The Colombian Identification System

Implementation and technological advancement of the civil identification and registration systems

by Alexandre Martins

In many countries, the civil registration system and identification systems are still paper-based. Birth, marriage, death registrations and alphanumerical and biometric data capture are processed manually, mostly in books or on registration cards. Various countries that still have manual systems are considering automating the whole process and creating digital records instead of paper-based ones. This article describes a best practice case involving the Colombian Civil Registration and Identification Systems launched in 1997.

Registramiento Nacional del Estado Civil

The Registraduría Nacional del Estado Civil (RNEC) is the Colombian government agency responsible for:

- Citizen Identity (biometric data capture, identity documents production and card delivery).
- Civil Registry management.
- Electoral process organisation.

In 1997, the RNEC decided to launch an identity project to identify the entire Colombian population. In order to do this, a solution had to be implemented for the collection of the biometric and alphanumerical data of its citizens and the storage of this data. This required a comparison process on the biographical and biometric information of the entire Colombian population, in order to guarantee the uniqueness of identities.

Through this project, called PMT (Proyecto de Modernización Tecnológica - Technological Modernisation Project), the state aims to ensure that Colombian citizens have a high level of security and protection through secure people identification and the recognition of their rights.

The Colombian Identity project had two separate scopes: renovating the identification system and setting up a civil registration system. The PMT (Technological Modernisation Project) was divided in two phases: the first one - PMT1 - launched in 1997, consisted of a preliminary electronic data capture digitalization and biometric system phase. The second one - PMT2 - that lasted from 2005 until 2010 - aimed to increase and optimise the system in order to collect and process the full information at a national level.

Cooperation between RNEC and Morpho

Since the RNEC was a pioneer in the region with its aim of upgrading the country’s identification system, it was necessary to work with an experienced industrial partner with control of the entire value chain. Thus, the RNEC, through an international and public call for tender process, selected the high-technology company Morpho (Safran group) for the implementation of the systems, which included the set-up and maintenance of the identification and civil registration platforms as well as the production of identity documents.

The antecedent: the situation before 1997

In order to grasp the scale of the project, some historical elements regarding the Colombian Identity card and Civil Register need to be highlighted. Before the launch of the PMT project, Colombia had two Identity Cards:

- From 1957 to 1990, the ID card was only available for adults, in paper, and was black and white without any security features (figure 2).
- In 1990 a new ID card was created, brown, coated with plastic (figure 3).

Regarding the civil registration system, Colombia went through no less than thirty different formats between 1970 and 2000.
Technological modernisation project (PMT)

The ‘Proyecto de Modernización Tecnológica’ (PMT) that the RNEC carried out can be divided into two phases:
1. 1997-2005: phase 1 (PMT 1);

The Colombian Government demonstrated a strong aspiration to use the latest technology - not only to meet the RNEC needs but also to improve the level of service to Colombian citizens. In fact, the public Decree No. 19 dated 10 January 2012, provides the legal context to use the collection and comparison of fingerprints by digital means for authentication purpose such as citizen identification.

Phase 1 of the PMT

The first phase involved setting up an Automated Fingerprint Identification System (AFIS) for 10 million records, supplying enrollment equipment (equipping 940 offices with 1150 enrollment systems) and producing a new identity document (Cédula de Ciudadanía). It also included the launch of a civil register system to process Birth, Marriage and Death registrations. For the first time, Identification and Register Systems were integrated for the identity document production so that every Colombian citizen was given a unique personal identification number - Número Único de Identificación Personal (NUIP).

The aim of renewing the Colombian identity card was to produce a highly secure document that was difficult to forge. The card contains the holder’s biometric information and the fingerprints which are processed by the RNEC’s AFIS system. The barcode contains alphanumeric data along with the minutiae-characteristic features of fingerprints that determine their uniqueness. Moreover, reading of the barcode is secured via a digital signature, which makes any alteration of data contained therein impossible. The material used for the new card is Teslin, which is laminated front and back - on the front the laminate

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contains a hologram and on the back the laminate is transparent - thus providing greater security and resistance to ageing. Figures 4 and 5 show the new Colombian Identity cards for minors and adults. The whole project was implemented by the French team, with the medium-term objective of Colombia carrying out its maintenance.

