E-book IMOLA IV

The European Land Registry Model and cross-border interconnections in the era of the AI

IMOLA
Interoperability Model for Land Registers

Funded by
the European Union

ELRA

ACRONYMS

CROBECO Cross Border Electronic Conveyancing Project

EIF European Interoperability Framework

ELRA European Land Registry Association

ELRD European Land Registry Document

ELRN European Land Registry Network

EULIS The European Land Information Service

FBSM Formant-Based Semantic Methodology

IMOLA Interconnexion Model for Land Registries

I-KOS IMOLA Knowledge Organization System

KOS Knowledge Organization System

LADM Land Administration Domain Model

LRI Land Registers Interconnection

LRI-MS Land Registers Interconnection Member States Project

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Project name: IMOLA IV

Coordinator contact: European Land Registry Association

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Prologue

Article by **Pedro Pernas**

The IMOLA Project began around 2012 when ELRA appreciated the need of standardization of the output from national land registries. As Wim Louwman explained in 2019 (The inventing of IMOLA) he came up with this name in a traffic jam close to Imola (Italy) and considered that that name comprehended the ELRA vision for the project as it referred to the Interoperability (I), the Model (MO) and the Land Register (LA) for which that model was aim for.

Europe, as it is conceived today, has never had a single juridical system. This diversity which is a consequence of the existence of different political entities, constitutes a richness but also implies different costs that reduce the possibility of an effective Single Market inside the European Union or beyond. The existence of different languages in different countries or also within them adds more difficulties to the comprehension of legal documents as the land registry information.

There are four options to address this situation.

The first one is to give up achieving a Single Market with the economic and social cost this alternative implies.

A second option consist in leaving de market to big companies that could afford legal representatives in each of the countries and regions.

The third option is to impose a unification of public and private legislation. This solution would imply the elimination of national and regional parliaments since one of their main missions is to approve national and regional norms in civil and mercantile matters. A unification of the legal system would permit even the automatic translations of terms but it would also eliminate the connection of the legal system with the local institutions and prevent the surge of new solutions from actors closer to the specific problems of the citizenship.

The fourth one is to address the difficulties in the comprehension of the legal information respecting the national, regional or local specialities. This, indeed, is the option chosen by ELRA through the IMOLA Project. Hitherto, the question that arise is to identify those difficulties and foresee how they can be addressed.

The first challenge is how the information is presented. Land Registries' information is presented in the different countries through different structures or schemes. A common template would therefore be the first step. This ELRD schema is such as template. This schema should allow to present any relevant information of the different land registries units as the marketable entities through a common template. This template should respect the legal realities of the different countries as well as allow a comprehension of the information not only for legal professionals but also for the lay citizens.

The ELRD is not the first schema developed to present information about land and the rights and limitations it is affected by. The Land Administration Domain Model (LADM[1]) was developed in 2012. However, this model is not compatible with the reality of most of the countries systems (Louwman, 2019, p. 15) and the limitations it has can be connected to the rupture with EULIS[2] (The European Land Information Service) then an important organization and partner of the IMOLA I Project. Following this rupture two premised were agreed on (Louwman, 2019, p. 16):

- IMOLA would respect the differences in national legislations that should be respected according to Article 345 of the Treaty on the Functioning of the EU.
- IMOLA would respect the different national organizations and IT solutions. Therefore, it should be possible to produce an ELRD through the servers used of the national organizations. The aim of IMOLA has never been to develop a European super-registrar.

The ELRD was structured following an A-B-C format. This format was agreed on within the European Land Registry Network (ELRN) that comprised then 29 ELRA members from 22 countries (Lewis, 2019, pág. 21). The specific analysis of the ELRD corresponds to the Semantic Corpus, a document developed in IMOLA III and updated in the IMOLA IV Project. Accordingly, the ELRD is divided in four sections:

- Front Page. It includes the following subsections: attached document, disclaimers, legal value, pending documents and type of document.
- Part A. It specifies the Land Registry Unit type as well as basic information about it, the environmental limitations, features and images.
- Part B. This section refers to the main or primary right over the Land Registry Unit and includes the class of title, entitlement, formal title, proprietor data, proprietor restrictions, title and transferor details.
- Part C. It is dedicated to limited rights or limitations over the Land Registry Unit. It includes four subsections: mortgages, property rights, judicial restrictions (notices) and other encumbrances and restrictions (remarks).

This common schema technically is expressed through XML and XSD standards. To ease its visualization a conceptual model using UML (Unified Modelling Language) diagrams has been developed through the IMOLA IV Project.

The second difficulty which needs to be addressed is to determine what information should appear in each of the sections or terms called

1 The LADM (ISO 19152:2012) is a conceptual model defined by the International Organization for Standardization (ISO, 2012).

2 EULIS (The European Land Information Service) started in 2001 as a private on-line portal that allowed property professionals to order land registry information in their own language. EULIS participated originally in the IMOLA I Project and its portal was closed in May 2017 (Lewis, 2019).

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pivots. Each term has a place and a definition that has been agreed on by the European Land Registry Network (ELRN). In some cases, the term and the definition are taken from other public European vocabularies to ensure the interoperability. This is the case of Core Vocabularies (Person, Business and Location) and the INSPIRE vocabulary.

As aforementioned, there are differences in the different legal systems, and they are addressed in diverse ways:

- National terms. Each pivot term is matched with a national term in the country's language. A verbatim translation of the pivot's definition should also be included in the local official language. A reuse of the common definition is suggested leaving national specific information for the following elements.
- National complementary information. A field to express national complementary information is included. This information, specific to a country, should appear in English and in the local official language.
- Formats. For some pivot terms, questions about national characteristics are deployed. Contact points must answer them with Yes/No/Not applicable as possible answers. These responses allow a deeper knowledge of the legal system and a comparative analysis. Also, it is required from contact points to express the legal, judicial, doctrinal or practice of the Land Registry that justifies the answer.

There are, indeed, other obstacles for the surge of a Single Market in the field of land rights:

- Understanding of the requirements of the document to be presented to the registry. This element is outside the scope of IMOLA, and they were address by ELRA in the CROBECO project[3], a project that should be recover in the future.
- Location of the competent authority that provides Land Register information. Regarding this element, the Land Registers Interconnection (LRI) must be mentioned. The LRI is a European portal developed by E-Justice. Its aim is to offer a single access for Land Registers information. IMOLA is connected to it as it offers a common schema for the output of Land Registries. Other projects, as LRI-MS, addressed other requirements that the development of a single point of access would need (identification, payment...).

To advance in the overcoming of some of these difficulties, in 2024 submitted the project to European Commission. It has funded it through the Justice Programme (JUST-2023-JACC-EJUSTICE-101160423). ELRA was joined in the effort with some organizations specially interested in the interconnection of Land Registries. These organizations were *Colegio de Registradores of Spain* (CORPME), *Instituto dos Registos e do Notariado of Portugal* (IRN), National Agency for Cadastre and Land Registration of Romania (ANCPI) and *Centro de Estudos Notariais e Registais of* Portugal (CENoR).

The project had several aims

- To consolidate the objectives achieved so far to improve the semantic model for the interconnection of Land Registries.
- To enhance the information of the project published in the ELRA website.
- To facilitate the adaptation of the national semantic model to the European Land Registry Document through new technical developments to align it with European objectives and directives.
- To increase the adaptation to the European Interoperability Framework.
- To design, develop and publish the Land Registry specific vocabulary as Conceptual Model in Unified Modelling Language.
- To improve the comparative law study.
- To foster a single European real estate and mortgage market, making it more efficient and transparent albeit being respectful to national systems.

The IMOLA IV Project has been a complex one and has required the personal effort of many people integrated in the Steering Committee, the Executive Committee and the Working Packages groups members lead by their coordinators (Jorge López, Elena Prada, Rafael Vale e Reis and Elena Ioriatti in the WP2 -Juridical- and Paulo M. Vieira, Lorenzo Marcolla and Alessandro De Gaetano in the WP3 -Technical).

The project has benefit from the continuous work of ELRA Secretariat (Alicia Gimenez, Manuela Linares, Marta Barragán, María Ruiz and Miriam Barreiro) which has overseen the administrative management activities. The project has been also enriched by the participation of external speakers in the seven seminars organized and from the work made by the national contact points. Lastly, this project could not be possible without the effort deployed by the contractor and specially its representative, Prof. Anabel Fraga.

Thank you all.

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[3] CROBECO (Cross Border Electronic Conveyancing) was a project led by ELRA whose aim 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» (Lewis, 2019, p. 19). A Cross-Border Conveyancing Reference Framework was developed to give notaries the tools need to transact cross-border.

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The Electronic and Digital Land Registry in the Era of Digital Administration

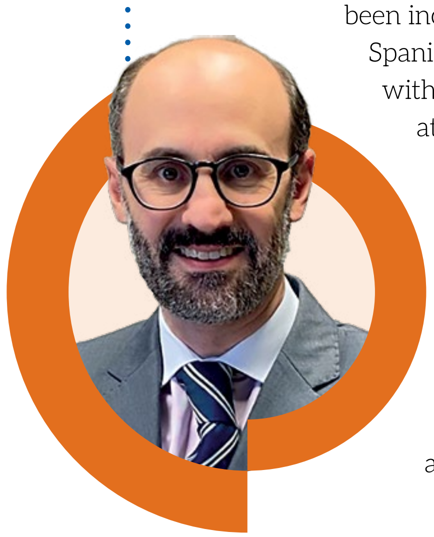
Article by **Luis Javier Arrieta**

ABSTRACT

This paper examines the transformation of the Land Registry into an electronic and digital legal institution within the broader context of the digitalisation of Public Administration. Although land registration systems remain outside the European Union's harmonisation competences, EU digitalisation policies have created a normative environment that significantly influences national registration systems. Against this background, the paper analyses the relationship between the principles of electronic Administration and the technological evolution of the Spanish Land Registry.

The study develops three main lines of analysis. First, it outlines the core principles of electronic Administration as promoted by the European Union and implemented in Spain through successive legislative reforms. Second, it examines how these principles have been incorporated into the Spanish Land Registry, with particular attention to the amendments introduced by Act 11/2023. Although the Land Registry does not formally constitute a Public Administration, the paper argues that its function as a public service justifies the adaptation of electronic Administration principles to registral procedures. Third, the paper explores the transition from mere digitisation to interoperability, focusing on the integration of registral and territorial information through geographic information systems. This interoperability enhances the transparency of public law restrictions affecting property rights, operationalises the "one-stop shop" principle, and reinforces preventive legal certainty in real property transactions.

The paper concludes that the electronic Land Registry and the digitalisation of Public Administration are complementary processes. By aligning registral procedures with the established standards of electronic Administration, the Land Registry can preserve its foundational principles while enhancing accessibility, efficiency, transparency, and legal certainty in the digital age.



1. INTRODUCTION

This paper examines the relationship between the electronic Land Registry and the digitalisation of Public Administration. The subject encompasses two distinct yet interrelated dimensions. First, it analyses the progressive transformation of the Land Registry from a traditional, paper-based institution into an electronic and fully digital legal infrastructure. Second, it situates this transformation within the broader normative framework of public policies driving the digitalisation of Public Administration.

The digitalisation of Public Administration constitutes a key strategic priority promoted by the European Union (Caporale, 2023, p. 147). Indeed, digitalisation has become a central pillar of the Union's broader efforts to modernise Public Administration and enhance the functioning of the internal market. This process seeks to adapt Public Administration to a social reality characterised by the widespread use of information and communication technologies, with the aim of providing a high-quality public service that are both accessible and responsive to citizens.

