THE LAW OF THE ALGORITHMIC STATE: THE CASE OF TÜRKIYE

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Abstract

Türkiye has emerged as an early adopter in artificial intelligence (AI) governance, demonstrating significant progress over the past five years. As a member of the OECD's Global Partnership on AI (GPAI), Türkiye is actively trying to shape the global AI landscape, reflecting its commitment to digital transformation and innovation. This chapter examines Türkiye's evolving AI ecosystem, including the development of a national AI strategy, the role of the Ministry of Industry and Technology, and the establishment of the Digital Transformation Office of the Presidency of the Republic of Türkiye (DTO) in 2018, which has been pivotal in coordinating national efforts. The chapter also highlights Türkiye's advancement in the Government AI Readiness Index, rising from 53rd in 2021 to 47th in 2023.

Key sectors utilising AI, such as public administration and defence, are explored, along with the legal and regulatory frameworks, including the proposed AI Bill of 2024. Türkiye's collaborative approach, involving state, private sector, and non-governmental organisations, has laid the groundwork for a robust AI infrastructure, with TÜBİTAK's AI Institute playing a central role in research and innovation. Additionally, the paper explores the legal implications of AI in Türkiye, covering areas such as data protection, intellectual property, and e-commerce law.

This chapter provides a comprehensive overview of Türkiye's AI landscape, focusing on its digital transformation, key actors, and governance mechanisms, while offering projections for the future of AI regulation and policy in the country.

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1. Introduction

Türkiye has positioned itself as one of the early adopters in artificial intelligence (AI) governance. Over the past five years, the country's AI ecosystem has shown significant development, reflecting its commitment to integrating advanced technologies into various sectors. As a member of the Organisation for Economic Co-operation and Development's (OECD) Global Partnership on AI (GPAI), Türkiye is among 29 countries working collaboratively to shape the global AI landscape[1]. Following its membership approval at the GPAI Ministerial Council Meeting in Tokyo, Türkiye has accelerated its efforts to develop a national AI strategy and foster digital transformation through public-private collaboration[2].

Within the scope of the "Government AI Readiness Index Reports" prepared by Oxford Insights, in the evaluation of the readiness of countries to use AI systems in public services, it emerges that Türkiye's public sector AI readiness index is increasing every year. Türkiye ranked 53rd in the "Government AI Readiness Index" which includes parameters such as human resources, infrastructure, and vision in 2021. The country has increased its ranking to 49th in 2022 and 47th in 2023[3]. Türkiye's strategic location, young[4] and dynamic population, strong defence industry, and digitalisation infrastructure offer great potential for the adoption and development of AI technologies.

The Ministry of Industry and Technology of Türkiye has been instrumental in coordinating national efforts to develop a comprehensive AI framework. Similarly, the Turkish Presidency has emphasised that due to its far-reaching impacts and inherent

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[1] See Global Partnership on AI (GPAI), *Community* https://gpai.ai/community/, accessed 1 October 2024.

[2] H. Berktan, *Türkiye, Yapay Zeka Küresel Ortaklığı'na üye oldu* (Bloomberg HT, 2022) https://www.bloomberght.com/turkiye-yapay-zeka-kuresel-ortakligi-na-uye-oldu-2319849, accessed 1 October 2024.

[3] See Government AI Readiness Report (2023), at https://oxfordinsights.com/wp-content/uploads/2023/12/2023-Government-AI-Readiness-Index-2.pdf, accessed 1 October 2024.

[4] According to the results of the Address Based Population Registration System (ABPRS), as of the end of 2023, Türkiye's total population was 85 million 372 thousand 377 people, while the young population in the 15-24 age group was 12 million 872 thousand 39 people. The young population constituted 15.1% of the total population. See İstatistiklerle Gençlik (2023), at https://data.tuik.gov.tr/Bulten/Index?p=Istatistiklerle-Genclik-2023-53677#:~:text=Adrese%20Dayal%C4%B1%20N%C3%BCfus%20Kay%C4%B1t%20Sistemi,15%2C1'ini%20olu%C5%9Fturdu, accessed 1 October 2024.

risks, AI cannot be entrusted solely to a single nation or corporation[5]. This stance underlines the collaborative nature of Türkiye's approach, which includes the involvement of non-governmental organisations and private sector firms in building the necessary technical infrastructure, such as developing a national large language model.

The establishment of the Digital Transformation Office of the Presidency of the Republic of Türkiye (hereinafter "DTO") in 2018 is also regarded as a game-changer in the Turkish AI ecosystem. In recent years, Türkiye has also seen the establishment of numerous research and application centres dedicated to AI. One significant initiative is the AI Institute, established within the Scientific and Technological Research Council of Türkiye's (TÜBİTAK)[6] Informatics and Information Security Research Centre (BİLGEM), which has played a key role in advancing AI research and development. TÜBİTAK has issued special calls to foster innovation in this field, reflecting the country's dedication to becoming a leader in AI technology. The NGOs in the country contribute to awareness-raising, policy development, education, and support for innovation. While they are becoming increasingly effective day by day, their impact can be enhanced through greater collaboration, resource allocation, and public engagement.

AI tools have also been increasingly implemented in public administration, particularly to enhance public relations and provide swift and effective responses to citizens' concerns. These initiatives aim to serve the public interest and improve governmental efficiency[7].

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[5] Anadolu Ajansı, *Cumhurbaşkanı Yardımcısı Yılmaz: Yapay zekanın kalkınma sürecimize destek olmasını bekliyoruz* (24 May 2024), at https://www.aa.com.tr/tr/ekonomi/cumhurbaskani-yardimcisi-yilmaz-yapay-zekanin-kalkinma-surecimize-destek-olmasini-bekliyoruz/3228597, accessed 1 October 2024.

[6] The Minister of Industry and Technology recently announced that through TÜBİTAK's scholarship and support programmes, over 3,700 projects have been awarded grants. More than 1,300 individuals have received a total of 6.7 billion TL in funding. See TRT Haber, *Yapay Zekâ Projelerine 6,7 Milyar Lira Destek Verildi* (TRT Haber, 2024), at https://www.trthaber.com/haber/ekonomi/yapay-zeka-projelerine-67-milyar-lira-destek-verildi-820313.html, last accessed 1 October 2024.

[7] B. Çeber, *Yapay zekâ uygulamalarının halkla ilişkiler aracı olarak kullanımı* [Yayımlanmamış doktora tezi] (2022).

AI studies in Türkiye have primarily focused on AI tools' legal status and liability. Additionally, e-commerce law is significant in terms of data protection and the impact of robots in online environments in e-commerce. The question of copyright for developed robotic models has also sparked research in intellectual property rights. However, as will be discussed in detail below, there are many administrative bodies within the Turkish government dedicated to AI. Moreover, institutional transformations are occurring at both the central and local levels of decision-making. Therefore, the impact of the algorithmic shift on governance mechanisms in Türkiye undoubtedly warrants closer examination.

This paper, which focuses on Türkiye and the current state of algorithmic governance, is thus structured as follows. We begin by describing the digital transformation process in Türkiye, starting with the development of e-government, the key actors in the process, and AI strategy documents in the country (section 2). We then examine the main sectors utilising AI in Türkiye (section 3), followed by an exploration of the legal and regulatory framework surrounding the AI ecosystem, including the recent AI Bill proposed in 2024 (section 4). Lastly, we conclude with projections on the near future of AI governance in Türkiye and insights on what the future holds (section 5).

2. Digital Transformation in Türkiye: From E-Government towards Digital Government

2.1. Setting the Scene

The Eighth Five Year Development Plan prepared for the years 2001-2005 is an important long-term strategy document that determines Türkiye's 2023 vision. The importance given to e-government and digitalisation in this document has been effective in shaping the strategy documents in the following years. Following this, Türkiye's first holistic e-Government/e-transformation strategy was prepared in 2002. Both the 2002 e-government strategy and the long-term strategy included in the effectively shaped Eighth Five-Year Development Plan show that

Türkiye was following the main global trends in ensuring the coordination of e-government strategies in the early 2000s[8].

The initiation of digital transformation in Türkiye is often attributed to the establishment of the E-Government (E-devlet) Gateway, with many studies and publications highlighting this as the starting point of the country's digital evolution. With the introduction of e-government, which constitutes the first phase of digital transformation in public administration, the use of information and communication technologies in the delivery of public services was anticipated[9].

The e-Government Gateway, established on April 20, 2006, represents a significant milestone in Türkiye's digital journey, as it laid the foundation for the widespread digitisation of public services[10]. The e-Government Gateway is an electronic platform where digital public services provided by different institutions through different channels are offered from a single point in a faster and more secure way[11]. It started operating in 2008, and its scope has expanded day by day, turning into a platform where thousands of public services are provided and hundreds of public institutions are integrated. It offers a variety of services such as applications, queries, document production, payment, and information, depending on the purpose of use[12].

To overcome the lack of coordination regarding e-government, two goals were included in the Tenth Development Plan (2014-2018). The first aim was to harmonise the general strategic plans of institutions with information processing strategies, and the second was to ensure that public institutions

[8] Y. Uysal, S. Kurban, M. Zahid Çığman, *Cumhurbaşkanlığı Dijital Dönüşüm Ofisi ve E-Yönetişim*, 78 Dumlupınar Üniversitesi Sosyal Bilimler Dergisi 211–231, at 215 (October 2023).

[9] H.Y. Tamer & B. Övgün, *Yapay Zekâ Bağlamında Dijital Dönüşüm Ofisi*, 75(2) *Ankara Üniversitesi SBF Dergisi* 775–803, at 76 (2020).

[10] E-Devlet, at https://e-devlet.turkiye.gov.tr/bilgilendirme?konu=siteHakkinda, last accessed 1 October 2024.

[11] Also see A. Böcüoğlu-Bodur, *e-Devlet'e yapay zeka desteği geliyor* (Anadolu Ajansı, 27 October 2022), at https://www.aa.com.tr/tr/bilim-teknoloji/e-devlete-yapay-zeka-destegi-geliyor/2721985, last accessed 1 October 2024; H. Alpay Karasoy & P. Babaoğlu, *Türkiye'de Elektronik Devletten Dijital Devlete Doğru*, 12(23) *Karadeniz Sosyal Bilimler Dergisi* 397–416 (2020).

[12] Y. Uysal, S. Kurban, M. Çığman, cit. at 8, 218.

have a holistic approach to e-government[13]. The comprehensive Information Society Strategy and Action Plan published in 2015[14] can be interpreted as the first step taken in this regard[15]. One year later, Türkiye's first holistic e-government strategy document was published. The introduction to the strategy document, titled the 2016-2019 National e-Government Strategy and Action Plan clearly stated the need for strategic integrity in information technology governance. From this perspective, continuous communication, coordination, and cooperation of all stakeholders will be ensured in the studies carried out to determine e-government policies, development, presentation and use of services[16].

The implementation of E-Government in Türkiye has been revolutionary, ushering in a new era in the lives of citizens and solidifying the commitment to digitalisation. The announcement of the "Digital Türkiye Roadmap" by the Ministry of Science, Industry, and Technology in 2017 underscored this commitment as a strategic decision of the Republic of Türkiye[17]. According to the United Nations' 2020 E-Government Development Index, Türkiye ranked 53rd out of 193 countries in the e-government development index and 23rd in the e-participation index, highlighting the significant progress made in this domain. According to the United Nations e-Government Development Index (EDGI) 2024, Türkiye ranks 27th out of 193 countries in the e-Government Development Index[18].

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[13] T.C. Kalkınma Bakanlığı, *Onuncu Kalkınma Planı 2014-2018*, https://www.sbb.gov.tr/wp-content/uploads/2022/08/Onuncu_Kalkinma_Plani-2014-2018.pdf, last accessed 1 October 2024 at 55.

