

**LATAM Revista Latinoamericana de Ciencias
Sociales y Humanidades, Asunción, Paraguay.**

ISSN en línea: 2789-3855, 2025, Volumen VI

**Artificial intelligence in the public sector: a study of the
evolution of the academic literature**

La inteligencia artificial en el sector público: un estudio de la
evolución de la literatura académica

Víctor Hugo García Benítez

victor.garcia@academicos.udg.mx
<https://orcid.org/0000-0002-6949-6900>
Universidad de Guadalajara
Guadalajara – México

Edgar Ruvalcaba Gómez

edgar.ruvalcaba@csh.udg.mx
<https://orcid.org/0000-0003-0999-0680>
Universidad de Guadalajara,
Departamento de Políticas Públicas,
Instituto de Investigaciones en Innovación
y Gobernanza
Guadalajara – México

Ángel Adrián Ayala González

angeladrian.ayala@academicos.udg.mx
<https://orcid.org/0000-0003-4329-825X>
Universidad de Guadalajara,
Departamento de Innovación Social
Guadalajara – México

DOI: <https://doi.org/10.56712/latam.v6i5.4592>

Artículo recibido: 11 de junio de 2025

Aceptado para publicación: 29 de
septiembre de 2025.

Conflictos de Interés: Ninguno que declarar.


Redilat
Red de Investigadores
Latinoamericanos

NÚMERO

DOI: <https://doi.org/10.56712/latam.v6i5.4592>

Artificial intelligence in the public sector: a study of the evolution of the academic literature

La inteligencia artificial en el sector público: un estudio de la evolución de la literatura académica

Víctor Hugo García Benítez

victor.garcia@academicos.udg.mx
<https://orcid.org/0000-0002-6949-6900>
Universidad de Guadalajara
Guadalajara – México

Edgar Ruvalcaba Gómez

edgar.ruvalcaba@csh.udg.mx
<https://orcid.org/0000-0003-0999-0680>
Universidad de Guadalajara, Departamento de Políticas Públicas, Instituto de Investigaciones en Innovación y Gobernanza
Guadalajara – México

Ángel Adrián Ayala González

angeladrian.ayala@academicos.udg.mx
<https://orcid.org/0000-0003-4329-825X>
Universidad de Guadalajara, Departamento de Innovación Social
Guadalajara – México

Artículo recibido: 11 de junio de 2025. Aceptado para publicación: 29 de septiembre de 2025.
Conflictos de Interés: Ninguno que declarar.

Abstract

The technological and digital evolution of the public sector reinforces the idea of implementing new technologies to improve public management and the government decision-making process. Some governments, such as the United States, China, and the United Kingdom, are investing resources in the development and research of AI-based technologies. However, it is necessary to recognize the scientific and academic advances that analyze the development of AI in the public sector. Based on the above, the objective is to describe and analyze the development of AI in the public sector from the academic literature. This objective is based on the following research question: How has academic literature on artificial intelligence in the public sector evolved in its methodological, conceptual, and contextual dimensions between 2018 and 2022? To answer the question and meet the objective, an analytical strategy is used based on the systematic review of the literature and the establishment of dimensions, categories, variables, and indicators that allow classifying and analyzing the information of the 207 articles that were published between 2018 and 2022 in the academic journals that most publish works related to AI in the public sector. The results show that there is an interest by the academic community in analyzing the development of AI in the public sector worldwide. Derived from the gradual growth of research work in this area. Another aspect to highlight is the number of countries that are analyzing the phenomenon of AI in the public sector.

Keywords: artificial intelligence, public sector, systematic literature review, public policy, academic literature

Resumen

La evolución tecnológica y digital del sector público refuerza la idea de implementar nuevas tecnologías para mejorar la gestión pública y el proceso de toma de decisiones gubernamentales. Algunos gobiernos, como los de Estados Unidos, China y el Reino Unido, están invirtiendo recursos en el desarrollo y la investigación de tecnologías basadas en la IA. Sin embargo, es necesario reconocer los avances científicos y académicos que analizan el desarrollo de la IA en el sector público. En base a lo anterior, el objetivo es describir y analizar el desarrollo de la IA en el sector público a partir de la literatura académica. Este objetivo se basa en la siguiente pregunta de investigación: ¿Cómo ha evolucionado la literatura académica sobre la inteligencia artificial en el sector público en sus dimensiones metodológicas, conceptuales y contextuales entre 2018 y 2022? Para responder a la pregunta y cumplir con el objetivo, se utiliza una estrategia analítica basada en la revisión sistemática de la literatura y el establecimiento de dimensiones, categorías, variables e indicadores que permiten clasificar y analizar la información de los 207 artículos que se publicaron entre 2018 y 2022 en las revistas académicas que más publican trabajos relacionados con la IA en el sector público. Los resultados muestran que existe un interés por parte de la comunidad académica en analizar el desarrollo de la IA en el sector público a nivel mundial. Esto se deriva del crecimiento gradual de los trabajos de investigación en esta área. Otro aspecto a destacar es el número de países que están analizando el fenómeno de la IA en el sector público.

Palabras clave: inteligencia artificial, sector público, revisión sistemática de la literatura, políticas públicas, literatura académica

Todo el contenido de LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades, publicado en este sitio está disponibles bajo Licencia Creative Commons.



Cómo citar: García Benítez, V. H., Ruvalcaba Gómez, E., & Ayala González, Ángel A. (2025). Artificial intelligence in the public sector: a study of the evolution of the academic literature. *LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades* 6 (5), 125 – 155.
<https://doi.org/10.56712/latam.v6i5.4592>

INTRODUCTION

Artificial intelligence (AI) is a dynamic and rapidly evolving field that seeks to create computer systems capable of performing tasks traditionally associated with human intelligence, such as reasoning, learning, and problem-solving. While a precise definition remains elusive due to the field's constant advancement, AI essentially aims to endow machines with human-like cognitive abilities (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2022). According to the Organisation for Economic Co-operation and Development (OECD) (2024), AI is a machine-based system that utilizes data to generate outputs, such as predictions, content, or decisions, with the aim of achieving specific objectives. These systems can range from simple to complex, varying in their ability to operate independently and adapt to new information after deployment.

AI encompasses a broad range of computer systems designed to perform tasks that typically require human intelligence. These systems, often involving a combination of software and hardware, interact with their environment by perceiving data, processing information, and making decisions to achieve specific goals. Key AI techniques include machine learning (such as deep learning and reinforcement learning), which enables systems to learn from data, and machine reasoning, which involves planning, problem-solving, and knowledge representation. Robotics, which integrates AI with physical systems, is another crucial area of AI research (European Commission, 2019). This technological development has the ability to learn to adapt to changing environments and can engage in continuous and dynamic learning (Ahn & Chen, 2022).

AI plays an important role in current debates about information and communication technologies (ICTs) and new modes of governance (Bruneault & Laflamme, 2021). Politics and technology intertwine as a means to redesign the world. Technology not only expresses a political arrangement, but any form of government emerges only within a technical environment. In an advanced era in the development of new technologies, the dynamics of governance change perspectives on political geography, sovereignty, citizenship, and human rights with the integration of new technologies (Bratton, 2021; Hine, 2024).

In this sense, governments and society in general must participate in the development and implementation of AI-related regulations. Considering that the concept of government encompasses both the functions of governing – such as lawmaking, policy implementation, and service provision – and the institutions and individuals responsible for carrying out these functions (Dameri & Benevolo, 2016). Understanding that, through the development of public policies, the strategies and processes of adoption, implementation, and evaluation of AI public policies are established decision-making should focus on improving and securing AI applications. The development of AI must be linked to the legislation and regulation of governmental relations with society as well as with the companies that collect data and transfer that data to public institutions (Saura et al., 2022; Ruohonen & Mickelsson, 2023).

Currently, the digital transformation in government is reforming the idea of implementing technologies for autonomous decision-making in the public sector. In addition, governments are investing resources in the development of AI-based technologies for personalization and automation in the provision of public services (Filgueiras, 2021). The implementation of new technologies and AI projects aims to promote and improve the public value of the services provided by the public administration (Soe & Drechsler, 2018; Chen et al., 2021).

It is worth mentioning that the willingness to implement and use AI technologies in the government depends on the different perceptions, both positive and negative, that society has about the implementation of new technologies, where public opinion represents an essential element for making decisions about whether or not to implement AI applications (Ahn & Chen, 2022). However, the

increasing use of AI in government is creating numerous opportunities for governments around the world (Zuiderwijk et al., 2021).

The accelerated development of AI provides opportunities for governments to improve public services and strengthen their interaction with citizens. The continuous progress of AI technologies helps governments make constant adjustments to meet the increasing demands and expectations of citizens (Chen et al., 2021). Traditional ways of service delivery, policy making, and enforcement may change rapidly with the introduction of AI technologies into government practices and public sector ecosystems (Zuiderwijk et al., 2021).

AI in government can become a tool for data analysis and support decision-making by reinforcing existing good practices and providing additional evidence to protect them. Furthermore, these techniques could also uncover innovative approaches and produce new ideas for decision-makers in government (Valle-Cruz et al., 2022; Alba, 2024). AI systems occupy a central place in government as they modify systems and applications for the delivery of public services. AI systems expand the control and correction of government procedures. In addition to reducing public service costs, automating various institutional routines They also change the expectations of the governed about public services, expanding responsiveness and efficiency (Filgueiras, 2021).

The rapidly evolving field of artificial intelligence (AI) offers transformative opportunities for the public sector while posing intricate challenges. Academic research highlights AI's potential to revolutionize government operations, enhancing service delivery, improving decision-making, and fostering more inclusive and responsive governance. However, unlocking this potential demands a comprehensive and nuanced approach. Critical challenges include ensuring data quality and security, developing AI models that are explainable, transparent, and unbiased, and addressing the broader ethical and societal implications of AI implementation.

The academic study of AI in the public sector has evolved significantly, moving beyond initial explorations towards a more nuanced understanding of its potential and limitations. Research now encompasses a diverse range of applications, from predictive modeling of public service demand to the use of natural language processing for citizen engagement and the application of computer vision for urban planning. This interdisciplinary field draws upon insights from computer science, data science, ethics, law, and social sciences, highlighting the need for collaborative research that integrates diverse perspectives. Furthermore, the increasing emphasis on ethical considerations, such as fairness, accountability, and transparency, is crucial for ensuring that AI serves the public interest and avoids unintended consequences.

Based on the above, the following research question is posed: How has academic literature on artificial intelligence in the public sector evolved in its methodological, conceptual, and contextual dimensions between 2018 and 2022? Based on this question, the general objective of the research is to describe and analyze the development of AI in the public sector from the academic literature. Since, as noted in previous paragraphs, the development and research of AI in the public sector (mainly in public administration) highlight different AI applications and tools to solve social, economic, political, and cultural problems.

This research is divided into five sections: the first section includes the present introduction; the second section contemplates the study of AI in the public sector, identifying how it is being applied in the different sectors of society, the risks and challenges involved in the implementation of AI, and the alternatives or new ways of addressing the problems of society; the third section explains and details the methodological strategy to be carried out; the fourth section presents the results obtained from the systematic review of the literature; and the fifth section presents the conclusions of the research.

