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Citizen participation and open government in the digital age: an AI perspective

La participación ciudadana y el gobierno abierto en la era digital: una mirada desde la IA

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Abstract

The incorporation of technological tools into people's lives has generated changes, both in their daily activities (such as working, studying, obtaining information, entertaining, shopping, etc.) and in their forms of social interaction with other actors, such as with the State (its character as governed people). Thus, such tools (the internet, big data, artificial intelligence, etc.) determine—in part—the form of interaction between those governed and those who govern and are used as strategies to streamline processes and service administration, while maintaining democratic and open government principles.

Currently, within these tools, Artificial Intelligence represents a paradigm similar to that of the internet (at the time of its emergence and rise) due to the implications it can have on the way it is governed. However, how does AI impact participation and governance? Thus, this paper aims to analyze and explain the transformation of citizen participation and open government through the use of new information and communication technologies (such as AI). It employs a qualitative documentary approach based on a review of specialized literature and statistical data. It establishes that the use of AI in government and citizen participation represents potential opportunities, but also challenges and risks, as its changes will continue to be constant.

Keywords

Citizen participation, open government, artificial intelligence, digital age, daily life, digital citizenship, democracy, technology.

Resumen

La incorporación de herramientas tecnológicas en la vida de las personas ha generado cambios, tanto en sus actividades cotidianas (como las de trabajar, estudiar, informarse, entretenerse, comprar, etc.) como, en sus formas de interacción social con otros actores; como lo es con el Estado (su carácter de personas gobernadas). Es así, que tales herramientas (internet, big data, inteligencia artificial, etc.) determinan —en parte— la forma de interacción entre gobernados y gobernantes, y se utilizan como estrategias para eficientizar sus procesos y administración de servicios, sin perder los principios democráticos y de gobierno abierto.

Actualmente, dentro de estas herramientas, la Inteligencia Artificial representa un paradigma similar al del internet (en el momento de su aparición y auge) por las implicaciones que puede tener en la forma de gobernar, pero ¿Cómo la IA ha transformado la participación ciudadana y al gobierno? El presente trabajo tiene por objeto analizar y explicar la transformación de la participación ciudadana y el gobierno abierto a partir del uso de las nuevas tecnologías de la información y la comunicación, como la Inteligencia Artificial (IA). Para ello, se emplea un enfoque cualitativo-documental, basado en la revisión de bibliografía especializada y datos estadísticos. Se concluye que el uso de la IA en el ámbito gubernamental y en los procesos de participación ciudadana representa oportunidades potenciales, pero también implica desafíos y riesgos, ya que los cambios en estos campos continuarán de forma constante.

Palabras clave

Participación ciudadana, gobierno abierto, inteligencia artificial, era digital, vida cotidiana, ciudadanía digital, democracia, tecnología.

Introduction

Interest in Artificial Intelligence (AI), motivated by its wide range of possibilities, enables business, government entities, and citizens to draw parallels with the momentous revolution brought about by the internet and its penetration into everyday life, transforming the way human beings relate to each other. The objective of this paper is to analyze and explain how technology has transformed citizen participation and government in this digital age from the perspective of artificial intelligence (AI), paving the way for creating public spaces based on digital communities and opening up virtual spaces for citizen participation.

To achieve this objective, a critical review of the concept of Artificial Intelligence (definition, origins, evolution) is carried out to identify how it is present in the personal and private lives of citizens, based on some examples that are not intended to be exhaustive, but rather explanatory. This is followed by an analysis of the relationship between AI and big data based on its potential use in public administration as a prelude to the analysis of the application of AI in the context of open government and digital government.

Subsequently, open government is reviewed from an AI perspective, identifying potential uses and providing some examples, which allows us to establish the premise that there is a transformation in social and political relations (based on the internet and digital tools) and, therefore, in public administration. Thus, "open government" and "digital" or "electronic" government are intertwined and allow for further analysis of the technological, political, and social changes currently taking place. This is followed by a discussion of citizen participation and how it has changed with the use of digital tools and instruments. Some mechanisms and instruments related to the potential use of AI are reviewed, highlighting potential benefits but without ruling out risks.

Finally, an exhaustive analysis is made of the impact of AI on both government and citizen participation, noting its potential and opportunities for improvement, but also the risks and challenges it faces, making it necessary to establish a research basis to determine how to address them.

Methodology

This work uses a qualitative-documentary approach, aimed at analyzing and explaining the transformation of citizen participation and open govern-

ment in the digital age, with emphasis on the proposal and current potential of Artificial Intelligence (AI) in these areas. Thus, the qualitative approach[1] initially allowed for the analysis of the main conceptual attributes, dimensions, and elements of observation of citizen participation, open government, and artificial intelligence in the digital context.

