# Chapter 3
# Analysis of Artificial Intelligence Strategies: Comparative Study in National Governments

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## ABSTRACT

*Artificial intelligence (AI) has been inserted in a disruptive way in the various activities of human beings. The leaders in the AI techniques adoption are large companies in the private sector. However, the public sector already presents considerable advances in this field, mainly in the governments of Europe, North America, and China. However, governments have carried out practices and actions to implement ICTs in safety, health, mobility, education, and others, found in national documents and projects on the use of AI in the public sector. These documents show the objectives, goals, and actions that the public administration plans to carry out. This research aims to present some strategies that have been established in different countries in the field of AI in national governments, identifying their similarities and differences. Through an exploratory study, it seeks to analyze some national strategies that present innovative approaches and public policies in AI.*

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## INTRODUCTION

Artificial Intelligence (AI) is a concept that has multiple definitions, which makes it difficult to conceptualize simply everything that defines this technological development (Garcia-Benitez & Ruvalcaba-Gómez, 2022). However, there is a core of convergence on the concept, valued by different authors who define and develop AI based on common elements and characteristics that allow it to be understood the best way possible (Garcia-Benitez & Ruvalcaba-Gomez, 2021). Valle-Cruz et. al. (2020) point out a first approach to the term AI, mentioning that AI is a concept that constantly evolves along with technological evolution and, in turn, encompasses a wide variety of computer systems.

Another definition tells us that AI is a machine-based system that can carry out objectives defined by humans, making predictions, recommendations, or decisions that influence real or virtual environments (Organisation for Economic Co-operation and Development [OECD], 2019). In another sense, Berryhill et. al. (2019), turn to the considered father of AI, John McCarthy, to define AI as the science and engineering to make intelligent machines.

When talking about AI, the authors refer to the abilities and capacities that machines have to imitate human activities from algorithms like data learning, using the learned for decision-making (Rouhiainen, 2018); systems that emulate rationality and actions, for example doing human tasks and analysis through computational models, even allow the study of intelligent behavior by technological tools (Russell & Norvig, 2004).

The implementation and application of AI have been carried out in both the private and public sectors through different tools such as robotics, data processing, image recognition, detection and classification of objects, content distribution, and cybersecurity to help, collaborate and complement various activities of the sectors of society (Rouhiainen, 2018; Russell and Norvig, 2004).

In the case of the public sector, the researchers find that the idea of implementing AI in public organizations was first carried out by Hadden (1989) when he warned that through expert and intelligent systems from government agencies´ activities could be automated. However, there were delays and obstacles to carrying it out; for example, the Federal Bureau of Investigation (FBI). Later, the different AI applications that have generated value, functionalities, and benefits in public administration have been highlighted, such as knowledge management software, process automation systems, virtual agents, cognitive robotics, autonomous systems, digital assistants, among others (Wirtz et al., 2019).

It implies that governments have had to adapt AI in their tasks and activities that they carry out. However, to do it, it is necessary to have documents, standards, and laws that regulate these issues, an example of which is the national strategies on artificial intelligence, which are the object of study of this work.

The research starts with the following question: What are the main characteristics, similarities, and differences of national strategies on AI in the public sector? To answer this question: the objective of the research is to present, describe, compare, and analyze the strategies that were established in the countries of the United States, China, Spain, the United Kingdom, Uruguay, and Mexico in the field of AI. The categories of analysis are a) objective (s) of the strategy; b) the general principles; c) the strategic axes and/or actions; d) vision or goals. These categories will allow us to identify the similarities and differences of all the strategies analyzed. It will help us to distinguish the different innovative approaches and public policies in AI carried out by these countries.

Therefore, it seeks to understand the relevance and importance of government strategies and actions in the field of AI, since from its analysis and comprehension, it is possible to understand how important