Although primarily designed for general administrative and internal market purposes, these policies create a normative and technical environment that influences the development of national land registration systems. It should be emphasised that Real Property Law and land registration systems vary significantly across European countries. Both fields remain largely outside from the scope of the European Union's harmonisation competences, due to the diversity of national regulations and the differences in legal traditions (Gołaczyński and Kaczorowska, 2023, p. 40). Nevertheless, EU digitalisation policies are capable of shaping the manner in which Land Registries operate.

This paper develops three central lines of analysis. First, it draws a parallel between the digital transition of Public Administrations in its service to citizens and the evolution of the Land Registry, with particular reference to the amendments to the Spanish Mortgage Law introduced by Act 11/2023.

Second, it emphasises that the technological modernisation of the Spanish Land Registry towards an electronic and digital framework did not begin with Act 11/2023, but can instead be traced back to earlier legislative reforms, most notably Acts 24/2001 and 13/2015.

Thirdly, the paper identifies a key area in which the digitisation of the Land Registry intersects with the broader digitalisation of Public Administration: the interoperability of territorial and registral information. Such integration not only enhances the transparency of the legal status of real property, but also reinforces the preventive legal certainty that the Registry is designed to provide.

2. METHODS

This study employs a doctrinal research methodology based on a comprehensive analysis of relevant legal and policy frameworks. The approach integrates different analytical components:

a) Legislative and Policy Analysis. The core of the methodology consists of an examination of key European Union instruments and Spanish legislation. This includes an analysis of strategies such as the *Europe's Digital Decade Programme* and the *Declaration on Digital Rights and Principles*. At the national level, the study focuses on the legislative framework for electronic Administration in Spain (Act 11/2007, Act 39/2015, and Act 40/2015), as well as the

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specific laws governing the digital transformation of the Land Registry (Act 24/2001, Act 13/2015, and Act 11/2023).

b) Comparative Legal Analysis. A comparative approach is employed to juxtapose the principles of electronic Administration with their implementation within the Spanish Land Registry. In particular, the study systematically compares the rights and principles established in article 6 of Act 11/2007 with those set out in the First Additional Provision of the Mortgage Act, as introduced by Act 11/2023, in order to identify direct parallels and adaptations.

c) Conceptual and Doctrinal Review. The research examines the legal nature of the Land Registry, drawing on established legal doctrine and case law to determine its classification as a public service.

d) Functional Analysis. The study assesses the evolution of the Land Registry's functions, tracing its development from a paper-based system to a digital one, and ultimately to an interoperable infrastructure. This entails analysing the practical effects of legislative reforms on registral operations, such as the integration of graphical representations of properties and the coordination with the Cadastre.

Through this multi-faceted approach, the paper synthesises legal norms, policy objectives, and doctrinal concepts in order to construct an argument concerning the convergence between the electronic Land Registry and the principles of digital Administration.

3. RESULTS

The analysis of the legal and doctrinal framework reveals several findings concerning the nature of the Spanish Land Registry and its digital transformation. These findings are structured around four thematic strands. The first concerns the development of electronic Administration principles at the European Union level. The second addresses the legal characterisation of the Land Registry as a public service distinct from the general administrative framework. The third examines the incorporation of electronic Administration principles into the Land Registry through Act 11/2023. The fourth focuses on the evolution of the Registry from a merely digital system towards an interoperable infrastructure.

3.1 The E-Administration Principles enactment within the European Union

In contemporary society, digital technologies have become deeply embedded in everyday life, shaping how people communicate, work, and access information. They are no longer optional tools but essential components of social, economic, and cultural participation. In this respect, digitalisation has been associated with the promotion of a new public management (Chevalier and Menéndez Sebastián, 2023, p. 5). As the European Commission observes, 'digital technologies are now imperative for working, learning, entertaining, socialising, shopping and accessing almost everything from health services to culture' (2021, p. 1).

Within this context, the European Union pursues a human-centric and sustainable vision of the digital society, aiming to

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empower citizens and businesses while ensuring that digital systems remain secure, resilient, and trustworthy. In the field of digitalisation, empowering citizens entails providing individuals with the tools, skills, and opportunities to participate fully and securely in the digital society. This includes ensuring equitable access to digital services, fostering the competencies required to use technology effectively, safeguarding personal data and privacy, and facilitating transparent interactions with Public Administrations.

A comprehensive analysis of the European Union's digitalisation policy falls beyond the scope of this paper. Nevertheless, it is important to emphasise that the European Union has played a leading role in promoting electronic Administration. Since 2000, European Union has developed strategic frameworks to encourage the use of digital tools in public services.

The Bangemann Report (*Europe and the Global Information Society*, 1994) represents a foundational milestone in the evolution of the digital strategy. Although not specifically designed for electronic Administration, it proved highly influential in this field. By framing information and communication technologies as key drivers of competitiveness, growth, and efficiency, the Report highlighted their potential to modernise public services. It underscored the importance of interoperability, trans-European networks, and the creation of digital infrastructures accessible to citizens and businesses. These principles subsequently informed the European Union's early initiatives in eGovernment, notably the Lisbon Strategy of 2000 and the *eEurope 2002 Action Plan*.

In this context, two recent European instruments merit particular attention for their role in promoting the digitalisation of society.

First, the *Europe's Digital Decade Programme*, adopted on 14 December 2022 through Decision (EU) 2022/2481 of the European Parliament and of the Council, establishes a strategic framework to guide Europe's digital transformation by 2030. The programme is structured around four key dimensions: enhancing citizens' digital skills, developing sustainable digital infrastructure, supporting the digital transformation of businesses, and advancing the digitalisation of public services. To monitor progress, the European Commission publishes an annual report on the state of the Digital Decade, assessing the implementation of these objectives across the Member States.

Second, the *European Union Declaration on Digital Rights and Principles*, signed on 15 December 2022, provides a programmatic framework for the digital environment (Caporale, 2023, p. 152). Its Preamble acknowledges that 'the digital transformation affects every aspect of people's lives. It offers significant opportunities for a better quality of life, economic growth and sustainability' (para. 2). At the same time, it recognises that 'the time has come for the European Union to spell out how its values and fundamental rights applicable offline should be applied in the digital environment' (para. 3).

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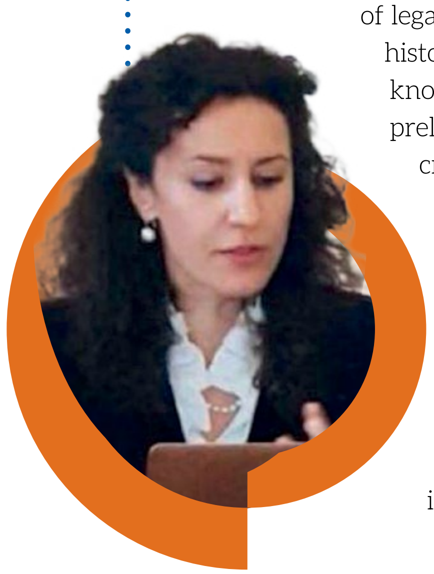
Harmonization of the law of security rights over immovables in Europe: challenges and opportunities

Article by **Francesca Fiorentini**

ABSTRACT

The essay aims at bringing to the IMOLA Project a contribution in terms of comparative method focusing on the knowledge of substantial laws and the consequent use of legal language. The IMOLA Project does not aim at the harmonization of the substantial laws of property within the EU, but rather at facilitating trans-border communication between (some) EU Land Registries. To reach the goal of a mutual understanding of legal information, that is legal categories across jurisdictions, a true understanding of similarities and differences between the various laws of security rights over immovables is required, because it is functional to a proper elaboration of a neutral and mutually understandable English legal language to be used within the Project. Appropriate homologation of legal categories and historical-comparative knowledge is preliminary and crucial for the sake of a mutual understanding of information flows.



This is why the essays presents some core issues deriving from a comparative analysis of what we call here "the law of security rights over immovables" (rather than "the law of mortgages") in some European legal traditions. The idea is that this substantial law knowledge may help in refining the appropriate English language to be used within the IMOLA Project, in order to improve – if needed – the general Glossary and the national glossaries. Indeed, the essay concludes by developing some observations on the "legal words" used so far within the Form developed by the IMOLA Project, with reference to security over immovables only, and pertaining to Italian law.

Keywords: comparative method; comparative property law; security rights over immovables in European law; homologation of legal categories; legal language.

CONFLICTING INTERESTS AT STAKE

The first step that is needed in order to facilitate trans-border communication between EU Land Registries is a deep understanding of the basics of property law in comparative perspectives. In the area of security rights over immovable assets, this leads directly to start with the identification of the main conflicting interests at stake. Indeed, when dealing with security for credit, each legal system faces a twofold challenge: (i) balancing the conflicting interests at stake and (ii) finding proper control mechanisms on the proportionality of the secured relationship. The interests at stake are, on the one side, those of debtors, to be protected against the risk of abuses by creditors who are in a dominant position and, on the other side, those of creditors who need to be granted the most effective protection possible.

As we all know, the legal systems respond to these needs by developing different solutions that can only be fully understood in view of their different legal traditions.

(a) Germany. – German law exemplifies the advantages offered by the internal competitiveness of security rights' models. In 1900 the BGB legislator made a choice that was knowingly oriented to offer the market the availability of a multitude of rights over immovables, in order to permit each user to choose the security best fitting her/his needs. The German codification regulates basically two security rights: one is structurally accessory to a secured obligation, deriving from the Roman law tradition spread throughout the southern territories of the Reich (Sicherungshypothek, §§ 1113 ff. BGB); the other is a security right that is structurally not accessory (or abstract from an obligation to be secured) and is called Grundschuld (§§ 1191 ff. BGB). The latter may be seen both as a (sui generis) security right or as a limited property right (sui generis also) which can be created directly in favor of the property owner. This is permitted by the rule in § 889 BGB that hinders "consolidation" between ownership and limited property rights in its own land.

This particular sui generis property right can be described as a cutting out of a portion of the economic value of the immovable asset. It can be constituted in the form of a letter, so that it can circulate as a bearer letter from hand to hand (Briefgrundschuld). By this way, the value of the immovable can easily be mobilized (§ 1116 f. BGB).

The historical origin of this particular limited property right corresponds to the request for mobility of the value of immovables that developed in Northern Germany, in the territories of Mecklenburg and Prussia, where large estate and their agricultural exploitation where at the basis of the economic structure of society.

During the course of the twentieth century, however, the Rechtspraxis deviated from both the above legislative models. The German practice developed and highly rewarded the recourse to a kind of 'third option' of security right, the so-called Sicherungsgrundschuld. This is an original device, not contemplated by the legislator as such, at the time in which it developed. This device is basically a Grundschuld modelled by the parties of a credit relationship through a security agreement (Sicherungsabrede). By means of this agreement, it is for the parties to regulate themselves terms and conditions under which the creditor may enforce the property right, which becomes – in this case – a property right used to the purposes of security, therefore a functional security right over immovables.

In the absence of an explicit regulation of this device in the BGB, the control mechanism of the Sicherungsgrundschuld

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has been left to German case-law, which has been able to control the flexible connection established by the parties between property right and secured obligation through the rules of the law of obligations. Case law has made recourse to the general clauses of § 138 I BGB (nullity of acts against Guten Sitten) and of good faith (Treu und Glaube) in § 242 BGB, so that any excess of security (Übersicherung) – vis-à-vis the amount of the secured obligation – can be declared null and void and consequently restitutions will be applicable.

Moreover, sticking to the idea that the effectiveness of the security right is conducive to a fair balance of the interests at stake, German law arranges an efficient protection of creditor's interests. On the one hand, the enforcement of security rights over immovables is quite broadly delegated to a professional figure different from the judge (the Rechtspfleger), and the timeframe for completion of the procedures is rather limited (maximum 12 months).

