

Received: 14 April, 2026

Accepted: 15 September, 2026

Published: 20 September, 2026

The Past and Present of Türkiye's Artificial Intelligence Strategy: An Evaluation in the Context of National Artificial Intelligence Strategy and Action Plans

Gamze Sinem Özer

Department of Political Science and Public Administration, Antalya, Türkiye;
gamze.s.ozer@hotmail.com

Cite this article:

Gamze Sinem ÖZER (2026). The Past and Present of Türkiye's Artificial Intelligence Strategy: An Evaluation in the Context of National Artificial Intelligence Strategy and Action Plans. *Revista Cultura Científica*, (24), pp. 1336–1356.
<https://doi.org/10.70517/revcc2624111>

Abstract

Artificial intelligence (AI) has emerged as a critical instrument of digital transformation, prompting numerous countries to develop dedicated national strategies in this field. Türkiye's institutional engagement with AI began in 2019, with the establishment of an AI-related department within the Digital Transformation Office, followed by the announcement of the National Artificial Intelligence Strategy in 2021. This strategy outlines priorities including the strengthening of human resources, the development of legal and ethical frameworks, the expansion of AI-related infrastructure, and the promotion of domestic technologies and international cooperation, all oriented toward enhancing Türkiye's position in global competition. These policies have been reinforced by subsequent higher-level policy documents and legislation, contributing to a gradual improvement in Türkiye's standing across international AI readiness indices in recent years. In June 2026, Türkiye announced a new National Artificial Intelligence Action Plan covering the 2026–2030 period, structured around four pillars—recognize,

leverage, produce, and govern—that substantially expand the scope of the 2021–2025 Strategy through increased investment in computing infrastructure, domestic language models, and sovereign AI capacity. This study examines the evolution of Türkiye's AI policy framework from its initial strategy through the most recent action plan, situating these developments within the broader context of international assessments such as the Oxford Government AI Readiness Index 2025 and the European Union's Artificial Intelligence Act. The findings suggest that while Türkiye has made measurable progress in policy formulation and public-sector digital delivery, persistent deficiencies remain in human capital, computing infrastructure, and AI sector maturity. Sustained progress will therefore depend on continued investment in these areas, alongside the development of policies that anticipate both the opportunities and the risks associated with the advancement of artificial intelligence.

Keywords: Artificial intelligence, artificial intelligence strategy, National Artificial Intelligence Strategy, Türkiye.

1. INTRODUCTION

Today, artificial intelligence stands out as a revolutionary tool in the field of digital transformation and innovative technologies. Artificial intelligence technologies, which affect almost every field, from education and health to industry and public administration, offer a wide range of opportunities, extending from economic growth to broader social development within countries. Many countries around the world therefore aim to make the most effective use of the advantages and opportunities offered by artificial intelligence. In this context, countries have published national policy and strategy documents on artificial intelligence since 2016. The United States, South Korea, and China, for instance, became pioneers in this field by publishing their respective artificial intelligence strategies in 2016. Following these early initiatives, Canada, Japan, and Singapore published their artificial intelligence strategies in 2017. Germany, France, India, and the United Kingdom published their strategies in 2018, while Russia did so in 2019. The artificial intelligence strategies of these countries converge on several common themes: human-centeredness, the dissemination of research and development for the artificial intelligence ecosystem, the promotion of cooperation between national and international actors, the development of ethical principles, the dissemination of digital infrastructure, and the integration of artificial intelligence into the workforce. In these countries, artificial intelligence policy has taken institutional form both within existing ministries and through dedicated artificial intelligence offices[1].

As part of this global race, Türkiye established the Department of Big Data and Artificial Intelligence Applications within the Presidency Digital Transformation Office (hereinafter PDTO) in 2019, and subsequently announced its National Artificial Intelligence Strategy in 2021, setting out the steps to be taken in this field. Similar to the strategies of other countries, this strategy addresses the strengthening of human resources, the support of artificial intelligence research and development activities, and the establishment of an ethical and legal framework for artificial intelligence. As such, Türkiye's national artificial intelligence strategy constitutes an important roadmap for shaping the country's digital future and increasing its global competitiveness. More recently, in June 2026, Türkiye announced a new National Artificial Intelligence Action Plan covering the 2026–2030 period, substantially expanding the scope of the original strategy and signaling a new phase in the country's AI policy.

This study aims to provide a comprehensive account of the evolution of Türkiye's national artificial intelligence policy, from its institutional origins to its most recent strategic cycle. By examining these successive policy stages together, the study also provides a clearer basis for understanding continuity, institutional learning, changes in implementation priorities, and the growing importance of infrastructure, human capital, governance, and international regulatory alignment within Türkiye's evolving artificial intelligence policy framework. To this end, it evaluates Türkiye's national strategies in the field of artificial intelligence within the framework of the relevant legislation and policy documents, and examines the institutional structuring related to artificial intelligence in the country. The study further situates Türkiye's policy trajectory within a comparative international context, drawing on the country's appearance in global artificial intelligence readiness indices, in order to assess the extent to which national objectives align with, and respond to, internationally identified strengths and weaknesses. This analysis is conducted with reference to both the National Artificial Intelligence Strategy 2021–2025 (hereinafter NAIS) and the subsequent National Artificial Intelligence Action Plan for 2026–2030.

2. THE DEVELOPMENT PROCESS OF ARTIFICIAL INTELLIGENCE

Some views in the literature trace the foundations of the idea of artificial intelligence (AI) back to Ancient Greece and Ancient Egypt[2, p. 14-16]. Although the intellectual dimension related to artificial intelligence can be traced back to different periods, the prevailing view is that the historical development of artificial intelligence has progressed in parallel with the development of computer technologies[3, p. 54-55]. Although these two developments mutually reinforce one another, this does not mean that they have occurred simultaneously or progressed at the same rate. Like every new technological field, artificial intelligence has evolved through successive stages of formation, development, change, and transformation, thereby creating its own distinctive chronology (Figure 1). This chronology is often discussed in relation to the early development of automata and robots. In this context, it is accepted that an early account of a humanoid automaton appears in the text attributed to Lie Zi and is associated with Ancient China. The humanoid automaton in this text is based on the depiction of Yan Shi presenting a human-shaped figure made of leather, wood, and artificial limbs by mechanical handicraft to Emperor Mu of Zhou.

Another name with early studies in this field is Al-Jazari. Al-Jazari contributed to the historical foundations of fields later associated with computer science, cybernetics, and artificial intelligence through his mechanical designs, including a humanoid automaton capable of striking cymbals. Leonardo da Vinci, on the other hand, conducted studies on human anatomy to design the humanoid robot. Da Vinci designed a knight robot that could stand up, sit down, move its arms, head and jaw, and was operated with the help of pulleys and cables. His sketchbooks containing these designs became a source of inspiration for later robot researchers. Another important scientist in this field is the French inventor Jacques de Vaucanson. In 1738, De Vaucanson designed the “Flute Player”, an innovative automaton with a repertoire of twelve songs. His realistic

design is frequently described as an important milestone in the historical development of mechanical automata. However, the word robot entered the literature with the play “R.U.R (Rossum’s Universal Robots)” by writer Karel Capek in 1921[4, p. 36-40]. Later, in 1943, an early formal neural-network model, commonly known as the McCulloch–Pitts (M–P) model, was developed by Warren McCulloch and Walter Pitts through a logical model of neural activity. This model is considered the first clue about artificial intelligence because it formulates and explains the structure of neurons in the brain and how they work[5]. Following the introduction of the word “robot,” the term “robotics” was popularized in the literature by Isaac Asimov[6, p. 137-158]. In 1948, the first electronic autonomous robot called “Machina Speculatrix” was produced by William Grey Walter[4, p. 36-40]. Again in this year, the idea that computers could prove complex mathematical theorems through certain algorithms and be used to play chess was proposed by Shannon[7, p. 71-88]. Following this year, in 1949, the oldest idea of machine learning (ML), the neuropsychology-based learning mechanism, was developed by Hebb. The “Hebb Learning Rule” is defined as an unsupervised learning rule that can extract statistical features of training sets, classify data according to data similarity, and is very close to the human cognitive process[5]. Taken together, these developments are widely regarded as important steps in the historical development of artificial intelligence.

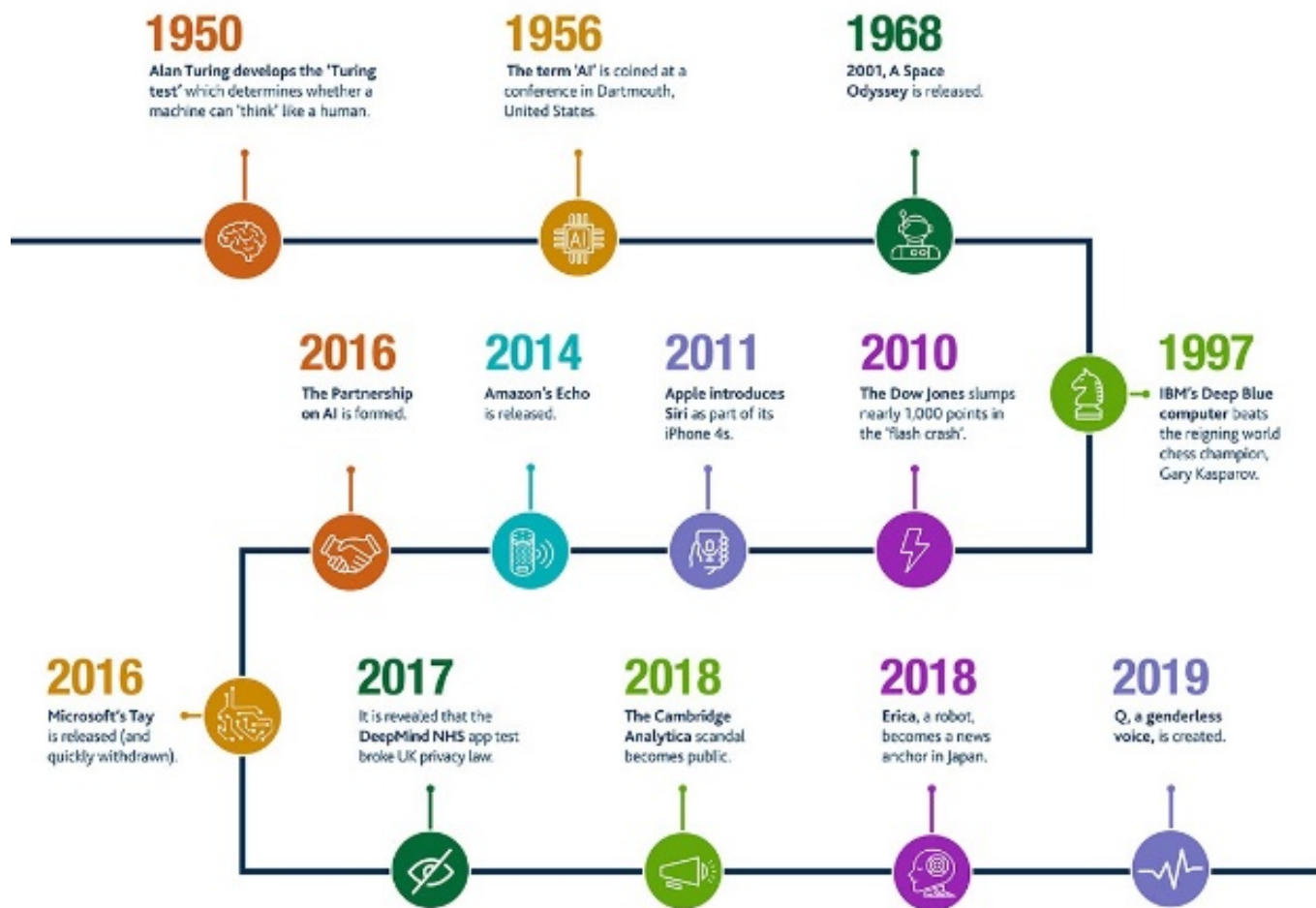


Figure 1. The evolution of AI

Source: *Artificial intelligence and its impact on society*, in <https://kihikila.in/ki-hikiba/science-and-technology/artificial-intelligence-and-its-impact-on-society/>.