METHODOLOGY

The proposed methodology in this work is a systematic and analytical review of the literature based on answering the question: How has academic literature on artificial intelligence in the public sector evolved in its methodological, conceptual, and contextual dimensions between 2018 and 2022? And from this questioning, the objective of describing and analyzing the development of AI in the public sector from the academic literature is raised. To respond to and comply with the above, an analytical strategy is used with certain research techniques, as well as the establishment of dimensions, categories, variables, and indicators for the classification and analysis of information.

Various studies use the systematic review of the literature as a tool for data collection and analysis (Ruvalcaba-Gómez, 2018; Zuiderwijk et al., 2021; Dwivedi et al., 2021; Gomes et al., 2019; Valle-Cruz et al., 2020; Saura et al., 2022; Sharma et al., 2021; Serey et al., 2020). The process of systematic review of the literature entails developing the procedure to locate and analyze the information in the research works on AI in the public sector. Three steps are considered necessary to carry out the systematic review of the literature; in the next sections, the following steps are described: 1) identification and selection of research papers; 2) evaluation of the relevance and quality of the works; and 3) extraction and synthesis of data from research work.

Identification and selection of research papers

To carry out the systematic review of the literature and meet the specific objective, certain objectives are set that focus on specific areas and knowledge of our object of study. These objectives are:

- Obtain basic and contextual information about where the research topic is being analyzed.
- Extract the data on the methodology for the analysis of AI in the public sector.
- Obtain information on the concepts highlighted in the study of AI in the public sector.

Each of the objectives that are set out comprises an important aspect of the study of AI in the public sector, thus raising questions regarding the data to be obtained. These questions will allow for the identification of the elements and characteristics that respond to the questions and thereby meet all the objectives set. The specific questions are the following:

- Where is AI being explored in the public sector?
- How is AI being analyzed in the public sector?
- What are the concepts that stand out in the analysis of AI in the public sector?

For the identification of the works that allow us to meet the established objectives and allow us to respond to the questions raised, different sources of information are used. In this paper, three sources of information are used to identify scientific studies on the use of AI in the public sector: Web of Science, Scopus, and Science Direct. These databases together cover more than 5,000 publishers closely related to the subject under study (Zuiderwijk et al., 2021; Ruvalcaba-Gómez, 2018; Gomes et al., 2019).

For the selection of research papers, the search terms and the exclusion and inclusion criteria are defined. Using the search terms ("artificial intelligence" or "AI" or "intelligence systems" or "expert systems") AND ("governance" or "government" or "public sector" or "public policy"), The search results are limited to journal articles written in English and published between 2018 and 2022. For searches in the information sources, the results were also limited to journals with 10 or more published articles to identify the journals with the highest number of publications. our research topic.

The search terms and the exclusion and inclusion criteria in the databases were applied, and the result was as follows: 767 articles were found in total, of which 138 were located in the Science Direct

database, 210 in the Web of Science database, and 419 in the Scopus database. Then a comparison of the databases was made, and 267 duplicate articles were eliminated, so the total number of articles to be analyzed is 500.

Evaluation of the relevance and quality of research work

The evaluation of the relevance and quality of the research works consists in determining the importance and transcendence of the works identified in the information sources, since not all the works that were identified from the selection of the works in the three databases are in accordance with the criteria and guidelines for the analysis of AI in the public sector. For each of the 500 studies identified, the title and abstract were read to determine the relevance of the study using the following three criteria:

The use of AI in public governance should be central to the study. If the study did not address (at least in part) the use of AI in the context of public governance (or, synonymously, 'the public sector'), it was excluded at this stage.

This research exclusively focused on studies that explicitly examined the application of AI in the public sector. Studies that did not directly address how AI is being utilized or could be utilized by government agencies, public institutions, or in the delivery of public services were excluded from the analysis. This criterion ensured that the research remained narrowly focused on AI and its implications for public governance.

The use of AI must play an important or significant role in the study (its research questions, objectives, etc.). Studies in which the focus on the use of AI was minor or secondary were excluded at this stage.

This research focused exclusively on studies where the use of AI played an important or significant role. Studies that only superficially mentioned AI or where AI was not a primary focus of the research questions, objectives, or methodology were excluded. This criterion ensured that the analysis concentrated on research that deeply explored the implications and applications of AI in the public sector.

The implications of the use of AI in public governance should be discussed as the main topic.

To ensure a focused analysis, studies where AI was only mentioned superficially or in passing were excluded. For instance, articles that merely listed AI as one of several technologies or discussed it solely as an application without examining its specific implications for public governance, such as its ethical, social, or political consequences, did not meet the inclusion criteria.

To ensure that our research is relevant to study of AI in the public sector and public governance, we mainly focused on the disciplines of social sciences, public administration, political science, and management (Jankin et al., 2018; Maalla, 2021). This approach aimed to avoid the inclusion of highly technical articles from disciplines such as computer science or engineering, which may not directly address the core issues of AI in the public sector or public governance (Zuiderwijk et al., 2021). Based on the above criteria, 293 studies were removed and 207 remained. From these last works, the elements and characteristics that allow categorizing the information of the research works that allow us to answer the specific questions of the systematic review of the literature were identified. Next, the categories or variables that emerge from the questions raised are mentioned.

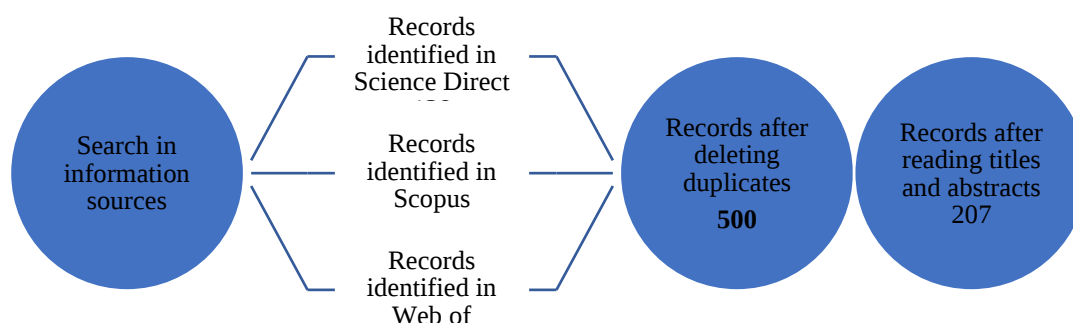
With respect to the first question, which deals with contextual questions of the investigation of how the study of AI in the public sector evolves and is geographically located, the following categories of analysis are identified: the evolution of the investigation of the object of study; the journals that are publishing the articles related to the research topic; the countries that are home to the institutions of

the scientists who analyze AI in the public sector; the level of government analyzed in the research papers; and the countries or geographic areas that are analyzed in the articles.

The second question is interested in methodological aspects of the investigation of how AI is being studied in the public sector; these aspects are considered categories of analysis: the design of the study, the research techniques used in the work, the methodological approach of the article, and the theories, models, and theoretical frameworks proposed by the research work. As for the third question, which focuses on conceptual aspects, the following categories of analysis are considered: In the academic literature, AI topics, public policy areas, and concepts are highlighted in the study of AI in the public sector (Zuiderwijk et al., 2021; Ruvalcaba-Gómez, 2018; Gomes et al., 2019).

Figure 1

Identification, selection and evaluation of research papers



Source: Own elaboration based on Zuiderwijk et al., 2021.

Extraction and synthesis of data from research work

The extraction and synthesis of information from the research work consists of reading the 207 articles on the study of AI in the public sector, identifying and extracting information on the variables and indicators of each of the dimensions that are proposed in the analytical strategy of the systematic review of the literature (see Table 1). To organize the information, a spreadsheet is used to record the data of each of the selected studies.

Table 1

Analytical strategy of the systematic review of the literature

Dimension	Variable	Indicator
Contextual	Evolution	2018 to 2022
	Journals	Number of publications
	Host countries of universities and institutions	Countries
	Government level	Local-Municipal
		Regional-State
		National-Federal
		Supranational
		More than one level

		No level
	Countries or geographic areas analyzed	Countries
Methodological	Study design	Normative
		Exploratory-Descriptive
		Explanatory-Correlational
		Meta-analysis
	Research techniques	Documentary analysis
		Survey
		Interview
		Case study
		Experiments
		Focus groups
		Delphi method
	Methodological approach	Qualitative
		Quantitative
		Mixed
		No methodological approach
	Theories, models and theoretical frameworks	Name of the theory, model or theoretical framework
Conceptual	Artificial intelligence theme	AI-based systems
		Machine learning
		Big data
		Smart cities
		Deep learning
		Robotics
		Internet of things
		Voice-controlled intelligent personal assistants
		Chatbot
		Autonomous vehicles
		Blockchain
	Public policy area	Governance and public policy
		Security
		Health
		Social development
		Administrative
		Technological
		Urban
		Economic
		Environmental
		Educational
		Mobility
		Agricultural
		Energy
	Featured concepts	Titles
		Keywords
		Abstracts

Source: Own elaboration based on Ruvalcaba-Gómez, 2018.

The contextual category allows us to understand the main elements for the study of AI in the public sector, considering the evolution and where the investigations are being carried out. The first aspect is the evolution of the literature; in this case, the progress of works in the period from 2018 to 2022 is

reviewed. The second aspect is the journals that are publishing on the object of study. The host countries of the universities and institutions consider the data of the institutions to which the scientists and academics of the literature belong. The level of government implies the scale of public administration, which can be local-municipal, regional-state, national-federal, and supranational. The last aspect that is considered is the country or geographical area that is analyzed in the investigation.

The methodological category allows for understanding the different strategies and tools used to study AI in the public sector. In such a way that the criterion of the study design implies the different theoretical perspectives with which the article is constructed, which can be normative, exploratory-descriptive, explanatory-correlational, and meta-analytic. The methodological approach is the way in which the data is analyzed, whether qualitative, quantitative, or mixed. Research techniques are the procedures and methods to collect and analyze information, which in this case are considered documentary analysis, surveys, interviews, case studies, experiments, focus groups, and the Delphi method. In the case of theories, models, or theoretical frameworks, it refers to the perspective of how to study AI in the public sector in this case.

The conceptual category contemplates the different concepts and characteristic elements of AI and public policies. The first element considers the AI themes that are analyzed in the research papers; the AI themes are AI-based systems, machine learning, big data, smart cities, deep learning, robotics, the internet of things, voice-controlled intelligent personal assistants, chatbots, autonomous vehicles, and blockchain. The second element is the public policy areas, which are classified as follows: governance and public policy; security; health; social development; administrative; technological; urban; economic; environmental; educational; mobility; agricultural; and energy. Finally, the salient concepts of the titles, keywords, and abstracts of the articles are considered.

DEVELOPMENT

Artificial intelligence in the public sector

The public sector should act as a driver of innovation (Nordström, 2021). The use of AI in public and government-related aspects has increased in recent years due to the transmission and popularization of AI techniques among professionals; however, the adoption of AI in the public sector is still scarce (Correa et al., 2020). The trend in the adoption of AI in the public sector is seen in the provision of public services in general (Gomes et al., 2019).

