

Automation Mechanisms applied in the legal practice of the Brazilian Federal Public Administration

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Abstract— *The study intends to present some experiences in the use of artificial intelligence tools and automation in the management of lawsuits in defense of the Federal Executive Branch in Brazil. Therefore, through a markedly descriptive approach, basic aspects of the organization of the Brazilian State and the Judiciary are presented, as well as data from the national reality and reflecting the procedural volume faced by Brazilian public lawyers, in the defense of public property and treasures. As a theoretical basis, specialized doctrine on the subject and data accessible in the official portals of the Federal Government is adopted. It is also intended to explain the functioning of the interface used by the Attorney General's Office with the Judiciary and to list the automation tools in the lawsuits in which the Federal Public Administration is a party. Method: The method of approach is the deductive, through the bibliographic and documentary research technique, with analysis of the legislation involved.*

Keywords— *procedural legal activity; public advocacy; automation; Federal Public Administration.*

I. INTRODUCTION

In the 20th century, computer scientists believed that people could be much more effective if they had at their fingertips a computer system with good displays and good databases.¹ Now, in the 21st century, we hardly envision how to live apart from the digital and automated reality.

In the age of new technologies, the astonishing evolution of the language of orality for the use of digital codes transported artificial intelligence (AI) from the exact areas to all contemporary professions.

And at incredible speed, legal information tabulated in books and libraries is now used to transiting through an invisible field and being associated with

expressions such as "big data", NLP "natural language processing", "Python", "Dax" (data analysis expressions") and "M" (power query formula language). A direct and immediate consequence of this new scenario, the emergence of a more digital judicial defense model, began to require profound and accelerated changes in the respective instruments of work of advocacy, especially in the sphere of public advocacy.

To measure the size and complexity of such system, it should be emphasized that Brazil is the fifth country in territorial extension in the world,² currently in

¹ HAFNER, Katie. *Onde os magos nunca dormem: a história da origem da internet e dos magos por trás de sua criação*. Trad. Rio de Janeiro: Red Tapioca, 2019. p. 41.

² According to the Brazilian Institute of Geography and Statistics (IBGE), Brazil is a country of continental size, with 8,510,820,623 km², unevenly distributed among Brazilian macro regions, especially in the North, with 45.25% of the total area of the country (3,851,281,390 km²) and in central West, with 18.87% (1,606,239,030 km²). Retrieved from:

the ninth position among the largest economies in the world,³ with a population of approximately 210,147,125 inhabitants⁴ and in the fourth position in the world's most connected population, with more than 120 million people with frequent internet access.⁵

Apart from such data, it strongly highlights the existence of about 80 million lawsuits in the Brazilian Judiciary,⁶ according to the figures of the National Council of Justice (CNJ) recorded in 2018. In fact, such representative figures would certainly bring with them daily challenges to legal operators, which reinforces the urgency in the study of automation and productivity systems.

The Constitution of the Federative Republic of Brazil of 1988 (hereinafter Constitution of 1988) structured the judicial system composed of various bodies.⁷ Part of these operates within the Union and is divided into units, such as the Federal Court (common) – including the Federal Special Courts – and the Specialized Justice – composed of the Labor Court, the Electoral Justice and the Military Justice.

In this context, it matters to detach that, according to the Report already in 2019,⁸ only 16.2% of all new cases were physically entered, and only in 2019 were already recorded 20.6 million new cases in electronic format.

Numbers that show that the accelerated reality of the electronic process in Brazil is unquestionable.

Just to get an idea of the respective framework for the implementation of the electronic process in Brazil, in 10 years the Brazilian Judiciary received 108.3 million new cases in electronic format, which represents the percentage of adhesion of 83.8%.

In another relevant data, the same CNJ report of 2019 confirms that the main factor of slowness of the Brazilian Justice rests on tax executions, which represented 39% of the total number of pending cases, with a congestion of 92%.

This numerical expressiveness indicates the urgency and marked importance of AI tools applied to the legal services of public lawyers, especially at the federal level. Added to this is the fact that the Brazilian federal public sector (the federal government, its autarchies and foundations) is the largest service provider in the country and, consequently, has led, for almost ten years, the participation in ongoing legal actions.

Without disregarding the possible and even necessary questions and criticisms that may arise from this statement, which are not appropriate to be analyzed here, there is no escaping from this inexorable problem situation: how to operationalize work in millions of processes involving taxpayers, users of the public health system, social security and users of administrative infrastructure?

In an attempt to initiate the response to such a complex and multifaceted problem, it should be remembered that the organization of the Brazilian State was defined in the 1988 Constitution as a presidential federative republic, characterized by being a unity within the immense pluralistic diversity.⁹

Contrary to the US federal model, the Brazilian Federation established by the Constitution of 1891 is marked by a centrifugal movement, which formed autonomous units of power, and which is reflected in the way public services are provided.¹⁰

It is also important to highlight the qualitative trait of the Public Administration as an active subject of the legal-administrative relationship, intended broadly to satisfy the public interest,¹¹ allied to the public

https://biblioteca.ibge.gov.br/visualizacao/periodicos/2/bn_2019_v27.pdf. Accessed 27Jul. 2020.

