

ARTIFICIAL INTELLIGENCE AND PUBLIC ADMINISTRATION IN TÜRKİYE: A DESCRIPTIVE ANALYSIS

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ABSTRACT

Artificial Intelligence (AI) has emerged as a pivotal enabler of transformative change in public administration, including in Türkiye. This paper aims to analyze Türkiye's AI strategy, with a specific focus on its implementation within public administration. The study employed a descriptive analysis approach, based on a comprehensive literature review and legislative analysis. It examined AI governance structures, including the Digital Transformation Office, the e-Government Gateway, and smart cities. The study explored the potential of AI to enhance decision-making and public services, while also acknowledging the challenges associated with its implementation. Furthermore, it assessed the alignment of Türkiye's National Artificial Intelligence Strategy with the objectives of public administration, particularly focusing on the anticipated impact of AI on governance structures. It is imperative to recognize that the influence of AI on Turkish public administration, and the need for further progress, are inescapable.

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1. INTRODUCTION

Artificial Intelligence (AI) is the capability of machines or computer systems to carry out tasks that normally require human intelligence, including learning, problem-solving, language comprehension, and decision-making. The term "AI" was first introduced during the Dartmouth Conference in 1956, marking the formal beginning of the field (McCarthy et al., 1955). John McCarthy, one of the founders of AI, defined it as "the science and engineering of making intelligent machines" (McCarthy et al., 1955). Alan Turing's groundbreaking article, "Computing Machinery and Intelligence", laid the foundation for AI by proposing the famous Turing Test to evaluate a machine's ability to exhibit intelligent behavior (Turing,

1950). Herbert Simon later extended the understanding of AI by linking it to rational decision-making processes, emphasizing its applicability to social and economic domains (Simon, 1957).

AI has evolved over decades, with early attempts focusing on rule-based systems, but more recent advancements, driven by increased computational power and access to vast amounts of data, have led to the development of more sophisticated machine-learning models (Jordan & Mitchell, 2015). AI systems are designed to simulate cognitive functions such as reasoning, perception, and even creativity, often through algorithms and machine learning techniques.

AI has grown from theoretical foundations to practical applications, becoming a key enabler in various fields

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including healthcare, education, transportation and finance, where it can enhance efficiency, support decision-making, and even help in predictive analysis (Akalin, 2020; Huang, 2020; İyigün, 2021; İşbir & Kaya, 2022; Konu & Ata, 2022; Ökten & Çiftci, 2020; Ün, 2022;). Despite the hesitation within the traditional concept of public administration, AI has begun to affect this field.

The rapid development of technological advancements and globalization worldwide has led to the evolution of internet and computer technologies, prompting governments to develop policies that facilitate their adaptation to new conditions. Through various regulations, the duties and responsibilities of public administration are changing, public organizations are transforming in line with the demands of the digital age, and numerous reforms are being implemented to meet new needs. AI has been a more recent development in public administration, typically emerging after the initial wave of digitalization. The process of digitalization in public administration began in the late 1990s and accelerated in the 2000s. In Türkiye, the key milestone was the launch of the e-Government Portal in 2008, which significantly enhanced the accessibility and efficiency of public services. Türkiye's use of AI in public administration accelerated after the introduction of the AI policy in 2018. While digitalization laid the groundwork for modernizing public administration, AI is now transforming the way governments make decisions and interact with citizens, offering more intelligent, data-driven solutions.

This paper aims to analyze Türkiye's AI strategy, focusing specifically on its implementation within public administration. This is a descriptive study that seeks to examine the impact of AI on Turkish public administration. In this study, the literature and legislation review method was used. Firstly, this study explores the potential of AI in Turkish public administration with a focus on the institutional structure of AI governance via the Digital Transformation Office, e-government gateway, and smart cities. Then, this study explores the multifaceted impacts of AI on Turkish governance, focusing on decision-making, policy implementation, and service delivery, while addressing the opportunities and challenges that lie ahead. Finally, Türkiye's National Artificial Intelligence Strategy and public administration goals will be explained.

2. AI GOVERNANCE STRUCTURE IN TÜRKİYE

The incorporation of AI into the public administration system in Türkiye has resulted in significant alterations to the structure of the central government, ultimately leading to the formation of the Digital Transformation Office. Furthermore, the e-government application, which has emerged as a digital tool for the delivery of public services, was attempted to be made more effective

with the use of IA. The impact of AI on local governments is evaluated within the scope of smart cities.

2.1. Digital Transformation Office

In Türkiye, the Digital Transformation Office (DTO), established under the Presidency, plays a pivotal role in the adoption and implementation of AI technologies within public administration. The DTO is integral to shaping Türkiye's transition to a digitally empowered governance model, emphasizing the strategic importance of data as a fundamental element of digital transformation. The Office underscores the necessity of managing public sector data within a centralized framework, emphasizing its role as a key asset for informed decision-making and governance (Karagöz, 2020). By focusing on priorities such as the ethical use of AI, the development of robust digital infrastructure, and capacity building, the DTO is laying the foundation for a transparent, efficient, and citizen-centered public administration system. Its vision of a "smart government" positions Türkiye as a proactive participant in the global digital transformation era.

Before the transition to the Presidential Government System, e-government policies in Türkiye concentrated on the migration of institutional processes and organizational modernization in the public sector. However, current circumstances necessitate the redefinition of relationships between the government and the various stakeholders involved in planning, decision-making, and implementation processes. The transition to the Presidential Government System enabled a more agile, transparent, and efficient government model, facilitating the coordination of Digital Türkiye (e-government) and cybersecurity efforts under a unified structure.