The use of AI in the public sector is applied in digital channels of communication between citizens and the government. To achieve a good performance of this communication platform, it is necessary to combine knowledge from the areas of chatbots, natural language processing, machine learning, and data mining technologies (Androutsopoulou et al., 2019). The implementation of AI in the public sector requires public trust; this means that it does not require the declared intentions or purposes of the system designer, but rather the government, to introduce and use a chatbot, for example. If society perceives that the government is using a chatbot with good and benevolent intentions, it will trust the technology that the government plans to introduce without much question. However, when there is no trust in the government, the adoption of AI applications can generate controversy and issues due to the implementation of these tools (Aoki, 2020).

AI applications and systems can be applied to endless areas and activities in the public sector. In the financial and economic aspects of a country, AI techniques produce scenarios that could help the allocation of public spending. This technological development has the potential to help decision makers in government, particularly in the preparation of public budgets (Valle-Cruz et al., 2022). The role that AI plays in the digital transformation of public administration is important and stands out for expanding the capabilities of public administration; it has the potential to transform the institutional performance

of public services and public policies by promoting a greater link between governments and citizens, anticipating demands, and automating routines. The adoption of AI systems means using technologies that are capable of learning to make decisions and solve problems (Filgueiras, 2021).

Ultimately, AI is being used to detect new social problems on which public policy makers can base new policies or assist in monitoring the implementation of existing policies; thus, AI is seen as transforming the making of public policies (Van Noordt & Misuraca, 2022). In the internal case of public administration, it is observed that government employees have a generally positive perception about the benefits and potential of AI technologies in government, with a high expectation that this technological development will improve the efficiency and quality of government work and will free employees from repetitive tasks (Ahn & Chen, 2022).

There is increasing use and implementation of AI in the government, either as a tool for the provision of services, for policy development, or as an improvement system for the internal activities of the public administration. Government includes the activities of governing, including policy creation and service provision, as well as the governmental bodies and officials who carry out these responsibilities (Dameri & Benevolo, 2016). Examples of the adoption of AI applications in public administration are chatbots, finding the most suitable job, or analyzing data traffic in a computer network (Kerikmäe & Pärn-Lee, 2021). However, while the implementation of AI in public administration is scarce and limited, it should be noted that there are countries that increasingly use this technological development in government activities.

However, the use of AI applications does not guarantee effective problem solving or intelligent decisions since they require a large quantity and quality of accurate, updated, and reliable data. It is the responsibility of public institutions to collect, organize, and validate the required data and make it available at the right time and place (Nasseef et al., 2021). From the perspective of policymaking, it is important that the strategic areas of governments provide all the information and data that count so that public policy makers generate the appropriate strategies and actions (Mikalef et al., 2021).

Nevertheless, the adoption of AI in the public sector implies challenges derived from the different characteristics and particularities of the territorial, economic, social, political, and cultural divisions in which public organizations find themselves. Among the challenges that may arise when implementing AI are the following: the misalignment between AI decision-making and public management decision-making; tensions with linguistics and national culture; the development and implementation of AI infrastructure; data integrity and sharing; and ethical concerns and human rights (Alshahrani et al., 2021).

There are challenges and problems facing the adoption of AI in the public sector, such as poor data quality, a lack of understanding of cognitive technologies by people, data privacy issues, problems in the integration of cognitive projects, and the high costs of technologies (Sharma et al., 2021). Another important challenge is systemic racism. This stems from small racial biases in automated decision-making tools that reduce opportunities in different but connected policy areas at the same time. Examples of these are employment, education, health care, and housing, to name a few. One reason for this challenge is the increasing migration and demographic changes in societies, issues that must be considered when developing AI systems and applications (Fountain, 2022).

The AI systems around which public policies must be proposed, analyzed, implemented, and evaluated are highly complex. Too often, policy practitioners are faced with "wicked problems" within these systems, in the sense that some "solutions" can cause unexpected disturbances that make things worse. A major challenge is to produce artificial societies realistic enough that policy practitioners find them feasible for exploring the real-world complexities of social life (Diallo et al., 2021).

Therefore, to solve these challenges and the challenges of AI in the public sector, the dedication of more persuasive communication efforts is required to show the public the potential benefits of the implementation of AI in the different areas and sectors of the society. (Nasseef et al., 2021; Minkkinen et al., 2022). Another way is to make public policy decisions regarding AI more accessible by adopting clear time strategies as well as a cautious approach. Avoiding the generation of general AI policies that can create problems that have potential harm to society (Nordström, 2021). It is important to consider public opinion for the creation of public policies in this matter, since it could alter the type of AI developed in the future and the way in which the government regulates this technological development (Ouchchy et al., 2020).

With the accelerated development of new technologies and the transformation of public administration, concepts such as AI governance, which can be understood as the processes through which different social actors advance and challenge conflicting visions for the development, implementation, and regulation of AI, appear. An example of AI governance is national strategies developed and supported by government and society (Wilson, 2022). AI governance is a challenging process that requires the creation of institutions to deal with the different problems related to system design, comprising a set of norms and rules that should guide the behavior of AI system designers (Filgueiras, 2021).

Another example is explainable artificial intelligence (EAI) applied to the public sector, which has the potential to explain how AI works to the general public. Although much research has been done on AI in the context of the public sector, less attention has been paid to EAI. This is a field based on the idea that advice given by expert systems would be more acceptable to humans if it could be explained to them in a simple way. EAI aims at creating clear and transparent processes and decisions for decision-making, which in turn should build confidence in decisions. In addition, it must promote trust and social acceptance of AI-based decisions (De Bruijn et al., 2022).

Explainability is a novel ethical principle intended primarily to promote algorithmic transparency and avoid opacity and machine learning techniques. Transparency impacts the public's perception of the decision in a way that provides it with sufficient legitimacy and should be understood as an auxiliary principle: by providing access to algorithms and their results (Sapienza & Vedder, 2021).

Due to the extension of AI tools, this technological development is an extensive and multidisciplinary field of research, with the possibility of generating a large number of articles that address its applications and implications (Zuiderwijk et al., 2021). For this reason, it is important to know the development of AI in the public sector from the academic and scientific literature, which allows for the evolution of the analysis of this phenomenon that involves two areas of knowledge: the first is AI, which covers a series of systems, applications, and tools that are based on this technological development, and the second is the public sector, which involves the different areas of public policy in which AI is developed.

RESULTS

This chapter presents the results of the analysis of the systematic literature review carried out on the subject of AI in the public sector based on the categorization of the information in the 207 articles into the dimensions, variables, and indicators that are established in the analytical strategy. The objective of this analysis is to describe and analyze the development and evolution of AI in the public sector from the academic literature, as well as to expose the theme of AI and the areas of public policy that the research works analyze.

The methodological strategy is based on the analysis of AI in the public sector from the academic literature from three dimensions: the contextual dimension, the methodological dimension, and the conceptual dimension, with a series of categories or analysis variables that allow classifying the

information into indicators that allow cataloging the data of the 207 articles analyzed. The articles were published between 2018 and 2022 in the academic and scientific journals that publish the most work related to AI in the public sector.

Regarding the contextual dimension, the analysis of the 207 research papers allows us to understand the evolution of the literature and establish where the research is being carried out. This dimension presents data on the evolution in the period from 2018 to 2022, the journals that publish the research, the countries that are the headquarters of the universities to which the authors belong, the level of government analyzed, and the country that is analyzed. In the methodological dimension, information is presented on the methodological strategies used in the articles analyzed, such as the design of the study, the methodological approach they propose, the research techniques they use, and the theories, models, or theoretical frameworks that guide the work. In the conceptual dimension, the different concepts, themes, and areas of AI and the public policies that are analyzed in the articles are presented.

The results are shown in a descriptive and analytical manner with the support of graphs and statistical data that allow conclusions to be drawn about the evolution of the literature, the way in which AI is analyzed in the public sector, and the concepts that stand out in the analysis of this phenomenon. From the results, it is also possible to observe the areas of opportunity to analyze AI in the public sector from the various themes of this technological development and from the different areas of public administration and policy.

Contextual dimension

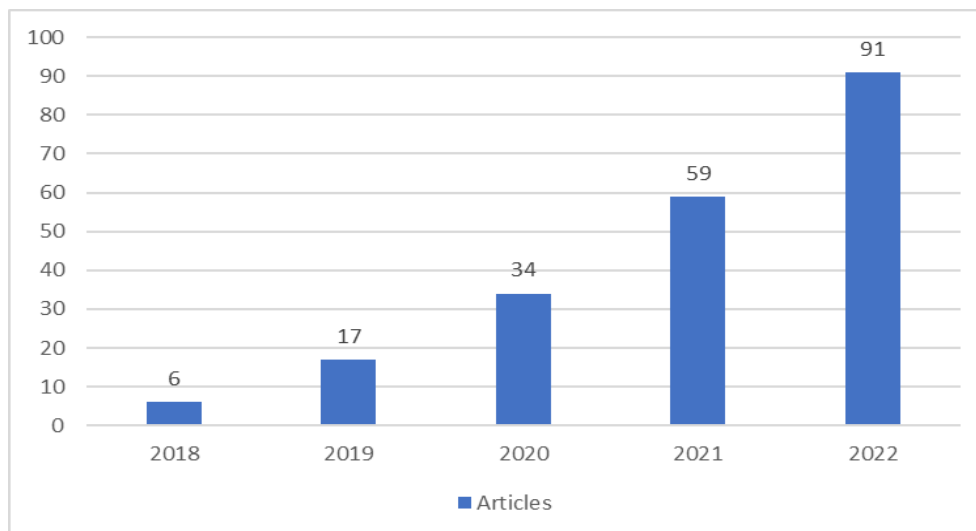
The first dimension is the contextual analysis of the development of research on AI in the public sector. This dimension arises from the question: Where is AI being analyzed in the public sector? To answer this question, the objective is to understand the evolution of the literature, the relevant journals with the largest number of publications, the academic or university departments, the level of government analyzed, as well as the countries that carry out the research and those that are investigated in the field of AI in the public sector. The foregoing allows us to add a geographical aspect to place the study of AI in the public sector (Ruvalcaba-Gómez, 2018).

Evolution of literature

The first aspect to consider is the evolution of the literature presented internationally on AI in the public sector (Ruvalcaba-Gómez, 2018). In terms of scientific production at the international level, the number and percentage of articles published in a period of five years are shown, which corresponds to the years 2018–2022. The first element to highlight is the growth in the number of articles published in the period analyzed (see Graph 1). There has been a substantial increase in the generation of knowledge on AI in the public sector, from 6 publications in 2018 to 17 publications in 2019, 34 publications in 2020, 59 publications in 2021, and 91 publications in 2022, so it is considered that publications on the subject are continuously growing. This significant growth demonstrates a marked increase in scholarly interest and activity within this research area.