³ Reference considering the gross domestic product (GDP) according to the IMF. Retrieved from: <https://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx>. Accessed 26Jul. 2020.

⁴ Official data published in the Official Journal (OJ) on August 28, 2019, according to IBGE estimate in Resolution n° 3 of August 26, 2019.

⁵ Data extracted from the official publication at the General Secretariat of the Presidency of the Republic. Retrieved from: <https://www.gov.br/secretariageral/pt-br/noticias/porta- gov-br-vai-reunir-servicos-do-governo-federal-em-um-so-canal>. Accessed 30Jul. 2020.

⁶ Data extracted from the Justice Report of the year 2018, carried out by the CNJ. Retrieved from: <https://www.conjur.com.br/dl/justica-numeros-2018-2408218compressed.pdf>. All other reports can also be accessed in the CNJ Portal. Retrieved from: <https://www.cnj.jus.br/pesquisas-judiciarias/justica-em-numeros/>. Accessed 3Aug. 2020.

⁷ From a normative point of view, for a better understanding of the Brazilian judicial system, it is recommended to read Articles 92 to 126 of the Constitution of 1988, promulgated on October 10, 1988, including available in English. Retrieved from: http://www.stf.jus.br/arquivo/cms/legislacaoConstituicao/anexo/brazil_federal_constitution.pdf. Accessed 26Jul. 2020.

⁸ Data extracted from the CNJ's in Numbers Report 2019. Retrieved from: https://www.cnj.jus.br/wp-content/uploads/contendo/arquivo/2019/08/justica_em_numeros20190919.pdf. Accessed 3Jul. 2020.

⁹BULOS, UadiLammego (2012). p.913.

¹⁰BULOS, UadiLammego (2012). p. 915.

¹¹ The debate on the concept of public interest and its centrality to contemporary Administrative Law goes beyond the limits of this study, especially in relation to the discussion on the so-called principle of supremacy of public interest and the criticism that is addressed to it. It can be said that the "concept of public interest is misinterpreted as the unavailable values guaranteed by the

administration in the sense of function of an administrative and executive nature, guided in all its biases by constitutional principles based on lawfulness, impersonality, morality, publicity and efficiency (Article 37, *caput* of the 1988 Constitution).

In this regard, it seems possible to affirm that the administrative structure has made firm efforts to enter the digital age, including with a view to complying with the constitutional principles mentioned above and advancing in the consolidation of a model of digital citizenship, participatory and continued, in order to reduce bureaucracy and improve the provision of its services through digital platforms.

In 2019, Decree nº 9,756, of April 11, 2019, established the single portal "gov.br" and provided on the rules of unification of digital channels of the Federal Government, having so far successfully migrated federal services to the new tool of the Services Portal, the *Planalto* and the Government of Brazil. These three websites receive about 13 million visitors per month. By the end of 2020, this sum should reach 1.6 thousand sites¹² of the Federal Public Administration - all will be part of "gov.br".

Among the objectives is to digitalize all the 3,293 services¹³ offered by the Federal Government, 315 of which have already been transformed and will represent about 12.5 million annual visits no longer in presence of public agencies. One that intends to facilitate the life of the citizen and provide, in the Government's estimates, an estimated annual saving of R\$ 936 million, of which R\$ 197 million for the Public Administration and R\$ 739 million for citizens.¹⁴

Constitution, under the unshakeable sign of fundamental rights and the centrality of the principle of the dignity of the human person (personalization of the constitutional order)". On this debate and the construction of the legal-administrative regime common to the paradigm of democratic Public Administration, from the structuring constitutional principles of the dignity of the human person, the democratic state of law and the republican principle, see: CRISTOVAM, Jose Sergio da Silva (2015). p. 117.

¹² In the UK, one of the world's leaders in public sector digital innovation, the Government Digital Service (GDS) completed 7 years in October 2019. In November "gov.uk" celebrated the hallmark of nearly 2,000 government websites combined into a single website, with support from nearly 14 million visitors. Retrieved from: <https://gds.blog.gov.uk/2019/11/05/transforming-gov-uk-the-future-of-digital-public-services/>; <https://gds.blog.gov.uk/about/>. Accessed 4Aug. 2020.

¹³ Data extracted from the official publication of the Government of Brazil. Retrieved from: <https://www.gov.br/pt-br/noticias/financas-impostos-e-gestao-publica/2019/08/portal-gov-br-reune-servicos-em-um-so-local>. Accessed 30Jul. 2020.

