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A Comparative Analysis of Turkey and the US National Artificial Intelligence Strategies in the Context of Strategic Priorities

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Abstract

Artificial Intelligence (AI), whose foundations date back to the 1950s, has attracted intense interest, particularly since 2000, and significant financial investments have been made in this field. Developments in AI are profoundly affecting all sectors, turning this field into a center of competition and power between states. It is not surprising that governments are considering how to address AI's current and future developments, applications, opportunities, micro and macro impacts, and the technical, social, political, and economic issues that will arise with its widespread adoption in society. A national AI strategy represents a country's thoughts, expectations, and goals regarding AI. The national AI strategy document is the decision text that guides the responsible and effective adoption, development, and use of AI. The fact that each country's perspective on the concept of AI and its strategy differs makes the published strategy documents distinct and country specific. The aim of this study is to provide a general assessment of Turkey's strategic priorities regarding AI. A review of the Turkish literature reveals that no study has examined national AI strategies. The study comparatively analyzes the national AI strategies of Turkey and the US in the context of strategic priorities. In this regard, the US's "National Artificial Intelligence R&D Strategic Plan" (2023) and Turkey's "National Artificial Intelligence Strategy 2021–2025" documents were used as a basis. The analysis examines the strategic priorities of both countries in terms of investment, human-AI collaboration, ethical-legal-social impacts, security, data management, and international collaborations. The findings show that the US strategy focuses more on advanced R&D, standard development, and international coordination, while Turkey's strategy focuses on ecosystem building, competency development, and national capacity building. From this perspective, it can be said that Turkey has a strategy in the formative stage, while the US has a strategy in the maturity stage.

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Introduction

Artificial Intelligence (AI) is generally defined as software that mimics human intelligence or perception. AI stands out as a transformative technology of the digital age. Questions about what it is, what it can currently do, and what it has the potential to become span the fields of technology, psychology, politics, economics, science fiction, law, and ethics (McKinsey, 2018). The past decade has seen an explosion in the development of AI. During this process, companies around the world have developed commercial applications through R&D in the field of AI. Applications such as search algorithms (Google, etc.), facial recognition systems, personalized content (Netflix, etc.), and virtual assistants (Siri, Alexa, etc.), which are used in all areas of daily life, are part of this field.

Technological developments have not only benefited the private sector; governments have also turned to AI to improve public services and gain strategic and economic advantages. This is because AI is the result of a virtual ecosystem maintained by governments, the private sector, and NGOs, in addition to bringing together various fields and resources (UN, 2020). On the other hand, it is possible to say that the development and spread of AI systems have placed countries that possess these systems in a more developed and prosperous position in the eyes of other countries. Governments, recognizing the transformative impact of AI, are striving and competing to establish national priorities, strategies, and regulations to use it for their countries' benefit and to prepare themselves for the information society of the future, viewing this as an obligation (OECD, 2019).

The race for global leadership in AI has begun, and countries have entered this leadership race. Since the first national strategy document was published in 2017, 75 countries have published their own national strategy documents to promote the use and development of AI. It is evident that the strategies of countries do not resemble each other, and each national AI policy focuses on different aspects. These country-specific policies generally cover topics such as R&D, talent development, new skills, education, public-private partnerships, ethics, standards and regulations, data management, and digital infrastructure.

The aim of this study is to provide a general assessment of our country's strategic priorities in AI. In this context, the strategies of the US, a leading and pioneering country in the field of AI, will be compared with the strategies defined by our country, and the similar and different strategies of both countries and the differing aspects of their strategies will be examined. The study includes sections on the concept of AI and national artificial intelligence strategy documents, followed by the methodology, discussion, and conclusion sections.

The Concept of Artificial Intelligence

Artificial intelligence (AI) is a technological feature created entirely with artificial tools without utilizing a living organism, exhibiting human-like behaviors and movements while operating within a machine's working system (Sucu & Ataman, 2020). AI can be said to have the ability to mimic the human brain, from abilities such as learning, representation, planning, and perception to specialized skills. AI is information processing technology related to reasoning, learning, and understanding processes (Kaçtıoğlu & Kılağız, 2000). Nabiyev (2016) defines AI as the ability of a computer or computer-controlled machine to perform tasks related to higher mental processes such as reasoning, inference, generalization, and learning from past experiences, which are generally considered to be human qualities. In this context, AI is the performance by a machine of any action that requires intelligence when performed by a human (Pirim, 2006).

AI technology has emerged as the fundamental growth engine of the Fourth Industrial Revolution (Lee & Oh, 2020). Although the concept of AI has changed over time, at its core lies the idea of building machines that can think like humans (Marr, 2018). AI is the artificial intelligence exhibited by machines (computers) as they learn and mimic human intelligence (Unhelkar & Gonsalves, 2021). Therefore, AI refers to systems that exhibit intelligent behavior by analyzing their environment and acting autonomously to a degree to achieve specific goals (EC, 2018). Using data as a source of information that defines the environment, AI aims to achieve complex goals (Palomares et al., 2021). In other words, AI is the ability of a system to correctly interpret external data, learn from this data, and flexibly adapt this learning to achieve specific goals and tasks (Kaplan & Haenlein, 2019).