**Phase 2 of the PMT**

The objective of the second phase was to increase the capacity of the identification system and civil status registration system, along with the technological renewal of the system and the infrastructure installed during the first phase.

Figure 6 shows the main stages of PMT 2. This phase included:

- Extension of the AFIS for the management of 45 million people.
- Extension of national civil registration system to manage 70 million civil registers.
- Conversion of 30 million ten-prints forms.
- Biometric data capture up to 33 million people.
- Production of 30 million identity cards for citizens older than 18 years and 3 million cards for minors from 14 to 17 years old.
- Digitalisation of nearly 42 million paper civil registers.
- Alphanumeric data capture for 12 million of paper civil registers.
- National deployment of remote stations in 1200 municipalities.
- Web service implementation for public and private sectors.

The implementation of the project was shared between French and Colombian teams: the civil registration system was managed by the Colombian local subsidiary whereas the French managed the identification system. The skill transfer from France to Colombia began in 2008 and was completed in 2010 when Colombia took control of the whole system.

**Post PMT phase (current situation)**

After the successful implementation of the two phases of the PMT project, the program entered a maintenance

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**Figure 4**

Front (left) and back (right) of Colombia’s adult identity card (cédula de ciudadania).

**Figure 5**

Front (left) and back (right) of Colombia’s minor identity card (tarjeta de identidad).

**Figure 6**

Main stages of PMT 2.
phase of the system which has been running since 2010. During this phase, two project extensions and software updates were added to allow data capture, central AFIS system processing and identity card production for minors from 7 to 13 years old, increasing the system’s capacity up to 51 million people.

**Challenges**

The project experienced several challenges, particularly during the massive biometric and alphanumeric data collection stages and the production phase.

The first problem arose during the data capture phase. It was supposed to begin in 2006 following a strategy to collect information based on the population category (men, women, children, etc.). However, this method proved to be more complex and more difficult to implement than expected and it was necessary to reconsider the strategy through a very high logistic effort throughout the entire country.

A second challenge occurred during the collection of information as it appeared that the quality of the data collected was poor. This was due to the lighting and climate conditions (sun, wind, etc.).

The third challenge was the functional complexity of the workflow which impacted the ramp-up phase. More specifically, the stabilization of the central system and the set up of the production system required more effort than initially planned in order to reach the target of up to 60,000 documents per day.

**Conclusions**

Colombia’s technological modernisation programme is currently one of the largest in the Latin American region. The facts and figures from the project are summarised below:

- Identification and Civil Register Integration.
- Biometric enrollment of 33 million people (10 fingerprints, photo and signature).
- Conversion of 30 million tenprint forms.
- An identification system with a capacity for 45 million records.
- Production and delivery of more than 33 million new identification documents, including:
  - 30 million documents for over 18 year-olds.
  - 3 million documents for minors between 14 and 17 years.
  - A production capacity of 30,000 documents per day.

The RNEC’s AFIS is one of the most robust civil identification systems in Latin America. Colombian law permits the storage of its citizens’ biographic and biometric data as ‘National Security Information’. In essence, the AFIS system allows a person’s identity to be checked by means of a 1:1 search by comparing the fingerprint of the document holder with the encrypted information in the document - or 1: N - to determine to whom a fingerprint belongs by comparing it with the entire database. Within the framework of these uses, the RNEC works with state welfare organisations such as the national police, the armed forces, forensic medicine and the prison services.

The RNEC is starting to provide the private and public sectors with its citizens’ biometric data and some biographical data, subject to controls and conditions, in order to increase the security level of the services concerned. In the private sector, for instance, this could apply for banks and telecom operators, while in the public sector, the identity of voters was verified for the first time in the 2009 election. Thanks to its strong vision, commitment and constant renewal of the technologies used - particularly biometrics - the RNEC is now not only seen as an administrative entity, but also as a real service provider.