The Digital Transformation Office of the Presidency of the Republic of Türkiye was formally established by Presidential Decree No. 1, published in the Official Gazette No. 30474 on July 10, 2018. The primary aim was to centralize the fragmented activities related to digital transformation, cybersecurity, national technologies, big data, and AI under one roof, aligning with advancing technologies, societal demands, and reform trends within the public sector. The DTO's core vision is the creation of a "smart government," defined by the seamless integration of digital technologies into governance processes. The principal components of this vision include:

- **Citizen-Centered Public Services:** The DTO emphasizes the design and delivery of public services that prioritize the needs and expectations of citizens. This approach focuses on reengineering public services to align with citizens' demands, reducing bureaucratic inefficiencies, improving accessibility, and enhancing public satisfaction and trust in government institutions.
- **Data-Driven Governance:** The DTO recognizes the strategic importance of data and advocates for the development of a comprehensive data ecosystem. This ecosystem aims to establish interoperable systems that

enable public institutions to make informed decisions based on reliable, systematically analyzed data.

- **Digital Sovereignty:** The DTO prioritizes ensuring national control over critical digital infrastructure and technologies, aiming to reduce dependency on foreign systems and safeguard the privacy and security of national data.

Dr. Ali Taha Koç was appointed as the Head of the Digital Transformation Office, as per Presidential Decision No. 2018/164, published in the Official Gazette No. 30533 on September 12, 2018. The Decree also designated several service units within the Office to oversee various aspects of digital transformation, including:

- Department of Digital Transformation Coordination
- Department of Digital Technologies, Procurement, and Resource Management
- Department of Cybersecurity
- Department of Big Data and Artificial Intelligence
- Department of International Relations
- Department of Information Technologies
- Department of Administrative Services
- Department of Legal Consultancy

In line with the goals set out in the Decree, the DTO is committed to advancing Türkiye's position in the competitive global economy through an agile management approach that adapts to contemporary developments and facilitates rapid decision-making. This approach is also aimed at fostering the capacity for innovative technological solutions. The DTO leads the implementation of the digital transformation ecosystem, enhancing the performance of public institutions and improving the quality and efficiency of their services in alignment with the strategies, policies, and objectives set by the President of the Republic of Türkiye.

The Digital Transformation Office collaborates with public and private sector organizations, universities, and non-governmental organizations to achieve the country's digital transformation goals. The Office coordinates national digital initiatives and promotes digital literacy and skill development among public servants, functioning as a central command center for orchestrating digital activities across the public sector.

Following the amendments made by Presidential Decree No. 48, published in the Official Gazette No. 30928 on October 24, 2019, the responsibilities of the DTO were expanded to include the following:

- Leading the digital transformation of the public sector in line with the President's goals and coordinating the delivery of Digital Türkiye services, while fostering cooperation among public institutions.
- Preparing the roadmap for the digital transformation of the public sector.
- Encouraging cooperation between public and private sector entities, universities, and non-governmental organizations to create a digital transformation ecosystem and promoting their involvement in the design and delivery of digital public services.

- Providing advice to the Strategy and Budget Department on investment proposals from public institutions, monitoring the implementation of these projects, and offering guidance where necessary.

- Developing projects to enhance information security and cybersecurity.

- Formulating strategies for the efficient use of big data and analytical solutions in the public sector and leading their implementation.

- Coordinating AI initiatives in priority public sector areas.

- Developing initiatives to advance domestic and national digital technologies in the public sector and raising awareness in these areas.

- Identifying strategies for the cost-effective procurement of digital technologies and services by public institutions.

- Supporting projects and applications within the Office's mandate.

- Coordinating efforts to identify and disseminate information regarding the central and rural units of public institutions, as well as missions abroad, in the digital space.

- Providing recommendations for policies and strategies within its mandate.

- Performing additional duties as assigned by the President of the Republic of Türkiye.

Through these responsibilities, the DTO plays a crucial role in the realization of Türkiye's vision for a "Digital Türkiye", driving forward the transformation of public administration in the country.

2.2. e-Government Gateway

e-Government Gateway, e-Government, or Digital Türkiye is a web-based system designed to deliver government services to citizens in a secure, uninterrupted, and fast manner through a common platform, taking into account user needs and ensuring access to accurate information.

It is easy to access the e-Government Gateway system using a Turkish ID number. Users can log in to the site with a password obtained from PTT, via Mobile Signature for holders of Turkcell, Türk Telekom, and Vodafone lines, via the Electronic Signature system with a smart card and reader, or with a chip-enabled Turkish ID Card. The responsibility for this project lies with Türksat which is responsible for establishing the necessary infrastructure and determining the information, communication, and quality standards in government services. According to Presidential Decree No. 1, the management of this system has been transferred from the Ministry of Transport and Infrastructure of the Republic of Türkiye to the Presidency's Digital Transformation Office.

The e-Government Gateway is a comprehensive digital platform that centralizes access to public services.

The number of e-Government Gateway users reached to 64.281.459 in 2023, an increase of 4% compared to 2022 (Figure 1). In 2023, e-Government Gateway gained an

additional 2.538.134 users. As of 2023, 30.602.011 e-Government Gateway users were female and 33.679.448 were male (DTO, 2024).