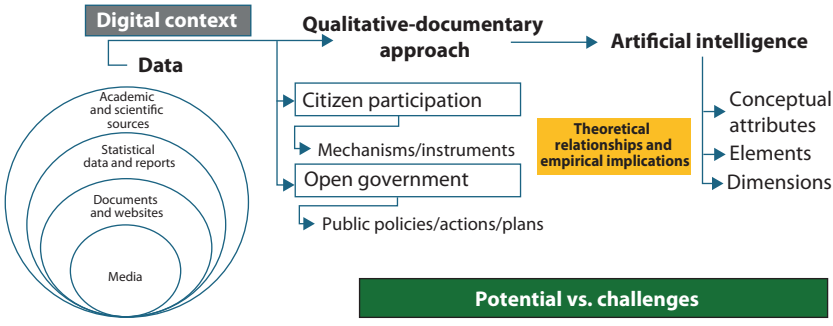
Rigorous consultation, collection, and exhaustive documentary and statistical review[2] made it possible to cover the proposed phenomenon, based on: a) *academic and scientific sources* (digital platforms of specialized and academic journals in order to obtain conceptual definitions, theoretical frameworks, and the state-of-the-art for the empirical observation of the concepts of Artificial Intelligence, Big Data, open government, and citizen participation); b) *Statistical data and reports* (used to interpret data in order to contextualize the discussion and support the analysis of trends and patterns related to the adoption and impact of digital technologies in the pursuit of citizen participation through open government in Mexico); c) *Official documents and websites* (such as official government websites, regulatory documents, and action plans in order to analyze the strategies implemented to promote citizen participation and identify possible challenges in the use of technology in government processes); and d) *Media* (relevant news items were examined to document AI and digital government).

Based on the documentation, the information collected and its processing, a thematic analysis of the conceptual sections was established, referring to the qualitative approach, which allowed for the identification and correlation of categories, dimensions, and trends between AI, open government, and citizen participation, as shown below (diagram 1):

1 This allows for "the social and spatial construction of reality in which the individual is immersed, and it does not exist if his/her mind and thinking do not 'apprehend' a situation, problem, or phenomenon of personal or community interest" (Bunge, 2002).

2 "... consists of reviewing bibliographic material on the object of study to perform an analysis of the selected content" (Corona, 2016), and although it has certain limitations inherent to its design and development, as it depends exclusively on secondary sources and existing data, it is a viable means of obtaining effective information on the implementation of Artificial Intelligence in citizen participation and open government programs in Mexico.

Diagram 1
AI in everyday life



The information obtained, systematized, and analyzed was organized and presented using descriptive statistics (tables, graphs) and data generated from that information to illustrate trends in the use of technologies, the adoption of open government principles, and the transformation of citizen participation and open government in the digital age. Finally, the findings were interpreted, connecting them with the theoretical/conceptual framework to answer the research question about the transformation of citizen participation and open government in Mexico in the digital age and its interaction with Artificial Intelligence; the potentialities and challenges.

Artificial Intelligence

The incorporation of artificial intelligence (hereinafter AI) into modern societies has led to significant changes in the way citizens relate to each other and to the state. These changes can be analyzed from a social-political-administrative dimension (social sciences) and from a scientific and technological development perspective (from Artificial Intelligence (AI)). According to Olivé, "the promotion of sociocultural networks of innovation" must be satisfied in order to form knowledge societies in Mexico. With this, there will be "a profound transformation of educational and cultural policies to promote the capacities for social appropriation of science and technology" (2014, p. 7). This arduous process requires individual and collective commitment; hence, it is necessary to study it from the perspective of the social sciences.

Thus, Petrone (2023) defines AI as "the combination of algorithms designed for the purpose of creating systems that replicate the same capabilities as humans" (p. 407) and classifies it into: a) systems that think like humans; b) systems that act like humans; c) systems that think rationally; and d) systems that act rationally. Currently, there is no artificial intelligence that contains these four characteristics.

The concept of AI has also been studied by López de Mántaras and Mesenguer (2017), who highlight: a) "the ultimate goal of AI (is) to enable a machine to have general intelligence similar to that of humans" (p. 7); b) intelligence is not a unique characteristic or attribute of human beings; other forms of intelligence have been described in animals, as they have been seen to be capable of planning, anticipating the consequences of their actions, and even using tools; c) it is more appropriate to speak of intelligences in the plural than of intelligence in the singular; d) AI corresponds to a different type of intelligence where human beings are the main reference point. In this regard, these authors provide two definitions (two visions) of AI: one weak and one strong.

On the other hand, AI is understood as "the science and engineering that allows computers to be designed and programmed to perform tasks that require intelligence" (e.g., Amazon's Alexa), or also as "the science and engineering that will allow human intelligence to be replicated by machines" (López de Mántaras and Mesenguer, 2017, p. 8), consisting of General AI (GAI) and Super Artificial Intelligence (SAI). In the latter, both (GAI and SAI) constitute a theoretical model where AI would have intelligence similar to or even superior to that of humans (BBC, 2023).

This topic has been little studied by the social sciences compared to other sciences. Cortés (2019) points out that "the social sciences have done little to anticipate the imminent arrival of artificial intelligence as a social actor, as an entity that makes decisions" (p. 3) and states that "no matter how AI is categorized or classified— as an object or a conscious being—today it controls global economic operations, weather forecasts, and countless everyday tasks" (Cortés, 2019, p. 3).

