport

- To whom “belong” the data?
  - Subject – ‘data’subject, personal data
    - Which subject?
      - Copyright, database right
  - Object – ‘accessio’ of data
      - Data cannot exist without a carrier (could be an object or a subject)

Data Passport

- Should we introduce registration of data next to traditional registration?
- Various subquestions (1):
  - Part of land registry?
  - Part of movable property registry?
  - The use of distributed ledger technology (“block chain”) to create a unique object

Data Passport

- Should we introduce registration of data next to traditional registration?
- Various subquestions (2):
  - What should be registered: pointers or substantial data?
  - Which right(s) should be registered?
  - Whose right(s) should be registered?
  - Multiple types of “owners”?
  - How is the passport transferred?

Data Passport

- Final remarks

  - Data mining regarding immovable property
  - Should such data be stored as part of a land registration system?
  - Is the data personal or non-personal?
  - Should a “land data passport” be introduced?

Data Passport

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Bundesministerium
Verfassung, Reformen,
Deregulierung und Justiz

RIK
Centre of Registers and Information Systems

Funded by the
Justice Programme
of the European Union

LRI MS Connection: Project Overview

2019-01-07 ELRA Meeting in Dublin

EE: Katri Tammsaar

AT: Manfred Buric, Johann Kickinger

Agenda

- **LRI MS Connection - project overview**
  - Key project data
  - Partners
  - Objectives
  - Work-packages
  - Timeline
  - Achievements / Issues
  - Tests
  - Preview

Key project data

Content
Action acronym: **LRI MS Connection**
Action full title: **LRI Member State Connection - analysis, design and implementation of the national Web services for communication with the Land Registers Interconnection (LRI) platform at the European e-Justice Portal**
Duration: **15 months**
Start-Date: **01 March 2018**
End-Date: **31 May 2019**

Formal parameters
Grant agreement No: **785840**
Topic: Action grants to support national or transnational e-Justice projects
Type of action: Justice Action Grant: **785840 — LRI MS Connection — JUST-AG-2017/JUST-JACC-EJU-AG-2017**
Consortium agreement is required: **Yes**
Reimbursement rate: **80.00%** of the action's eligible costs

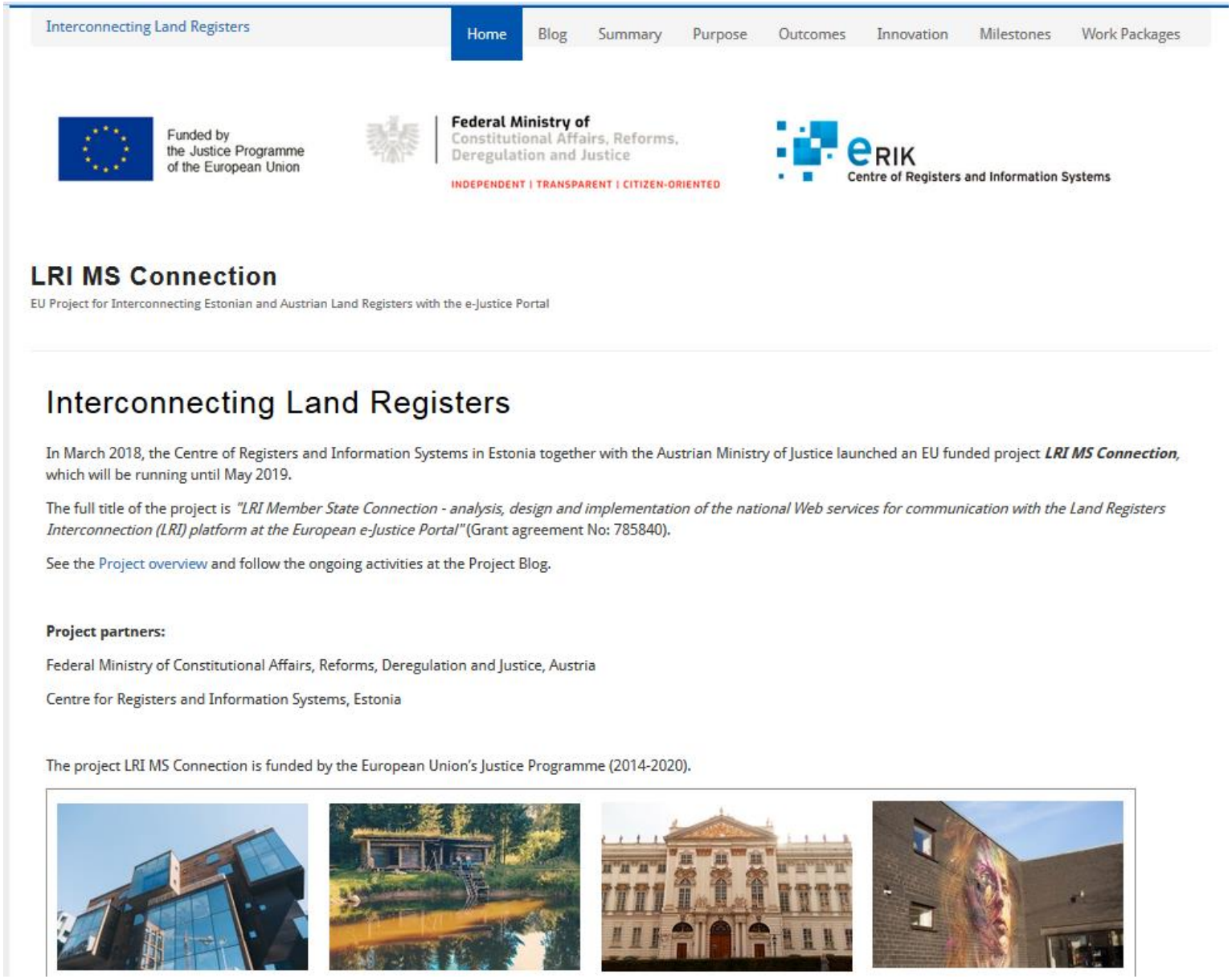
Two Project Partners

Beneficiary	Role	PIC	Legal name	Country
1 – BMJ	CO	974770267	**BUNDESMINISTERIUM FUER VERFASSUNG, REFORMEN, DEREGULIERUNG UND JUSTIZ**	AT
2 – CRIS	BEN	917887721	**REGISTRITE JA INFOSUSTEEMIDE KESKUS**	EE