Graphic 1

Evolution of literature on AI in the public sector



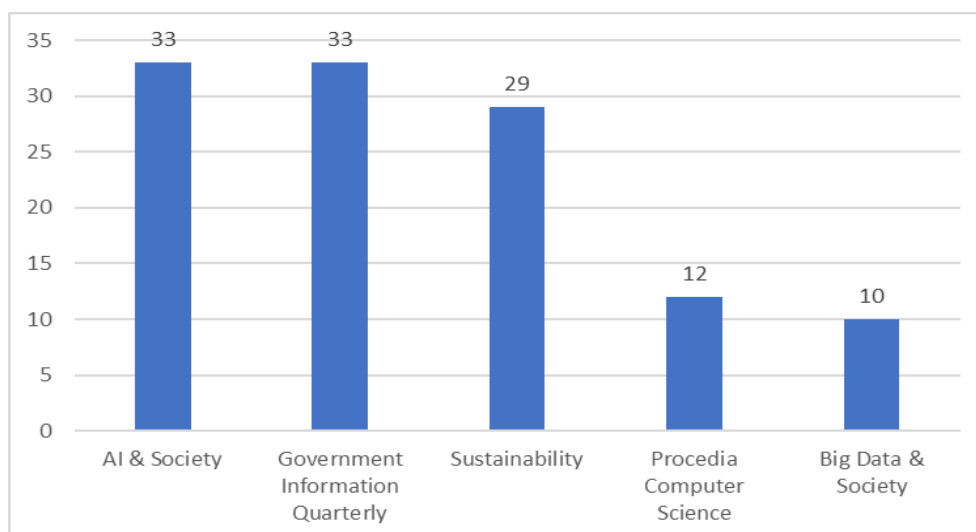
Source: own elaboration.

Journals of literature

The second aspect to consider is the journals that publish articles related to the analysis of AI in the public sector (Ruvalcaba-Gómez, 2018). Graph 2 shows the top 5 journals leading the production of papers related to the study of AI in the public sector in the period from 2018 to 2022. The list is headed by the S journal of AI & Society and Government Information. Quarterly with 33 articles each, followed with 29 articles by the journal Sustainability, with 12 publications, this Procedia Computer Science, and with 10 articles, Big Data & Society. This allows us to infer that only some journals have a high number of studies focused on AI in the public sector.

Graphic 2

Top 5 Journals of literature on AI in the public sector



Source: own elaboration.

In the literature review, a variety of journals interested in the subject of our research were found, among which are: Computer Law & Security Review, International Journal of Environmental Research and Public Health, Technology in Society, IEEE Access, Journal of Medical Internet Research, Digital Policy, Regulation and Governance, Applied Sciences, Journal of Intelligent & Fuzzy Systems, Computational Intelligence and Neuroscience, IEEE Technology and Society Magazine, International Journal of Information Management, Mathematical Problems in Engineering, Technological Forecasting and Social Change, Wireless Communications and Mobile Computing, Computer Law and Security Review, Expert Systems with Applications, International Journal of Advanced Computer Science and Applications, Nature and PLoS ONE.

However, the production of works related to the analysis of AI in the public sector in a period of 5 years spanning from 2018 to 2022 is reduced to less than 10 publications. This indicates that the study of AI in the public sector is booming, based on the diversity of journals that are publishing articles on this topic. The diverse range of journals publishing research on AI in the public sector reflects the interdisciplinary nature of this field. This is evident in the contributions from journals spanning public administration, computer science, social sciences, and even sustainability studies, among others.

Host countries of universities and institutions

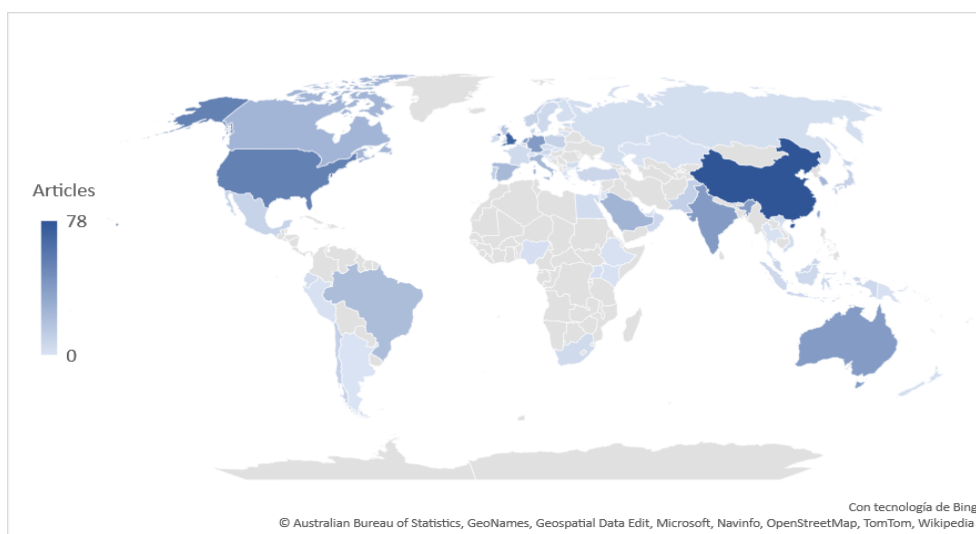
Considering the evolution of the study of AI in the public sector and the journals that publish these works, it is important to highlight the countries of the institutions to which the scientists and researchers who have carried out said research belong. In order to determine the data of the country in which these investigations are carried out, the researchers indicate that information in the articles, indicating the institution or university to which they are attached and the country in which said educational institution is located (Ruvalcaba-Gómez, 2018).

From the systematic literature review of the 207 articles, data were obtained from 782 researchers from 64 countries. It is worth mentioning that of the 782 data points, some are repeated since more than one researcher has collaborated on more than one publication. As for the countries in which the educational institutions to which they are attached are located, the researchers highlight countries such as China

with 78 participations in the articles, followed by the United Kingdom with 71, the United States with 54, Germany with 40, India with 40, Australia with 39, the Netherlands with 38, Taiwan with 32, Saudi Arabia with 26; Canada with 25; South Korea with 25; Italy with 24; and Spain with 23 participations. The above is represented in Graph 3. The geographic distribution of institutions leading AI research in the public sector provides valuable insights into global trends and priorities. While a global phenomenon, research tends to be concentrated in certain regions, with institutions in the United States, the United Kingdom, and China consistently appearing at the forefront.

Graphic 3

Host countries of the universities and/or institutions



Source: own elaboration.

Level of government analyzed

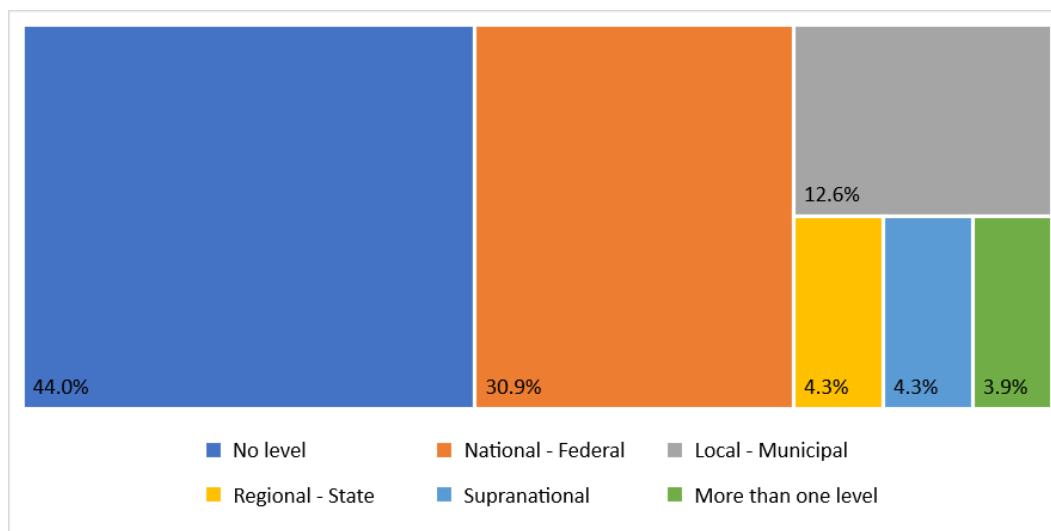
A data point of great interest in the analysis of AI in the public sector is the level of government that is being analyzed in the articles. This variable establishes four indicators based on the levels of government: The first level is the local or municipal government, which is the territorial and political administration governed by a city council or mayor's office. The second level is regional or state government, which is the territorial and political administration governed by a state. The third level is the national or federal government, which is the territorial and political administration that represents a country or nation. The fourth level is the supranational government, which consists of the transfer of attributions from the countries to an international organ for decision-making. In addition, two more indicators are considered for this variable: one is when more than one level of government is considered in the study for the analysis of the research, and the other is when a level of government is not presented in the research (Ruvalcaba-Gómez, 2018).

In the results of the review, it was found that 91 research papers on AI in the public sector do not have a level of government to analyze, which represents 44% of the investigations. Second, the most analyzed level of government is the national or federal government, with 64 articles representing 30.9%. In third place is the level of local/municipal government, with 26 jobs representing 12.6%. In fourth place, there are the supranational and regional/state levels with 4.3%, which are 9 articles each. And, finally, there are the works that analyze more than one level of government and represent 3.9% of the total, which are 8 articles (see Graph 4). Understanding the specific level of government analyzed is

crucial for comprehending the nuances and complexities of AI implementation and its impact on different levels of governance.

Graphic 4

Level of government analyzed



Source: own elaboration.

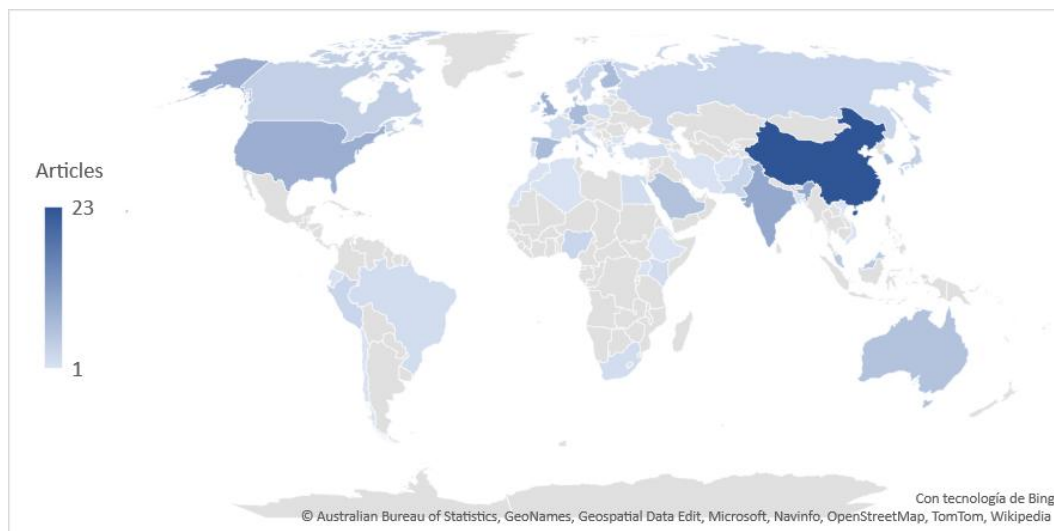
Countries or geographical areas analyzed

Based on the countries that study AI in the public sector and the level of government that the research analyzes, the topic of examining the countries or geographic areas that are analyzed is introduced (Ruvalcaba-Gómez, 2018). This variable establishes the countries or geographic areas that are being studied for the generation of information and evidence of the development and implementation of AI in the public sector.