In political science and public administration, the issue has been studied from the perspective of open government and digital government. The former is a public management paradigm that seeks to change the relationships between government, citizens, and the private sector in order to develop quality democracies through the modernization of public administration. In open

government, technological development is not an end in itself, but it is a very important tool. In contrast, from the perspective of digital government (e-Government, e-gov*),* the digital modernization of public administration, the use of AI, and its presence in citizen services through chatbots are essential requirements. These are benchmarks that allow us to understand the uses and applications of AI in people's lives.

Origins and evolution of AI in everyday life

There are some scientific advances that may not seem directly related to the development of AI, but without them it would not have been possible to develop "methods and algorithms that allow computers to behave intelligently" (Nebrija, n.d., p. 6). An important reference point is Alan Turing,[3] a British mathematician considered to be the father of computer science and the first to design a computer program to play chess. His work forms the basis of what is now called developmental robotics. He believed that a machine should resemble the mind of a child and teach it autonomous learning so that it could later resemble the mind of an adult (López de Mántaras and Meseguer, 2017), which is why his work falls within the vision of Strong Artificial Intelligence.

A year after the death of Alan Turing (1912-1954), work related to artificial intelligence began to appear in various academic and scientific activities: in 1955, the topics revolved mainly around autonomous learning, pattern recognition, and *satisficing solutions.* In 1956, a six-week meeting was held with the aim of generating major advances in understanding and language for artificial intelligence; in the 1990s, *Cyberpunk* culture and other subgenres of science fiction exploited the idea of futuristic and dystopian universes as a consequence of the irresponsible development of artificial intelligence and, although in recent years its application in the real world still felt vague or distant, it is a fact that artificial intelligence now accompanies the daily activities of individuals, companies, citizens, communities, and governments (López de Mántaras and Meseguer, 2017).

3 Best known for Enigma, a machine used during World War II to decipher encrypted messages from German enemies; other important contributions include the Turing machine and the Turing Test.

The importance of understanding how AI has transformed dynamics lies in having an up-to-date overview, not only of the benefits, but also of the implications and risks associated with its incorporation into our personal, social, and political lives.

Some of its first clear applications were so discreet that many people are unaware of how long they have been living with AI (see Table 1). We find it in virtual assistants, social networks, *streaming* platforms*,* online shopping, machine translation, facial recognition, navigation and maps, health and wellness (e.g., smart watches that take biometric data to make predictions), video surveillance, among many others.

Table 1
AI in everyday life

Where do I use it?	What is AI used for?	Some examples
Virtual assistants	They use AI for voice recognition, translating commands, and responding.	Alexa (Amazon), Siri (Apple), Google Assistant (Google).
Social media	AI is especially useful for analyzing content consumption algorithms and displaying recommendations based on user preferences.	Instagram, Facebook, TikTok, Pinterest, X.
Streaming platforms	It makes recommendations for movies, series, or music based on previous consumption information.	Netflix, Spotify, Disney+, HBO.
Online shopping	Platforms or apps analyze interactions on their pages to recommend products similar to those the user has previously viewed and purchased.	Amazon, Mercado Libre, Shein, Temu.
Facial recognition	Smartphones use AI to recognize facial patterns and unlock the device, and also banking apps.	Smartphone, BBVA, Mercado Pago.
Navigation and Maps	Some apps collect user information to make traffic predictions and generate alternative routes.	Waze, Google Maps.

As can be seen in Table 1, most platforms use AI based on behavior pattern detection to recommend content, products, or services related to users' consumption patterns. It is particularly useful for companies to have this data

and convert it into information because it allows them to make decisions and create new products and services based on demand.

On the other hand, governments and public administrations may find it interesting and useful for detecting social problems and designing effective public policies that reduce costs and maximize benefits, while considering AI as "a technology that allows computers to simulate human intelligence and abilities (...) Among its everyday applications (...) are digital assistants, GPS navigation, autonomous vehicles, and generative artificial intelligence tools, etc." (Bravo, 2024), influencing people's lives, their dynamics, and their relationships with the government.

As a result, the exponential use of the internet[4] (social networks, government platforms, online shopping) has generated interactions between users and platforms that translate into billions of pieces of data generated every day, which must be cleaned and analyzed in order to make decisions (*big data*). AI constantly requires data input to continue learning and stay up to date.

In short, the development of AI has a significant impact on the dynamics that result from various interaction processes. Although there are ethical concerns about the massive handling of data, algorithmic bias, or the lack of transparency of AI systems, the truth is that its impact on society suggests areas for improvement and ways to efficiently utilize human potential in the various activities carried out on a daily basis.

AI and Big Data

To determine this relationship, it is first necessary to understand the concept of *big data*. Gil (2016) defines it as "the set of technologies that allow massive amounts (of data) from disparate sources to be processed with the aim of giving them a utility that provides value" (p. 15); i.e., massive data with pronounced characteristics, which are: a) large amount of data or its volume; b) variety of sources from which it comes; c) high speed with which it is generated; d) the social or public value it can generate; and e) its veracity (Castillo, 2021). This is possible due to its continuous use on different

4 During the health emergency caused by the Covid-19 pandemic on March 2, 2020, and the mortality of this virus, confinement measures were imposed, transferring all types of face-to-face activities to digital platforms, while interactions via the internet intensified and diversified, changing relationships in all aspects.

platforms such as websites, applications, social networks, smartphones, etc., and the increase in the amount of information stored daily (Martínez, 2009).

