OPEN GOVERNMENT,
EMERGING TECHNOLOGIES AND
PUBLIC INNOVATION

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On an international level, countries face major problems of citizen distrust towards State institutions, episodes of corruption, lack of legitimacy in public decisions and discredited public organizations. Faced with this scenario, initiatives were taken to promote State openness and transparency.

In 2011, the Open Government Partnership (hereinafter OGP) was launched worldwide, aimed towards fostering concrete commitments from governments to promote transparency, increase citizen participation in the debate and decision making process of public affairs, combat corruption and take advantage of new technologies to strengthen democratic governance and the quality of public services.

In 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development1, where it established 17 Sustainable Development Goals (hereinafter SDGs) to achieve in the next 15 years. SDG No. 16 refers to promoting peaceful and inclusive societies for sustainable development, facilitating access to justice for all and building effective and inclusive institutions at all levels.

Among the goals to achieve this SDG are the following: creation of effective and transparent institutions that are accountable at all levels; ensuring the adoption of inclusive, participatory and representative decisions at all levels, and able to meet the required needs; and guarantee public access to information and protect fundamental freedoms, in accordance with national laws and international agreements.

In 2016, the Ibero-American Open Government Charter of the Latin American Center for Development Administration (CLAD)

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1 Resolution Nº 70/1 General Assembly «Transforming our world: the 2030 Agenda for Sustainable Development» A/RES/70/1 (21 October 2015), available at: https://undocs.org/A/RES/70/1
was approved, where the basic guidelines and concepts on Open Government were established. These State opening initiatives were accompanied worldwide, by the expansion and increasing application of emerging technologies in State activity. Artificial intelligence (AI), Blockchain, Cloud Computing, Big Data, Machine Learning, Analytics, Internet of Things (IoT), play a central role in achieving the long-awaited opening of the State. The purpose of this paper is to analyze the role that emerging technologies play in Open Government. In particular, I make reference to its application in the Argentine Republic.

§1–Open Government

The concept of open government emerged within this international context. Countless definitions have been provided to define this new way of perceiving public governance. In this sense, we will adopt the definition provided by CLAD, which defines Open Government “as the set of mechanisms and strategies that contribute to public governance and good governance, based on the pillars of transparency, citizen participation, accountability, collaboration and innovation, focusing and including citizens in the decision-making process, as well as in the formulation and implementation of public policies, to strengthen democracy, the legitimacy of public action and collective well-being”.

This new public governance paradigm is based on four fundamental pillars: 1) transparency and access to public information; 2) citizen participation; 3) accountability; and 4) collaboration and innovation.

First: Transparency and Access to Public Information. Transparency is an attribute or quality that allows us to have more clear and precise information about a person or something, which would result in an increase in our understanding, vigilance and communication skills. As indicated, we can define transparency as citizen demands for markets and governments to maintain reliable institutions both for their policies and for their results. On one hand, transparency refers to the right of access to information that is held by public institutions and that citizens may request, and on the other, to the government’s obligation to proactively make information that accounts for their activities, the use of public resources and their results available to citizens, based on the principles of active advertising, such as relevance,

2 Latin American Center for Development Administration, Ibero-American Open Government Charter, Approved by the XVII Ibero-American Conference of Ministers and Ministers of Public Administration and State Reform Bogotá, Colombia, July 7 and 8, 2016, page 5.
enforceability, accessibility, opportunity, truthfulness, understandability, simplicity and maximum disclosure.\(^4\)

Access to public information is essential to ensure the transparency of State acts and control the actions of officials. It is a fundamental right of all citizens, which is expressly recognized in various international human rights treaties.\(^5\)

Second: Citizen Participation. Citizen participation implies the direct and immediate participation of people in State decisions, and not the simple communication of them. Likewise, it must allow the social construction of public policies and the increase of citizen capacities in their monitoring and control.

Every citizen participation process must guarantee spaces of greater equality and social pluralism and take into account at least three basic elements for its promotion: 1) identification and creation of incentives for participation and reduction of indirect costs or associated barriers; 2) building the necessary capacities for citizens to participate efficiently and effectively; and 3) production and publication of complete, impartial, timely and understandable information, capable of summarizing in a simple way the different dimensions of State performance, as well as clearly informing citizens about their rights and the use of existing participation mechanisms.

As Amartya Sen has pointed out, the participation of civil society in the design, implementation and evaluation of State policies is not conceivable, unless it has been empowered; that empowerment implies that the citizen knows their individual and collective rights, the way in which they can obtain the guarantee of their exercise and the ability to analyze the relevant information, as well as their capacity to be an agency, that is, to be or do what you have reason to value; and that still empowered, the citizen values political participation and has the will to exercise it.\(^6\)

Third: Accountability. Accountability is based on institutional norms, procedures and mechanisms - as a legal and ethical duty - that oblige government authorities to base their actions and take responsibility for their decisions, respond in a timely manner and report on management and return of funds, assets or public resources allocated, and for the results obtained in fulfilling the mandate conferred.\(^7\)

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\(^4\) Latin American Center for Development Administration, Ibero-American Open Government Charter, Approved by the XVII Ibero-American Conference of Ministers and Ministers of Public Administration and State Reform Bogotá, Colombia, July 7 and 8, 2016, page 6.