One of the first concrete milestones in modern artificial intelligence was Alan Mathison Turing's 1950 article “Computing Machinery and Intelligence,” published in the journal *Mind*[8, p. 7]. Turing brought the question of whether a machine could think to the center of scientific discussion with the question “Can machines think?” [9, p. 40-52] [10]. As a result of this question, Turing proposed a test to understand whether a machine was intelligent. According to the test, if a human cannot distinguish the machine from a human when interacting with another human and a machine, then the machine may be regarded as displaying intelligent behavior [11, p. 5-14]. The Turing Test is still accepted as a criterion for determining the intelligence of an artificial system today and maintains its relevance. In 1952, Arthur Samuel developed

a checker program that could learn implicit models from the current position and guide the next moves[5]. This period before 1956 is considered the incubation period of artificial intelligence. The foundations of artificial intelligence were strengthened by the ideas developed during this period and by the techniques, programs, and machines created in response to them. This emerging field entered a more formal phase in 1955 when John McCarthy introduced the term "artificial intelligence" (AI) and defined artificial intelligence as "the science and engineering of making intelligent machines" [12, p. 12-12] [13, p. 389-394].

In 1956, at the "Dartmouth Conference" organized by McCarthy, Minsky, Shannon and Rochester within the scope of the "Dartmouth Summer Research Project on Artificial Intelligence (DSRPAI)", the concept of "artificial intelligence" was formalized and began to be used as the name of an emerging research field [14, p. 4-9] [15, p. 2283-2300]. In addition, this conference was the first conference organized on the subject of artificial intelligence[4, p. 36-40]. Again, one of the first theory-proving programs, "Logic Theorist", was introduced by Newell and Simon at this conference[10]. Therefore, a new interdisciplinary research area was created with this conference and an intellectual framework was drawn for subsequent studies. In the following years, significant amounts of funding began to be transferred to artificial intelligence research, which led to the emergence of more studies on the subject. For example, in 1957, the "Perceptron" model was introduced by American psychologist Frank Rosenblatt. This model, based on the idea of creating a recognition system using brain neurons, is considered a pioneering study in the development of later learning abilities, neural networks and connection mechanisms. Again, in 1958, McCarthy invented the "LISP" programming language, which became highly influential in artificial intelligence research[8, p. 9]. Another important development in the field of artificial intelligence was the well-known computer program "ELIZA". Developed by Joseph Weizenbaum between 1964 and 1966, "ELIZA" is a natural language processing tool that can imitate a conversation with a human. It also has the distinction of being the first program that can attempt to pass the Turing Test. Again, during this period, Danny Bobrow's thesis showed that computers could understand natural language well and solve algebraic word problems correctly[6, p. 137-158]. These developments were followed by the "General Problem Solver" program developed by scientists Herbert Simon, Cliff Shaw and Allen Newell, which could automatically solve certain types of simple problems[5]. These studies accelerated the development of artificial intelligence and generated increasingly ambitious expectations about the field. In fact, in an interview with Life Magazine in 1970, Marvin Minsky stated that a machine with the general intelligence of an average human could be developed in three to eight years[11, p. 5-14]. However, three years later, the high spending on artificial intelligence research began to be harshly criticized in the "US Congress". In the same year, a report was published by British mathematician James Lighthill, commissioned by the British Science Research Council, questioning the optimistic perspective of artificial intelligence researchers. As a result, the British government ended support for artificial intelligence research at universities except for three (Edinburgh, Sussex and Essex). Shortly after, the US government also restricted artificial intelligence research funds following British sanctions[11, p. 5-14]. The publication of many reports criticizing artificial intelligence studies and the decrease in government interest and support for artificial intelligence in this period between 1974 and 1980 caused this period to be referred to as the "AI winter"[16, p. 25-36].

During the 1980s, advances in machine learning, growing volumes of data and improved data-modeling capabilities, the increasing use of AI-based machines, and the ability of such systems to address increasingly complex tasks contributed to a renewed expansion of the field. In addition, the British government's re-funding of this field to compete with the Japanese government caused the revival of the field of artificial intelligence[5]. This revival was supported by the "deep learning" technique introduced by John Hopfield and David Rumelhart. This technique allows computers to use previously stored or used information in new experiences. Edward Feigenbaum developed the "expert systems" program that can simulate a process similar to the decision-making systems of expert people[7, p. 71-88]. In the 1990s, important developments began to occur in many areas such as case-based reasoning, data mining, web browsers, natural language understanding and translation, vision, virtual reality and games. For example; "A.L.I.C.E (Artificial Linguistic Internet Computer Entity)" was launched in 1995. Designed by Richard Wallace, A.L.I.C.E[17, p. 126] is a natural language processing chat robot. This robot, which has won the Loebner Award given to talented robots three times, is seen as one of the most powerful and widespread programs of its kind. Another example is the "Deep Blue" chess program developed by IBM in 1997. This program defeated world chess champion Garry Kasparov, demonstrating that a computer system could defeat a leading human player in a highly complex strategic game [18, p. 1-5] [6, p. 137-158]. Again, in the same period, the first "speech recognition software" designed by Dragon Systems and used in Windows was developed. These developments demonstrated the cumulative nature of progress in artificial intelligence and greatly expanded the range of problems considered technically approachable.

Researchers continued to advance artificial intelligence, and a robot named "Kismet" in MIT laboratories in 2001, was developed at MIT laboratories to display expressive behaviors, engage in socially situated learning, and use voice, facial expressions, and head movements in human-like interaction[19, p. 5] [7, p. 71-88]. IBM's artificial intelligence system named "Watson" became the champion of America's popular quiz show "Jeopardy!" in 2011. Another artificial intelligence system, "AlphaGo", defeated more than sixty "Go" masters, including world champion Lee Sedol and the

world's best player Ke Jie. Later, this system was developed and transformed into "AlphaGo Zero". All these examples show us the power of deep learning in the age of artificial intelligence and show how this field is rapidly expanding itself [5] [11, p. 5-14].

Research in the field of artificial intelligence continues to progress rapidly in today's "Big Data" age. Artificial intelligence applications are actively used in many areas from banking to logistics, from production to entertainment. Today, many artificial intelligence technologies such as chatbots such as ChatGPT and Bing Chat, personal assistants such as Alexa and Siri, instant language translation, smart home systems, virtual classrooms, patient monitoring systems, games, hand, speech and face recognition, image processing, autonomous vehicles are constantly being developed and updated to make our lives easier[7, p. 71-88]. When we consider the current state of artificial intelligence, it is clear that the present level of development is the result of a cumulative historical process. It is obvious that the search for the best version of this reality will continue unabated in the coming years.

3. ARTIFICIAL INTELLIGENCE DEFINITIONS

Since the subject of artificial intelligence is an interdisciplinary field of study, definitions of artificial intelligence in the literature are numerous and diverse. For example, according to Nils Nilsson (1990), artificial intelligence is defined as "a theory that aims to create an imitation of natural intelligence[7, p. 71-88]." According to Genesereth and Nilsson, artificial intelligence is a study carried out on intelligent behavior. According to them, the real purpose of this study is to create a theory that aims to artificially produce intelligent behaviors of beings found in nature[16, p. 25-36]. As can be understood from these definitions, some authors in the literature express artificial intelligence as a theory. Other authors, by contrast, regard artificial intelligence more directly as a branch of science and engineering. One of them, McCarthy[20], defined artificial intelligence as "the science and engineering of making intelligent machines, especially intelligent computer programs". Whitby[21, p. 17] defined artificial intelligence as "a branch of science that studies what intelligent behavior is in humans, animals, and machines and tries to find out how human-made devices can exhibit such behavior."

In the literature, the concept of artificial intelligence has also been used to describe situations where a machine simulates functions that humans associate with other human minds, such as learning and problem solving[18, p. 1-5]. More clearly, artificial intelligence is a mechanical simulation system that can collect information and data in the universe, bring them together to make inferences, and distribute these inferences to people in an actionable way[22, p. 09-13]. Coppin[8, p. 4] defined artificial intelligence as the study of systems that appear and act as if they were intelligent to any observer.

There are definitions developed from different perspectives in the literature on the concept of artificial intelligence. Some of these definitions are as follows: For example; Skrop et al.[23, p. 1-18] described the concept of artificial intelligence as a technology created in the 1960s, which includes methods for computers to behave intelligently and solve complex problems, and is considered one of the basic concepts of the Industry 4.0 philosophy. Jiang et al.[5] stated that, like the roles of steam engines in the Steam Age, generators in the Electric Age, and computers in the Information Age, artificial intelligence is the main pillar of technology in the modern age and beyond. According to Copeland (1993), artificial intelligence is "intelligent programs that can improve themselves by solving complex problems, interpreting them, and using old information in a way that is compatible with new ones through learning." [13, p. 389-394]. Apart from these definitions, international institutions and organizations also have definitions of artificial intelligence. In Regulation (EU) 2024/1689, the European Union Artificial Intelligence Act, artificial intelligence is defined as a rapidly developing family of technologies that contribute to a wide range of economic, environmental and social benefits across the entire spectrum of industries and social activities[24]. According to the Council of Europe guidance[25], artificial intelligence is explained as "an umbrella term to generally express a set of sciences, theories and techniques dedicated to improving the ability of machines to do things that require intelligence". OECD[26] defines an artificial intelligence system as "a machine-based system that, for explicit or implicit purposes, derives from the inputs it receives how to produce outputs such as predictions, content, recommendations or decisions that can affect physical or virtual environments." The Presidency's Digital Transformation Office (PDTO), on the other hand, defines artificial intelligence as "artificial intelligence is the ability of a computer or computer-controlled robot to perform tasks generally associated with intelligent beings"[27].