¹⁴ Data extracted from the official publication of the General Secretariat of the Presidency of the Republic. Retrieved from: <https://www.gov.br/secretariageral/pt-br/noticias/portal-gov-br>

This brief information of data and values makes it possible, albeit superficially, to situate the dynamics around which the entire judicial defense demanded by the Brazilian Federal Public Administration orbits and which is under the attribution of the Attorney General's Office (AGU). The AGU is highlighted by the 1988 Constitution as one of the essential functions of Justice in Brazil, with the responsibility of exercising activities of consultancy, representation in court and legal advice from the Federal Executive Branch.

Although since the 1988 Constitution, article 131 has provided for the AGU as the institution that, directly or through a related body, represents the Union, judicially and extrajudicially, it was only on February 10, 1993, by Supplementary Law nº 73, that it was officially created.

For its operation, the AGU is divided among the organs of the Solicitor General's Office (PGU),¹⁵ the Attorney General's Office for the Federal Agencies (PGF), the Attorney General's Office for the National Treasury (PGFN) and the Attorney General's Office for the Central Bank (PGBC). This division encompasses the Union's judicial defense of both direct and indirect administration, which justifies the volume and importance of the respective legal work.

From this introduction and from the functioning of the judicial defense of the federal public administration, it is possible to present some characteristics of the automation ecosystem and archival management in use by federal public lawyers.

II. AUTOMATION INSTRUMENTS AND ELECTRONIC PROCEDURAL MANAGEMENT IN FEDERAL PUBLIC LAW.

The effects of language evolution¹⁶ (from orality to writing and programming in a digital environment) made it possible for man to expand the functions of rationality by combining human reasoning with the machine's potential. Svein Linge states that we only use the real power of computers when we know how to program¹⁷

vai-reunir-servicos-do-governo-federal-em-um-so-canal. Accessed 30 Jul. 2020.

¹⁵ The official nomenclatures of the bodies and offices of the Attorney General's Office in the English, Spanish and French languages, were established by Ordinance n. 3, of 3rd January 2020.

¹⁶ The important debate about the theory and philosophy of language goes beyond the limits of this study. On the subject, see: WITTGENSTEIN, Ludwig (2017).

¹⁷ LINGE, Svein (2016). E-book.

them and from that we make them do exactly what we want them to. That's having digital freedom.

In Brazil, we are not presented to the language of programming as an integral part of the legal study. As a result, legal services end up hiring programmers or consulting firms for digital inclusion and optimization of work resources.

However, the reality of the legal professional necessarily encompasses the use of automation tools applicable in archival management. On the other hand, any unfamiliarity with these instruments cannot cause the feeling that belonging to the world of laws will automatically exclude it from the world of machines.

The use of artificial intelligence and automation making up an architecture necessary for large-scale legal activity, as is the case of public legal action in Brazil. About AI, although there is not only one definition of AI,¹⁸ even among experts in the field,¹⁹ concepts vary and can identify AI, for example, as a field of research, such as the autonomy of advanced systems, or to settle in comparison with human intelligence.

This way, visions such as "government as a platform" are gaining space. That expression was brought by Tim O'Reilly,²⁰ who presents a government focused on the construction of an information-based infrastructure that allows any citizen to reuse information to build new applications useful to society as a whole. In other words, the same openness that allows transparency also allows innovation and future applications initially unexpected.

Open source software, public software²¹ and digital platforms are in the same path, the first being the

starting point for the creation of SAPIENS, the system that is the central object of the analysis undertaken here.

Initially, the completion of forms of lawsuits occurred every two seconds, so that the Procedural Automation System (SAP), known as "robozinho", distributed processes and enrolled tasks in the Integrated System of Control of Union Actions (SICAU)²² in a few seconds.²³

In Brazil, these mechanisms of the digital era are the responsibility of the Ministry of Economy to implement actions to improve public services in structuring systems.²⁴ The so-called Structuring Systems are support mechanisms (auxiliary) to the activities performed by the sectoral bodies (units responsible in each body or entity), under the coordination and supervision of a central body. Part of the processes executed in these systems are centralized in information systems (structuring systems), that is, in technological platforms (software) managed by the central bodies.

In the face of such information, it is evident that state legal defense cannot depend solely on normative and theoretical knowledge; it needs to go further and look for new working instruments. It is no longer worth expecting that those intuitive experiences typical of Word, Excel, PowerPoint and Internet Explorer may be sufficient for understanding the world in the digital age and in the time of the narrow, dynamic and accelerated interconnections between the universes of law and AI.²⁵

In fact, the working facilities offered by information technology and programming have indicated a new path for the law professional, which can no longer be restricted to the legal arena. It urges its entry and constant frequency to the stages of new technologies and AI.²⁶

¹⁸ It is known that the term "artificial intelligence" was the object, more than sixty years ago, of a proposal for the "study of artificial intelligence of 2 months and 10 men" presented by John McCarthy (Dartmouth College), Marvin Minsky (Harvard University), Nathaniel Rochester (IBM) and Claude Shannon (Bell Telephone Laboratories), in a workshop, which occurred between July and August 1956 in the United States. Retrieved from: <https://www.forbes.com/sites/gilpress/2017/08/27/artificial-intelligence-ai-defined/#2a9777927661>. Accessed 18 Jul. 2020.

