Digitalization of Governments during the Pandemic: The Case of Türkiye[1]

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ABSTRACT *This study questions how the increasing digitalization of public administrations has been affected by the pandemic process with the rising use of technology in administrative functions. The general digitalization processes and the pandemic period's effects were examined in this context. Then, the case of Türkiye and the digitalization steps taken by the government in different policy topics were discussed. The practices and policies developed by the local and central governments have been addressed in this context. As a result, the outputs of digital service delivery, which became widespread during the pandemic, were evaluated in relation to Türkiye. The efforts and potential benefits of this period are also emphasized. In addition, the risks and opportunities of digitalization in Türkiye were discussed. From this point of view, evaluations were made on the present and future steps.*

Keywords: Digitalization, Technology Policy, Data-Driven Administration, COVID-19, Digital Government

Introduction

The rapidly changing world of the 21st century and its unpredictable social, political, economic, and military dynamics create multidimensional and complex problems that are difficult for states to solve. As solving such complex issues requires data and evidence-based analysis by collecting and processing large amounts of data, using new technologies and innovative applications has become a necessity rather than a choice for policymakers and decision-makers. In this process, new technologies have become essential analysis tools in the hands of policymakers. While technological developments reveal new opportunities that will make people's lives easier, they also create various opportunities for managers, such as better and faster planning, decision-making, implementation, and evaluation. New information and communication technologies (ICT) and new administrative tools can be used to investigate the problems, define and solve them, and evaluate the implementations. Developments in the field of ICT have positively affected the classical bureaucratic structures, and a new design is being formed that makes it possible to speed up and simplify processesat a lower cost. Recent technological developments also affect the relations between governments and citizens. Governments aim to create more effective and efficient administrative procedures, and citizens expect more transparent and accountable administrations. Digitalized services and technological developments could help administrations fulfill these goals.

Developing new technologies creates new opportunities, and information technologies also take over the initial force of social change in this process. ICT has made the process of social change faster, easier, and more interactive for citizens.[2] The COVID-19 crisis has also been a new trigger for social change in this situation, and new technologies have been an essential tool to counter difficulties during the pandemic. In the pandemic period, the necessity of distance service delivery has accelerated the integration of new technologies into administrative processes. On the one hand, states have turned to digital service offerings to avoid the disruption of services; on the other hand, citizens demand access to services from afar. Supported by both supply and demand, the COVID-19 pandemic has been a leading factor in the digitalization of governments. In this study, first of all, the pandemic's effects on digitalization and public administrations' reactions to change were questioned. Then, the efforts made at the local and central levels during the pandemic period in Türkiye were discussed.

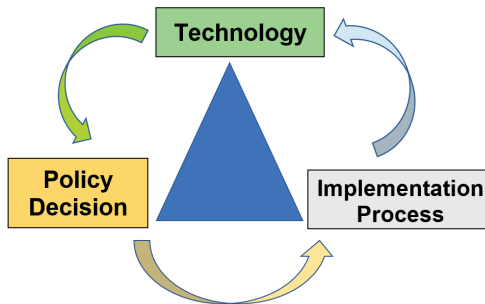## Digitalization during the COVID-19 Pandemic

Although the COVID-19 pandemic is on the agenda with its negative consequences worldwide, it has also acted as a trigger for the development of dig-

italization processes. Governments have had to address this crisis and improve their public service performance. Public institutions and organizations have had to adapt to new administrative techniques and methods to cope with the problems that have arisen amid the pandemic's changing situation. Digitalization aims to improve public services and paves the way for more successful steps in each policy area.

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ICT is used in policy-making, auditing, and follow-up processes.[3] Therefore, information and communication technologies and applications have used as a functional tool for combating pandemic. Governments must continuously serve and improve, cooperate with all stakeholders, and continue their public relations efforts to strengthen communication with citizens. Policymakers are responsive to their citizens, which means they need to consider the public's changing needs and demands.[4] The pandemic revealed that the methods of old administrative perspectives were not effective in addressing the crisis. Governments need to be more conscientious to solve new problems, and public administrators have recognized the need for capacity-building steps.[5] Ines Mergel, Yiwei Gong, and John Bertot[6] claim that governments need new approaches and innovative administration procedures to design and implement ICT in public services.[7] The relationship between technology and policy processes is shown in Figure 1 below.