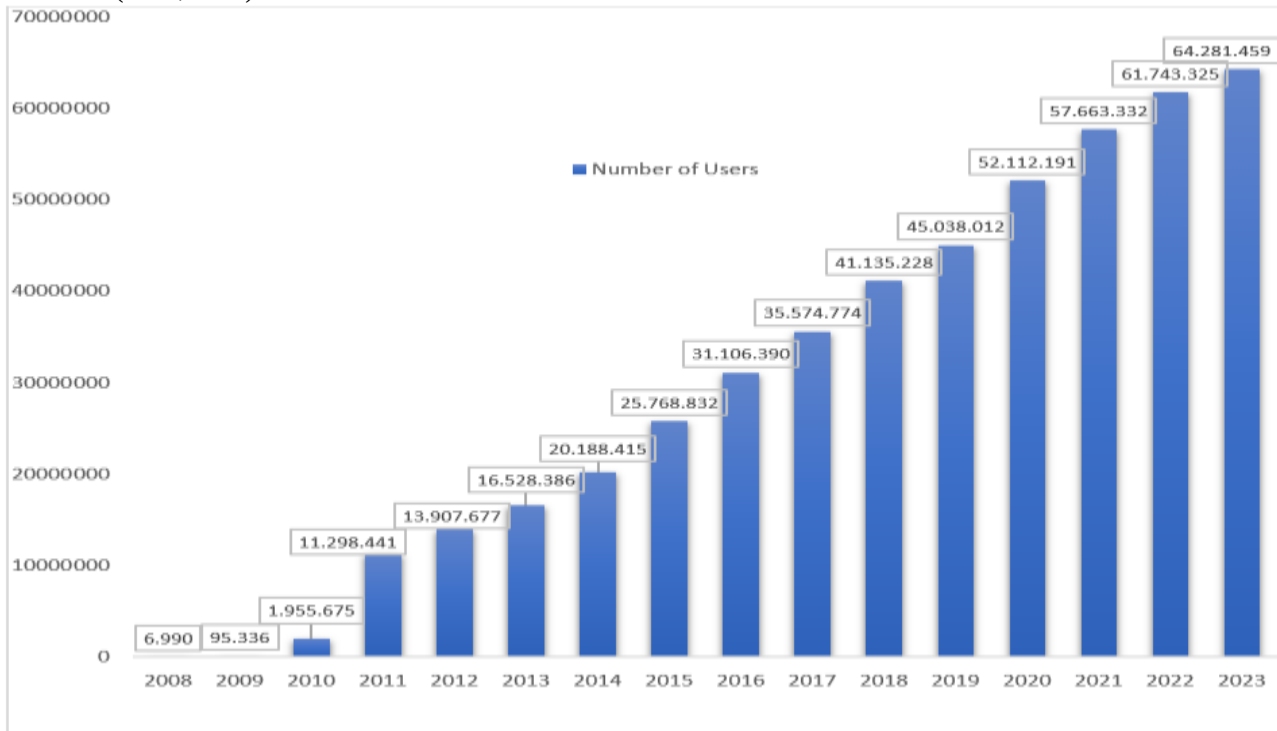


Figure 1. Number of users

Source: DTO, 2024

In 2023, the number of accesses to the e-Government Gateway was realized as 4.398.511.646 with an increase of 23% compared to the previous year (Figure 2). The e-Government Gateway is a comprehensive digital platform that centralizes access to over 7000 public services. Its key features include a user-friendly

interface, robust security measures, 24/7 availability, and extensive service integration.

The 10 most used services on the e-Government Gateway in 2023 accounted for 55% of the use of all services on the e-Government Gateway (Figure 3).

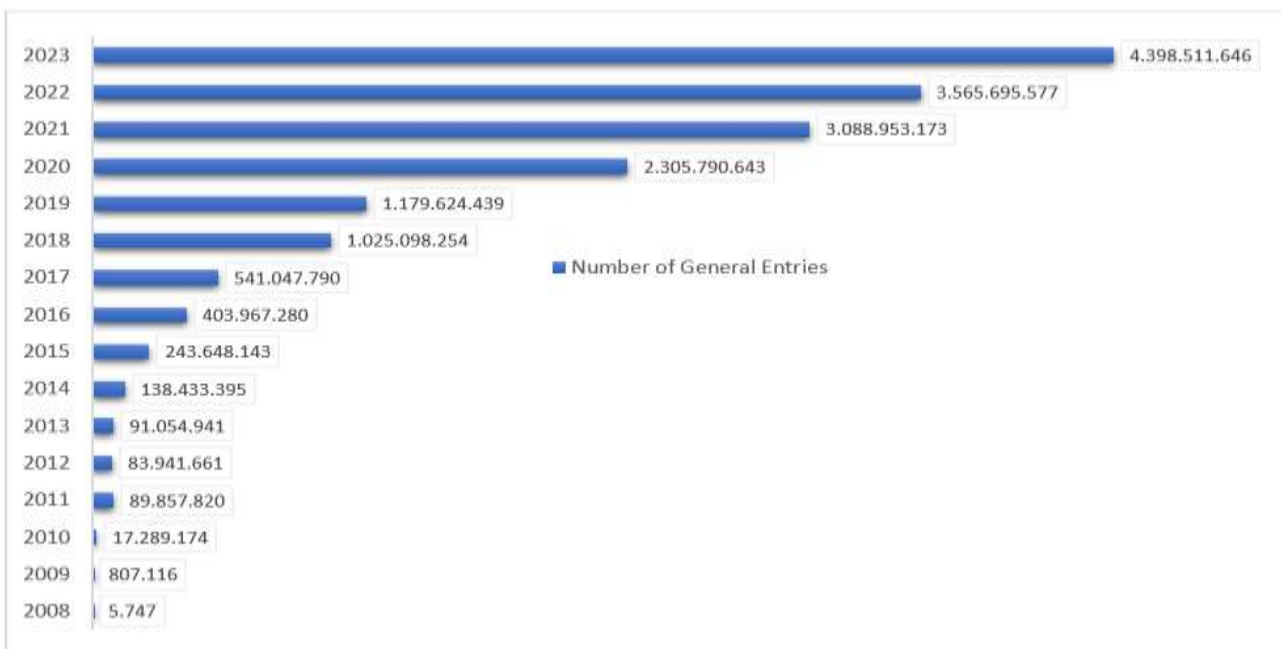


Figure 2. Number of Access on e-Government Gateway

Source: DTO, 2024.



