



# InterPARES 2 Project

International Research on Permanent Authentic Records in Electronic Systems

## Case Study Proposal Computerization of Alsace-Moselle's Land Registry Focus 3 - Government

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### Summary

This proposed case study will investigate the creation of a computerized land registry in the Alsace-Moselle, a French regional administrative entity. The electronic registry will initially comprise the transcription of 40 000 existing paper registries (10 linear kms); each new database entry will be individually signed by a judge (*magistrat*), using a PKI infrastructure combining biometric access and digital signatures. This case study will thus investigate the long-term preservation of digital signatures within a dynamic information system designed to improve the efficiency of government-citizen relations, in the context of the French civil law evidence system.

### Description of creator

The Alsace-Moselle region comprises three administrative departments: Haut-Rhin, Bas-Rhin, and Moselle. Because the region fell under German jurisdiction between 1871 and 1918, its land registry system (*livre foncier*) is organized following a mixture of French civil law principles and German procedures and institutions. The registry was established in 1891 under German jurisdiction and recognized by French law in 1924, under the principle of "*jurisdiction gracieuse*" which the French state grants to the region.

The purpose of the land registry is to fulfill the obligation of "publication" relative to real estate transactions (such as mortgages), by transcribing certain contracts into registers. This requirement finalizes real estate transactions by making the transfer of property rights public, so that third parties cannot later claim to enjoy some ownership rights over the property. Because the inscription into the registry translates into specific legal effects, it is verified by a *juge du livre foncier*, who establishes that the transaction is valid, that all documents relative to the inscription have the required form, that no other rights on the property exist, etc. This verification provides the inscription with a specific evidential value (that of a "simple presumption of correctness"), manifested on the registry by the signature of the judge. The functions of the registry are thus primarily legal, and hence, its operation and management fall under the authority of the Ministry of Justice.

At the same time, public access to the registry is extremely wide: it is consulted by, among others, notaries for preparing real estate contracts (its most important users as they enjoy a state monopoly over all real estate transactions), bankers for authorizing a loan, and bailiffs to recover property. Such professionals enjoy full access to the registry, while other parties must justify a legitimate interest. The land registry is operated by 36 land registry judges and 150 clerks. It contains inscriptions relatives to 4.5 million parcels of land and 2 million land owners. Each year, more than 750 000 new inscriptions are added. Materially, the registry is contained in 40 000 A2 format (40 x 60 cm) registers, comprising 2.5 million sheets (10 linear kilometres of archives). Just like notarized real estate contracts, registers must be preserved for an unlimited duration.

Discussed since the 1980s, the computerization of the registry began in earnest in 1994 with the creation of an specifically dedicated administrative body, the GILFAM. Its charter specifies that the goal of computerization of the land registry is to “facilitate and speed up the process of requests for new inscriptions, automate information exchange between the registry and the cadastre, optimize information storage and enable remote consultation of the register.”

The GILFAM has mandated a series of preparatory studies relative to this complex process, yielding information on, among other things, the difference between data held in the registry and in the cadastre, and the actual holdings of the registry. In 2002, it awarded IBM and Parker Williborg, a consulting firm, a 60 million Euros contract to oversee and implement the computerization of the registry. In phase one of the project, IBM consultants will transfer the 40 000 registers to a computer database: because French law prohibits the registers from leaving the region, the registers will be digitized, the resulting image files transferred to Madagascar, where a team of 100 will spend three years transcribing the written records into the database. Phase two of the project will involved the deployment of a region-wide public-key infrastructure (PKI) which will enable judges to digitally sign each new entry into the database. The infrastructure will integrate a number of state-of-the-art security technologies and methodologies, including digital signatures, biometric access, watermarking, and ethical hacking in order to detect potential weaknesses.

As the IBM press release states, “the move comes amid the European Union's continued push to break down national barriers and instil transparency in markets ranging from everything from cars to financial dealings. It also comes in an era where the complexity and number of land transactions is on the rise. Buyers and sellers throughout Europe and the world will now have real-time access to documents in Alsace and Moselle. In addition, it will no longer be necessary for interested parties to physically make a trip to the regions to conduct land transactions.”

### **Rationale for case study**

This case study offers the opportunity to pursue InterPARES research questions in three simultaneous areas: (a) conceptually, by investigating the difference between *authentication* and *authenticity*; (b) at the focus level, by investigating the design and implementation of a dynamic information system in the area of e-government; (c) at the cross-domain level, by investigating how relevant regulatory frameworks can better harmonize with archival requirements.

(a) The InterPARES Authenticity Task Force has indicated that further research was necessary to establish the impact of digital signature technologies on electronic record management:

“Digital signature technologies have been implemented for the authentication of records across space, but what are the implications of their use for the management of authentic electronic records over the long term? Will their implementation impede the long-term management of authentic electronic records? Can the use of digital signatures be adapted and extended to support the long-term preservation of authentic electronic records. What specific adaptations and extensions would be necessary?”<sup>1</sup>

That is, while regulators and legislators have happily equated *authentication*, as provided by digital signature technologies, and *authenticity*, as one of the outcome of the archival process, InterPARES seeks to further elucidate the distinction and relationship between the two. This case study will offer an excellent empirical foundation for such an enquiry, focusing not only on digital signatures, but on the entire spectrum of authentication technologies, including biometrics and watermarking.