Today, with increased access to data, support for open access, and growing amounts of big data, AI systems are advancing every day. Rapidly developing AI systems are gaining strategic importance in both the private and public sectors through their various applications in all areas of life (social, economic, military, educational, etc.). Consequently, AI policies and initiatives are gaining momentum in governments, companies, technical organizations, civil society organizations, and trade unions (OECD, 2019).

National Artificial Intelligence Strategy Documents

Like the space race during the Cold War, the increasing development of AI by states in both civilian and military fields is forcing the current global order to change, reshaping the working methods and definitions of success for states and businesses (Saran et al., 2018). The global increase in AI is bringing this technology to the forefront, and AI's transformative potential has become undeniable. Governments around the world

acknowledge this impact (Rahim, 2023). As such, AI is becoming increasingly important on the policy agendas of state institutions at the national and international levels, taking on a position of priority (OECD, 2019).

Many national government initiatives to date have focused on using AI for productivity and competitiveness (OECD, 2019). Governments are striving to create an environment that ensures AI is developed, deployed, and used in a safe, secure, and reliable manner. These efforts include defining strategic objectives, exploring new institutional arrangements, developing policy tools (such as standards, rules, and guidelines) and new regulatory frameworks, and increasing the capacity needed to use AI effectively and efficiently in the public sector (OECD, 2024).

On the other hand, governments are not only working to regulate and promote AI but are also seeking ways to integrate this technology into public services and use it effectively for the public good (Rahim, 2023). Despite the potential benefits of AI, there are growing concerns about the risks of fragmented and unmanaged AI in the public sector. These risks include increased bias, lack of transparency in system design, and data privacy and security breaches. While the public sector prefers to use AI in sensitive policy areas such as law enforcement, immigration control, social assistance, and fraud prevention, it has a special responsibility to use AI in a way that prioritizes the well-being of individuals and communities (OECD, 2024).

Governments play multiple roles in AI as implementers, funders, regulators, users, and developers. As governments evaluate AI opportunities for better governance and implement solutions in various policy areas, they are recognizing the need to manage AI in the public sector to prevent misuse and mitigate risks (OECD, 2024). Considering the economic, social, ethical, political, and legal consequences of developments in AI, it can be said that the diversity of national initiatives stems from issues such as local cultures, legal systems, country size, and the level of AI adoption (OECD, 2019).

United States National AI Strategic Plan

The name of the national AI strategic plan created by the Federal Government of the United States (US) is the "National Artificial Intelligence R&D Strategic Plan," which was updated in 2023. The plan aims to solidify American leadership in the development and use of reliable AI systems, prepare the current and future US workforce for the integration of AI systems across all sectors, and coordinate ongoing AI activities across all federal agencies. In this context, the overall goal of the AI strategy is to maintain and accelerate American leadership in the field of AI. The plan highlights the historic role investments play in technological breakthroughs, identifying key research challenges to coordinate and focus AI R&D investments. It also sets out a series of goals for AI research under the following nine strategic priorities. These strategies are:

1. Making long-term investments in fundamental and responsible AI research,
2. Developing effective methods for human-AI collaboration,
3. Understanding and addressing the ethical, legal, and societal impacts of AI,
4. Ensuring the safety and security of AI systems,
5. Developing shared general datasets and environments for AI training and testing,
6. Measuring and evaluating AI systems through standards and benchmarks,
7. Better understanding the needs of the national AI R&D workforce,
8. Expanding public-private partnerships to accelerate progress in AI,
9. Establishing a principled and coordinated approach to international cooperation in AI research.

Republic of Turkey National AI Strategic Plan

The name of the national AI strategic plan created by the Republic of Turkey is “National Artificial Intelligence Strategy 2021-2025” and has been updated as the "National Artificial Intelligence Strategy 2024-2025 Action Plan" in line with the 12th Development Plan. This document, which is our country's first national strategic plan in the field of AI, has secured Turkey's place among countries that have published national AI strategies. It is stated that the strategic plan was prepared in line with the Digital Turkey vision and the National Technology Initiative. The rapidly changing nature of the AI field requires a dynamic implementation process for the AI strategy. With the governance mechanism put in place, it is possible to respond quickly to opportunities, risks, and uncertainties that may arise for our country with the participation of all stakeholders.

The vision of the plan is stated as creating value on a global scale with an agile and sustainable AI ecosystem for a prosperous Turkey. In this context, the goal of the plan is to carry out AI projects effectively and in line with ethical principles through actions whose implementation process is ongoing, to increase the maturity level and competitiveness of the AI ecosystem, and thus to create value on a global scale. The plan outlines six strategic priorities for AI, with 24 objectives and 119 measures defined under these strategic priorities. The six strategic priorities included in the plan are listed below:

1. Training AI experts and increasing employment in the field,
2. Supporting research, entrepreneurship, and innovation,
3. Expanding access to quality data and technical infrastructure,
4. Implementing regulations that accelerate socioeconomic integration,
5. Strengthening international cooperation,
6. Accelerating structural and labor force transformation.

