



InterPARES 2 Project

International Research on Permanent Authentic Records in Electronic Systems

Domain 3 Research Questions

Case Study 18: Antarctic Treaty Searchable Database

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1. **What types of entities does the diplomatic analysis identify in this case study? (i.e., records, publications, data, etc.)**

The diplomatic analysis identifies the Alsace-Moselle Land Registry as a digital entity. This case study identifies records in both electronic and paper formats. This study examined the computerization of records pertaining to the Alsace-Moselle Land Registry.

- 1a. **If there are no records, should there be records? If not, why not?**

Not applicable.

- 1b. **If there should be records, what kinds of records should be created to satisfy the creator's needs (as defined by an archivist)?**

Not applicable.

- 1c. **What characteristics of records (as defined by an archivist) are missing yet necessary to preserve these entities?**

Through the diplomatic analysis, all the necessary characteristics of records were present in the case study.

2. **Are the entities reliable? If not, why not?**

Yes, the land registry is an information system designed to provide access to accurate, reliable, and authentic information regarding the legal status of real estate in Alsace-Moselle. For that reason, the registry is organized around the professional attributions of the juge du livre foncier. The judge, an Officer of the State, personally verifies the validity of the transaction, the identity and capacity of the parties, characteristics of the land parcel, and that all documents provided to document the transaction have the

required form. Once the judge signs the ordonnance, he engages his personal responsibility that the information is correct. He then further attests that the information has been correctly transcribed into the paper registers, by signing each inscription.

3. Are the entities accurate? If not, why not?

Yes, the digital entities are accurate. Given that the GILFAM (Groupement pour l'Informatisation du Livre Foncier d'Alsace-Moselle) has put in place elaborate technical and procedural measures directed at ensuring the integrity and authorship of the land registry data, it has no reasons to believe that the authenticity of the information it provides will prove more questionable than that provided by the paper-based registry. The computerization process may even improve in certain aspects the reliability of the land registry, by eliminating the need for transcription of complex real estate information.

4. To what degree can the entities be presumed to be authentic, and why?

The entities are presumed to be authentic by the creator as a result of Web server security (which is maintained by an external body) and corporate Web page templates. Also, the exhibits must be authentic for accountability purposes. Because the components of every Web page are linked to the government, they must not damage the image of the government; and because the exhibits are accessed by the public, they must not misrepresent the creator or its holdings.

Benchmark Requirements Supporting the Production of Authentic Copies of Electronic Records (these apply to the creator):

1. Capture of identity and integrity metadata

Metadata pertaining to both ordonnances and inscriptions are captured through custom applications. The scanned images of the register were captured once at the onset of the computerization process.

2. Enforcement of access privileges

The purpose of the land registry is to make public certain information regarding real estate, so it is by essence a publicly accessible information resource.

However, different categories of users enjoy different access rights to the content of the registry. The law recognizes three categories of users:

- a. Professionals, such as notaries and bailiffs, who have a legitimate need to consult the registry to accomplish their business. For example, a notary will want to verify that a party is indeed the owner of a land parcel before selling it!
- b. Parties with a "legitimate interest." For example, the prospective buyer of a property may wish to verify the status of a parcel;
- c. General public. Data within the registry are classified as either "private," "protected," or "public":
 - Private data refer to place of birth, information relative to civil status, and SSN (in France, INSEE), as well as the value of any of

the properties owned by a person. Private data are accessible only by relevant land registry employees, professionals, and the person to which the information relate;

- Protected data refer to the address of persons, information relative to easements in section II of the feuillet, and scanned images of the registers. Protected data are accessible only by relevant land registry employees, professionals, the person to which the information relate, and parties justifying a legitimate interest;
- Public data refer to all of the information in section I, whether an inscription relative to a parcel is currently “in process,” and the existence or absence of mortgages (section III of the feuillet). Public data are available to anyone for public consultation.

Relevant employees of the GILFAM have access to the digital entities within the land registry, as necessary to ensure continued access. The *juges du livre foncier* have sole competence for the creation and signature of ordonnances, and thus, for inscriptions within the registry. Land registry clerks are competent and responsible for the reception and timestamping of requests for inscriptions, and for preparing the *projet d’ordonnances* which the judge will verify.