[14] T.C. Kalkınma Bakanlığı, *Information Society Strategy and Action Plan 2015-2018* http://www.bilgitoplumu.gov.tr/en/wp-content/uploads/2016/03/Information_Society_Strategy_and_Action_Plan_2015-2018.pdf, last accessed 1 October 2024, 143–162.

[15] Y. Uysal, S. Kurban, M. Çığman, cit. at 8, 216.

[16] Ulaştırma Denizcilik ve Haberleşme Bakanlığı, *2016-2019 Ulusal e-Devlet Stratejisi ve Eylem Planı* (2016) 7, at http://www.sp.gov.tr/upload/xSPTemelBelge/files/Swkoy+2016-2019-Ulusal-e-Devlet-Stratejisi-ve-Eylem-Plani.pdf, accessed 1 October 2024.

[17] A.C. Seçer, *Cumhuriyet'in 100. Yılında Yapay Zekânın Türkiye'de Kamu Güvenliğine Etkisi*, Türk İdare Dergisi 241–274, at 249 (2023).

[18] United Nations Department of Economic and Social Affairs, *E-Government Survey 2024*, at https://desapublications.un.org/sites/default/files/publications/2024-09/%28Web%20version%29%20E-

Within the framework of digital transformation, which has become essential both due to the global technological innovation process and the Covid-19 pandemic, especially electronic signature and digital onboarding processes have become an integral part of daily life in Türkiye. For example, for the banking and finance sector, one of the leading practice areas for digital onboarding, the number of real-person customers onboarding through remote applications in Türkiye as of August 2024 was 1,092,000, and 581,000 of these onboardings were concluded with customer representatives[19]. Similarly, the increase in the use of electronic signatures in Türkiye is quite remarkable. Individuals and organisations are increasingly moving away from paper in their daily transactions, acting with time and cost management and environmental awareness. According to the Market Data Report for the first quarter of 2024, published by the Information and Communication Technologies Authority, there are eight active electronic certificate service providers in Türkiye as of the first quarter of 2024, and the total number of qualified electronic certificates issued by these electronic certificate service providers as of the end of March 2024 was 8,559,252 with an increase of 3.4% compared to the previous quarter, and the number of qualified electronic certificates in active status was 2,438,080, with an increase of 3.2% compared with last quarter[20].

The advent of E-Government marked the beginning of a comprehensive digital transformation process within the public

Government%20Survey%202024%201392024.pdf, last accessed 1 October 2024. As to the EU score, in the 2024 e-Government Benchmark Report by the European Commission, Türkiye maintained its position among 37 countries, ranking 10th with a score of 83% over the two-year average (up from 81% in 2023), surpassing the EU27+ average. In the "User-Centricity" category, Türkiye improved its score by 1 point, reaching 100 points. In the "Transparency" category, it increased by 4 points, scoring 82 points, and in the "Key Enablers" category, the score rose by 2 points to 95. See European Commission, *e-Government Benchmark 2020*, https://op.europa.eu/en/publication-detail/-/publication/655a7ab7-381d-11ef-b441-01aa75ed71a1/language-en/format-PDF/source-330275714, last accessed 1 October 2024.

[19] Türkiye Bankalar Birliği, *Uzaktan ve Şubeden Müşteri Edinim İstatistikleri (Ağustos 2024)* (Eylül 2024), at https://www.tbb.org.tr/tr/banka-ve-sektor-bilgileri/istatistiki-raporlar/ocak--2024---uzaktan-ve-subeden-musteri-edinimi-istatistikleri/6257, accessed 1 October 2024.

[20] Bilgi Teknolojileri ve İletişim Kurumu, *Pazar Verileri Raporu 2024 1. Çeyrek*, https://www.btk.gov.tr/uploads/pages/pazar-verileri/2024-1-kurumdisifinal.pdf, last accessed 1 October 2024.

sector in Türkiye. However, the process of change and transformation in the provision of public services is not yet complete. In the past few years, this digital evolution has entered a new phase, often referred to as "Digital State", which is seen as the next stage of E-Government. It is important to note that the concept of the "Digital State" in Türkiye is not limited to the provision of robust online services. This transition involves the increased use of the internet and the integration of AI into the delivery of public services aiming for a higher level of digital transformation[21]. Türkiye's current trajectory indicates a shift from an IT-enabled bureaucracy – what is often called "E-Government" – towards a more advanced "Smart State" structure, driven by the country's strides in AI-related technologies[22]. This vision seeks to manage public services more intelligently and effectively, offering citizens efficient, faster, and more personalised services. Such developments highlight the evolution of technology in public administration, marking a crucial step towards a more innovative and efficient governance model[23]. It is foreseen that with the emergence and wide use of AI technologies, the concept of a Digital State will carry even more importance[24].

2.2. The Main Actors of the AI Ecosystem in Türkiye

(a) The Digital Transformation Office of the Presidency of the Republic of Türkiye (DTO)

The Republic of Türkiye transitioned from the parliamentary system to the presidential government system in 2017, and the new system was put into practice with the presidential election held on June 24, 2018. In the new system, the president, who is elected by the people and holds executive power alone, has become the main actor in determining and implementing public policies. Presidential

[21] H.Y. Tamer & B. Övgün, cit. at 9, 775–803; T. Avaner & M. Çelik, *Türkiye'de Dijital Dönüşüm Ofisi ve Yapay Zekâ Yönetimi: Büyük Veri ve Yapay Zekâ Daire Başkanlığı'nın Geleceği Üzerine*, 6(2) Medeniyet Araştırmaları Dergisi 1–18, at 10 (2021).

[22] Sevgi Kavut, "Toplumların Dijital Dönüşüm Aracı Olarak Yapay Zeka Çalışmaları: Türkiye'nin ve Türk Devletleri Teşkilatının Yapay Zeka Kullanımı Üzerine Bir Analiz (2024) 11(1) Erciyes İletişim Dergisi 325–344 at 329.

[23] A. Yalçın, Türkiye'de Kamu Kurumlarının Toplum İçin Geliştirdiği Yapay Zekâ Uygulamaları, 16(2) İstanbul Aydın Üniversitesi Sosyal Bilimler Dergisi 185–215 at 211 (2024).

[24] H.Y. Tamer & B. Övgün, cit. at 9, 777.

policy boards and presidential offices have emerged in addition to the ministries, as previously inexperienced public policy actors in Turkish public administration[25]. Some commentators state that these offices have the task of preparing preliminary research and development activities for public policies[26].

With the transition to the presidential government system, Türkiye has taken significant steps to consolidate the coordination of Digital Türkiye and cybersecurity under a single framework. The transformation from e-government to digital government took on a new dimension with the founding of the Presidential Digital Transformation Office (hereinafter "DTO") on July 10, 2018[27], marking a strategic shift in Türkiye's approach to digital governance[28]. The Presidential Decree's Article 525 formally established the DTO as a public legal entity reporting directly to the Presidency. With the issuance of Presidential Decree No. 48, the DTO was formally designated as the "Public Digital Transformation Leader" of Türkiye. According to a report prepared by the OECD in 2023, "[t]he Republic of Türkiye recognises that using digital technology and data to help the public sector become more responsive, resilient and proactive contributes to national competitiveness and economic growth. The introduction of a presidential system in 2018 placed greater importance on this objective and the Digital Transformation Office of the Presidency of Republic of Türkiye was created to provide a strong foundation for transitioning from e-government to digital government"[29].

The creation of the DTO was a response to the need to unify various digital transformation initiatives under one roof. These initiatives include digital transformation (E-Government), cybersecurity, national technologies, big data, and AI. The main task of the DTO is to lead digital transformation by overcoming the current shortcomings and ensuring coordination between public and private institutions. The establishment goals of the DTO are also to reduce bureaucracy by providing citizen-focused, reliable,

[25] Y. Uysal, S. Kurban, M. Çığman, cit. at 8, 220; H.Y. Tamer & B. Övgün, cit. at 9, 785.
[26] E. Akman, *Cumhurbaşkanlığı hükümet sisteminde kamu politikası aktörleri*, 15(1) PARADOKS Ekonomi, Sosyoloji ve Politika Dergisi 35–54, at 45 (2019).
[27] The Presidential Decree No. 1, published in the Official Gazette No. 30474.
[28] T. Avaner & M. Çelik, cit. at 21, 10.
[29] OECD, *Digital Government Review of Türkiye: Towards a Digitally-Enabled Government* (2023) 15.

transparent, accountable, and integrated public services. In addition, safe data storage in an electronic environment and minimising cybersecurity risks are among the important goals. The office also aims to provide high value-added services through more effective use of the e-Government Gateway, encourage technology production with national resources, and reduce external dependency[30].

The DTO is responsible for adopting strategies on issues related to digital transformation. The office is seen as a central coordinating body, bridging the public and private sectors and ensuring seamless integration across ministries[31]. Some commentators state that the DTO plays a pivotal role in acting as the coordinating body for the transition from "E-Government" to "A-Government" (Automated Government)[32]. While "E-Government" focuses on the content of services, "A-Government" is concerned with the processes by which these services are delivered, reflecting a more advanced stage of digital governance[33].

The establishment of DTO is considered a reflection of the holistic principle adopted in the National e-Government Strategy in the organisational structure[34]. However, the office was not directly given the task of determining the national e-Government strategy. Instead, areas such as big data, AI, and cyber security, which form parts of the digitalisation strategy were mentioned[35].

Under the Presidential Decree, the DTO is structured into several key service units/departments such as the Digital Transformation Coordination Department, Digital Technologies, Procurement, and Resource Management Department, Digital Expertise, Monitoring, and Evaluation Department, Cybersecurity Department, International Relations Department, Information Technology Department, Administrative Services Department, and

[30] Y. Uysal, S. Kurban, M. Çığman, cit. at 8, 220, 221 and 222.
[31] See Türkiye Cumhuriyeti Cumhurbaşkanlığı Dijital Dönüşüm Ofisi (2024), at https://cbddo.gov.tr/hakkimizda/, accessed 1 October 2024.
[32] T. Avaner & R. Feda, *Türk Kamu Yönetiminde Ofis Sistemi: E-Devlet Uygulamalarından Dijital Dönüşüm Ofisine*, 52(2) Amme İdaresi Dergisi 149–172 (2019), at https://ammeidaresi.hacibayram.edu.tr/hbv/252717393, accessed 1 October 2024, 67; M. Kağıtcıoğlu, *Yapay Zekâ ve İdare Hukuku* (Bugünden Geleceğe Yönelik Bir *Değerlendirme)*, 11(1) *Hacettepe Hukuk Fakültesi Dergisi* 118–168 (2021) https://doi.org/10.32957/hacettepehdf.874993 accessed 1 October 2024, 146.
[33] A.C. Seçer, cit. at 17, 247–248.
[34] Y. Uysal, S. Kurban, M. Çığman, cit. at 8, 216.
[35] Y. Uysal, S. Kurban, M. Çığman, cit. at 8, 216.

the Legal Consultancy, Big Data and Artificial Intelligence Applications Department. The latter, which deals specifically with AI applications is tasked with developing strategies and ensuring coordination in line with presidential policies to promote the effective use of big data and AI in the public sector. It supports projects and activities aimed at advancing big data technologies within the public domain. The department leads AI applications in priority project areas and oversees efforts in big data analytics, security, and privacy. It fosters inter-agency collaboration and coordinates the preparation of a public data dictionary to enhance data-driven decision-making processes in government. The department also develops strategies and coordinates efforts related to open data at the national level, establishing and managing the National Open Data Portal and setting the rules, principles, and standards for data sharing by public institutions. Additionally, the department proposes policies and strategies to position Türkiye as a regional hub for data storage, processing, and transmission activities[36].