As a result, artificial intelligence in its broadest sense is an umbrella term used to describe technologies and methods such as machine learning, natural language processing, data mining, neural networks, and algorithmic decision-making[28, p. 1-27].

4. TÜRKİYE'S NATIONAL ARTIFICIAL INTELLIGENCE STRATEGY

Countries' efforts to develop artificial intelligence technologies and expand their practical applicability are gaining momentum. In this context, the subject of artificial intelligence has been determined as one of the critical technology areas for Türkiye, both in the Eleventh Development Plan and the 2023 Industrial and Technology Strategy. The first general

framework for this area in our country was drawn with the "National Artificial Intelligence Strategy 2021–2025".

The National Artificial Intelligence Strategy, in accordance with the "Measure 473.1" included in the Eleventh Development Plan and the 2021 Presidential Annual Program, it was prepared by the Presidency Digital Transformation Office and the Ministry of Industry and Technology for four years. Apart from these two institutions, the opinions and evaluations of public institutions, universities, the private sector, non-governmental organizations, representatives of international organizations, and experts from different disciplines in different disciplines were also used[1]. In this context, it is possible to say that the preparation phase of the National Artificial Intelligence Strategy was carried out with a participatory approach. The implementation details of the strategy were set out in the 2021–2025 Action Plan. However, this Action Plan was updated as the 2024–2025 Action Plan in line with the recent developments in the field of artificial intelligence and the needs of the country and the 12th Development Plan[29]. Therefore, Türkiye closely follows developments in the field of artificial intelligence and tries to develop up-to-date policies in this field.

The National Artificial Intelligence Strategy is organized around the following major headings: "Introduction", "Global Developments and Trends", "Current Situation in Türkiye", "AI Values and Principles", "Strategic Priorities", "Objectives and Measures", and "Governance Mechanism". The vision of the National Artificial Intelligence Strategy is stated as "to generate value on a global scale with an agile and sustainable AI ecosystem for a prosperous Türkiye". In order to realize this vision and manage the advantages and disadvantages that may arise for our country over time, six strategic priorities have been determined in the strategy document. These strategic priorities are listed as follows:

1. To train artificial intelligence experts and increase employment in the field,
2. To support research, entrepreneurship and innovation,
3. To expand access to quality data and technical infrastructure,
4. To make arrangements that will accelerate socioeconomic harmony,
5. To strengthen international cooperation,
6. To accelerate structural and workforce transformation.

In addition, twenty-four goals and one hundred and nineteen measures have been determined within the scope of these strategic priorities. These goals and measures are considered important because they outline the action plans to be prepared by the relevant public institutions under the coordination of PDTO and the Ministry of Industry and Technology (MIT)[1]. As a result, the National Artificial Intelligence Strategy provides a common framework for the studies in the field of artificial intelligence to be carried out in our country between 2021 and 2025 and reveals the measures in this regard and the governance mechanism to be established to implement these measures.

4.1. TOWARD A NEW STRATEGIC CYCLE: THE 2026–2030 NATIONAL AI ACTION PLAN

As the 2021–2025 Strategy and its updated 2024–2025 Action Plan approached the end of their implementation horizon, Türkiye moved to establish a new and more comprehensive strategic cycle. At the Türkiye Artificial Intelligence Summit held in Istanbul in June 2026, President Recep Tayyip Erdoğan publicly presented Türkiye's National Artificial Intelligence Action Plan, covering the 2026–2030 period[30]. The summit, which was also attended by Minister of Industry and Technology Mehmet Fatih Kacır, marked the unveiling of what constitutes Türkiye's most comprehensive strategic document on artificial intelligence policy to date, succeeding the framework established by the 2021–2025 Strategy.

The framework set out in President Erdoğan's opening remarks positioned the plan not merely as a tool for technological development, but as a strategy for geopolitical positioning. In this context, it was emphasized that digital capacity has become an inseparable component of political, military, and economic power. Reference was made to the destructive effects of data security and cybersecurity vulnerabilities in contemporary conflicts. It was argued that digital sovereignty has consequently evolved into a matter of national security. This framing can be situated within the broader international trend toward "technological sovereignty" observed in the AI policies of numerous countries in recent years.

The address also invoked a historical reference to Türkiye's accumulated experience in the field of artificial intelligence. The question "Can a machine think?", posed by mathematician Cahit Arf at a 1959 conference in Erzurum, was cited as a means of underscoring the country's intellectual history in this domain. This framing indicates that the plan is not presented merely as a recent policy initiative. Rather, it is positioned as a continuation of a longer-standing scientific and technological trajectory. As evidence of this accumulated capacity, the official presentation referred to the deployment of 5G infrastructure, the establishment of the Presidential Cybersecurity Directorate, the launch of the Türksat 6A satellite, and the existence of more than 1,700 research and development centers across the country[30].

4.2. STRUCTURAL FRAMEWORK OF THE 2026–2030 PLAN

The Action Plan is structured around four pillars, articulated as "recognize, leverage, produce, and govern." This structure parallels the "awareness–implementation–production–regulation" framework frequently observed in the AI strategies of the OECD and the European Union. However, Türkiye-specific priorities differentiate this structure from comparable frameworks elsewhere. Foremost among these distinguishing priorities are Turkish-language models, integration with the defense industry, and cooperation among Turkic languages.

First Pillar – Recognize: This pillar aims to raise societal awareness. Through the National Artificial Intelligence Literacy Program, training is planned for five million citizens within two years[30]. The same program envisions the training of ten thousand advanced AI specialists and one hundred thousand AI application professionals. A further component of this pillar involves making at least 2,000 public datasets, prioritizing the fields of health, agriculture, defense, and e-commerce, accessible through the National Data Library.

Second Pillar – Leverage: This pillar aims to translate artificial intelligence into concrete applications across both the public and private sectors. By 2030, the country's installed data center capacity is planned to reach at least 1 gigawatt. At least 2 percent of public investment programs is to be allocated to AI projects. A further key element of this pillar is the positioning of the public sector as the "first buyer" of successful domestic AI solutions. Under the HIT-30 incentive program, 1.5 billion USD has been allocated to data center investments. An additional 1.6 billion USD has been allocated to AI infrastructure[30].

Third Pillar – Produce: This pillar aims to strengthen domestic model-development capacity. The "Bilge" language model, developed by TÜBİTAK, constitutes one of the concrete outputs of this pillar. A model developed through collaboration between the T3 Foundation and Baykar, as well as HAVELSAN's 9-billion-parameter Main Platform model, are considered within the same scope. These initiatives may be regarded as tangible outputs of the discourse of digital sovereignty. Financing for the research and entrepreneurship ecosystem is to be supported through the National Artificial Intelligence Research Fund and the Artificial Intelligence Growth Fund. An additional 150 million USD in public funding is to be directed toward venture capital funds[30].

Fourth Pillar – Govern: This pillar aims to secure the country's sovereign AI capacity. At least 10 billion USD in resources, predominantly from the private sector, is to be mobilized for data center, cloud, and AI infrastructure. A "single-window" system, offering international investors a response within a maximum of 30 business days, is intended to accelerate investment processes. The positioning of Istanbul as an international hub for investment diplomacy, under the "Terminal Istanbul" initiative, also forms part of this pillar. Türkiye aims to play an active role in shaping human-centered AI standards within platforms such as the OECD, the G20, and the United Nations. With respect to regional cooperation, a joint Turkic-language large language model encompassing the Oghuz, Kipchak, and Karluk language groups is envisioned under the framework of the Organization of Turkic States[30].

4.3. GOVERNANCE MECHANISM AND ANTICIPATED ECONOMIC IMPACT

In the implementation phase of the plan, regulatory sandboxes are envisioned in at least five priority sectors. This mechanism is intended to allow innovative solutions to be tested under controlled conditions. Coordination of the process is planned through the newly established National Artificial Intelligence Council[30]. Coordination among public institutions, the private sector, universities, and research centers is planned during the implementation phase. This coordination process will be monitored by the Ministry of Industry and Technology.

President Erdoğan stated that the value added generated by the resources mobilized under the plan is expected to exceed 1 trillion Turkish lira[30]. The verifiability of this figure can only be assessed once the full text of the plan is officially published[30].

5. TÜRKİYE'S OUTLOOK IN GLOBAL INDICES

In the National Artificial Intelligence Strategy, information from the "Government AI Readiness Index" and the "Global AI Index" was used to evaluate Türkiye's appearance in global indices.

The "Government AI Readiness Index Report" prepared by Oxford Insights and IDRC measures the preparedness of countries to use artificial intelligence in public services. In the Government AI Readiness Index 2020 Report, which includes an analysis of ten sub-indicators, our country ranked sixty-seventh out of one hundred and seventy-two countries[1]. However, this position changed in the Government AI Readiness Index 2024 and Türkiye ranked fifty-third among one hundred and eighty-eight countries. Figure 2 shows Türkiye's Government AI Readiness Index profile for 2020 by dimension, while Figure 3 presents the scores reported in the Government AI Readiness Index 2024.