Through the internet, each interaction generates large amounts of data and information[5] (services, purchases, sales, social networks and reactions, entertainment, requests for information from the government, etc.) that are organized, processed, and applied using algorithmic formulations. Thus, *big data* "is not a technology in itself, but rather a working approach to obtaining value and benefits as a result of processing large volumes of data" generated daily (Gil, 2016, p. 17), which has an impact on people's social and political lives. For example, in the political-electoral sphere, it is particularly useful (e.g., in the election campaigns of Obama in 2012, Modi in 2014, Trudeau in 2015, and Macron in 2017) for analyzing voter behavior in a prospective study (De la Garza Montemayor and Gómez Díaz de León, 2024).

Therefore, the imminent relationship between AI and Big Data lies in the interoperability of data and the tools used by people (in their various activities[6]), and this is where big data seeks to establish patterns and causal relationships. "What is not expressly prohibited is permitted (...) as there is no regulation on the matter; it is understood that data sources, processing, and purposes (...) in the digital age are, in principle, permitted and without limitation" (Newman and Angel, 2019). In this sense, the relationship between big data and artificial intelligence is (to a certain extent) one of codependence. On the one hand, AI needs to receive data constantly in order to learn and improve the processes that allow it to analyze data and convert it into information. On the other hand, big data uses AI to establish causal relationships more quickly and accurately.

In this regard, Martínez (2009) states that AI works with two main elements: a) *computing power* (computer systems, machines, and storage memories) and b) big data (large volumes of data produced by different sources that can be structured or processed with different tools). It is worth mentioning the existence of this ethical conflict[7] in view of the variation in social dynamics resulting from the incorporation of technologies. Therefore, the following section reviews how these have influenced government dynamics.

5 This data is owned by the platforms (whether private sector or government).
6 The use of these technologies and the privacy of personal data are debatable.
7 For more information, see Gil (2016).

Although its use can bring benefits in decision-making, an inadequate interpretation can lead to wrong conclusions. When analyzing a large amount of data, it can show what is known as random error or confusion error (Gil, 2016), so human intervention is still important in selecting the variables to be analyzed. *Big data* processing uses data mining,[8] algorithms, and artificial intelligence.

AI and Open Government

The use of AI has changed paradigms, dynamics, and ways of interacting in people's daily lives, thus influencing ways of governing. Its possible implementation in government to carry out its functions is controversial. The debate focuses, on the one hand, on the opportunities to improve the lives of citizens, politics, and the economy and, on the other hand, on its inappropriate use. Therefore, the use of AI in government has advantages and disadvantages.

Meanwhile, a government that facilitates the relationship between the governed and the governing in a transparent, coordinated, efficient, accessible, ethical, etc. manner (open government) through technological and information tools to provide its services more effectively and efficiently, and with "accessible websites, with practical menus systematically organized by sectors that facilitate communication between the governed and their government through these platforms" (Guadarrama, 2025, p. 119). In other words, e-government—also called "digital government"—is one that makes strategic use of ICT to improve its public management. In addition, "open government" is understood as one that "seeks a paradigm shift and a restructuring of the relationships between civil society, government, and the private sector (...) e-government is simply and purely the introduction of technology into government processes" (Macías and Baca, 2022, p. 56).

The use of AI has generated diverse opinions regarding its incorporation, with several countries opting for its implementation. Some examples are: the United States (government policy to leverage AI and mitigate its risks based on EO), China (investing in the development of AI tools and laws for its citizens to use generative tools such as ChatGPT), the United

8 "The process of secondary analysis of large databases with the aim of finding unexpected relationships that are interesting or add value to the database owner" (Hand, 1998 in Aluja, 2001, p. 480).

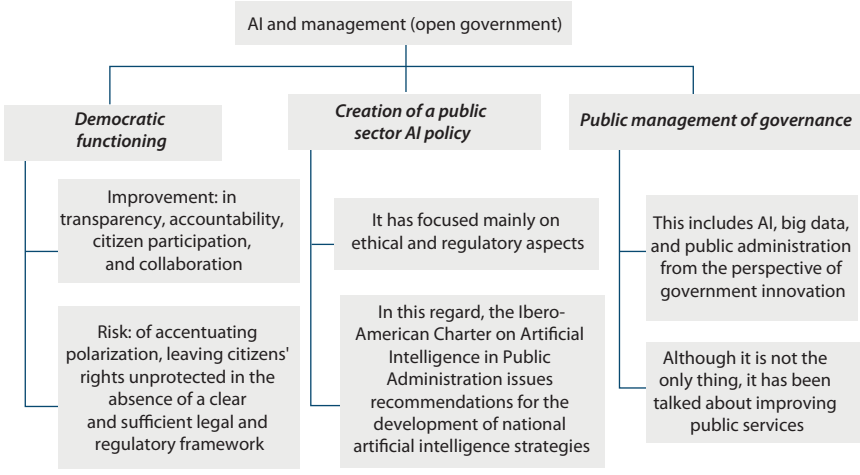
Kingdom (investing in research and development seeking to expand AI to various industries and regions), the European Union (creation of a Coordinated Plan on AI and proposal for regulatory infrastructure), India (use of AI for social welfare), and Brazil (multimillion-dollar campaign investing in AI technologies of its own origin to reduce external dependencies) (Downie and O'Brien, 2024).