The concept of AI in Türkiye has reached a different dimension with the Digital Transformation Office after 2019. It is stated that the relationship between AI and the state has begun to be established after this milestone[37]. Within the scope of AI, the DTO is involved in several cutting-edge projects. These include "Digital Twin" technology aimed at contributing to both science and industry, "Federated Learning" and "Differential Privacy" for data privacy and security, and efforts to make "Black Box" AI algorithms more transparent. The office is also creating "Adversarial Data" to prevent AI systems from being misled by malicious data, showcasing its commitment to securely and ethically advancing AI. Through these initiatives, the DTO is not only advancing Türkiye's digital transformation but also aims to position the country as a leader in the integration of AI and other emerging technologies into public administration.

According to the OECD, the political support and position of the DTO shows that Türkiye has an effective responsible institution that will lead the digital transformation agenda in the public sector. The DTO, which is the responsible institution in this regard and has

[36] See Türkiye Cumhuriyeti Cumhurbaşkanlığı Dijital Dönüşüm Ofisi (2024), at https://cbddo.gov.tr/hizmet-birimlerimiz/buyuk-veri-yapay-zeka-uygulamalari-dairesi-baskanligi/, accessed 1 October 2024.
[37] H.Y. Tamer & B. Övgün, cit. at 9, 797.

decision-making, coordination and consultancy roles and responsibilities, is in the process of developing a new, comprehensive digital state strategy[38].

(b) The Establishment of the TÜBİTAK Artificial Intelligence Institute

The Artificial Intelligence Institute founded under TÜBİTAK in 2020 in Türkiye is tasked with fostering a collaborative approach to AI by promoting pre-competitive cooperation and supporting the AI entrepreneurship ecosystem. It plays a vital role in training researchers in the field, while encouraging active collaboration among the various actors within the AI ecosystem. The institute facilitates the exchange of AI knowledge between universities, public research centres, and private sector organisations, ensuring continuous expertise transfer to those in need.

Additionally, it aims to develop pioneering, inclusive, and sustainable AI technologies that address both national and global challenges. To keep up with advancements in the field, the institute organises events such as seminars, symposiums, and conferences, promoting research and encouraging the practical implementation of new technologies. Furthermore, it provides infrastructure support to students conducting AI research and cooperates with national and international institutions. By monitoring global AI developments and contributing to relevant publications, the institute also works on shaping policies for AI applications[39].

Under the AI Institute, a new call was opened by the Research Support Programmes Presidency (ARDEB) in 2023 to meet the needs of public institutions using AI technologies. As a result, four project proposals were accepted and published in the field of financial technologies, two in Smart Education Technologies, and one in the field of E-Commerce Technologies[40].

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[38] OECD, cit. at 29, 51.

[39] See TÜBİTAK Yapay Zeka Enstitüsü, at https://en.bilgem.tubitak.gov.tr/en/yze-corporate/, last accessed 1 October 2024.

[40] The following examples demonstrate the AI projects carried out by TÜBİTAK with various public institutions under the leadership of the AI Institute: the Big Data Management Project, where big data and machine learning techniques are used for the General Directorate of Customs Enforcement of the Ministry of Trade; the Customs Scanning Network Project; a big data system that enables classification with AI within the framework of the National Land Cover Use Classification and Monitoring System (UASİS) of the Ministry of the

In order to increase the use of AI technologies in businesses, the 1711-Artificial Intelligence Ecosystem Call programme is being carried out within the TÜBİTAK AI Institute. The priority areas supported within the scope of the programme are "Smart Production Systems", "Smart Agriculture", "Food and Livestock", "Finance Technologies", "Climate Change and Sustainability" and "Smart Education Technologies". In this context, ten projects supported by the 2022 Call have been completed and eighteen projects within the 2023 Call are ongoing. The application process for the 2024 Call has not yet been completed. Many technologies such as GenAI technologies, machine learning, deep learning, natural language processing, computer vision and reinforcement learning, are used in these projects[41].

There are currently eighteen dedicated AI institutes or research centres founded across various public and private universities in Türkiye. This figure specifically includes centres focused solely on AI, excluding those with a broader technology focus, which are more numerous.

(c) The Establishment of Directorates and Departments under Several Ministries

Some departments and directorates within the ministries are also starting to establish public institutions specific to AI and big data. For example, the Big Data and Artificial Intelligence Applications Branch Office was established under the General Directorate of Computing at the Ministry of Justice; the Data Mining & Analysis, Big Data and Reporting Unit, and the Artificial Intelligence and Wearable Technologies Unit have been established within the Ministry of Health, and the Process Management and Artificial Intelligence Applications Branch Office was established within the Ministry of National Defence.

Environment and Urbanisation; projects carried out with the Presidency and Presidency of Defence Industries in the field of security, and finally, projects with the Ministry of Family and Social Services to identify the families of missing children in the provinces affected by the earthquakes centred in Kahramanmaraş in 2023.

[41] Kayseri Gündem, *Kamu Kurumlarında yapay zeka kullanımı belli oldu* (16 October 2024), at https://www.kayserigundem.com.tr/kamu-kurumlarinda-yapay-zeka-kullanimi-belli-oldu/109233/, accessed 1 October 2024.

(d) The Prominent NGOs in Türkiye that Focus on AI

There are many NGOs in Türkiye that deal with information technologies. However, the following three organisations focus specifically on AI: the Türkiye Artificial Intelligence Initiative (TRAI), the Artificial Intelligence Policies Association (AIPA), and AITR.

TRAI has been carrying out various activities such as TRAI Meetups, Türkiye Artificial Intelligence Summits, and artificial intelligence seminars and workshops, also preparing comprehensive yearly analysis reports with recommendations since 2017 to develop and strengthen Türkiye's AI ecosystem. The stakeholders of the initiative range from startups working in the field of AI to academics; from technology companies to public institutions and non-governmental organisations. It covers all private-sector organisations that want to include AI in their processes[42].

AIPA was founded in February 2021 as an independent association in Türkiye. It aims to raise public awareness about AI and enhance individual and institutional competencies in the field. It aims to establish communication among local, national, and global AI communities and contribute to public policies through partnerships with universities, the private sector, civil society, and public institutions. AIPA supports AI research at undergraduate and graduate levels, offers internship opportunities, and promotes entrepreneurship to help Türkiye become one of the top 10 global economies. The association generates and shares accurate AI-related information, monitors global technological developments, and supports public diplomacy efforts. It collaborates with technoparks, incubation centres, and international organisations to promote cooperation. AIPA also actively involves young people in decision-making processes, and researches the impact of AI across various sectors, such as the economy, education, law, security, and the environment, publishing its findings for public benefit[43].

Established in 2021, AITR aims to create a national and international ecosystem network for AI with public, private sector and academic consortiums through collaborations. In addition, it will undertake the task of evaluating and implementing the

[42] See TRAI, *Türkiye'de Yapay Zeka*, at https://turkiye.ai/homepage/, accessed 1 October 2024.

[43] See AIPA, *AI Policy Association*, at https://aipaturkey.org/hakkimizda, accessed 1 October 2024.

concepts of AI ethics, legal regulations for AI, transparency-accountability-inclusiveness of AI, use of AI in economic activities, dissemination of data use in public policies and decision-making mechanisms. It also aims to facilitate studies on research and development and teaching activities for AI technologies, and data economy as a whole[44].

2.3. The National AI Strategy of the Republic of Türkiye (2021)

A National AI Strategy Steering Committee was established in 2021, and its first meeting was held in January 2022. This committee defined several actions in the AI strategy that may directly affect data technical structure, public data skills and workforce, data governance and legislation. As a result, "National Artificial Intelligence Strategy (NAIS) 2021-2025" was prepared in cooperation with the Presidency of the DTO and the Ministry of Industry and Technology and with the effective participation of all relevant stakeholders. It entered into force upon its publication in the Official Gazette dated 20 August 2021 as no. 31574.

The NAIS is Türkiye's first national strategy document in the field of AI. It was prepared in line with the Eleventh Development Plan and the Presidential Annual Programmes with the visions of the "Digital Türkiye" and the "National Technology Initiative". A participatory approach was adopted in the preparation process of the Strategy and a comprehensive study was carried out with the contributions of many stakeholders such as public institutions, academia, private sector organisations, and NGOs, as well as professional and international organisations.

The NAIS is designed around the vision of "creating value on a global scale with an agile and sustainable AI ecosystem for a prosperous Türkiye". It lists six strategic priorities, namely, training AI experts and increasing employment in the domain; supporting research, entrepreneurship, and innovation; facilitating access to quality data and technical infrastructure; regulating to accelerate socioeconomic adaptation; strengthening international cooperation and accelerating structural and labour transformation.

Taking into account the recent developments in the field of AI and the 12th Development Plan, the Action Plan has been

[44] See AITR, *About Us*, at https://ai.org.tr/hakkimizda-2/#hakkimizda, last accessed 1 October 2024.

updated as the 2024-2025 Action Plan. The plan, which sets out the implementation details of the NAIS, was prepared under the coordination of the Secretariat in line with the decisions of the Steering Committee. It designates various responsible entities, including the Ministry of Industry and Technology, the Ministry of National Education, TÜBİTAK, the Presidential Investment Office, and the Presidential Digital Transformation Office. It also outlines 71 action plans and initiatives aimed at achieving the specified targets. The Action Plan monitoring and evaluation process is carried out quarterly with periodic feedback from the institutions.

The Action Plan includes the preparation of national occupational standards and qualifications in the field of AI and the establishment of a measurement-evaluation infrastructure. It is aimed to implement support programmes that will encourage the use of AI products resulting from research and development (R&D) studies by small and medium enterprises (SMEs), to prepare a guide to clarify the intellectual property rights of content created by AI, and to conduct standard studies for the patenting of AI products. In addition, the Action Plan provides for the creation of an inventory of AI companies and products and to develop mechanisms for global technology companies to conduct R&D activities in Türkiye. It aims to collect the data of public institutions in a central data area and make it available to researchers, to improve data governance regulations, and to establish national AI regulations compatible with international norms. The necessary tools for the audit of reliable AI and guides on algorithmic accountability will be prepared, and a "Trusted Artificial Intelligence Stamp" will be created. Lastly, it is planned to carry out the necessary policy and legislation studies for the detection and prevention of cyber threats enhanced with artificial intelligence. Additionally, the Action Plan states that relevant NGOs, universities, public institutions, and stakeholders in the private sector will also have responsibilities in carrying out the specified actions.

2.4. The 2023–2027 Defence Industry Sector Strategy Document

The document prepared by the Defence Industry Directorate of Türkiye describes the relations between defence AI development and the sub-sectors within the Turkish defence industry. It also sets the goals for defence AI development. It is observed that there is a

need for a common strategy, development of joint working models, and activities to increase awareness for users, academia, and the private sector to continue their AI studies efficiently.

In the future, it is planned to increase the interest and competition in critical technologies for Türkiye's future defence capabilities by expanding areas such as autonomy, swarm intelligence, cyber security, and AI. To achieve the desired technology goals, it is planned to increase AI competence on a sectoral basis. For this purpose, the "Defence Industry Artificial Intelligence Platform", which is a common platform where the entire sector can easily access various and numerous data, prevent loss of time by using previously developed and trained model libraries, and provide high capacity and performance hardware infrastructure needed for development, will be used by the entire sector.

Among the goals and activities is the development of AI applications to increase the autonomy level of uncrewed aerial vehicles (UAVs) and provide them with AI capabilities such as advanced autonomy, increased safety, environmental awareness, etc. The document also points out that with the start of the use of 5G in autonomous systems, competition in robotic systems and AI is expected to increase, and that efforts are being made to make the robotic systems under development compatible with 5G technology[45].