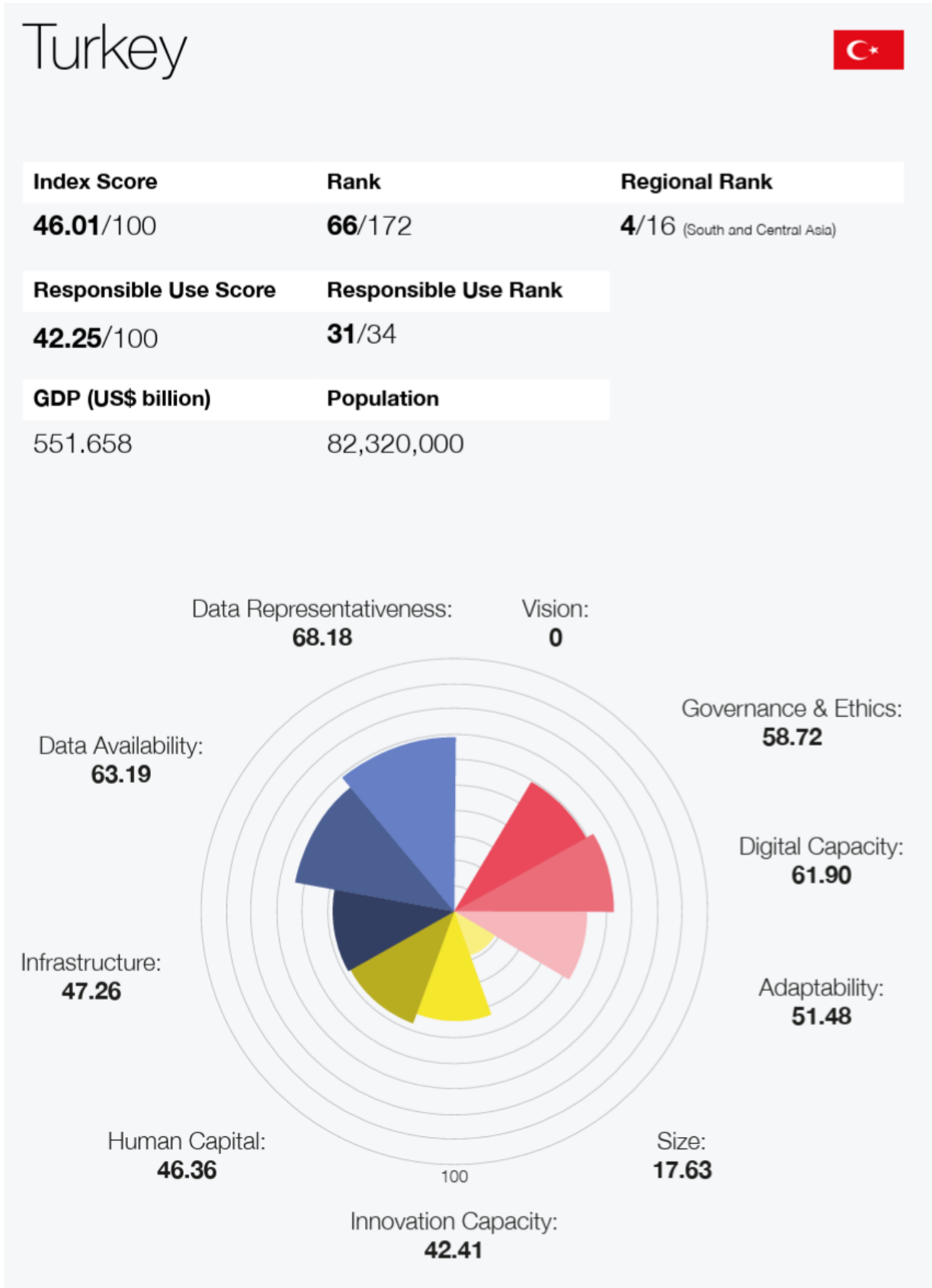


Figure 2. Government AI readiness index Türkiye’s outlook in 2020

Source: Oxford insights government AI readiness index 2020, in <https://oxfordinsights.com/wp-content/uploads/2023/11/AIReadinessReport.pdf>

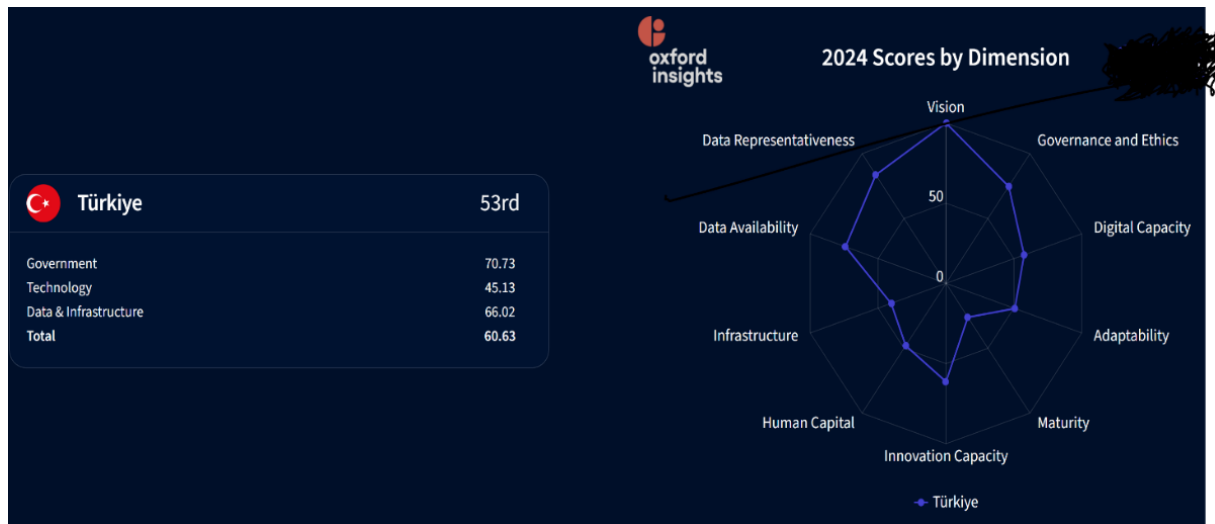


Figure 3. Government AI readiness index Türkiye's outlook in 2024

Source: Oxford insights government AI readiness index 2024, in <https://oxfordinsights.com/ai-readiness/ai-readiness-index/>.

In the 2024 Report, Türkiye received 83.65 points from the “Data Representatives” dimension, 74.03 points from the “Data Availability” dimension, 40.39 points from the “Infrastructure” dimension, 47.99 points from the “Human Capital” dimension, 61.31 points from the “Innovation Capacity” dimension, 100 points from the “Vision” dimension, 74.72 points from the “Governance and Ethics” dimension, 57.49 points from the “Digital Capacity” dimension, 50.71 points from the “Adaptability” dimension, and 26.1 points from the “Maturity” dimension. Türkiye was evaluated in the South and Central Asia region in this report and ranked second in its own region. In this context, Türkiye received 70.73 points in the “Government” pillar, 45.13 points in the “Technology Sector” pillar, and 66.02 points in the “Data and Infrastructure” pillar, giving a total score of 60.63[31].

Pillar	Türkiye
Policy Vision	80.00
Policy Commitment	75.00
Compute Capacity	13.29
Enabling Technical Infrastructure	70.07
Data Quality	74.92
Governance Principles	75.00
Regulatory Compliance	61.37
Government Digital Policy	57.12
E-Government Delivery	98.06
Human Capital	74.52
AI Sector Maturity	12.69
AI Technology Diffusion	60.89
Societal Transition	44.53
Safety and Security	50.00
Total	58.91
Rank	53

Figure 4. Government AI readiness index Türkiye's outlook in 2025 pillars

Source: Oxford Insights Government AI Readiness Index 2025, in <https://oxfordinsights.com/ai-readiness/government-ai-readiness-index-2025/>.

According to the Oxford Government AI Readiness Index 2025 report, government readiness for artificial intelligence is assessed through 63 indicators across 14 dimensions within six core pillars[32], offering a more detailed evaluation than previous editions. Türkiye's scores across the 14 dimensions are presented in Figure 4, while the details of the 63 indicators are not specified in the report.

According to the 2025 index, the dimensions in which Türkiye scored highest are "E-Government Delivery" with 98.06 points, "Policy Vision" with 80.00 points, and "Policy Commitment" together with "Governance Principles" with 75.00 points each. These dimensions are followed by "Data Quality" with 74.92 points, "Human Capital" with 74.52 points, and "Enabling Technical Infrastructure" with 70.07 points. The dimensions with the lowest scores are "AI Sector Maturity" with 12.69 points, "Compute Capacity" with 13.29 points, and "Societal Transition" with 44.53 points[32].

The chart formed by the six pillars resulting from all these dimension scores is presented in Figure 5. Türkiye's scores across the six core pillars specified in the report are as follows[32]. The "Policy Capacity" pillar score is 77.0, the "Public Sector Adoption" score is 77.6, the "Governance" score is 68.2, the "AI Infrastructure" pillar score is 52.8, the "Resilience" score is 47.3, and the "Development & Diffusion" pillar score is 45.7.

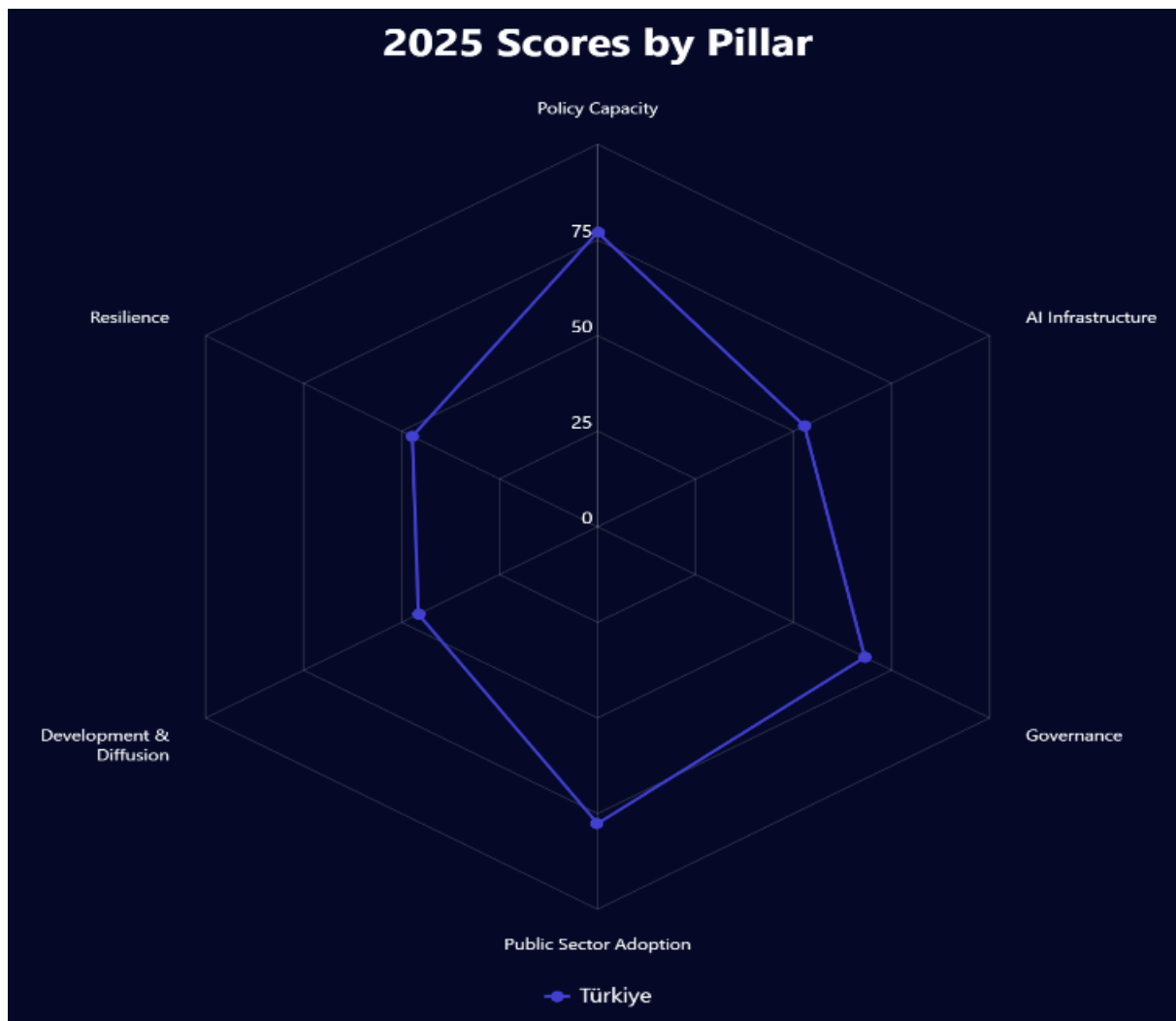


Figure 5. Government AI readiness index Türkiye's outlook in 2025

Source: Oxford Insights Government AI Readiness Index 2025, in <https://oxfordinsights.com/ai-readiness/government-ai-readiness-index-2025/>.