The results of the systematic review of the literature show that 51 countries or geographical areas were analyzed. China tops the list of countries where AI is analyzed in the public sector, with a total of 23 articles. With a considerable difference, is located in second place, the European Union with 11 articles; in third place, India with 10 articles; and, in fourth place, the United States and the United Kingdom with 9 articles each. It is followed by the countries of Germany, South Korea, Spain, and Finland with 7 articles. This can be seen in Graph 5, where the diversity of countries on the different continents that are being analyzed can be observed. This expanding geographic scope highlights the increasing global awareness of the transformative potential and societal implications of AI in the public sector, necessitating a more nuanced understanding of its impact across diverse cultural, social, and political contexts.

Graphic 5

Countries or geographical areas analyzed



Source: own elaboration.

Methodological dimension

The second dimension that is analyzed from the systematic literature review is the methodological one; with this dimension, we seek to answer the question of how AI is analyzed in the public sector. (Ruvalcaba-Gómez, 2018). Based on this question, the following methodological aspects of the research are selected as analysis variables: 1) Study design; 2) research techniques; 3) methodological approach; and 4) theories, models, and theoretical frameworks. As a whole, these variables allow us to understand the type of research that is being carried out for the analysis of AI in the public sector.

Study design

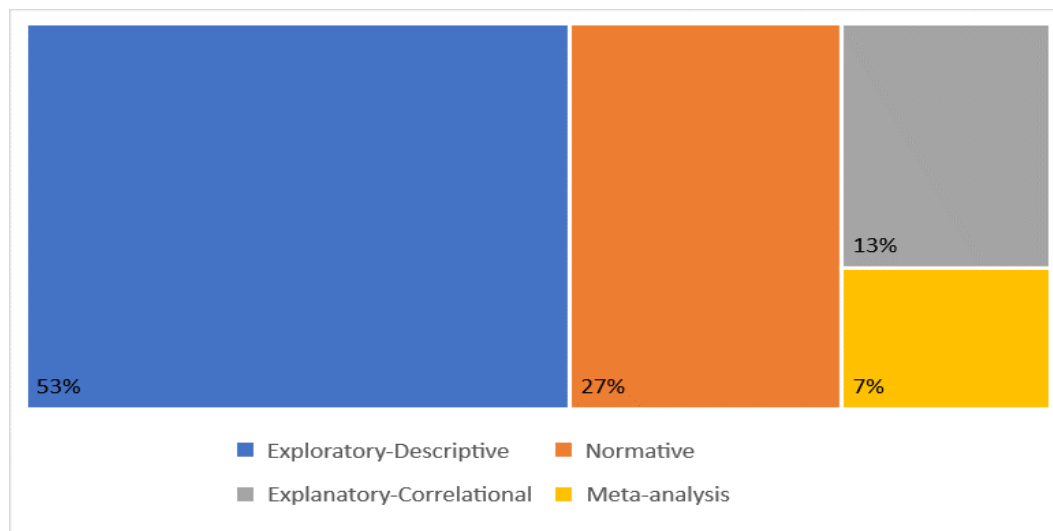
The study design refers to the type of research that is carried out in each of the articles examined. For this variable, four indicators or categories of the research design were established (Ruvalcaba-Gómez, 2016): 1) normative; 2) exploratory-descriptive; 3) explanatory-correlational; and 4) meta-analysis. Normative investigations are those that lack a scientific method and whose objective is the theoretical discussion of the research topic (Ruvalcaba-Gómez, 2016). Descriptive exploratory investigations are those that seek to discover new ideas and describe the elements of the research topic; they aim to analyze a little-studied phenomenon and describe the features of the analyzed topic (Zafra, 2006). Explanatory-correlational works aim to study the causes and reasons for the phenomenon as well as the relationships between two or more variables of the research topic (Batthyány et al., 2011). Meta-analysis works are those that collect all the information available on a specific phenomenon to carry out a quantitative and qualitative analysis of the research topic (Botella & Zamora, 2017).

From the data obtained from the design variable of the study, it is observed that, by a wide margin, exploratory-descriptive works stand out, with a total of 111 articles that represent 54% of all research. It is followed by normative research with 51 articles, that is, 25% of the works. Then there are the works with the type of explanatory-correlational research, with 33 works, which represents 16%. And finally, there are the meta-analysis works that consist of 12 investigations, which represent 6% (see Graph 6). The study designs employed in the research of AI in the public sector vary significantly, reflecting the evolving nature of this field. While exploratory studies are prevalent, with researchers often mapping

the landscape of AI applications in government and identifying emerging trends, there is a growing emphasis on more rigorous methodologies.

Graphic 6

Study design



Source: own elaboration.

Research techniques

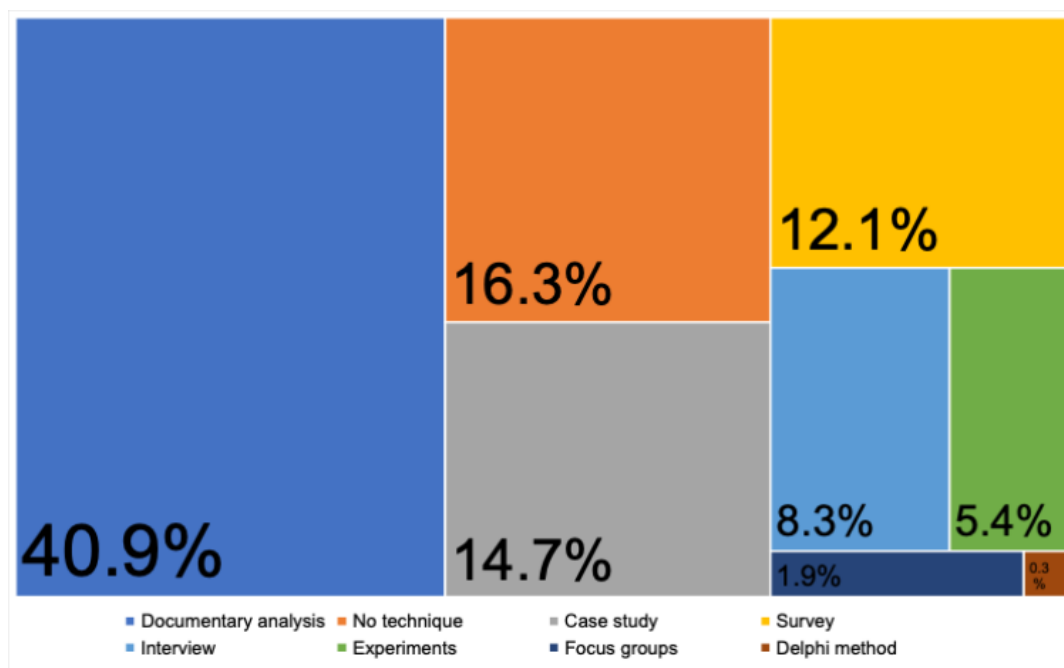
Regarding the research techniques used in the articles analyzed, the following techniques were used as indicators and categories of analysis: 1) Documentary analysis: this technique consists of the study and analysis of the content of the documents in an analytical, objective, and systematic way. 2) Survey: It consists of the preparation of a questionnaire consisting of a series of questions that are intended to be made to a certain number of people who part of the analysis of the object of study are. 3) Interviews: consist of the preparation of a guide to ask questions in a free or structured way. In order to listen and record the answers. 4) Case study: this technique implies the integration of all the elements of the research object with the aim of studying it in depth. 5) Experiments: This technique consists of the observation, manipulation, and control of people, objects, events, phenomena, activities, situations, etc., with the aim of acquiring and analyzing the information obtained. 6) Focus groups: it consists of making an optimal selection of people on a specific topic to carry out an argumentative discussion, identifying the opinions and comments on the research topic. 7) Delphi method: it is the systematic and reiterated process in which a group of experts give their opinion and discuss the research topic, with the possibility of obtaining consensus (Ruvalcaba-Gómez, 2018; Salinas-Cruz, et al., 2017; Sáenz & Tamez, 2014; Hernández et al., 2014). This categorization of investigation techniques encompasses the most commonly used instruments in articles on AI in the public sector. It should be noted that research uses a variety of instruments to collect and analyze data.

The results of the analysis of the 207 research works yield the following data: The number of techniques used in the articles is 313, since the works use more than one technique to carry out the research. The most used technique in the articles is documentary analysis, with a total of 128 articles, which represents 40.9% of the total of the techniques used in the research works. It is followed by the case study with 46 articles that represent 14.7%. The survey technique was used in 38 investigations, representing 12.1%. Regarding the work that carried out the interview, 26 investigations were found, which represents 8.3%. The experiments were located in 17 investigations, or 5.4% of the techniques

used. Regarding the focus groups, six works are located, representing 1.9%, and the Delphi method has one research paper that uses this technique, which represents 0.3%. In relation to the works that do not present a research technique, 51 works were located; this represents 16.3% of the total of all the techniques that were used in the research works (see Graph 7). The diversity of research techniques is essential for a comprehensive understanding of AI's role in the public sector, enabling researchers to capture the multifaceted nature of this complex phenomenon and inform the development of AI policies and strategies.

Graphic 7

Research techniques



Source: own elaboration.

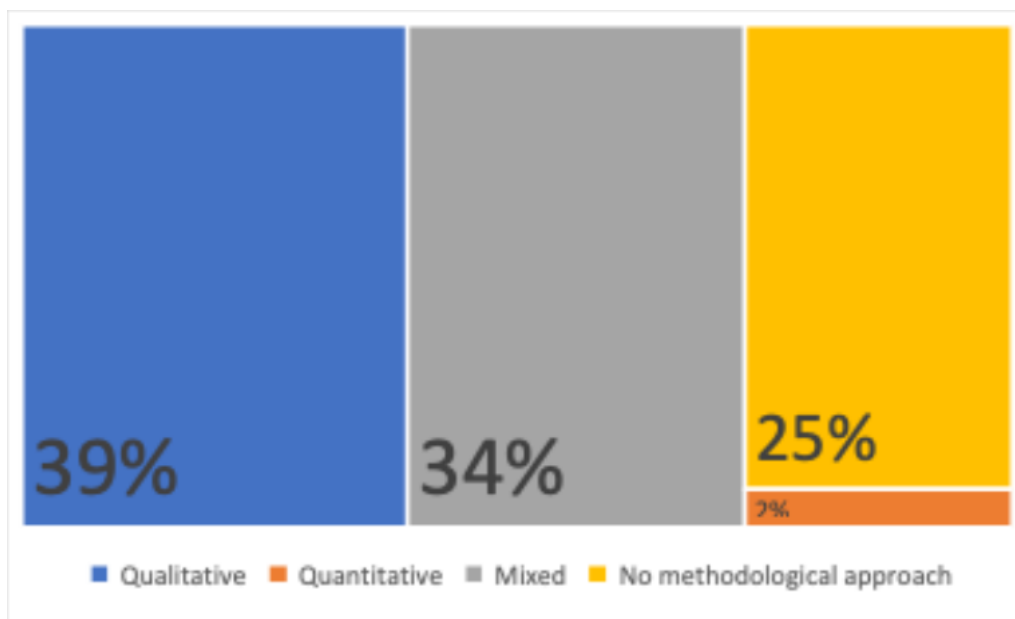
Methodological approach

Regarding the methodological approach, it is considered that there are two main approaches to research: the quantitative approach and the qualitative approach, both of which carry out empirical and methodical processes with similar strategies and are related to each other in terms of study designs and research techniques. similar and different at the same time for the generation of knowledge. A third approach is the use of both approaches in research, called the mixed approach (Hernández et al., 2014; Ruvalcaba-Gómez, 2018).