Therefore, the use of AI has not been limited to the private lives of citizens or businesses but has found a place in government and state policy. De La Garza (2024) highlights three fundamental impacts of AI and big data on government operations, which can be seen below (Table 1):

In order to conduct an in-depth analysis of what these changes mean for public administration, it is necessary to refer to the open government paradigm, because it is through this paradigm that they take on meaning and direction. Every society needs a kind of compass to set the course it wants to follow. Although open government emerged strongly in 2011,[9] its principles currently guide dozens of national governments and hundreds of subnational governments. This provides a framework for action toward which governments must—or can—move. It is not a matter of using digital tools, AI, or big data just because they are novel; it is a matter of having a purpose that can aid decision-making processes, i.e., analyzing large amounts of data efficiently in order to provide sufficient information for informed decision-making. In this regard, Benoit (2024) states that "with the growing availability of large data sets and more sophisticated AI tools, public policies now have an even greater capacity to be data-driven, predictive, and responsive" (p. 2).

9 The term was first mentioned in 1957 in an article that did not elaborate on its meaning. It was not until 2009 that Barack Obama, in his presentation of his entourage, established its scope. Two years later, the United States, Brazil, Mexico, Indonesia, Norway, the Philippines, South Africa, and the United Kingdom founded the Open Government Partnership, an international initiative that aims to improve the quality of public management and democracy through the implementation of public policies that promote transparency, participation, collaboration, accountability, and innovation (Mariñez Navarro and Valenzuela Mendoza, 2013).

Diagram 2
AI and public management



In other words, there has been substantial progress in government dynamics since the incorporation of technologies, which can be reflected in various actions taken by the government to facilitate interaction and service delivery to citizens. Its potential is already being explored in some countries, such as Estonia,[10] where the scope of AI in issues of democracy, participation, and collaboration is already being reviewed.

In the case of Mexico, AI has been used mainly by the government to provide better citizen services and streamline procedures and services. As can be seen in Table 2, AI is being used in the public policy process by enabling the analysis of large amounts of data in much less time, and is even used for public safety, for example, by tracking license plates reported as stolen or analyzing suspicious activities. It can even be a great ally in detecting fraud and thus preventing acts of corruption. Its application is immense, and new uses are still being discovered.

10 This country is considered to have the most digitized government in the world, with approximately 99% of services available online. In addition, it is investing in technology and AI for the public sector (América Digital, 2024).

Table 2
AI in Government

What is it used for?	How is it used?	Some examples
Data analysis for public policy	Some governments have begun to use artificial intelligence-based tools to collect, organize, and analyze data essential for public policy-making (from design to evaluation).	During the COVID-19 pandemic, it was particularly useful for predicting the spread of infection, identifying hotspots, and allocating budgets or medical equipment.
Chatbots: citizen services	Some government websites have decided to use chatbots to answer frequently asked questions and thus streamline procedures.	***Chatbot Susana Distancia***, which was replaced by Dr. Armando Vaccuno, was used in Mexico during the 2020 pandemic.
Anti-corruption	There is also potential for use in detecting irregularities in taxation or public procurement.	The ***Federal Court of Accounts*** (TCU-Brazil) (TCU, 2024)
Open Government	Although its use is quite widespread across all converging topics, one example is the processing of open data to identify social problems or generate visually appealing products that are easy for citizens to understand.	***MyGoc*** is an initiative of the Indian government used to analyze citizen interactions and identify priority issues through AI algorithms (Malik et al., 2020).
Smart planning	Geospatial and demographic data can be processed using AI for better urban planning.	***Identification of aquifers*** by the Center for Scientific Research and Higher Education in Ensenada (CIDE, 2025c).
Public safety	In this case, AI is used to analyze and prevent violence against women based on data from the Mujer Segura (Safe Woman) platform.	***Mujer Segura,*** National Technological Institute of Mexico (CIDE, 2025d)
Cybersecurity	Monitors devices and connectivity on networks to measure and control access and behavior in order to make decisions based on the criticality level of the incident.	***Anígena*** of the Government of the State of Sinaloa (CIDE, 2025a)
Citizen participation	The activation of citizen participation mechanisms through digital platforms can generate a large amount of data that must be classified and analyzed. AI is useful for data analysis.	***Esperanza,*** Guanajuato (CIDE, 2025b)

Thus, in a country with a so-called "Digital Policy" (national and state) as a technological tool that streamlines administrative functions, transparency, and citizen participation (Guadarrama, 2025), the National Digital Strate-

gy of the National Development Plan (2018-2024) was established with the aim of improving the use of ICTs to make government services and functions provided to citizens more transparent, guarantee internet coverage (reducing inequality and marginalization in more remote areas). The line of action was to provide "digital government, connectivity, digital inclusion, free software, open standards, digitization of procedures, interoperable systems and infrastructure, and information security" (DOF, 2021). The following section will explore the change that AI has brought about in citizen participation and its potential, as well as its risks and benefits.