Figure 1: Technology and Policy Cycle

As technology feeds the policy process, digitalization policies support technological developments. Countries' digital transformation practices continued at different speeds until 2020 but also accelerated during the pandemic. Concepts such as data, data analytics, and technologies such as big data and artificial intelligence that have come to the fore in recent years continue to change policy processes. Instead of e-service delivery, digitalized administrative approaches have started to stand out. Data analysis performs a critical function with the flow of information aimed at decision-makers. However, data analytics will not always provide the best policy, and data analytics should act as a facil-

During the COVID-19 pandemic, the need to digitalize public administration services and processes has become even more significant

itator for policy formulation. One of the most important contributions of data analysis is that it enables rapid decision-making and intervention. Especially in times of crisis, it has played a more significant role in administrative processes due to its benefits. These new perspectives also value data and data-driven policy-making. In the digitalizing world, states' attitude toward citizens is also becoming data-oriented. Datafication points to a new revolution in policy production processes and makes governments more agile. Thus, their capacity to adapt to policy agendas increases.[8] Data-driven approaches increase governments' capacity to make quick decisions, adapt to changes rapidly, and develop citizen-oriented decisions.[9] So data-based policies have come to the fore, especially regarding combating the epidemic during the pandemic period. In particular, the measures against possible scenarios were determined through data analysis. Therefore, data analysis is a tool that accelerates and enriches the decision process. It has also come to the fore asanadministrative capacity builder during the pandemic.

COVID-19 has provided significant windows of opportunity for this radical transformation in the public sector. The rates of digitalization in services and policies have increased exponentially compared to the past. Thus, the digitalization process, which takes longer in regular periods, has accelerateddue to the pandemic. During the COVID-19 pandemic, the need to digitalize public administration services and processes has become even more significant since digitalization has become an essential aspect of all segments of society.[10] While on one hand, the importance of digitalization for public administration has been confirmed, on the other hand, the shortcomings of the public administration's transformation to a digital government are clearly on display.

The unprecedented and drastic health restrictions have made digitalization a significant development priority. Public administration was insufficiently prepared for the transition to fully digital operations, and public administration organizations mostly seemed to lack crisis management plans for such a shock. Digital applications are used daily in many countries to combat the pandemic. Countries such as China, Israel, and Iran have facilitated patient follow-ups by installing monitoring systems on mobile phones. Along these lines, the Chinese government agreed with operators to monitor health statusesvia 1.6 billion mobile applications.[11] Likewise, different technologies and digital applications have been used for many medical purposes, including monitoring patients, monitoring healthcare professionals, drug tracking systems, bed occupancy rates, mass density monitoring, and access to health services. The technology has also facilitated transportation by drones, the reduction of virus

transmission thanks to the use of robotics, information transfer, and laid the framework for future preparation projections.[12] In the post-COVID-19 era, it will be possible to see the massive impacts of new managerial skills, knowledge generation tools, and especially crisis management processes gained during the pandemic. Therefore, the demand for devices to accelerate policy decision-making processes is increasing. For example, innovative applications such as big data, artificial intelligence, open data, blockchain, and data mining change the data flow processes and processing times. These tools, as well as data-driven policy, support governments. In this process, political, administrative, and social priorities and citizen expectations are among the main determinants.

On the other hand, Marijn Janssen and Haiko van der Voort[13] warned that quick decisions are not always the best decisions and described adaptive governance as a solution that points to a structure that can adapt to changes and make reliable, accountable, fast, and participatory decisions. Contributions to this administrative culture include better knowledge of processes, procedures, and requirements for new services, increased cooperation with stakeholders, and greater participation of citizens.[14] For this purpose, many administrations' announcements and news were published in public venues, municipal websites, and social media accounts. For example, Berlin has prepared FAQ sections on its website in eight languages,[15] New York Municipality provided instant notifications to its subscribers via mobile information services, and Seoul provided information through the established disaster broadcasting channel.[16]