AT BMJ is supported by its subcontractor „**Bundesrechenzentrum GmbH** (BRZ GmbH)" – **Austrian Federal Computing Centre** – a company with limited liability which is 100% owned by the Republic of Austria, represented by the AT Ministry of Finance.

Project Website

http://lri-ms.eu/



LRI MS Connection: Objective and Work-Packages

Project objective is to implement the national side of the Land Registers Interconnection (LRI) for the land registers of Austria and Estonia:

- **WP1: Management and Coordination of the Project**
- **WP2: Business Analysis and Solution Design for LRI Requests/Responses**

  Mapping of LRI requests/responses to/from national land register queries and search results
- **WP3: Development, Test and Deployment of national Components for LRI Requests/Responses**
- **WP4: Adaption of the national Authentication Portal for Court Professionals**

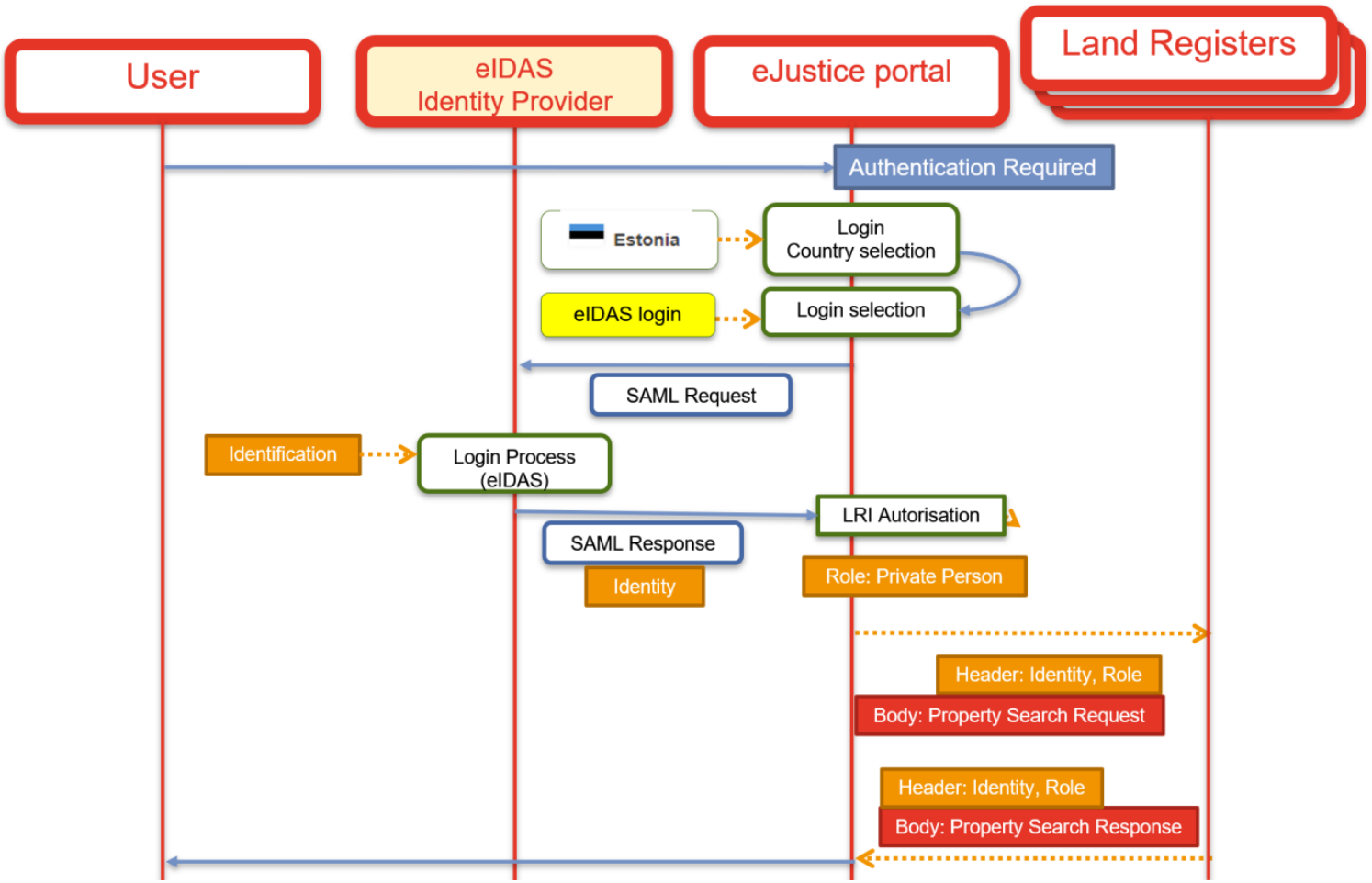
  The national authentication portal for AT court professionals and the EE national authentication portal plus the EE authorisation solution for state officials (e.g. court professionals, notaries) will be linked with the LRI platform at the e-Justice Portal – in order AT and EE court professionals can be properly authenticated (and authorized!) to perform restricted queries.
- **WP5: Publicity and dissemination of deliverables**