Figure 3. The 10 most used services in 2023

Source: DTO, 2024

In 2023, the number of institutions offering services on the e-Government Gateway increased by 9% compared to the previous year (Figure 4). Of the institutions

offering services, 196 were central public institutions, 204 were universities, 470 were municipalities, 30 were water and sewerage administrations and 126 were private institutions.

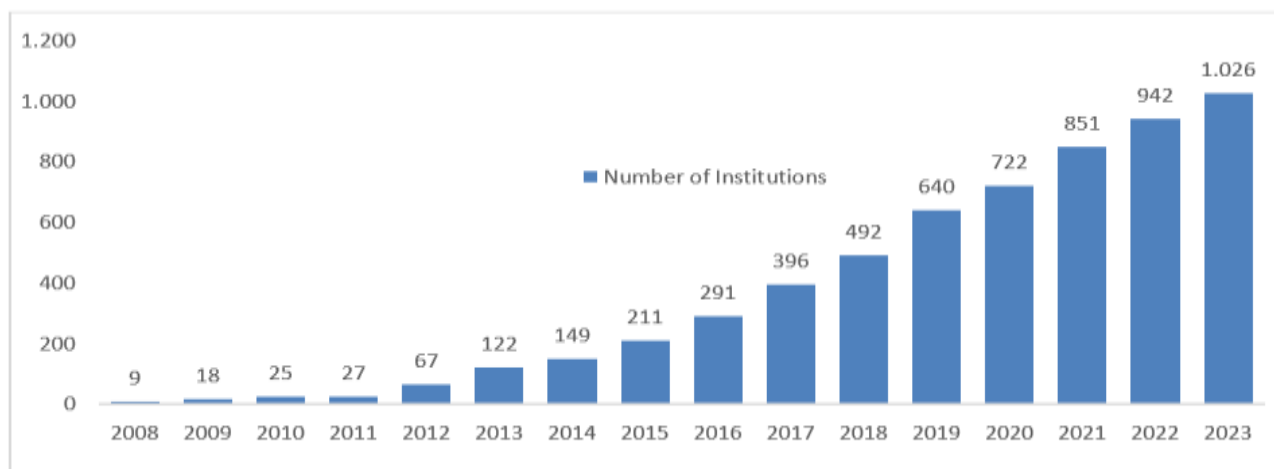


Figure 4. Number of institutions offering services on e-Government Gateway

Source: DTO, 2024.

AI plays a crucial role in enhancing the functionality of e-Government Gateway. AI-powered chatbots and virtual assistants provide instant responses to user inquiries, while predictive analytics optimize resource allocation. AI systems detect and prevent fraudulent activities, enhancing security. Personalized user experiences and automated administrative tasks improve efficiency.

2.3. Smart Cities

The concept of smart cities has emerged over the past two decades as a critical approach to addressing the challenges of urbanization, promoting sustainability, and enhancing public service delivery through technological

innovation. A city is considered smart when investments in human and social capital, modern communication infrastructure, and natural resources are made in a manner that fuels sustainable economic growth and ensures a high quality of life, supported by the wise management of natural resources and participatory governance (Caragliu et al., 2011). A smart city leverages information technology to enhance the functionality of its physical infrastructure, optimizing convenience, mobility, efficiency, energy conservation, air and water quality, disaster resilience, data-driven decision-making, resource management, and data sharing to foster collaboration across entities and domains (Nam & Pardo, 2011). Definitions and interpretations of smart cities vary

among researchers, international organizations, and industry professionals, due to their distinct perspectives. These differing viewpoints and expectations have led cities to adopt smart initiatives across multiple domains (Fernandez-Anez et al., 2018; Sarthy & Choudhary, 2022; Noori et al., 2021; Perboli & Rosano, 2020; Praharaj & Han, 2019; Velibeyoğlu 2019).

It has been noted that there is no single, universally accepted definition of the smart city concept, as definitions evolve based on the issues addressed in various studies. Within the framework of the 2020-2023 Turkish National Smart Cities Strategy and Action Plan, the smart city concept is defined as: “*More livable and sustainable cities that implement solutions adding value to life through collaboration among stakeholders, utilizing new technologies and innovative approaches, supported by data and expertise, and anticipating future problems and needs*” (ÇŞİDB 2019).

The first policy related to smart cities in Türkiye addresses the smart transportation component, a part of the broader smart city initiatives, which is included in the National Science and Technology Policies 2003-2023 Strategy Document. In this document, under the goal of “improving the quality of life”, actions are identified under the policy “developing modern and safe transportation systems”, including the development of “smart vehicles and smart road systems for road transportation” and “fire and security systems for transportation and tourism infrastructures”. The 9th Development Plan identified the priority policy as “improving the living standards of cities and ensuring sustainable development”, with the objective of preparing a “sustainable urban development and action plan”.

The first comprehensive high-level policy on smart cities was articulated in the 10th Development Plan (2014-2018). Triggered by this plan, policies related to smart cities and their components were incorporated into various sectoral and thematic strategies and institutional strategic plans. Notable thematic strategies include the

2015-2018 Information Society Strategy and Action Plan, the 2016-2019 National e-Government Strategy and Action Plan, the 2010-2023 Integrated Urban Development Strategy and Action Plan (KENTGES), the 2016-2019 National Cybersecurity Strategy and Action Plan, the 2017-2023 National Energy Efficiency Action Plan, and the National Smart Transportation Systems Strategy Document and Action Plan.

With the publication of the 11th Development Plan (2019-2023) in July 2019, policies related to Smart Cities were comprehensively addressed, emphasizing the National Smart Cities Strategy and Action Plan (2020-2023).