On the basis of these component scores, Türkiye achieved an overall score of 58.91 and ranked 53rd among 195 countries[32]. An examination of the South and Central Asia category in the report reveals that India continues to lead the region. Türkiye's global ranking of 53rd with a score of 58.91 indicates that the country maintains its position as the second-ranked country within the region.

Türkiye continues to seek ways to increase the adoption of artificial intelligence. According to the report's assessment, however, a significant portion of the national strategy commitments announced in previous years has not yet been fulfilled. Nevertheless, the country possesses strong digital and innovation foundations. These foundations are considered alongside other potential opportunities. In this context, the introduction of a dedicated technology visa aimed at attracting international digital and AI talent stands out. This initiative is described in the report as a promising example[32].

Another study that benefited from Türkiye's appearance in global indices in NAIS was the "2019 Global AI Index" prepared by Tortoise Media. The study conducted an analysis consisting of seven sub-indicators (Talent, Infrastructure, Operational Environment, Research, Development, Country Strategy, Commercial Organizations). According to this

analysis, our country ranked forty-first among fifty-four countries. When examined according to the sub-indicators in Figure 6, it is seen that our country's performance is better in the headings of "Infrastructure", "Commercial Organizations" and "Development"[1].

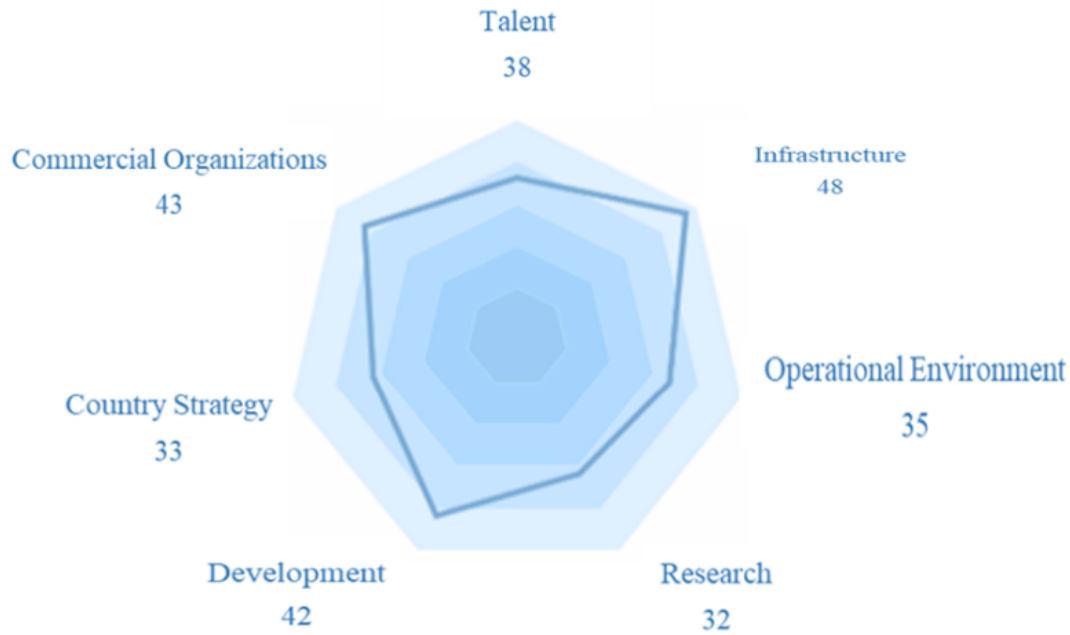


Figure 6. Türkiye's outlook in the global AI index 2019

Source: Cumhurbaşkanlığı dijital dönüşüm ofisi ulusal yapay zekâ stratejisi (2021–2025), in <https://cbddo.gov.tr/uyzs>.

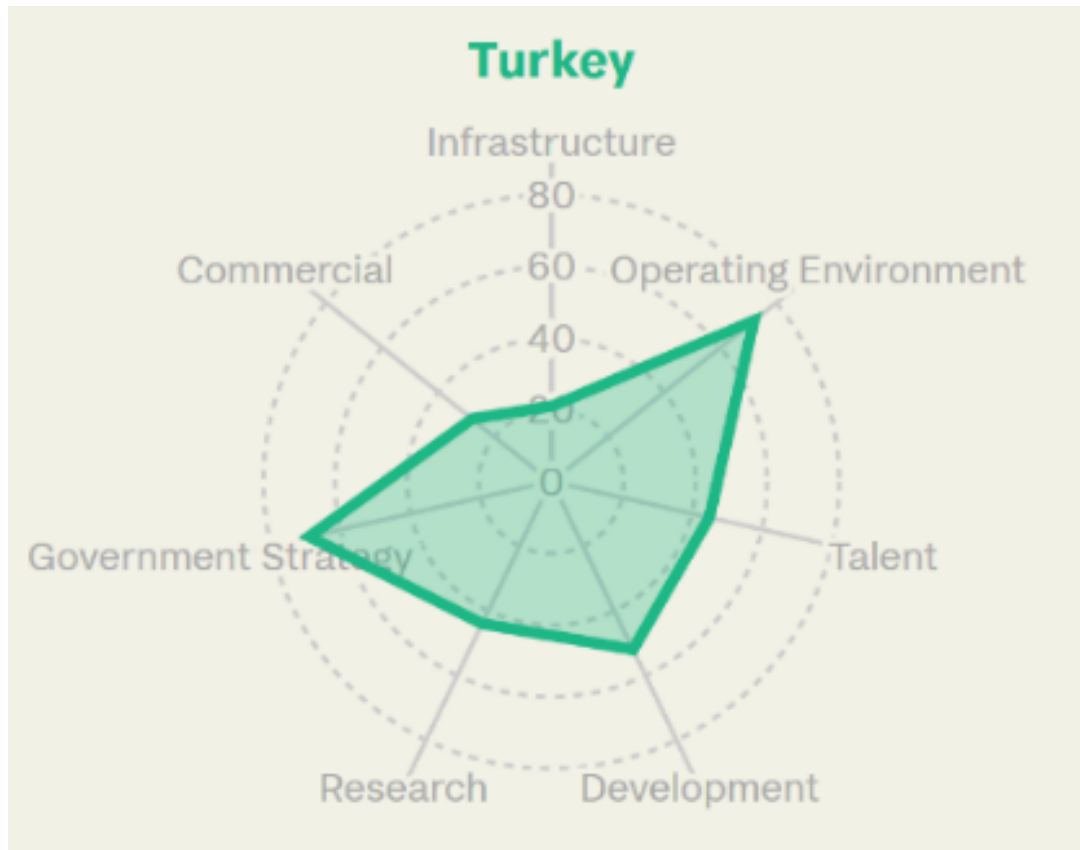


Figure 7. Türkiye's outlook in the global AI index 2024

Source: Tortoise media the global AI index 2024, in <https://www.tortoisemedia.com/intelligence/global-ai/> (Accessed on 04.10.2024).

According to the “2024 Global AI Index”, our country ranked thirty-fourth out of eighty-three countries. According to the sub-indicators in Figure 7, our country ranked thirty-eighth in the “Talent” heading, which focuses on finding talented

practitioners in artificial intelligence solutions, and sixty-second in the “Infrastructure” heading. It ranked thirty-first in the “Development” heading, which focuses on the development of new artificial intelligence models and the application of artificial intelligence technology to patents in other areas, and thirty-ninth in the “Research” heading. Our country ranked eleventh in the “Operational Environment” heading, and fifty-fifth in the “Commercial Organizations” heading. Our country ranked fourteenth in the “Country Strategy” heading, which measures the depth of national governments’ commitment to artificial intelligence and investigates their spending and national strategies. According to these rankings, it can be said that our country has shown a better performance in the categories of “Operational Environment”, “Country Strategy” and “Development”[33].

6. HIGHER POLICY AND LEGISLATION REGARDING ARTIFICIAL INTELLIGENCE IN TÜRKİYE

In Türkiye, development plans constitute an important component of the higher-level policy framework for artificial intelligence. While NAIS was being prepared, the critical technology areas in the current Eleventh Development Plan were determined as artificial intelligence, internet of things, augmented reality, big data and sensor technologies. These priority areas were also emphasized in the “Study on Determining Priority Technology Areas to be Focused on within the Scope of the Groundbreaking Strategic Approach” organized by the Science, Technology and Innovation Policies Board (hereinafter STIPB). In this study, the fields of “artificial intelligence and machine learning” and “big data and data analytics” were accepted as priority areas among twenty-seven technology areas. Because these areas are seen as the areas with the highest impact and feasibility in terms of economic impact, social benefit and national security. Six new “Technology Roadmaps” have been created within the STIPB regarding these areas[29]. One of these, the “Artificial Intelligence Technology Roadmap,” was published in 2021. In this context, the aim of the AI Technology Roadmap is to determine the strategic priorities to be determined regarding artificial intelligence technologies (Figure 8) and the important products and technologies to be developed in our country to realize these priorities. It also includes issues such as determining in which sectors the critical products and technologies developed will be applied first and producing the research and development projects necessary for the dissemination of artificial intelligence applications[34].