Method

Based on the nine strategic priorities developed for AI research included in the US AI strategic plan, our country's "National AI Strategy Strategic Priorities and Objectives" were evaluated according to these strategic priorities. The evaluation utilized the current strategy documents of both countries ("National Artificial Intelligence R&D Strategic Plan" and "National Artificial Intelligence Strategy 2021-2025"). The study has two research questions:

RQ 1. What are the similarities between Turkey's national AI strategy strategic priorities and objectives and the US national AI strategies?

RQ 2. What are the differences between Turkey's national AI strategy strategic priorities and objectives and the US national AI strategies?

The study compares the AI strategies of the two countries. The assessment is based on the statements in the national strategy documents. The strategy items in the US AI strategic plan were matched with the items in our country's AI strategy plan according to their relationship/similarity. The evaluations were made from three perspectives: "overview, political context, and technological dimension."

Findings and Discussion

The AI industry is too broad to be standardized. Although the areas and sectors where AI is applied vary between countries, they are always based on the competitive strength of nations and the priorities of the country (UN, 2020).

Strategy 1: Investing in the AI Field

AI may be an equalizing factor that transforms and sustains all economic sectors in the long term (perhaps). However, in the short and medium term, the adoption and implementation of AI is likely to shift the balance of power between countries (Saran, et al., 2018). When examining the AI strategy documents of both countries, investing in AI research ranks high on the list.

While the US National AI Strategy targets investments in AI subfields in general, Turkey's strategy aims to support research in this field, encourage companies operating in this area, and promote innovation to create an AI ecosystem.

Table 1. Comparison of the two countries' investment strategies

U.S. strategy item	Turkey strategy item
1. Make long-term investments in fundamental and responsible AI research • Developing data-driven methodologies for knowledge discovery • Promoting combined machine learning approaches • Understanding the theoretical capabilities and limitations of AI • Continuing research on scalable general-purpose AI systems • Developing AI systems and simulations in real and virtual environments • Improving the perceptual capabilities of AI systems • Developing more capable and reliable robots • Advancing hardware for improved AI • Creating AI for enhanced hardware	**2. Supporting research, entrepreneurship, and innovation** • A Turkish large language model will be developed, and a Turkish Large Language Model Community will be established to involve the entire ecosystem, including volunteer participants, in the development of this model. • National competitions will be organized for locally produced AI applications to develop the AI ecosystem. • A support program will be implemented to encourage SMEs to use AI products and solutions resulting from R&D studies conducted domestically. • A guide will be prepared to clarify the intellectual property rights of content created by AI, and standardization efforts will be undertaken regarding the patentability of AI products. • An inventory of national and international companies and products operating in the field of AI in Turkey will be created at, and events will be organized to bring together experienced startups, corporate companies, and investors. • A special mechanism will be designed to enable global technology companies to conduct their AI R&D activities in Turkey. • Researchers working in the AI field will be supported through domestic and international postdoctoral research fellowship programs. • An AI Ecosystem Call will be launched. • Collaborations with venture capital funds will be developed. • The establishment of sector-specific thematic clusters and centers of excellence will be encouraged.

It is important to facilitate the marketing of locally produced AI products and to support new national businesses working in the field of AI. On the other hand, bold investments are needed to adopt AI-based solutions, build capacity and competencies, and encourage new ventures (UN, 2020).

Overview: Turkey's strategy article appears to cover these statements. Since Turkey's AI ecosystem is still in its infancy, increasing research capacity is imperative. Countries are making strategic investments in line with their national interests, recognizing the transformative impact of AI (OECD, 2019). On the other hand, supporting local productive AI solutions and encouraging new ventures is a prerequisite for national competitiveness (UN, 2020).

Political context: Turkey's investment strategy is directly aligned with the National Technology Initiative and the Digital Turkey vision. Public authorities are establishing strategic funding mechanisms to support policy objectives (OECD, 2024).

Technological dimension: AI's capacity to generate value is possible with high-quality data, powerful hardware, and a qualified R&D ecosystem. This statement is consistent with Turkey's goal of developing its processor infrastructure and data pools (McKinsey, 2018).

Strategy 2: AI - Human Collaboration

AI-human collaboration aims to enhance speed, accuracy, and scalability in decision-making processes by integrating cognitive abilities with machine learning capabilities. The second strategy concerns AI human collaboration.

Table 2. Comparison of AI-human interaction strategies between the two countries

US strategy item	Turkey strategy item
2. Developing effective methods for human-AI collaboration • Advancing the science of human-AI teamwork • Search for improved performance models and metrics • Building trust in human-AI interactions • Pursuing a better understanding of human-AI systems • Developing new paradigms for AI interactions and collaborations	-

Overview: The topic of AI-human interaction ranks second in the US National AI Strategy. As a country that has made significant progress in AI, it is understandable that the US has such a strategy item. Although Turkey's strategy document contains content that can be indirectly attributed to this topic, there is no direct strategy or content related to it.