Furthermore, policies and measures directly related to the smart cities field are as follows (ÇŞİDB 2019):

- Local governments will be encouraged to prepare smart city strategies and roadmaps. Smart city projects will be selected and implemented based on prioritized national areas and capabilities, and the development of domestic production for Smart City applications will be supported.
- Guidance will be provided to local governments to prepare their smart city strategies and roadmaps based on the National Smart Cities Strategy and Action Plan.
- Smart city projects will be prioritized, with metropolitan municipalities and 51 provincial municipalities taking precedence, considering smart city maturity assessments and resource allocation constraints.
- Methods to support local technology applications in Smart City projects will be analyzed, and criteria—including the local production rate to be used in procurement processes—will be established.
- The Smart City ecosystem will be evaluated, and stakeholders from the sector, such as entrepreneurs, system developers, and technology providers, will be brought together on a digital platform.

In Türkiye, significant progress has been made in implementing smart city applications, though with varying degrees of success and complexity.

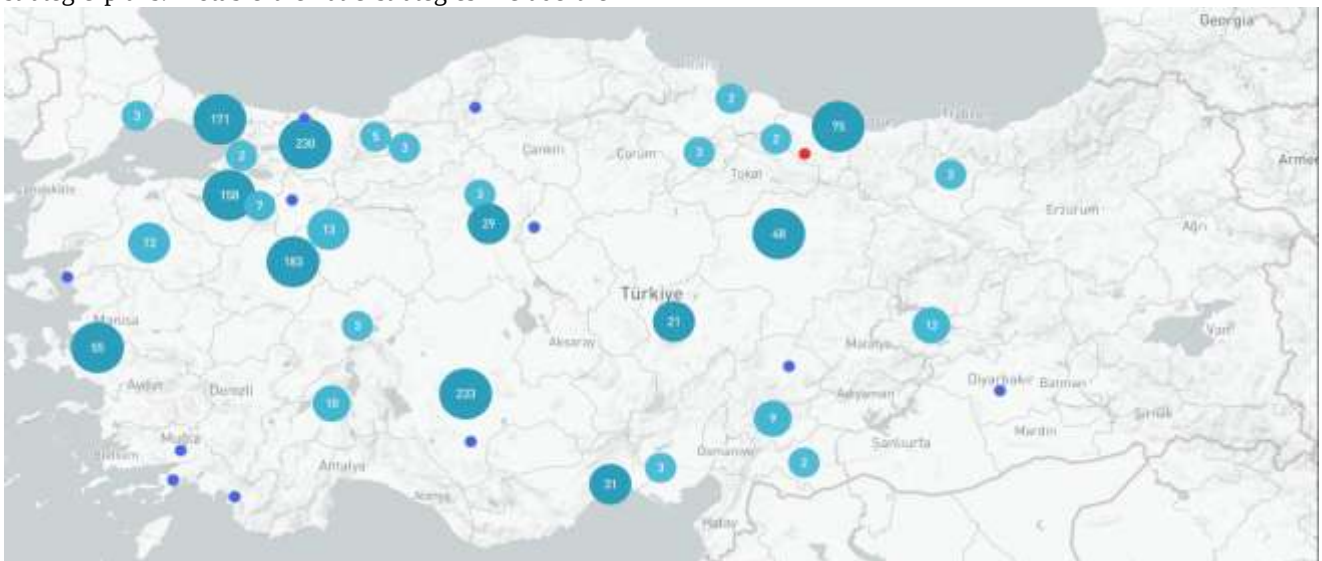


Figure 5. Distribution of smart city projects across Türkiye, highlighting significant regional variations
Source: (Akıllı Şehirler Portalı, 2024)

This map (Figure 5) illustrates the distribution of smart city projects across Türkiye, highlighting significant regional variations:

- **Major Urban Centers:** The highest concentration of projects is found in cities such as Istanbul (230 projects), Ankara (233 projects), and Izmir (55 projects), reflecting their status as major metropolitan and economic hubs. These cities focus heavily on advanced technological infrastructure, transportation, and sustainable urban development.
- **Western and Central Regions:** Western regions such as Konya (233 projects), Bursa (183 projects), and Kocaeli (158 projects) also exhibit substantial numbers of smart city initiatives, indicating a regional emphasis on industrial development, innovation, and connectivity.
- **Eastern and Southeastern Regions:** The eastern regions show comparatively fewer projects, which may suggest that these areas are in the early stages of smart city development.

The data reveals that smart city efforts are concentrated in economically developed areas, particularly in western and central Türkiye, while cities with fewer projects may still be in the initial phases of smart city development. Overall, the distribution highlights the need for more balanced development and underscores the significant role that economic and infrastructural capacity play in shaping smart city implementation across Türkiye.

The digitalization of public administration in Türkiye has laid a strong foundation for more advanced smart city solutions. E-governance initiatives are central to administrative reform, enabling data-driven decision-making and integrated service delivery (Şahin 2014; Atmaca & Karaçay 2020).

AI has become a core component of smart city frameworks worldwide, including in Türkiye. Metropolitan cities such as Istanbul, Ankara, Izmir, and Konya have emerged as prominent pilot regions for smart city applications. Projects in areas like smart traffic management systems, environmentally friendly energy production, and water management are particularly noteworthy. As shown in the distribution of smart city projects across Türkiye, cities such as Istanbul, Ankara, and Izmir lead in terms of the number of initiatives. These cities focus heavily on technological infrastructure, such as smart traffic management, energy conservation, and urban mobility solutions. However, the impact of these projects on urban life and the economy varies significantly across regions. For instance, in Istanbul, the integration of smart public transportation systems has significantly reduced traffic congestion, while in smaller cities like Konya, smart city projects are primarily focused on enhancing industrial connectivity and optimizing energy usage (Bilici & Babahanoğlu 2018; Mangır 2016). These regional differences underscore the varying levels of readiness and local needs in the implementation of smart technologies.