Citizen participation in the digital age

According to Cortés (2019), the evolution of citizen participation is visible, for example, if analyzing the number of independent countries at the beginning of the 20th century and those that were part of the United Nations at the beginning of the 21st century, which correspond to 50 and almost 200 respectively. According to Colomer (2006), we must first briefly summarize the political change of the last century. In the last century, two global wars took place, accompanied by scientific and technological advances (Cortés, 2019).

Based on the advances observed, Cortés (2019) states that it is not unreasonable to think that AI will soon be able to make decisions in the field of political science, because it could better understand social and political problems and because—in theory—it could understand and observe everything at the same time, which would represent a new paradigm, i.e., it requires an interdisciplinary approach and a more in-depth analysis to assess its effects on contemporary democratic systems and the functioning of government.

Open government seems to guide democracies in the search for better public management processes, political-electoral processes, and decision-making processes in a context surrounded by technology. Technological tools are used to reach more citizens and create spaces that foster this relationship between government and society. Therefore, in this context, the principle of participation (a mechanism of direct democracy in which society has direct influence on the state) (Rodríguez, 2015) must be worked on to achieve an active citizenry that is interested in the problems of its environment and willing to contribute its knowledge and alternative solutions, implement them,

and co-create a functional and strong[11] y democracy in which citizens are effectively relevant actors in the political system.

For Rodríguez (2015), citizen participation only materializes if there is respect for individual guarantees, institutional channels, adequate legal frameworks, access to timely information, and citizen trust in democratic institutions. Citizens must feel that they are relevant actors whose participation is decisive in guiding decisions that concern and affect society. To illustrate this, below is a series of examples (Table 3) of these mechanisms (and their potential exercise through digital platforms).

Table 3

AI and citizen participation

Mechanisms and instruments for citizen participation	Level of involvement	Artificial intelligence (potential for use)
Citizen assemblies	5	
Participatory budgeting	7-8	
Surveys and consultations	4	Responses can be processed to identify patterns and trends, and questionnaires can be customized according to the target groups.
Public forums	5	It can be used to automatically summarize key points and even be used for inclusion purposes by translating or generating subtitles.
Citizen jury	5	It can be used to generate relevant summaries of large databases in a format that is accessible and appealing to citizens to facilitate informed deliberation. It can also be used for certain topics to generate and visualize predictive (environmental) models.
Deliberative panels	7-8	Virtual assistants can be incorporated to quickly access relevant data or information.
Citizen focus groups	3-4	
Popular initiative	7-8	Can provide data, statistics, and relevant information for decision-making.
Referendum	7-8	AI can be used to provide information to citizens so that they have a better understanding of the issues before commenting or voting.
Plebiscite	6-7	

11 In this regard, it is "necessary for democracy to survive as a way of life and for citizens to feel entitled to participate in the affairs not only of their community but also at the international level, through the expansion of citizen participation as a prelude to global citizenship becoming the democratic platform of the future" (Ordóñez and Martínez, 2024, p. 245).

The above shows that citizen participation was previously limited by various political, social, economic, and geographical factors[12] and that, with the advent of technology, specifically the internet, some barriers have been overcome. However, although the global internet access rate in February 2025 was 67.9% (Statista, 2025), not everyone has universal access to the internet and new technologies. Nevertheless, this progress facilitates interpersonal, institutional, and political communication.

Digital platforms, and especially social networks, have changed social dynamics by migrating many everyday activities from private life to the internet (communication, education, shopping). In this sense, Rabotnikof (2000) was able to clearly illustrate and distinguish between the public and the private. Social media blurs this line to such an extent that a new boundary must now be sought between what falls within the remit of the state and what does not. In this regard, Revel (2022) states that social media "act as private service providers with specific objectives: sharing content (Facebook), creating public conversations (Twitter), building community with the public (Instagram), and so on" (p. 8).

The use of social media by citizens is a result of access to the internet and devices with internet connectivity, as these are tools that facilitate communication between users (who may be citizens or government officials). According to DataReportal (2024), there are around 90 million active social media users in Mexico, an increase of 6.5 million people compared to the previous year. The main device they use to access their networks is the cell phone, and people connect for an average of 7 hours and 37 minutes, of which 3 hours and 14 minutes The most popular social networks "continue to be Facebook (93% of social network users said they access it at least once a month), WhatsApp (92%), Instagram (80%), Facebook Messenger (79%), TikTok (76%), and Twitter, now X, (53%)" (DataReportal, 2024).

This exposes the social dimension of internet and social media users and is potentially a tool that can serve as a means of interaction between the governed and the governing, thereby contributing to democracy. However, its use must be carried out with shared responsibility, and there must be awareness of the possibilities given the amount of information available on the

12 Lack of political will to open spaces for participation, inaccessibility to timely public information, scarce public resources, limited media, and other factors such as the educational or socioeconomic level of citizens.

internet. In this regard, Ravel (2022) "makes us reflect on the need to build mechanisms to strengthen democratic values through civic education strategies in relation to social media, since the characteristics that the author describes as universal are a reflection of the lack of a media culture and citizen responsibility" (pp. 10-11).

