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Araştırma Makalesi

RESTRUCTURING IN PUBLIC SECTOR: FROM ELECTRONIC GOVERNMENT TO SMART GOVERNMENT IN TÜRKİYE

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Abstract

Upon the development of information and communication technologies (ICTs), countries embarked on a structuring process in the public sector in order to provide faster and more efficient services. Acting positively towards technological developments in the public sector, Türkiye started digital transformation reform studies and developed "e-Government applications" especially in the recent years. In this context, during the transition to the Presidential Government System, Türkiye established the Digital Transformation Office (DTO), which is considered the most important stage of the smart government (s-Government). With the establishment of DTO, the transition process from "e-Government" to "s-Government" has started and radical changes have taken place in the Turkish public administration. With this office, consolidation of the coordination functions under the same entity was aimed regarding the issues such as cyber security, critical infrastructures, big data and artificial intelligence. By considering the associated changes in the public sector along with the development of technology, this study attempts to examine the functions and structure of DTO, which played an effective role in the transition from "e-Government" to "s-Government" in Türkiye.

Keywords: *New Public Service, Electronic Government (e-Government), Smart Government (s-Government).*

KAMU SEKTÖRÜNDE DİJİTAL YAPILANMA: TÜRKİYE'DE ELEKTRONİK DEVLETTEN AKILLI DEVLETE GEÇİŞ

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Öz

Bilgi ve iletişim teknolojileri alanındaki gelişim ile birlikte ülkeler kamu sektöründe vatandaşa daha hızlı, verimli hizmet verme yönünde bir yapılanma süreci içerisine girmiştir. Özellikle son dönemde ülkemiz, kamu sektörü alanında teknolojik ilerlemelere kayıtsız kalmayıp e-devlet (elektronik devlet) uygulamalarını geliştirerek dijital dönüşüm reform çalışmalarına başlamıştır. Bu kapsamda Cumhurbaşkanlığı Hükümet Sistemine geçilmesiyle birlikte a-devletin (akıllı devlet) en önemli aşaması sayılan Dijital Dönüşüm Ofisi (DDO) oluşturulmuştur. DDO ile birlikte ülkemizde e-devletten a-devlete geçiş süreci başlamış olup kamu yönetiminde köklü değişimlere adım atılmıştır. Böylece siber güvenlik, kritik altyapılar, büyük veri, yapay zeka gibi konularda koordinasyonun aynı çatı altında toplanması amaçlanmıştır. Bu çalışmanın amacı, gelişen teknolojiyle birlikte kamu yönetimi alanındaki değişimleri aşamalı bir biçimde ele alarak Türkiye'nin e-devletten a-devlete geçiş sürecinde etkili bir rol oynayan DDO görev ve yapısını incelemektir.

Anahtar Kelimeler*: Yeni Kamu Hizmeti, Elektronik Devlet (E-Devlet), Akıllı Devlet (A-Devlet).*

INTRODUCTION

Technological developments has rendered the change inevitable in the field of public administration as in many other areas. Within this context, the public sector has started to adopt objectives such as responding to the demands of citizens, implementing strategies to increase public performance and using public resources in a more effective and efficient way. In addition, principles such as social responsibility, social justice, democratic responsibility, and public interest are adopted in addition to efficiency/productivity in public administration, and a balance is tried to be achieved among all of these principles. This balance has become essential due to reasons such as the emergence of new managerial values in the globalizing world with the transition from the industrial society to the information society, the increase in the effects of international organizations, and the search for efficiency of the public sector for economic and social purposes (Eşki, 2009, pp. 492-498).

Another factor that catalyzes change in public administration is the prominence of information and communication technologies (ICTs). Thus, the concept of "*e-Government*" has emerged that facilitates the provision of public services and easier and faster access to information. The concept of "*e-Government*" is not a concept that emerged out of nowhere but is an expression of a new understanding of the state that emerged with the increasing needs of citizens, and thanks to the ICTs, it is more active and is burgeoning. The understanding of "*e-Government*" provides new perspectives in the relations of public institutions with

each other, and regarding the state-citizen and state-company relations (Baştan & Gökbunar, 2004, p. 74). With all the efforts regarding "*e-Government applications*" in Türkiye, it is aimed to provide services at lower costs, minimize bureaucratic obstacles, increase the quality of public services and reach a competitive level among other countries (Çarıkçı, 2010, p. 97). However, in the digital age, "*e-Government applications*" now have to keep abreast with the developments in the global transformation driven by artificial intelligence and industry 4.0. Taking place at the global scale, these changes affect Türkiye, as well. The new and profound changes with transition to the Presidential Government System in Türkiye constitutes the most important phase of the transition from "*e-Government*" to "*s-Government*". The "*Digital Transformation Office (DTO)*"[2], which is one of the four offices established during this transition aims to manage the transition from "*e-Government*" to "*s-Government*" and to coordinate the issue of digitalization in public administration. Thus, the process of transition from "*e-Government applications*" dealing with the content of the work to "*s-Government*" focusing on how the work is done is tried to be accomplished (Avaner & Fedai, 2019, pp. 151-160).

It has once again been understood how important the use and development of digital applications is, during the new global coronavirus pandemic, COVID-19, as the World Health Organization defined (Loginov et al. 2020, p. 163). In this process, where face-to-face communication is risky and needs to be minimized, Türkiye offered many public services to citizens in the digital environment through the "*e-Government Gateway*" (https://cbddo.gov.tr/haberler/4987/e-devlet-kapisi-2020-de-turkiye-nin-dijital-yuzu-oldu).

In the first section of the study, changes in understanding of public administration are described in historical perspective. In the second section, the transition process in Türkiye from "*e-Government*" to "*s-Government*" will be examined. The transition phase from "*e-Government*" to "*s-Government*" in the public sector will be analyzed within the framework of digital applications from G2G and state-to-citizen. Furthermore, in the study, the importance of "*e-Government applications*" in Türkiye, the studies carried out in this context, and the establishment purpose of the DTO -which constitutes the most important step of the "*s-Government*" in Türkiye- its development, duties and service units, are examined. In the conclusion part of the study, some solutions are proposed considering the shortcomings of Türkiye in the process of structuring towards the "*s-Government*".