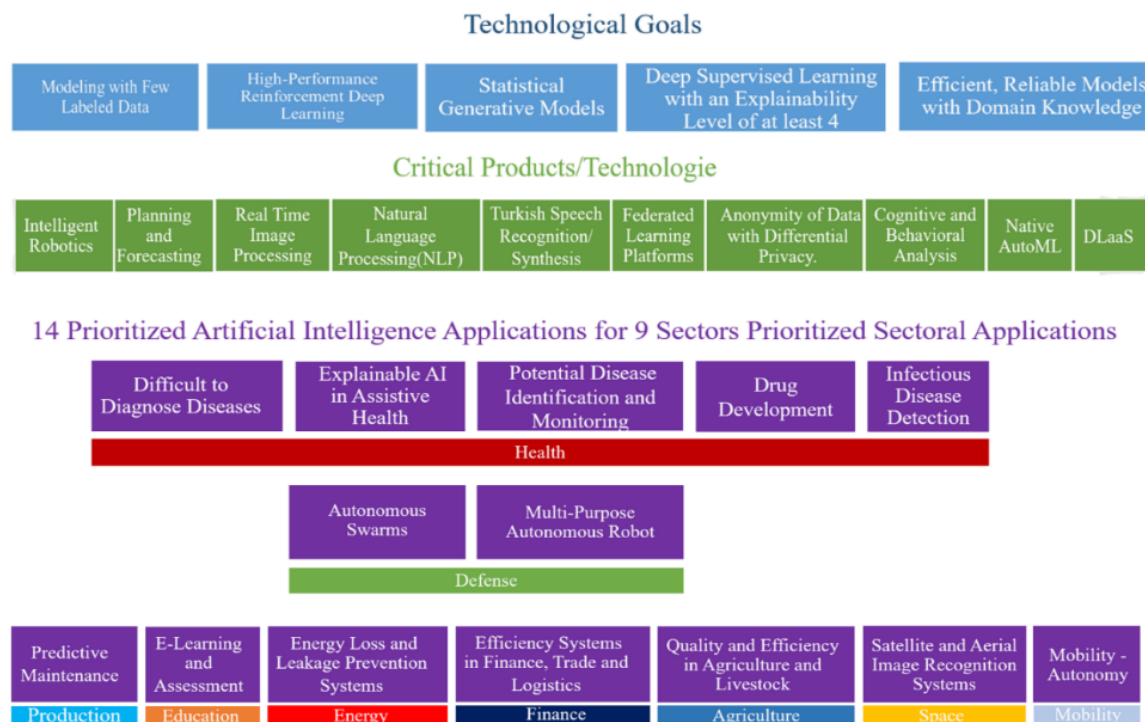
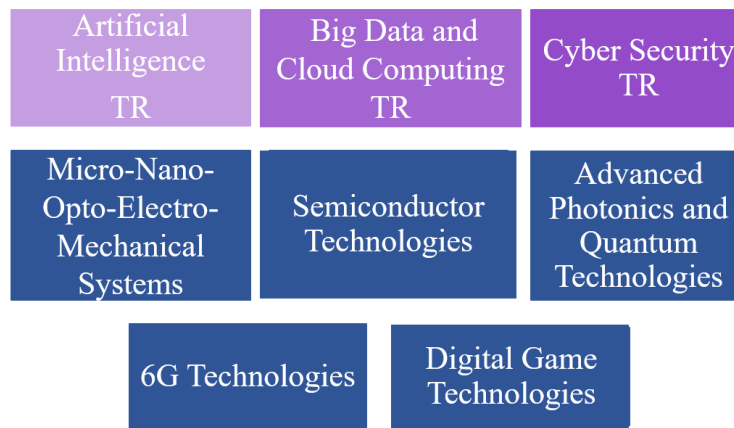


Figure 8. Artificial intelligence technology roadmap

Source: Öncelikli ve kilit teknolojilerde BTYPK bünyesinde hazırlanan teknoloji yol haritaları, in <https://tubitak.gov.tr/tr/duyuru/oncelikli-ve-kilit-teknolojilerde-btypk-bunyesinde-hazirlanan-teknoloji-yol-haritalari>.

In the TÜBİTAK 2024–2025 Priority R&D and Innovation Topics study, the fields of “Artificial Intelligence”, “Big Data and Cloud Computing”, “Cyber Security”, “Micro-Nano-Opto-Electro-Mechanical Systems”, “Semiconductor Technolo-

gies", "Advanced Photonics and Quantum Technologies", "6G Technologies" and "Digital Game Technologies" continued to be among the priority technology areas (Figure 9).



TR* Technology Roadmap

Figure 9. R&D and innovation topics in digital technologies

Source: Türkiye bilimsel ve teknolojik araştırma kurumu öncelikli Ar-Ge ve yenilik konuları, in https://tubitak.gov.tr/sites/default/files/2024-11/TUBITAK_24-25_Ar-Ge_ve_Yenilik_Konu_Basliklari_13.11.24.pdf.

The field of artificial intelligence has maintained its position among leading technologies in the 12th Development Plan (Figure 10). The Plan emphasizes that artificial intelligence applications have opened the door to a different technological age and that these applications will further transform and shape the future of humanity and civilization[35, p. 43]. It has been stated that this rapid development in the field of artificial intelligence offers important opportunities in terms of complementing human capabilities, but on the other hand, it carries the risk of increasing unemployment and further disrupting income distribution by developing in a way that replaces humans. Therefore, the magnitude of the opportunities and threats that artificial intelligence may bring and the necessity of international cooperation and national and international regulations have been revealed[35, p. 8]. In this context, it has been stated that the necessary ethical and legal framework will be established in our country for the needs created by artificial intelligence technologies[35, p. 132]. It was also stated that comprehensive and innovative public policies for artificial intelligence applications in the public sector will be developed and that reliable artificial intelligence ethical principles will be provided in the supply of products and services. Attention was also drawn to the need to regularly monitor the positive and negative reflections that the rapid change and transformation in the field of artificial intelligence may have on other sectors.

- Artificial Intelligence, Big Data and Cloud Computing, Cyber Security Technology Roadmaps
- 6G Technologies
- Digital Game Technologies
- Micro-Nano-Opto-Electro-Mechanical Systems (MNOEMS)
- Semiconductor Technologies
- Advanced Photonics and Quantum Technologies

Figure 10. 12th development plan priority and key technology areas

Source: Türkiye bilimsel ve teknolojik araştırma kurumu öncelikli Ar-Ge ve yenilik konuları, in https://tubitak.gov.tr/sites/default/files/2024-11/TUBITAK_24-25_Ar-Ge_ve_Yenilik_Konu_Basliklari_13.11.24.pdf.

The 12th Development Plan stated that the development of basic technologies in the field of artificial intelligence will be supported and the use of these technologies will be expanded in all areas. In this context, it is aimed to support R&D and P&D activities on the subject, to train a qualified workforce in the field of artificial intelligence, to strengthen public, university and private sector collaborations, to transform our country into a center of attraction for scientists both globally and regionally[35, p. 47] and to develop domestic production capabilities in these technology areas.

The Eleventh Development Plan Special Expertise Commission (hereinafter SEC) reports are also referenced in the NAIS. These reports provide assessments on our country's needs and priorities in the face of developing technology and its destructive effects. For example, the R&D and Innovation Ecosystem Strengthening SEC Report emphasizes that big data and artificial intelligence applications depend on access to data. It states that this need can be supported through the public

sector's sharing of appropriate data. It is also emphasized that legislative changes should be made to provide access to this data. In the Labor Market and Youth Employment SEC Report, it is pointed out that policies for areas such as artificial intelligence, big data, and the internet of things, which are products of digitalization, should be developed as a priority.

In addition to these top policy documents, various issues of sectoral and thematic strategy documents that are directly or indirectly related to artificial intelligence technologies are also included below:

2023 Industrial and Technology Strategy

This document focuses on research and development applications for artificial intelligence technologies. It is stated that working environments for software and artificial intelligence technologies will be developed in factory areas, university laboratories, offices and workshops and that R&D incentives to be provided in these areas will be rearranged. It is also stated that cooperation with international companies will be supported for a rapid entry into areas such as artificial intelligence and machine learning, robotics, and the internet of things, which are among the disruptive technology areas. It is also emphasized in this document that Türkiye wants to have a world-leading market share in at least one of these disruptive technology areas and aims to launch at least twenty-three smart products with brand value in these areas[1].

In the 2024–2028 Strategic Plan published by the Ministry of Industry and Technology, it was stated that Türkiye's National Technology Move vision was adopted and that our country has become a game changer that changes global balances beyond being just a regional power. The field of artificial intelligence was also listed among the critical areas in this plan and it was aimed for Türkiye to become competitive in these critical areas with its green and digital transformation policies. The plan also emphasized the need to increase the competencies of individuals and businesses in areas such as "Big Data" and "Artificial Intelligence". It was also stated that support and incentives for program and project activities aimed at the development and dissemination of smart systems based on these technologies would continue. Another issue emphasized in this plan was the harmonization of the Artificial Intelligence Regulation in our country. It was stated that harmonization studies in our country will be carried out with the contributions of relevant stakeholders and the need to closely follow the artificial intelligence regulations in the EU was emphasized[36]. It is thought that the policies to be developed for the harmonization of this Regulation, which will also determine the general framework of the next NAIS, should be a priority and fast.

2023 Education Vision

In this document, the main purpose has been determined as raising individuals who are equipped with the talent of the current age and the future and who can use this equipment for the benefit of all humanity, who love research, who are curious, sensitive, qualified and moral. It is aimed to create a digital education and training content development ecosystem with the cooperation of different actors and institutions in the Turkish Education System[1].

In the 2024–2028 Strategic Plan of the Ministry of National Education (hereinafter MNE), it is aimed to use information technologies and information products in education and training activities and to carry out studies to ensure that every student benefits from information technologies. It is also stated that artificial intelligence applications should be developed in the field of education and training. In the Plan, the statement that there is insufficient trained human resources in strategic areas (space technologies, artificial intelligence, cyber security, defense industry) draws attention. It is stated that policies for the training and employment of qualified human resources in these areas will be developed as a priority[37].

2020–2023 National Cyber Security Strategy and Action Plan

It was stated that “the security criteria of new generation technologies that have taken place in our lives, such as artificial intelligence, the internet of things, blockchain, and 5G, will be a priority in cyber security planning in the near future” and it was aimed to “determine the areas of use of artificial intelligence and blockchain technologies for cyber security and to create added value with the local and national technologies to be developed” [1].

The National Cyber Security Action Plan (2024–2028) draws attention to the rapid development of innovative and groundbreaking technologies (artificial intelligence and blockchain, etc.) in recent times and their place in our daily lives. In addition, the fact that desired and needed information can be accessed on almost every subject using artificial intelligence tools also leads to malicious information use. Even relatively simple malicious software can develop into a large-scale security threat. For this reason, the necessity of determining measures with the understanding of “zero trust” against the mentioned technologies, ensuring a secure cyber environment and digital transformation, and evaluating and determining the requirements and minimum security criteria for the security of new technologies is expressed in this document. In addition, it is planned to carry out studies to integrate these new technologies into national cyber security studies. It is thought that significant progress will be made especially with the evaluation of artificial intelligence and big data infrastructures in these studies[38].

2020–2023 Smart Cities Strategy and Action Plan

The vision and purpose section of this document is included in NAIS. The vision of the Plan has been determined as "Livable and Sustainable Cities Adding Value to Life". In line with this vision, it is aimed to predict the problems and needs in cities based on data and produce solutions in order to increase satisfaction with the services and the quality of life, and to provide urban services with better quality and faster[1].

The vision of the National Smart Cities Strategy and Action Plan (2024–2030) is based on "Advanced society, advanced technology, sustainable and resilient world". Among the goals determined in line with this vision are the increase in local and national capabilities, products and technologies with smart city applications in all areas such as digitalization, artificial intelligence, wearable technologies, sensors[39].

Other goals related to artificial intelligence in the National Smart Cities Strategy and Action Plan (2024–2030) are as follows:

- Creating an artificial intelligence infrastructure in the National City Information System,
- Developing an Integrated Smart City Artificial Intelligence and Metaverse Information Platform,
- Disseminating smart city applications that utilize artificial intelligence, machine learning, deep learning and federated learning,
- Implementing productive and generative artificial intelligence applications,
- Developing acoustic artificial intelligence applications,
- Developing a Traffic Safety Analysis Platform that will contribute to the prediction of possible accidents that may occur in the future by utilizing artificial intelligence technologies[39].
- 2020–2023 National Intelligent Transportation Systems (hereinafter ITS) Strategy Document and Action Plan;

During this three-year period, the establishment of an internet of things (IoT) network including ITS components, the storage of data collected from these components in a big data environment and the necessity of making them suitable for analysis were emphasized. It was aimed to obtain the best version of the transportation infrastructure by using this processed data again in artificial intelligence, deep learning, communication and similar fields[1].