Regarding the methodological approach of the 207 research papers, it was found that 80 research papers use the qualitative approach, which represents 39% of the articles. Regarding the quantitative approach, only five investigations use this approach, which represents 2% of the works. Regarding the works that use the mixed approach, that is, using the qualitative and quantitative methods in the same investigation, 71 articles were found, representing 34% of the investigations. However, in 51 works, they do not have a defined methodological approach; this represents 25% of the articles (see Graph 8). The selection of a methodological approach is crucial for addressing the complex and multifaceted nature of AI in the public sector. It ensures that research findings are robust and reliable, providing a solid foundation for the responsible and ethical development and implementation of AI within government.

Graphic 8

Methodological approach



Source: own elaboration.

Theories, models and theoretical frameworks

The theories, models, and theoretical frameworks that guide the research allow us to know the scope of the research problem, the methods that have been used, and the results of other investigations, as well as allow us to explain the results obtained from finding the differences and similarities with other research works and locate the findings within the knowledge that already exists, in addition to building new theories (Hernández et al., 2014).

Regarding the theories, models, and theoretical frameworks that are presented in the research works, it is found that, of the 207 articles analyzed, in 46 works the theories, models, or theoretical frameworks that guide the research are presented, which means that 22% of the total articles are covered. The remaining 161 works, or 78%, do not show the theories, models, or theoretical frameworks with which the research is oriented. Among the theories that stand out for being mentioned in two different works are the theory of critical success factors, the theory of public value, and the framework of technology, organization, and environment.

Conceptual dimension

The third dimension aims to carry out an analysis of the conceptual aspect to determine the different ideas, concepts, and notions in the field of study of AI in the public sector. This dimension is based on presenting the most outstanding concepts and the main themes of AI in the public sector, under the answer to the following question: What are the outstanding concepts and the main themes in the study of AI in the public sector? The conceptual dimension has two categories: 1) Thematic of artificial intelligence: in this category, the applications, tools, and AI systems used in the public sector are identified; 2) Public policy area: This category identifies the areas and types of public policy that use AI systems. Also in this dimension, a tool is used to create word clouds in order to count and classify the highlighted concepts.

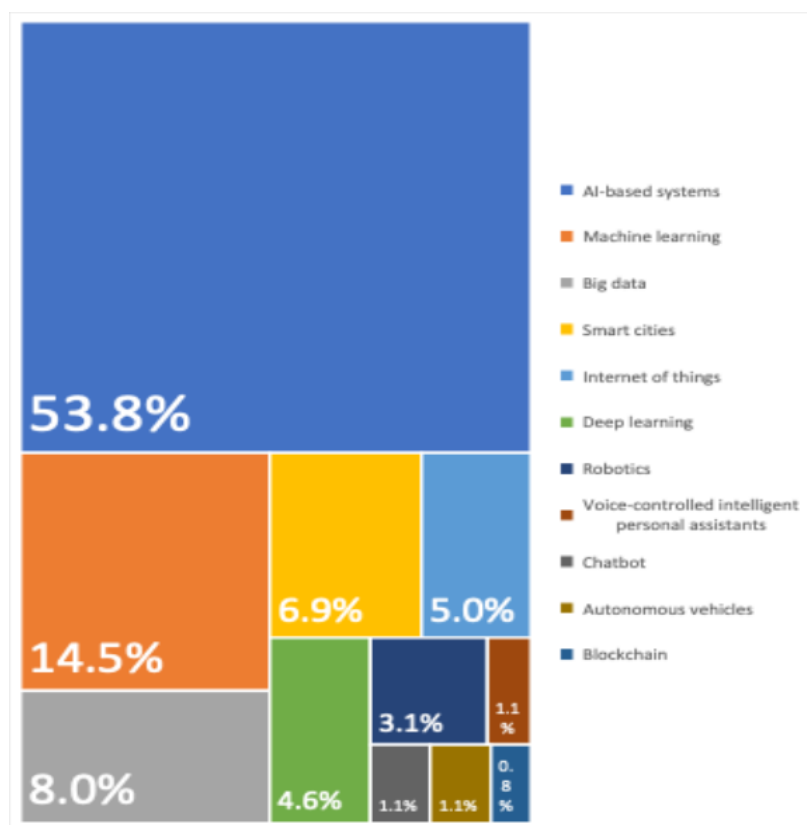
Artificial intelligence theme

The subject of artificial intelligence establishes the AI systems, applications, and tools that are used in the public sector, for which the following categorization of AI is used: a) Automatic learning; b) Deep learning; c) Voice-controlled intelligent personal assistants; d) Big Data; e) Blockchain; f) Chatbots; g) Smart Cities; h) The Internet of Things; i) Robotics; j) Autonomous vehicles; and k) AI-based systems (in general) (Banda, 2014; Rouhiainen, 2018; Russell & Norvig, 2004). Notably, the articles mention a variety of AI applications, systems, and tools. Additionally, some articles discuss more than one AI topic. However, an analysis and classification of the data obtained from the articles was carried out to generate the categorization of the 11 variables.

From the analysis of the 207 articles, a total of 262 systems, applications, and tools were obtained that were used in the research work. Of these, 141 investigations used AI-based systems as the main topic, which represents 53.8% of the total number of AI topics. In second place is machine learning with 38 articles, which is equivalent to 14.5%. In third place is big data with 21 items, representing 8%. In fourth place is smart cities, with 18 items, representing 6.9%. In fifth place is internet of things with 13 investigations; this is 5%. In sixth place is deep learning with 12 items, which are 4.6%. With 8 articles, there is the robotics, which represents 3.1%. It is followed by voice-controlled intelligent personal assistants, chatbots, and autonomous vehicles, each with 3 investigations, accounting for 1.1%. And, finally, the blockchain, with two articles that are 0.8% (see Graph 9). The field of AI in the public sector encompasses a diverse range of technologies and applications. These advancements also bring forth critical ethical, social, and legal challenges that demand careful attention from policymakers and researchers.

Graphic 9

Artificial intelligence theme



Source: own elaboration.

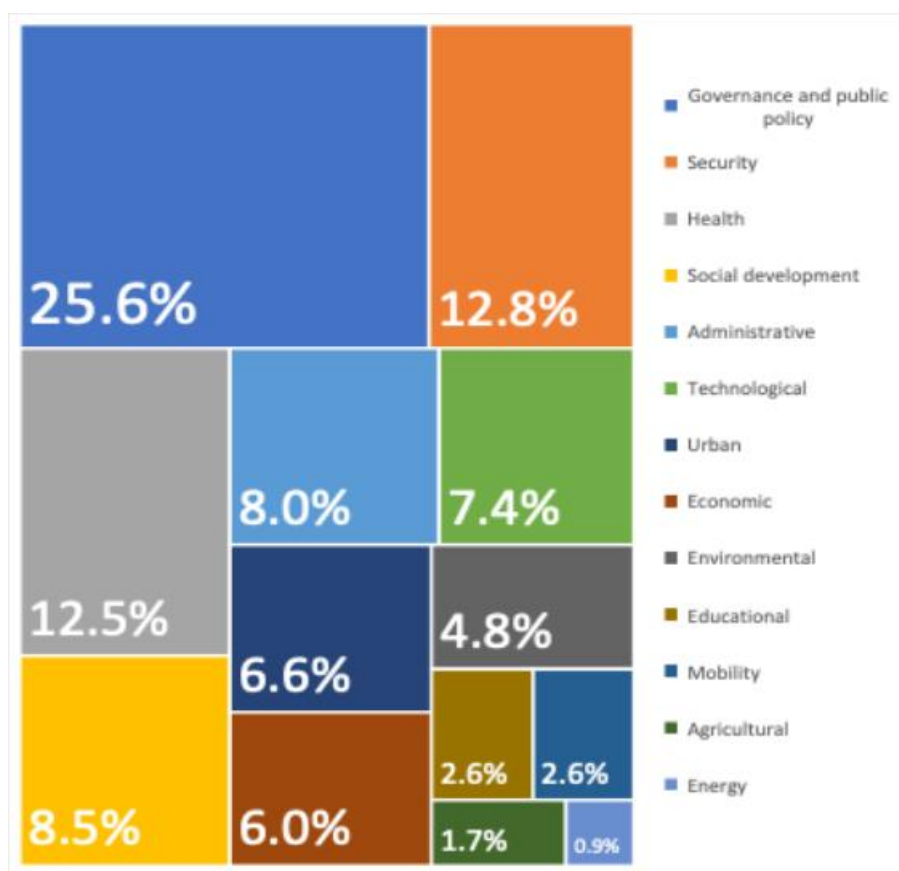
Public policy area

The area of public policy is established by the intervention sectors of government actions that employ the use and development of AI. For this category, the intervention sectors are considered our variables, which were determined from the analysis of the public policy literature and the data of the articles analyzed. 1) Health; 2) Governance and public policy; 3) Urban; 4) Security; 5) Educational; 6) Mobility; 7) Environmental; 8) Economic; 9) Technological; 10) Agricultural; 11) Administrative; 12) Social Development; and 13) Energy (Aguilar, 2012; Pastor, 2014; Gutiérrez et al., 2017). It is important to highlight that the research covers a diversity of intervention areas and sectors. Therefore, a classification study of the data obtained from the articles was carried out to generate the categorization of the 13 variables. In addition, certain articles analyze more than one area of public policy.

The results obtained from the analysis of the 207 articles show that 351 public policy areas were mentioned in the research papers. The most observed area of public policy is governance and public policy in general, with a total of 90 works, which constitute 25.6% of the total areas mentioned in the research works. It is followed by the health area with 45 investigations, which is 12.8%, the security area with 44 articles, which is 12.5%, the technological area with 30 articles, which is 8.5%, the social development area with 28 investigations, which is 8%, the administrative area with 26 articles, which is 7.4%, and the urban area with 23 investigations, which is 6.6%. The environmental area has 21 articles, representing 6.%, the economic area has 17 investigations, representing 4.8%, the educational area has 9 articles, representing 2.6%, the mobility area has 9 investigations, representing 2.6%, the agricultural area has 6 articles, representing 1.7%, and the energy area has 3 articles, representing 0.9% (see Graph 10). This diverse range of policy areas underscores the transformative potential of AI in addressing critical societal challenges and improving the quality of life for citizens.