[2] Office type organization was one of the main pillars of the transition to the Presidential Government System in 2018. However, office-type institutions both in Türkiye and for the public personnel domain are considered as a "new type" organization style (Avaner & Fedai, 2019, p. 167; Sayan & Urhan, 2020, p. 1018).

CONCEPTUAL FRAMEWORK: CHANGE IN PUBLIC ADMINISTRATION

With the spread of mass communication networks, the public administration discipline has entered a comprehensive transformation process all over the world especially from the second half of the 20th century. This transformation process represents a serious change in the role of the state in society rather than being a simple reform process (Özer, 2014, p. 8). In this context, today's understanding of public administration is built on factors such as individualism, flexibility, entrepreneurship, transparency, efficiency and competitiveness. In addition to these factors, the idea of citizens to receive better quality services and their increasing participation demands in administration have led to a rapid transformation in the understanding of public administration all over the world (Gökçe & Turan, 2008, pp. 176-177). Two crucial tools developed in this transformation process can be identified: democracy as a political, and bureaucracy as an administrative tool. While on one hand democracy aims to protect political rights such as the right to vote and be elected as well as other social and political rights; on the other hand bureaucracy aims to be an administrative tool established to stand against favoritism and corruption, which are the characteristic of the patrimonial administration (Ateş, 2001, p. 49). Apart from fighting against nepotism and corruption in an effective way, the public administration needed today also aims to ensure the establishment of an efficient administration in the production and presentation of goods and services financed directly or indirectly by the public (Ateş, 2001, p. 50). Therefore, for the public sector to be able to increasingly and better use productive, effective and performance-based ICTs, it needs to adopt and accommodate the methods applied in private sector management (Çukurçayır & Eşki, 2001, pp. 95-96).

During providing services to large masses, it is crucial for public institutions to process information with electronic methods, to store information and citizens' records, and to easily transfer this information to other institutions when required (Baştan & Gökbunar, 2004, p. 75). The positive effects of the current state of technology on the public sector, today, have brought about innovations in the production and presentation of public goods and services. In order to see the change of understanding regarding production of public goods and services, it will be useful to examine the approaches from the traditional public method approach to the present. In this scope, after firstly visiting developments in traditional public administration, approaches of new public administration, "new public service", "governance", "electronic government (e-government") and "smart government (s-Government)" will be examined.

Traditional Public Administration Approach

Max Weber, Woodrow Wilson and Frederick Taylor are the leading names that shaped the traditional public administration approach. The bureaucracy model put forward by Weber is based on a set of rules and regulations that emphasize a top-

down control. In other words, policy is adjusted from top according to a rational and legal control system, and each administrator and employee reports to a senior. Taylor, on the other hand, emphasizes strict control of work processes and careful planning of work processes by managers within the scope of the management principles he has determined. Wilson contributed to the traditional model by arguing that administration should not take political decisions (Pfiffner, 2004, pp. 443-444). In his article "The Study of Public Administration" (1887), Wilson evaluated the public administration as a management apparatus composed of impartial experts and a technical state functioning under the direction of elected politicians and acting on the basis of merit. It is fair to argue that Wilson's traditional public administration approach was positioned on two legs: one leg was on politics and the other on organizational theory (Şeylan, 2000, p. 7). However, it is fair to argue that the traditional public administration approach is largely shaped by Weber's theory of bureaucracy. If the main features of Weber's bureaucracy theory are articulated in a concise way (Göküş, 2013, pp. 87-88; Eisenstadt, 1958, p. 100):

- Bureaucracy is based on a hierarchical structure conducted on the basis of written documents, where upper units supervise sub-units.
- Bureaucratic structures have jurisdictions regulated by laws whereby necessary regular works are distributed in a specific manner as official duties. Since the execution of each task depends on technical rules, persons who prove their technical knowledge and ability can be appointed as administrative officers.
- In bureaucracy, an ideal civil servant carries out his/her duties within the framework of impersonal formal rules. It is very important in terms of objectivity and efficiency to leave personal thoughts aside while doing official works. Therefore, Weber considers the bureaucracy to be the epitome of rationality and efficiency, the most rational means of implementing a given goal.
- In the structure of a bureaucratic organization, administrative personnel do not have a property right over the resources of the institution they manage. However, staff are held responsible for the use of these resources. Thus, there is a clear distinction between organizational property used in the conduct of public administration and the civil servant's own property, and official business and private business, public income and personal income are separated.

Traditional public administration can be described where decisions are taken by the center; a top-down control mechanism is established in the implementation of the public program; the principle of secrecy and rationality in the administration is applied; the bureaucratic structure brings along extreme prescriptiveness; public services reach the public through the traditional state theories and inputs (number of personnel, budget, equipment, etc.) are important; public administrators are in a more

dominant position and citizens are kept in a more passive position (Kaya, 2017, p. 750).

New Public Administration (Management)

The rapid and multifaceted change in the world has manifested itself in management structures, economic theories, competitive structure of the private sector and the development of civil society. Especially from the 1970s, with the increase of budget deficits, inflation, and unemployment, the Keynesian approach and classical welfare state have lost its prominence in economic theory and the liberal approach started to gain power. In this period, government failures that emerged with efforts to eliminate market failures and questions over the role of the state in the economy brought new expansions to thepolitical agenda in terms of what the state should or should not do (Dinçer & Yılmaz, 2003, p. 22).

As a result of the ideological, economic and political developments in the early 1980s, traditional public administration entered a restructuring process in many developed countries. The change in the world has left its place to a model whereby public sector adopts private sector principles instead of the traditional hierarchical organizational principles and tries to attain efficiency and effectiveness in its services. This new model began to be practiced in the UK in the 1980s with the "*New Public Administration*" approach and has led to changes in many countries. With the "*New Public Administration*" approach, it is aimed to apply private sector management techniques in the public sector and provide a tendency to discipline and austerity in the public. It also fovoured a shift from a vertical organization model to a horizontal model and to a result-oriented structure instead of a process-oriented structure (Boztepe, 2018, p. 207).