(b) England. – In comparison with the German model, English law of mortgages offers an example of the disadvantages that can derive from regulating multiple forms of security, when such plurality is not fitting substantially different interests. Notwithstanding the 1925 reform of the Law of Property Act, aiming at a simplification of the legal scenario derived from the feudal case law tradition, the rules originating from this Act provide for a multitude of security rights over immovables (mortgage, charge, charge by way of legal mortgage). These rights are diversified not only as to the way by which they are created, but, within certain limits, also as to the manner in which they become effective as against third parties. By contrast, the powers granted to the parties, as well as the techniques of control of the secured relationship, are the same in each of these devices. Thus, it is difficult to comprehend the usefulness of the several forms of security rights over immovable assets that English law has preserved, and which – as noted also by the English Law Commission – result in complications and irrationality, charging greater costs upon their users.

The complexity and apparent incoherence of the English law of mortgages must be understood in view of the close relationship of the current rules with the feudal past and can only be understood in the light of the substantive distinction between "law" and "equity". Without entering too much into details, in England, by means of the particular flexibility granted by equity rules, it has always been property law to perform the control function that in Germany judges draw from the use of the law of obligations.

While the role of case law as a leading formant in the English law of mortgages is clear and unquestioned, it should be noted that not less incisive is the role played by the professionals involved with immovable assets transactions – the conveyancers. Both during the transition from the Middle Ages to modern times, and during the course of the twentieth century, they have maintained a de facto control over the law of mortgages. The interests of this professional class have been so pervasive that it is possible to deem them responsible, not only for the initial development of rather effective rules for the protection of creditors, such as those related to the extrajudicial sale of encumbered immovable assets, but also for the significant delay – between the XIXth and the XXth century – in the rationalization of this field of the law and in the development of a generalized and mandatory electronic Land Registration system, which dates back only to the Land Registration Act 2002.

An overall assessment of the English law of mortgages cannot but note the evident contradictions on which it is still dependent. On the one hand, it appears to be a system whose modernization is still required. On the other hand, however, the English law of mortgages shows an intrinsic flexibility which can be appreciated under various crucial aspects. For example, there are no limits to the possibility of securing future obligations that will arise between the parties, even if they do not derive from a preexisting legal relationship.

Besides, the usual recourse to extrajudicial enforcement of the security allows the sale of the asset at the highest obtainable price and in a rather short period of time.

(c) Italy. – To be sure, the Italian leading formant in the law of security rights over immovables is the Civil Code (plus special legislation, in the last years). However, and sticking to the Civil Code in consideration of its centrality in Italy as in any civil law system, it can be noticed that the operative effectiveness of the legal provisions is most often determined, more than by their wording, by the interpretive action of legal scholarship and case law, which exasperate the rigidity and dogmatism of the solutions.

The Italian civil codification crystallizes a conservative interpretation of the Roman tradition, regulating only one type of security right over immovables, which is established as structurally accessory to the credit (ipoteca, artt. 2808 ff. Civil Code), and different solutions experimented abroad have been rejected.

The legislator's monistic choice imposes a clear limitation on the interests that can effectively be protected: the arguments in support of a debtor who is seen a priori as the weaker party prevail over the creditors' interests.

This approach results in rules that hinder the so-called omnibus securities: art. 2852 C.C. establishes that if ipoteca is to secure future obligations, these shall be obligations that might arise from a relationship already existing at the time of the creation of the security.

The rigid accessority of the security has gone underdebated and most legal scholarship has simply accepted it as a rule that disallows also the autonomous circulation of the security separately from the original secured obligation.

The rigidity of the interpreters is confirmed by the exclusive recourse to the mandatory law of property and "patrimonial liability" – in particular to an extensive interpretation of the prohibition against forfeiture clauses (art. 2744 of the Italian Civil Code) –, thereby excluding any resort to the flexibility of the law of obligations.

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The participation of the Italian revenue agency in the IMOLA IV Project

Article by **Simona Forlenza** and **Giuseppe Colaiacomo**

The Italian system of real estate registers belongs to a law tradition, in which the transfer of property depends solely on the consent of the parties, while registration serves the essential function of resolving conflicts between multiple purchasers from a common vendor. With regard to mortgages, the purpose of the Italian register is to ensure publicity and to prevent "hidden causes of pre-emption." In this case, publicity constitutes the mortgage itself, and consent alone is insufficient to create it.

Consistent with its purpose, the register is based on a personal framework: the general rule is the entry of an event concerning specific immovable property "in favour of" one party and "against" another. By contrast, the cadastral system—separate from the register —is structured around the identification of the property itself.

This brief overview illustrates the complexity of establishing

communication between the Italian system and other european systems. To add another layer of complexity, Italy itself hosts two distinct registry models: the *libro fondiario* (in the northeastern regions, similar to the Austrian system) and the *Registro della pubblicità immobiliare*. Thus, the challenge is not only a matter of differing legal rules, but also of divergent legal languages and conceptual frameworks of publicity.

These few notations show the urgency for a common language at least to understand the purposes and the mechanics of possible cooperation. In this perspective, the IMOLA project constitutes a valuable repository of knowledge, reflections, and semantic resources that lays the groundwork for future interconnection among European land registry systems.

But, firstly, the interconnection requires a proper digitalized framework.

In this regard, it is important to recall the continuous growth of digitalization within the Italian registries, a process initiated in 1985 and still evolving today. At present, the Real Estate Publicity Services maintain: native digital notes and deeds; computerized notes; paper documents.

From a technical perspective, progress is evident, although a working interconnection would need a further and focused evolution of the software and hardware currently used.

Moreover, the characteristics of the Italian legal system must be duly taken into consideration prior to the design of any future interconnection

In this perspective, establishing a coherent and functional framework for data exchange and mutual recognition among European registration systems remains difficult for Italy. The primary obstacles are not technological but legal: without a solid juridical basis and genuine harmonization of the laws of the Member States, enhanced interconnection will not be achievable, even though cooperation in some areas is already well developed.

The IMOLA Knowledge Organization System may serve as a foundation for developing a future "common system" of registers, but it has to develop itself as a sort of "passepartout" to enter the legal spirit of the different countries.

In this path, efficiency and simplification should be the principles to follow.

In this respect, it is useful to recall the current academic debate in Italy concerning the issue of "information excess in land registries." The prevailing view is that real estate transactions are secure only when third parties may

Establishing a coherent and functional framework for data exchange and mutual recognition among European registration systems remains difficult for Italy. The primary obstacles are not technological but legal: without a solid juridical basis and genuine harmonization of the laws of the Member States, enhanced interconnection will not be achievable, even though cooperation in some areas is already well developed

legitimately rely on the information contained in the registers—a condition that is threatened when the scope of publicly registrable matters is expanded in a voluntary or merely optional manner. An informational surplus is considered both unnecessary and detrimental.

Accordingly, any shared vocabulary should remain simple, not overly expansive, and grounded—as far as possible—in concepts common to all European legal systems.

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Formant-Based Semantic Methodology (FBSM) for Cross-Domain Interoperability in the IMOLA Project

Article by **Anabel Fraga**

INTRODUCTION: THE IMPERATIVE FOR SEMANTIC INTEROPERABILITY

The modern information ecosystem is characterized by deep technological fragmentation. Across sectors, complex systems—from national legal frameworks and financial markets to advanced manufacturing and automated driving—rely on disparate legacy systems, non-standardized terminology, and differing conceptual models of the same real-world entity. This leads to a profound semantic gap, rendering data difficult to share, analyze, and automate, even when technical (syntactic) standards are met.

Semantic interoperability is the ability of two or more systems to exchange data and interpret that shared data, ensuring that the meaning and context of the information are understood identically by all receiving systems. Without it, critical functions like regulatory compliance, cross-border commerce, and system-of-systems engineering become brittle, manual, and prone to error.

This paper proposes the Formant-Based Semantic Methodology (FBSM) as a structured, scalable approach to bridge this gap. Inspired by the European Land Registry Association's IMOLA project, which successfully tackled the profound semantic diversity among European Land Registry systems, the FBSM centers on the creation and management of a standardized semantic artifact—a Common Semantic Interface (CSI)—to act as the pivot vocabulary for translation between diverse national or organizational conceptualizations. The methodology is phased, moving from passive data extraction to active, AI-driven knowledge synthesis and, finally, to formal, automated data retrieval.

THEORETICAL FOUNDATION: THE SEMANTIC GAP AND ONTOLOGICAL ENGINEERING

Effective interoperability is often defined across four layers: technical, syntactic, semantic, and organizational. Technical and syntactic issues are resolved by standards like XML, JSON, or ASAM OpenX, which dictate how data is structured. The semantic challenge, however, requires formalizing the meaning of the data elements.

The foundation of the FBSM rests on Ontological Engineering. An Ontology is a formal, explicit specification of a shared conceptualization of a domain. Using standards like the Web Ontology Language (OWL) and the Resource Description Framework (RDF), domain concepts (e.g., "Property Owner," "Lien" in the legal domain; "Torque," "ASIL Level," "Requirement" in the engineering domain) are defined as classes and properties, establishing explicit, machine-readable relationships. This structure creates a Knowledge Graph, transforming isolated data points into a cohesive, queriable network of facts.

The methodology adopts a Pivot-Based Interoperability Model. Instead of building $N*(N-1)$ direct interfaces between N fragmented systems, the methodology establishes N interfaces connecting each local system to a single, central Common Semantic Interface (CSI), defined by the core Ontology. This CSI acts as the Formant—a standardized conceptual template or pivot vocabulary—to which all local terms are mapped.

Local SystemA↔Middleware/ InterfaceCSI (Formant)↔Local SystemB

This pivot model drastically reduces the complexity of integration and ensures that any change to a local system only requires updating its mapping to the CSI, not updating every other local system's interface.

THE FORMANT-BASED SEMANTIC METHODOLOGY (FBSM): DETAILED PHASES

The FBSM is executed in three distinct, iterative phases designed to transition a fragmented ecosystem into a semantically unified one.

3.1. Phase 1: Conceptual Harmonization and Artifact Creation (The CSI Model)

This initial phase establishes the formal vocabulary and structure for the entire domain. The output is the Common Semantic Interface (CSI)—in the IMOLA context, this is the European Land Registry Document (ELRD) schema and its associated I-KOS (Interconnected Knowledge-based Ontology System).

- Domain Analysis and Comparative Law/Terminology: Deep comparative analysis is conducted across all target domains. The goal is to identify common, equivalent, and divergent concepts across all participating local systems.
- Core Semantic Artifact Definition (CSI): Based on the analysis, an authoritative conceptual model is created. This model defines the minimum, non-ambiguous set of terms and relationships necessary for cross-system communication. This model is formalized using a language like OWL.
- Local Data Modeling and Metadata Formalization: For each local system, the metadata describing the available information is formalized. The concept of Attributes Assignation is crucial here, applying standardized metadata tags (attributes) to local data elements to facilitate accurate mapping to the CSI.

3.2. Phase 2: Pivot Term Extraction via NLP and AI Clustering

This is the key phase where Artificial Intelligence (AI) transforms unstructured or semi-structured texts (e.g., legal acts, requirement documents, engineering specifications) into machine-readable

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knowledge and resolves semantic ambiguities.