	Month-Nr relative to project start	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	LRI MS Connection: Project Timeline	2018										2019				
Work Package	WP Title	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
WP1	**Project Management and Coordination**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A1.1.	Overall management and coordination of the project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A1.2.	Financial reporting and activity reporting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A1.3.	Detailed planning of project activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A1.4.	Management of communication (project partners and the Commission)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A1.5.	Project quality monitoring and risk management	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WP2	**Business Analysis and Solution Design for LRI Requests/Responses**	0	0	0	0	0	0	0	0	0	0	0				
A2.1.	Business Analysis and mapping of the LRI Requests to national LRs	0	0	0	0	0										
A2.2.	Analysis of the aspects of interconnections	0	0	0	0	0	0	0	0	0	0					
A2.3.	Design of architecture and specification of national LRI components			0	0	0	0	0	0	0	0	0				
WP3	**Development, Test and Deployment of national components for LRI Requests/Responses**							0	0	0	0	0	0	0		
A3.1.	Development of the national LRI component							0	0	0	0					
A3.2.	Testing of the national LRI components and readiness of the connection								0	0	0	0	0			
A3.3.	Deployment of the LRI connection to the e-Justice portal											0	0	0		
WP4	**Adaption of the national Authentication Portal for court professionals**	0	0	0	0	0	0	0	0	0	0	0	0	0		
A4.1.	Analysis of SAML flow between LRI at the e-Justice Portal and the national Authentication Portal	0	0	0	0	0	0	0	0	0	0					
A4.2.	Design of LRI adaptions in the national Authentication Portal.			0	0	0	0	0	0	0	0	0	0			
A4.3.	Development, testing and deployment of the LRI adaptions in the national Authentication Portal							0	0	0	0	0	0	0		
WP5	**Publicity and dissemination of deliverables**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A4.1.	Management of project publicity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A4.2.	Promotion of deliverables	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

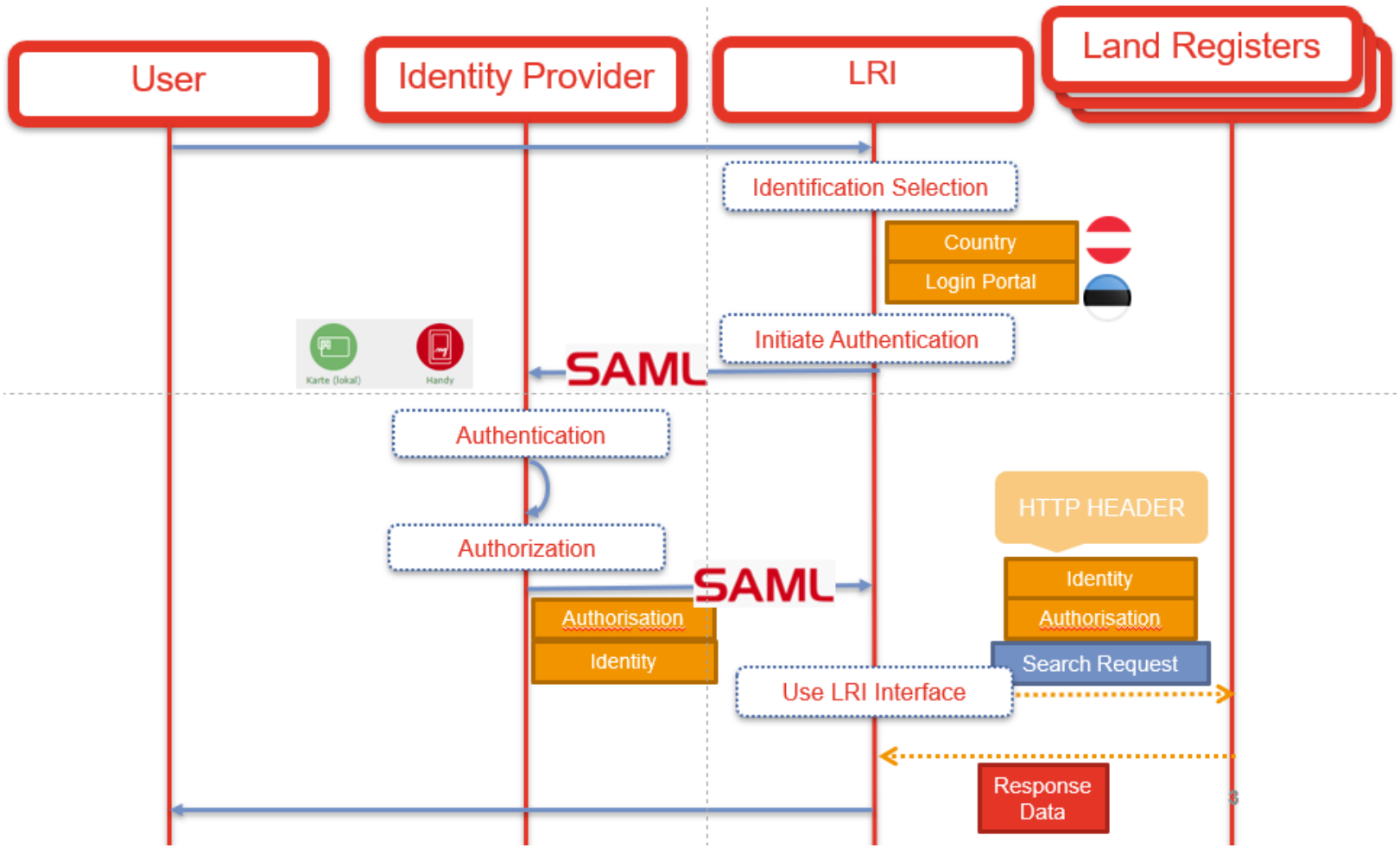
Key project deliverables

- **WP2 Business Analysis and Solution Design for LRI Requests/Responses**
  - D2.1 Analysis /Design document is being finalised
    - Consolidation of AT and EE results into one document
    - Describes mapping of LRI Requests/Responses to national Land Register search functions and country specific search forms
- **WP3 Development, Test and Deployment of national components for LRI**
  - National test environment has been setup in both AT and EE
  - Working to integrate it with the test environment of the Commission's subcontractor
- **WP4 Adoption of the national Authentication Portal for court professionals**
  - D4.1 Analysis/Design document on authentication
  - Describes the envisaged solution on authentication and authorisation including SAML flows. This was definitely the most challenging and complex task!