\(^7\) Latin American Center for Development Administration, Ibero-American Open Government Charter, Approved by the XVII Ibero-American Conference of Ministers and
Accountability refers not only to its horizontal dimension, understood as the control and surveillance relationships established between government agencies, but also by its vertical dimensions, which involve the development and strengthening of mechanisms so that society can demand accountability from their representatives, and diagonally, referring to the active participation of citizens in social control activities of public institutions with a view to materializing their impact on decision making and the provision of public goods and services. Accountability systems are linked to the idea of public responsibility, which implies the ability to respond and fulfill the public mandate conferred in any democratic system, empowering civil society and citizens with monitoring and control tools as a whole.

Fourth: Collaboration and Innovation. Collaboration and innovation is understood as the generation of new spaces for meeting, dialogue and work that favor the co-creation of initiatives and co-production of new public services. On one hand, this implies the promotion of new approaches, methodologies and practices to enhance and strengthen innovation within public institutions and favor collaboration with other actors in society, the private sector, and third sector organizations, among others. On the other hand, it means recognizing the capacities available within the society itself and the benefits that these can bring in the design and implementation of public policies, leaving behind the focus of a passive receiving citizenship of institutional actions, to become protagonist and producer of their own solutions.

Innovation consists in the application and/or adaptation of new knowledge. There are three elements involved: the actors (innovators), the process (innovation) and the results (innovations). The central element that distinguishes innovation from incremental change is the impact of the change process on discontinuity with the predominant paradigm of organization, product/service or market. By which, it consists in the Administration’s novelty production so that from the execution of public policies, the needs of society are met.
The four pillars of Open Government will be considered under a systemic logic, in which each one contributes to the achievement of others in an organic and interdependent manner.\footnote{Latin American Center for Development Administration, *Ibero-American Open Government Charter*, Approved by the XVII Ibero-American Conference of Ministers and Ministers of Public Administration and State Reform Bogotá, Colombia, July 7 and 8, 2016.} In short, the goal of open government is to achieve a new way of governing, where the Public Administration focuses on citizenship and their rights, to restore people’s trust in their governments and create public value.

\section*{2 – The Role of Emerging Technologies in Open Government}

In the search for greater transparency, publicity, access to public information and citizen participation in State activity, emerging technologies play a fundamental role.

First, we must identify which are the emerging technologies. Second, analyze its application in State activity.

Emerging technologies differ from information and communication technologies (hereinafter ICT). ICTs are the set of resources, tools, equipment, software, applications, networks and media that allow the compilation, processing, storage and transmission of information, such as voice, data, text, video and images, among others.\footnote{National Law No. 27.078, Argentine Republic, article 6, subsection g, complete standard available in: http://servicios.infoleg.gob.ar/infolegInternet/anexos/235000-239999/239771/norma.htm.} While emerging technologies are artificial intelligence (AI), Blockchain, Cloud Computing, Big Data, Machine Learning, Analytics, Internet of Things (IoT), Virtual Reality (VR) or Augmented Reality (AR), Neurotechnologies, Nano/Microsatellites, Canomaterials, additive manufacturing, advanced energy storage technologies and synthetic biology, mass data analysis.\footnote{United Nations Department of Economic and Social Affairs, Survey on E-Government 2018, Boosting E-Government to support the transformation towards sustainable and resilient societies, New York, 2018, p. 29, 40 and 165 standard available at: https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2018-Survey/E-Government%20Survey%202018_English.pdf; OECD Perspectives in Science, Technology and Innovation in Latin America 2016 (Excerpts), p. 75, available at: https://www.oecd-ilibrary.org/docservr/9789264303546-en.pdf?expires=1568896015&id=id&accname=guest&checksum=0B4FD5EE1984055085218EBEBDC9CFA7} Both ICTs and emerging technologies play a fundamental role in the pillars of Open Government. To the extent that the government opens its channels of dialogue and interaction with citizens, it can take advantage of its potential contribution to the State management process; and if citizens take advantage of the opening of these new participatory channels, they can actively
collaborate with government management, thus promoting the deliberative and participatory components of democracy\textsuperscript{14}.

The combination of new technologies such as Big Data, the Internet of Things, geographic information systems and the use of predictive analyzes are tools of great impact for anticipated governance, particularly for the provision of services\textsuperscript{15}.