Thus, citizen participation in the digital age has been permeated by individual and collective decisions in the use of digital tools, creating digital communities.[13] These often influence the political system, since "information and communication technologies have been involved in social life and its political, economic, social, educational, cultural, and religious manifestations" (Fajardo and Serrano, 2022, p. 17).

With the advent of the internet and social media in people's lives, digital communities began to be created in order to exert pressure on political and social issues,[14] such as the #YoSoy132 movement or the #metoo feminist movement (social demands, injustices, problems). In both cases, citizens appropriated virtual spaces (neither traditional nor occupying physical spaces) and redefined the concept of citizenship. In recent years, they have been used extensively by hacktivists (e.g., Anonymous), search groups for missing people (e.g., Madres y familias buscadoras in Mexico), social movements (e.g., the feminist movement that used #VivasNosQueremos), or in general by groups dedicated to raising awareness (e.g., Article 19).

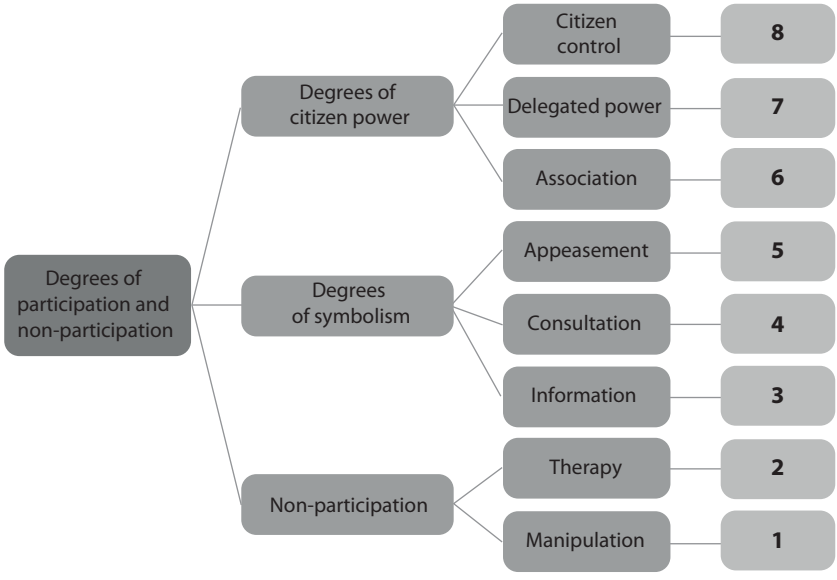
This can be contrasted with Arnstein's Ladder[15] (Figure 3), which states that in most cases where the government has strived to move from traditional public administration to open and digital government, participation is limited to symbolic levels of citizen participation and, at best, informed and consulted.

13 A community is made up of individuals who share cultural characteristics, interests, objectives, needs, and problems; communities create a sense of identity and are often heterogeneous, or aspects of "action, practice, place, interest, or circumstance" (Richard, 2010).

14 By getting information from official websites, they comment, give their opinions, express themselves, and discuss, all from home using an electronic device with internet access.

15 Arnstein (1969) developed a simple framework to explain the level of citizen involvement in significant state processes.

Diagram 3
Arnstein Ladder



Source: Arnstein (1969).

The explanation for the above diagram is that in the first three levels there is no real participation; levels 1 and 2 are dangerous because, in his words, they were created with the intention of making citizens think that they are effectively participating, but they do not influence or make decisions. The following levels correspond to information and consultation, in which citizens have access to information and can express opinions, but their influence on decisions is neither guaranteed nor binding. At the appeasement level, there is a greater presence of citizens and broad sectors that were previously relegated, but decision-makers retain the final say. On the other hand, at the partnership level, power is redistributed among social actors in such a way that they can negotiate (Arnstein, 1969).

Finally, levels 7 and 8, corresponding to delegated power and citizen control, are the highest levels of participation, where decisions made by citizens are binding (Arnstein, 1969). These are the desired levels in an open government scheme and are the most difficult to achieve. If analyzed carefully, the ladder re-

presents the process of participation: citizens have the right to be informed, consulted, and, ultimately, to take part. In this regard, Serrano (2015) states that "it does not matter whether it is a direct, representative, deliberative, or participatory democracy; any of these requires the participation of the people" (pp. 94-95).

We can also cite the spectrum of public participation (iap2, 2025), which corresponds to informing, consulting, involving, collaborating, and ultimately giving decision-making power. The former model analyzes participation based on the relationship between citizens and power, while the latter does so by excluding non-participation as a viable form of participation.

Impact of AI on PA and GA: results

Although, in general, information on citizen participation (non-electoral) is outdated, there is some data that, taken together, sheds some light on Mexico's current situation regarding the transformation of citizen participation with the introduction of new technologies. According to the National Survey on Government Quality and Impact (INEGI, 2023), the percentage of the population aged 18 and over with at least one interaction with the government via the internet is 47.9%. The main interactions are: procedures, payments, consultations, and requests for information (INEGI, 2020). In terms of the adoption of e-government, the internet has facilitated communication between government officials and citizens. Procedures such as service payments (22.9%) and filling out or submitting forms (25.5%) are the most frequent, and the observed benefits are time savings and efficiency in services (Plan Nacional de Desarrollo, 2025).

