

Innovation and artificial intelligence

PROMETEA was born within the framework of investigations on disruptive technologies that transform organizations worldwide. PROMETEA is an Artificial Intelligence created in Argentina, within the scope of the Public Prosecutor's Office of the Autonomous City of Buenos Aires.



The Public Prosecution Service of the Autonomous City of Buenos Aires (MPF CABA), Argentina, investigates and analyzes –among other things– the impact of Artificial Intelligence (AI) on society's general interests. In this context, the MPF CABA promotes the development of PROMETEA, an AI system created in Argentina, within the scope of the MPF CABA itself. At first, the system was designed to optimize the Judicial Service, exponentially speeding up all legal proceedings. At a later stage, it was observed that any public organization could, in fact, take advantage of its benefits.

PROMETEA was initially implemented in August 2017. From that date onwards, it has been presented before numerous national and international institutions (such as the *United Nations Organization*; the *Organization of American States*; the *Oxford University*; the *Sorbonne University*; the *University of Milan*; the *Inter-American Court of Human Rights*; the *Constitutional Court of Colombia*; the *Administrative Court of Lombardy*; the *World Trade Organization*; the *Inter-American Development Bank*; the *Global Summit on AI for Good*; and the *French Conseil d'Etat*, among many others).

Furthermore, Prometea was introduced in Edition No. 31 of the *Organisation for Economic Cooperation and Development (OECD)*, on Public Governance. In this publication, Prometea is mentioned as a success case in world-wide Justice. (https://www.oecd-ilibrary.org/governance/state-of-the-art-in-the-use-of-emerging-technologies-in-the-public-sector_932780bc-en)

Also, PROMETEA has been recognized by two authorities from two of the most important international organizations: Vincenzo Aquaro, E-Government Director (*United Nations Organization (UNO)*), and Ekkehard Ernst, Chief of Research Department on Macro-economic Policies and Work Units (*International Labour Organization (ILO)*).

Nowadays, Prometea is fully operating in a wide variety of institutions not only in the City of Buenos Aires but also in other provinces of Argentina, such as Mendoza, Chaco, Corrientes, and Santa Fe. In this regard, after 6 years of hard uninterrupted work, we can say that Prometea has become a federal public policy in the treatment and interaction between law and technology.

From its different innovation layers, its development constitutes a highly disruptive technological advance whose implementation is based on the need for the State itself to be who provides effective, innovative, and adequate means for creating an impact on society as a whole.

Prometea is characterized by three main aspects: I) it has an intuitive and user-friendly interface, which allows the user the possibility of "talking" or chatting to the system by means of a natural language recognizer; II) it operates as an expert system with multiple functions, allowing the automation of data and documents as well as the use of intelligent assistance; and III) it uses supervised machine learning and clustering techniques by means of manual and machine labeling with training datasets, for the purpose of making predictions and/or detections on large volumes of documentation.

In a matter of seconds, PROMETEA is able to create reports, segment documentation on a content basis, download files where the relevant information was found, create indicators with comparative graphics, and automatically provide answers from a given input, among many other tasks. Following the general measurements carried out in real cases, Prometea has proven that, besides the reduction –and, in some cases, the elimination- of the margin of error, the time it takes to complete a task can be reduced by up to 90%.

Efficiency

- PROMETEA predicts the “solution” to a court/legal case in less than 20 seconds, with a hit rate of 90% or more.
- PROMETEA allows the possibility of issuing a sheet of bidding terms and conditions, including a price control tool to both public and private prices of the goods to be procured, with a resulting reduction of the issuing process time from 2 hours to just 1 minute.
- PROMETEA compares data between documents and databases without human intervention, accomplishing a reduction of time from 13 hours to just 5 minutes.
- PROMETEA segments reports on a content basis in investigation proceedings regarding child molestation cases. This task, which would normally take 8 hours a day if carried out by a human agent, can be done in a few seconds with PROMETEA.
- PROMETEA automatically issues a fact-finding order, thus reducing the issuing process time from 25 minutes to just 2.
- PROMETEA automatically issues a database by extracting data from the documentation.

- PROMETEA issues legal judgments and orders, from administrative amendments to public civil records, achieving a reduction of the issuing process time of up to 70%.
- PROMETEA reduced in up to 80% the issuing process time required for judicial notices and rulings/sentences, in judicial offices in the provinces of Corrientes and Chaco (Argentina).
- Considering all the implementations, it was found that PROMETEA reduces the number of typos in 99% and enables a thorough control of the formal aspects of the documents involved.