Big Data can help increase transparency and accountability, as well as participation through Open Government Data, by providing online access to information that the government generates and accumulates on a server of thematic areas, people will be able to know in depth the way the government works and how public funds are spent\textsuperscript{16}.

One of the tools used to increase transparency and participation is Open Government Data (OGD), which can be defined as proactively disclosed and available online government information that everyone can access, without restrictions. OGD’s give all interested parties complete and free access to open government data and opens the opportunity for people to evaluate the performance of various administrative institutions. Combined with the use of modern ICTs, this open platform allows greater accessibility of key records to a much wider audience\textsuperscript{17}.

Open Government data is significantly increasing transparency, which leads to greater accountability and trust in governments and public institutions. Open Data, available to the public and reusable, are encouraging participation and collaboration between actors from the public, private and civil society sectors.

In short, technology can produce a cultural change in the presence of political will, which should exist both from the State and from civil society. If at least from the State the political will was exercised at all necessary levels to eliminate or reduce the different asymmetries and resistances mentioned, it is possible that a systematic and persevering action of the highest political level could eventually penetrate and settle in the citizen practices,


so that the culture reflected in those practices could be modified.\textsuperscript{18}

Although the first approaches to the use of technologies within States, were carried throughout ICT, as of web pages and State agency’s apps, today, with technological advances, we have more sophisticated systems, which contribute to encourage State openness.

§ 3 – ARGENTINE Rpublic: Emerging Technologies Applied to State Activities

In 2016, the National Executive Branch approved the National State Modernization Plan,\textsuperscript{19} which established the guidelines for achieving a Public Administration at the service of people and their rights. The axes of the Plan are: 1) Technology and Digital Government Plan; 2) Integral Management of Human Resources; 3) Management by Results and Public Commitments; 4) Open Government and Innovation and 5) Digital Country Strategy.

The fourth axis stated that, to renew confidence in the link between the interests of the State and the interests of citizens, new technologies and innovation are fundamental. Specifically, to guarantee the opening of data and public information, promote the development of the policies, instruments, capacities and platforms necessary to accelerate public and civic innovation and provide citizens with the means, channels and opportunities necessary to express themselves, petition and participate actively in the public policy cycle.

Within the framework of these axes, concrete actions to promote transparency and State publicity, access to public information and citizen participation were implemented at the national, provincial and Autonomous City levels of Buenos Aires. Let’s see some examples.

First: National level. At the national level, in 2017, the Law on Access to Public Information was passed\textsuperscript{20}. This Law recognizes the role of new technologies, and establishes that the subjects obliged to provide access to public information must facilitate the search and access to public information through their official website of the computer network, in a clear, structured and understandable way for those interested and trying to remove any barrier that hinders or hinders its reuse by third parties. Likewise, they must publish, in a complete, updated form, by digital means and in open formats, information about their organization. The Executive Branch, by Decree No. 891\textsuperscript{21} established that the agencies of the National Public Sector should provide the


\textsuperscript{19} Decree No. 434/2016, March, 2016.

\textsuperscript{20} National Law No. 27,275, September, 2016.

\textsuperscript{21} Decree No. 891, November, 2017.
mechanisms for participation, the exchange of ideas, consultation, collaboration and democratic culture with the incorporation of these new technologies.

In 2018, the automated virtual assistance service for citizen care was created, which is part of the National Public Sector Digital Platform. Since the late 1990s, artificial intelligence has been coupled with robotics and man-machine interfaces in order to create intelligent agents that suggest the presence of affections and emotions. This gave rise, among others, to the improvement of computer programs that simulate conversations with human users (chatbot).

These conversational agents (also called digital or virtual assistants) are beginning to occupy a central role in the current Public Administration, because they simplify, facilitate and optimize the citizenship-services-State equation, thus generating greater access of to State activity for the citizens, and, therefore, greater citizen participation.

Within the framework of the Open Government Directorate of, the area of Public Consultation was created; a channel for dialogue and debate that allows interaction between the government and the community, promotes citizen participation and helps strengthen democracy.

In addition, the Tablero Ciudadano (Citizen Board) was created, a platform where the Secretariat of Government Modernization priority projects are worked on, and citizens can participate in the analysis and monitoring of actions and results.

In the year 2019, within the orbit of the Legislative Power, the Citizen Participation Platform for Proposals for the Law of the National Congress was created. The Open Law Portal is a platform for collaborative standards development where deputies make their proposals and bills become available to the public who may propose to incorporate new points of view into their initiatives. The objective of the platform is to enrich the law proposals and generate a new space for communication with citizens, which will enrich the parliamentary debate.

Second: Provincial level. On a provincial level, in Cordoba in, the Administrative Procedure Law was passed in during 2018, which established the digital Public Hearings, which can be carried out by video conference or by any other means of digital communication established by the regulation, guaranteeing the highest degree of accessibility and participation to the people.