¹⁹ BUITEN, M. C. (2019). pp. 41-59.

²⁰ O'REILLY, Tim (2011). pp. 13-40. Retrieved from: <http://www.mitpressjournals.org/doi/abs/10.1162/inov.a.00056#.Vp1XYGwVhBc>>; Accessed 29 Jul. 2020.

²¹ On the Brazilian Public Software portal, part of the Ministry of Planning, Development and Management, 69 free software are shared, resulting in the economy of public resources and constituting a beneficial resource for the whole, the public administration and society. Brazilian Public Software is a specific type of free software that meets the modernization needs of the public administration of any of the Powers of the Union, the States, the Federal District and the Municipalities. Retrieved from:

https://softwarepublico.gov.br/social/search/software_infos?softw are_type=public_software. Accessed 4 Jul. 2020.

²² Currently, the initial system is no longer in use in the AGU, but in March 2013 the expectation was around the mark of one million records.

²³ As an illustration, in March 2013 the numbers of the first systems of the AI AGU were already representative and totaled more than 760,000 tasks, capable of entering a load of 300 Court cases in one afternoon, which previously required three days of work to achieve the same result, in addition to the demand for personnel to perform the task.

²⁴ As provided for in Decree nº 9,745, of April 8, 2019, in Article 127, item VI.

²⁵ On the theme of relations and interconnections between Law and AI, see: PEIXOTO, Fabiano Hartmann; SILVA, Roberta Zumblick Martins da (2019).

²⁶ About the Digital Government and Information and Communication Technologies (ICTs), see: CRISTOVAM, Jose Sergio da Silva; SAIKALI, Lucas Bossoni; SOUSA, Thanderson Pereira de (2020).

In the case of the AGU, the Integrated System for the Control of Federal Actions (SICAU) was initially adopted, which was discontinued in 2016 due to the entry into operation of SAPIENS, with the following definition:²⁷

SAPIENS is an Electronic Document Manager (EDM) that has advanced resources to support the production of legal content and control of administrative flows, focused on integration with the computerized systems of the Judiciary and Executive Branches. (...) SAPIENS unifies and relates the elements contained in the Administrative Processes, including judicial dossiers, placing the AGU definitively in the era of virtualization and the electronic²⁸ administrative process.²⁹ It promotes the orchestration of the various computerized systems of the public administration, in a transparent way for the User. It manages and promotes the adoption of standardized models and theses of law at the national level, in order to make the performance of Federal Public Lawyers throughout the national territory and in all instances cohesive. (...) SAPIENS is a hybrid system, that is, it supports digital and physical documents. It includes operations such as: capture of documents, application of the classification plan, version control, control over storage and destination deadlines, safe storage and procedures that ensure access and preservation in the medium and long term of reliable and authentic digital and non-digital archival documents.

The term SAPIENS also means Intelligent Attorney Support System, a system created and managed

by career members, with a first project in 2013. However, SAPIENS was born by Ordinance AGU n. 125, of April 30, 2014. According to your art. 1º, the "official system of information, documents and electronic processes within the framework of the Attorney General of the Union", of mandatory use in document management and control of workflows by the members and servers of the AGU, in the organs in which it is implemented.

According to data released in the National Congress of Federal Public Lawyers, SAPIENS worked, in November 2018, with 10 million NUPs³⁰ created by 20 thousand internal users and 40 thousand externals. The same system was also able to integrate with more than 40 systems of the judiciary and other bodies. In addition, the same data fueled the formation of a considerable legal archive with 300 million documents registered, at a growing rate of 500,000 new documents registered in the system per day. the same date, a volume of 50,000 daily subpoenas was counted, resulting in 1.5 million tasks per month and 1.8 million activities per month, according to data presented at that event.³¹

Currently, SAPIENS, with almost 10 years of use and several alterations, is the largest electronic process system in Brazil. It is a platform that seeks to deal with the challenge of a cadastral base of 30 million processes (administrative, advisory, judicial), 1 billion registered documents, plus a daily base of 10,000 new processes that bring an average of 500,000 documents, with digital components in this digital legal block. This informational volume demands archival management with classification, control and storage, in favor of an efficient documentary production. Thereby, through specific screening and distribution tasks, it is possible for the user to focus on a greater and better production in the 800 units spread over more than 400 municipalities in Brazil.

The implementation of SAPIENS began its journey through central bodies and successively through regional, state, sectional and representative offices, in a progressive process of creating routines, courses to public employees and members, correction and minimization of errors until arriving at productivity gains.

In July 2014, when the system was in the initial phase of implementation within the AGU, SAPIENS celebrated the closing of its first semester with 50 administrative processes in progress and 5,000 members

²⁷ Information extracted from the links: <https://sapiens.agu.gov.br>; <http://sapienswiki.agu.gov.br>. Accessed 3Jul. 2020.

²⁸ About the electronic administrative process, see: SCHIEFLER, Eduardo Andre Carvalho (2019).