Political context: The fact that human-AI interaction is not directly addressed as a heading in Turkey's strategy document may stem from the document's focus on ecosystem building, infrastructure, and competency development. According to the OECD report, in early-stage AI strategies, countries prioritize technical capacity and data infrastructure, and advanced topics such as human-machine interaction are generally left to subsequent planning periods (OECD, 2019). Human-AI collaboration policy has generally become a strategic goal in countries with high R&D capacity, while developing countries prioritize talent development and data access (UN, 2020).

Technological dimension: Human-AI collaboration research requires "complex cognitive modeling, high-quality interaction data, and reliable user interfaces." On the other hand, in countries where this infrastructure is not yet mature, this area is not a priority for investment (McKinsey, 2018). Although Turkey's strategy document indirectly addresses this issue (AI awareness programs, educational content), its absence as a direct strategy can be attributed to the limited level of technological preparedness.

Strategy 3: Ethical, Legal, and Social Impacts of AI

In recent years, governments have undertaken various initiatives to use AI responsibly in administrative tasks. These include policies on creating new institutional regulations and strategies to secure political support and public approval, preventing failures, and mitigating potential risks (OECD, 2024). On the other hand, it has become inevitable to develop ethical, legal, and social rules/principles/practices regarding the use and impact of AI on issues that closely concern societies today, such as human rights, justice, democracy, the rule of law, accountability, security and safety, physical and mental privacy, data protection, etc.

The third article of the US National AI Strategy covers precisely these issues. This article addresses the ethical, legal, and societal implications of AI systems and discusses the use of AI systems in these areas. Although Turkey's strategy document does not have a clause directly related to these issues, the clause "4. Making Regulations to Accelerate Socioeconomic Integration" devotes considerable space to this topic. For example, on ethics, it mentions "creating an AI Values and Principles Impact Analysis Framework"; on legal issues, "developing an AI Applications Legal Assessment Guide, algorithmic accountability, and the necessary tools for AI oversight"; and on social impacts, "launching an AI Literacy Campaign and establishing AI workshops."

Table 3. Comparison of the ethical, legal, and social impact strategies of the two countries

U.S. strategy item	Turkey strategy item
3. Understanding and addressing the ethical, legal, and social impacts of AI • Investing in fundamental research to advance core values through socio-technical system design and addressing the ethical, legal, and social impacts of AI • Understanding and mitigating the social and ethical risks of AI • Using AI to address ethical, legal, and societal issues • Understanding the broader impacts of AI	**4. Implementing regulations to accelerate socioeconomic alignment** • National regulations will be implemented in line with international standards governing the development, use, and market release of AI systems. • An AI Literacy Campaign will be launched to instill AI awareness in the younger segments of society and increase awareness on this subject. • AI workshops will be established at BİLSEMs, a digital educational game competition will be organized, and impact analyses will be conducted. • An AI Applications Legal Assessment Guide will be prepared. • An AI Values and Principles Impact Analysis Framework will be established. • The necessary tools for the supervision of reliable AI will be developed. • Mechanisms will be established to prepare audit guides related to "algorithmic accountability" covering functional operations in the AI life cycle and to conduct application-based technical audits. • AI-based social and humanities projects will be supported. • Statistics adopted in international platforms in the field of AI and national policies will be examined, and the Official Statistics Program will be updated if deemed necessary. • Research and analysis studies will be conducted within the scope of indicators in international studies on the socio-economic impact measurement of AI. • Sectoral reports titled "AI Impact Analysis-Sector Reports" will be prepared and updated at regular intervals.

Overview: National strategies in the field of AI should address requirements and encompass a wide range of sectors and disciplines, from legislation to human resources. Legislation on AI should be innovation-friendly, and states should support innovation by providing the necessary AI infrastructure (UN, 2020). The proliferation

of AI technologies brings with it issues such as transparency, accountability, and data security. These issues are considered "prerequisites for gaining public trust" (OECD, 2024).

Political context: The fact that the ethical, legal, and social dimensions included in Turkey's strategy document are addressed within a framework of harmony and regulation reflects an approach that views AI as an element of social cohesion rather than a regulatory tool in the national policy cycle. This approach is parallel to the EU's "Human-Centered AI" vision and the OECD's "Trustworthy AI" principles. However, as in the US strategy, the ethical framework of AI supported by legal sanctions is still in its infancy. Turkey continues its efforts towards international harmonization and standardization in this area, but at the implementation level, it is still in the process of developing institutional capacity.

Technological dimension: Algorithmic transparency and data privacy directly affect the technological acceptance process (McKinsey, 2018). Turkey's "Algorithmic Accountability" and "Impact Analysis Framework" applications are important in this context.

Strategy 4: AI Security and Safety

The fourth pillar of the US National AI Strategy concerns ensuring the security of AI systems, and the document includes creating secure AI and ensuring the security of AI systems as a strategy. Turkey does not have a strategy item in this direction. However, the national strategy document includes two statements on this subject:

a. The first statement relates to cybersecurity. "It has been stated that the security criteria of new generation technologies that have become part of our lives, such as AI, the Internet of Things, blockchain, and 5G, will be prioritized in cyber security planning in the near future, and it is intended to determine the areas of use of AI and blockchain technologies for cyber security and to create added value with local and national technologies to be developed."
b. The second statement defines trustworthy AI as follows: "AI based on value-based principles such as inclusive growth, sustainable development and prosperity, human-centered values and impartiality, transparency and explainability, robustness, security and trust, and accountability." Furthermore, the 2024-2025 action plan uses terms such as "reliable AI applications," "supervision of reliable AI," and "Reliable Artificial Intelligence Seal."