- Natural Language Processing (NLP) and Text Mining: Large volumes of domain-specific documentation are ingested. NLP tools are used to automatically extract key terminology, entities, and relationships (subject-predicate-object triples). Extracted terms are then normalized to reduce lexical variation.
- AI Clustering and Pivot Term Synthesis: AI algorithms (e.g., machine learning or unsupervised clustering techniques) are applied to the extracted and normalized terms. These algorithms group terms that, despite lexical or national differences, represent the same underlying concept. The resulting clusters define the "Pivot Terms." These harmonized conceptual keys are used by the CSI.
- Mapping Validation: Human domain experts validate the AI-generated Pivot Terms and the initial mappings from local system concepts to the CSI. This critical feedback loop ensures the derived semantics are legally and technically sound and allows for iterative refinement of the CSI.

3.3. Phase 3: Formal Retrieval and Interconnection

This final phase implements the technical execution layer that leverages the harmonized knowledge base for practical, real-time data exchange.

- Knowledge Base Deployment: The CSI (Ontology) and all local-to-CSI mappings are deployed into a central, queryable Knowledge Base (often a triplestore database).
- Formal Retrieval Mechanism: The Interconnected Knowledge-based Ontology System (I-KOS) is developed. This system uses query languages based on natural language to formally retrieve and interpret data. A query for a concept in the CSI is automatically translated, via the mappings, into the correct query syntax for each local database, and the results are re-translated back into the CSI format.
- Adaptation Principle Implementation: This ensures that when data is retrieved from a local system, it is adapted for the receiving system's context. This ensures both semantic equivalence (Pivot Terms) and necessary contextual/procedural information are provided.
- Maintenance and Governance: A governing body must be established for the continuous maintenance of the CSI/ELRD. As domains evolve, the CSI, Pivot Terms, and mappings must be continuously updated in a controlled, versioned manner.

CASE STUDY: SEMANTIC INTEROPERABILITY IN EUROPEAN LAND REGISTRIES (IMOLA)

The IMOLA project successfully applied the FBSM to overcome extreme semantic fragmentation in the European legal domain, where national Land Registries possess highly diverse legal systems, data structures, and terminology.

IMOLA Successes using FBSM Principles:

- The ELRD as the CSI: The European Land Registry Document (ELRD) was defined as the core semantic artifact. It is a unified, machine-readable template that captures the essential concepts of property rights and restrictions across all participating jurisdictions.
- Pivot Term Application: By applying NLP and AI clustering to national laws and legal texts, the project successfully identified a set of Pivot Terms (the Formants). These terms act as the common denominator, enabling the translation of highly nuanced national legal concepts into the standardized language of the ELRD.
- AI for Quality Assurance: AI clustering was used for ongoing data quality assurance and classification, which is crucial in a domain where the data structure is constantly evolving due to new national legislation.

The IMOLA methodology demonstrates that semantic interoperability is achievable even in complex, non-homogenous domains through the systematic creation of a high-quality, AI-validated semantic artifact (the Formant) and its deployment as a central pivot.

CONCLUSION

The Formant-Based Semantic Methodology (FBSM) provides a practical, robust, and scalable solution to the pervasive challenge of cross-domain semantic interoperability. By leveraging the combined power of Ontological Engineering (to formalize the knowledge), NLP (to extract and normalize terminology), and AI Clustering (to synthesize Pivot Terms), the FBSM transforms fragmented local data sources into an integrated, queriable Knowledge Graph. The success of this methodology in the complex legal arena of the IMOLA project proves its applicability to other critical domains suffering from tool and conceptual diversity. By adopting the CSI as a pivot and enforcing the rigorous, AI-assisted phases of term harmonization and formal retrieval, organizations can finally achieve seamless, automatic, and unambiguous information exchange across all borders and systems.

Semantic interoperability is the ability of two or more systems to exchange data and interpret that shared data, ensuring that the meaning and context of the information are understood identically by all receiving systems. Without it, critical functions like regulatory compliance, cross-border commerce, and system-of-systems engineering become brittle, manual, and prone to error

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The mortgage between harmonization and communicative needs: the IMOLA project

Article by **Elena Ioriatti**

INTRODUCTION

The IMOLA project (Interoperability Model for Land Registries), developed by the European Land Registry Association (ELRA), aims to improve the accessibility, transparency, and interoperability of land registry information across Europe. Its core objective is to create a standardized model for land registry data (notably the European Land Registry Document – ELRD), supported by multilingual explanatory materials and training, in order to facilitate access for professionals and citizens to the land registry information within the EU.

More broadly, IMOLA seeks to enable the efficient exchange of information between national land registries, especially in cross-border contexts, by developing shared semantic models, controlled vocabularies, and technical tools. This helps professionals and citizens gather information on immovable properties in the EU. Among the various tasks of IMOLA II, a technical objective of the project is to ensure semantic interoperability among Land Registry information and to promote the use of controlled vocabularies as part of descriptive metadata to characterize the content of Land Registry information objects.

Ultimately, the project contributes to fostering a more transparent and integrated European real estate and mortgage market, enhancing legal certainty and cooperation among Member States, while respecting national juridical and terminological differences.

Thus, the IMOLA project of ELRA can be understood not only as a juridical initiative, but also as a complex terminological project, aimed at interconnecting specific legal concepts across the different European systems of registered property. However, differently from the academic projects aiming at harmonizing the law of the Member States in the field or property law, IMOLA also aims at addressing the new terminology to citizens, and not only to jurists, professionals and academics. Indeed, the way in which IMOLA concepts are perceived by ordinary people within each legal system is crucial, in order to have a clear view of the real impact of the project on the very final recipients of the project of land registry interoperability: the EU citizens.

It goes without saying that a European Union project aimed at the harmonization and interconnection of property law—especially if not addressed only to legal professionals, but also to citizens—cannot be built on purely technical-juridical terminological comparison. On the one side, it certainly requires careful reflection and solid scientific foundations, particularly when it comes to the selection of the legal concepts (the so-called "pivot terms") that are meant to structure the system; on the other side, terminological choices should also take into account that the final recipients of the juridical message are not legal experts only.

With regard to the first point, it is well known that legal concepts are not neutral "labels"; they are the building blocks through which rights, obligations, and expectations are understood and exercised. Choosing the wrong concept risks generating confusion, inconsistency, and ultimately a lack of trust in the legal framework itself. For this reason, any harmonization effort must begin with rigorous comparative and theoretical analysis, ensuring that the concepts adopted are coherent, precise, and capable of functioning across different legal traditions within the Union.

Within IMOLA this has been done by means of a solid and well-established methodological instrument of comparative law science: the *theory of the legal formants* elaborated by the leading comparative law scholar Rodolfo Sacco[1]. The legal formants—legislative, judicial (case law), and doctrinal (scholarly analysis) —help to define legal concepts more accurately by revealing how rules operate in practice[2]. As already explained in IMOLA Books I and II[3], this method allows researchers to move beyond abstract definitions and analyze the "living law," that is, the rules as they are applied. This approach also facilitates the terminological choices despite the differences in the Member States, based on the identification of what is actually subject to an inscription in the land registries, and consequently the monitoring of future legal developments.

At the same time, however, theoretical correctness alone is not sufficient. As already said, projects addressed to citizens must also consider the need for accessibility and clarity. Legal language that

1 R. Sacco, *Legal Formants: A Dynamic Approach to Comparative Law* (Installment I of II), in The American Journal of Comparative Law, 1991.

2 To fully appreciate its significance, it is necessary to begin with some general considerations drawn from linguistics and terminology, as developed by scholars such as Matteo Bartoli, a linguist who influenced the father of Italian comparative law Rodolfo Sacco. Matteo Bartoli, *Introduzione alla neolinguistica* ("Introduction to neolinguistics»), 1925 and *Saggi di linguistica spaziale* ("Essays in spatial linguistics») 1945. Whilst his brother was studying linguistics at the University of Turin, Rodolfo Sacco – who had always been a keen observer of this discipline – attended the lectures of Matteo Bartoli, the father of so-called spatial linguistics. First from Bartoli and later from Ferdinand de Saussure (Ferdinand de Saussure, *Cours de linguistique générale*, 1916 (edited by Albert Sechehaye and Charles Bally). Sacco learnt the technique of observing language from the outside, that is, in its main components, a technique which he applied to legal studies, giving rise to the well-known theory of the legal formants.

3 E. Ioriatti, S. Giacomini, *Land registry interconnection and comparative law: towards a future aligned with EU digital transformation policy*, in A. Fraga, E. Ioriatti (ed.), IMOLA III Project: *The European Land Register Document (ELRD): A common Semantic Model for Land Registers Interconnection*, Bruxelles: European Commission, 2022, p. 63-81. E. Ioriatti, S. Giacomini, *Imola II and comparative law: the way forward*, in A. Fraga, E. Ioriatti, S. van Erp (eds.), *The European Land Register Document (ELRD): A common Semantic Model for Land Registers Interconnection*, Brussels, EU Commission ed., 2019, p. 134.

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is excessively abstract or technical may be accurate from a scholarly perspective, but it risks alienating the very people it is meant to serve. If citizens cannot understand the concepts that define their rights in relation to property, the goal of interconnection and transparency of EU land registry systems remains incomplete.

The challenge of IMOLA, therefore, lies in striking a balance: the chosen legal concepts must be grounded in sound legal theory, yet expressed in a way that is intelligible to non-experts. This does not mean oversimplifying the law, but rather articulating it with precision and transparency, avoiding unnecessary complexity and ambiguity. Only in this way can a harmonized system of property law be both intellectually robust and genuinely effective in practice.

In short, a successful EU initiative in this field must bridge the gap between scientific rigor and public comprehension. It must rest on concepts that are not only legally accurate but also capable of being understood, trusted, and applied by ordinary citizens across Europe.

The following chapter is intended to demonstrate, with the support of different disciplines, that in the IMOLA project this objective has indeed been achieved. By drawing on established approaches in juridical, legal linguistics and terminology studies, it will show how the selected IMOLA concepts are not only theoretically grounded, but also capable of conveying meaning in a clear and accessible manner. In particular, the analysis will focus on the relationship between conceptual precision and linguistic expression, highlighting how carefully constructed terminology can function as a bridge between expert knowledge and lay understanding.

CONCEPTS, LANGUAGE AND THE CONSTRUCTION OF REALITY

From a philosophical perspective, thinkers such as John Locke[4] and David Hume[5] described terms as ideas or mental images. Still in modern linguistics, concepts are seen as mental representations that structure an individual's knowledge about the world. Importantly, the meaning of a concept is not universal or fixed; rather, it is shaped by cultural and historical contexts. Terminological choices, therefore, do not simply describe reality, they actively create abstract objects that exist independently of individual speakers and influence how we understand both real and imaginary worlds[6].

Thus, linguistically, a terminological choice creates a new, abstract "object", that exists independently of the speaker's linguistic competence. When we acquire or create a concept, we do that in order to understand our surroundings, which include fictional or imaginary realities too[7].

A simple example is the term "sunset/ coucher de soleil/tramonto". The sunset can be understood as a mental image that is transposed into language through everyday expressions. When we speak of the "sun setting," we are using a linguistic convention that reflects how we perceive the phenomenon, not what actually happens in the physical world. In reality, the sun does not move around the Earth; rather, it is the Earth's rotation that creates the appearance of the sun descending below the horizon. Thus, the idea of a sunset is a conceptual and linguistic construction, a fiction, that helps us describe our experience, even though it does not correspond to the actual motion of celestial bodies.

4 J. Locke, An Essay Concerning Human Understanding (Vol. III), London, 1689.

5 D. Hume, A Treatise of Human Nature: Being an Attempt to introduce the experimental Method of Reasoning into Moral Subjects, 1739-40.