The coronavirus crisis has accelerated digitalization while also exposing certain systemic shortcomings. The challenges that need to be tackled are numerous. For example, not only should necessary digital infrastructure be strengthened but new competencies and skills should also be acquired, digital communication strategies developed, and digital rights consolidated. Policy documents, such as the European Digital Competencies Framework are inspiring in this respect. In addition, data on citizens has increased with the use of cameras and thermal scanners. It should also be noted that this data can be a source for public surveillance, which is now on most agendas. For example, many countries developed mobile applications to monitor the disease's cases and spread. Such personal data is critical for combating the pandemic. Early detection and follow-up with patients has effectively reduced the pandemic's spread rate.[17]

On the other hand, ensuring this data's privacy and secure storage should be another priority.[18] The UK has compiled an extensive data set to combat the pandemic, including data on technical capacities such as respirators, masks, intensive care units, and logistics facilities such as hospitals. Updated simultaneously, the data also includes information on doctors, nurses, drug supplies, the number of patients, the virus's spread, and the risk of transmission.[19] Nev-

ertheless, it seems impossible to properly assess these measures' adequacy or their impact on public health, let alone the economic, social, and political situation in the near or distant future. Many future scenarios have emerged about the 'new normal' following the COVID-19 pandemic, ranging from the total isolation of states and regions after the global system's crash to a greater focus on local conditions and values.

Türkiye's Digitalization Efforts during the Pandemic

The implementation of technologiesis on the agenda of international organizations, institutions, and states. Various research is being carried out on these subjects, and different institutions and states are making detailed digitalization plans. For example, the European Digital Agenda 2020 program aims to enrich infrastructure and application experiences in union member countries. The 2020 European Commission research results show that Türkiye ranked 29th in electronic services among 34 countries.[20] According to the 2022 results of the e-Government research carried out by the European Commission, it ranked 16th among 35 countries in e-service provision. It was 12th in the sub-category of participation in public policy and 14th in user-friendly services. When the 2022 results are examined in detail, Malta ranks first, Estonia second, and Luxembourg third. Iceland, the Netherlands, Finland, Denmark, and Lithuania follow, respectively. As can be seen, the success rate of countries with a smaller population is generally higher.

On the other hand, in evaluating important events dealing with services related to daily life, Türkiye ranked 1st in moving services, 4th in health services, and 5th in transportation. Considering all the services in the Türkiye evaluation, it is seen that 83 percent of the services are offered online. In the user-friendly assessment of the same research, Türkiye's overall score was 93 out of 100. This score is

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above the European average of 88.3. On the other hand, Türkiye got the highest score in the evaluations of service sectors, including the judiciary and health.[21]

The country received an above-average rating in several sub-headings, such as usability, user orientation, and national service delivery rates. With these rankings, which are generally at an above-average level compared to the world average, it is seen that there is an active internet user/digital service user group in Türkiye. According to the Survey on Information and Communication Technology Usage in Households published by the Turkish Statistical Institute, the household internet access rate for 2022 is 94.1 percent, and the individual internet usage rate is 85 percent.[22] The number of active social media users in Türkiye is approximately 68.9 million. In other words, roughly 70 percent of the population actively uses social media.[23]

Among the European Union (EU) member states, the household internet ownership rate is 92 percent, and the individual access rate is 85 percent.[24] With these statistics, it is seen that Türkiye mirrors the EU average in household access and reached a close ratio in individual access. In the e-Government ranking of world countries commissioned by the United Nations, Türkiye ranked 53rd in the last two surveys and 48th in 2022. It is in 23rd place in the e-participation category of the same research in 2020 ranked 18th in 2022.[25] Therefore, it can be said that Türkiye has primarily solved the problems in terms of infrastructure and has made significant progress in implementation.[26]

Efforts of the Presidential Digital Transformation Office

In the context of the relationship between public administration and technology, electronic platforms have become widespread worldwide in providing public services in the last ten years. The Turkish government has also significantly increased the number of technology-based public services during the COVID-19 period. In this context, the number of services offered reached 5,058 as of May 15, 2020, a rise from the 4,260 before the pandemic.[27] As of

June 2022, the number of services had increased to 6,664, and the number of users to approximately 60 million.[28] Therefore, a nearly 50 percent increase in service titles has been achieved in the roughly two-year pandemic period. The increase in the number of users in this period also shows an effort to ensure the spread of digital services reaches the enduser. Thanks to this achievement, the opportunity to access more services from home was provided to citizens.