Citizen login with eID using eIDAS



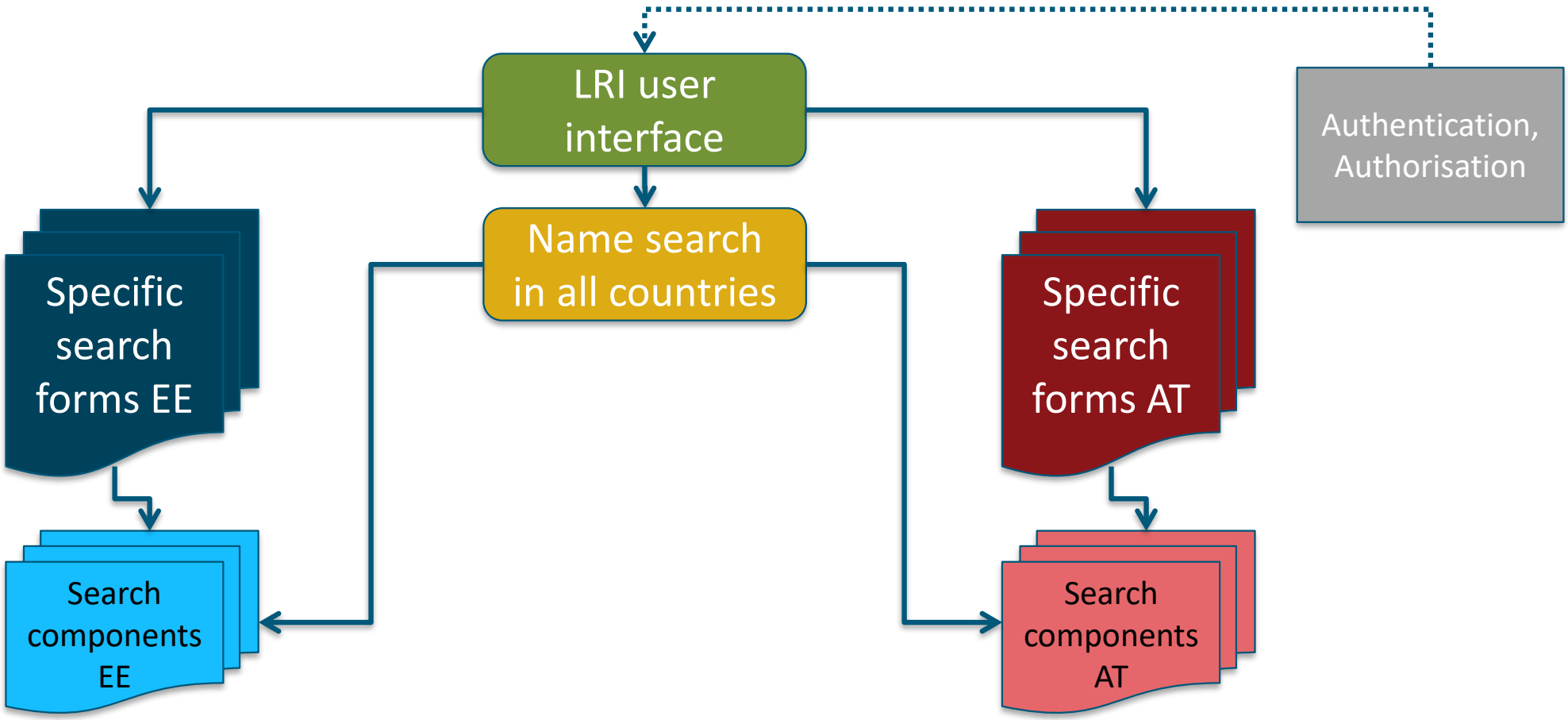
Authentication and authorisation of public official using national IdP