The Ministry of Transport and Infrastructure 2024–2028 Strategic Plan drew attention to the rapid progress in deep learning, artificial intelligence, machine learning and robot technologies and the developments in big data analysis applications. It was stated that with the spread of big data exchange, artificial intelligence applications, the internet of things and 5G etc. services, the size of internet data usage and the demand for high-speed and high-quality broadband access and services are constantly increasing. It was stated that infrastructure-related regulations and investments should be made in order to meet these demands. Therefore, it was emphasized that alternatives regarding support methods in terms of fiber infrastructure should be put forward for the long term. It was stated in the Plan that the infrastructures that will provide the necessary security and easy access to ensure the effective and secure use of information and communication technologies in our country will be expanded and the policies for this will be developed with the relevant stakeholders[40].

7. INSTITUTIONAL STRUCTURE REGARDING ARTIFICIAL INTELLIGENCE IN TÜRKİYE

In Türkiye, institutional work on artificial intelligence is carried out by the PDTO Big Data and Artificial Intelligence Applications Department, the Ministry of Industry and Technology General Directorate of National Technology, the TÜBİTAK Artificial Intelligence Institute and other institutions and organizations.

Among these, the PDTO Big Data and Artificial Intelligence Applications Department is the first administrative unit established specifically for the field of artificial intelligence in our country. This unit was established under the PDTO with the articles added to the Decree No. 1 with the Presidential Decree No. 48 published in 2019. One of the principal duties assigned to this unit is "to pioneer and ensure coordination of artificial intelligence applications in priority project areas in the public sector". The following clause was added to the duties of MIT in 2020 with the Presidential Decree No. 59: "...to create policy recommendations and strategies in order to increase the R&D and production capabilities of individuals and businesses in critical areas such as big data, artificial intelligence, cyber security, and to ensure the implementation of the determined policies and strategies. . ." The General Directorate of National Technology (hereinafter GDNT) was established within MIT in order to carry out the duties in this clause. The duties of the GDNT within the scope of the National Technology Move include the following:

- To take measures for the growth of transformative technologies, especially big data and AI,

- To support the development of businesses,
- To ensure the increase of domestic and national production capacity,
- To contribute to the training of researcher human resources,
- To carry out programs and projects with high impact at the country level[1].

The TÜBİTAK Artificial Intelligence Institute was established in 2020 to ensure cooperation in the development of artificial intelligence technologies and to train an expert workforce as a bridge between academic research and the needs of industry[41]. The institute is the first institute established specifically for a technology field.

In Türkiye, AI-related administrative structures have also been established within several ministries. For example; “Big Data and Artificial Intelligence Applications Branch Directorate” has been established within the Ministry of Justice, “Artificial Intelligence and Wearable Technologies Unit” has been established within the Ministry of Health, and “Process Management and Artificial Intelligence Applications Branch Directorate” has been established within the Ministry of National Defense.

In addition, other institutions and organizations have established structures related to artificial intelligence. For example; “Türkiye Health Data Research and Artificial Intelligence Applications Institute” has been established within the Presidency of Turkish Health Institutes in order to prevent unnecessary examinations, ensure rapid reporting, and accelerate diagnosis and diagnostic opportunities[1].

AI-related institutional structures are also emerging at the level of local governments. For example, “Artificial Intelligence Education and Research Branch Directorate” has been established within the Gaziantep Metropolitan Municipality. The aim of the directorate is to organize studies and trainings aimed at raising awareness of citizens in this field. The “Artificial Intelligence and Smart Cities Directorate” [42] was established within the İzmir Metropolitan Municipality.

8. CONCLUSION

The Artificial Intelligence Act (AI Act), which entered into force on August 1, 2024, establishes the European Union’s comprehensive risk-based legal framework for artificial intelligence[24]. The Act establishes harmonized rules for the placing on the market, putting into service, and use of artificial intelligence systems within the European Union. It also aims to improve the functioning of the EU’s internal market, protect the EU from the harmful effects of AI systems, encourage the adoption of human-centered and reliable artificial intelligence, and support innovation. While achieving all these goals, emphasis has been placed on ensuring a high level of protection for democracy, the rule of law, environmental protection, health, safety and fundamental rights. The Act addresses the definition of artificial intelligence, the scope of the risk-based approach, general-purpose artificial intelligence regulations, prohibited artificial intelligence applications, information on the harmonization and implementation of the law, regulations for companies outside the EU, and various issues of critical importance for international cooperation on artificial intelligence regulation. It is likely that the artificial intelligence regulations foreseen by the Law will not be limited to EU countries only, but will also affect other countries’ AI approaches and become a global standard. However, the question of whether this Law will create international harmony or divergence remains unanswered for now.

Türkiye recognized the importance of this regulatory framework before it entered into force, and the need to harmonize this Law with our country has been emphasized in the 2024–2028 Strategic Plan published by the Ministry of Industry and Technology. Further information on how this harmonization process will be carried out in our country and which institutions it will cover will be discussed in detail in the next NAIS. In this context, it is clear that future national AI policies are therefore likely to be developed with close attention to the requirements and regulatory direction of the EU Artificial Intelligence Act.

With respect to Türkiye’s performance in global AI indices, Türkiye ranked sixty-seventh out of one hundred and seventy-two countries in the Public Administration AI Readiness Index 2020 Report, and forty-seventh out of one hundred and ninety-three countries in the 2023 Report. In the 2024 Report, Türkiye ranked fifty-third out of one hundred and eighty-eight countries. According to the 2019 Global AI Index, our country ranked forty-first out of fifty-four countries, while it ranked thirty-fourth out of eighty-three countries in the Report updated in 2024. In this context, although the number of countries analyzed in both reports increased, Türkiye quickly moved its position in these reports up. The fact that the field of artificial intelligence is among the priority technological areas in our country has led to an increase in research and investments in this field, and thus to the development of our country in this field. Again, the fact that Türkiye’s strategies developed for artificial intelligence applications are evaluated in the “country strategy” and “development” dimensions of the field of artificial intelligence in the Reports support this view. Again, in these studies, it has been determined that Türkiye has deficiencies in human capital, innovation capacity, maturity and infrastructure in the field of artificial intelligence. The same deficiencies are also included in our country’s top policy documents on artificial intelligence. In

addition to these deficiencies, concerns have also been expressed in the top policy documents that artificial intelligence applications will be used for malicious purposes, that they will increase unemployment and that they will disrupt income distribution. In this context, it is necessary to develop the field of cybersecurity, increase artificial intelligence literacy, train qualified personnel in the field of artificial intelligence and implement policies on employment urgently, and to prevent the digital divide.

The most recent assessment, the Oxford Government AI Readiness Index 2025, offers a more granular evaluation than previous editions, drawing on sixty-three indicators distributed across fourteen dimensions within six core pillars. Türkiye's strongest performance was recorded in E-Government Delivery, with a score of 98.06, followed by Policy Vision at 80.00, and Policy Commitment together with Governance Principles at 75.00 each. By contrast, the country's weakest dimensions were AI Sector Maturity, with a score of only 12.69, and Compute Capacity, at 13.29, with Societal Transition also lagging at 44.53. At the level of the six core pillars, Türkiye scored 77.6 in Public Sector Adoption and 77.0 in Policy Capacity, while Development & Diffusion and Resilience trailed considerably, at 45.7 and 47.3 respectively. The aggregate global score of 58.91 placed Türkiye fifty-third among one hundred and ninety-five countries, and second within its regional category, behind India. Notably, the report finds that a significant portion of the national strategy commitments announced in previous years has not yet been fulfilled, even as the country continues to possess strong digital and innovation foundations; among the more promising developments highlighted is the introduction of a dedicated technology visa aimed at attracting international digital and AI talent, described as an example of good practice.

It is against this backdrop, of incremental but uneven progress in international rankings, persistent deficiencies in human capital and compute infrastructure, and a documented pattern of partially unfulfilled prior commitments, that Türkiye's National Artificial Intelligence Action Plan for 2026–2030 can be most meaningfully assessed. The plan's four pillars, recognize, leverage, produce, and govern, correspond closely to the gaps identified across successive international assessments. The emphasis placed on training advanced specialists and application professionals under the "recognize" pillar directly addresses the human capital deficit repeatedly flagged in prior evaluations. Likewise, the substantial financial commitments to data center capacity and AI infrastructure under the "leverage" and "govern" pillars appear designed to close the compute capacity gap that has consistently constituted one of the country's weakest dimensions. This concern is reinforced by the governance architecture envisioned for the new plan itself: the establishment of a National Artificial Intelligence Council, together with regulatory sandboxes across at least five priority sectors, suggests an awareness that institutional coordination, rather than financial commitment alone, has historically constituted a limiting factor in policy implementation. Similarly, the projected economic impact of the plan, expected to generate value added exceeding one trillion Turkish lira, echoes the ambitious targets characteristic of earlier strategic documents whose fulfillment the Oxford index found only partially realized. The eventual publication of the plan's full text, and the degree to which its monitoring mechanisms are operationalized in practice, will therefore be decisive in determining whether this latest cycle breaks from, or merely repeats, the pattern of unmet commitments identified in successive international assessments.

Artificial intelligence technologies are used across many areas and sectors, including banking, health, education, security, transportation, and emergency management. The widespread use of artificial intelligence applications in public services can contribute to faster and more effective service delivery, improved operational efficiency, reduced costs, easier access to services, and higher levels of citizen satisfaction. In this context, policies for artificial intelligence applications in public services should be developed by both local governments and central governments. For example, local governments can increase citizen satisfaction by quickly responding to citizens' questions by using artificial intelligence-supported chatbots or virtual assistants on municipality websites. Similarly, artificial intelligence technologies can be used to analyze data on traffic density, energy consumption, natural resources, and population distribution, thereby supporting long-term urban planning as well as traffic and transportation management. In this way, effective and efficient use of public resources can be ensured. Therefore, in the use of artificial intelligence in public services, issues such as security, transparency, ethics, and data privacy should be taken into consideration, and artificial intelligence technologies designed to serve the public interest should be developed and used responsibly. In addition, institutional structures at the local government level for artificial intelligence applications need to be increased. It is important that this process is carried out in cooperation with local governments and the Department of Big Data Artificial Intelligence Applications affiliated with PDTO in order for our country to create a correct policy for artificial intelligence applications.