²⁹ Decree n° 8,539, of October 8, 2015, provides for the use of electronic means to carry out the administrative process within the agencies and entities of the direct, autarchic and foundational Federal Public Administration. The National Electronic Process (PEN) consists of three major actions: The Electronic Information System (SEI), developed by the Federal Regional Court of the 4th Region (TRF4), the SEI integration bus (with other solutions for the use of electronic means) and the integrated protocol.

³⁰ Abbreviation that informs the number of each process registered in SAPIENS, whether judicial or administrative.

³¹ Retrieved from: <https://anafenacional.org.br/3o-conafe-bernardo-menicucci-grossi-e-eduardo-alexandre-lang-debatem-inteligencia-artificial-e-advocacia/>. Accessed 3Jul. 2020.

and public employees of the AGU who used the system exclusively in the administrative routine of work.³²

Moreover, on that same date, it was reported that SAPIENS was with its interface ready for petitioning with the judiciary agencies. Since the first registration, on January 21, 2014, until the beginning of July 2014, the electronic manager of tasks and activities linked 150,000 documents and had about 50,000 lawsuits been processed.

Indeed, between 2014 and 2018 there was considerable growth, a period in which SAPIENS ended up to having 60,000 users, evolving from an internal system of administrative processes to contemplate internal processes, documents and lawsuits. An extremely timely solution, developed by federal public lawyers, consisting of a complete web system to support the production of legal content and control of administrative flows, focused on integration with computerized systems of Judicial Power and the Executive Branches.³³

As a workflow control tool for the AGU's organization, SAPIENS is able to quantify the workload and the average time required to perform legal and administrative tasks throughout the country, allowing the evaluation of productivity in each unit of the federation. In addition, in judicial defense allows the standardization of legal theses and be defended in favor of the Federal Public Administration and dynamizes the consultation and research of the documentary basis of the areas of consultation and litigation.

Another highlight is the ability to incorporate tools to support text production, with suggestions for legal content, petition models and processes for the workflow, not to mention the combination of automation tools. This is possible because the system is capable of learning (machine learning) from users and applying such knowledge to the system as a whole.

The combination of this system enables SAPIENS to be divided into two modules. The administrative module, responsible for its integration with the other existing computerized systems (such as the Judiciary Systems), for the exclusive use of the Attorney General's administrative support team. This module automatically migrates the electronic subpoenas of the Justice, as well as complete information on the process and synchronization of the bases of tasks. This whole process of each insertion

in the system takes place in fractions of a second and occurs in a programmed manner during the night period in order to avoid delays in the work periods. In turn, the judicial module consists of a tool to assist the work of the public lawyer, helping in the control of deadlines and even in the production of the legal document with the direct protocol in the electronic process.

Mauro Lucio Baioneta Nogueira, member of AGU and one of the developers of SAPIENS, points out that the system works with the concept of social intelligence, in order to combine the support provided by AI tools with human feedback. SAPIENS even uses only open technologies and common domain licenses, which exempts the Public Administration from investments in these points. From the point of view of the technical language, the PHP language (Personal Home Page Tools) was chosen for the development of the system, on a joint platform Apache and MySQL.³⁴

It should be noted that these three databases (PHP, Apache and MySQL) are open source projects, in which programmers from all over the world contribute to the creation of efficient software and can be replicated all over the world without commercial purposes.³⁵ "Open source"³⁶ systems are developed by the Open Source Initiative (OSI) formed in 1998 as an educational, defense and free software administration organization, in a commendable initiative in the history of collaborative development.

According to Pablo Dall'Oglio, the PHP programming language, created in 1994 by Rasmus Lerdorf, was formed by a set of scripts in C language, aimed at creating dynamic pages that he used to monitor the access to his resume on the Internet. Since then, several features were added to PHP, which became Hypertext Preprocessor until reaching the new reality of a language with broader purposes. Nowadays, it is estimated that PHP is used in more than 80% of existing web servers, which places it largely as the most used language for web development.³⁷

In order to understand these languages and platforms in a very didactic way, Michael K. Glass associates them to the functions performed inside a

³²Retrieved from:
http://agu.gov.br/page/content/detail/id_conteudo/287744.
Accessed 2Jul. 2020.

³³Retrieved from: <https://anafenacional.org.br/3o-conafe-bernardo-menicucci-grossi-e-eduardo-alexandre-lang-debatem-inteligencia-artificial-e-advocacia/>. Accessed 3Jul. 2020.

³⁴Retrieved from:
<https://agu.jusbrasil.com.br/noticias/100362832/agu-aposta-em-inteligencia-artificial-e-automacao-de-processos-para-agilizar-trabalhos-juridicos>. Accessed 2Jul. 2020.

³⁵GLASS, Michael K. et al (2004). p. 34.

³⁶ According to OSI, the "open source" label was created at a strategy session held on February 3, 1998 in Palo Alto, California (USA), following the announcement of the release of Netscape's source code.