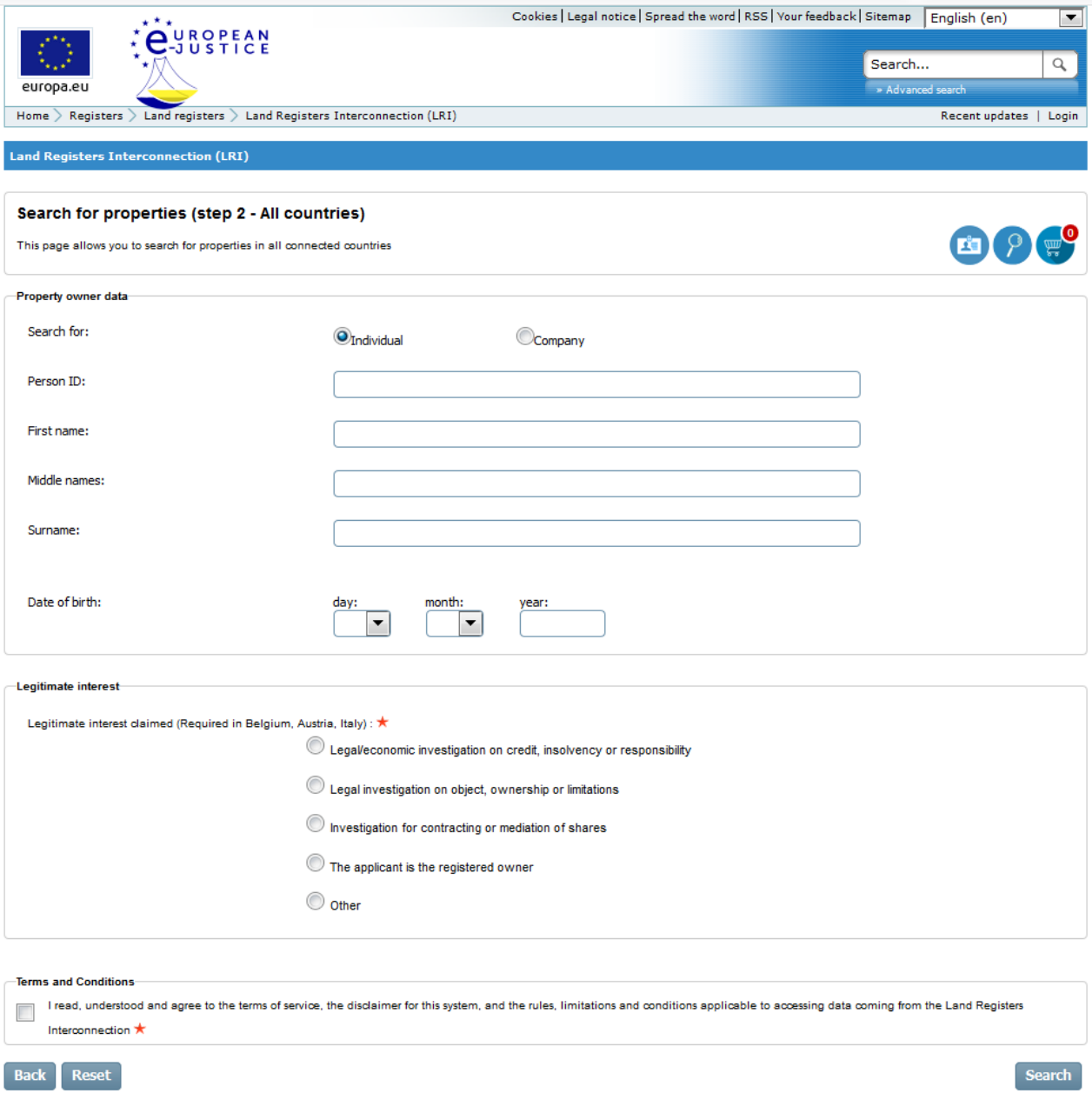
Major issues identified

- WP2:
  - only quite few common fields for search in all countries
  - List of documents must display more attributes in order the user can do an informed selection of the right document(s)
- WP4
  - eIDAS currently cares only for authentication but not for authorisation.
  - eIDAS infrastructure in the Member States not yet fully operational
  - Intermediate steps/circumventions are necessary before final solution
- LRI application at the European e-Justice Portal
  - Payment module will not be available within time-frame of our project
  - Integration of authentication/authorisation at LRI application side will not be available before the end of our project.