3. The Impact of AI

3.1. The AI Technologies Mostly Used in Türkiye

In line with the R&D priorities determined by the 11th Development Programme (2019-2023), Türkiye places a strong emphasis on AI-related technologies such as machine learning (ML), computer vision, and natural language processing (NLP), with a particular focus on applications in autonomous vehicles and

[45] Türkiye Cumhuriyeti Cumhurbaşkanlığı Savunma Sanayii Başkanlığı, *2023-2027 Savunma Sanayii Sektörel Strateji Dokümanı 'Teknolojide öncü, rekabetçi ve yetkin savunma sanayii'*, http://www.sp.gov.tr/upload/xSPTemelBelge/files/1Mmgq+Savunma_Sanayi_Sektorel_Strateji_Belgesi_2023-2027_.pdf, last accessed 1 October 2024.

robotics[46]. Autonomous systems, especially UAVs, have been a priority in Turkish AI development since 2011.

This focus has now expanded to encompass all types of uncrewed vehicles. The integration of AI into these systems is also gaining momentum[47]. Again, the general R&D priorities show how interconnected AI development is with other emerging technologies[48]. The combined advancement of AI and related technologies is at the heart of Türkiye's evolving AI ecosystem[49].

As of January 2022, the number of startups in the field of AI in Türkiye has reached 226. Of these AI startups, sixty-four focus on image processing, forty-three on machine learning, thirty on forecasting and data analytics, twenty on chatbots and conversational AI, nineteen on natural language processing, nine on optimisation, nine on robotic process automation, nine on autonomous vehicles, six on search engines and search assistants, five on smart platforms, and five on the Internet of Things (IoT)[50].

3.2. The Main Sectors in Türkiye that Utilise AI Technologies

A report was published by the Istanbul Chamber of Commerce Strategic Research Centre (ITOSAM) showing that the number of companies in Türkiye developing AI products has increased to 1,195 in 2024. The report also identified the sectors that develop the most AI products in the country. Accordingly, the top 10 sectors that use AI the most are information technologies and services, software development, media, education, health, business

[46] T.C. Kalkınma Bakanlığı, *On Birinci Kalkınma Planı 2019-2023*, https://www.sbb.gov.tr/wp-content/uploads/2022/07/On_Birinci_Kalkinma_Plani-2019-2023.pdf, last accessed 1 October 2024; TRAI, *Çalıştay Raporu 2023*, https://turkiye.ai/wp-content/uploads/2023/05/20230522_TRAI_Calistay_Raporu_01.pdf accessed 1 October 2024.

[47] Ç. Kurç, *Enabling Technology of Future Warfare: Turkey's Approach to Defence AI*, in H. Borchert, T. Schütz, J. Verbovszky (eds.), *The Very Long Game. Contributions to Security and Defence Studies* (2024) 331–352, at 332.

[48] Ç. Kurç, cit. at 47, 337.

[49] Ç. Kurç, cit. at 47, 332.

[50] S. Ceren Akkoyun, *Türkiye'deki Yapay Zeka Ekosistemi Büyümeye Devam Ediyor*, Anadolu Ajansı (29 January 2022), at https://www.aa.com.tr/tr/bilimteknoloji/turkiyedeki-yapay-zeka-ekosistemi-buyumeye-devam-ediyor/2488653, last accessed 1 October 2024.

consultancy and services, industrial automation, financial services, research services and biotechnology[51].

On September 16, 2024, a member of parliament directed a written question to the Ministry of Industry and Technology with regard to the use of AI in public bodies and institutions, their use cases, and levels. The ministry responded that there are currently six ministries (Ministry of Justice, Ministry of Family and Social Services, Ministry of Youth and Sports, Ministry of Health, Ministry of Treasury and Finance, and Ministry of Agriculture and Forestry) that utilise AI and that AI is also utilised in TÜBİTAK projects. Additionally, the Ministry stated that AI technologies are being used in public governance, security and surveillance, education, health, finance, energy, trade, and transportation within public institutions.

The strategic plans and guidelines the Turkish government has published so far suggest that the expected AI regulations will focus on the sectors of banking, finance, legal, health, automotive, personal data (privacy), e-commerce, intellectual property, capital markets, national security, and e-government. In particular, the NAIS focuses on promoting the use and development of AI, specifically generative AI, to support and assist national security and cybersecurity, telecommunications, 5G, blockchain, electronic judiciary systems, automation of trademark and patent procedures, automation of record keeping in export/import transactions, preventive medicine and vaccination, prevention of fraud and money laundering and e-finance[52].

3.3. Examples of Current Sectors/Projects Utilising AI

In Türkiye, institutional structures for AI are being developed at both the central and local government levels. Public institutions are producing AI-powered tools for smart transport, energy management, environmental monitoring, education, healthcare, the food sector, communications, and social projects, making these services available to citizens. AI and its applications

[51] Daily Sabah, *AI Rush: Experts Weigh In on Türkiye's Approach & Endeavors*, at https://www.dailysabah.com/business/tech/ai-rush-experts-weigh-in-on-turkiyes-approach-endeavors, last accessed 1 October 2024.

[52] White Case, *AI Watch: Global Regulatory Tracker – Turkey*, at https://www.whitecase.com/insight-our-thinking/ai-watch-global-regulatory-tracker-turkey, last accessed 1 October 2024.

are included in many top policy documents of public institutions, from strategic plans to investment programmes[53].

The primary goals of the AI applications implemented by Turkish Government institutions include reducing costs and increasing efficiency in the public sector, improving public relations and service delivery, assisting with security and intelligence through data provision, and supporting educators by generating knowledge in the field of education[54].

In this part of the paper, we will outline the main sectors of the public administration that currently use AI technologies in Türkiye.

(a) The Judiciary

In the wake of the pandemic, significant steps have been taken to strengthen the technical and legal foundations for participation in hearings via audio and video transmission in Türkiye. Previously met with caution, electronic hearings are gradually becoming more accepted in Turkish legal practice, with e-hearing requests being approved as technical infrastructure permits.[55] According to the Minister of Justice, from September 15, 2020, to April 8, 2024, a total of 1,671,657 e-hearings were conducted across 3,044 civil courts nationwide[56]. This shows that Türkiye has made notable progress in the transition toward e-government.

More AI features are being added to the procedures in the judicial branch. The National Judiciary Informatics System (UYAP) has significantly digitised judicial processes in Türkiye. Over time, it has introduced features such as electronic file access, digital signatures, e-filing of lawsuits, and video conferencing for lawyers to attend hearings. One area where AI is applied in UYAP is in handling "decisions on affiliation". In appeals cases, the distribution of cases to the appropriate chambers is based on the

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[53] M.S. Erbaş, *Türk Kamu Yönetiminde Stratejik Yönetim ve Dijital Dönüşüm Bağlamında Yapay Zekanın Kullanımı*, 95(496) Türk İdare Dergisi, 194, 195 (2023).

[54] A. Yalçın, *Türkiye'de Kamu Kurumlarının Toplum İçin Geliştirdiği Yapay Zekâ Uygulamaları*, 16(2) İstanbul Aydın Üniversitesi Sosyal Bilimler Dergisi 185–215, 189 (2024).

[55] H. Hasırcı, *Medeni Yargılama Hukukunda Elektronik Duruşmalarda Aleniyetin Sağlanması*, 14(56) Türkiye Adalet Akademisi Dergisi 449–464, at 458 (2023).

[56] G. Varol, *Ses ve Görüntü Nakli Yoluyla Duruşma Yapılmasına İlişkin Olarak 7251 Sayılı Kanun'la Yapılan Değişikliklerin Doğrudanlık İlkesi Kapsamında Değerlendirilmesi*, 8(1) Anadolu Üniversitesi Hukuk Fakültesi Dergisi 71–92 (2022), https://doi.org/10.54699/andhd.1039509, accessed 1 October 2022.

principle of division of labour. If an appeals chamber determines during the preliminary review that it is not the correct chamber, it assigns the case to the appropriate one—these are known as "decisions on affiliation". Incorrect chamber assignments can delay proceedings. In order to address this issue, UYAP developed an AI model targeting the 50 most common issues leading to affiliation decisions in civil courts. This AI solution has achieved an 88% accuracy rate in assigning cases to the correct chamber based on the allocation of cases based on specialisation[57].

The Supreme Court (Court of Cassation) Precedent Centre is designed to promote consistency in legal practice and support quick access to justice by facilitating the widespread reach and use of Supreme Court precedents. With the help of AI, users can quickly access relevant Supreme Court rulings in their searches. The system allows for fast access to up-to-date rulings, while AI expands the search to include more related decisions. Users can save the rulings, receive automatic notifications when new rulings matching their criteria are added, and review summaries of decisions to quickly assess important details[58].

(b) Municipalities

AI is increasingly being employed in Turkish municipal services. AI is applied in various areas such as transportation services (e.g., Konya Metropolitan Municipality), traffic management (e.g., Ankara Metropolitan Municipality), automation and AI in disaster management, and the implementation of Digital Twin applications in cities (e.g., Istanbul, Balıkesir Metropolitan Municipalities). Additionally, AI is used for communication and complaint management systems (e.g. İstanbul Başiskele, Bağcılar). However, it is noted as a shortcoming that the principles of responsible AI are not featured on the websites of municipalities utilising AI[59].

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[57] S. Gül, *Yargıda Yapay Zekâ ve Büyük Veri Teknolojileri*, at the *156. Yıl Danıştay ve İdari Yargı Günü Sempozyumu* (2024), presented by the General Director of Information Technology at the Ministry of Justice, Servet Gül, 10 May 2024, 3.

[58] Yargıtay, *Yargıtay İçtihat Merkezi* (13 December 2023), at https://www.yargitay.gov.tr/item/1763/yargitay-ictihat-merkezi-kullanima-acilmistir, last accessed 1 October 2024. Also see Şermin Birtane, *Hakime Yardımcı Yapay Zeka*, 15(59) *Türkiye Adalet Akademisi Dergisi* 251 (2024).

[59] Itır Akdoğan, *Yerel Demokrasi için Kent Yönetişimi ve Sorumlu Yapay Zekâ Etkileşimi*, 6 *TESEV Değerlendirme Notları* (2024), at https://www.tesev.org.tr/tr/research/yerel-demokrasi-icinkent-yonetisimi-

(c) Public Security and Protection of Citizens

In Türkiye, projects developed to ensure public safety have made crime prevention and predictive policing mechanisms more efficient and controlled. In this context, AI and autonomous systems play an active role in enhancing coordination and collaboration within law enforcement[60]. There are various examples of crime prevention tools operating with AI integration in public safety efforts across Türkiye.

The Ministry of Foreign Affairs has decided to implement the "HIZIR" chatbot application, which will provide around-the-clock, AI-powered responses to Turkish citizens abroad, without being limited by office hours. This AI-based solution is designed to assist citizens and aims to offer effective responses to their concerns[61].

The AI-based application "ASENA" is developed by the Ministry of Interior and launched in March 2021 to track drug-related activities. This software has been instrumental in identifying numerous criminal elements and has greatly aided relevant units in detecting crimes. According to statements from the Ministry of Interior, thanks to the ASENA software, interventions were made in 6,636 incidents over the course of 1.5 years[62].

To ensure coordination and collaboration between organisations operating in the field of internal security, the Ministry of Interior established Security and Emergency Coordination Centres (GAMER) in all 81 provinces of Türkiye. Through the GAMER project, incidents occurring across Türkiye can be monitored in real time, and social events such as protests and demonstrations can be tracked live. The GAMER Software Project is a system capable of transmitting real-time data, audio, and video,

ve-sorumlu-yapay-zeka-etkilesimi/, last accessed 1 October 2024. The author also notes that when she interviewed municipal employees who frequently use AI, she learned that the institution's AI policy is primarily aimed at enhancing service quality and improving time management for employees, but, for example, does not play a role in internal governance.

[60] A.C. Seçer, cit. at 17, 253.

[61] T.C. Dışişleri Bakanlığı, *Tweet* (X, 10 August 2022) https://x.com/TC_Disisleri/status/1557703876064825346, last accessed 1 October 2024.