³⁷DALL'OGGIO, Pablo (2018). E-book.

restaurant. So, while PHP would be the chef of the restaurant, combining dynamic information to meet the request for new web pages, MySQL would be a good amount of ingredients used by PHP. The information records are stored in MySQL databases. To compose this picture, Apache would finally have the function of a waiter, who receives the order from the customer and sends it to the kitchen with the specific instructions on how the meal should be prepared.³⁸

While it may seem strange to use the service of a restaurant as a reference to understand the internal intelligence functioning of a web-based system of Federal Public Administration judicial and administration proceedings, this serves well to demonstrate how Apache, MySQL, and PHP represent a popular combination and how well they operate together.³⁹

In summary, this demystified view of what can be used in good practices in the legal area in the defense of the Federal Public Administration also helps to demonstrate to legal operators that it is possible to understand the functioning of the programming language and apply free technologies, accessible with open codes of global access. And, to a large extent, this was what allowed a revolution in the performance of Brazil's largest legal service.

III. SUPPORT TOOLS IN THE MANAGEMENT AND DISTRIBUTION OF LEGAL TASKS

Aware that the adoption of automation instruments was no longer negotiable in the global reality, the Federal Public Advocacy began to accompany the digital era with its own creation tools⁴⁰ applied inside and outside SAPIENS. In addition to the excessive volume of lawsuits, there was the challenge of developing its own tools within the career, without spending public financial resources, for the mass management of legal tasks, in order to maintain transparency and in search of broader control of the activities developed by its members.

In addition, as a public defender of the State, its activities should include performance and productivity targets, as well as seeking to reduce the number of court sentences for effective savings to the public purse. It was in this spirit that the AGU conveyed the first news of the

official use of AI in 2013,⁴¹ due to the introduction of automated procedures by attorneys in the states of Sao Paulo, Mato Grosso do Sul and the Southern Region. That was considered an important career achievement, with technologies developed by its own members, for better management of judicial proceedings and administrative documents.

The work continued with the creation of the SAPIENS system, which allowed the implementation of intelligence routines, through similarity analysis techniques, which reduced the number of servers involved in bureaucratic activities. The migration from SICAU to SAPIENS ensured the execution of the same information by the system and even implemented intelligence routines, through similarity analysis techniques, in order to optimize the limited human element.

The registration of activities in SAPIENS made it possible to better assess the productivity levels of public lawyers, identify the areas in which there should be better conflict management and/or resettlement of public employees. In addition, it made it possible to observe which procedural actions are in greater or lesser number and in which sector of the Public Administration they are, in order to allow the analysis of public management data, the direction of strategic action plans and the development of solutions for the comparison of other areas.

At this point, it is important to present some automation systems used by the AGU with the following functions: i) screening of legal proceedings collected directly from the various systems of Judicial Power; ii) consulting the systems; iii) drafting and virtual petitioning and; iv) performing calculations in the course of the proceedings. Let us follow the description of each of the AI tools gathered in the Optimized Attorney's Portal.⁴²

For the consultation of the Judiciary System, four tools are used: 1. The so-called "CAMELO", whose function is to facilitate the search in the systems of the

⁴¹ News released on March 4, 2013. Retrieved from: https://www.agu.gov.br/page/content/detail/id_content/230719. Accessed 18Jul. 2020.

⁴² The Optimized Attorney is a project part of the Immediate Response in Social Security Lawsuits Program - PRIAP, Best Practices Subprogram, which seeks to disseminate, catalog and expand successful initiatives that can bring improvements in the organization and production of units. The project is part of the General Coordination of Projects and Strategic Affairs - CGPAE/PGF/AGU. Retrieved from: <https://agudf.sharepoint.com/sites/PGF-CGPAE/SitePages/Procuradoria%20Otimizada.aspx>. Accessed 23Jul. 2020.

³⁸ GLASS, Michael K. et al (2004). p. 35.

³⁹ GLASS, Michael K. et al (2004). p. 36.

⁴⁰ Here, the vision of Administrative Law as a "toolbox" fits. On the subject, see: RIBEIRO, Leonardo Coelho (2017).

National Institute of Social Security (INSS),⁴³ by administrative process and in the preparation of communications for requesting such processes; 2. The "LOKI", which is a robot responsible for automating searches in the INSS systems, allowing the gathering of the searches in the Federal Justice system of the Northeast Region⁴⁴ or in SAPIENS; 3. the "MAST", which searches, by the number of the register of individuals, in the sites of the Judiciary of the State of Sao Paulo, for purposes of identification of lawsuits previously filed with results in Excel spreadsheet; and, 4. The "ROBÔ INSTRUÇÃO", which uses Excel to extract data from the INSS systems, by searching the address of the author of the lawsuit in SAPIENS and in the database of the Federal Revenue. The Robot Instruction saves in PDF files, making the protocol directly in the virtual system of the Judicial Power.