Relevant publications

- *PROMETEA: Artificial Intelligence to Transform Public Organizations*, Editorial edition IMODEV.2019 <http://ojs.imodev.org/index.php/RIDDN/article/view/287>
- *Intelligenza Artificiale per una Pubblica Amministrazione 4.0? Potenzialità, rischi e sfide della rivoluzione tecnologica in atto*, federalisim.it, [Federlismi.it](http://federalisim.it)
- Article entitled *This AI Startup Generates Legal Papers Without Lawyers, and Suggests a Ruling*, published in the Bloomberg Businessweek Journal <https://www.bloomberg.com/news/articles/2018-10-26/this-ai-startup-generates-legal-papers-without-lawyers-and-suggests-a-ruling>.
- Article entitled *La inteligencia artificial se asoma a la justicia pero despierta dudas éticas*, published in the Journal *Retina* https://web.archive.org/web/20200814051852/https://retina.elpais.com/retina/2020/03/03/innovacion/1583236735_793682.html
- Article entitled *¿Hasta qué punto pueden automatizarse las decisiones judiciales? Enterate cómo funciona el software que ya se usa en la Ciudad de Buenos Aires*, published in Chequeado.com <https://chequeado.com/investigaciones/hasta-que-punto-pueden-automatizarse-las-decisiones-judiciales-enterate-como-funciona-el-software-que-ya-se-usa-en-la-ciudad-de-buenos-aires/>

Development applied to criminal cases: trafficking in child sexual abuse material

The Specialized Prosecution Unit in IT Crimes and Misdemeanors with the MPF CABA identified the need to apply AI to the daily received set of complaints related to trafficking in child sexual abuse material. In addition to the available traditional channels for the receipt of complaints with the MPF CABA, the Prosecution Office receives approximately 86,000 annual reports from NCMEC (National Center for Missing and Exploited Children) and, from many of said reports, a criminal investigation is initiated. In this context, the working team in the Area of Innovation and AI designed five disruptive developments which are grouped according to the benefit they bring.

On the one hand, there are developments which bring an evident reduction of human working time and a reduction –or elimination– of the margin of error. These developments are: “automatic segmentation of reports”, “automatic drafting of fact-finding orders, and “concatenation of data and documents from cases”. According to initial measurements, the tasks corresponding to the first two developments mentioned above currently take 4,735 hours of work, which may result in two years of work for one person. But with PROMETEA, these tasks could be done in just 10 days. Also, by reducing –or eliminating– the margin of error, the possibility of the judicial cases being prone to complications in terms of precision of data is ruled out.

On the other hand, there are developments associated with the creation and/or increase of evidence-based knowledge to be used as an input in the subsequent drafting of public policies and prevention policies, as well as in decision-making procedures within jurisdictional, law enforcement and/or penitentiary scopes. Within this group, we find the following developments: “automatic creation of related tables based on reports” and “automatic creation of databases based on convicted people, with statistical display”. Unlike the previously mentioned developments, these developments create information we currently lack.

Each NCMEC report contains more than 50 attributes, and each attribute may contain up to 500 data. If we multiply these figures by the 86,000 annual incoming reports, we will see that it is impossible for a human brain –or group of brains– to establish all the possible reports-attributes-data relations. But with PROMETEA, we can extract these attributes and data and automatically store them in a related database. The use of this database will allow us to make any kind of consultation, which can, in turn, be used as an input for identifying tendencies and/or establishing any kind of indicators.

Finally, it is worth highlighting that NCMEC sends 22 million annual reports to 242 countries. Currently, we are working on the possibility of exporting this development, thus reflecting that all disruptive technologies used by the MPF CABA can also become a great contribution to other societies regarding criminal investigations and prevention policies.

PROMETEA's landmarks

- Agreement signed with the **Inter-American Court of Human Rights**. PROMETEA was implemented in 3 proceedings of this international organization.
- PROMETEA was **audited by expert consultants from the Inter-American Development Bank**.
- Publication by the **OECD**.
- Prologue *PROMETEA*, by **Vincenzo Aquaro**, E-Government Director, United Nations Organization / Public Institutions and Digital Government Division. **United Nations - Department of Economic and Social Affairs**.
- Prologue *Experiencia Prometea*, by **Dr. Ekkehard Ernst**, Chief of Research Department / **International Labour Organization**.
- Presentation before the **European Union Agency for Fundamental Rights**.
- Presentation before the **Administrative Court of Lombardy (Italy)**.
- News article published in **Bloomberg Businessweek**.

- Official presentation before the **United Nations** (Offices in Vienna).
- Invitation to participate in the **Global Summit “Artificial Intelligence for Good”**, hosted by **ITU / UNO**.
- Invitation to participate in the **First AI Latin American Summit**, hosted by **MIT**.
- Presentation at Berkman Klein Center for Internet & Society; **Harvard University**.
- Presentation before the **Oxford University**.
- Presentation before the **French Conseil d'Etat**.
- Presentation before the **Permanent Council of the Organization of American States** (Regular Meeting).
- Proof of concept at the **World Trade Organization**.