6 Z. Nemickiené, Concept in modern linguistics: the component of the concept good, in Filologija, 2011, p. 26 ff.

7 T.R. Carney, Linguistics for legal interpretation, UJ Press, 2006, p. 13.

If we think of another example of a mental image – the "death" – it is easy to agree that, over the centuries, death has been depicted in many ways, but always in a vivid manner, often as a figure dressed in black and holding a scythe. Nowadays, according to the National Committee for Bioethics of 15 February 1991, later integrated into legislation, the mental image of death as a visible or perceptible event is replaced, in legal and medical terms, by the concept of clinical death, which is identified exclusively with the medical term of decerebration (brain death).

Thus, terms and concepts are mental representations of the world, structures that speak for the perception of an individual about a particular segment of the world.

In this framework, it should be also borne in mind that the meaning of a concept remains within the frame of a particular culture and period of time[8] and also varies across cultures. A well-known example is that of the use of some daily words – representing abstract matters at the same time - by the Kuuk Thaayorre people of Pormpuraaw in Australia, who do not use egocentric directions such as "left" and "right," in their daily language. Instead, this population makes use of absolute spatial references based on the cardinal points: north, south, east, and west. This linguistic feature is closely connected to the peculiar environment in which these people spend their life: by living in a challenging and potentially dangerous landscape, individuals must develop strong orientation skills from an early age. As a result, children learn very early to always keep track of directions, ensuring they can move safely and effectively within their surroundings[9].

SPECIALIZED TERMINOLOGY AND LEGAL LANGUAGE

The influence of culture on terminology is true for scientific disciplines too, including law, all relying on specialized vocabulary, as specialized terminology plays a crucial role in scientific disciplines, including law. Legal language, in particular, differs from both ordinary and artificial languages, like for instance mathematical language: however, while ordinary language is natural and mathematics is artificial, legal language is "administered," meaning it is shaped and controlled by institutions[10].

READ THE FULL ARTICLE HERE

8 E. Margolis, S. Laurence, *"Concepts"*, *The Stanford Encyclopedia of Philosophy* (Fall 2023 Edition), Edward N. Zalta & Uri Nodelman (eds.),

9 Lera Boroditsky, *How language shapes the way we think*, TedVideo at: https://www.youtube.com/watch?v=RKK7wGAYP6k

10 M. Jori, A. Pintore, Introduzione alla filosofia del diritto, Giappichelli, 2014.

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Some Notes about Mortgage in Portugal

Article by **Mónica Jardim**

PRELIMINARY NOTE

Security rights in rem, a category which includes the mortgage, confer upon the holder of a credit claim the power to bring about the judicial sale of a specific and defined asset and to be paid from the proceeds thereof, with priority over other creditors who do not benefit from a prior security interest.

They therefore serve an *instrumental function*: they ensure the realisation, albeit subsidiary, of a claim. Precisely for this reason, they are regulated, alongside other special personal guarantees[1], in the Book of Obligations of the Civil Code.

The mortgage, commonly referred to as the 'queen of guarantees', is provided for in Articles 686 to 732 of the Civil Code[2].

According to Article 686, a mortgage "conferring upon the creditor the right to be paid from the value of certain immovable property, or equivalent assets, belonging to the debtor or a third party, with preference over other creditors who do not enjoy a special privilege or priority of registration" (Article 686 (1)), and the secured obligation may be future or conditional (Article 686 (2).

Unlike a pledge, a mortgage does not involve the loss of possession of the asset given as security; rather, its creation depends, as will be explained below, on the registration of the constitutive act in the relevant register (land register or register of movable property treated as immovable property[3]).

A mortgage may secure any claim having pecuniary value and may be created over the assets of the debtor or of third parties[4] . However, naturally, only those who can dispose of the encumbered assets are entitled to create a mortgage (Article 715)[5] , since the creation of a mortgage – like any other real right of security, except for the rent assignation – always involves the possibility that the asset may be sold in the context of enforcement proceedings.

It should also be emphasised, regarding Article 686, that special privileges – which are hidden guarantees, as they are not entered in the Register – although after the mortgage, take precedence over it (Article 751). Consequently, the mortgagee may encounter priority rights of which they had no prior knowledge, and which arose after their security was established. Furthermore, the right of lien in cases where the claim secures the reimbursement of expenses incurred to preserve or increase the value of the retained property (Article 759(2)) also takes precedence over the mortgage, even if the mortgage was created earlier[6].

Finally, in this introductory note, it should also be noted that there is no special procedure for the sale of mortgaged property and subsequent payment of the mortgagee. There are, however, two special provisions that are relevant to the enforcement of a mortgage claim: Article 56(2) of the Code of Civil Procedure, which provides that "the enforcement of a debt secured by a security interest over a third party's assets shall proceed directly against that third party if the creditor intends to enforce the security"; Article 752 of the same Code, under which, in the case of a debt secured by a security interest encumbering assets belonging to the debtor, attachment shall commence, irrespective of designation, with the assets to which the security interest relates, and may only extend to others where it is recognised that these are insufficient to achieve the purpose on enforcement[7].

1 As is well known, special guarantees of obligations are said to be personal where the assets of a person other than the debtor are liable, alongside those of the debtor, for the non-performance of the obligation.

2 Henceforth, all provisions without an indication of the source legislation belong to the Portuguese Civil Code.

3 Portuguese law permits, as will be seen, the creation of mortgages on movable property treated by law as equivalent to immovable property: motor vehicles, ships and aircraft (Article 688(1)*(f)*).

4 There are several provisions protecting a third party who has created a mortgage to secure another person's debt.

On the one hand, the non-debtor owner is afforded all the defences to which the debtor would be entitled, even if the debtor has waived them (Article 698). Thus, the owner of the property may invoke the limitation period of the debt or even the voidability of the transaction in which it was incurred.

On the other hand, the law establishes a subrogation of the creditor's rights, even against any guarantors: the owner who sees the property subject to enforcement may demand that they fulfil the debt, in accordance with Article 592(1). This right constitutes a protection on which the owner legitimately relies; therefore, if the creditor makes it impossible to exercise this right (for example, by waiving a security), the law provides for the extinction of the mortgage – Article 717(1).

Thirdly, the owner is permitted to rely on the res judicata ruling handed down against the debtor where it is favourable to him (Article 635(1), applicable pursuant to Article 717(2)) and may invoke any defences of the debtor that have been accepted by the court.

Fourthly, a mortgage created by a third party cannot be freely assigned without the consent of the owner who is not the debtor (Article 727(1)).

Finally, as a rule, the replacement or reinforcement of a mortgage granted by a third party cannot be required, unless that third party was responsible for the reduction in the value of the property (Article 701(2)).

5 We would point out that parents, in relation to the property of their minor children, and guardians, where the guardianship order so provides, have powers of representation and may therefore create a mortgage on property that does not belong to them, provided they have the court's authorisation – Article 1889(1)*(a)*.

We would also point out that, pursuant to Article 1682-A(1)*(a)*, the consent of both spouses is required, unless the regime of separation of property applies, for the encumbrance of immovable property, whether owned individually or jointly. Furthermore, where the family home is concerned, pursuant to paragraph 2 of this provision, the consent of both spouses is required, even where the regime of separation of property applies.

6 The public notice of the right of lien arises, as is well known, 'solely' from the exercise of material powers over the property.

7 If the mortgagee is also the claimant, they may include in the enforcement proceedings assets other than those encumbered by the mortgage. However, the first asset to be attached must necessarily be the mortgaged property (Article 752(1) of the Code of Civil Procedure). It should be noted, however, that, as regards the other assets, they will only enjoy the priority conferred by the seizure.

In the other hand, if the mortgagee claims their debt in enforcement proceedings brought by another party, they may only be satisfied with priority to the extent of the value of the mortgaged property.

It should be noted that only a creditor with a debt that is due may initiate enforcement proceedings. However, where there is seizure on property encumbered by a mortgage securing a debt that has not

1. ACCESSORY NATURE

As follows from the above, a mortgage is an *accessory* security for a specific debt[8] : it is established only in relation to that debt, and the luck of the security depends on the luck of the secured debt. If the debt is void or is extinguished, the security will also be void or will be extinguished, even if the registration is not cancelled. Similarly, the mortgage will only secure the credit for the amount it stands at the time of enforcement, even though it may be registered for a higher value[9] . This is the first implication of accessory nature (genetic and extinctive dependence).

Furthermore, the mortgage is linked to a specific obligation, which must be expressly identified in the instrument of creation and in the Land Registry. (This is the second aspect of *accessory nature.)* Thus, the mortgage must identify the legal relationship from which the secured obligation arises (parties, source of the obligation, payments it comprises, date, place, contractual terms and duration). For example, the mortgage shall secure the *debt of Mr … to Bank … arising from the loan … granted on the date …, at the place …, securing the principal amount outstanding, the interest calculated using the formula … and the default interest calculated using the formula …*

As the mortgage secures a fully specified debt, it cannot be linked to other debts, even if it is registered for an amount greater than the instalment it secures. Consequently, *generic* guarantees (which secure *"all debts that the debtor may incur")*[10] or *floating* guarantees (which may be used, with the original priority, to ensure the fulfilment of a new obligation assumed by that debtor) are not permissible.

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yet fallen due, pursuant to Article 788(7) of the Code of Civil Procedure, the mortgagee is entitled to proceed with enforcement. However, if the obligation secured by the mortgage is still uncertain or illiquid, the creditor must first render it certain or liquid by the same means available to the enforcing party (Articles 713 et seq. of the Code of Civil Procedure). Furthermore, a prerequisite for the claim is the existence of an enforceable title (Article 788(2) of the Code of Civil Procedure), which the claimant creditor may obtain in accordance with the provisions of Article 792 of the Code of Civil Procedure.

If the creditor proceeds with enforcement to claim a debt that is not yet due, the amount corresponding to the benefit of early payment shall be deducted (Article 791(3) of the Code of Civil Procedure).

If the claimant's debt is extinguished in any way – in particular, by payment – the enforcement proceedings will consequently be extinguished, without the creditor claiming the debt that has not yet fallen due being able to avail themselves of the procedure for renewing the enforcement proceedings provided for in Article 850 of the CPC.

8 It should be noted that, unlike in the bail, the accessory nature of a mortgage is not expressly stated in the law; however, it is unequivocally implied by many of its provisions – Article 686 (which always refers to a *secured obligation*); 730(*a*) (which provides for the extinction of the mortgage upon the extinction of the debt); 96(1)(*a*) of the Land Registration Code (which requires the identification of the secured debt).

9 If the debt is reduced by half, because it has been partially repaid, the mortgage will also be reduced. Similarly, if the secured debt increases, particularly due to the accrual of interest, the mortgage will, in principle, be extended (Article 693). Precisely because the security is *automatically* extended without the holder's intervention, the law requires the Registry to publish not only the *secured obligation* but also the *maximum limit of the secured amount*. It is clear, as follows implicitly, that the mortgage does not secure any part of the debt exceeding that *maximum limit of the secured amount* – Article 96(1)(*a*) of the Land Registration Code.

10 A general mortgage would suffer from various defects, in addition to the violation of the principle of accessory nature – since the security would not be linked to any specific obligation – namely: the unlawful subversion of the Registry's rules of priority, constituting an unauthorised reservation of mortgage rank, as the creditor would be reserving the priority rank for any obligation the debtor might assume, even if much later and arising from a different cause; the impossibility of cancelling the mortgage (the debtor would have to prove that no obligation had ever arisen – proof of negative facts, and therefore extremely difficult); *indeterminacy of the subject matter*, resulting in nullity under Article 280.