During this period, services such as free mask applications, travel permit documents, pandemic social support pre-application forms, Consumer Arbitration Committee applications, and address change notifications were offered through the e-Government Gateway. Artificial intelligence-supported diagnostic models are also being studied to assist radiologists in medical scans and reduce their workload. The project aims to diagnose breast cancer in the first stage and has also been used to diagnose COVID-19 patients.[29] In the same period, the National Artificial Intelligence Strategy 2021-2025 was prepared by the Presidency's Digital Transformation Office (DDO) and entered into force in August 2021 per the decision of President Erdoğan.[30]

Education Policy

The Presidential Human Resources Office established a digital career gateway, and a distance education platform was also prepared.[31] Integration of other institutions into career gate services was encouraged, and recruitment processes were carried out through this gateway. In addition, public servants provided vocational training services through the distance learning platform.

In addition to the training of public employees' studies were carried out, especially on the digitalization of formal education. On the one hand, the EBA platform was activated for children under 18 for formal education, and it was transformed into an education platform supported by both interface and mobile applications. TV channels also helped this process. Moreover, efforts were made to ensure universities could continue their distance education processes. Distance education centers, which were formed in some universities before the pandemic, were expanded during this period, and new e-learning centers were opened in more than a hundred universities. In the same period, digital skills training for instructors and students was planned, and the Higher Education Council carried out central training. At the same time, universities also provide training on digital skills for their systems.[32]

Moreover, each university has prepared websites that provide detailed information on the learning activities conducted during the pandemic. In a global study by Aleksander Aristovnik *et al.* during the pandemic period, satisfaction levels regarding higher education activities in different countries were

investigated. According to this study, the general satisfaction level of the students from the e-learning activities was 3.296 out of 5. In Türkiye, this rate was above the average at 3.522.[33]

Health Policy

Health services have been the citizens' most demanded and needed service sector during the pandemic period. On the one hand, measures were required to provide necessary medical support to battle COVID-19, and on the other hand, they were needed to provide essential medical consultations during isolation and quarantine periods. With the 'Life Fits Into Home' mobile application developed within the scope of combating the pandemic in Türkiye, the program has worked both to monitor case data and disease processes. Quarantined citizens could receive follow-ups with the 'Life Fits Into Home' app, and entry to crowded public spaces was monitored viahealthcodes generated through the application.[34]

During this period, necessary infection reports were maintained through the digital platform called e-Pulse, and telemedicine services were offered to those in need. In addition, the Ministry of Health data has been instantly processed daily, weekly, and monthly, and a data-driven policy process has been built to combat the pandemic. On the one side, data such as cases and hospitals, doctors, and health personnel were processed. On the other side, data on facilities and equipment such as ventilators, drugs, intensive care units, and bed capacity were also processed. Data-based policiesled to regional and periodic plans being drawn up and implemented.[35]

In addition, efforts were made to inform and control the dissemination of the process with the content developed over social media. By actively using the personal and formal social media accounts of the health minister and the Ministry of Health, information was presented and collected on social media platforms with approximately 70 million users from Türkiye. Requests and complaints received via social media were also used in problem-solving.[36] During this period, telemedicine services were also started in some universities with medical faculties, and digital content was developed especially forprevention and follow-up against COVID-19.[37]

Efforts at the Local Level

According to research commissioned by the German Association of Towns and Municipalities and BITKOM, the coronavirus pandemic has forced local gov-

> **The coronavirus crisis has accelerated digitalization while also exposing certain systemic shortcomings**

ernments to provide online services. According to the research results, almost half of all local government units (47 percent) increased their number of new online services during the pandemic. Two-thirds (66 percent) of respondents believe that the COVID-19 crisis has contributed to accelerating digitization efforts in local governments.[38] Likewise, in a study on service delivery carried out in the example of Bartın Municipality, it was stated that digitalization was seen in approximately 80 percent of services during the pandemic.[39]

During this period, many cities have made efforts to digitize the services they offer. Mainly topics related to e-Government integration, mobile application, solution desk services, and e-payments have gained prominence. During the pandemic, many municipalities have tried to integrate their services into the 'Digital Türkiye Gateway.' This gateway allows municipalities to serve local citizens and provides a platform for people to fulfill their obligations, such as taxes and statements.[40] Announcements and news were also published on municipal websites and social media accounts.