[62] T.C. İçişleri Bakanlığı, *Analiz Sistemleri Narkotik Ağı ASENA Yazılımı Sayesinde 1,5 Yılda 6 Bin 636 Müdahale Edildi* (2023), https://www.icisleri.gov.tr/analiz-sistemleri-narkotik-agi-asena-yazilimi-sayesinde-15-yilda-6-bin-636-mudahale-edildi, last accessed 1 October 2024.

designed to prevent events that disrupt public order and safety, and to facilitate coordination during emergencies that arise from such incidents[63].

The activities of GAMER aimed at ensuring public safety should not be viewed solely as maintaining general law and order. This software can also be a solution tool for other societal crises, such as natural disasters or pandemics. It is believed that organisations involved in crisis management in Türkiye can become more effective in decision-making before and after disasters by utilising AI. AI is considered crucial to generating potential crisis scenarios and create related simulations[64]. Development efforts for the application are ongoing, and with the implementation of Next-Generation Emergency Call Centres, data mining and incident analysis will be conducted. Additionally, AI will be employed for tasks such as predicting incidents in advance[65].

The integration of AI technology will further enhance the accuracy and efficiency of these systems, making them even more effective for traffic control and law enforcement. A system has been established where footage from camera recording systems will be transmitted to a central system via wireless communication and analysed using AI software. This project includes features such as motion detection, selected area violation detection, object detection, person identification, crowd counting, anomaly detection based on human movement direction, vehicle presence, type, and direction detection, the use of solar panel poles, and wireless capabilities. In this context, AI-powered image transmission stands out as a key element of the project[66].

(d) Defence

The report prepared in 2024 by the NGO TRAI highlights that the defence industry is one of Türkiye's strategically important

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[63] Türkiye Cumhuriyeti İçişleri Bakanlığı, *Gamer Projesi* (2024), at https://www.icisleri.gov.tr/bilgiteknolojileri/gamer-projesi#:~:text=T%C3%BCrkiye%20genelinde%20meydana%20gelen%20olaylar,toplumsal%20olaylar%20canl%C4%B1%20takip%20edilebilmektedir, last accessed 1 October 2024.

[64] B. İşbir & A. Kaya, *Güvenlik ve Acil Durum Koordinasyon Merkezi (GAMER) Ve Yapay Zekânın Afetlerde Uygulanabilirliği*, 5(2) Afet ve Risk Dergisi 601–622, at 619 (2022), (https://doi.org/10.35341/afet.1102768).

[65] Türkiye Cumhuriyeti İçişleri Bakanlığı, cit. at 65.

[66] A.C. Seçer, cit. at 17, 258.

(key) sectors. AI plays a key role in the development of autonomous systems, security analyses, and defence strategies. Investments in this sector are expected to enhance Türkiye's defence capabilities and provide a significant advantage in global competition[67].

The use of UAVs in public safety in Türkiye has increased in recent years. The Turkish police and military employ UAVs for various purposes, such as border surveillance, crowd control, and counter-terrorism[68] operations. The integration of AI into public safety UAVs in Türkiye has further enhanced their capabilities[69]. For example, the Turkish military utilises AI-supported UAVs for target tracking and data analysis in operations against terrorist organisations. In recent years, Türkiye has emerged as a leading country in the international competition for AI-powered air defence systems. The AI-integrated UAVs produced by Türkiye are now being exported to several countries, including Ukraine, Qatar, Tunisia, and Azerbaijan[70].

According to a strategy document published in 2022 by the Ministry of Defence Industries of Türkiye, with the integration of AI into UAVs, the level of autonomy has been increased, allowing missions to be executed with minimal human interaction and fewer errors[71]. The primary focus of defence AI development in Türkiye is enhancing the capabilities of various autonomous systems, including sensors and decision support systems. Türkiye envisions that the future of warfare will be shaped by the use of autonomous

[67] TRAI, *Yapay Zeka ile Kalkınma ve Gelişim Planı, Türkiye Yapay Zeka İnisiyatifi 2024 Çalıştay Raporu* (2024), at https://turkiye.ai/wp-content/uploads/2024/07/TRAI-2024-Calistay-Raporu.pdf, accessed 1 October 2024, 6.

[68] It has been reported that Turkish authorities have utilised the AI-based FETÖ-Meter system in post-coup dismissals from the Turkish armed forces for the fight against terrorism. The FETÖ-Meter system is an Excel-based algorithm, designed by Resigned Rear Admiral Cihat Yaycı, to profile all active and retired military officers. See Anadolu Ajansı, *FETÖ-Metre ile Kriptolar Deşifre Ediliyor* (Anadolu Ajansı, 14 August 2018), https://www.aa.com.tr/tr/15-temmuz-darbe-girisimi/feto-metre-ile-kriptolar-desifre-ediliyor/1251818, accessed 1 October 2024.

[69] A.C. Seçer, cit. at 17, 260.

[70] Cumhur Kartal Yıldız, *Uluslararası Alanda Artan Yapay Zekâ Rekabeti ve Türkiye'de Sürdürülen Yapay Zekâ Çalışmaları*, 4(1) UPA Strategic Affairs 4–22, 14 (2023).

[71] Türkiye Cumhuriyeti Cumhurbaşkanlığı Savunma Sanayii Başkanlığı, cit. at 45, 166.

systems[72]. It is expected that AI-powered UAV swarms will become game-changing elements on the battlefield. These AI-supported systems will significantly improve the speed of intelligence gathering, surveillance, target acquisition, and reconnaissance. As a result, military decision-making processes will be expedited as commanders gain quicker access to vital information. When combined with AI-enhanced decision-making systems, commanders will be able to make faster and more informed decisions. Furthermore, with their increased capability to gather information, militaries and intelligence agencies could advance their predictive analysis, improving strategic planning and response times[73].

Recently, the Defence Industry Agency (*Savunma Sanayi Başkanlığı*, "SSB") established an AI-specific organisation, the Artificial Intelligence Talent Cluster of Defence Industry (SAYZEK). SSB aims to foster defence innovation by centrally coordinating stakeholders in defence AI. Türkiye expects to acquire capabilities mainly in autonomous systems and data collection and management. Thus, developing defence AI and integrating it with uncrewed systems would advance their capabilities, both when operating alone and as a swarm. Further gains result from collecting battlefield data, such as data fusion, prioritisation, and aiding the decision-maker[74].

(e) Education

The EBA Virtual Assistant is a digital tool developed with AI support to provide instant and effective information to EBA users. It was designed to handle the high demand experienced during the remote education process in the COVID-19 pandemic. By using AI, the EBA Assistant allows students, teachers, and parents to easily access the information they need without having to navigate the site and provides quick responses to frequently asked questions[75].

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[72] Ç. Kurç, cit. at 47, 333.
[73] Ç. Kurç, cit. at 47, 333.
[74] Ç. Kurç, cit. at 47, 334.
[75] See MEB, *Yapay Zekalı EBA Asistan 10 Milyon Soruya Cevap Verdi*, https://meslekitanitim.meb.gov.tr/yapay-zekli-eba-asistan-10-milyon-soruya-cevap-verdi/haber/20992/tr, last accessed 1 October 2024.

(f) Health

The General Directorate of Health Information Systems, operating under the Ministry of Health, has established the "Artificial Intelligence and Innovative Technologies Unit" to guide the integration of AI and wearable technologies into the healthcare sector. This unit also collaborates with the "Turkish Institute for Health Data Research and Artificial Intelligence Applications", which was formed by the Turkish Health Institutes Presidency[76].

The duties and responsibilities of the Department of Artificial Intelligence and Innovative Technologies under the Ministry of Health include identifying processes that can be improved and problems that can be solved using AI technologies, developing or commissioning AI solutions tailored to needs, implementing and maintaining these solutions, and staying updated on advancements in AI technologies. Additionally, the department is tasked with monitoring emerging technologies such as cloud computing and blockchain, establishing collaborations with stakeholders such as universities, institutes, and healthcare organisations, ensuring interoperability between existing and new projects, and preparing or commissioning educational materials for the systems developed or acquired. The department is also responsible for carrying out other tasks assigned by the general director[77].

The projects carried out within the Ministry of Health focus on reducing unnecessary tests, achieving cost savings, enabling faster reporting, and enhancing diagnostic and treatment capabilities. These efforts reflect the goal of delivering more efficient, timely, and cost-effective healthcare services through the effective use of technology and data-driven solutions in the health sector[78]. The Turkish Ministry of Health has stated that AI-based applications, which have been implemented and are planned to be deployed, are becoming more widespread, significantly improving

[76] See T.C. Sağlık Bakanlığı, *Türkiye Yapay Zekâ Enstitüsü (TUYZE)*, at https://tuyze.tuseb.gov.tr/, last accessed 1 October 2024.
[77] See T.C. Sağlık Bakanlığı, *Yapay Zekâ ve Yenilikçi Teknolojiler Daire Başkanlığı*, at https://sbsgm.saglik.gov.tr/TR-104172/yapay-zeka-ve-yenilikci-teknolojiler-daire-baskanligi.html, last accessed 1 October 2024.
[78] T.C. Cumhurbaşkanlığı Dijital Dönüşüm Ofisi, *Türkiye Ulusal Yapay Zekâ Stratejisi 2021-2025*, https://cbddo.gov.tr/SharedFolderServer/Genel/File/TR-UlusalYZStratejisi2021-2025.pdf, last accessed 1 October 2024, 16-25.

quality while reducing costs[79]. For instance, "Neyim Var" ("What is wrong with me?") is an AI-based e-triage application that has been used for three years to prevent patients from going to the wrong specialty and to provide them with effective treatment as quickly as possible[80].

The "Turkish Brain Project" employs AI-based systems to analyse brain MRI images. Following these AI-driven analyses, the MRI results are presented primarily to doctors for evaluation. This approach enables faster identification of patients requiring urgent intervention, significantly reducing the risk of complications[81].

Recently, The Head of Istanbul Emergency Health Services stated that the most suitable hospital for emergencies in Istanbul is determined using AI. He explained that they input data on all hospitals — public and private — such as their specialisations, patient load, bed availability, ICU status, and staff presence. The ambulance system is also fully integrated with AI tools, which automatically suggest the most suitable hospital so that the nearest and best option can be selected. This ensures patients are taken to the right facility, avoiding the need for a second transfer in the heavy traffic in İstanbul[82].

As is evident from the above, while AI applications in global examples typically offer hospital-based or location-specific services, in Türkiye these services are provided on a national scale, with new applications being developed daily[83].

(g) Taxation

In Türkiye, both the Ministry of the Treasury and Finance and the Revenue Administration are making the necessary

[79] G. Yorgancıoğlu Tarcan, P. Yalçın Balçık, N.B. Sebik, *Türkiye ve Dünyada Sağlık Hizmetlerinde Yapay Zekâ*, 14(1) Mersin Üniversitesi Tıp Fakültesi Lokman Hekim Tıp Tarihi ve Folklorik Tıp Dergisi 50–60 (2024), https://doi.org/10.31020/mutftd.1278529, last accessed 1 October 2024, 54.

[80] G. Yorgancıoğlu Tarcan, P. Yalçın Balçık, N.B. Sebik, cit. at 79, 55; M.S. Erbaş, cit. at 53, 194.

[81] Dijital Dönüşüm Ofisi, *Türk Beyin Projesi (TBP)*, at https://cbddo.gov.tr/projeler/tbp/, last accessed 1 October 2024.

[82] Anadolu Ajansı, *İstanbul'da Vakaya En Uygun Hastane Yapay Zekâ Yardımıyla Belirleniyor* (2024), https://www.aa.com.tr/tr/bilim-teknoloji/istanbulda-vakaya-en-uygun-hastane-yapay-zeka-yardimiyla-belirleniyor/3333222, last accessed 1 October 2024.