Table 4. Comparison of the two countries' AI security strategies

U.S. strategy item	Turkey strategy item
4. Ensuring the security and safety of AI systems • Creating secure AI • Ensuring AI security	-

Overview: The reason why the concept of AI security is not directly prioritized as a strategic priority in Turkey's strategy document, but rather referenced within the "cybersecurity" and "ethics and compliance" sections, is due to both a political approach of integrating it into existing security documents and the technological reality that the testing/validation infrastructure is not yet fully mature. This situation is described in the literature as a common trend in the AI strategies of developing countries.

Political context: According to the OECD report, the issue of AI security is addressed as a separate strategic heading, particularly in countries focused on "critical infrastructure, defense, and public safety," while other countries generally integrate this issue under cybersecurity strategies or ethics compliance headings (OECD, 2024). Turkey has similarly addressed AI security within its National Cybersecurity Strategy 2020-2023 and ethical compliance regulations. Developing countries tend to integrate AI security into existing security policies rather than addressing it separately at the strategic level, with priority given to "infrastructure development and talent cultivation" (UN, 2020).

Technological dimension: AI security requires "high-level testing infrastructure, security protocols, transparent algorithm designs, and large-scale validation data," and in countries where this capacity is not yet mature, the issue is more of a long-term goal (McKinsey, 2018). It is stated that secure AI applications will be meaningful in systems with a high "technology maturity level," while in countries in the early stages of technological development, such standards are generally met with externally dependent solutions (OECD, 2019).

For Turkey, it is seen that secure AI research is mostly limited to university-industry collaborations. Advanced testing laboratories, data security protocols, and standardized AI control systems are still in their infancy. This situation necessitates that applications such as the "Trusted AI Seal" be made more systematic at the national level.

Strategy 5: Data Management in AI

The fifth item of the US National AI Strategy concerns data management in AI. Looking at the US strategy and its subheadings, the goal is to develop data sets in line with needs and make them accessible. Turkey's strategy item on this subject comes third. The strategy article has objectives such as establishing infrastructure for the effective use of data in the AI field, making existing data available for use, maximizing the benefit from data, and managing data effectively.

Table 5. Comparison of the two countries' AI security strategies

US strategy item	Turkey's strategy item
5. Developing shared general data sets and environments for AI training and testing • Developing and making data sets accessible to meet the needs of a range of AI applications • Developing shared large-scale and specialized advanced computing and hardware resources • Making testing resources sensitive to commercial and public interests • Developing open-source software libraries and toolkits	**3. Expanding access to quality data and technical infrastructure** • An analysis of the needs and capacity development for the processor infrastructure that will make Turkey a global player in the field of AI will be conducted for the purpose of developing AI products and solutions and productive AI models. • An inventory of data owned by public institutions and organizations will be compiled, a "Central Public Data Area" will be established, and mechanisms will be developed to make this data available to researchers and technology developers. • The requirements in the field of AI will be evaluated, and a common technical reference architecture will be created for AI infrastructure. • Regulations regarding data governance in the AI ecosystem will be improved.

Overview: Despite all its promises, AI technologies face various limitations such as "data-related issues, regulatory barriers, social circumstances, and user acceptance". However, technology developers, companies, and policymakers who want to leverage the potential value of AI desire to address and overcome these issues for users (McKinsey, 2018). The success of AI projects is directly related to access to quality data sets. After all, data is the main fuel of the AI ecosystem (OECD, 2019).

Political context: Public institutions should develop legal and technical mechanisms to make data accessible (UN, 2020). Turkey's Central Public Data Area and data governance efforts can be cited as examples of this policy.

Technological dimension: Data quality, diversity, and accessibility increase algorithm performance and innovation capacity (McKinsey, 2018).

Strategy 6: Measurement and Evaluation in AI

To make the most of AI-supported transformation, governments must have the appropriate tools and environments and monitor them to ensure they are working correctly. The way to achieve this is through measurement and evaluation processes. As a country that has started and made progress in AI, the US has made the necessary infrastructure investments and implemented applications in this field. With its sixth strategy, the US aims to measure what it has done so far in the field of AI according to specific criteria and evaluate it accordingly. It also aims to develop various standards to control and review existing AI systems.

Although Turkey has published its AI strategy document, it has a long way to go in the field of AI. However, the national AI strategy document shows that the government takes the issue of AI very seriously. For example, unlike the US, the strategy document clearly states the standards, programs, units, etc. that are to be created. Elements such as the "Trusted AI Seal, Public AI Ecosystem, AI Risk Management System Certification Program, AI education model, Basic AI Research Group, Corporate AI and Advanced Analytics Project Management Guide, AI Maturity Model, Turkey AI Portal, and AI Co-Development Laboratories" are addressed under this article.

