Digital Transformation & COVID-19: the Case of Greece

Achillefs Vratimos, MBA
National and Kapodistrian University of Athens, Greece

Abstract

The impact of the COVID-19 pandemic has caused significant problems to many different public sector functions worldwide extending further than just public health. To protect citizens and keep services functional, the digital transformation of the public sector was selected by many countries as the most reliable solution, a policy with the goal of servicing citizens on time and efficiently. Following the examples of other countries, Greece also moved in the same direction, successfully managing to respond to the strict demand times and implement many digital services such as Gov. gr, a central platform for public administration information and services, the digital platform myDeskLive.gov.gr for remotely serving citizens and businesses by conducting digital appointments and the creation of the Paperless Prescription Service. These are prime examples of how successful this transition has been for Greece, considering how far behind it was lagging compared to other advanced countries, and the progress made in such a short period of time. This paper presents in detail the innovative applications implemented by Greece in the context of combating and limiting the effects of the COVID-19 pandemic supported by statistics that reflect the spread use of these applications.

Keywords: Digital Transformation, COVID-19, Greece, Innovation

Introduction

Digital transformation has emerged as a term in the last decade, aiming to redesign public and private sector services from the ground up to improve the daily work of workers and civil servants, while meeting the needs of citizens effectively. The outbreak of the COVID-19 pandemic worsened and created several functional problems in the public sector worldwide; problems not necessarily related only to public health services. Greece, lagging behind in this area compared to many other advanced countries, had to take huge steps towards the digitalization of many of its services with the aim of protecting citizens from the pandemic and providing services more efficiently and in a timely manner. This health crisis reinforced the tendency of all countries, let alone Greece, to focus and invest more in new technologies as well as to promote policies aimed at the modernization of the public sector (Karamalis and Vasilopoulos, 2020).

Background

Greece proceeded very rapidly in the implementation of measures to limit the spread and effects of COVID-19 from the very beginning of the pandemic. The day after the first confirmed cases at the end of February 2020, all major events were canceled across the country despite the low number of cases. Within the first month of the pandemic, the government instituted a full lockdown which included the closure of educational facilities, retail stores, restaurants, and cultural and entertainment venues, as well as the suspension of religious ceremonies and imposed strict restrictions on domestic travel. To facilitate compliance with stay-at-home orders, a digital permit was issued - with the exception of travel - via text message. The relaxation of lockdown measures in Greece was gradual, targeted, and based on epidemiological assessments. Between the beginning of May and the end of June 2020, all businesses and public organizations reopened with rules regarding the mandatory use of masks and physical distancing. In October 2020, the government launched a new risk assessment plan, whereby each week regional units were assigned a level of risk based on the number of new daily cases per 100,000 inhabitants. However, as the number of cases surged, a second month-long national lockdown in November was imposed, followed by another set of stringent containment measures during a third lockdown in February 2021. In May 2021, many of the restrictions were lifted and Greece opened its borders to tourists for the summer holiday season. At this point in time, nationwide rules still continue to apply such as wearing a mask in closed public spaces and crowded outdoors, while areas with a higher prevalence of COVID-19 are subject to local rules and stricter restrictions, such as lockdowns (OECD/European Observatory on Health

Systems and Policies, 2021).

Transition to Digital Transformation

The burden of the pandemic forced the Greek State to coordinate its actions to limit its consequences. The action plan was:

1) Keep citizens informed
2) Ensure quarantine protocols were followed
3) Achieve the highest potential vaccination rates among citizens

To implement this action plan, the government and the Ministry of Digital Governance followed the "change the data" approach; the approach of transforming the public sector from the previous relatively inactive state to a modern, flexible and active state that would be capable of making appropriate choices and decisions to implement projects effectively and on time. To do that, it would focus on overcoming legal constraints and taking advantage of the new market technologies. Recognizing these multifaceted challenges, the government launched a digital transformation policy for the public sector as a whole, with health services as the key area of targeted investment (OECD/European Observatory on Health Systems and Policies, 2021).