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The principle of accessory nature also requires that the mortgage always belong to the creditor of the secured debt; in other words, *the creditor* must be the same as the *holder of the security*, given the inseparable relationship between the security and the debt (the third aspect of accessory nature). Therefore, the assignment of the secured debt entails, in principle, the transfer of the security, with the assignee of the debt becoming the mortgagee, by virtue of the principle *accessorium sequitur principale* (Article 582)[11]. Similarly, where the mortgage is assigned, the secured debt becomes that of the assignee (Article 727)[12] .

2. THE POSSIBILITY OF SECURING A FUTURE OR CONDITIONAL OBLIGATION

As is unequivocally clear from Article 686(2), a mortgage may secure a future obligation or a conditional obligation, provided that the latter is expressly defined. This is because a mortgage is intended to secure a specific obligation, even if it is future or conditional, and therefore there is no deviation or exception to the principle of accessory nature; but only a mitigation of accessory nature[13].

Thus, it is possible, for example, for a bank to undertake to lend a certain amount to a customer, requiring the creation of the mortgage beforehand. In this circumstance, the credit (still future) must be expressly identified in the mortgage title and in the registration entry as regards its main elements (as already mentioned: parties, source of the obligation, instalments it comprises, date, place, contractual conditions and duration), failing which the transaction would suffer from indeterminacy and, therefore, be null (Article 280).

The use of a mortgage is also permitted *in credit facilities* or current account agreements. Under such an arrangement, the credit institution undertakes to make available to the borrower, according to their needs and convenience, sums of money up to an agreed maximum, and the borrower may, also according to their needs and convenience, deposit any sums they do not require into the current account. In this way, it is possible to structure a mortgage so that the amount of the secured credit may increase without any alteration to the real estate security. There is a determinable future obligation here. In fact, although it has not yet arisen, the obligation to which the mortgage will be attached is identified, should it arise[14] .

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11 Nevertheless, this rule may be removed by the assignor and the assignee. If it is agreed that the security will not be transferred with the debt, the mortgage will be extinguished by virtue of the principle of accessory nature. In other words, from a practical point of view, such an agreement amounts to a waiver of the security (Article 730(*d*)), since the law does not permit it to remain in the assignor's possession without the debt to which it was attached.

12 As follows from the foregoing, Portuguese law does not recognise the concept of *an independent mortgage* (which exists in Germany and Switzerland).

13 As we shall see, further mitigations to the principle of accessory nature include the *assignment of a mortgage* (also known as *a sub-mortgage* or *a mortgage on a mortgage*) and the *assignment of a mortgage rank;* in both these cases, the law permits transactions involving the transfer of a mortgage without the secured debt.

14 Furthermore, it is possible (without amending the mortgage) to secure a long-term loan where the interest rate is fixed for only part of the term, with an agreement that the interest rate will be reviewed for the remainder of the term.

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Study on the Land Registry Publicity

Article by **Elena Prada**

This article analyses the strategic evolution of the European Land Registry Document (ELRD) within the framework of the IMOLA IV Project, specifically focusing on its impact on the Servizio Libro fondiario e Catasto of the Autonomous Province of Trento. By moving beyond a mechanical transposition of data, the ELRD emerges as a sophisticated instrument of semantic interoperability, capable of bridging the gap between diverse national legal systems through the IMOLA Knowledge Organization System (I.KOS).

The study highlights the innovative application of the theory of legal formants, which allows for a granular understanding of "living law"—legislative, judicial, and land registry practices—across Member States. Through practical examples involving mortgage registrations and the principle of accessoriness, the article demonstrates how semantic mapping prevents the creation of "silent" documents, ensuring that national/regional legal specificities remain intelligible in a cross-border context.

Finally, the paper outlines future perspectives for the ELRD core semantics, addressing contemporary challenges such as the Green Transition (renewable energy surface rights and energy performance certificates) and the housing crisis (short-term rental constraints and social housing covenants). The conclusion underscores the added value of the project for a diverse ecosystem of stakeholders, positioning the Land Registry not merely as a static archive, but as a dynamic guarantor of legal certainty and mutual trust within the European Single Market.

Keywords: ELRD, IMOLA IV, Land Registry Interconnection (LRI), I.KOS, Semantic Interoperability.

INTRODUCTION: THE PARTICIPATION IN THE IMOLA IV PROJECT AND THE STRATEGIC ROLE OF THE ELRD IN NATIONAL AND EUROPEAN INTEROPERABILITY

The IMOLA IV project continues the mission of its predecessors by enhancing the accessibility and transparency of land registry information across the European Union. At its core lies the European Land Registry Document (ELRD), a standardized template designed to make diverse national legal information understandable to professionals and citizens alike. This article discusses the added value of IMOLA IV for the Servizio Libro fondiario e Catasto (Provincia Autonoma di Trento - Italy) and the steps taken to foster a more integrated juridical ecosystem.

LAND REGISTRY CORE VOCABULARY: AN ESSENTIAL INSTRUMENT FOR AN EFFECTIVE CROSS-BORDER INTEROPERABILITY

The IMOLA project provides significant added value by establishing a common "pivot" vocabulary that maps national legal concepts to a shared European framework. The European Land Registry Document (ELRD) does not constitute a mere data stream from the national to the European level. Rather, it is essential to provide a core vocabulary to ensure that the specificities of a given legal institution, as transposed into a land registry entry, can be properly understood and correctly applied in another Member State—where the same legal institution may operate under different general principles. Consequently, a core vocabulary is fundamental to the interconnection of registries and the removal of cross-border barriers that inevitably arise when identical legal institutions are governed by divergent regulations across Member States.

A common and detailed semantics, which serves as the legal foundation for the entire IMOLA project, represents a professional achievement of the highest calibre. It facilitates the overcoming of national legal discrepancies by elucidating the regulatory specificities of all analysed and translated pivot terms. When assessing this outcome as a "final product" for legal practitioners and European citizens alike, the core vocabulary underpinning the ELRD serves as an instrument of simplification, transparency, and rationalization. The database established within the Knowledge Manager (KM) portal—containing all pivot terms alongside their respective legal analyses and translations—will thus mark a paradigm shift in comparative land registry law.

THE ELRD CORE VOCABULARY AND THE THEORY OF LEGAL FORMANTS

A further significant value-added component of Phase IV of the IMOLA project concerns the application of the "legal formants" theory, originally formulated by Professor Rodolfo Sacco and now adapted to the land registry context through the indispensable contribution of the University of Trento, Faculty of Law. The application of legal formants within the IMOLA framework has enabled a more granular examination of the legal institution first selected for this purpose: the mortgage. Given the fundamental legal and practical significance of this instrument, a structured questionnaire comprising 23 inquiries was developed to analyse both its general characteristics and its specific operational implications. For each question, Member States specified whether the response provided was grounded in the legislative, case law (judicial), doctrinal, or strictly land registry case law formant. This branch of the project is profoundly innovative and of paramount significance for the following reasons:

- Multidimensional Legal Analysis: by moving beyond a purely statutory approach, the project captures the "living law" as it is applied in practice

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- Methodological Innovation: the integration of the theory of legal formants into the Land Registry domain represents a pioneering shift in comparative law methodology
- Enhanced Transparency: it allows practitioners to discern whether a specific rule arises from a formal statute or from consolidated judicial interpretation, thereby reducing legal uncertainty in cross-border transactions.

Considering that the main, general, objective is the interconnection, it is important to highlight that the digital integration of European Land Registries transcends technical interoperability; it is, at its core, a challenge of semantic harmonization. For legal professionals—notaries, judges, and solicitors—the IMOLA project's output will serve as a sophisticated navigational tool within the complex landscape of European property law.

As mentioned above, in the absence of a shared semantics, legal terms that appear identical may hide profound structural differences. For instance, the term "mortgage" does not carry the same legal weight or procedural requirements in a civil law jurisdiction as it does in a common law one.

The role of pivot terms is also to be underlined: by using "pivot terms," professionals can map national concepts onto a common European template. This reduces the risk of malpractice and ensures that a security interest constituted in one State is effectively recognized and enforceable in another.

Furthermore, the formants theory can be seen as a risk management tool: the application of the theory of legal formants provides a multi-layered view of the law that is often missing from official databases. In particular, in this context, we can observe the paradigm "Legislative" vs. "Living Law": a practitioner relying solely on the legislative formant (the written code) might miss crucial nuances established by the judicial formant (court rulings) or the land registry formant (the actual practice of land registrars). This leads to a new form of operational precision: knowing that a specific land registry practice in a Member State is dictated by a long-standing judicial interpretation—rather than a clear statutory rule—allows a land registry stakeholder to provide more accurate due diligence and risk assessment for international investors. The concrete output is an enhanced judicial cooperation and mutual trust. The core vocabulary acts as a bridge for the application of EU Regulations: one example above all is related to the Succession Regulation (EU) No 650/2012. When a professional must deal with a "European Certificate of Succession," the ability to cross-reference terms through a validated semantic framework ensures that the registry entry accurately reflects the heir's legal status across borders.

Broadly speaking, the theory of legal formants is applicable across diverse areas of land registry law. Its scope may be extended to emerging fields where cross-border comparative analysis is essential for resolving practical legal challenges. While the application of formants has thus far focused on mortgage law, the inherent flexibility of this theoretical framework allows it to be tailored to other sectors of significant relevance to land registry systems in the near future.

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THE ELRD CORE VOCABULARY AND THE MORTGAGE TOPIC: A PRACTICAL EXAMPLE

As previously outlined, phase IV of the IMOLA Project—in addition to expanding the number of pivot terms and enhancing the quality of those already established—focused specifically on the subject of 'mortgages'. A twenty-three-item questionnaire was circulated among the project participants to analyse the most significant legal and practical profiles from a strictly land-registration perspective. These twenty-three queries addressed both the general characteristics of the legal framework and more granular technical aspects. The questionnaire yielded particularly significant results, highlighting the operational divergences in the management of mortgage registrations within land registry systems.

Particular emphasis should be placed on the discrepancies emerging from the responses to the following queries:

- Is the mortgage classified as collateral under the applicable law?

To this question, eight CPs (Bulgaria, Belgium, The Netherlands, Spain, Italy Agenzia delle Entrate, Italy Servizio Libro fondiario e Catasto, Malta, Portugal) responded in the affirmative, while three responded in the negative. It is noteworthy that the negative responses were provided by Estonia, Finland, and Sweden, as was to be expected. The practical implications of the legal doctrine underlying this question—namely, the principle of accessoriness—are of paramount importance. In legal systems where the principle of accessoriness prevails, a mortgage deed that fails to specify the underlying secured credit will inevitably result in a rejection of the application. Conversely, in jurisdictions that do not uphold the rule of accessoriness, the same mortgage deed may be deemed sufficient for the application to be granted, leading to the subsequent registration of the mortgage.

The aforementioned considerations have direct practical consequences for the ELRD (European Land Registry Document); specifically, the acceptance or rejection of a mortgage registration is strictly contingent upon the specific legal framework of the jurisdiction in which the registration is sought.

- Can the mortgage be registered in favour of the proprietor of the LR unit?

The results pertaining to this specific query also demonstrate significant operational divergences among Member States. Estonia, Sweden, Finland, and Bulgaria provided an affirmative response, thereby confirming the possibility of registering a mortgage in favour of the property owner themselves (owner's mortgage). Conversely, the Netherlands, Spain, Italy (both Agenzia delle Entrate and Servizio Libro fondiario e Catasto), Malta, and Portugal provided a negative response.

In this instance as well, the impact on the ELRD is manifest: the adoption or rejection of such a legal regime results either in the registration of the mortgage – duly reflected in the ELRD – or in its rejection, with the consequential absence of any recorded mortgage security.