One of the most important studies in the "*New Public Administration*", also known as the "*New Public Management*" approach, is the article by C. Hood "A Public Management for All Seasons" published in the "*Public Administration"* magazine in 1991. Hood has based his "*New Public Management*" approach on seven pillars as summarized in the following (Hood, 1991, pp. 4-5):

- Leaving the public sector to professional administrators: Specific people on the top should actively, visibly and voluntarily control the organizations, so that the responsibility at the accountability stage is clearly demonstrated.
- Identification of performance standards and measures: Especially in professional services, targets and success indicators are preferably expressed in numerical terms. Because, while accountability requires a clear statement of targets; efficiency requires a rigorous review of the set goals.
- Greater emphasis on output controls: The focus should be on results rather than procedures, as resource allocation, division of central bureaucracy, broad staff management are linked to measurable performance.

- Unbundling of units in the public sector: units must have separate production outputs and financing for productivity gains in contracts or concession arrangements both within and outside the public sector.
- More competition in the public sector: As competition is regarded as a key concept in improving standards and reducing costs, regulation and public procurement procedures are required in contracts.
- Private sector management practices: Public relations techniques should be adopted more to move away from military-style public service ethics and to ensure flexibility in recruitment and wages. Therefore, it is beneficial to use proven private sector management tools in the public sector.
- More discipline and thriftiness in resource use: In order to control the resource demands of the public sector and to produce more with less input, it is necessary to reduce direct costs, increase work discipline, and limit work compliance costs.

When the principles that Hood has based on the "*New Public Management*" approach are examined, it is possible to argue that the "*New Public Management*" approach emphasizes on elements such as transparency, efficiency and effectiveness, which are not specifically emphasized in the traditional understanding of public administration.

In Türkiye since the beginning of the 1990s, although the traditional understanding of public administration has not been completely abandoned, the New Public Management principles such as the participation of the private sector in public services, the adoption of performance principles to ensure efficiency and effectiveness in public administration and transparency in management have come into operation. For example, appointing high-level private sector representatives outside of politics and bureaucracy to most of the investment ministries and providing them with the opportunity to work with the team they want, and widening the coverage of contract employee position -except justice and security services- can be considered as concrete practices in parallel with the "*New Public Management*" approach (Boztepe, 2018, p. 207).

New Public Service Approach

When it comes to the 2000s, it is observed that the economic-oriented principles such as efficiency, efficiency and austerity emphasized in previous approaches were replaced by democratic values such as citizenship, democracy, accountability. In 2000, Denhardt and Denhardt introduced the "*New Public Service*" approach as a new model in the field of public administration (Ütük, 2015, p. 64).

Focusing on developed democracies, the "*New Public Service*" understanding suggests that public officials interact with citizens, encourage citizenship and democratic governance, and plan, implement and evaluate public policies and programs together with citizens in the interests of them. This approach acknowledges that the business principles prevailing in the "*New Public*

Management" increase efficiency and productivity in the public but argues that such principles should not contravene with the principles of democracy. (Denhardt et al., 2009, pp. 1269-1270).

Establishing its principles on democracy and citizenship awareness, the "*New Public Service*" approach criticizes conceptualizing the citizens as customers or consumers. Proponents of the approach proposes a state structure in which the state plays a conciliatory role between citizens and other actors, the accountability of public administrators is defined by laws, and the citizens' participation is ensured in planning and programming proceses (Kaya, 2017, p. 753). When evaluated in general terms, it can be argued that the "*New Public Service*" approach is not completely similar to the New Public Management approach. The "*New Public Service*" approach criticizes the market and productivity elements and argues that these should be predominantly compatible with humanistic democratic public service (Kurun, 2017, p. 92).

Transition from New Public Service to Governance

It has been argued in the theoretical area that the "*New Public Service*" has not gained a place in practice as a distinct approach. For this reason, the concept of governance, which is considered as an effective approach in the field of implementation, has attained more emphasis than the "*New Public Service*" (Ayhan & Önder, 2017, p. 40). The concept of governance, which was effective in the restructuring process of the state, was first put forward by the World Bank in 1989, and the theoretical foundations of the concept began to be shaped (Kalfa & Ataay, 2008, p. 229).

Governance is defined by the Turkish Language Association as "*joint use of administrative, economic and political authority in public and private bodies*" (Governance, https://sozluk.gov.tr/). Governance, which can be applied in both private and public institutions, aims to reach the awareness of establishing partnerships and being "*us*" (Doğan & Ustakara, 2013, p. 2). Rather than downsizing the state, the governance model underlines the need for effective regulations by the state in order to operate the markets in a more effective way. In addition, the state is not the sole decision-maker in the governance model. Not only the state, but both the private sector and civil society also participate in the decision making process (Kalfa & Ataay, 2008, p. 229). Unlike previous approaches where not much emphasis was given to civil society, the governance model underlines the importance of interaction and cooperation among the trio of state-private sector-civil society. In addition to attaching importance to civil society, the concept of governance considers civil society as a separate power factor by identifying it as the "third sector" (Ayhan & Önder, 2017, p. 46).

With technological progress, the concept of governance has also been enriched. The concept has gained an e-dimension and entered the literature as e-governance. E-governance refers to a management style shaped by ICTs and is

inclusive of the private sector and civil society. The term is defined as "*the administrative structure where authority, resources, duties are transferred to local governments, and decentralization and derogation are implemented*" (Demirel, 2010, p. 90). E-governance requires the use of ICTs while including citizens outside the state in the processes of management, decision and policy-making. Therefore the ICT's facilitate the democratic process once it is citizen-centric and enables citizens to express themselves and be heard by building their collaboration and participation (De Farias & Ferrer, 2014, p. 6). Increasing its capacity over time, the e-governanace approach has contributed to the formation of a participatory, transparent and accountable public administration through "*e-Government*" applications (Demirel, 2010, p. 90).