Applications
1.1.   Gov.gr

In March 2020, the e-government portal "Gov.gr" was launched as a central platform for public administration information and services with the aim of unifying all government services online. It was implemented in less than seven months and became operational two months earlier than originally planned to serve citizens during the first lockdown. Gov.gr started with 503 fully integrated digital government services. During the pandemic, Greece introduced an SMS messaging service -emergency travel permit- which was recognized as an OECD best practice. It also managed to digitalize other basic public administration certificates and services, making more digital public services available to citizens and thus contributing to the decongestion of public structures with the ultimate goal of reducing the spread of COVID-19 and supplying faster and more efficient service to citizens. The spread of COVID-19, provided the opportunity to further strengthen Gov.gr at the level of bestowing upon citizens better public services. For example, important life events that required complex bureaucratic processes such as birth certificates were simplified and digitalized. Also, Gov.gr ensured the registers' interoperability with the aim of:

a) creating a single social security body (e-EFKA) b) digitalizing tax information for public contracts, and c) establishing a single national electronic toll system for highways. Currently, Gov.gr hosts more than 1370 interterminal digital public administration services (compared to the initial 501 services in March 2020). As a result of these and other public administration digitalization measures, user uptake has increased significantly. It is worth noting that in 2018 all digital transactions (connections and interactions) with the Greek public administration amounted to 8.8 million, while in 2020 they increased elevenfold, reaching 94 million. (European Commission, 2021).

1.2   Gov.gr mobile app

The Gov.gr application was launched in December 2020 for iOS and Android smartphones, connecting Gov.gr to citizens' mobile phones and offering a range of products and services. Through the mobile app, Greece expanded the concept of the digital portal with services such as Citizens Inbox, sharing of certificates, verification documents, etc.

2.   Paperless Prescriptions

The Paperless prescription service was launched in March 2020 and quickly became one of the most popular digital government services in Greece. As the name suggests, the service fully digitalizes the process of writing and executing prescriptions for doctors, patients and pharmacists. By signing up for this service via their email and/or phone number, citizens can receive their prescriptions via email or text message and they only need to provide the referral code to get them filled in at a pharmacy. It is a fairly simple, user-friendly, and dynamic service that has been the backbone of the first digital vaccination program for COVID-19.

3.   National COVID-19 Patient Registry

The National COVID-19 Patient Registry was launched to assist in the response to COVID-19. By law, all infections and cases of COVID-19 in Greece must be recorded in it. In this way, substantial assistance is provided to the work of the Epidemiological Group Committee and at the same time, the state reviews the epidemiological situation of COVID-19 in the country (Journal of the Government of the Greek Republic, 2020).

4.   13033 Text Service

With the 13033 services, Greece accelerated its digital transformation, empowering citizens during a global pandemic with easy-to-use and privacy-friendly services. Rated by the OECD as a global best

practice in digital responses to COVID-19, the 13033 messaging services allowed citizens to declare an "emergency travel permit" during the lockdown. Citizens would send one of the numbers of pre-defined eligible reasons for movement during the lockdown, their name, and address, and immediately received a response from the system. In the event of an audit, this response could be provided to verify the eligibility of their travel permit. More than 100 million text messages for emergency travel movement were processed through the telephone number 13033, a service designed by the General Secretariat of Telecommunications and Posts (GTT) of the Ministry of Digital Governance in collaboration with telecommunications providers. On average 13033 served 1,818 messages per minute, while at peak hours 7,500 messages were handled per minute. According to data that came to the attention of the GTT, in the 42 days of operation of 13033, 110 million text messages were processed. The average daily success rate, i.e. the percentage of messages that had the correct structure to declare emergency travel movement, was 94.2%, while there were many days where the percentage exceeded 99% (Press Release of the Ministry of Digital Governance, 2020).

5.   Digital Vaccination Platform

Greece has developed a digital multi-channel vaccination platform that supports its overall vaccination strategy. The Ministry of Digital Governance has been tasked with co-leading and designing the national vaccination initiative. Despite being entirely digital, the simple structure and user-friendly interface allow citizens and especially senior citizens who lack extensive digital skills, to operate it successfully. The vaccination platform automatically schedules appointments for citizens of each demographic group who are only asked to confirm a said appointment or not.