While significant progress has been made, the full potential of Türkiye's smart city projects remains untapped. To maximize the social benefits of these

initiatives, it is crucial to strengthen collaboration between stakeholders, including local governments, technology developers, and citizens (Demir, 2022; Velibeyoğlu, 2019). Additionally, policies that prioritize the integration of sustainable practices and focus on reducing the digital divide will play a vital role in ensuring that smart city technologies benefit all urban populations, especially marginalized groups.

3. IMPLICATIONS OF AI IN TURKISH PUBLIC ADMINISTRATION

AI is reshaping public administration across the globe, offering transformative potential in decision-making, policy formulation, and service delivery. Turkish public administration has embraced AI as part of broader digitalization and governance reforms, aiming to enhance efficiency, transparency, and inclusivity.

3.1. Policy Decision-Making Mechanism

AI is increasingly being integrated into policy-making processes globally, with governments leveraging these technologies to enhance decision quality, optimize public sector operations, and address complex societal challenges. In Türkiye, AI adoption in public administration is a growing trend, reflecting policymakers' recognition of its potential to support informed, data-driven, and efficient decision-making (Önder & Saygılı 2018).

The integration of AI into policy-making represents a transformative shift from traditional, often static processes to dynamic, data-driven approaches. AI's capacity to process and analyze large datasets allows public administrators to derive insights that are otherwise difficult to obtain. Public sector institutions are increasingly exploring AI's potential to address administrative challenges and enhance governance structures (Wirtz et al. 2019; Ahn & Chen 2020). AI-driven decision-support systems facilitate the analysis of extensive datasets, yielding actionable insights for strategic planning. These tools can predict societal trends, assess risks, and evaluate policy impacts, fostering data-driven governance (Efe & Özdemir 2021; Uzun et al. 2022). AI applications extend across various sectors, including urban planning, healthcare, and education, where they model policy scenarios to forecast potential consequences. For instance, AI simulations in urban development projects assist administrators in assessing the implications of different policy interventions before implementation.

The information-gathering phase of decision-making is particularly critical, and AI ensures access to accurate, comprehensive data, enhancing the quality of decisions. AI-based expert systems streamline data analysis, improving decision accuracy and supporting strategic resource allocation. AI also addresses longstanding challenges such as human bias in policy-making. Traditional decisions often reflect subjective factors,

including political ideologies and societal pressures. In contrast, AI processes large volumes of objective data, reducing emotional or biased influences and promoting more rational, evidence-based decision-making (Uzun et al. 2022). For example, AI models used in Türkiye to assess health risks or predict demographic trends provide impartial insights, aiding policymakers in designing equitable policies. This objectivity is particularly valuable in areas such as social welfare and public health, where resource allocation must balance competing interests.

Beyond reducing bias, AI can foster more inclusive policy-making by facilitating participatory approaches. AI systems aggregate public opinion from diverse sources, enabling administrators to incorporate a broader range of perspectives. By analyzing social media and news platforms, AI helps gauge public sentiment, ensuring that policies align with citizens' needs and preferences. This participatory approach is especially relevant in Türkiye, where there is a growing demand for transparency and public involvement in governance (Karagöz 2020; Efe 2022). Such capabilities enhance civic engagement, ensuring that policy decisions reflect societal values (Moon 2002).

AI's role in administrative reform extends to monitoring policy compliance and evaluating program effectiveness (Herbel 2018). Traditional compliance methods are labor-intensive and lack real-time oversight, whereas AI automates continuous monitoring across administrative departments. These systems detect anomalies and potential violations efficiently, ensuring consistent policy implementation. Additionally, AI enables dynamic program evaluations by analyzing data from ongoing initiatives, providing continuous feedback and identifying areas for improvement. For instance, in social welfare programs, AI assesses demographic and economic data to evaluate policy impacts, facilitating equitable resource distribution.

In Türkiye, digitalization initiatives, including AI integration, have improved decision-making accuracy and efficiency (Atmaca & Karaçay, 2020; Kocaman, 2024). AI-powered predictive analytics anticipate challenges such as economic fluctuations and public health crises, enabling proactive responses. In urban planning, for example, AI predicts traffic patterns to optimize routes, reducing congestion—an essential capability for densely populated cities like Istanbul.

However, AI integration presents challenges, particularly concerning data privacy and security (Etscheid 2019). The extensive use of personal data necessitates robust protection mechanisms to prevent breaches. Ethical considerations are also paramount, requiring transparent algorithms that align with societal values. Legal frameworks must be established to ensure compliance with existing laws and safeguard citizens' rights. Additionally, effective AI implementation requires advanced infrastructure and a skilled workforce (Efe & Özdemir 2021). Investments in education and training are crucial to equip public sector employees with the necessary competencies (Ahn & Bretschneider 2011).

Ensuring algorithmic transparency is essential to maintain public trust and prevent policy outcomes from being dictated solely by AI models (Hurlburt 2017). Public administrators must prioritize the public interest, remaining vigilant against the misuse of discretion by unelected officials. AI can enhance accountability by reducing biases and emotional influences, contributing to more transparent and rational decision-making processes. In conclusion, AI holds immense potential to revolutionize public administration by enhancing efficiency, transparency, and accountability. While it cannot replace human judgment entirely, AI's ability to gather accurate data, identify patterns, and generate actionable insights makes it an invaluable tool for modern governance. Addressing challenges related to privacy, transparency, and workforce readiness is essential to fully realize AI's benefits. With strategic investments and ethical frameworks, Türkiye can harness AI to build a more effective, responsive, and citizen-centric public sector.

3.2. Smart Service Public Delivery

AI into public administration is progressively transforming how administrations deliver public services. As part of a broader digital transformation, AI-supported smart service delivery has opened new possibilities for optimizing service efficiency, enhancing personalization, and boosting citizen participation.