Table 6. Comparison of the AI evaluation strategies of the two countries

U.S. strategy item	Turkey strategy item
6. Measuring and evaluating AI systems through standards and benchmarks • Development of a broad range of AI standards • Establishing AI technology criteria • Increasing the availability of AI testing environments • Participation of the AI community in standards and criteria • Developing standards for auditing and monitoring AI systems	**6. Accelerating structural and workforce transformation** • New "Public AI Ecosystem Calls" will be launched to match the needs of public administrations with sector expertise. • The "AI Risk Management System Certification Program," which enables risk-based assessment of AI products, will be implemented. • A "Trusted AI Seal" will be created in line with the certification mechanism for AI application auditing and legal compliance. • Public institutions and organizations will implement projects that will lead the way in the widespread adoption of AI applications. • A dynamic inventory of AI projects and expertise in the public sector will be created, and institutional capacity development for reliable AI applications will be supported. • A customized AI training model will be designed for the transformation of the existing workforce in the field of AI. • The institutional capacity of the AI Institute will be developed to support the entire ecosystem, and a Basic AI Research Group will be established within the institute. • Policy and legislation development efforts will be carried out to ensure the centralized execution of tasks related to the detection, prevention, and mitigation of new-generation cyber threats, particularly those enhanced by AI, directed against our country's assets in cyberspace. • A Corporate AI and Advanced Analytics Project Management Guide will be created. • Awareness-raising training programs will be implemented in line with the potential impacts of AI and the competencies it requires. • Personnel competencies will be developed by identifying the workforce profile within the framework of the AI maturity model. • The "Turkey AI Portal" will be established and maintained under the management of TÜBİTAK Bilgem AI Institute. • "YZE Joint Development Laboratories" will be established with joint funding within the TÜBİTAK BİLGEM AI Institute and in line with the thematic structure of the Institute. • The impact of AI on existing professions and the workforce will be identified through sectoral analyses.

Overview: Looking at the strategy items and content of both countries, it is understood that the correct and continuous implementation of an AI strategy at the national level requires monitoring and evaluation mechanisms that are tailored to the country and specific to the relevant field. Continuous monitoring and standard development are necessary to understand whether strategies are effective. The lack of monitoring mechanisms reduces the effectiveness of policy in this area (OECD, 2024).

Policy context: States should regularly review AI applications to ensure their alignment with policy objectives (UN, 2020). Elements such as Turkey's Trusted AI Seal and AI Risk Management System can be evaluated within this framework.

Technological dimension: Measurement and testing standards increase the reliability and adaptation speed of AI technologies (McKinsey, 2018).

Strategy 7: Employment in AI

Countries should take responsibility for developing and implementing policies that will help create new job opportunities in all sectors in an automation-based economy, mitigate the negative effects of workers moving away from familiar roles, and create data ecosystems based on local innovation (Saran et al., 2018). AI will eliminate some jobs, but working life will continue. Therefore, countries should update their school curricula to include skills that cannot be replicated by machines, such as coding skills, critical thinking, collaboration and team building, and social and emotional skills (UN, 2020). This is because AI will significantly impact employment by automating repetitive tasks, creating new opportunities in technology sectors and potentially leading to job losses. Developing new skills is essential to ensure the employability of workers (Rickardo and Meiriele, 2023). To develop and adopt AI in society, it is necessary to empower researchers driving fundamental advances in AI, experts in software engineering, data science, and application fields, and the entire population familiar with AI technologies to use these applications reliably (UN, 2020). AI has the power to affect employment by creating new job opportunities while also reshaping traditional work structures (Adhikari, 2024).

The issue of employment in the field of AI ranks seventh in the US National AI Strategy, which focuses on updating the workforce through retraining existing personnel and identifying new areas of expertise. The fact that employment ranks first in Turkey's strategy document demonstrates the importance attached to this issue. In addition to being the first item, the longest and most comprehensive item on AI employment addresses secondary school students with "An AI teaching program will be prepared at the secondary education level" and university students with "Coordination will be carried out regarding the inclusion of data science and AI