[83] G. Yorgancıoğlu Tarcan, P. Yalçın Balçık, N.B. Sebik, cit. at 79, 58.

investments and efforts to adapt to digital transformation[84]. The Ministry has developed "GİBİ", a digital tax assistant powered by ML. GİBİ provides taxpayers with quick answers to their questions 24/7 without the need for passwords or login. Users can access a pool of 593 answers and ask 9,782 different types of questions. It offers instant access to up-to-date information on regulations and provides automatic notifications regarding periodic rights and obligations. GİBİ is continuously updated and expanded based on incoming questions, allowing users to save time efficiently[85].

In addition to taxpayer services, AI is used in Türkiye for tax audits, particularly in risk analysis. The SARP[86] application identifies taxpayers who may be involved in fraudulent document preparation[87]. Each month, VAT taxpayers who meet certain risk criteria are assigned a risk score based on a specific algorithm. These scores are then evaluated by the Revenue Administration to assess the likelihood of fraudulent or misleading document preparation[88].

(h) Intellectual and Industrial Rights Management

The Turkish Patent and Trademark Office, specifically the Patent Department, has shared that it uses deep learning, NLP, and ML applications. Various internal and external services have been employed for these applications[89].

(i) Transportation

The General Directorate of Highways under the Ministry of Transport uses AI systems to detect, classify, and assess highway

[84] M. Tuba Rüzgar, *Türkiye'de Ekonomi Reform Paketi Kapsamında Dijital Vergi Dairesi Ve Dijital Vergi Asistanı Sisteminin Kurulması*, 4(1) Turkuaz Uluslararası Sosyo-Ekonomik Stratejik Araştırmalar Dergisi (2022), at https://dergipark.org.tr/tr/pub/eisrcdergi/issue/73690/1214358, last accessed 1 October 2024.

[85] See Gelir İdaresi Başkanlığı, *Dijital Vergi Asistanı GİBİ*, https://teknoloji.gib.gov.tr/dijital-vergi-asistani-gibi, accessed 1 October 2024.

[86] Gelir İdaresi Başkanlığı, *Hizmetlerimiz*, https://teknoloji.gib.gov.tr/teknoloji/hizmetlerimiz.html, accessed 1 October 2024.

[87] T. Akdoğan & H. Yavuz, *Dijitalleşme Perspektifinden Vergi Uyumu* (2022) 66.

[88] N. Karataş Durmuş & İ. Arıtı Erdem, *Vergi İdaresi 3.0: Yapay Zeka Perspektifinden Bir İnceleme*, 184 Maliye Dergisi 225–253, at 243 (2023).

[89] Istanbul Barosu, *Yapay Zeka Çalışma Grubu* (2023), 14, at https://www.istanbulbarosu.org.tr/files/komisyonlar/yzcg/yzcg_kamu.pdf, last accessed 1 October 2024.

surface deterioration, as well as to identify areas known as "black spots" where frequent traffic accidents occur, enhancing road safety. Among the AI-based services provided by the General Directorate of Highways (KGM) are some applications for use within Intelligent Transport Systems. These systems consider various parameters such as pedestrian and vehicle presence, queue lengths, and the relationship between intersections, all based on algorithms developed within traffic engineering.

Through the Image-Based Information Management System (GTBYS) established by KGM, a 68,680-kilometre highway network is monitored using panoramic cameras and mobile LiDAR technology. This system has collected approximately 3 million data points from 40 types of inventories, including bridges, traffic signs, drainage, signalling, guardrails, and pavement, creating a large data-driven information system. ML automatically obscures licence plates and faces in images. Additionally, AI is used to automatically detect 25 types of traffic signs and mark their coordinates on maps[90].

The AI-Based Chatbot (Flight Assistant) Application, developed by the General Directorate of State Airports Authority, uses a deep learning model and natural language processing libraries to correct erroneous inputs. This application simplifies the navigation of pages on institutional websites. It allows users to obtain various details, such as departure and arrival points of flights, times, integration with airport navigation services, and weather conditions based on location, through conversational interaction. Designed for air travellers, the application provides quick and easy access to relevant flight information. Feedback and complaints received through the call centre are reviewed, and updates are made as deemed appropriate[91].

One of the key areas where AI is used in Türkiye is railways. TCDD Transportation AŞ has established an AI-supported Train Monitoring and Coordination Centre, operating 24/7 across seven regional directorates. Passenger and freight trains are monitored in real-time at this centre through cameras installed on locomotives ("Makinist Kaynak Planlama ve Büyük Veri Analitiği" project). The

[90] A. Böcüoğlu Bodur & M. Çalkaya, *Ulaştırmanın bütün modlarında yapay zeka kullanımı artıyor* (27 April 2024), at https://www.aa.com.tr/tr/dosya-haber/ulastirmanin-butun-modlarinda-yapay-zeka-kullanimi-artiyor/3203757, last accessed 1 October 2024.
[91] İstanbul Barosu, cit. at 89, 11.

system automatically detects conditions such as sleepiness, distraction, fatigue, or loss of focus, triggering alarms and providing necessary warnings to the operators ("Seyrüsefer Güvenlik Platformu"). Additionally, TCDD Taşımacılık AŞ has developed an "intelligent robotic software" equipped with the most advanced form of AI. This software quickly and efficiently addresses citizens' requests, autonomously responding with high accuracy and without the need for human intervention ("Yolcu Taşıma Platformunun (YTP) Geliştirilmesi ve Sürdürülebilirliğinin Sağlanması")[92].

(j) Sectors in Which AI Is Planned for Implementation

The AITR 2024 report, prepared with contributions from a wide range of participants from both the public and private sectors in Türkiye, highlights the significant importance of integrating AI technologies, particularly in sectors such as healthcare, agriculture, automotive, industry, and defence[93].

AI in healthcare is still in its early stages in Türkiye, but is rapidly expanding. Because of the large population, rising healthcare expenditure, and shortage of healthcare professionals, there is much interest in AI-driven healthcare solutions. Various health facilities are using AI to improve patient outcomes and reduce healthcare costs. In Türkiye, private sector businesses are additionally making investments in AI-driven healthcare solutions. Local entrepreneurs and startups are creating AI-powered medical devices such as diagnostic tools and wearable sensors, while global corporations are collaborating with local healthcare providers to provide AI-based solutions[94]. In city hospitals of Türkiye which are established with a public-private partnership model, some studies are being carried out by the Ministry of Health with the help of imaging and NLP in order to increase the quality of service[95].

In May 2024, the vice president of the Republic listed other key sectors that were on the short-term agenda of Türkiye. It was

[92] A. Böcüoğlu Bodur & M. Çalkaya, cit. at 90.

[93] TRAI, *2024 Çalıştay Raporu*, https://turkiye.ai/wp-content/uploads/2024/07/TRAI-2024-Calistay-Raporu.pdf, last accessed 1 October 2024, 37.

[94] See Insights10, *Turkey Artificial Intelligence (AI) in Healthcare Market Analysis*, https://www.insights10.com/report/turkey-artificial-intelligence-ai-in-healthcare-market-analysis/, last accessed 1 October 2024.

[95] G. Yorgancıoğlu Tarcan, P. Yalçın Balçık, N.B. Sebik, cit. at 79, 55.

stated that one of the key areas of focus is ensuring tax justice and detecting tax evasion and erroneous declarations. The vice president also emphasised that there is consensus on the need for a more extensive use of AI in the water and energy sectors. Moreover, he noted that AI will be more widely utilised in disaster management to reduce risks, respond to crises, and support post-crisis recovery efforts. Additionally, he mentioned that projects related to the analysis, classification, summarising, and interpretation of documents, as well as semantic search and anonymisation in judicial decisions, are part of Türkiye's AI agenda within the national judiciary project[96].

In an effort to make İzmir a leading city in AI usage, the Mayor of İzmir established the Artificial Intelligence and Smart Cities Branch Directorate on May 21, 2024. This new branch, under İzmir Innovation and Technology Inc., aims to initiate AI-driven transportation in the city. AI will optimise public transportation schedules based on vehicle occupancy, traffic conditions, and user habits. Additionally, unmanned parking systems will offer faster, more cost-effective parking services while saving resources and paper. AI will also detect physical damage to buses in seconds. The "İzmirim Card" mobile app will evolve beyond a simple balance loader, becoming an AI-powered hub for all public transportation matters. Moreover, AI will extend beyond transportation, with the Citizens Communication Centre (HIM) using AI assistants to track and report recurring complaints, streamlining communication with relevant departments[97].

At the 2024 event commemorating the anniversary of the Court of Accounts, the use of AI in auditing was extensively discussed. It was highlighted that AI technologies could offer significant advantages to the auditing profession. AI has the potential to automate routine tasks that were previously done manually, allowing auditors to perform their work more quickly and efficiently[98].

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[96] Anadolu Ajansı, cit. at 5.

[97] İzmir Büyükşehir Belediyesi, *İzmir Ulaşımında Yapay Zeka Dönemi Başlayacak* (2 August 2024), at https://www.izmir.bel.tr/tr/Haberler/izmir-ulasiminda-yapay-zeka-donemi-baslayacak/50639/156, last accessed 1 October 2024.

[98] A. Taha Koç, *Dijital Türkiye ve Milli Teknoloji Hamlesinin Dijital Dönüşüm Boyutu*, in *Denetimde Dijital Dönüşüm Ve Yapay Zeka Sayıştayın 161. Kuruluş Yıl Dönümü Paneli* (2023) 61–65, at https://www.sayistay.gov.tr/files/3118_161YIL_PANEL_YAPAYZEKA-2024v4-kapakl%C4%B1.pdf, last accessed 1 October 2024.

The Public Procurement Authority has recently signed a contract with HAVELSAN to leverage AI applications in its business processes. The aim is to enhance service quality, streamline administrative workflows, and create a more systematic approach to data management and reporting, while integrating AI into the institution's technological framework. The MAIN (Multifunctional Artificial Intelligence Network) platform will be installed and operated on the institution's servers, offering a range of advanced capabilities. These include summarising content in seconds, retrieving information from open-source data, and even coding – all of which can be further expanded. While the initial version of MAIN focuses on text-based functions, future updates will incorporate image and audio processing[99]. There are some projections with regard to AI integration to the administrative judiciary: in the Turkish administrative justice system, court hearings are rare, with judges typically making decisions without them. Assistive AI is expected to speed up administrative litigation and lead to faster, more accurate rulings on administrative matters[100]. In his 2023-2024 Judicial Year Opening Speech, the President of the Supreme Court of Appeals highlighted ongoing preparations for AI-supported tools, including drafting reasoned decisions and generating reports, in addition to the existing case law centre. He emphasised that AI could enhance various judicial processes, such as workload distribution, file management, preliminary examinations, and employee performance assessments. He also noted that implementing these AI-driven systems requires maintaining digital records with data integrity, a capability Türkiye already has[101].

[99] Anadolu Ajansı, *Kamu Alımlarında Yapay Zekâ Dönemi Başlıyor* (Anadolu Ajansı, 2024), at https://www.aa.com.tr/tr/bilim-teknoloji/kamu-alimlarinda-yapay-zeka-donemi-basliyor/3327318, last accessed 1 October 2024.

[100] H. Alphan Dinçkol, *Yapay Zekânın İdari Yargı Üzerindeki Etkileri*, 12(1) Sakarya Üniversitesi Hukuk Fakültesi Dergisi 47–77, at 64–65 (2024), https://doi.org/10.56701/shd.1407948, last accessed 1 October 2024.

[101] Mehmet Akarca (Yargıtay Başkanı), *2023-2024 Adli Yıl Açış Konuşması* (1 October 2023), at https://www.yargitay.gov.tr/documents/ek1-1693980966.pdf, last accessed 1 October 2024.