3. **Protection against loss and corruption**

No specific mention of protection against loss and corruption is mentioned in the Final Report. However, The GILFAM is responsible for the maintenance of the computerized land registry. In particular, it is responsible for making sure that it fulfills the requirement of article 1316-1 of the Civil Code, which stipulates the condition under which electronic information may serve as evidence in a French court of law. The GILFAM has contracted the realization of the computerized land registry to IBM and is responsible for ensuring that the company delivers a product meeting all of the legal and regulatory requirements associated with the land registry process. Therefore, one can conclude that measures have been taken to ensure the continued preservation of the data and records.

4. **Protection against media and technology obsolescence**

The GILFAM is legally mandated by law to ensure the continuing operation and access to the computerized land registry. Due to the value and nature of the information contained within the database, the purpose of the database, and the legal foundations that rest upon the database, current and up-to-date technology and media used to ensure accuracy and reliability are essential.

5. **Established documentary forms**

The Decree of November 18, 1924, in addition to the Decree of January 14, 1927, defines the form and content of the pages of the registry, the procedure for inscription and cancellation, the form of the acts, the rules of consultation, the notification of decisions, appeals, accessory registers and the organization of the real estate offices. In March 2002, the Alsace-Moselle registry law was amended in order to recognize the legal value of the land register held on a data-processing

media. Article 36-2 of the law stipulates that the land registry may be held in electronic form according to the conditions prescribed in Article 1316-1 of the French Civil Code, that is: “Electronic written documents may be admitted as evidence in a manner similar to paper-based written documents, with the condition that the author of the document may be duly identified, and that it be manufactured and preserved under conditions which guarantee its integrity.”

6. **Ability to authenticate records**

The land registry is an information system designed to provide access to accurate, reliable, and authentic information regarding the legal status of real estate in Alsace-Moselle. For that reason, the registry is organized around the professional attributions of the *juge du livre foncier*. The judge, a Officer of the State, personally verifies the validity of the transaction, the identity and capacity of the parties, characteristics of the land parcel, and that all documents provided to document the transaction have the required form. Once the judge signs the ordonnance, he engages his personal responsibility that the information is correct. He then further attests that the information has been correctly transcribed into the paper registers, by signing each inscription.

The GILFAM has thus put considerable effort and thought into the design of a computerized version of land registry which would offer the same level of reliability, while taking advantage of the benefits of information technology. In order to fulfill this objective, the design team has sought to address the quality, reliability, and authenticity of the data on the legal, professional, and perceptual levels, in addition to implementing a complete set of technical solutions:

Legal: the inscriptions within the land registry have a specific evidential value (presumption of correctness), while the ordonnances they are based on have the status of “authentic” acts. Because the computerized land registry continues to rely on the same legal professionals—the *juges du livre foncier*—and because French evidence law as already been reformed to account for the evidential value of electronic information, the computerized land registry will continue to hold information admissible in court as evidence;

Professional: the reliability of the land registry results from the intimate familiarity of the clerks and judges with the paper system. The GILFAM has involved those professionals into the design process of the computerized land registry, and has put tremendous effort into what it calls the “management of change”, in order to insure that future operators and users of the system will be maximally comfortable with its new configuration;

Perceptual: the reliability and authenticity of the land registry are also a function of the *perception* of the users that it so. The GILFAM has conducted the design and implementation of the computerized land registry in a way that projects confidence and competence. It has put up a Web site, and published newsletters which aim to inform land registry users and professionals of the progress and

status of the project. In general, the GILFAM is perceived as one of the most competent digitization and computerization projects in all of France.

7. Procedures in place to identify the authoritative record

Two procedures are in place to identify authoritative records

- a. The GILFAM has put in place elaborate technical and procedural measures (see answer to core research question 10 in the final report) directed at ensuring the integrity and authorship of the land registry data. Consequently, it has no reasons to believe that the authenticity of the information it provides will prove more questionable than that provided by the paper-based registry. The computerization process may even improve in certain aspects the reliability of the land registry, by eliminating the need for transcription of complex real estate information.
- b. The computerized land registry includes a public-key infrastructure, for the deployment of authentication and signature services for the judges. Each judge workstation is equipped with the necessary software to digitally sign ordonnances. To secure access to the judge's private key, the system uses a three-part authentication process:
 - The judges must have in their possession a smartcard holding their private signature key; the card is introduced in a card reader connected to the judge's workstation;
 - After entering the card, the judges must provide biometric identification using a fingerprint scanner;
 - Judges must also provide a password to finally gain access to their signing key. The strength of the digital signature algorithms and the length of the signature keys have been chosen so that signature remain unforgeable (using direct cryptologic attacks) for at least 30 years.