The concept of e-governance, which is the electronic dimension of governance, is an interactive and multi-dimensional model based on the participation principle created by the developing Internet technology and information age. In addition, models such as e-governance and "*e-Government*" are based on technology and include all actors in the process of making policies. Information society culture based on flexibility, rapid decision making, transparency and the right to information is also essential. By including multiple actors such as citizens and civil society in political procedures, these administration models also contribute to the development of countries' democracy levels (Doğan & Ustakara, 2013, pp. 8 and 9).

RESTRUCTURING IN PUBLIC SECTOR: TRANSITION FROM e-GOVERNMENT TO s-GOVERNMENT

Economic, social and technological developments have brought about associated reforms in the administration approach. In this context, as a concrete indicator of the digitalization policies in Türkiye, the Digital Transformation Office aims to function as an organization coordinating the policies to be implemented in the transition from "*e-Government (Electronic State)*" to "*s-Government (Smart Government)*" and becomes institutionalized in this sense (Avaner & Fedai, 2019, pp. 150 and 151).

Electronic Government (e-Government)

E-government, which refers to "electronic sate" in English, is the way of providing the services to citizens by the government in electronic environment. With e-Government, it is intended that citizens can easily access public services and that the service is offered faster, in higher quality, uninterrupted and secure ways (TÜRKSAT, https://turksat.com.tr/tr/bilisim/e-devlet-kapisi). Thanks to the developing technologies, citizens` expectations and demands from the state are increasing day by day. These expectations and demands compel the states to provide differentiated services for different individuals and groups. This situation reveals

that the "one size fits all" approach doesn't apply in the public sector and different demands should be taken onto consideration (Baştan & Gökbunar, 2004, p. 76).

It is generally accepted that "e-Government" applications, which emerged as a part of the information society and provide computer/ Internet-enabled services in the public sector, increase the variety, speed, availability and effectiveness of the public services, while reducing service costs. The "e-Government" approach, which adopts a quality/efficiency-oriented service approach instead of bureaucratic/stationery service understanding, emphasizes that the state should exist for the individual, not the other way around. As a result of developments in technology and public administration, it can be said that "e-Government" has weakened the traditional understanding of public administration (Çarıkçı, 2010, pp. 96 and 97). Consequently, E-governance is seen as providing citizens with the ability to choose the way they interact with governments (Asgarkhani, 2005, p. 467).

The "*e-Government*" project is not only collecting the URL addresses of all public institutions under a single portal but is a model that defends the need for a structural and mental transformation of the state (Delibaş & Akgül, 2010, p. 106; Baştan & Gökbunar, 2004, pp. 85). The background of this portal is more complex, requiring a series of coordinated efforts, involving almost all public institutions. "*E-Government*" does not only take the interactions between the state and the citizen to a digital base, but also aims to make public activities transparent, increase the information sharing between institutions and increase the participation of citizens in the state administration.In addition, e-government, which enables public services to be restructured on the basis of information technologies, acts as a bridge between citizens, commercial organizations and various units of the state, and ensures the transition of bureaucratic processes to automation (Baştan & Gökbunar, 2004, pp. 72 and 85). In short, *"E-Government"* is a multidimensional and complex concept, which requires a broad definition and understanding, in order to be able to design and implement a successful strategy (Ndou, 2004, p. 3).

As every country in the world, "*e-Government*" model of public administration has also influenced institutions in Türkiye.With policies applied especially since the second half of the 1980s, the transition to "*e-Government*" began in Türkiye. Especially after the 1990s, with the investments in the information infrastructure, internet usage has increased and some state institutions have started to provide their services on the electronic platform. Within the scope of these developments, "*e-Government*" was applied more seriously in the 2000s (Çarıkçı, 2010, p. 97).

In assessing the state of e-government today, it is important to examine e-government in acion to see exactly how it is deployed by government agencies to services to both citizens and its own employees (Abramson & Morin, 2003, p. 9). Over time "*e-Government*" applications in Türkiye gained a nature of state policy and in this *Türkiye Project Action Plan and in 2006 Information Society Strategy and Action Plan*" which regard in 2005 "*e-Transformation* covred the period 2006-

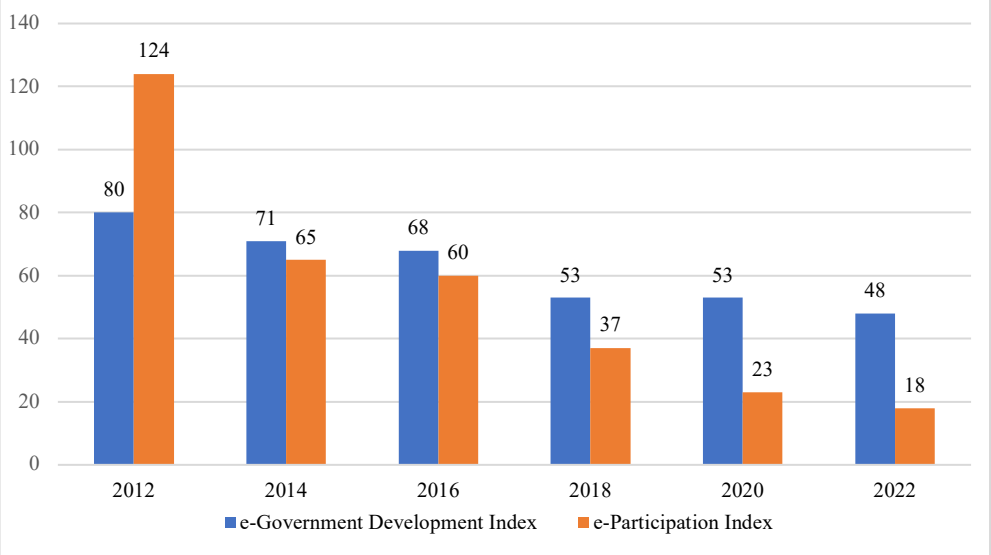
2010 came into force after their approval by the Council of Ministers (2016-2019 Ulusal e-Devlet Stratejisi ve Eylem Planı, 2016, 3). Especially in the period after 2007, policies and practices related to "*e-Government*" gained momentum, and in 2008, with the "*E-Government Gateway Project*", it was decided to carry out all "*e-Government*" activities from a single center (Çarıkçı, 2010, p. 97). In 2011, with the Decree Law No. 655, the "*Ministry of Transport, Maritime Affairs and Communications*" was given the duty and responsibility for "*e-Government*" policies and the "*Presidency for e-Government Services*" was established under the Ministry (2016-2019 Ulusal e-Devlet Stratejisi ve Eylem Planı, 2016, pp. 3 and 4). In 2013, TÜRKKEP was authorized as a Registered Electronic Mail (KEP) Service Provider by the Information Technologies and Communication Authority (BTK), and as an E-Invoice Service Provider (Private Integrator) and an E-Invoice Custodian by the Revenue Administration in the same year, constituting crucial steps in the way to "*e-Government*" (TÜRKKEP, https://turkkep.com.tr/). In the 2015-2018 Information Society Strategy and Action Plan, "*User Focus and Efficiency in Public Services*" were aimed and growth and increasing employment were two focal points. Following these developments, the 2016-2019 National "*e-Government Strategy and Action Plan*" was prepared within the framework of the information society policy. The Action Plan aimed at gaining a holistic perspective regarding Türkiye's "*e-Government*" policies (2016-2019 Ulusal e-Devlet Stratejisi ve Eylem Planı, 2016, pp. 3 and 4).