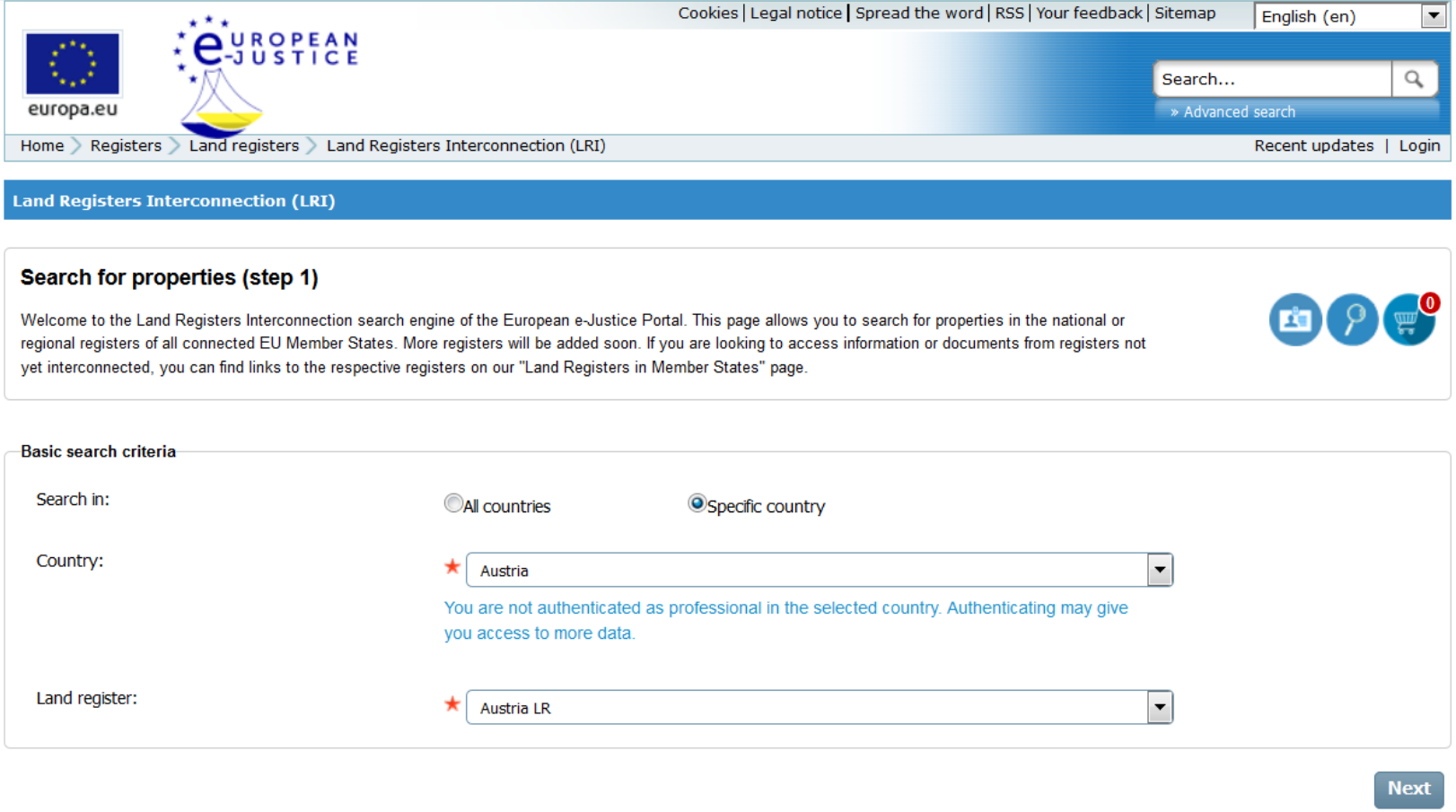
Components to test



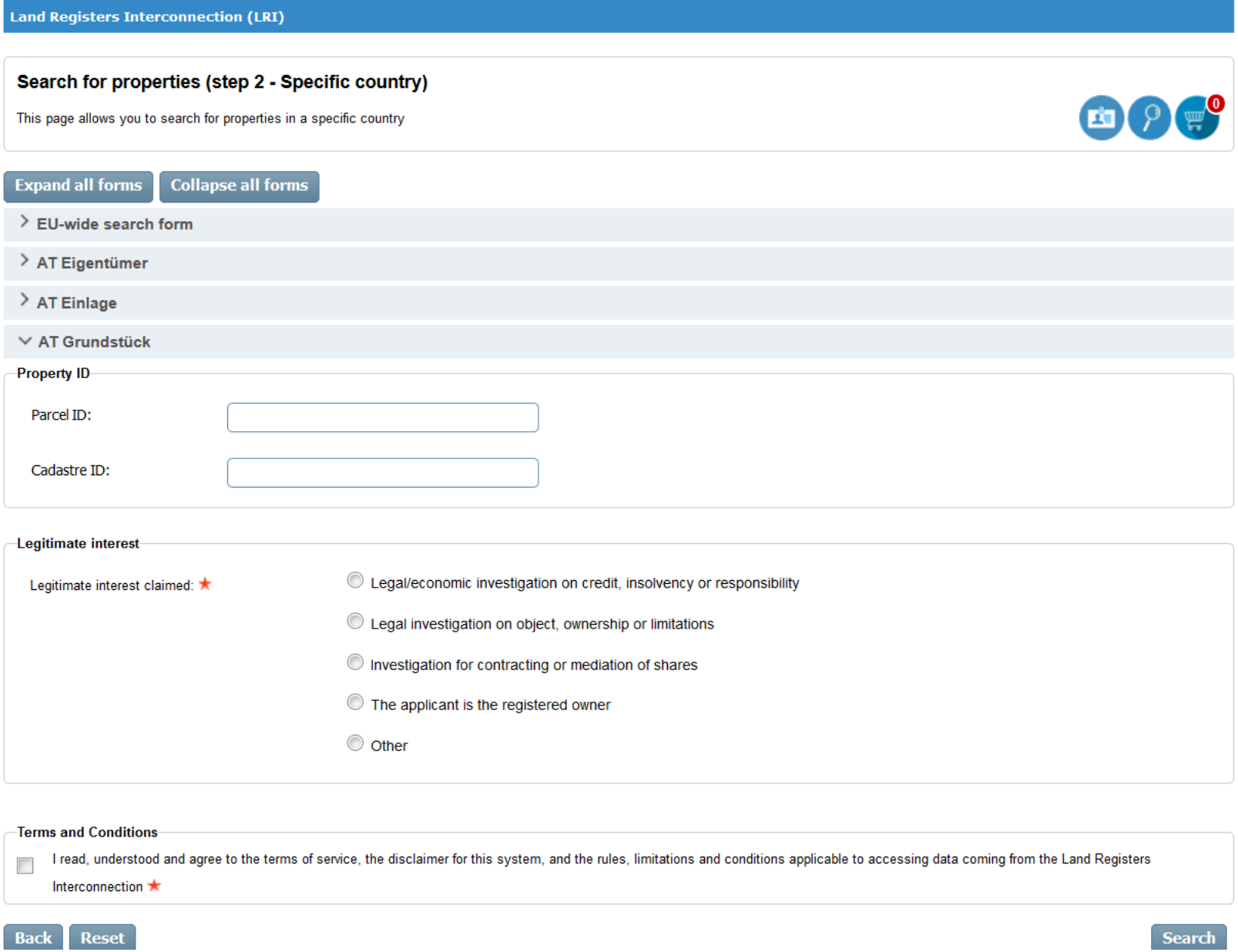
Name search all countries



Country specific Search – Selection menu



Country specific Search on Property-ID (AUSTRIA)



Funding opportunities

- Call for proposals for action grants to support national or transnational e-Justice projects ID: JUST-JACC-EJU-AG-2019
  - See: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/just-jacc-eju-ag-2019;freeTextSearchKeyword=;typeCodes=1;statusCodes=31094501,31094502;programCode=JUST;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false
  - Deadline: 13 June 2019 17:00:00 Brussels time
  - Land Registers Interconnection (LRI) is explicitly mentioned
  - Total budget of Call: 2,2 Million EUR
  - Max. 90% funding
- AT/EE search for partners