8. Procedures in place to properly document removal and transfer of records from the creator's originating system

See question 6, below.

5. For what purpose(s) are the entities to be preserved?

The land registry is required by the French real estate law as the means to fulfill the requirement of *publicité foncière*, which dictates that the juridical status of property (including the various forms of mortgages on the property) must be made publicly available to interested third parties by means of transcription within a land registry. The GILFAM has the legal responsibility to provide continued access to the land registry in a fashion which preserves its evidential value, in conformance with Article 1316-1 of the Civil Code.

In addition, according to the French archive law of January 3, 1979, public records, beyond a certain period, acquire a secondary (patrimonial) value, in addition to their

primary value, which requires their transfer to an archival institution. The period for such transfers will vary based on the primary use for which the record was created. It is fixed for certain category of documents (30 years for court decisions, 5 years for records of civil lawsuits, 100 years for records of civil status), or in the absence of such an agreement, it may be fixed through a specific agreement between the record creator and the Direction des Archives de France.

6. Has the feasibility of preservation been explored?

The computerization process has prompted consideration of an appropriate retention period for the ordonnances and the inscriptions. Since the GILFAM is a public body, inscriptions and ordonnances will not be eliminated at the end of the retention period, but rather, will be transferred to a relevant public archival institution. From a technology perspective, the final report acknowledges that GILFAM has not considered the problem of maintaining the digital entities, except through the mechanisms afforded by system vendors when upgrading the database management system.

6a. If yes, what elements and components need to be preserved?

The creator is mandated to preserve all of the digital entities which are kept in a relational database. The ordonnances and their signatures are kept as stand-alone files, and linked to the relevant inscriptions. The scanned images of the registers are kept on optical media, and are also linked to the relevant inscriptions. The inscriptions do not exist as independent entities because data relative to the inscriptions are kept within tables, linked together through relationships.

7. Which preservation strategies might most usefully be applied, and what are their strengths and weaknesses, including costs and degree of technical difficulty?

The complex data structure used by the land registry precludes extraction as ASCII files as has been done with other government databases. While the transfer of the ordonnances as stand-alone documents poses no particular problems, the transfer of the inscriptions does because an inscription is not a single bitstring, but is constituted from data stored in different fields of a database record. Thus, as a record, the land registry cannot be understood outside of its dynamic and interactive capabilities.

The following are the two solutions proposed for preserving the land registry:

- a. Employ an XML schema that will serve as a translation device from the complex data model of the land registry. This would allow the export of inscription data into a relational database, to be maintained by the archival institution.
- b. Grant GILFAM the permission to act as custodian of the land registry. Thus GILFAM would be mandated to transfer the inactive records to archival databases that use the same software infrastructure, preserving full dynamic and interactive capabilities.

- 7a. Which alternative preservation strategies might be applied? What are their strengths and weaknesses, including costs and degree of technical difficulty?**

Covered in question 7 above.

- 8. What additional information does the preserver need to know to facilitate appraisal and preservation?**

Unknown.

- 8a. If required information is missing, where should it come from and how should it be made manifest?**

Unknown.

- 9. Are there any policies in place that affect preservation?**

The final report reiterates that preservation of the digital entities is controlled by the laws and regulations stated within the juridical-administrative context.

- 9a. Are there any policies in place that present obstacles to preservation?**

Covered in 9b, below.

- 9b. Are there any policies that would need to be put in place to facilitate appraisal and preservation?**

The report states that policies have been amended to account for the changes within the computerized process and environment. However, an agreement has yet to be reached between the creator and the Direction des Archives de France over a procedure by which inscriptions within the land registry may be transferred to an archival institution, while maintaining its functionality.