Additional services:
   a) Registry of Vaccinations against Covid-19
   b) Vaccination certificates for vulnerable groups
   c) Change of vaccine of the 2nd vaccination dose
   d) Home vaccination certificates
   e) Issuance of a National Certificate of Vaccination
   f) Issuance of a National Certificate of recovery/ test from COVID-19
   g) Issuance of a European Certificate of Vaccination
   h) Covid Certificates Wallet. An application (Covid Free GR Wallet), through which citizens can safely and easily store their European and National certificates (vaccination, test, recovery)

6. MyHealth app

From August 2021, those who are registered in the paperless prescription service have the option to use the MyHealth app. The Ministry launched the MyHealth app which houses all healthcare-related digital services and data from and for the citizens. For the first time since the start of the electronic prescription system in Greece (which is mandatory for all doctor's prescriptions nationwide), patients have access to their personal history. Therefore, by using this application citizens can be instantly immediately notified of new drug prescriptions or medical examination referrals. In particular, all medical prescriptions and referrals that have been issued since the date that the institution in which the citizen is insured joined the electronic prescription system, are now available. This data can reach up to 2012 when the operation of the Electronic Prescription System began. Medical certificates are now also issued digitally. Medical certificates are official certifications by a doctor that a citizen can participate in sports activities safely for both himself and his fellow citizens. In addition, it is possible for the certificate to be issued for any other legal use. The medical certificate is issued automatically and is available to the citizen from the MyHealth app, in the "Medical Certificates" section. Once the citizen has activated the paperless prescription service, the barcode number of the medical certificate is sent via SMS and the complete medical certificate via e-mail in .pdf format (depending on what the city has chosen as the information channel for the paperless prescription service) (Press Release of the Ministry of Digital Governance,2021).

7. Monoclonal drug delivery platform

It was implemented to manage the administration of monoclonal drugs to patients with COVID-19.

8. Antiviral drug delivery platform

It was implemented to manage the administration of antiviral drugs to patients with COVID-19.

9. Diagnostic Self-Test Disposition System

It was implemented to manage the free availability of self-diagnostic controls (self-test) to the citizens of the country.

10. Video conference platforms: MyAADELive, MyKEPLive, MyConsulLive, MyOAEDLive

The digital platform myDeskLive.gov.gr played an important role in the management of the pandemic, as digital appointments contributed to

limiting the spread of the coronavirus. More specifically, this platform promoted the creation of digital service channels to eliminate travel to and from the physical points of provision of services to citizens, saving time and avoiding overcrowding - an imperative task - due to the special conditions of the pandemic. The agencies to which the myDeskLive platform has been made available and working productively are the following (Press Release of the Ministry of Digital Governance, 2022):

- MyAADELive where the Ministry has introduced a series of video conferencing platforms for citizens to interact and transact with government agencies and organizations. MyAADELive enables citizens to issue certificates for the government's tax platform.
- MyKEPLive enables citizens to transact, and request certificates and documents from Citizen Service Centers throughout the country.
- MyConsulLive allows citizens as well as Greeks of the diaspora to transact with Consular Offices around the world thereby removing barriers such as distance.
- MyOAEDLive enables citizens who are unemployed to request services and guidance from the Unemployment Office.
- Finally, the myEFKAlive platform of the National Social Security Agency (e-EFKA) has been added.

11.   COVID-19   Volunteers,   #DigitalSolidarity,   #CitySolidarity, #AnimalSolidarity platforms

During the first lockdown, the Ministry launched a number of digital platforms that were part of the wider plan of government initiatives. The most basic was the volunteer platform, where citizens could register and declare their availability to help local hospitals or other institutions. Another important platform was #DigitalSolidarity, through which the Ministry presented companies that offered free products and services to consumers during the lockdown period, such as educational and entertainment materials as well as B2B services. The participation of businesses and organizations in the digitalsolidarity.gov.gr platform and citizens in ethelontes.gov.gr. is still steadily increasing and currently, the services provided for free or at a lower cost have exceeded 130, while at the same time more than 11,000 of our fellow citizens have expressed their desire to volunteer in the health system. (Press Release of the Ministry of Digital Governance,2020).