In this period, municipalities played a vital role in supporting health services. For example, closed-circuit camera systems are used to monitor the density of city center and London is one of the municipalities that implemented these systems successfully. In Türkiye, Trabzon Metropolitan Municipality used digital screens placed at bus stops to encourage citizens to wear masks. Bursa Metropolitan Municipality has also used a similar system for social distancing measures as well as smart bands. These bands were originally developed for the elderly and disabled, but during the pandemic period, they have been used to monitor isolation and quarantine periods. Some municipalities developed telemedicine policies, such as Helsinki and the Beşiktaş district of İstanbul. Beşiktaş Municipality has also developed an e-platform for medical consultation.[41]

Many municipalities in Türkiye also organized online cultural events. For example, with the support of Bursa Metropolitan Municipality, online concerts and children's theaters have been held. Bucak Municipality established a digital learning academy and transferred all the training given by the municipality to the digital platform. Various courses, including those for the university entrance exam and foreign languages, were offered online by the municipalities; likewise, theater productions, workshops, and discussions were also hosted by the academy.[42]

Discussion

One aspect of the digitization of government service delivery is the integration of processes and tools with technology. The other dimension is ensur-

ing that the citizens served can benefit from these processes. Many groups distanced from technology before could take advantage of electronic service delivery during the pandemic. Instructors and students without distance education experience have shared this experience, and different social groups have benefited from telemedicine applications. The number of users of Türkiye's digital state platform has approached 60 million. On the other hand, some groups cannot significantly benefit from digital applications due to criteria such as age, gender, or socio-economic status. It should be noted that this separation, known as the digital divide, will continue to be a problem for digitized states.[43] Therefore, like every policy change, new solutions in digitalization policies can also lead to further problems. For this reason, efforts should be made to recognize and categorize new problems that arise. One of the vital problem areas for digital government is the need for qualified personnel. Training that will enable adaptation to rapid transformation processes should also provide digital skills. The prominent topics in terms of digitalization policies on behalf of Türkiye can be summarized in Figure 2 below.[44]

> **Türkiye's technological transformation efforts in public administration can be evaluated within the e-Government efforts through 2018**

Figure 2: Digitalization Roadmap for Türkiye
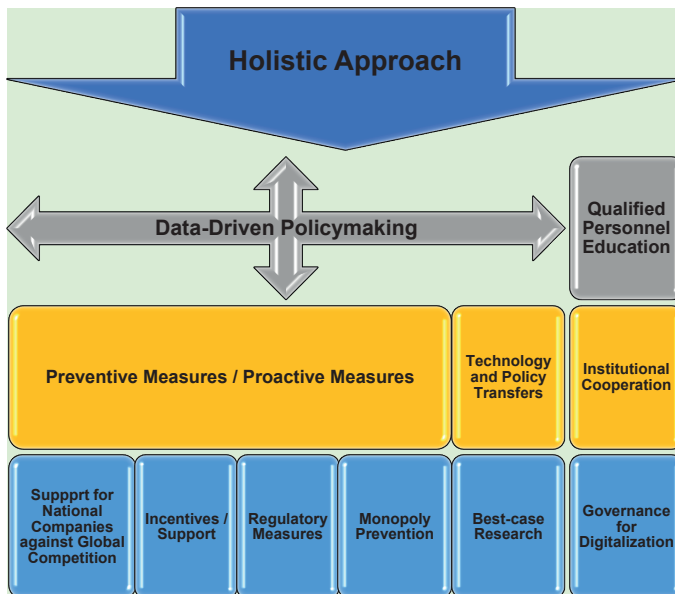
The digitalization policies implemented should be handled with a holistic perspective and focused on general solutions instead of individual solutions. Integrating the data-driven policy-making process into the system will come to the

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fore both in terms of ensuring integrity and increasing the success of the process. Training personnel who will use these technologies is one of these success criteria. As these processes progress, technological innovations will continue to emerge. Therefore, with preventive and proactive measures, the problems that innovations may cause can be minimized. Technology and policy transfers will help follow these processes and foresee the problems caused by innovations. These transfers will reduce indirect and direct costs and negative externalities.