4. The Regulatory Framework Surrounding the Use of AI in Türkiye

The rapid development of AI technologies has heightened the importance of shaping the ethical, legal, and policy aspects of this field. In Türkiye, the Digital Transformation Office (DTO), as the policy-making body leading the digital and technological advancements, has been actively involved in creating a legal framework to support and regulate AI for the past five years. While the DTO has published several strategic planning notes aimed at promoting the use and development of AI in Türkiye – such as investing in education, training, research, and infrastructure – it has not yet addressed AI regulation. It should also be added that there are currently no high court cases before the Court of Cassation or the Council of State that deal with the conflicts arising from algorithmic decision-making systems relied on by the Turkish public administration. As of now, although there are development plans and strategy documents prepared by various public institutions that aim to foster alignment with the EU AI Act, Türkiye does not have dedicated legislation or regulations exclusively focused on AI. Some authors state that the primary and urgent need in the regulation and oversight of AI is the enactment of an AI Law[102]. Similarly, in the 12th Development Plan, it is stated that "challenges such as the rapid and uncontrolled development of AI technologies outside of regulatory mechanisms, and the necessity for international cooperation in implementing measures, make it difficult to address issues in this field. The magnitude of opportunities and threats that AI could bring necessitates regulations at both national and international levels"[103].

In sum, the current legal framework is not up to date concerning AI and data protection. Additionally, the Turkish judicial system does not utilise robotic process automation or AI applications. There are areas for improvement in the implementation of the national AI strategy published in 2021, and public institutions lack a uniform set of ethical principles for AI.

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[102] E. Baydemir, *Türk İdari Teşkilatında Yapay Zekâ Alanında Düzenleyici ve Denetleyici Kurum İhtiyacı*, 4(2) *Kırıkkale Hukuk Mecmuası* 869–900 (2024), at https://doi.org/10.59909/khm.1528254, last accessed 1 October 2024, 874.

[103] T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, *Twelfth Development Plan 2024-2028*, 8, at https://www.sbb.gov.tr/wp-content/uploads/2024/06/Twelfth-Development-Plan_2024-2028.pdf, last accessed 1 October 2024.

Issues such as bias in data, the reliability of data sets, cybersecurity, the protection of personal data, and the need for transparency and accountability in AI applications remain significant areas that need to be addressed[104].

4.1. The AI Bill of 2024

The Artificial Intelligence Law Bill, which envisions new rules related to AI, was submitted to the Grand National Assembly of Türkiye on June 24, 2024. The Bill is currently with the parliamentary committee review. If the Bill passes this review, it will be presented to the Turkish Grand National Assembly for voting.

The Bill's rationale states that AI is creating revolutionary changes and rapidly increasing its impact in critical areas such as healthcare, education, security, and transport. Within this context, it emphasises the need to establish a legal framework to prevent potential violations of individual rights and freedoms that could result from the misuse or even malicious use of AI.

The AI Bill comprises eight articles that seek to set a general framework around AI regulation based on the principles of safety, transparency, equality, accountability, and privacy. It lacks any specificity as to how these principles will be adopted and enforced in practice. Whether the majority of political parties will support the AI Bill remains to be seen[105].

The rationale also highlights the importance of defining and implementing safe, ethical, and fair standards for the development, use, and distribution of AI. The proposal aims to maximise the benefits derived from the opportunities provided by AI while minimising potential risks and harms.

Under Article 2 of the AI Bill, AI is defined as "computer-based systems that can carry out human-like skills such as learning, rationalisation, problem-solving, perception, semantic comprehension and cognitive functions." The AI Bill determines four different compliance roles, namely, "provider", "implementor/user", "importer", and "distributor", and introduces the blank term that covers all these four roles, "operator". Following the AI Guidelines and the National AI Strategy, the Bill requires that all "operators" comply with the

[104] TRAI, cit. at 67, 33.
[105] White Case, cit. at 52.

general principles of safety, transparency, equality, accountability, and privacy. The Bill introduces a monetary fine for the provision of "false information".

The AI Bill refers to "high-risk AI systems" and requires their registration but fails to define what high-risk AI systems are. In the rationale, the AI Bill gives examples of "self-driving vehicles", "medical diagnosis systems", and "judicial systems that rely on AI" as high-risk AI systems. The AI Bill does not introduce any specific obligations for high-risk AI systems. However, it is stated that competent supervisory authorities have to conduct continuous monitoring and auditing of such systems. The AI Bill calls for specific, secondary regulations dealing with high-risk AI systems, which may clarify some of these uncertain provisions. The same pathway was chosen for regulations regarding crypto assets.

The AI Bill introduces annual turnover-based fines for certain noncompliance scenarios. Use of prohibited AI applications or systems may be penalised by a fine of up to 35 million TL (approx. USD 1 million) or up to 7 percent of the subject's global turnover of the preceding fiscal year. Non-compliance with the provisions of the AI Bill may be penalised by a fine of up to TL 15 million (approx. USD 455,000) or 3 percent of the subject's global turnover of the preceding fiscal year. Provision of false information may be penalised by a fine up to TL 7.5 million (approx. USD 245.000) or 1.5 per cent of the subject's global turnover of the preceding fiscal year. However, the Bill fails to define what constitutes false information and which authority is responsible for making that determination.

4.2. The Need for a Dedicated Regulatory Body for AI

There is currently no AI-specific regulation or regulator in Türkiye. It is stated that the Turkish Data Protection Authority may indirectly regulate the field of AI technologies through various privacy-focused regulations in place in Türkiye, since it is the main privacy regulator under Türkiye's Personal Data Protection Law. The Information and Communications Technologies Authority (BTK), the Financial Crimes Investigation Board (MASAK), the Capital Markets Board (SPK), the Banking Regulation and Supervision Agency (BDDK), the Advertising Board, and the Turkish Competition Authority may each regulate AI indirectly when the matter falls within their respective jurisdictions.

The recently proposed Artificial Intelligence Bill also envisages the establishment of a supervisory mechanism in the field of AI. Indeed, there are numerous examples where public authorities utilise AI technologies in law enforcement activities and the delivery of public services. AI technologies have become widespread in activities with a predominantly administrative focus. The impact of AI on administrative law, both in other countries and within Türkiye's public administration, is becoming increasingly apparent. Despite these developments, the current administrative bodies in Türkiye are not dedicated to AI oversight. Therefore, there is a need for a national institution specifically responsible for regulating and overseeing AI in Türkiye[106]. The AI Bill, however, neither proposes an AI-specific regulator nor designates any existing regulatory body to assume the role or the responsibility for the registration of high-risk AI systems. The absence of an administrative authority to oversee the regulation of AI in Türkiye is viewed by some authors as a significant shortcoming of the Bill[107].

The regulation of AI requires expertise. Additionally, the use of AI by both the public and private sectors is directly related to fundamental rights and freedoms. For this reason, there is a need for a national institution dedicated to AI, specifically a "regulatory and supervisory institution". Establishing such a regulatory body is consistent with past practices in Türkiye, as seen in the creation of institutions like the Personal Data Protection Authority (KVKK) and the Information and Communication Technologies Authority (BTK), both of which were founded with the primary goal of protecting fundamental rights and freedoms[108]. The establishment of a national authority would serve multiple purposes, including the regulation of AI technologies, the promotion of ethical standards, and the facilitation of public trust in AI systems.

It is of great importance that policymakers in Türkiye take proactive steps to address the regulatory gap in the AI field. This

[106] E. Baydemir, cit. at 102, 888.

[107] The DTO does not serve as a higher authority in the field of AI. As an office responsible for coordinating digitalisation developments and facilitating communication between institutions, it cannot engage in regulatory or supervisory activities. The DTO is primarily designed to contribute to the implementation of the government's digitalisation policies. See E. Baydemir, cit. at 102, 886.

[108] E. Baydemir, cit. at 102, 891.

includes revising existing administrative structures to accommodate the challenges posed by AI technologies and ensuring that a national authority is empowered to fulfil its mandate effectively. It remains to be seen whether Türkiye's forthcoming (primary and secondary) AI regulations will establish a new regulator specifically for AI or assign specific roles and responsibilities to the existing regulatory bodies[109].

4.3. The Application of Existing Rules: Laws and (New) Guidelines

Türkiye has a comprehensive legislative framework for technology, encompassing areas such as cybersecurity, the internet, and social media. All these laws and regulations can affect the use of AI. For example, the Law on Consumer Protection can be applied to practices that influence consumer behaviour, such as advertising. Law on Regulation of Electronic Commerce can be applied in cases where AI technologies are used in e-commerce transactions. The Laws on the Protection of Copyright and Industrial Property might have implications for AI-generated content and works[110].

To the extent AI technologies are used to commit any of the offences set out in the Turkish Criminal Code, penalties envisioned therein will apply. For instance, the Turkish Criminal Code deprecates "misinformation" and "fake news" on the internet, which may have implications for AI-generated content. The Law on the "Regulation of broadcasts through the internet and combatting crimes committed through such publications" regulates criminal content online, including on social media platforms, and may have implications on AI-generated content, as well as on the use of AI in other functions of these platforms such as personalised advertising.

In September 2023, the Turkish Advertising Board imposed fines on advertisers to penalise practices that rely on AI-generated information to promote their products without "any factual research" proving "product or brand superiority". For example,

[109] White Case, cit. at 52.

[110] For detailed info, see C. Özbek & V. Özer Özbek, *Yapay Zekânın Dâhil Olduğu Suçlar Bakımından Ceza Hukuku Sorumluluğunun Belirlenmesi* (2019) Ceza Hukuku Dergisi 603–622; Istanbul Barosu, *Yapay Zeka Çalışma Grubu* (2021), at https://www.istanbulbarosu.org.tr/files/komisyonlar/yzcg/2021yzcgyillikrapor.pdf, last accessed 1 October 2024; M. Balcı & K. Çakır, *Yapay Zeka Kullanarak İşlenen Dolandırıcılık Suçu ve Dolandırıcılığın Yapay Zeka ile Tespiti*, 18(52) Ceza Hukuku Dergisi 209– 230 (2023).

one clothing brand claimed in its online advertisements that it is "the biggest fashion retailer in Türkiye according to ChatGPT". The Advertising Board found this claim to be "unreliable" because there was no research or independent resource to support it and answers generated by ChatGPT may not always be "accurate or up to date"[111].

The Law on the Protection of Personal Data regulates the collection, use, processing, and localisation of personal information and may impact all AI applications that rely on personal data. The Turkish Data Protection Authority closely monitors technological developments and has prepared privacy-focused guidelines specifically for the use of AI technologies. The Authority published the "Guidelines on Good Practices regarding the Protection of Personal Data in the Banking Sector"[112], that provide recommendations for financial institutions and banks processing personal data, including through AI-based products. Additionally, the Turkish Data Protection Authority has issued "Guidelines on the Protection of Privacy in Mobile Applications"[113] which stipulate that AI-based mobile applications should adhere to the principles of transparency and predictability. Although these guidelines are non-binding, they are significant as they reflect the current stance of the Turkish Data Protection Authority on AI-related data protection matters.

The Turkish Data Protection Authority's "Recommendations on the Protection of Personal Data in the Field of Artificial Intelligence"[114] outline expectations regarding the respect for fundamental human rights and freedoms, as well as the imposition of limits on the use of personal data in AI applications.

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[111] Ticaret Bakanlığı, *Reklam Kurulu yapay zeka reklamlarını ilk kez incelemeye aldı*, at https://ticaret.gov.tr/haberler/reklam-kurulu-yapay-zeka-reklamlarini-ilk-kez-incelemeye-aldi, last accessed 1 October 2024.

[112] Kişisel Verileri Koruma Kurumu, *Kişisel Verilerin Korunmasına İlişkin Bankacılık Sektörü İyi Uygulamalar Rehberi* (July 2022), at https://kvkk.gov.tr/SharedFolderServer/CMSFiles/12236bad-8de1-4c94-aad6-bb93f53271fb.pdf, last accessed 1 October 2024.

[113] Kişisel Verileri Koruma Kurumu, *Mobil Uygulamalarda Mahremiyetin Korunmasına Yönelik Tavsiyeler Aralık 2023* (2023), at https://kvkk.gov.tr/SharedFolderServer/CMSFiles/8ba209bb-fa93-4479-84f0-dd55aac97a0f.pdf, last accessed 1 October 2024.