In Türkiye, AI can streamline various aspects of governance, ranging from smart city initiatives to healthcare systems, contributing to better service quality and reduced operational costs. AI can facilitate better traffic management, optimize transportation schedules, and improve waste management processes in urban environments. One significant area where AI can have a transformative impact is urban management. In Türkiye, AI can be leveraged to monitor traffic, enhance public transport systems, and address environmental challenges such as waste and energy consumption. Implementing AI in city management ensures cities can adapt dynamically to daily challenges, offering citizens smarter solutions to common issues. The application of AI-based platforms in urban settings can also facilitate more effective and efficient resource distribution, improving the overall quality of life for residents (Demir 2022).

Moreover, AI-supported services in Turkish municipalities can aid in monitoring and controlling urban developments, ensuring that city planning is done efficiently and in response to emerging demands. These AI-driven systems help cities react quickly to changes, optimize resource allocation, and maintain a sustainable and responsive urban environment. The adoption of such technologies in Türkiye's rapidly urbanizing environment ensures that public services are capable of meeting the growing and diverse needs of urban populations.

AI in public administration is not limited to urban management; it also extends to healthcare, where it plays a critical role in diagnostics, treatment planning, and resource management. AI-powered systems can predict

health trends, assist medical professionals in making faster and more accurate diagnoses, and improve patient care by personalizing treatment plans. The potential for AI to optimize hospital resource allocation, reduce wait times, and enhance accessibility makes healthcare services in Türkiye more proactive and effective (Ün, 2022). The Turkish judicial system has seen significant advancements through AI integration within the National Judiciary Informatics System (UYAP). These innovations streamline case management, improve efficiency, and contribute to more consistent legal processes. According to İpçi (2021), AI tools not only address case backlogs but also enhance the consistency of judicial outcomes. In human resource management, AI is transforming recruitment processes by matching candidate profiles with job requirements and reducing biases. Performance evaluations powered by AI help identify training needs and facilitate career development opportunities (Karaboğa 2020). It should be noted that the impact of AI on predicting budget deficits in Türkiye from the perspective of public administration (Konu & Ata 2022). AI applications could provide more accurate and reliable results compared to traditional forecasting methods when predicting budget deficits. The complex and dynamic nature of public finances cannot be fully analyzed using traditional statistical methods. The use of machine learning techniques for predicting budget deficits can help policymakers make more precise decisions, thereby contributing to fiscal discipline.

The introduction of AI-based technologies into Turkish public administration is also reshaping the concept of smart public service delivery. The core of smart public service delivery lies in reconfiguring services with a focus on efficiency, citizen participation, and resource optimization (Gil-Garcia et al. 2014). AI-enabled services facilitate the involvement of citizens in decision-making processes, making public services more inclusive and adaptive to evolving societal needs (Lee & Lee 2014). The combination of AI, citizen participation, and organizational learning encourages more personalized public services, empowering citizens and making the public administration system more responsive to their needs.

Public-private partnerships (PPP) and collaboration between civil society are key elements for the successful adoption of AI-driven public services in Türkiye. The strong cooperation between different sectors will help ensure the development of inclusive, effective, and sustainable AI-based services. By harnessing the expertise of various stakeholders, Türkiye can accelerate the adoption of AI and ensure that public services are tailored to meet the needs of all citizens.

One of the most important aspects of AI in public administration is its role in improving the accessibility and efficiency of public services. In Türkiye, e-governance initiatives, bolstered by AI technologies, have already streamlined processes such as tax filings, social benefit applications, and public inquiries. These systems reduce administrative burdens while improving service delivery and increasing transparency. The

automation of these processes also leads to reduced response times and increased citizen satisfaction (Atmaca & Karaçay 2020).

Furthermore, AI's role in predictive maintenance of public infrastructure cannot be overlooked. AI tools can predict failures in essential infrastructure, such as water, electricity, and transportation systems, allowing for timely interventions and minimizing service disruptions (Ricart et al. 2022). This proactive approach improves the resilience and reliability of public infrastructure, ultimately enhancing the quality of public service delivery in Türkiye.

4. TÜRKİYE'S NATIONAL ARTIFICIAL INTELLIGENCE STRATEGY AND PUBLIC ADMINISTRATION GOALS

The digital transformation agenda has been an integral part of National Development Plans and thematic strategies for several years. In 2016, the government introduced its first comprehensive National e-Government Strategy and Action Plan. The Twelfth Development Plan (2024-2028), prepared within the framework of 2053 vision in the new century of the Republic and in line with the vision of "a stable, strong and prosperous Türkiye. One of the main objectives is the competitive production with green and digital transformation. Türkiye's National Artificial Intelligence Strategy (2021-2025) underscores the nation's intent to establish itself as a leader in AI, with a focus on public sector modernization, data-driven decision-making, and citizen-centric services (DTO, 2021).

Türkiye's National Artificial Intelligence Strategy (NAIS) (2021-2025), is a response of the challenges of AI in Turkish Public Administration and aims to create a sustainable AI ecosystem. This includes training AI experts, supporting research, and facilitating access to quality data. The strategy promotes collaboration between academia, industry, and government to ensure ethical AI development and deployment. The Strategy outlines the measures to unify Türkiye's efforts in the field of AI between 2021 and 2025, along with the governance mechanism to ensure their effective implementation.

The NAIS, developed under the coordination of the Digital Transformation Office of the Presidency and the Ministry of Industry and Technology, outlines six primary objectives and several key initiatives to establish Türkiye as a leading player in AI development.

The NAIS takes an exploratory approach, as it represents Türkiye's first national strategy in this field and reflects the rapid advancements in AI as well as the evolving strategies of other nations. The strategic priorities, objectives, measures, and governance mechanisms outlined within the strategy are designed to address the opportunities, risks, and uncertainties that may emerge for Türkiye over time.