Rapid developments in the field of "*e-Government*" activities in Türkiye have been reflected in the ranking of Türkiye in the "*e-Government Development Index (EGDI)*", a ranking by the United Nations (UN) since 2003. The "*e-Government Development Index*" is prepared by the Department of Public Administration and Development Management under the Economic and Social Relations Department under the UN every two- year and evaluates the e-state development level of 193 countries. EGDI is a highly credible "*e-Government*" measurement report which evaluates changing trends and success factors in the e-Government field (Digital Akademy). With the "*e-Government Development Index*", one of the indices included in this report, a systematic assessment of the use of ICTs to increase the efficiency, transparency and efficiency levels of the public sector is provided. Another index determined by the UN is the e-Participation Index (EPI). This index is complementary to the "*e-Government Development Index*" and is calculated by using the data are provided by international organizations such as ITU (International Telecommunication Union) and UNESCO (United Nations Educational, Scientific and Cultural Organization) and UN expert opinion (https://cbddo.gov.tr/haberler/4834/-birlesmis-milletler-e-devlet-gelismislik-endeksi-aciklandi).

According to the 2020 report published by the UN, Türkiye ranks 53rd out of 193 countries in the "*e-Government Development Index*". In the e-Participation Index, Türkiye ranked 37 in 2018; 23rd in 2020 and 18th in 2022. Figure 1 below

shows Türkiye's ranking in the 2012-2022 period in the "*e-Government Development Index*" and "*e-Participation Index*".

Figure 1. Türkiye's e-Government Development Index and e-Participation Index (2012-2022)



Source: United Nations, https://publicadministration.un.org/egovkb/en-us/Data-Center, (03.01.2024).

As the figure 1 shows, Türkiye progressed in the "*e-Government Development Index*" ranking from 80th in 2012 to 53rd in 2020. Likewise, in the e-Participation Index, its ranking jumped from 124th to 23rd place. Accordingly, according to the report, in 2020, Türkiye has managed to rise from a "*high EGDI*" level of development to "*very high*" level EGDI (United Nations, 2020, p. 48). As a result, Türkiye has not been indifferent to the developments in technology in the world and the facilities it brings and has implemented its digitalization plans and projects in the public every passing day. An indicator of this is the steps taken towards "smart government", which is called the next generation of "*e-Government*" and enables the institutionalization of digital transformation.

During the period of the new type coronavirus pandemic COVID-19, as defined by the World Health Organization, use of digital services in Türkiye has increased. In March, April and May of 2020, the number of "e-Government Gateway service" usage increased twice compared to the previous year, and with the newly opened services, it became frequently used by citizens. More than 5,000 service are accessible in Türkiye`s "*e-Government applications*", and in the Covid-19 pandemic period extensively used services include: pre-applications for pandemic social supports, travel permit applications, 4/B 2020 to postpone coverage list (Covid-19), generation and listing of HES code (Hayat Eve Sığar- Home is Enough for Life), and

legislation inquiry and inquiries for participation fund banks (https://cbddo.gov.tr/haberler/4818/e-devlet-kapisi-kullanimi-2-kat-artti).

Smart Government (s-Government)

In the process of transition from "*e-Government*" to "*s-Government*", an institutional organization model that regulates digitalization practices, ensures coordination between ministries and unites public and private sectors is in deamand. In this context, "*s-Government*" practices that focus on coordination and cooperation between public institutions and social actors emphasize more on how the state does business rather than the content of digital work (Avaner & Fedai, 2019, pp. 151,156 and 158). The latter is focuses more on the use of technologies such as artificial intelligence and the internet of things, along the rise of technological opportunities developing every day.

In Türkiye, in order to gather under one roof of the work on big data, artificial intelligence, cyber security, national technologies, a Digital Transformation Office (DTO) was established with the Presidential Decree No. 1 (https://cbddo.gov.tr/hakkimizda/) dated 07.10.2018 (https://cbddo.gov.tr/hakkimizda/). In the second part of Presidential Decree No. 48 dated 24.10.2019, details of DTO's duties and service units are provided. The duties of the DTO are counted in Article 527 of the decree as follows (https://www.mevzuat.gov.tr/MevzuatMetin/19.5.1.pdf):

- To lead the digital conversion in public administration in accordance with the strategy, objectives and policies as determined by the President; to mediate the provision of Digital Türkiye (e-government) services; to improve cooperation between agencies and provide coordination in these areas,
- To prepare a digital transformation roadmap for the Turkish public administration,
- To encourage the participation of the public, private sector, universities and non-governmental organizations in the design and delivery processes of digital public services, and cooperation in order to create the digital transformation ecosystem,
- Giving opinions to the Presidency for Strategy and Budget regarding the investment project proposals prepared by public institutions and organizations in matters falling within its scope of duty; following the developments regarding the project implementations and, when necessary, providing guidance to these projects,
- Developing projects to increase information and cyber security,
- To develop strategies for the effective use of big data and advanced analysis solutions in the public sector, to lead the applications and to ensure coordination.