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Artificial Intelligence and Case Law Doctrine: why jurisprudence is important

Article by **Roberto Sierra Gabarda**

AUTHOR'S NOTE

When it comes to deal with a new technology, I tend to be sceptical on how it would allow us to solve, or at least simplify, those systemic problems that seem impossible to handle. As a legal professional in the field of litigation, I observe how judicial systems all over the world share the same problems. I am not talking about technical issues, but about substantial questions that have to do with how judges apply the law and how can we, from a human rights perspective, control whether a judge is giving different solutions to the same issue. In this field of making judicial decisions more clear and helping judges in the decision-making process is where I find AI especially useful.

ABSTRACT

Is AI an immediate solution for the systemic problems that affect all judicial systems? Should we focus on the technical improvements that come with AI or look deeper for a more substantial use? These questions leads us to the importance of how can AI help us understand judicial decisions, analyse them and, finally, conclude whether a certain Court is reasoning properly in a particular case according to its own precedents and giving enough merits to maintain or change its own criteria.

ARTIFICIAL INTELLIGENCE AND CASE LAW DOCTRINE: WHY JURISPRUDENCE IS IMPORTANT

I.-Introduction

Through the next lines, I would like to reflect on the relationship that might be interesting to observe between Artificial Intelligence and case law doctrine. More precisely, how this connection could benefit both legal education and judicial practice and, in the last term, the right of access to justice enshrined in art. 47 of the Charter of Fundamental Rights of the European Union.

AI is everywhere. Every single week something related to AI appears on the media making discussions on how to use it, or limit it, more interesting. In this sense, when it comes to analyzing new technology, is it often to celebrate its arrival and proclaim its benefits in such a triumphant way. However, we have to avoid messianic promises. Especially when it has to do with solving the systemic problems that affect to all the judicial systems around the world.

Therefore, let me feel skeptical on those announcements and suspect on the immediate effects that can derive from AI. The legal world is extremely diverse. The long-accepted difference between "Civil" and "Common" law systems is no longer valid due to globalization, mass media developments and higher cooperation among different States. Countries are changing, from a legal perspective, at different speeds according to diverse political, cultural and philosophical perspectives.

Thus, if we seek for a unique and quick solution for judicial systems based on the AI developments, I think it is necessary to redefine our legal institutions among which we can find the case law doctrine and how it is been applying by all legal professionals.

Furthermore, discussions about AI and its effective use often focus on superficial or simple technical improvements (e.g. remote hearings). Some of these are useful, but they already exist in some way or another (we can think on how technical advances were almost mandatory due to health restrictions during the pandemic period). The real question that comes with AI in the field of judicial systems is more substantial: how can AI helps us understand whether our laws work, how courts apply them and how judicial reasoning evolves. I am not talking about controlling judicial activity, but helping judges to make decisions in a safer and coherent manner.

II.-Case Law as a symptom

As I stated before, the long studied difference between "Civil Law" and "Common Law" systems is no longer useful. Firstly, due to the growing legal integration and cooperation among States coming from different legal cultures. Secondly, the lack of legislative autonomy of national bodies that leads to constant harmonization of national regulations based on international regulation.

As a result, case law doctrine becomes the real battlefield where Courts have to deal with new legislation, which not always turns to be clear. Judges become, more than in a desirable way, quasi-legislators by interpreting regulations, which tend to be broader and undefined. The question on what the legislator was meant to say is usually answered in the field of judicial proceedings. A brief review on the amount of preliminary rulings before the CJEU gives us a good example.

This is particularly relevant on those countries in which case law doctrine does not constitute a fundamental source of Law (e.g. Spain) and, because of that, Judges can vary their precedent opinions giving and adequate reasoning. Therefore, they can vary their criteria as long as the Law also changes or, at least, give adequate reasons to modify a long stablished pattern.

As the reader can observe, this reality leads to a higher tension between judicial independence (in the sense that different judges may reach different solutions) and legal certainty that has been highlighted by the ECHR concerning art. 6 of the Convention in Lupeni Greek Catholic Parish and others v. Romania [GC], no. 76943/11, § 116, 29 November 2016: "However, the possibility of conflicting court decisions is an inherent trait of any judicial system which is based on a network of trial and appeal courts with authority over the area of their territorial

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jurisdiction. Such divergences may also arise within the same court. That, in itself, cannot be considered contrary to the Convention (...) It is not in principle the Court's function to compare different decisions of national courts, even if given in apparently similar proceedings; it must respect the independence of those courts. Equally, giving two disputes different treatment cannot be considered to give rise to conflicting case-law when this is justified by a difference in the factual situations at issue (see Hayati Çelebi and Others, cited above, § 52, and Ferreira Santos Pardal, cited above, § 42)."

III.-Problems in how case law doctrine is used.

Court practice shows us that case law doctrine is used poorly. Judicial precedents are cited in legal documents from a superficial perspective as a tool of making them more detailed or exhaustive. However, legal precedents should represent a valuable asset complementary to the factual context and merits which constitute the structure of any legal position.

In some occasions, references are inconsistent or inaccurate. Professionals are always looking for a quote, but they do not look deeper into the case. When using judicial precedents, identifying similarities between the actual case and the one decided in the past becomes crucial. Case law is purely circumstantial and the effectiveness of judicial decisions is limited to the concrete dispute or issue brought before Courts.

At the same time, citations are usually based on the authority of the Court rather than the relevance of the reasoning. Underlining cases from Supreme Courts is a frequent way of pretending to be in the winning side. However, it turns to be superfluous when no connection can be found.

Furthermore, it is highly ignored what the factual context of the case was and how it is similar to the one we are pretending to apply. Facts are crucial as determine the applicable law. Ignoring the factual context of those cases cited makes them weak.

Finally, we tend to forget lower or first instance court decisions. It is important not to forget that these courts deal with the first contact with new legal concepts and, most of the times, there is no available appeal against their resolutions.

IV.-How AI Can Help

Technological improvements coming with AI may have a great impact in how can we used case law properly in order to strengthen right to access to justice. This can be reached through different kind of utilizations.

- **Improving gathering, collection, access and identification**

One the most important challenges when it comes to deal with case law has to do with the construction of a complete and accessible legal database. There is still a great need for precedents coming from lower courts that would allow us understand how judges reason and how Law is applied. By doing so, it would be possible to know the judicial path that a concrete dispute took: how was handled in first instance, reasons to appeal and final decision. Moreover, harmonizing citing methods becomes crucial as there is no a clear rule, at least at a national level, of describing and referring these precedents.

- **Improving legal research**

Building a great and complete legal database is not enough. Case law doctrine is not only about finding the right quote for the right case, but to extract the legal meaning of that precedent. AI can, therefore, identify precedents more accurately, trace the evolution of the doctrine and detect whether a certain judicial thesis has been overturned. Sometimes, parties tend to cite cases whose doctrine has been overruled. Other times, these same cases turn to be old enough not to be relevant or accurate.

- **Supporting legal analysis**

Looking deeper into judicial reasoning, AI can help identify whether a certain court is applying the same law for similar facts in the same or opposite sense than in the past. In other words, it will operate as an alarm system preventing the judge to incur in contradictory decisions without giving the adequate merits for that. This function can help judges as a decision-support tool, but not as a decision-making one. Here comes the most controversial question. AI will be useful in order to give the court the necessary tools to get the decision. However, this does not mean replacing human judgement. We cannot forget that, according to the EU's new regulation on AI, judicial administration AI is considered as "high-risk" so we must proceed with great caution.

V.-Conclusion.

Case law doctrine is becoming more relevant according to the current context. Supranational cooperation translates into more legislation, broader dispositions and, therefore, a growing need of giving legal certainty when applying the law to a certain case. It is important for judges to control their precedents identify similar cases and, consequently, giving similar solutions to similar situations unless circumstances change or a new case law doctrine is needed.

AI, when applied to case law doctrine, may have a great impact in legal education and judicial practice. Legal precedents would be more accessible while the evolution of such doctrine and the facts from which it arises would be clear from the beginning.

As a result, AI ay help us to access to more decisions, contextualize them properly and analyze them deeper. Finally, legal certainty will benefit and may help to strengthen coherence and legal certainty of our jurisprudence.

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IMOLA, ELRD, and the Transformation of Legal Land registry Publicity after Law 11/2023

Article by **Teresa Touriñán**

ABSTRACT

The digital transformation of land registries has emerged as a central concern in European legal policy, particularly in the aftermath of the COVID-19 pandemic and within the broader context of the consolidation of the European Single Market. While land registries in many Member States have already achieved a high degree of digitalisation, significant barriers to effective cross-border use of registry information persist. These barriers are not primarily legal in nature, but rather stem from linguistic diversity, conceptual divergences between national property law systems, and heterogeneous technological implementations.

This article offers a comprehensive re-examination of the Spanish Land Registry system in light of the European initiatives for land registry interconnection—particularly the Land Registry Interconnection (LRI) project and the IMOLA projects—and the profound internal transformation brought about by Law 11/2023, which establishes the electronic registry as the new legal standard.

By situating the Spanish registry within the evolution of the European Land Registry Document (ELRD), the Knowledge Organization System (KOS), and the semantic and technological infrastructure developed through IMOLA I, II and III, the study analyses how Spain's traditionally asynchronous, territorially fragmented, and legally controlled system can be fully integrated into a harmonised European framework without compromising its core principles.

The article argues that the convergence of European interoperability projects and national electronic registration reforms marks a qualitative shift in the function of land registries, transforming them from nationally bounded instruments of legal publicity into key infrastructures for cross-border legal certainty, judicial cooperation, market integration, and data governance in the European Union.

INTRODUCTION: DIGITAL TRANSFORMATION, THE PANDEMIC, AND THE EUROPEAN DIMENSION OF LAND REGISTRIES

The COVID-19 pandemic served as an unprecedented stress test for public administrations across Europe, revealing both the strengths and the structural limitations of existing digital infrastructures. Land

registries, long regarded as among the most technologically advanced legal institutions, were no exception. Although many registries had already implemented electronic tools, online access mechanisms, and interoperable solutions at the national level, the crisis exposed the persistent fragmentation of registry systems at the European scale.

The European Single Market increasingly demands legal infrastructures capable of supporting cross-border transactions involving immovable property, secured credit, succession, insolvency, and matrimonial property regimes. Yet, despite decades of European integration, land registry information remains largely confined within national boundaries, accessible primarily to domestic professionals familiar with local legal terminology and institutional structures.

Crucially, the remaining barriers to cross-border registry use are not rooted in the exclusive national competence over property law and land registries, as recognised by Article 345 TFEU. Rather, they arise from the lack of shared semantic frameworks, multilingual legal explanations, and harmonised models of registry publicity capable of making national information intelligible to foreign users.

It is within this context that the European Land Registry Interconnection (LRI) initiative and the IMOLA projects, developed under the auspices of the European Land Registry Association (ELRA) and supported by the European Commission, must be understood. These initiatives seek not to harmonise substantive property law, but to create common tools—most notably the European Land Registry Document (ELRD)—that enable the cross-border circulation and understanding of registry information while fully respecting national legal identities.

THE EUROPEAN LAND REGISTRY INTERCONNECTION (LRI): OBJECTIVES AND LEGAL CONTEXT

1. Some good reasons to enhace Land Regsitry Interconnection

The interconnection of land registries is a logical continuation of earlier European initiatives in the field of legal registries, such as the Business Registers Interconnection System (BRIS), the interconnection of insolvency registers under Regulation (EU) 2015/848, and the development of registers of beneficial ownership in the context of anti-money laundering policy.