12.   Live streaming theater plays from the National Theater of Greece

In coordination with the National Theatre, the Ministry of Digital Governance created the infrastructure for live streaming performances so that theatrical art can continue to be provided - during quarantine periods - to

all citizens, who will enjoy it from the comfort of their home. Furthermore, the Ministry of Digital Governance undertook the creation of a platform for the online display of the cultural material that has been produced by the bodies of the Ministry of Culture and Sports (Ministry of Culture and Sports), the antiquities services, and its museums. At the same time, the platform will inform about the presentation of cultural events internationally (Press Release of the Ministry of Digital Governance, 2020).

Application usage statistics

Two years have passed since the launch of gov.gr. The Unified Digital Portal of the Public Administration started by integrating 501 digital services and adding two new ones: the digital version of the declaration and authorization. Today, gov.gr provide 1,370 digital services, facilitating the daily life of citizens and businesses (Press Release of the Ministry of Digital Governance,2022). More specifically:

- 7,936,034 different citizens have used gov.gr, issuing at least one document or submitting an electronic statement.
- 159,346,146 documents or statements have been issued/submitted electronically.
- 6,285,764 declarations and 2,189,684 authorizations have been issued

Many unique citizens made use of the above services implemented by IDIKA SA (IDIKA, 2022). More precisely:

1) Paperless prescription: 3,320,000 citizens, while the percentage of immaterial prescriptions exceeds 40% of all prescriptions
2) National Registry of Patients with COVID-19: 11,915,800 (applies to both Greek citizens and foreigners who have undergone a diagnostic test within the territory).
3) Registry of Vaccinations against COVID-19: 7,880,000
4) Number of home vaccinations: 102,600
5) Monoclonal drug administration platform: 2,650
6) Antiviral drug administration platform: 20,850
7) Diagnostic Self-Test Disposition System: 7.835.000
   Also, Table 1 shows data on the number of digital appointments,

Chart 1 shows the course of prescriptions and Charts 2 to 6 shows the course   of   vaccinations   in   our   country.

Some details about the agencies where the myDeskLive platform has been deployed and is working productively are the following (Press Release of the Ministry of Digital Governance, 2022):

Body	Platform	Start of Platform Operation	Sum of Digital Appointments
Independent Authority for Public Revenue (IAPR)	myAADElive	1/5/2020	66.342
Citizens' Service Centre (CSC)	myKEPlive	27/7/2020	115.785
Manpower Employment Organization (OAED)	myOAEDlive	9/12/2020	41.985
Ministry of Foreign Affairs (Consular Authorities)	myConsulLive	28/12/2020	2.643
National Social Security Agency (e-ΕΦΚΑ)	myEFKAlive	22/7/2021	277
National Land Registry	myKTIMATOLOGIO live	22/2/2022	276
Municipality of Chania	myDIMOSLive	14/3/2022	5