Table 7. Comparison of the employment strategies of the two countries

U.S. strategy item	Turkey strategy item
7. Better understanding the needs of the national AI R&D workforce • Defining and evaluating the AI workforce • Developing strategies for AI teaching materials at all levels • Supporting AI higher education personnel • Training/retraining the workforce • Researching the impact of diverse and multidisciplinary expertise • Identifying and attracting the world's best talent • Developing regional AI expertise • Exploring options to strengthen the federal AI workforce • Incorporating ethical, legal, and societal implications into AI education and training • Communicating federal workforce priorities to external stakeholders.	**1. Training AI experts and increasing employment in the field** • Mechanisms will be implemented to attract AI talent to our country under the TechVisa Program. • Support amounts for the International Leaders/Young Researchers and Industry Doctorate Program will be increased, and the number of researchers benefiting from these programs will be increased, with the aim of increasing the skilled workforce in the field of AI. • Coordination will be carried out to include data science and AI topics in the curricula of education programs in scientific fields other than AI. • Considering medium and long-term workforce analyses and projections, associate degrees, bachelor's degree, and graduate-level programs will be launched in the AI field. • Coordination will be carried out with higher education institutions to establish and develop the necessary academic human resources and knowledge base (theses, projects, publications, events) in the field of AI, considering medium and long-term labor force analysis and projections. • During or after the higher education period, training will be provided to train basic and advanced AI experts based on pre-employment sectoral applications. • AI education program standards will be established and implemented for private educational institutions offering AI certification training. • Advanced analytical and AI-related training programs will be conducted to increase the number of competent personnel in public institutions. • National occupational standards and national qualifications in the field of AI will be prepared, and an assessment and evaluation infrastructure will be established within this scope. • Skill sets and skill maps for professions in the AI field will be developed. • Quotas for postgraduate education abroad with state scholarships in the field of AI will be increased. • The curricula of existing relevant courses will be improved around algorithmic thinking, AI technologies, and ethical principles, and digital content will be prepared within the framework of relevant teaching programs. • An AI teaching program will be prepared for the secondary education level. • An AI teaching program and digital content will be prepared for vocational and technical secondary education institutions.

	• Teachers' awareness and capacity in the field of AI will be increased through in-service training. • Educator training will be completed within the scope of the HİSAR Project. • A learning analytics platform will be created to improve the ecosystem for the advancement of learning. • Student training will be completed, and social activities will be organized within the scope of the HİSAR Project. • Training and content will be prepared to develop digital skills in algorithmic thinking, coding, and AI applied education. • Awareness-raising competitions will be organized to promote the widespread use of digital technologies.

topics in the curricula of education programs in scientific fields other than AI." and "Training will be provided to cultivate basic and advanced AI specialists based on preemployment sectoral applications during or after the higher education period."

On the other hand, there are provisions for current employees in this sector stating that "skill sets and skill maps for professions in the field of AI will be developed," and for public employees stating that "advanced analytics and AI-related training programs will be implemented to increase the number of competent personnel in public institutions." There is also a statement aimed at increasing interest and acceptance among all segments of society: "Awareness-raising competitions will be organized to promote the widespread use of digital technologies."

Overview: New literacy skills related to AI's social, cultural, and ethical issues are emerging with technology awareness. It is important for individuals today to possess this type of literacy, as those who do not have it worry about losing their traditional jobs, are unaware of the requirements of being a digital citizen, and are uncertain about the benefits that AI technology will bring to the economy, industry, and other areas (UN, 2020). AI is transforming the workforce structure and requires new skill sets (OECD, 2019). Turkey's TechVisa and education programs are a response to this transformation.

Political context: The UN recommends that countries update their school curricula to include coding, critical thinking, and social skills (UN, 2020). Turkey's programs, ranging from secondary education to postgraduate level, can be said to reflect this approach.

Technological dimension: Another report states that the transformation of the workforce is occurring in parallel with the spread of AI technologies (McKinsey, 2018).

Strategy 8: Public-Private Partnership in AI

The eighth article of the US National AI Strategy covers public-private partnerships in AI. The article addresses the establishment, development, and expansion of public-private partnerships. Although our country does not have a strategy article in this direction, the national strategy document includes the following statements on this subject in different sections:

1. Incentives will be implemented to increase internship opportunities, on-the-job training, and employment for AI practitioners in public institutions and private sector organizations.
2. The establishment of joint technical infrastructures in cooperation between the private sector, academia, and NGOs will be supported.
3. Regulations will be made to facilitate secure and uninterrupted data sharing between public institutions and organizations, the private sector, universities, and research centers; and to determine the authorities and responsibilities of institutions in this context.
4. Mechanisms will be created for collaboration between Sectoral Co-Development Laboratories and the Turkey Open Source Platform, considering the AI needs of public institutions and private sector organizations.
5. AI Week events for academic and awareness purposes will be organized in collaboration with public institutions and organizations, the private sector, universities, and NGOs.
6. Studies measuring the use of AI technologies by public institutions and the private sector will be conducted and reported on a periodic and annual basis.

Table 8. Comparison of the public-private sector cooperation strategies of the two countries

U.S. strategy item	Turkey strategy item
8. Expanding public-private partnerships to accelerate progress in AI • Achieving more synergies from public-private partnerships • Extending partnerships to a wider range of stakeholders • Developing, expanding, and establishing mechanisms for R&D partnerships	-

Overview: The UN's recommendations on what can be done to establish public-private partnerships in the AI field are as follows (UN, 2020):

- Businesses contribute to the implementation of AI-based government initiatives and services, if they are based on profit sharing between the public and private sectors.

- The government collaborates with external experts to develop AI-based public services to improve public services and encourage the local private sector to become part of this collaboration,
- The government has recommended establishing special facilities for AI investors, particularly in the public services sector, to increase opportunities for the private sector to participate in such projects.

Political context: The OECD report states that public-private partnership strategies require strong institutional coordination, secure data sharing, and intellectual property regulations, and that these structures are not yet fully established in developing countries (OECD, 2024). In Turkey, such partnerships are included in action plans but are not defined as strategic priorities. On the other hand, it is stated that many countries integrate public-private partnership policies into sector-specific strategies such as defense, energy, and health, but do not elevate them to independent strategy headings at the national level (UN, 2020).