Under the NAIS, projects like the Public Sector Data Space and Türkiye TechnoHub Platform enhance data quality and infrastructure. These initiatives create a collaborative environment for developing AI solutions and improving public services. It's like building a high-tech playground where innovative ideas can flourish and grow.

The NAIS contain the “governance mechanism” chapter. This section explains the governance mechanism for the implementation of the NAIS and the coordination of the process (DTO, 2021).

To ensure the effective implementation of the NAIS, a two-tiered and adaptive governance framework will be established, focusing on the Strategy's core dimensions: organizational competence, governance, and strategic consistency.

A National AI Strategy Steering Mechanism is intended to be established to ensure strategic alignment and high-level coordination. Additionally, an AI Ecosystem Administrative and Technical Governance Mechanism is set to oversee administrative, technical, and legal coordination, ensuring adherence to AI values and principles.

The formation of the Steering Committee is planned to facilitate the monitoring and coordination of NAIS priorities. This committee, expected to be chaired by the Vice-President, will receive secretarial support from the DTO and the Ministry of Industry and Technology (MoIT). Participation of deputy ministers, the President of the Council of Higher Education (CoHE), and other relevant representatives is also planned. An AI Ecosystem Advisory Group consisting of representatives from the private sector, academia, and NGOs is expected to monitor implementation and provide recommendations.

Action Plan Coordination Groups are planned to be established within each responsible ministry. These groups will include representatives from DTO, MoIT, and relevant public institutions to oversee the preparation and implementation of action plans. Contributions from NGO representatives, academics, and industry professionals are also anticipated.

The AI Ecosystem Administrative and Technical Governance Mechanism is planned to coordinate action plan implementation under the leadership of the DTO's Big Data and AI Applications Department, the General Directorate of Digital Technologies, and the TÜBİTAK AI Institute. A Public AI Ecosystem is intended to support central and local government institutions in monitoring AI projects, preparing guidelines, and managing expert resources.

Sectorial Co-Creation Laboratories are planned to be established within the TÜBİTAK AI Institute to develop sector-specific AI solutions through multi-stakeholder collaboration. These labs are expected to address data management needs, challenges, and usage scenarios, ensuring alignment with strategic goals.

Coordination between the Public AI Ecosystem and Sectorial Laboratories is planned to ensure effective resource sharing and project management. This structure,

integrating public and private sector efforts, is expected to support agile and sustainable AI solutions.

Working Groups focusing on areas such as technical infrastructure, data governance, human resources, law and ethics, and responsible AI are also planned. These groups, comprising representatives from institutions, NGOs, academia, and domain experts, will be responsible for preparing guidelines and promoting best practices. Evaluation reports from these groups are intended to be presented to the Steering Committee, which may establish new groups or adjust the scope of existing ones as needed.

NAIS is a forward-thinking and ambitious framework that reflects the country's commitment to modernizing public administration and positioning itself as a leader in AI. It demonstrates a clear understanding of AI's transformative potential in governance, particularly in enhancing efficiency, citizen engagement, and transparency. However, the success of the strategy depends on addressing several key challenges. First, bridging the digital divide is critical to ensuring that all citizens can equally benefit from AI-enabled services. Second, developing high-quality data infrastructure and ensuring interoperability between public institutions is essential for seamless integration and efficient use of AI. Third, implementing robust ethical guidelines and transparent mechanisms is necessary to mitigate risks such as bias and privacy concerns, which are central to maintaining public trust. Finally, capacity building is crucial, as public sector staff require training to effectively manage and implement AI tools. Additionally, fostering public awareness is vital for building trust in these systems.

Overall, while the strategy provides a strong foundation, its success will ultimately depend on effective implementation, sustained investment, and a collaborative approach that involves academia, industry, and civil society. If executed successfully, it has the potential to serve as a model for AI adoption in public administration worldwide.

5. CONCLUSION

The integration of AI into Turkish public administration represents a pivotal transformation aligned with the broader digitalization agenda and governance reforms. Through the establishment of the DTO and advancements like the e-government platform, AI has already begun to reshape the delivery of public services and administrative processes. Its implementation aims to enhance efficiency, transparency, and inclusivity across various levels of government, from central authorities to local municipalities, particularly within the framework of smart cities.

AI offers significant potential in critical areas such as decision-making, policy formulation, and service delivery. By automating complex processes and enabling data-driven decisions, AI can optimize public resource allocation and improve service quality. However, this

transition brings with it multifaceted challenges that must be addressed to realize AI's full benefits. Key concerns include ensuring data privacy and security, navigating ethical and regulatory considerations, and addressing the infrastructural and workforce needs necessary to support AI technologies. Additionally, maintaining human oversight and accountability remains crucial to prevent potential biases and errors in AI systems, while mitigating job displacement requires proactive strategies for workforce adaptation and reskilling.

NAIS underscores the country's commitment to leveraging AI within public administration. This strategy sets clear objectives for fostering an AI ecosystem that supports national goals, emphasizing collaborative governance and sustainable development. Moving forward, a balanced approach—combining technological innovation with ethical and social considerations—will be essential to harness AI's transformative potential while safeguarding public interest and values.

In conclusion, the successful integration of AI into Turkish public administration hinges on a balanced

approach that combines technological advancement with ethical governance. It's essential to create a framework where AI tools are not only powerful but also fair, transparent, and aligned with societal values. Collaboration between the public sector, academia, and the private sector will be key to fostering innovation while addressing these challenges. By prioritizing inclusivity and ethical considerations, Türkiye can set an example of responsible AI implementation, ensuring that technological progress benefits all citizens and strengthens democratic governance.

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