Graphic 10

Public policy area



Source: own elaboration.

Featured Concepts

For the study of the outstanding concepts of the 207 articles analyzed, three elements of the articles were considered: 1) Title of the work; 2) Keywords; 3) Abstract of the research. For the analysis, all the words that contain the three elements are taken into account through a system called "word clouds" to determine the outstanding concepts of research on AI in the public sector.

Regarding the analysis of the titles of the research papers, 2,796 words were considered. To perform the "word cloud" analysis, the "TagCrowd" program is used; this system enables the platform to enter the text and then automatically classify and group the words. In the system, the frequency of the words was selected to be five or more repetitions. The system distinguished 709 concepts, and Figure 2 shows 50 concepts that meet this criterion, as well as indicating the frequency with which the words appear in the titles.

Figure 2

Analysis of titles



Source: own elaboration.

For the analysis of the keywords, those indicated in the investigations are considered. For the generation of the word cloud, 2,202 keywords that appear in the 207 research papers were considered. As part of the process of analyzing the titles, the words were uploaded to the platform, and it was indicated that the frequency of the words be five or more repetitions, as well as that the words indicate the frequency of the words. This generated 650 concepts, and Figure 3 shows the 50 concepts that obey the selected criteria.

Figure 3

Keywords analysis



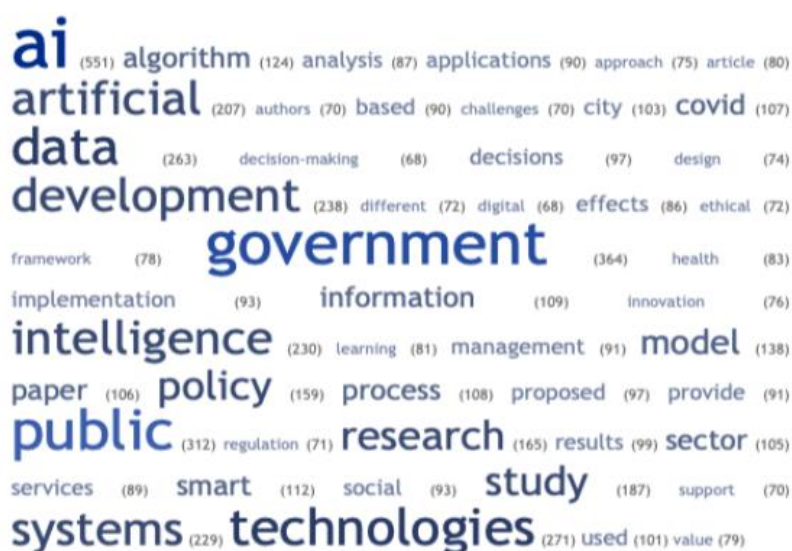
Source: own elaboration.

In the case of the analysis of the abstracts of the research papers, the same procedure was used in the analysis of the titles and keywords. In this case, the 207 abstracts of the investigations are considered.

A total of 44,502 words are considered, which are inserted into the "TagCrowd" program and classified and grouped into 3,476 words. To minimize the number of terms in the word cloud, the options selected were that the frequency of the words be five or more repetitions and that the figure present a maximum of 50 words, in addition to the concepts indicating the frequency of the words. The result is displayed in Figure 4.

Figure 4

Analysis of the abstracts



Source: own elaboration.

An analysis of the titles, keywords, and abstracts of 207 research papers reveals the most prominent concepts in AI research within the public sector: governance, smart cities, public policies, algorithms, automated systems, sustainability, innovation, regulation, public services, development, smart governments, big data, machine learning, and deep learning. These topics provide valuable insights into the key areas of knowledge that should be further explored to advance the understanding and application of AI in the public sector.

CONCLUSIONS

In conclusion, our analysis reveals a significant and sustained increase in research on AI within the public sector. Publication rates have exhibited remarkable growth. This trajectory strongly suggests increased AI research within the public sector in the coming years. These findings underscore the critical importance and growing interest within the academic and scientific communities in understanding the development and implications of AI in government and public services worldwide.

Our analysis reveals that the United Kingdom, followed by the United States and China, are the leading host countries for universities and institutions engaged in AI research within the public sector. This finding aligns with the observations made in Chapter 2 regarding these countries' prominent roles in national AI strategies and their leadership in AI development and research worldwide. Furthermore, the emergence of other countries actively analyzing AI in the public sector signifies a growing global interest in this critical area. Notably, the countries leading in AI research and strategy development also stand out as the primary focus of studies examining AI applications within public organizations, further emphasizing their significant influence in this field.

Our investigation concludes that most AI research within the public sector does not specifically target a particular level of government. While research often examines AI in the public sector broadly, studies focusing on the federal/national level are most prevalent. The local/municipal level, while gaining importance, receives significantly less attention. Research at the supranational and regional/state levels is comparatively limited. These findings suggest several promising avenues for future research. Specifically, further investigation at the local/municipal, regional/state, and supranational levels, as well as studies that examine AI across multiple levels of government, is crucial for a more comprehensive understanding of AI's role within the public sector.

Research on AI in the public sector is predominantly in an exploratory phase, with most studies aiming to characterize and detail AI elements within this context and establish a foundation for future investigations. Theoretical development dominates this area, while explanatory-correlational and meta-analytic studies remain limited, indicating that a robust evidence base is still in its formative stages. Methodologically, documentary analysis is the most commonly employed technique for data collection and analysis, reflecting an initial reliance on existing sources. Other methods, such as surveys, interviews, and case studies, are utilized less frequently, while experimental methods, focus groups, and the Delphi method are rarely applied. These patterns underscore the field's current emphasis on exploration and signal opportunities to diversify methodologies and expand empirical research to deepen understanding and provide more comprehensive insights into AI in the public sector.

Our analysis indicates that qualitative approaches are the most frequently employed methodologies in AI research within the public sector, followed by mixed-method designs. A notable proportion of studies, however, do not explicitly specify their methodological approach, often due to the absence of defined research techniques or reliance on normative research designs. While quantitative methods are less common, their integration with qualitative approaches is evident, highlighting an opportunity for future studies to adopt more robust quantitative methodologies to enhance understanding of AI in this context. For example, quantitative studies may analyze the performance of AI-powered systems in predicting crime rates, assessing citizen satisfaction with AI-driven public services, or evaluating the economic impact of AI-based policy decisions.

Our investigation concludes that while AI research in the public sector often addresses . broad applications, there is an increasing focus on specific AI-based practices such as machine learning, big data, and smart city initiatives. In the realm of public policy, research predominantly examines governance, security, health, and social development, underscoring the significant social impact of AI in these areas. While these domains remain central, there is a notable expansion of research into administrative, technological, urban, and economic fields, alongside emerging interest in environmental, educational, mobile, agricultural, and energy-related applications.

Academic research on AI in the public sector has revealed a complex and promising landscape. While there is significant potential to optimize processes, improve decision-making, and enhance citizen interaction, significant challenges persist. The lack of high-quality, standardized data, the need to develop explainable and transparent AI models, as well as the ethical and societal implications of this technology require ongoing attention from the research community. Academic studies have identified various areas of AI application in the public sector, ranging from predicting service demand to fraud detection and optimizing resource management. However, there is a growing trend toward interdisciplinarity, with the integration of knowledge from diverse fields such as data science, ethics, and social sciences. Moreover, collaboration between academia, industry, and government has become a key factor in accelerating the development and implementation of AI-based solutions in the public sector.

Finally, academic studies have highlighted the need to develop robust and adaptable public policies to maximize the potential of AI in the public sector. These policies must address issues such as data

privacy, cybersecurity, algorithmic transparency, and equity. Furthermore, it is essential to invest in training public servants so that they can effectively understand and utilize AI tools. Despite the challenges, the future of AI research in the public sector looks promising. Advances in deep learning, natural language processing, and robotics are expected to lead to new innovative applications. Additionally, the growing awareness of the importance of ethics in AI development will drive the creation of more just and transparent systems. However, it is crucial to continue researching and developing appropriate regulatory frameworks to ensure that AI is used for the benefit of society.

REFERENCES

- Aguilar, L. F. (Comp.). (2012). *Política Pública*. Siglo XXI Editores/Escuela de Administración Pública del Distrito Federal. Retrieved from http://data.evalua.cdmx.gob.mx/docs/estudios/i_pp_eap.pdf
- Ahn, M. J., & Chen, Y. C. (2022). Digital transformation toward AI-augmented public administration: The perception of government employees and the willingness to use AI in government. *Government Information Quarterly*, 39(2), 101664. DOI: <https://doi.org/10.1016/j.giq.2021.101664>
- Alba, J. T. (2024). Insights into Algorithmic Decision-Making Systems via a decolonial-intersectional lens: A cross-analysis case study. *Digital Society*, 3(58). <https://doi.org/10.1007/s44206-024-00144-9>
- Alshahrani, A., Dennehy, D., & Mäntymäki, M. (2021). An attention-based view of AI assimilation in public sector organizations: The case of Saudi Arabia. *Government Information Quarterly*, 101617. DOI: <https://doi.org/10.1016/j.giq.2021.101617>
- Androutsopoulou, A., Karacapilidis, N., Loukis, E., & Charalabidis, Y. (2019). Transforming the communication between citizens and government through AI-guided chatbots. *Government Information Quarterly*, 36(2), 358-367. DOI: <https://doi.org/10.1016/j.giq.2018.10.001>
- Aoki, N. (2020). An experimental study of public trust in AI chatbots in the public sector. *Government Information Quarterly*, 37(4), 101490. DOI: <https://doi.org/10.1016/j.giq.2020.101490>
- Banda, H. (2014). *Inteligencia artificial: Principios y aplicaciones*. Retrieved from https://www.researchgate.net/publication/262487459_Inteligencia_Artificial_Principios_y_Aplicaciones
- Batthyány, K., Cabrera, M., Alesina, L., Bertoni, M., Mascheroni, P., Moreira, N., ... & Rojo, V. (2011). *Metodología de la investigación para las ciencias sociales: apuntes para un curso inicial*. Retrieved from https://perio.unlp.edu.ar/catedras/mis/wp-content/uploads/sites/126/2020/04/p.2_batthianny_k_cabreram._cap_5__metodologia_de_la_investigacion....pdf
- Botella, J. & Zamora, Á. (2017). El meta-análisis: una metodología para la investigación en educación. *Educación XX1*, 20(2), 17-38. DOI: <http://dx.doi.org/10.5944/educxx1.19030>
- Bratton, B. (2021). AI urbanism: a design framework for governance, program, and platform cognition. *AI & Society*, 36(4), 1307-1312. DOI: <https://doi.org/10.1007/s00146-020-01121-9>
- Bruneault, F., & Laflamme, A. S. (2021). AI Ethics: how can information ethics provide a framework to avoid usual conceptual pitfalls? An Overview. *AI & Society*, 36(3), 757-766. DOI: <https://doi.org/10.1007/s00146-020-01077-w>
- Chen, T., Guo, W., Gao, X., & Liang, Z. (2021). AI-based self-service technology in public service delivery: User experience and influencing factors. *Government Information Quarterly*, 38(4), 101520. DOI: <https://doi.org/10.1016/j.giq.2020.101520>
- Correa, A. S., Melo Jr, A., & da Silva, F. S. C. (2020). A deep search method to survey data portals in the whole web: toward a machine learning classification model. *Government Information Quarterly*, 37(4), 101510. DOI: <https://doi.org/10.1016/j.giq.2020.101510>
- Dameri, R. P., & Benevolo, C. (2016). Governing smart cities: An empirical analysis. *Social Science Computer Review*, 34(6), 693–707. <https://doi.org/10.1177/0894439315611093>