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24 Available at: https://consultapublica.argentina.gob.ar/
25 Available at: https://www.argentina.gob.ar/tablero-ciudadano
26 Available at: https://leyesabiertas.hcdn.gob.ar/
27 Law No. 10.618, Córdoba. March, 2019
At the sphere of the City of Buenos Aires, an intelligent virtual assistant «Boti » was created to respond to citizen inquiries about public services and procedures of the City. The chatbot responds to citizen questions and directs them to sources of information or to the attention of specialized individuals when they query remains unanswered by the system.

In 2017, Prometea the first predictive artificial intelligence system in Latin America was created and developed within the Justice system and which has been fully operational within the Justice system.28 This innovation combines nuances of automation, natural language recognition and prediction: the system predicts the solution to a court case in less than 20 seconds, with a 96% success rate. Although this AI system was implemented within the scope of the Judiciary Branch, it was trained to perform various tasks in Public Administration through different proof of concepts.

In the City’s Public Administration, a Prometea proof of concept was carried out within the General Directorate of Public Procurement and Contracts of Security and Emergencies (DGAYCSE) of the Ministry of Security and Justice of the City, which is responsible for making the purchases requested for each dependency. In this Directorate, a price control tool was developed.

The Prometea AI system integrates market price control, through the link of online shopping websites (such as MercadoLibre); and a comparative tool of public prices, based on the previous purchases that appear in the BAC system29. It also updates prices based on the dollar exchange price of the day and taking into account general and particular inflation prices in technology. This allows for the State to achieve greater transparency within its activities.30

Finally, various technological platforms were implemented, such as the «Map of Commercial Opportunities»31. This application allows for citizens who want to establish a business in the City of Buenos Aires, to do so by inserting two data: the business area they want to enter and the geographical area of the City. Furthermore the platform allows for the detection of business closure risks during the last year and survival rates, the percentage of new business in relation to the total of the specific area, the percentage of closed establishments in relation to the total of the specific area, the percentage of closed establishments in relation to the total of the specific area.

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28 Available at: J.G. Corvalán, Prometea Artificial intelligence to transform public organizations, Editorial Astrea, Universidad del Rosario, Quantum DPI and IMODEV. 2019.
29 The Buenos Aires Shopping portal is the Electronic Procurement and Contracting System of the Public Sector of the Autonomous City of Buenos Aires, which contemplates the complete flow of an acquisition through the Computerized Registry of Goods and Services, Single and Permanent Computerized Registry of Suppliers, Content Manager and Parameter Manager. The system allows the interaction of buyers, suppliers and citizens in the same portal, since it is structured in three environments: public environment (citizen), buyer environment and supplier.
30 Available at: https://alab.com.ar/portfolio-items/prometea-compras/
31 Available at: https://moc.buenosaires.gob.ar/
item and the number of establishments opened for 2, 3 or 4 years in that location.

From the aforementioned, we observe how the application of ICTs as emerging technologies in State activity converge in the Argentine Republic, to achieve greater transparency, publicity, access to public information and citizen participation in public decisions.

**CONCLUSION**

States must seek a government open to their citizens. Innovative coordination processes and mechanisms for the provision of services, citizen participation and empowerment are essential, as well as making such services open, inclusive and accessible to all groups of the society. Emerging technologies have the potential to transform the traditional way of doing things in all functions and areas of Public Administration. They also offer the opportunity for governments to improve the well-being of citizens through simplifying and facilitating their interaction with the Public Administration and accelerating and optimizing the internal tasks of public organizations.

Emerging technologies are an indispensable tool that Public Administrations have to achieve greater transparency, access to public information and citizen participation. Specifically, through intelligent systems, as conversational agents, they allow to further connect with citizens and be a part of their daily lives. In this scenario, it is essential for Public Administrations to adopt concrete measures to guarantee people’s access to the State, since in reality; there are several gaps in terms of State activity access.

The path to an open Public Administration, not only depends on technologies, but also requires a comprehensive approach that offers citizens accessible, fast, reliable and personalized services. Emerging technologies are a means to create intelligent and transparent Public Administrations that provide answers to citizens in a quickly and timely manner.

To ensure that no one is left behind and the benefits of Open Government reach everyone, it is necessary to adopt an inclusive approach when applying technologies in the Public Administration, which must contemplate four aspects.

First; the political will to carry out a radical change in administrative activity. Second; the implementation of emerging technologies such as artificial intelligence, robotics, nanotechnologies, big data, the internet of things within Public Administration. Third; the digital literacy of the population, which implies basic and advanced training in learning on how to use information and communication technologies. Fourth; regulatory frameworks that regulate the implementation and development of intelligent systems and the jurisdictions of State officials, since we
must not forget that the Public Administration is subject to the principle of legality. Therefore, it is the legal norms that must regulate the aptitudes and jurisdiction of Public Administration entities.

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