For registration of tasks in SAPIENS based on procedural movements was created the "Optimus", which operates in integrated systems. Through it, it is possible to analyze communications from the Judiciary through "keywords" pre-defined (editable) by the user. Afterwards, "labels" are generated that allow the automatic routing of the tasks by the Registration sector. This set allows, easily and quickly, the separation of activities to be performed by other users.

In the same utility there is the "PRIME", a program for reading the contents of the documents viewed in SAPIENS, in HTML and PDF formats. "PRIME" allows the initial labeling and its completion, which creates a migration of documents to the SAPIENS reading interface.

The "PRIME" system works in the tasks tab of SAPIENS by analyzing "key expressions" that are predefined and editable by the user. Afterwards, programmed "tags" are generated, such as letters of request from the Judiciary of public values, if in the conviction there are fines, court decisions or expert reports. From these, the tasks are directed to the public lawyers according to each attribution of the organization. This system may even suggest a procedural document to the concrete case, but it will be up to the lawyer to decide which procedural measure is appropriate.

A third system called "MERCURIO" consists of a macrosystem for sorting, distributing and labeling in batch and in an automated way. Through this system, it is possible to perform a self-sorting mechanism, through which the user previously registers repetitive judicial decisions with paradigms and associates them to an internal organization label. In addition, "MERCURIO" contains modules that allow the labeling, alteration of the internal sector and automated distribution in one of the tabs of SAPIENS, which makes the separation of processes internally functional and the redistribution to public lawyers.

"THOR" is a robot that integrates Crete with SAPIENS, allowing the automated registration of the judicial process, organizes subpoenas and citations from key words in the purpose of the subpoena or in the content of the attachment that is in the extension HTML or searchable PDF. The robot has additional functions such as the identification of calculations, hearings, control of expertise including the analysis of the profiles of conclusions of professionals for purposes of monitoring public lawyers. As an additional function, it also performs the procedural instruction with the registration of the documents presented in the judicial process and generates a report of these documents.

Another system also adopted in screening is the "MACRO E-SAJ", which consists of a Macro Excel spreadsheet, used for reading and labeling subpoenas that are sent by the Judiciary. As mentioned in the "PRIME" function above, this spreadsheet allows reading the judicial decision and searching for previously registered expressions to then include a classification in the system.

The "SURICATO" was created for the trial guidelines published by the Courts, which identifies relevant actions for the AGU. Thus, the system assists in the filtering of the judgment guidelines, highlighting the processes of greatest interest, such as actions classified as priority, large debtors, which are previously registered in the system by the user.

Following the tools adopted in the screening of judicial proceedings, the "MARA" is also based on a screening spreadsheet extracted from the site of the Judicial Power in the state of Sao Paulo with the content of the subpoena, with terms established by the user.

Finally, there is the "ROBÔ CADASTRO" and the "DR. JORGE". The "ROBÔ CADASTRO" operates by means of Excel macro spreadsheet, extracts the subpoenas from the panel of subpoenas of the Judiciary system and registers the new processes in SAPIENS. Through the same Excel medium, "DR. JORGE" operates

⁴³ The INSS is a federal associate Government agency created on June 27, 1990, responsible for the operationalization of general Brazilian social security rights and provider of social security services. It covered more than 50 million citizens and approximately 33 million beneficiaries in 2017. Article 201 of the Federal Constitution established the nature of a contributory basis and mandatory participation.

⁴⁴ System called Crete, belonging to the Federal Regional Court of the 5th Region, in the northeast of Brazil.

in the State of Alagoas, with the functionality of generating petitions and protocol in CRETA.

It is important to mention that these automation tools (robots) are used only in the management of mass litigation, created and developed equally by attorneys and servers within the AGU. They search for pre-defined terms in documents and analyze the process "backwards", reading HTML and searchable PDF, and work as an automated sorting and labeling system.

After the process screening phase, the next step is to describe the AI tools for preparing drafts of procedural documents and sending them to the Judicial Power (petitioning).

In this phase, the AGU works with three systems, two of which were created⁴⁵ by the AGU. The "PANDA", system that attaches process parts in SAPIENS in an automated way, in the form defined by the user previously, which allows the user to assist in the production of minutes in SAPIENS throughout the country by teams that make the movement of tasks by SAPIENS.

The system called "MANO" downloads from a SAPIENS printout the parts and attachments in the tasks and transports them to a folder with the identification of the court case number and the type of document. "MANO" classifies in the system which is the procedural document (and its administrative annex) to be launched in the system of the Judiciary.

Furthermore, for the activities of judicial calculations it is used spreadsheets of calculations in batch, with the automatic monthly update of the indexes and automated assembly of parts of proposal of agreement, for which it is necessary to fill the fields in blank indicated in the developed spreadsheet. The "SAGUI CALCULO" was also developed in the Central and Southeastern Regions, a program to assist civil servants in the area of calculations in social security lawsuits, with research fields in the INSS systems and in judicial proceedings. The program, by means of a macro system, enters the data captured in the calculation system for purposes of checking and controlling the amounts due in lawsuits in which the government does not win.