Land registry information plays a critical role in a wide range of cross-border scenarios, including:

- the acquisition of immovable property by non-residents;
- the granting of mortgage credit across borders;
- judicial cooperation in civil and commercial matters;
- cross-border succession proceedings;
- insolvency proceedings involving assets located in multiple Member States;
- the enforcement of provisional measures, seizures, and embargoes ordered by foreign courts.

In all these cases, the effectiveness of European regulations depends on the ability of authorities, professionals, and citizens to identify property, ownership, and encumbrances located

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in other Member States in a reliable and comprehensible manner.

2. The Legal Competence Framework behind the UE Land Registries interconnections

While the regulation of property rights and land registries remains within national competence, the European Union has progressively addressed registry-related issues through its powers in areas such as the free movement of capital, judicial cooperation, consumer protection, digital administration, and the prevention of money laundering and terrorist financing.

Regulations such as Brussels I bis, the Succession Regulation (EU) No 650/2012, and the Regulations on matrimonial property regimes and registered partnerships (EU) 2016/1103 and 2016/1104 illustrate how European law increasingly produces effects that presuppose access to reliable land registry information across borders.

The LRI project, developed within the European e-Justice Portal, aims to provide a single access point to national land registries, allowing users to request and retrieve registry information through a unified interface, while the data itself remains hosted, managed, and legally governed by the Member States.

IMOLA AND THE EUROPEAN LAND REGISTRY DOCUMENT (ELRD): A SEMANTIC AND TECHNOLOGICAL INNOVATION

1. IMOLA I: Comparative Analysis and the Birth of the ELRD

IMOLA I marked a decisive step in the European approach to land registry interconnection by focusing on comparative legal analysis rather than technical standardisation alone. Through an extensive study conducted by the European Land Registry Network (ELRN), the project identified key concepts shared by the majority of European land registry systems, despite their doctrinal and structural diversity.

The outcome of this research was the European Land Registry Document (ELRD), conceived as a maximalist template capable of accommodating the full range of information published by national registries. Rather than reducing registry publicity to a minimal common denominator, the ELRD allows each Member State to display its information in the most complete form permitted by its legal system.

2. IMOLA II and III: Knowledge Management, KOS, and Artificial Intelligence

IMOLA II and III extended the ELRD framework by developing a Knowledge Organization System (KOS) and a semantic repository designed to explain national legal concepts in a multilingual and comparative manner. By defining pivot terms in English and linking them to national definitions, attributes, and legal effects, IMOLA created a shared semantic layer capable of mitigating the risks of misunderstanding and "false friends" in comparative private law.

IMOLA III further enhanced this system through the use of artificial intelligence tools, a web-based working environment, and improved interfaces for contact points, significantly increasing productivity and facilitating knowledge transfer within the ELRN.

IMOLA Interoperability Model for Land Registers · Funded by the European Union · ELRA

The extension of the KOS to include questionnaires completed over many years by national registries represents an important step towards consolidating institutional memory and comparative expertise within the European land registry community.

THE SPANISH LAND REGISTRY SYSTEM: STRUCTURE, FUNCTIONS, AND LEGAL PRINCIPLES

1. Institutional Design and Legal Foundations

The Spanish Land Registry is a state-wide institution governed by the Spanish Mortgage Law and entrusted to registrars who are public officials selected through a highly competitive examination process. It operates under the principle of Real folio, with each registered property identified by a unique registration code (CRU) and organized around a territorial base of registry districts.

Rights in rem over immovable property acquire full effectiveness against third parties only upon registration, and the registry publishes both ownership and encumbrances with far-reaching legal effects, including inopposability, legitimacy, and public faith.

2. Publicity, Asynchronous Access, and Data Protection

Registry publicity in Spain is subject to the requirement of legitimate interest, reflecting the sensitive nature of property-related personal data. While access is broadly granted to professionals and public authorities, the system traditionally operated on an asynchronous basis, involving legal processing and verification by the registrar prior to the issuance of information.

This model, while sometimes perceived as an obstacle to automation, ensured a high level of legal certainty by filtering obsolete encumbrances, irrelevant factual details, and legally ineffective information.

However, Registry Law 11/2023 of 8 May marks a turning point by making the electronic Land Registry the legal standard, including how registry information is requested, processed, and delivered.

V.-. Spanish redesign of its land registry system according to Law 11/2023. Keeping juridical principles untouch by IT full renewal

V.I. Law 11/2023 and the Electronic Registry: A Paradigm Shift

Law 11/2023 represents a watershed moment in the history of the Spanish registry system by attributing full legal effects to electronic registry entries and establishing a comprehensive framework for data governance, security, replication, and interoperability.

The introduction of electronic folios, structured auxiliary databases, blockchain-based interconnection between the Diario and the Libro de Inscripciones, and universal telematic presentation fundamentally transforms the operational logic of the registry while preserving its core principles of legality, public faith, and registrar responsibility.

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Closing statements and recommendations

Article by **A. Fraga, E. Ioriatti, R. Vale e Reis** (the eBook Editors)

CLOSING STATEMENTS: THE NEW PARADIGM OF EUROPEAN LAND REGISTRY

The IMOLA IV project represents a definitive shift in how European land registries are perceived: they have evolved from static, nationally bounded repositories of paper records into dynamic, interoperable hubs of legal and territorial data. The convergence of deep digitalization—as exemplified by Spain's Law 11/2023—and the European Land Registry Document (ELRD) has created an infrastructure where "Data-as-Law" ensures cross-border legal certainty.

The project has demonstrated that true interoperability is not merely a technical challenge of connecting databases; it is fundamentally a matter of semantic alignment and mutual trust. By utilizing the Formant-Based Semantic Methodology (FBSM) and the Knowledge Organization System (KOS), IMOLA IV has successfully bridged linguistic and conceptual divides, allowing diverse legal systems (such as the personal framework of Italy and the real folio system of Spain) to communicate without sacrificing their national legal identities.

Key milestones achieved in this phase are linked, in particular to the project aims to consolidate the objectives achieved through the latest IMOLA initiatives in order to further improve the semantic model supporting the interconnection of Land Registries. This model is grounded in the European Land Registry Document (ELRD) and the IMOLA Knowledge Organisation System (I-KOS), which functions as a specialised content repository for the Land Registry domain. Building on these foundations, the project has analysed and designed new technical developments to facilitate the adaptation of national semantic models to the European Land Registry Document, ensuring stronger alignment with European objectives and directives. Particular attention has been devoted to enhancing compliance with the European Interoperability Framework (EIF) by aligning the semantic model of Land Registries with other common vocabularies and standards, including INSPIRE and the Core Vocabularies.

In this context, the project has also focused on the design, development, and publication of the ELRD-specific vocabulary as a conceptual model expressed in UML (Unified Modelling Language). This includes the definition of data specifications, semantic assets, and related artefacts in accordance with the principles of semantic interoperability, SEMIC methodologies, and the European Commission's publication standards, with the possibility of making these vocabularies publicly available through the EU Vocabularies platform.

At the legal and comparative level, the initiative has further strengthened the comparative law analysis and the semantic mapping based on the theory of Legal Formants. The application of this methodology has already enabled a more granular understanding of "living law," and in IMOLA IV has ensured that apparently identical legal concepts, such as "mortgage," are interpreted consistently and correctly across different jurisdictions. Furthermore, comparative law methods interrelated with other disciplines (socio-cognitive theory and linguistics) has demonstrated that the use of the concept "mortgage" instead of "security rights on immovable property" the proposed conceptual framework in the IMOLA project succeeded in reconciling scientific rigor with communicative effectiveness.

The IMOLA IV project represents a definitive shift in how European land registries are perceived: they have evolved from static, nationally bounded repositories of paper records into dynamic, interoperable hubs of legal and territorial data. The convergence of deep digitalization and the European Land Registry Document (ELRD) has created an infrastructure where "Data-as-Law" ensures cross-border legal certainty

Finally, the project has reinforced the enhanced social and economic functions of Land Registries, recognising their increasingly important role in supporting the Green Transition through the integration of environmental restrictions and in combating financial crime through the incorporation of Anti-Money Laundering (AML) mechanisms and interconnected controls.

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CLOSING STATEMENTS AND RECOMMENDATIONS

STRATEGIC RECOMMENDATIONS FOR THE FUTURE

To sustain the momentum of the IMOLA initiatives and support the continued development of the European Single Market, several strategic actions should guide future implementation efforts. First, it is essential to preserve a permanent governance structure within the European Land Registry Network (ELRN) dedicated to the maintenance and continuous updating of the I.KOS (IMOLA Knowledge Organization System). Since legal systems constantly evolve through new legislation and judicial interpretation, the semantic framework underpinning the IMOLA project must also remain dynamic. Continuous monitoring and mapping of national legal developments, also by means of comparative law methodology, of common pivot terms too is necessary to avoid the emergence of "false friends" and to guarantee the reliability of cross-border legal interpretation. In this context, the progressive integration of artificial intelligence tools can further enhance semantic maintenance and support more accurate legal interoperability across jurisdictions.

At the same time, Member States should continue implementing the "One-Stop Shop" principle by integrating multiple administrative data layers—such as environmental information, urban planning restrictions, and anti-money laundering (AML) data—directly into the graphical interfaces of national land registries. Such integration would consolidate otherwise fragmented territorial and legal information into a single digital access point, allowing citizens, businesses, and legal professionals to obtain comprehensive property-related information efficiently. This approach would significantly strengthen legal certainty in cross-border transactions while simplifying administrative procedures throughout the European Union.

Future interoperability initiatives should also focus primarily on strengthening legal and semantic interoperability rather than pursuing the harmonization of substantive property laws. Given the protection of national competence over property law under Article 345 TFEU, the creation of shared semantic reference points represents the most realistic and politically sustainable path toward European integration in this field. By developing a "European-readable" framework that facilitates mutual understanding without altering national legal systems, the IMOLA methodology can preserve judicial certainty while respecting the diversity of national legal traditions.

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In parallel, greater attention must be paid to digital accessibility, particularly for vulnerable users and non-resident citizens engaging in cross-border property transactions. Land registry systems should adopt human-centric digital designs that guarantee universal accessibility, including multilingual support and simplified explanations of complex legal concepts. Digitalization should not merely modernize administrative procedures; it must also empower all individuals to participate effectively in the European Single Market by reducing informational asymmetries and lowering the "legitimation barrier" that often discourages cross-border legal and economic activity.

Finally, the long-term success of the European Land Registry Document (ELRD) and the broader IMOLA framework depends on sustained institutional and financial commitment from the European Commission and Member States. Adequate funding, political support, and coordinated implementation strategies are indispensable to extending the IMOLA methodology across all Member States. Without comprehensive participation, the infrastructure necessary to achieve a truly integrated European system of legal certainty in property transactions will remain incomplete and fragmented.

FINAL REMARK

The IMOLA IV project demonstrates that the European Land Registry is no longer merely a collection of national archives, but an essential pillar of the emerging European digital justice ecosystem. Through the consolidation of the European Land Registry Document (ELRD), the enhancement of semantic interoperability models, and the integration of advanced tools such as the FBSM and AI-driven knowledge systems, the European Union is moving toward a truly interconnected framework for property information.

IMOLA IV strengthens cross-border legal certainty by making land registry data more understandable, accessible, and interoperable across different legal traditions and languages. In doing so, it supports not only the efficiency of the Single Market, but also the practical implementation of EU regulations on civil justice, succession, insolvency, anti-money laundering, and judicial cooperation.

More than a technical initiative, IMOLA IV represents a cultural and institutional shift: property rights are becoming transparent, secure, digitally accessible, and genuinely European, while still respecting the diversity of national legal systems. The project confirms that interoperability is no longer optional, but a prerequisite for trust, mobility, and economic integration within the European Union.

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