- Leading artificial intelligence applications in priority project areas in the public sector, ensuring coordination within this scope,
- To develop projects to increase the use of domestic and national digital technologies in the public and to raise awareness in the society,
- Determining strategies for public institutions/organizations to procure digital technology products and services in a cost-effective way,
- When necessary, providing assistance to projects and applications related to its field of duty,
- Coordinating efforts to identify and share the central, provincial and abroad units of the institutions and agencies within the state organizational framework in electronic environment,
- To make policy and strategy suggestions on issues that fall within its field of duty,
- Fulfilling other duties assigned by the President

after the duties of DTO are specified in the decree, the service units and the duties of these units are listed in Article 527/B. DTO's service units are[3]:

- "*Digital Transformation Coordination Department,*
- *Digital Technologies, Procurement and Resource Management Department,*
- *Digital Expertise, Monitoring and Evaluation Department,*
- *Cyber Security Department,*
- *Big Data and Artificial Intelligence Applications Department,*
- *International Relations Department,*
- *Information Technologies Department,*
- *Directorate of Management Services,*
- *Legal Consultancy*"

DTO coordinates the transition from "*e-Government*" to "*s-Government*" and the digitalization issue, and in this sense, it is the concretization of the institutionalization of digital transformation in Türkiye (Avaner & Fedai, 2019, p. 151). The concept of digital transformation can be defined as a holistic endeavour that brings together human and business process-technology elements in line with the opportunities provided by the ICTs and the requirements of changing social needs. In Türkiye, Digital Türkiye (e-government) policies, after implementation experience, turn into a larger-scale digital conversion reform efforts, facilitate life with human-centered artificial intelligence, bring a new axis to the defense sector with cyber security and more transparent, accountable, spend a participatory governance structure to life (https://cbddo.gov.tr/dijital-donusum/). However, as long as all these digital applications are not gathered in a single channel, there may

[3] The service units and duties of the DTO as enshrined in the Article 527/B of the Presidential Decree, numbered 48 and dated 24.10.2019, https://www.resmigazete.gov.tr/eskiler/2019/10/20191024.pdf, (18.01.2024).

be differences in each institution`s understanding, and potentially possible coordination problems may arise such as the institutions taking action at different times. For this reason, the coordination of digital applications in Türkiye is pooled under a single roof with DTO. With DTO, which connects the digital applications in the state to a single channel, crucial amount of cost is saved by sharing over the network instead of transferring data between institutions. And through this pooling, digital applications are conducted in a coordinated manner both from the state to citizens and other entities (Avaner & Fedai, 2019, p. 160).

The DTO has started the transition to "*s-Government*" by targeting a transformation in the quality of doing business rather than the content of it. Thus, it has been ensured that the studies related to artificial intelligence, cyber security, national technologies and big data are gathered under a single roof, the decision-making mechanism is accelerated and the citizens' access to public services is facilitated. While transferring ICT-based applications from G2G and from G2C, it is expected that the Digital Transformation Office will reduce the paperwork and accelerate the state through artificial intelligence applications[4]. However, the Office may face some problems in practice. The first of these is the issue of removing the intermediate level units of the Office and having only the main service and auxiliary service units. The functions of the Information and Technology Department organized under the Presidency for Strategy and Budget and the functions of the DTO overlap at some points. Another problem that may be encountered with the DTO is its bearing the sole responsibility of data production and sharing through a sole center. In periods of cyber attacks, it should not be forgotten that the DTO can become a target of these malign activities as well. Therefore, all necessary information security measures should be prudently taken (Avaner & Fedai, 2019, pp. 167-169).

Digital Applications from Government to Government

Digital applications from government to government (G2G) are carried out to regulate the flow of information and transfer data between various public institutions over a common network (Avaner & Fedai, 2019, pp. 161-162). Thus, thanks to G2G digital applications, it is ensured that citizens and businesses are provided with better quality and faster service, and the state works in harmony with local governments. The harmony of the state with local governments is very beneficial for both citizens and the state. For example, when birth and death records are stored digitally, all state institutions will be able to access this information, thus preventing wrong transactions such as paying pension to a deceased citizen. In this context, some countries (such as Japan) have gathered government web pages in a

[4] Artificial intelligence has the capacity of fast data collection, evaluation and selection of the appropriate data from a huge volume of it. Especially in public institutions where data flow is fast, workload can be reduced thanks to such systems provided by technology, and working hours can be reduced by performing the required regular work automatically (Önder & Saygılı, 2018, p. 660).

single portal, making it easier for citizens and public institutions to access many different information in one-stop-shop way (Efendioğlu & Sezgin, 2007, pp. 224 and 225).

Evaluated within the scope of G2G digital applications in Türkiye, UYAP (National Judicial Network Information System) Institutional Portal prepared by the Ministry of Justice of Türkiye provides access to information and services (UYAP a). UYAP institutional portal is a service that allows private companies or public institutions to follow over the Internet the cases they are party to at judicial and administrative courts as well as enforcement offices. Using today's technological developments, UYAP aims to ensure the internal automation of the central and provincial organizations and affiliated/related organizations with hardware and software, and the external unit integration with other public institutions/organizations that have established information automation systems. In this way, access to the judiciary is provided through more effective means while legal terms are determined more easily and accurately, cases are finalized in a short time, and court affairs are regularly monitored (UYAP b).

As another application that can be evaluated within the scope of G2G digital applications, ÖSYM (the Measurement, Selection and Placement Center) provides student information for university exams. In this context, ÖSYM receives the education and students' first place ranking information through the e-school system of the MEB (Ministry of National Education). Thus, information is shared in the G2G category between the Ministry of National Education and the Higher Education Institution to which ÖSYM is affiliated.