In conclusion, it seems that artificial intelligence has already begun to transform social structures, service delivery, ways of doing business, and individual life, and further innovations are likely to deepen this transformation. The balance between the opportunities and risks created by these innovations will differ across countries and policy environments. Accordingly, countries need to continually update their policies, strategies, regulatory tools, and implementation mechanisms in this area. Accordingly, the ability to revise technology policies at relatively short intervals can create an advantage in a rapidly changing environment of global competition. In this sense, Türkiye's 2026–2030 Action Plan should be understood not as a final answer to the deficiencies identified across successive readiness assessments, but as the latest iteration in an ongoing, necessarily adaptive policy process.

DATA

The data are available from the author upon reasonable request.

FUNDING INFORMATION

No external funding was received for this research.

CONFLICTS OF INTEREST

The author declares no conflict of interest.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

In the course of preparing this manuscript, the author employed ChatGPT to improve the linguistic quality and readability of the content. After utilizing this AI tool, the author conducted a comprehensive review and made the necessary revisions to ensure the accuracy, integrity, and scientific rigor of the manuscript. The author bears full responsibility for the final content of the published work, including any errors or inconsistencies that may arise.

REFERENCES

- [1] *Cumhurbaşkanlığı Dijital Dönüşüm Ofisi Ulusal Yapay Zekâ Stratejisi (2021–2025)*, in <https://cbddo.gov.tr/uyzs>.
- [2] Birol Yıldız, *Finansal analizde yapay zekâ*, Ankara, Detay Yayıncılık, 2009, p. 14-16.
- [3] Çağrı Mert Bakırcı, *Yapay Zekâ: Dost mu, Düşman mı?*, in "İTÜ Vakıf Dergisi", 2017, Vol. 75, p. 54-55.
- [4] Pavel Hamet, Johanne Tremblay, *Artificial Intelligence in Medicine*, in "Metabolism", 2017, Vol. 69, pp. S36–S40.
- [5] Yuchen Jiang, et al., *Quo Vadis Artificial Intelligence?*, in "Discover Artificial Intelligence", 2022, Vol. 2, article 4.
- [6] Yunus Emre Gür, et al., *Yapay Zekâ Alanındaki Gelişmelerin İnsan Kaynakları Yönetimine Etkisi*, in "Fırat Üniversitesi Uluslararası İktisadi ve İdari Bilimler Dergisi", 2019, Vol. 3, no. 2, p. 137-158.
- [7] Kürşat Arslan, *Eğitimde Yapay Zekâ ve Uygulamaları*, in "Batı Anadolu Eğitim Bilimleri Dergisi", 2020, Vol. 11, no. 1, p. 71-88.
- [8] Ben Coppin, *Artificial Intelligence Illuminated*, Boston, Jones & Bartlett Publishers, 2004, pp. 4, 7, 9.
- [9] İpek Sucu, Elif Ataman, *Dijital Evrenin Yeni Dünyası Olarak Yapay Zekâ ve Her Filmi Üzerine Bir Çalışma*, in "Yeni Medya Elektronik Dergisi", 2020, Vol. 4, no. 1, pp. 40–52.
- [10] Murat Serçemeli, *Muhasebe ve Denetim Mesleklerinin Dijital Dönüşümünde Yapay Zekâ*, in "Turkish Studies", 2018, Vol. 13, no. 30, pp. 369–386.
- [11] Michael Haenlein, Andreas Kaplan, *A brief history of artificial intelligence: On the past, present, and future of artificial intelligence*, in "California Management Review", 2019, Vol. 61, no. 4, p. 5-14.
- [12] John McCarthy, et al., *A Proposal for The Dartmouth Summer Research Project on Artificial Intelligence, August 31, 1955*, in "AI Magazine", 2006, Vol. 27, no. 4, p. 12-12.
- [13] Anıl Gacar, *Yapay Zekâ ve Yapay Zekânın Muhasebe Mesleğine Olan Etkileri: Türkiye'ye Yönelik Fırsat ve Tehditler*, in "Balkan Sosyal Bilimler Dergisi", 2019, Vol. 8, p. 389-394.
- [14] Murat Volkan Dülger, *Günümüz Yapay Zekâ Teknolojisi ve 'Robot Yargıç/Avukat' Gerçeği: Mesleğimiz Elimizden Gidiyor Mu?*, in "HPlus Dergisi", 2018, Vol. 5, p. 4-9, in <https://www.researchgate.net/publication/322789785> (Accessed on 12.10.2024).
- [15] Şükran Güzin Ilıcak Aydınalp, *Halkla İlişkiler Perspektifiyle Yapay Zekâ*, in "Turkish Studies - Social", 2020, Vol. 15, no. 4, p. 2283-2300.
- [16] Kadir Öztürk, Mustafa Ergin Şahin, *Yapay Sinir Ağları ve Yapay Zekâ'ya Genel Bir Bakış*, in "Takvim-I Vekayi", 2018, Vol. 6, no. 2, p. 25-36.

- [17] Harry Henderson, *Artificial Intelligence: Mirrors for The Mind*, New York, Infobase Publishing, 2007, p. 126.
- [18] Nishika Gupta, *A Literature Survey on Artificial Intelligence*, in "International Journal of Engineering Research & Technology", 2017, Vol. 5, no. 19, p. 1-5.
- [19] Cynthia Breazeal, *Designing Sociable Robots*, London, England, The MIT Press, 2004, p. 5.
- [20] John McCarthy, *What is Artificial Intelligence?*, in <https://www-formal.stanford.edu/jmc/whatisai.html> (Accessed on 28.10.2024).
- [21] Blay Whitby, *Yapay Zekâ Yeni Başlayanlar İçin Kılavuz*, Çiğdem Karabağlı (Tr.), İstanbul, İletişim Yayınları, 2005, p. 17.
- [22] Dalvinder Singh Grewal, *A Critical Conceptual Analysis of Definitions of Artificial Intelligence as Applicable to Computer Engineering*, in "IOSR Journal of Computer Engineering", 2014, Vol. 16, no. 2, p. 09-13.
- [23] Adrienn Skrop, et al., *Industry 4.0 - Challenges in Industrial Artificial Intelligence*, in "II. International Scientific Conference on Tourism and Security", 4 Dec 2018, p. 1-18.
- [24] *EUR-Lex. Regulation (EU) 2024/1689 of The European Parliament and of The Council*, in <https://eur-lex.europa.eu/eli/reg/2024/1689/oj> (Accessed on 23.10.2024).
- [25] *Council of Europe, Unboxing Artificial Intelligence: 10 Steps to Protect Human Rights*, in <https://rm.coe.int/unboxing-artificial-intelligence-10-steps-to-protect-human-rights-reco/1680946e64> (Accessed on 09.11.2024).
- [26] *OECD Legal Instruments Recommendation of The Council on Artificial Intelligence*, in <https://legalinstruments.oecd.org/en/instruments/oecd-legal-0449> (Accessed on 03.11.2024).
- [27] *Cumhurbaşkanlığı Dijital Dönüşüm Ofisi, Yapay Zekâ*, in <https://cbddo.gov.tr/sss/yapay-zeka/> (Accessed on 02.10.2024).
- [28] Olaf Zawacki-Richter, et al., *Systematic Review of Research on Artificial Intelligence Applications in Higher Education – Where are the Educators?*, in "International Journal of Educational Technology in Higher Education", 2019, Vol. 16, article 39.
- [29] *Cumhurbaşkanlığı Dijital Dönüşüm Ofisi Ulusal Yapay Zekâ Stratejisi (2024–2025) Eylem Planı*, in <https://cbddo.gov.tr/uyzs> (Accessed on 20.11.2024; 20.10.2024).
- [30] <https://www.iletisim.gov.tr/turkce/haberler/detay/cumhurbaskani-erdogan-turkiye-yapay-zeka-eylem-planini-acikladi>.
- [31] *Oxford Insights Government AI Readiness Index 2024*, in <https://oxfordinsights.com/ai-readiness/ai-readiness-index/>.
- [32] *Oxford Insights Government AI Readiness Index 2025*, in <https://oxfordinsights.com/ai-readiness/government-ai-readiness-index-2025/> (Accessed on 24.06.2026).
- [33] *Tortoise Media The Global AI Index 2024*, in <https://www.tortoisemedia.com/intelligence/global-ai/> (Accessed on 04.10.2024).
- [34] *T.C. Cumhurbaşkanlığı Bilim, Teknoloji ve Yenilik Politikaları Kurulu Yapay Zekâ Teknoloji Yol Haritası*, in https://tubitak.gov.tr/sites/default/files/18842/btypk_yapay_zeka_tyh_sonuc_raporu.pdf (Accessed on 01.11.2024).
- [35] *T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı 12. Kalkınma Planı*, in https://www.sbb.gov.tr/wp-content/uploads/2023/12/On-Ikinci-Kalkinma-Plani_2024--2028_11122023.pdf (Accessed on 23.10.2024), pp. 8, 43, 47, 132.
- [36] *T.C. Sanayi ve Teknoloji Bakanlığı Sanayi ve Teknoloji Bakanlığı Stratejik Planı (2024–2028)*, in <https://www.sanayi.gov.tr/assets/pdf/plan-program/STB20242028StratejikPlaniv6.pdf> (Accessed on 07.11.2024).
- [37] *T.C. Milli Eğitim Bakanlığı Milli Eğitim Bakanlığı Strateji Plan (2024–2028)ı*, in <https://sgb.meb.gov.tr/yayinlarimiz/yayin/112> (Accessed on 24.10.2024).

- [38] *T.C. Ulaştırma ve Altyapı Bakanlığı Ulusal Siber Güvenlik Eylem Planı (2024–2028)*, in <https://www.uab.gov.tr/uploads/pages/siber-guvenligin-yol-haritasi-yerli-ve-milli-tekno/ulusal-siber-guvenlik-stratejisi-2024--2028.pdf>.
- [39] *T.C. Çevre, Şehircilik ve İklim Değişikliği Bakanlığı Ulusal Akıllı Şehirler Stratejisi ve Eylem Planı (2024–2030)*, in https://www.akillisehirler.gov.tr/wp-content/uploads/2023/12/Taslak-Eylem_Plani.pdf (Accessed on 07.11.2024).
- [40] *T.C. Ulaştırma ve Altyapı Bakanlığı Ulaştırma ve Altyapı Bakanlığı Stratejik Planı (2024–2028)*, in <https://www.uab.gov.tr/uploads/pages/stratejik-yonetim/uab-2024--2028-nihai-stratejik-plani-5-1-2024.pdf> (Accessed on 26.10.2024).
- [41] *Yapay Zeka Enstitüsü, Biz kimiz?*, in <https://bilgem.tubitak.gov.tr/yz/> (Accessed on 10.11.2024).
- [42] *İzmir Büyükşehir Belediyesi, Yapay Zekâ ve Akıllı Şehirler Müdürlüğü Kuruldu*, in <https://www.izmir.bel.tr/tr/Haberler/yapay-zeka-ve-akilli-sehirler-mudurlugu-kuruldu/50288/156> (Accessed on 07.11.2024).