Table 1: Digital Platforms

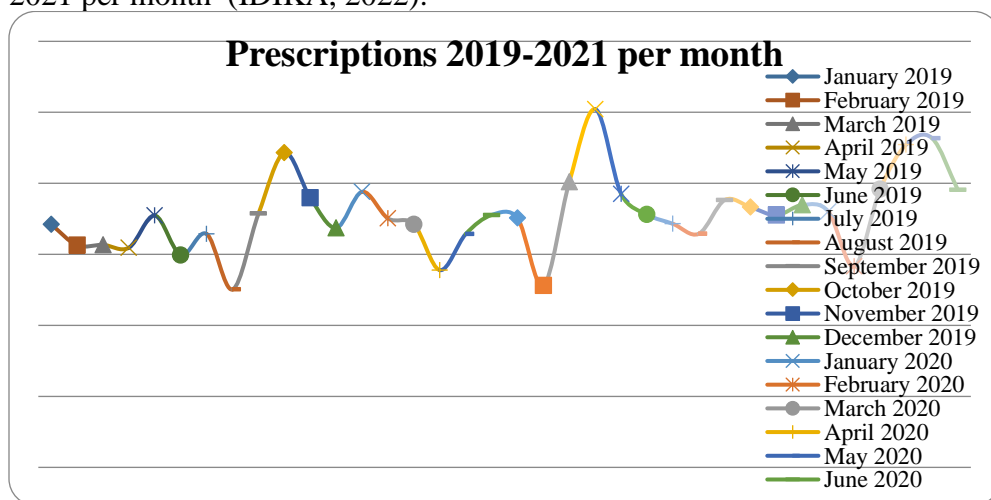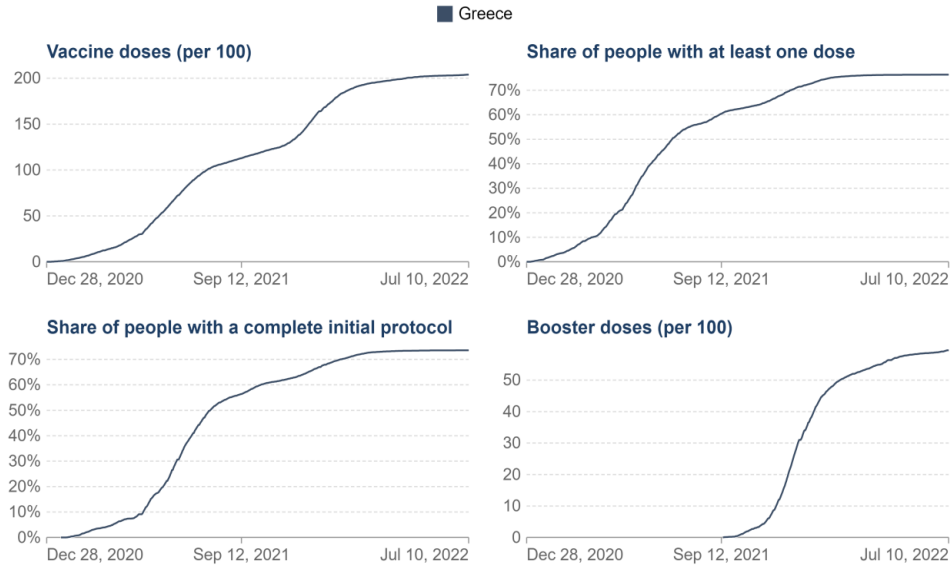Below is a diagram of the course of prescriptions for the years 2019-2021 per month (IDIKA, 2022):

Diagram 1: Prescriptions for the year 2019-2021 per month

We note that the introduction of paperless prescription service in March 2020 did not affect the behavior of the population of prescriptions, as the general pattern that had already been established was generally maintained.

COVID-19 vaccine doses, people with at least one dose, people with a full
initial protocol, and boosters per 100 people

■ Greece

Vaccine doses (per 100)

Share of people with at least one dose

Share of people with a complete initial protocol

Booster doses (per 100)

Diagrams 2-5: Vaccinations in Greece

Vaccinated Citizens 2020-222

- December 2020
- January 2021
- February 2021
- March 2021
- April 2021
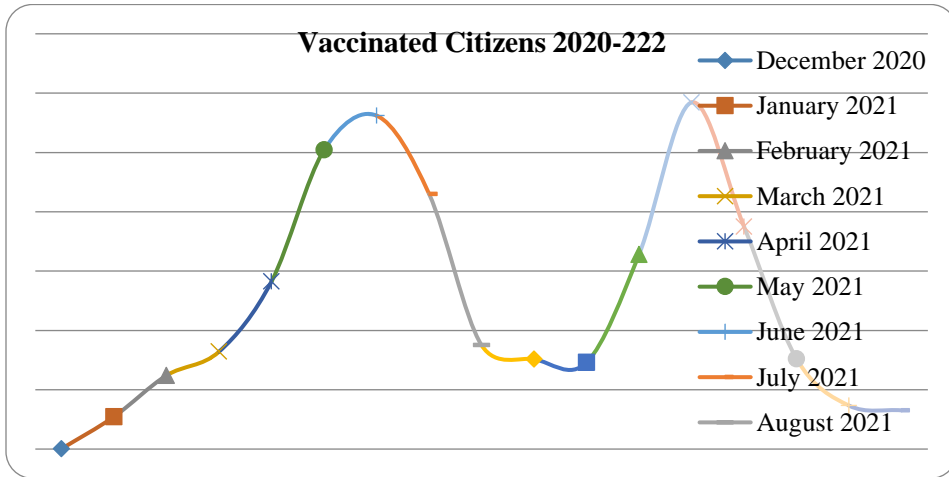- May 2021
- June 2021
- July 2021
- August 2021

Diagram 6: Number of vaccinated citizens in Greece

Regarding vaccinations, we note that the population was vaccinated gradually. A key reason for this is the prioritization based on specific population groups. Vaccines also appeared gradually, while from September 2021 a booster third dose was added.