Numerous "*e-Government applications*" of Türkiye received awards in the eTR Awards contest organized by Turkish Industrialists' and Businessmen's Association (TUSIAD)[5] and the Foundation for Science. Among them are the "*Identity Sharing System (KPS)*" by the Ministry of Interior's General Directorate of Population and Citizenship Affairs, and "*Forest Fire Early Warning System (OYEUS)*" by the General Directorate of Forestry. The purpose of the application of KPS is to provide up-to-date and secure online access to the population and settlement information (data kept in the central database) by public institutions and other legal entities. KPS allows inquiring personal information with the T.R. ID number and ID number inquiry by using personal information; identity information by using the information of the place where the person is registered, identity registration sample query and address information inquiry services (Identity Sharing System, https://kpsbasvuru.nvi.gov.tr). Another application OYEUS, implemented in cooperation with the General Directorate of Forestry and Bilkent University, aims

[5] The name of TUSIAD was changed lately to "Turkish Industrialists and Business People Association", however, use of its established acronym TUSIAD continues as before. (TUSIAD, https://tusiad.org/tr/basin-bultenleri/item/9912-tusiad-acilimi-isim-degisikligi, 18.02.2024).

to contribute to the development of institutional capacity, early detection and extinguishing of forest fires. OYEUS software provides analysis of the forest images with a diameter of 15 kilometers where its watch towers are located and generates an alarm by detecting the furthest smoke in 15-25 seconds. Thus, the start of the fire is automatically notified to the authorities in the forms of e-mail, SMS (Short Message Service) or MMS (Multimedia Messaging Service) (Turkish Journal of Agriculture and Forestry, http://www.turktarim.gov.tr).

Another one of the digital applications from G2G is the "*National Public Integrated Data Center Project*". The first study for the project was conducted in 2017, and consequently the contract was prepared and the work started. The project was designed in three stages. The first stage of the project consists of strategic reports prepared within the scope of the situation analysis, while the second stage consists of the data center design and architecture. The third stage includes technical specifications and tenders (Avaner & Fedai, 2019, pp. 161 and 162). The Project is defined as a "s*calable, sustainable and manageable ecosystem which is equipped with advanced technical infrastructure, high level security, 24/7 service and is created for managing public information processing resources in an environment by keeping them under control; and storing, operating and presenting data from a single point*" (https://hgm.uab.gov.tr/kamu-entegre-veri-merkezi-projesi).

In addition to the National Public Integrated Data Center Project, other digital government applications in Türkiye are as follows (https://hgm.uab.gov.tr/projelerimiz):

- E-Government Project,
- E-TRNC Project,
- Ulak Communication Project,
- Infrastructure Establishment Projects in Settlements Without Mobile Communication Infrastructure,
- WIMAX (Fixed Telephone and Internet Service Project for Places Without Electronic Communication Infrastructure),
- Little Camlica TV-Radio Tower,
- Canakkale TV-Radio Tower,
- The Seeing Eye Project,
- Third Hand Project,
- Disaster and Emergency Communication,
- PublicNet,
- Project of Determination of Technical Specifications of In-Vehicle Information and Communication System,
- Project for Determination of Driving Architecture and Connected Vehicle Traffic Test Scenarios for Autonomous Vehicles,
- Satellite supported National Intelligent Transportation Systems Automation Project,

- Intelligent Transportation Systems Glossary,
- Public Integrated Data Center Project.

"*Electronic Public Information Management System (KAYSİS)*", which constitutes the infrastructure of the "*s-Government*" and is under the coordination of DTO, is another platform that is evaluated within the scope of digital applications from the G2G. KAYSİS is defined as "*a basic information system to facilitate the transition to 's-Government' by integrating 'e-Government applications' in a central way where from organizational structures to the documents used in the services, to information contained in the documents all of the public elements are identified together with their legal basis*". KAYSİS submodules are (https://cbddo.gov.tr/projeler/kaysis/):

State Organization Central Registration System (DETSİS): It is the registration of public institutions and organizations and their units at all levels in central, provincial and foreign organizations in accordance with the hierarchical structure in Türkiye.

Service Inventory Management System (HEYS): It ensures that the services provided by public institutions to citizens, private sector, non-governmental organizations or other public institutions are determined at operational level.

Public Legislation System (KMS): is an information system where all kinds of legislation published in the Official Gazette as well as secondary legislation enacted by ministries, affiliated/related/coordinated organizations, municipalities and universities without being published in the Official Gazette, are recorded and proclaimed to citizens through a single channel.

As a result, with digital applications from G2G, it is intended to use public resources efficiently, accelerate the data flow, standardize the document names used in the public, and organize different institutions under a single roof.

Digital Applications from Government to Citizen

The purpose of digital applications from government to citizen (G2C) is to reach at the citizens through the internet. The interaction of citizens with the government as a political actor and their participation in democratic processes play an important role in the state responsiveness to the needs of the citizen. In this context, it would be beneficial to add new functions to accelerate digital services offered from the state to the citizen and to facilitate communication, and to reduce the number of clicks required to complete a transaction or obtain information (International Telecommunication Union-ITU, 2008, p. 17).

One of the state-to-citizen digital applications is "*UYAP Citizen Portal*". Through the UYAP citizen portal, which is considered in the category of state-to-citizen electronic interaction and provided by the Ministry of Justice, information and services can be accessed via the SMS information system. Through the UYAP citizen portal, citizens can inquire all about case files, phone numbers and

information, open legal cases, verify documents, and follow up court hearings (UYAP a).

Some of the digital applications offered to citizens from the state like the UYAP citizen portal are the "*Land Registry and Cadastre Information System (TAKBİS)*" under the General Directorate of Land Registry and Cadastre, and the "*Computer Supported Central Electoral Registry System (SEÇSİS)*" under the Supreme Election Board. TAKBIS is an "*e-Government project*" that aims to transfer property information to a computer environment and make all kinds of inquiries, thus ensuring effective monitoring and control of both private and public immovable properties (https://www.tkgm.gov.tr/projeler/tapu-ve-kadastro-bilgi-sistemi-takbis). SEÇSİS is an information system where all kinds of election-related works and procedures are carried out, information and documents are produced, voter registers are constantly updated, and election results are shared with political parties simultaneously (https://www.ysk.gov.tr/doc/dosyalar/Galeri/AfisBrosur/BSecsis.pdf).