Also worthy of note is the creation of the segmented performance control report, generated through Excel with data from SAPIENS, which shows the success rate by model of defense piece or registered resource. It

allows the judge of each state and public attorney to determine the results of their work in the process. This control allows mapping the theses with the highest success rate and which are no longer accepted by the Courts, arguments that should be improved. In the same way, it indicates public lawyers who do not concentrate good performance or who need training in their work.

In the area of management, there is also the use of jurimetrics mapping, a method that connects the law and statistics⁴⁶ institutes for the evaluation of defense theses and success rates, as well as in the identification of themes with reform of decisions⁴⁷ by team resources, which are the foundations to be improved in defense, among other points.

Orchestrating these mechanisms promotes transparency and broad access to data from all judicial and administrative processes in which federal public lawyers operate, in addition to creating an internal network of tasks and quantification of work within the AGU.

In conclusion, it should be emphasized that professionalization allows the systems to be always up to date with new versions, creating in the day-to-day improvement of the instruments, and through suggestions from the public lawyers themselves, which represents an invitation to professional engagement and communication among its members, with considerable gains in efficiency.

IV. CONCLUSION

Humanity has arrived at such a stage of interconnection between people, between their data, that there is no way of thinking in the fields of science in an isolated way and far from the knowledge of its main recipients: people.

⁴⁶ According to Filipe Jaeger Zabala and Fabiano Feijo Silveira, Lee Loevinger (Jurimetrics: the next step forward) coined the term 'jurimetrics', which for the first time united legal theory, computational methods and statistics, in order to analyze the jurisprudence and make the use of law more predictable. On the subject, see: ZABALA, Filipe Jaeger; SILVEIRA, Fabiano Feijo (2014). pp. 87-103.

⁴⁷ It should be noted that the system of jurimetrics, as well as the aspects related to the adoption of AI, still divides opinions on the use of the data resulting from their analysis. Recently, in March 2019, with regard to jurimetry, the French government, under the argument of accepting the General Data Protection Regulation (GDPR), the regulatory instrument responsible for data protection regulation within the European Union, prohibited the publication of statistical information on judges' decisions by means of Law 2019-222. In Brazil, the CNJ created the application "SupremoemAção" that provides detailed information on the production of judgments and the volume of legal proceedings for each of the current members of the The Supreme Federal Court (STF).

⁴⁵ Mouse Recorder" is an external software, not developed by AGU, used to automate repetitive mouse and keyboard routines. After recording a sequence of commands, it is possible to replicate it multiple times in an automated way.

As in most issues related to the legal area, there are points and counterpoints to the use of automation instruments and AI in the judicial defense of the federal Public Administration, which is why the public operator should associate technology to the service of the jurist, as a means and not as an end, substitute. In addition, the adoption of technology exempts the public lawyer's time from bureaucratic and managerial activities for dedication to more sensitive and complex issues.

For this reason, all legal services provided in the defense of the Public Administration, in addition to being linked to constitutional administrative principles, must be developed with a view to lawfulness and be guided by a communicative and open vision that the tools used and their data will be accessible to citizens. Efficiency is shown to be real when its numbers show productivity and results.

Likewise, although the systems are operated by public agents specialized in information technology and are developed within closed environments due to their complexity, the results of the use of these AI tools must be shared with transparency, accessibility and in a language that is suitable for comprehension by professionals from all areas of knowledge.

According to Daniel Kahneman, when approaching his "prospect theory", human beings tend to make decisions focused more on possibilities of loss than on possibilities of gains, besides dealing with what he calls "the causal variability of the noise of judgments".⁴⁸ It is worth saying: the human being is averse to losses.

Therefore, in order for human rationality to consider something useful, it is necessary that the advantage of changing a previous behavior is demonstrated, in the same way it occurs for new methods of work to be accepted. It is in this context of representativeness that transparency should help eventual resistance and criticism with which the legal world receives the automation tools promoted by AI applied to its own services.

If the expectation is that the Public Administration of the 21st century will follow the digital age, its legal services also need to be in this same compass, working on a constant evolutionary process, aligning constitutional and legal perspectives to the connectivity of AI tools.

In summary, the adoption of AI tools by federal public law allows a focus on the preparation of legal

theses, investment in effective judicial measures and attention to the study of concrete cases.

Indeed, as Aires José Rover, one of the pioneers in the study of interactions between AI and Law in Brazil, said about 20 years ago, "one of the most precious characteristics of the use of Artificial Intelligence techniques is the possibility of removing from the operators the cognitive weight of routine decision making, freeing them into the noblest activities."⁴⁹

In addition, by quantifying the operational activities, the internal organization of information, data and documents, it will be possible to achieve levels of performance and responses at a higher speed than the conflicts themselves. All this allows us to conclude that, especially in view of such expressive numbers, the creation of the SAPIENS interface and the respective automation tools make it possible to channel the knowledge into an increasingly efficient and specialized legal service.

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