Technological dimension: Successful public-private AI projects require shared hardware infrastructure, large-scale data pools, and testing environments. In countries where these are not yet fully developed, it is difficult to adopt them as strategic priorities (McKinsey, 2018). Although public-private partnership models (e.g., defense industry projects) exist in Turkey's technology ecosystem, the fact that institutional capacity and the regulatory framework are not yet fully mature in the field of AI may be the reason why this issue is not included as a separate heading in the strategy document.

Strategy 9: International Collaborations in AI

The rise of AI continues, and countries want to adapt to this rise to maintain their current dominance and make new advances. The early adoption of AI by powerful states indicates that these technologies are already concentrated in developed nations (Saran et al., 2018). However, judging by the pace of AI strategy document publication and the number of countries publishing them, no nation wants to fall behind in this race.

The final clause of the US National AI Strategy concerns international cooperation in the field of AI. In a globalized world, almost all countries are interconnected and even interdependent. Perhaps for this reason, the strategy articles of both countries express the need to form alliances and cooperate with other countries on AI at an international level. In this article, the US has set various goals, such as creating a global AI culture and encouraging its development.

It is noteworthy that the name "Turkic Republics" appears in Turkey's cooperation strengthening section. Various objectives have been set, such as developing cooperation mechanisms with these countries, creating a

common AI ecosystem, supporting exchange programs (academics, students, personnel, etc.), and ensuring data provision.

Table 9. Comparison of the international cooperation strategies of the two countries

U.S. strategy item	Turkey strategy item
9. Establishing a principled and coordinated approach to international cooperation in AI research • Establishing a global culture for the development and use of trustworthy AI • Supporting the development of global AI systems, standards, and frameworks • Facilitating international exchange of ideas and expertise • Promoting AI development for global benefit	**5. Strengthening international cooperation** • An "International AI Studies Monitoring and Coordination Committee" will be established to monitor international studies in the field of AI and to ensure our country's active participation and contribution to these studies. • Cooperation mechanisms will be developed to obtain data from Turkic Republics for the development of Turkish BDMs and to use the developed model in Turkic Republics. • Collaborations will be developed with countries that have developed their own large language models or global companies in this field to share knowledge and experience. • Efforts will be made to ensure the free and secure flow of data. • Academics and experts working in the field of AI in the Turkish diaspora will be brought together with our country's AI ecosystem. • AI-related Higher Education Student and Staff Exchange Activities will be supported.

Overview: AI development processes require the sharing of talent, data, and technology on a global scale. The diversity seen in the AI strategies of different countries stems from cultural and technical infrastructure differences (OECD, 2019).

Policy context: States need to maximize global benefits by establishing common AI ecosystems (UN, 2020). Turkey's data and model sharing with the Turkic Republics is important in this context.

Technological dimension: It should be noted that international collaborations shorten technology development time and increase innovation capacity (McKinsey, 2018).

According to the results obtained from the study, Turkey's national AI strategy establishes a strong foundation in the areas of infrastructure, human resources, and ethical governance, but reveals that it is open to development in the areas of advanced R&D, international coordination, and data standardization. The US

strategy, on the other hand, demonstrates a mature structure in terms of long-term vision, reliability, ethical oversight, and global cooperation.

Conclusion

National strategies in the field of AI reveal countries' priorities, economic visions, and orientations in technology policies. This study compares the national AI strategies of Turkey and the US, systematically examining the similarities and differences between the strategic priorities of both countries. The findings show that the commonalities in the two countries' strategies are particularly concentrated in the areas of investment, human resource development, data management, and international cooperation. Both Turkey and the US have similar policy discourses on issues such as long-term investment in AI research, the creation of reliable and ethics-based systems, access to quality data, and the promotion of multistakeholder cooperation. Furthermore, both countries state that gaining global competitiveness in AI and adopting a human-centered approach are common goals.

On the other hand, the strategies of the two countries show distinct differences in terms of their stage of development, prioritization, and implementation capacity. While the US strategy focuses on advanced R&D, ethical oversight, algorithmic security, and global standard development, Turkey's strategy prioritizes infrastructural goals such as ecosystem building, human resource development, data sharing, and raising national awareness. While the US strategy is more mature, institutionalized, and prepared within a long-term vision, Turkey's strategy is dynamic, inclusive, and development oriented. This situation reflects the difference in technological maturity between the two countries and the scale diversity of policy tools.

Overall, Turkey's national AI strategy aims to capture and adapt the principles of the US strategy to local conditions. Turkey has made significant progress in institutionalizing the AI ecosystem through governance structures, training programs, and ethical regulations established in a short period. However, to achieve sustainable competitive strength, it needs to increase its R&D capacity in advanced areas such as AI security, human-AI interaction, and testing and standardization infrastructure. In conclusion, while the US strategy is to maintain leadership, Turkey's strategy aims to approach leadership, and both countries are taking strategic steps to protect their national interests and have a say at the global level in the future of AI.

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