(b) The transcription of the 40 000 registers into a single database will transform a static information processing tool into a highly dynamic one: users will be able to apply all of the traditional database query functions to the registry, and most or all conceptual and archival categories derived from the physical realization of the registry as a collection of paper registers will potentially become inoperant. Whereas preservation of the registers themselves ensured the preservation of those administrative records of interests, it is entirely unclear what elements of the database must be preserved so that it retains its legal value.

(c) Such research is all the more relevant given that the 1999 European Directive on electronic signatures mandates all Member States of the EU to recognize digital signatures a proof value equivalent to that of handwritten signatures. The Directive has resulted in all Member States reforming their proof laws between 1999 and 2001, usually with little or no input from the archival community. The case study will provide empirical evidence useful to assess the fit between archival requirements and practice, and the regulatory framework offered by the Directive.

### 3. Methodologies

The case study will follow a framework developed by Martine Cardin for her “Arbo Cyber Theatre” case study. In this framework, we will gather information through (a) documentary research and (b) interviews.

(a) Documentary research will enable us to acquire basic knowledge in order to formulate relevant questions to informants. This research will gather information with regard to five contexts:

(1) the **provenancial** context, that is, the creating body, its mandate, structure and

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<sup>1</sup> McNeill et al., *Authenticity Task Force Report*, p.33 ([http://www.interpares.org/book/interpares\\_book\\_d\\_part1.pdf](http://www.interpares.org/book/interpares_book_d_part1.pdf)).

functions;

(2) the **juridical-administrative** context, that is, the legal and organizational system in which the creating body operates, including the its international (EU), national (France), and local (Alsace-Moselle) dimensions;

(3) the **procedural** context, that is, the business procedure in the course of which the record is created;

(4) the **documentary** context, that is, the archival *fonds* to which a record belongs, and its internal structure;

(5) the **technological** context, that is, the characteristics of the technical components of an electronic computing system in which records are created.

(b) Conduct interviews with key informants, in order to gain information about, on the one hand, the producer and its activities, and, on the other hand, the systems and the documents produced. In the first case, a semi-structured interview format will provide more flexibility for capturing emergent conceptions of authenticity in the context of radical transformation of work practices, legal definitions, and business context. In the second case, a structured interview format will enable researchers to gather any information about the systems which may not have been documented during the first phase of research.

## Team

The team will be primarily conducted by Jean-François Blanchette, InterPARES postdoctoral researcher, and Françoise Banat-Berger, head of archives at the French Ministry of Justice. The team has already approached members of the GILFAM, who have indicated their interest in gaining a better understanding of the requirements for preservation of the computerized land registry.

The team will also include InterPARES researchers already actively involved with digital signature preservation issues, and can thus provide useful input with regard to the case study.

- Leader: Jean-François Blanchette, Post-doctoral fellow, InterPARES project.
- Françoise Banat-Berger, head of archives, *Ministère de la justice*, France.
- Enrica Massella Ducci Teri, *Autorità per l'Informatica nella Pubblica Amministrazione (AIPA)*, Italy
- Hannelore Dekeyser, Interdisciplinary Centre for Law & Information Technology Faculty of Law - K.U.Leuven, Belgium
- Chenhui Hao, Institute of Scientific & Technical Research on Archives, State Archives Administration of China
- Elaine Goh, National Archives of Singapore
- Livia Iacovino will act as liaison to the policy group

One (French speaking) research assistant will be needed to perform a variety of research tasks, including modeling, reviewing interview data, etc.

## Timeline

June 2003:

- Present case study to International Team meeting in Antwerp for approval;
- Present case study to GILFAM board for approval;

Summer 2003:

- Review technical descriptions of the system;
- Review legal requirements for preservation of land registry
- Define interview questionnaires for judges, clerks, and system designer

Fall 2003:

- Conduct interviews,
- data analysis;

Winter 2003:

- Case study write-up;
- Conduct follow-up interviews as necessary;

Fall 2004:

- Report on the case study in the Fall Vancouver workshop;
- Discuss further possibilities for analysis.

## Useful links

The following list contains link to various documents related to the case study.

- Web site of the GILFAM (français): <http://www.gilfam.fr/>
- [Press release on contract award, IBM \(english\)](#)
- [Press release on contract award, IBM \(français\)](#)
- [Rapport sénat, loi 2002 \(français\)](#)
- [Rapport Assemblée Nationale, loi 2002 \(français\)](#)
- [Mémoire d'Emmanuelle Meister \(français\)](#)
- [Loi 2002-306 du 4 mars 2002 \(français\)](#)