

1. Project Context

1.1. Historical Context

A brief historical background is necessary in order to understand the scope and challenges associated with the 1993 cadastre reengineering project. Quebec cadastre (1) was initiated in the second half of the 19th century, in the midst of the organization of the territory in municipalities and parishes. The 1860 Law on the registration of real estate properties mandated uniformity in the practices of registration of real estate properties and graphical representation of properties on a map. Thus, from 1866 to 1900, a vast cadastral operation took place during which about 1500 maps representing cadastres for parishes, villages, counties, cities, etc. were created, representing about 700,000 parcels of land. Each parcel of land is assigned a number, which provides the description of the parcel and its association with property titles. This number is used to identify property rights associated with the real estate.

The cadastral unit has three components: a map, a reference book, and an index of real estate properties. The map is a graphical representation of all real estate properties located on a given territory; each is assigned a plot number.(2) Each map is accompanied by a reference book that contains a brief description of the plot, its measurements, its owner, and neighboring plot numbers.(3) The index is a real estate card filed by the plot number. The card contains information on all transactions regarding the plot, in particular, it includes information on property. Actually, the real estate index is a document allowing a quick search on all the deeds concerning a plot.

In order to correct errors or to modify plots' information by subdivisions or mergers, owners must provide the exact map and reference book of the modifications and take into consideration the numbers of the official cadastre. These update procedures have generated an archive of about 330,000 parcel maps with their reference books. These maps correspond to the division of about 1.8 million plots. In addition, according to the Ministry of Natural Resources, of all 3.3 million real estate properties in Quebec, 850,000 properties have not been surveyed and registered in the cadastre, 750,000 have errors, and 1.7 million are correctly registered! (4)

1.2. Strategic Context

Difficulties in updating the maps, identifying parcels of land and their subdivisions, recording ownership rights as well as managing all the information led to a consensus to review the cadastral infrastructure in 1985. The Ministry of Natural Resources(5) developed a cadastre reengineering program that would span 20 years. The program began after the passage of the **Law for Quebec Cadastral Reform** in June 1985. This law showed the intention of the legislator to get an accurate and up-to-date record of the division of the territory.

The cadastral system is extremely important since it is closely linked to the system of property rights information dissemination which is under the Ministry of Justice jurisdiction. In addition, the cadastre is a tool that the recording system uses in order to fulfill its mission of property rights information dissemination which includes information delivery to the real estate taxes system. In Quebec, there are 73 recording divisions (real estate property information agencies) encompassing 1,449 cadastres(6) which cover 8 to 10% of Quebec territory (the rest of the lands being public).

In summary, the cadastre reengineering consists of three elements:

1. The creation of a single cadastre for Quebec territory;
2. The assignment of a unique and specific id number for each parcel of land;
3. The use of GIS maps for graphical representations and measurements

1.3. Institutional and Legal Context

Several events have had an impact on the definition and implementation of the program. Here is a brief summary:

- The program was launched with the passage of the **Law for Quebec Cadastre Reform** in 1985. A preliminary analysis, done in 1986 by the company DMR, revealed two major technological difficulties related to the archiving and dissemination of the information. The project was suspended in 1988 due to technological as well as financial considerations. The cost was higher than predicted. In addition, the structure of the Ministry was not adequate for the management of such a project, and the 1985 Law did not

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- apply to nonconventional real estate property uses.(7)
 - In 1989, the program bases were changed and the involvement of DMR increased with the allocation of a second contract to the company, which would cover organizational aspects of the project. A new team at the direction of the cadastre allowed a redefinition of the cadastre reengineering program. They adopted a new organizational structure and proceeded to do a preliminary analysis of the management system of cadastral data. At the same time, they initiated the process which would lead to necessary legislative modifications to correct some lacunae of the initial program launched in 1985.
 - The passage of the **Law Modifying the Law for Quebec Cadastre Reform** in 1992 and the implementation of the new Quebec Civil Code (Common Law) (1991) on January 1, 1994, substantially modified cadastre practices and ownership records. In addition, increased use of Information Technology (IT) in organizations and the development of GIS opened new perspectives for processing cadastral information.
 - On July 6, 1992, the cadastre direction issued a Request for Proposals (RFP) for a "Contract of Integration of Goods and Services for the Implementation and Management of the Cadastre Reengineering Information Systems." They were looking for a provider who would take responsibility for the implementation of the integration and its results. In December 1992, the company DMR was awarded the contract in the amount of C\$ 27.2 million. "It is the first time that the Quebec government chooses an integration project that delegates the implementation of GIS development for cadastre reengineering to a private company."(8)
 - In January 1993, the Ministry of Natural Resources (MNR) restarted the cadastre reengineering program now reevaluated at C\$ 500 million and spanning a period of 13 years, from 1993 to 2006. In addition to the integration project allocated to DMR, the program allocated more than 1,500 contracts to surveyors, to remodel about 4 million plots.

In the framework of this program, MNR must acquire information systems adapted to the management of cadastral data and their graphical representation (GIS), take care of the remodeling contracts, and ensure self-financing of its operations via the establishment of a fund. The cadastre reengineering funds are generated by the sale of cadastre data and maps, as well by a fee imposed on all real estate transactions made in the offices of real estate property services. (85% of total costs).

(1) The term "cadastre" refers to an official register of the quantity, value, and ownership of real estate used in apportioning taxes.

(2) Most public places, streets, roads, etc. are represented without being assigned a number.

(3) Although many surveyors included measurements on the plans, no law required this practice either on the plan or in the reference book.

(4) Rivest, *Le Cadastre, l'Arpenteur-géomètre et l'éthique*. Available at <http://bornage.qc.ca/pub/Acfasv2.htm>

(5) The name Ministry of Natural Resources was changed from Ministry of Energy and Resources in the 1990s.

(6) The 1449 cadastres included: 56 cities and suburbs cadastres, 410 churches cadastres, 116 villages cadastres, 794 town cadastres, 10 municipalities cadastres, 9 seigneureries cadastres, 23 cadastres without specific designation, 1 cadastre for the North West territory of the New Quebec, and 30 miscellaneous cadastres (Islands, ponds, fiefs, etc.) (Grondin, p. 41).

(7) Grondin, p.40.

(8) Garon, "Cadastre Reform: Impossible without GIS," **Les Affaires**, October 9, 1993, p. 34.