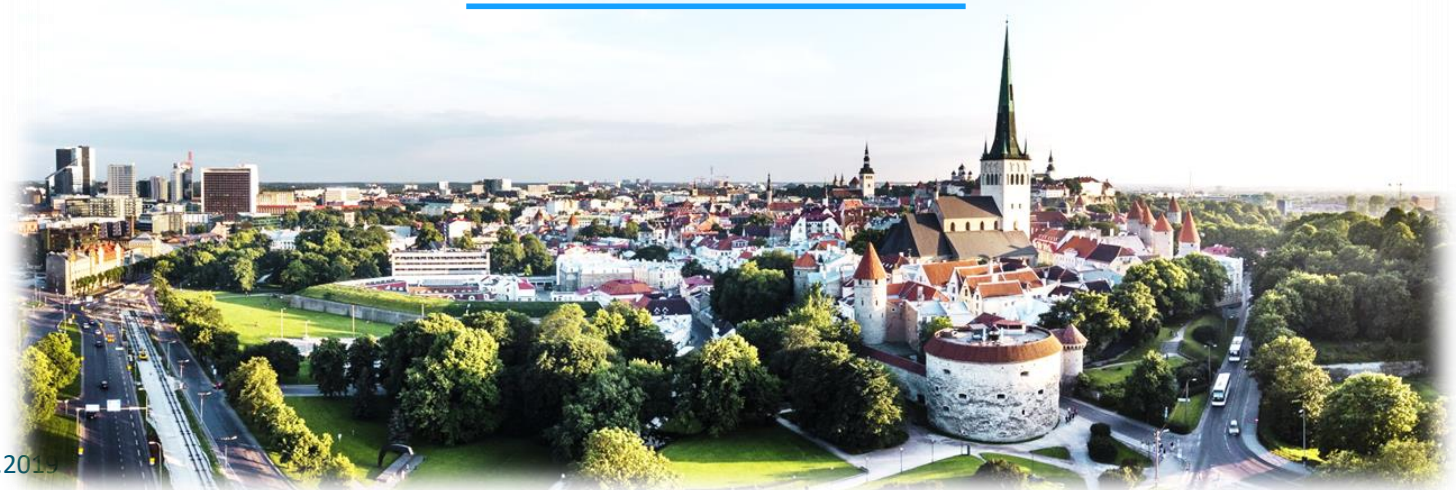
Upcoming conference in Tallinn

„Land Registers Interconnected“

May 9-10, 2019

Further details and registration soon at

www.lri-ms.eu



The photo: Rasmus Jurkatam

Funded by the
Justice Programme
of the European
Union

Expected participants of the conference:

- Representatives of National Land Registries
- ELRA members
- Notaries, CNUE members
- Next round member states
- Public authorities and court officials
- E-government specialists
- Anyone interested – it is a public event!

The photo: Rasmus Jurkatam

Online registration will follow soon at
www.lri-ms.eu
Participation is free of charge.

Preliminary Programme (May 9-10, 2019):

Presentations

- Current situation on the Land Registers Interconnection
- Lessons learned within the project LRI MS Connection
- Expected developments of the central LRI
- Future perspectives for the Member States
- Available grants for next steps

Discussions

- Professional interest groups – users' perspective
- Technical aspects revealed
- Building of the next grant proposals

The photo: Katri Tammsaar

IMOLA II State of play

European Land Registry Association

IMOLA II MSs participants so far

- Belgium (French and Dutch)
- Croatia *
- Slovakia *
- Estonia *
- Finland
- Italy (Agenzia delle entrate) *
- Latvia
- Lithuania *
- Malta *
- Netherland *
- Poland *
- Portugal
- Rumania *
- Spain *
- Sweden *

14 Member states

15 Attributes

Outputs accomplished

European Land Registry Association

1.- ELRD new schema V3.0

- Conformance testing
- LR specific contain domain

2.- KM final development

- Validation check and attributes
- Updated Data Bases
- Manual reviewed

3.- Corpus Semantic

- LR domain foundation
- Conceptual I.KOS and guidelines

4.- IMOLA web site

- Tutorial material
- Forum and Wiki (FQ)

5.- Technical Analysis and requirements

- Analytical report

6.- WS e-Justice

- Libraries
- Interface
- Integration test

Outputs pendings

European Land Registry Association

1.- Data Bases completeness

- Definitions
- Attributes
- Semantic relationships

2.- Quality Test

- Validation check
- Amendments and explanatory notes

3.- IMOLA e-book

- LR domain foundation
- CPs vision and experiences

4.- Get used to the KM

- Review the manual
- Make use of it

5.- WS e-Justice

- Interface adjustments
- Integration with e-Justice portal

6.- Output tests

- ELRD enriched information
- I-KOS accessibility through the e-Justice portal

Open questions: ELRD definitions

ELRA
European Land Registry Association

IMOLA LR content specific domain

- National definitions correspondence
- Explanatory notes

ISA core vocabularies and INSPIRE

- Targeting
- How to complete the excel when they are not applied in the LR national system
- The equivalence meaning as a principle to achieve the harmony of models

The harmonization of LRI: how to adapt the national data models

- The ELRD is the basic artifact
- The excel factsheets used as interface
- How to automatize the importation of data in the KM

Round table: customized feedback and solutions

Open questions: ELRD attributes

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Conceptual differences among Formants and Attributes

- The attribute is an abstract query related to different pivots terms with common features
- The formant is defined by means of a short answer in terms of solution (case law, legislation, legal scholarly opinion).

How to fulfill the attributes factsheet

- The attribute is ever referred to specific national concepts
- Reuse de model whenever it is necessary, for instance in the case of property rights, etc
- How define attributes by means of KM and their visualization

The usage notes

- Significance and value
- The adaptation principle: matching concepts according their attributes.