[114] Kişisel Verileri Koruma Kurumu, *Yapay Zekâ Alanında Kişisel Verilerin Korunmasına Dair Tavsiyeler* (2021), https://www.kvkk.gov.tr/Icerik/7048/Yapay-Zeka-Alaninda-Kisisel-Verilerin-Korunmasina-Dair-Tavsiyeler, last accessed 1 October 2024.

Additionally, this document, which covers AI developers, producers, service providers, and decision-makers, includes recommendations for protecting personal data in AI applications. It is noted that, in the preparation of these recommendations, the "OECD Recommendation of the Council on Artificial Intelligence" by the OECD, the "Guidelines on Artificial Intelligence and Data Protection" published by the Council of Europe's Directorate General of Human Rights and Rule of Law, and the European Union's "Ethical Guidelines for Trustworthy AI", were utilised.

According to the Recommendations, AI applications should be developed and implemented with respect for individuals' fundamental rights and freedoms. AI-based personal data processing and data collection should adhere to principles such as legality, fairness, proportionality, accountability, transparency, accuracy, purpose limitation, and data security.

If AI activities involve high-risk personal data processing, a privacy impact assessment should be conducted to ensure compliance with the law. From the initial stages, AI projects should comply with data protection regulations, and all systems should be designed and managed with data protection in mind. When processing special categories of personal data, stricter technical and administrative measures must be implemented. If the desired outcome can be achieved without processing personal data, anonymisation methods should be used. The legal relationship between stakeholders (data controllers or processors) in AI projects should be defined at the beginning and aligned with data protection regulations.

The Recommendations also establish that a privacy-centric approach consistent with national and international regulations should be adopted in design. A prudent approach based on risk prevention and mitigation measures should be employed. The quality, source, amount, category, and content of personal data used should be evaluated to ensure minimal data usage, and the accuracy of the developed model should be continuously monitored.

It is highlighted that algorithms used outside their intended context should be carefully evaluated for their potential negative impact on individuals and society. AI systems should respect individuals' national and international rights concerning personal data processing. Products and services should be designed to ensure that individuals are not subject to decisions solely based on

automated processing without considering their views. Algorithms that ensure accountability for all stakeholders throughout the product lifecycle should be adopted, and users should have the right to stop data processing and opt for data deletion, destruction, or anonymisation. Moreover, individuals interacting with the application should be informed about the reasons for data processing, the methods used, and potential outcomes, and an effective consent mechanism should be designed where necessary.

The document also includes recommendations for decision-makers. Accordingly, the principle of accountability should be observed at all stages. Risk assessment procedures for data protection should be adopted, and an application matrix based on sector, application, hardware, and software should be created. Appropriate measures, such as codes of conduct and certification mechanisms, should be implemented.

According to the Turkish Data Protection Authority, human intervention in decision-making processes should be allowed to preserve individuals' freedom to distrust the outcomes of AI-generated recommendations. Moreover, cooperation between supervisory authorities and other relevant organisations on data privacy, consumer protection, competition, and anti-discrimination should be encouraged.

Individuals, groups, and stakeholders should be informed and actively involved in discussing the role of AI in shaping social dynamics and decision-making processes through big data systems. Open-source mechanisms should be encouraged to create a digital ecosystem that supports secure, fair, legal, and ethical data sharing.

The Higher Education Board also published guidance in May 2024 specifically addressing GenAI, entitled "Ethical Guide for the Use of Generative Artificial Intelligence in Scientific Research and Publication Activities of Higher Education Institutions"[115]. In these guidelines, the fundamental ethical values in the use of AI have been identified as transparency, integrity, care, fairness and respect, the protection of privacy and confidentiality, accountability, and a commitment to contributing to ethical principles. Although there is currently no direct regulation concerning AI in Türkiye, it has been emphasised that researchers,

[115] Yüksek Öğretim Kurulu, *Yapay Zekâ Kullanımına Dair Etik Rehber* (May 2024), at https://www.yok.gov.tr/Documents/2024/yapay-zeka-kullanimina-dair-etik-rehber.pdf , last accessed 1 October 2024

particularly when utilising GenAI technologies, should take into account documents such as the Personal Data Protection Law (KVKK), the Higher Education Law, the Law on Intellectual and Artistic Works, and the Regulation on Graduate Education and Examinations.

With Principle Decision No. 2024/108 (Ethical Conduct Principles for Public Officials in the Use of Artificial Intelligence Systems) dated September 10, 2024, the Ethics Committee established the principles public officials must adhere to when using AI. Public officials may utilise AI systems in the course of providing public services. In such cases, they bear a responsibility to uphold ethical standards and adhere to principles of ethical conduct in service to society. Accordingly, public officials must carry out their duties in alignment with principles detailed in the decision, such as competence, integrity, impartiality, transparency, confidentiality and security, accountability, and managerial responsibility[116].

5. Conclusion

The Republic of Türkiye recognises that leveraging digital technology and data to make the public sector more responsive, resilient, and proactive contributes significantly to national competitiveness and economic growth. The DTO, established after the transition to the presidential system, aims to provide a strong foundation for transitioning from e-government to digital government[117].

Monitoring developments worldwide and in the European Union, Türkiye is expected to place even greater emphasis on implementing sanctions and measures to mitigate risks, protect individuals, companies, and national security, as well as establish regulations and guidelines. Although Türkiye is not a member of the EU, its strong economic ties and collaborations with the Union may prompt the country to align its legal framework with EU standards, particularly concerning the EU AI Act. While Türkiye

[116] Etik Kurulu, *2024/108 Sayılı İlke Kararı: Yapay Zekâ Sistemlerinin Kullanımında Kamu Görevlilerinin Uyması Gereken Etik Davranış İlkeleri* (2024), at https://www.etik.gov.tr/icerikler/2024-108-sayili-ilke-karari-yapay-zeka-sistemlerinin-kullaniminda-kamu-gorevlilerinin-uymasi-gereken-etik-davranis-ilkeleri/, last accessed 1 October 2024.
[117] OECD, cit. at 29, 15.

may voluntarily align with the Act, compliance may also be necessary due to the broad territorial scope of the regulation. Like the GDPR, the EU AI Act will impose requirements on those involved in AI systems connected to the EU market, including providers, deployers, and manufacturers, even if they are outside the EU. Companies operating in Türkiye will therefore have to plan for compliance with both national AI guidelines and the EU AI Act, as the latter may set global AI standards[118]. Given Türkiye's growing interest in AI development and the potential for public and private projects to fall under the Act's scope, it is likely that the Act will have significant implications[119].

Recently, the Vice President of Türkiye emphasised that the country's efforts are primarily focused on productive AI technologies, aiming to develop the AI startup ecosystem and strengthen the national workforce through structural transformation. He stated: "[w]e expect AI to focus on sectors and areas that will enhance our economic and social welfare and support our development process. We aim to foster the creation of more startups in our country, develop financial infrastructures for this purpose, and promote public-private partnerships".

In addition, it is crucial for Türkiye to implement preventive policies and practices addressing the risks associated with the widespread use of AI technologies in both the public and private sectors. Efforts should include working on AI ethics, law, and the status of AI entities, collaborating with institutions that house AI experts, and emphasising international cooperation. Enhancing dialogue between the public and private sectors, as well as with academics, expanding technoparks, and establishing AI units within central and local governments are equally important. Furthermore, Türkiye should take security measures stemming from AI development and seize opportunities for job creation[120].

When it comes to the use of AI in the Turkish judiciary, several considerations arise. First and foremost, a successful AI system in courts requires a large amount of data. The existing case law in Türkiye could partially provide the data necessary for AI

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[118] Y. Hamzaoğlu & M. Hamzaoğlu, *Turkey: The evolving approach to AI governance*, at https://www.dataguidance.com/opinion/turkey-evolving-approach-ai-governance, last accessed 1 October 2024.

[119] White Case, cit. at 52.

[120] M. Metin Uzun, *Yapay Zekâ: Fırsatlar ve Tehditler: Yapay Zekâ Stratejileri ve Türkiye*, 2 ULİSA Mayıs 2020 Raporu 34–44, at 42–43 (2020).

implementation in the judiciary. However, according to Article 8 of Law No. 2802 on Judges and Prosecutors, judicial authority is vested in human judges, and the judiciary is a profession reserved for Turkish citizens. For this reason alone, it is argued that AI-powered robots cannot directly render decisions in Türkiye. Furthermore, since the process by which AI reaches a conclusion and produces output is often not comprehensible to humans (the "black box" issue), AI cannot currently be used as a supportive tool for making judicial decisions. Whether it involves systems that assist judges or robots directly participating in proceedings, the use of AI in any stage of the judiciary requires explicit legislative approval. Similarly, the principle of a natural judge, which is a component of the right to a fair trial, would lead to the same conclusion. Therefore, unless the legislature explicitly regulates the scope and functions of AI in the judiciary, its use will be unconstitutional[121].

To improve Türkiye's level of AI readiness, several challenges must be addressed. The country's digital infrastructure lacks high-speed internet access and advanced computing capabilities. Ensuring internet access for all segments of society and improving digital literacy are crucial to keeping up with global developments and making services provided by AI more accessible[122]. There is a shortage of a digitally skilled workforce, partly due to an education system that lacks sufficient AI and data science-focused programmes, making workforce adaptation to these technologies difficult. Additionally, current regulations that are in place to ensure the ethical and safe use of AI technologies are insufficient[123]. There is a need for the establishment of at least some basic principles through a regulatory framework for administrative procedures, particularly in cases where administrative decisions are made and communicated through algorithms[124]. The long-standing critique of the absence of an administrative procedure law in Türkiye, which is a common point of discussion in administrative

[121] H. Bilgin, *Yapay Zekânın Mahkeme Kararlarında Kullanımına Uluslararası Bir Bakış ve Robot Hâkimler Hakkında Düşünceler*, 13(2) İnÜHFD 405–419, at 416 (2022).
[122] A. Yalçın, *Türkiye'de Kamu Kurumlarının Toplum İçin Geliştirdiği Yapay Zeka Uygulamaları*, 16(2) *İstanbul Aydın Üniversitesi Sosyal Bilimler Dergisi* 185–215, at 212–212 (2024).
[123] TechLetter, *Is Türkiye Ready for AI?*, https://www.techletter.co/p/is-turkiye-ready-for-ai, last accessed 1 October 2024.
[124] O. Çağdaş Artantaş, *Algoritmik İdari İşlemler*, in G. Okuyucu Ergün (ed.), *Informatics and Law* (2024) 31–57, at 54.

law, may perhaps be resolved through the integration of AI into administrative processes[125].

In conclusion, Türkiye recognises the importance of focusing on AI to keep pace with Industry 4.0. As the country advances in AI development, aligning with international standards, enhancing infrastructure, and fostering legal and ethical use will be essential steps toward establishing a robust and competitive AI ecosystem. The recent Parliamentary Decision, published in the Official Gazette on October 5, 2024, regarding the establishment of a commission to explore the benefits of AI, develop the necessary legal infrastructure, and identify measures to mitigate AI-related risks, signals that efforts to establish a regulatory framework for AI will accelerate in 2025[126].

[125] M. Kağıtcıoğlu, cit. at 32, 158.

[126] T.C. Resmî Gazete, *Yapay Zekânın Kazanımlarına Yönelik Adımların Belirlenmesi, Hukuki Altyapının Oluşturulması ve Yapay Zekâ Kullanımındaki Risklerin Önlenmesine İlişkin Tedbirlerin Belirlenmesine Dair Meclis Araştırması Komisyonu Kurulması Kararı* (5 October 2024), at https://www.resmigazete.gov.tr/eskiler/2024/10/20241005-1.pdf, accessed 6 October 2024.