In addition to the digital applications offered by the ministries directly to the citizens, there are also some projects supported by the Ministry of Development and carried out by TUBITAK (The Scientific and Technological Research Council of Türkiye). The most important of these projects are "*Cloud Computing and Big Data*" studies. Under the leadership of TÜBİTAK, developed by the studies of the "*Information and Information Security Advanced Technologies Research Center (BİLGEM)*" Information Technologies Institute and supported by the Ministry of Development Investment Program, the "*Cloud Computing and Big Data Research Laboratory (B3LAB)*" project is being implemented. "*Cloud Computing and Big Data*" workspaces aim to carry out R&D (Research and Development) activities in order to produce open source and secure solutions in line with public needs (BİLGEM, https://bte.bilgem.tubitak.gov.tr).

Since its establishment, B3LAB has developed related products under the name of "*Safir*". These products are now embedded in in-house systems in various public institutions. For example, in a study conducted with the Ministry of National Education, which implemented the projects of B3LAB for the first time, 29 different variables were identified for the reasons why students failed the TEOG (Transition from Basic Education to Secondary Education) exam and the root cause was analyzed. Analyzes are made on which of the 29 different variables (where the students live, their parents' education level, success in the course, etc.) most affect their failure. Thanks to the demographic and sociological data obtained here, it will be possible to work towards improving our education system.The long-term goal of Safir applications is to spread it among the public through "*e-Government*" and to create a common understanding in the public sphere regarding the protection of personal data.In addition, it is aimed to expand the public benefit area of TÜBİTAK by ensuring that the products developed by B3LAB are transferred to the private

sector (Güner, 2019, https://turkeyai.com/turkiyenin-veri-ve-yapay-zeka-merkezi-b3lab/).

TÜBİTAK has products named "*Safir Storage*", "*Safir Bulut*", "*Safir Intelligence*", "*Safir Devops*", "*Safir Big Data*" within the scope of Cloud Computing and Big Data.Although Safir Storage is a national and secure cloud object storage application, the objects stored here can be accessed from anywhere, anytime via the internet (via smartphone, tablet or computer). Likewise, Safir Cloud can provide users with a secure, flexible, scalable and easy-to-manage cloud computing infrastructure, providing them with platform and software services, thus developing customized services in line with the needs of organizations. Safir Intelligence serves many purposes in defense and public fields. With Safir Intelligence, an environment is created to provide software developers, data scientists and end users with the necessary tools, libraries, models and services in machine learning and deep learning studies. Safir DevOps solution provides the software development and software management teams with the environment, services and tools required during the software development/software operation process, ensuring that DevOps activities are run quickly and smoothly. In Safir Big Data Analysis Solutions, different forms and large amounts of flowing/standing data are processed and analyzed to extract valuable information.Offering big data storage, architectural and analytical solutions, Safir Big Data performs analytical applications for the detection and prediction of unexpected situations in critical areas such as finance, education, border security, smuggling, which poses crucial threats to national security and national policies (BİLGEM, https://bte.bilgem.tubitak.gov.tr).

CONCLUSION

Thanks to the advancements in ICTs, new opportunities to increase the scope and quality of public services, to decrease bureaucratic obstacles and to increase efficiency and productivity have arisen. To achieve these goals, digital applications must become widespread and be accepted and used by every citizen. In this context, especially from the early 2000s, implementation of "*e-Government*" has become increasingly important and efforts were made to involve citizens more actively in these applications. However, with the advancement of the digital age, "*e-Government applications*" also become insufficient. Therefore, the public sector in Türkiye, which does not remain indifferent to the global transformation of our age, has been in a restructuring process from "*e-state*" to "*s-Government*". With the aim of centralizing functions and works on digital transformation (e-Government), cyber security, national technologies, big data and artificial intelligence under one roof, the foundation of the DTO constitutes a major step in the transition from "*e-Government*" to "*s-Government*".

Having emerged as a requirement of modern societies, "*s-Government*" practices have goals such as increasing the speed of the state, increasing quality, transparency, reducing paperwork and bureaucratic obstacles. Apart from increasing efficiency, productivity, speed and quality of "*s-Government practices*" in the public

administration, positive effects on the economy should not be disregarded. In addition, the Covid-19 Pandemic period, which negatively affected our lives, made the services offered on the digital platform even more important. During this period, the state provided many public services to its citizens electronically, due to the curfews imposed by the Ministry of Internal Affairs Circular and because face-to-face communication was limited to minimize the risk of contamination. During the pandemic period, the "*e-Government Gate*" was increasingly popular in the applications such as the "*pandemic social support pre-applications*" made available within the scope of social assistance, and the HES code required to buy plane, train, bus tickets for people to travel domestically or abroad in this period. In addition, another measure taken during the pandemic period is that citizens traveling by bus and plane are obliged to obtain a "*travel permit*". Citizens are provided with the convenience of obtaining travel permits via the "*e-Government Gateway*" without physically going to the district governorships. As can be seen, besides technological advancements, current challenges also play an important role in digitalization. At this point, it is very important that digital applications become widespread throughout the country, that every citizen is aware of these applications, and that they can access and use the applications. However, it is essential for the widespread use of digital applications across the country that individuals be educated for technological legibility. Therefore, it is necessary to raise awareness among citizens of all age groups to become a technologically integrated society. In addition to this, that the employees in the public sector are experts, closely follow technological developments, and are trained when necessary are essentials of the service provision in an electronic environment.

In this sense, although the transition to "*s-Government*" is being formally undertaken in Türkiye, as the methodological and software transformation have not been achieved, state investment in these areas are especially imperative. In particular, the state should invest in both the tools to be used in the development of innovative competencies and the training of citizens and public personnel. For example, investments can be made in training centers such as BTK Academy, which is an education platform under the Information Technologies and Communications Authority, that follows the developments in the technology world, and is easily accessible especially for young people to train themselves. In the world of technological progress, investing in education centers that accommodate the importance of software, increase the awareness of the society in the field of ICTs and contribute to development of the youth become very important. Otherwise, digital applications will not be able to achieve their intended purpose and be communicated to citizens in a proper manner.

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