Round table: customized feedback and solutions

CPs suggestions

European Land Registry Association

- Enhance the usability of KM
- The installation of KM is complicated
- Validation of data is a difficult task
- Difficult understanding of ISA core vocabularies
- The difference among associative relationships and synonym is not clear
- Why is not possible to import XML files with different national data models
- How to adapt national data models to ELRD ontology


TASA VaC

IMOLA e-book

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- **Starting point, brief idea of each National LR System:its strengths and weakness to implement the ELRD and IMOLA project**
- **The need of Land Registers Interconnection to boost the Europan single market**
- **The European Land Registry Document –ELRD- a common template to harmonize LR information**
- **The European Land Registers Network –ELRN- a basic Institution to create and maintain the I.KOS Thesaurus**
- **Experience adquired and global overview about the LRI and harmonization**

IMOLA ownership of data

ELRA
European Land Registry Association

IMOLA Repository I-KOS

- ELRD ontology: ownership ELRA (the schema will be published by Commission)
- National Databases: ownership MSs (they will decide about their publicity)
- IMOLA technical platform: ownership ELRA
- IMOLA Web Services: ownership ELRA
- Management of IMOLA Platform: ELRA
- Liability according this property schema: disclaimers must be used

IMOLA e-book

- Papers submitted: ownerships the authors
- ELRA role: only Publisher
- Coordinators: the three professors participants as academic experts + project manager
- Authorized use: the specified on the request (project dissemination)

Next steeps

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- I-KOS Database completeness
- Consolidation of national concepts databases: validation test
- Quality test of the repository
- Quality test of the KM functionality
- IMOLA WS integration on e-Justice portal

IMOLA III: new follow up project

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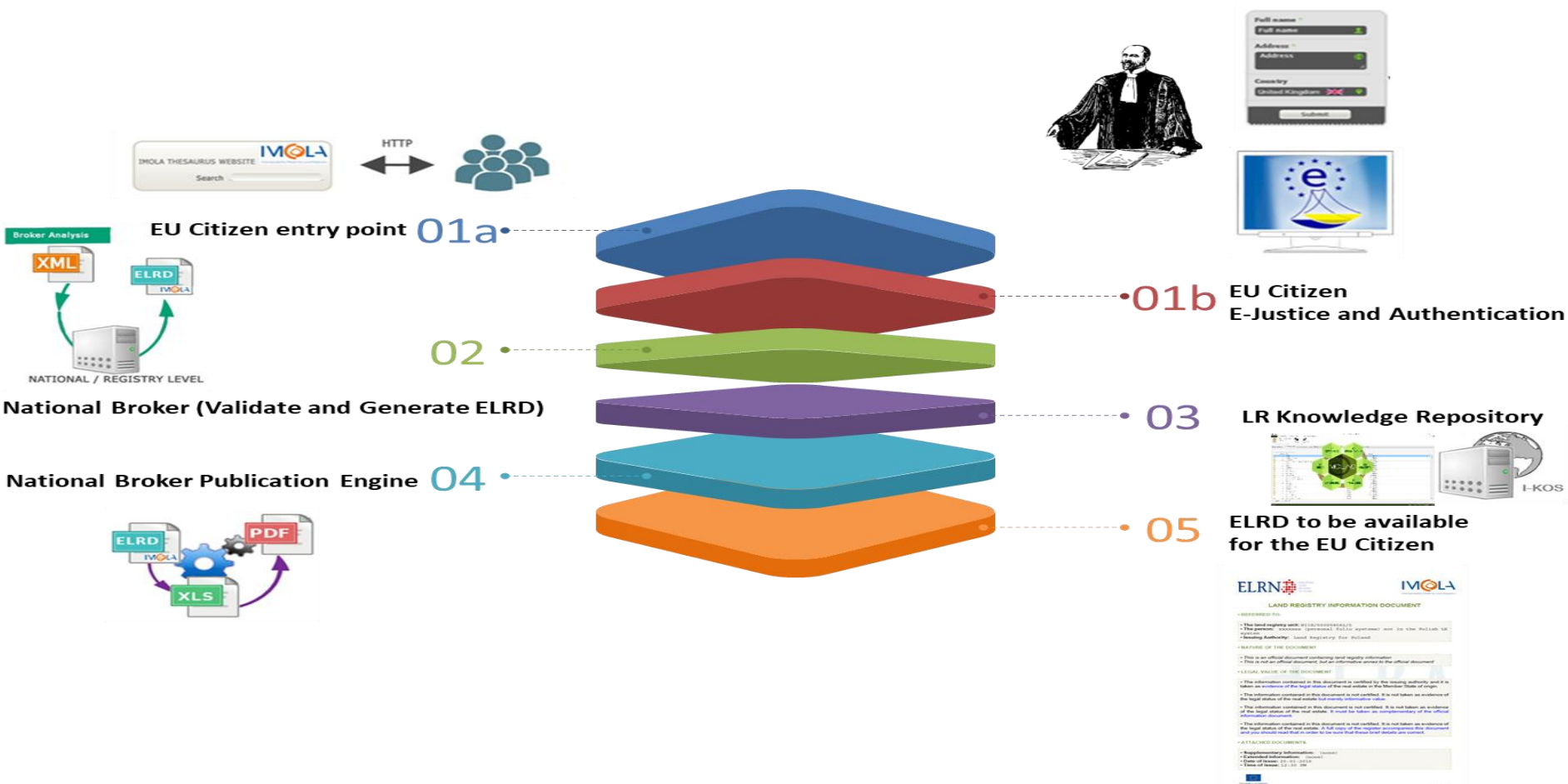
ELRD final scope: is IMOLA III nedeed?



- Improve and extension of the IMOLA ontology ELRD/XML schema
- IMOLA virtual platform managed by ELRA, to host the I-KOS repository and the Knowledge Manager app.
- New WSs for the effective implementation at national level of ELRD format to harmonized the LR information, (“get ELRD document”)
- Enhance the usability of IMOLA interfaces

Many Thanks
Team up together

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