De Bruijn, H., Warnier, M., & Janssen, M. (2022). The perils and pitfalls of explainable AI: Strategies for explaining algorithmic decision-making. *Government Information Quarterly*, 39(2), 101666. DOI: <https://doi.org/10.1016/j.giq.2021.101666>

Diallo, S. Y., Shults, F. L., & Wildman, W. J. (2021). Minding morality: ethical artificial societies for public policy modeling. *AI & Society*, 36(1), 49-57. DOI: <https://doi.org/10.1007/s00146-020-01028-5>

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., ... & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57. DOI: <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>

European Commission. (2019). A definition of Artificial Intelligence: main capabilities and scientific disciplines. <https://digital-strategy.ec.europa.eu/en/library/definition-artificial-intelligence-main-capabilities-and-scientific-disciplines>

Filgueiras, F. (2021). New Pythias of public administration: ambiguity and choice in AI systems as challenges for governance. *AI & Society*, 1-14. DOI: <https://doi.org/10.1007/s00146-021-01201-4>

Fountain, J. E. (2022). The moon, the ghetto and artificial intelligence: Reducing systemic racism in computational algorithms. *Government Information Quarterly*, 39(2), 101645. DOI: <https://doi.org/10.1016/j.giq.2021.101645>

Gomes, W., Pereira, E. R., De Souza, P. H., Sousa, R. A., & Oliveira, A. (2019). How and where is artificial intelligence in the public sector going? A literature review and research agenda. *Government Information Quarterly*, 36(4), 1-14. DOI: <https://doi.org/10.1016/j.giq.2019.07.004>

Gutiérrez, J. A., Restrepo, R. D., & Zapata, J. S. (2017). Formulación, implementación y evaluación de políticas públicas desde los enfoques, fines y funciones del Estado. *Revista CES Derecho*, 8(2), 333-351. DOI: <http://dx.doi.org/10.21615/cesder.8.2.7>

Hernández, R., Fernández, C., & Baptista, P. (2014). *Metodología de la investigación*. McGraw-Hill. Retrieved from <https://www.uca.ac.cr/wp-content/uploads/2017/10/Investigacion.pdf>

Hine, E. (2024). Governing silicon valley and Shenzhen: Assessing a New Era of artificial intelligence governance in the United States and China. *Digital Society*, 3(50). <https://doi.org/10.1007/s44206-024-00138-7>

Jankin, S., Esteve, M., & Campion, A. (2018). Artificial intelligence for the public sector: opportunities and challenges of cross-sector collaboration. *Philosophical Transactions. Series A, Mathematical, Physical, and Engineering Sciences*, 376(2128), 20170357. <https://doi.org/10.1098/rsta.2017.0357>

Kerikmäe, T., & Pärn-Lee, E. (2021). Legal dilemmas of Estonian artificial intelligence strategy: in between of e-society and global race. *AI & Society*, 36(2), 561-572. DOI: <https://doi.org/10.1007/s00146-020-01009-8>

Maalla, H. A. (2021). Artificial intelligence in public sector: A review for government leaders about AI integration into government administrations. *International Journal of Academic Research in Economics and Management Sciences*, 10(4). <https://doi.org/10.6007/ijarems/v10-i4/11911>

Mikalef, P., Lemmer, K., Schaefer, C., Ylinen, M., Fjørtoft, S. O., Torvatn, H. Y., Gupta, M., & Niehaves, B. (2021). Enabling AI capabilities in government agencies: A study of determinants for European municipalities. *Government Information Quarterly*, 101596. DOI: <https://doi.org/10.1016/j.giq.2021.101596>

Minkkinen, M., Laine, J., & Mäntymäki, M. (2022). Continuous auditing of artificial intelligence: A conceptualization and assessment of tools and frameworks. *Digital Society*, 1(21). <https://doi.org/10.1007/s44206-022-00022-2>

Nasseef, O. A., Baabdullah, A. M., Alalwan, A. A., Lal, B., & Dwivedi, Y. K. (2021). Artificial intelligence-based public healthcare systems: G2G knowledge-based exchange to enhance the decision-making process. *Government Information Quarterly*, 101618. DOI: <https://doi.org/10.1016/j.giq.2021.101618>

Nordström, M. (2021). AI under great uncertainty: implications and decision strategies for public policy. *AI & Society*, 1-12. DOI: <https://doi.org/10.1007/s00146-021-01263-4>

Organisation for Economic Co-operation and Development (OECD). (2024). Explanatory memorandum on the updated OECD definition of an AI system. OECD Artificial Intelligence Papers, No. 8. OECD Publishing, Paris. <https://doi.org/10.1787/623da898-en>

Ouchchy, L., Coin, A., & Dubljevi, V. (2020). AI in the headlines: the portrayal of the ethical issues of artificial intelligence in the media. *AI & Society*, 35, 927–936. DOI: <https://doi.org/10.1007/s00146-020-00965-5>

Pastor, G. (2014). Elementos conceptuales y analíticos de las políticas públicas. En G. Pastor, *Teoría y Práctica de las Políticas Públicas* (pp. 17-45). Valencia: Tirant Lo Blanch.

Rouhiainen, L. P. (2018). *Inteligencia artificial: 101 cosas que debes saber hoy sobre nuestro futuro*. Barcelona, España: Alienta Editorial. Retrieved from https://planetadelibrosar0.cdnstatics.com/libros_contenido_extra/40/39307_Inteligencia_artificial.pdf

Ruohonen, J., & Mickelsson, S. (2023). Reflections on the Data Governance Act. *Digital Society*, 2(10). <https://doi.org/10.1007/s44206-023-00041-7>

Russell, S. J., & Norvig, P. (2004). *Inteligencia artificial: Un enfoque moderno*. Madrid, España: Pearson Prentice Hall. Retrieved from <https://luismejas21.files.wordpress.com/2017/09/inteligencia-artificial-un-enfoque-moderno-stuart-j-russell.pdf>

Ruvalcaba-Gómez, E. A. (2016). Participación ciudadana en la era del Open Government. Una aproximación desde las publicaciones científicas. *Paakat: Revista de Tecnología y Sociedad*, (11). Retrieved from <https://www.redalyc.org/articulo.oa?id=499054323002>

Ruvalcaba-Gómez, E. A. (2018). *La adopción del gobierno abierto como política pública en los gobiernos locales* (Tesis Doctoral) Universidad Autónoma de Madrid, Madrid, España.

Sáenz, K., & Tamez, G. (2014). *Métodos y técnicas cualitativas y cuantitativas aplicables a la investigación en ciencias sociales*. Tirant humanidades. Retrieved from http://eprints.uanl.mx/13416/1/2014_LIBRO%20Metodos%20y%20tecnicas_Aplicacion%20del%20metodo%20pag499_515.pdf

Salinas-Cruz, E., de la Cruz-Morales, F. R., Rendón-Medel, R., Sangerman-Jarquín, D. M., Cadena-Iñiguez, P., & Aguilar-Ávila, J. (2017). Métodos cuantitativos, métodos cualitativos o su combinación en la investigación: un acercamiento en las ciencias sociales. *Revista Mexicana de Ciencias Agrícolas*, 8(7), 1603-1617. Retrieved from <https://www.redalyc.org/articulo.oa?id=263153520009>

Sapienza, S., & Vedder, A. (2021). Principle-based recommendations for big data and machine learning in food safety: the P-SAFETY model. *AI & Society*, 1-16. DOI: <https://doi.org/10.1007/s00146-021-01282-1>

Saura, J. R., Ribeiro-Soriano, D., & Palacios-Marqués, D. (2022). Assessing behavioral data science privacy issues in government artificial intelligence deployment. *Government Information Quarterly*, 101679. DOI: <https://doi.org/10.1016/j.giq.2022.101679>

Serey, J., Quezada, L., Alfaro, M., Fuertes, G., Ternero, R., Gatica, G., ... & Vargas, M. (2020). Methodological proposals for the development of services in a smart city: A literature review. *Sustainability*, 12(24), 10249. DOI: <https://doi.org/10.3390/su122410249>

Sharma, M., Luthra, S., Joshi, S., & Kumar, A. (2022). Implementing challenges of artificial intelligence: Evidence from public manufacturing sector of an emerging economy. *Government Information Quarterly*, 101624. DOI: <https://doi.org/10.1016/j.giq.2021.101624>

Soe, R. M., & Drechsler, W. (2018). Agile local governments: Experimentation before implementation. *Government Information Quarterly*, 35(2), 323-335. DOI: <https://doi.org/10.1016/j.giq.2017.11.010>

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2022). Recommendation on the Ethics of Artificial Intelligence. <https://unesdoc.unesco.org/ark:/48223/pf0000381137>

Valle-Cruz, D., Criado, J. I., Sandoval-Almazán, R., & Ruvalcaba-Gómez, E. A. (2020). Assessing the public policy-cycle framework in the age of artificial intelligence: From agenda-setting to policy evaluation. *Government Information Quarterly*, 37(4), 1-12.

Valle-Cruz, D., Fernandez-Cortez, V., & Gil-Garcia, J. R. (2022). From E-budgeting to smart budgeting: Exploring the potential of artificial intelligence in government decision-making for resource allocation. *Government Information Quarterly*, 39(2), 101644. DOI: <https://doi.org/10.1016/j.giq.2021.101644>

Van Noordt, C., & Misuraca, G. (2022). Artificial intelligence for the public sector: results of landscaping the use of AI in government across the European Union. *Government Information Quarterly*, 101714. DOI: <https://doi.org/10.1016/j.giq.2022.101714>

Wilson, C. (2022). Public engagement and AI: A values analysis of national strategies. *Government Information Quarterly*, 39(1), 101652. DOI: <https://doi.org/10.1016/j.giq.2021.101652>

Zafra, O. (2006). Tipos de Investigación. *Revista Científica General José María Córdova*, 4(4), 13-14. Retrieved from <https://www.redalyc.org/articulo.oa?id=476259067004>

Zuiderwijk, A., Chen Y., & Salem, F. (2021). Implications of the use of artificial intelligence in public governance: A systematic literature review and a research agenda. *Government Information Quarterly*, 101577, 1-19. DOI: <https://doi.org/10.1016/j.giq.2021.101577>

Todo el contenido de **LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades**, publicados en este sitio está disponibles bajo Licencia [Creative Commons](https://creativecommons.org/licenses/by/4.0/) .