The implementation of digital tools in government dynamics will continue to change the traditional form of citizen participation and governance. Traditional spaces will find a place on the internet, as long as citizens, politicians, public servants, companies, and citizens can recognize the potential of technologies without neglecting their dangers. Therefore, it should be noted that, despite these advances and potentialities (or opportunities detected), there are still significant challenges for the country in terms of the continuation and consolidation of e-government, as there is currently no unified digital identity, full internet coverage, connectivity in various spaces, infrastructure, or a legal framework, which highlights the fragmentation of information in any attempt to migrate to digital and virtual platforms. Therefore, at present, the use of technologies for the benefit of citizens and the improvement of public policy design using analytical tools such as AI (Plan Nacional de

Desarrollo, 2025) can be implemented gradually without overlooking the challenges and risks identified (Table 4).

Table 4
Potential, challenges, and risks of technology in Mexico

	AI			
	Actor	**Opportunities/Potential**	**Challenges**	**Risks**
DEMOCRACY	Government	• Automated transparency of public data • Detection of corruption and fraud • Accountability • Predictive government • Data-driven decision-making	• Infrastructure • Internet access • Inclusion • Ethical-cultural conditions	• Algorithm • Vulnerability • Technological dependence
	Open/ electronic government	• Digitization of all public agencies	• Limited public resources • Resistance of public servants to updating their technological skills	• Cyberattacks • Dependence on technology
		• Use of big data for decision-making	• Information must be transformed and comply with open data requirements	• Cyberattacks, information theft, improper data handling
		• Diversification of AI use	• There is still no infrastructure capable of supporting change	• Environmental risk due to the overuse of AI • Algorithm bias (AI learns from the data it is fed)
		• Digital literacy	• Limited economic and human resources	• If the population is not educated in the responsible use of technology (digital citizenship), they may become victims or perpetrators
	Citizenship	• Procedures and services • Social networks (communication with government officials) • Streaming • Virtual assistants and chatbots • Voting/balloting/referendums	• Infrastructure • Internet access • Inclusion • Ethical-cultural conditions.	• Data management Misinformation • Fake news • Algorithmic biases • Privacy • Digital exclusion

With this, the National Development Plan (2025-2030) outlines the Mexican State's physical, technological, and human capacities at its three levels of government to optimize and simplify its procedures and services, with digitization that not only implies an improvement but also significant savings in resources and time; "digital sovereignty," which seeks to unify technological capabilities through coordination and interoperability.

In addition, there are currently actions such as those carried out by the Center for Economic Research and Teaching (CIDE), which seek to build a national registry of Artificial Intelligence algorithms in order to identify the AI tools currently used by the Mexican government. In its review of the CIDE Algorithms platform, it shows that of the 107 projects currently part of this repository, 12 belong to citizen service chatbots, 10 are used to streamline administrative tasks, 36 are also mostly chatbots but are tasked with informing citizens, and another 29 projects fall into the program operation category (mainly used in the health sector). The rest are intended to reduce administrative burdens and influence issues of peace, justice, and strong institutions, among others. Few programs are not based on chatbots, which means there is still much to be done to diversify the use of artificial intelligence.

With this in mind, AI opens up new possibilities for public administration, ranging from the automation of activities such as providing information on procedures and services, organizing data, and operating programs, among others. This allows for a focus on other activities that have been neglected for years, for example: the creation of new spaces for citizen participation and its promotion.

Final considerations

The incorporation of technologies into people's lives not only impacts their daily lives but is also immersed in the way of governing. Therefore, reviewing citizen participation and open government in the digital age based on available documentary information allows us to understand and explain its transformation process and, with it, to understand its benefits in the functions of the state and public administration.

From a political and social perspective, analyzing the behavior of AI in the public sphere as a governing or governed entity is essential to understanding how these tools are being adapted by people, and thus to understanding

the convergence of Big Data and AI in the governmental sphere not only as a matter of technological modernization, but also as a profound reconfiguration that redefines the dynamics of power and its relationship with society and democratic mechanisms.

The imminent relationship between citizens and open government is permeated by digital tools (social networks, internet access, and the use of AI), which shape and transform (positively and negatively) the way they interact. Hence, it can be said that citizen participation is enhanced by digital communities and (virtual) interaction between people, promoting the exchange of information and opinions (which is good for democracy). However, they can also present challenges related to misinformation, polarization, and the digital divide, which require constant attention and care.

Open government in the age of AI can be used to build more efficient, transparent, participatory, and fair governments in the digital age, helping to strengthen the connection between citizens and a truly open and digital government.

In both cases, understanding its benefits in order to understand the transformation allows us to establish a basis for building possible future scenarios. Identifying risks will be decisive in determining its use for both the governed and the rulers. Therefore, empirical data must subsequently be contrasted with scales such as Arnestein's in order to avoid falling into simulated citizen participation or artificial government and thus make the best ethical use of these tools.

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