For this reason, cooperation between institutions and powers will gain importance. The legislation, institutional structures, and processes must be handled together. Other topics that can be highlighted in this digitalization journey for Türkiye include support for national companies against global competition, incentives and support, regulatory measures, monopoly prevention, best case studies, and governance for digitalization. In this process, supporting national actors, establishing cooperation, providing incentives and support, determining the limits of the regulations in the field, preventing monopolies, and encouraging success with best-case research will add value to the process in this respect.

Conclusion

Türkiye's technological transformation efforts in public administration can be evaluated within the e-Government efforts through 2018. After this period, a new stage started with the Digital Transformation Office. From this point of view, when considered in general, Türkiye's digitalization efforts can be evaluated on four main axes.[45] The period before 2000 was the first stage in which public preparatory efforts were made. However, at this stage, strategic plans and actions that usually could not be implemented were followed. The 2000-2010 period was the second stage in which a new understanding that could ensure transformation in public administration developed. This period was established as the coordinator of the transformation in an information society agency State Planning Organization of Türkiye, the e-Türkiye initiative started in 2003-2004 and 2005, and finally, the 2006-2010 action plan was prepared to implement the information society strategy.

In the third stage, the 2015-2018 Information Society Strategy and Action Plan, which was put into practice in 2015, was an essential step in addition to different sectoral efforts in the post-2010 period. This policy document has brought

about a significant transformation aiming at a change under eight main headings. In addition, the 2016-2019 National e-Government Strategy and Action Plan was prepared in this period. Again, the National Cyber Security Strategy and Action Plans designed in the same period constituted another transformation pillar. The Presidency Digital Transformation Office, established after the transition to the Presidential Government System in 2018, has been one of the leading actors in this process. The Presidential Science, Technology, and Innovation Policy Council, and other official actors such as the Ministry of Industry and Technology, the Scientific and Technological Research Council of Türkiye (TÜBİTAK), and the Information Technologies and Communication Authority also play an active role in the digitalization of public administration in Türkiye and the use of technology as a tool for better management.

During the pandemic period, all these actors contributed to managing the process in different sectors. As a result of the previously stated studies, digitalization steps have been taken in the production and management processes. These steps have transformed different policy areas and contributed to new perspectives on the future. The transformation during the pandemic period was also reflected in the European Commission's e-Government research. Türkiye was ranked as the 29th country in the research in 2020. In 2021, it was the 16th. In fact, it has moved ahead of states such as Germany, France, and Italy by ranking in the top five in three different service areas. The important thing is that the dynamic steps taken during the pandemic can be carried out and maintained after the crisis ends. In this respect, the DDO will continue to be an important actor. The continuation of these gains will only be possible with institutionalized and sustainable processes.

The obligation to provide distanced services during the pandemic period has been one of the factors that paved the way for digitalization. In this respect, fighting the pandemic and eliminating its effects are two crucial triggers for change. Digital transformation in education and health policies, which are the two main policy areas that affect large masses, have been areas that have triggered a change in terms of states and citizens. Likewise, the experience and success of data-driven policy-making have increased interest in this field. The data collected in the fight against the pandemic is also used for the post-pandemic period, and the fact that it will be used will keep this interest alive. These factors are also valid for Türkiye. Especially with the transition to the Presidential Government System in 2018, the DDO, which was established as the coordinator of digital transformation, played an influential role during the pandemic. Efforts toward open data gateways, big data projects, artificial intelligence-supported medicine, and artificial intelligence-supported decision-making mechanisms gained momentum during this period.[46] Likewise, at the local level, the transformation efforts carried out under the leadership of municipalities gained momentum with the pandemic. Both integrations to the

e-Government platform were provided, and online service delivery at the local level was experienced. Experiences such as online channels and social media technology, which stand out as the easiest way to reach citizens, will continue in the post-pandemic period. ●

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