5.1 Public acceptance

The results showed that the majority of the practices used by the government were accepted by the public, as most of the digital services were recognized by the participants even if they had not used them themselves. (Chrysanthi Chatzopoulou, Dimitrios Tsolkanakis, Konstantinos Kyriakidis, Konstantina Skoutzouri, and Syed Iftikhar Hussain Shah, 2021).

Conclusion

The COVID-19 pandemic has highlighted many functionality issues for many daily activities of citizens. The need for quick and immediate interventions to mitigate the consequences of the pandemic prompted the Ministry of Digital Governance to implement and establish easy-to-use and privacy-friendly digital services. The establishment of Gov.gr as a central platform for public administration information and services, the digital platform myDeskLive.gov.gr for the remote service of citizens and businesses through digital appointments planning, and finally the creation of paperless prescription, which is one of the most popular digital government services in Greece and also the backbone of the development plan for the vaccination program against COVID-19, contributed to limiting the spread of the coronavirus by providing better services and promoting vaccination to the largest possible percentage of citizens. State measures to deal with the COVID-19 pandemic and its consequences demonstrate the importance of leveraging the digital resources of public administration (networks, connectivity, and interaction of digital skills). Digital transformation is a huge challenge for the future and its impact is significant even in countries where initially it wasn't a priority, such as Greece. The COVID-19 pandemic provided an opportunity for such countries to change this approach. The ultimate goal of each government should be the development and implementation of innovative digital reforms aiming at the integration of all government services on the internet and the evolution of countries into digital state-societies. The digital transformation is a challenge for young scientists in the healthcare sector who understand that their work should be orientated towards taking advantage of opportunities, accelerating processes, and meeting patients' demands, with the ultimate goal of improving their patient's quality of life and health.

References:

1. Chrysanthi C. , Dimitrios T. , Symelia V., Konstantinos K., Konstantina S., Despina K. and Syed Iftikhar Hussain Shah, and Vassilios. P. (2021). *'E-Government and COVID-19: An Empirical Study in Greece',* in *Metadata and Semantic Research 15th*

International Conference, MTSR 2021 Virtual Event, November 29 – December 3, 2021 Revised Selected Papers, pp. 307–321. doi: 10.1007/978-3-030-98876-0.

2. Our World in Data (2022). *Coronavirus (COVID-19) Vaccinations,* Accessed July 10th on: https://ourworldindata.org/covid-vaccinations

3. European Commission (2021). *'Digital Economy and Society Index (DESI) 2021 Greece'.* Accessed on :https://digital-strategy.ec.europa.eu/en/policies/desi-greece

4. IDIKA (2022). *Ministry of Digital Governance with Reference No14597 ΕΞ 2022/14-04-2022 (Reference No of IDIKA: 5114/14-04-2022).*

5. Journal of the Government of the Greek Republic (2020). " *Regulation of more specific technical issues for the operation of the National Registry of Patients from the COVID-19 coronavirus, in accordance with the provisions of the twenty-ninth articles of the Act of Legislative Content (PNP) from 30.3.2020 "Measures to deal with the pandemic of the coronavirus COVID-19 and other urgent provisions" (A' 75) and 83 of Law 4600/2019 (A' 43).*"Accessed on: https://www.ynanp.gr/media/documents/%CE%92_1298_100420_%CE%A1%CE%A5%CE%98%CE%9C%CE%99%CE%A3%CE%97_TEXNIKVN_%CE%96%CE%97%CE%A4%CE%97%CE%9C%CE%91%CE%A4%CE%A9%CE%9D_%CE%95%CE%98%CE%9D%CE%99%CE%9A%CE%9F%CE%A5_%CE%9C%CE%97%CE%A4%CE%A1%CE%A9%CE%9F%CE%A5_%CE%91%CE%A3%CE%98%CE%95%CE%9D%CE%A9%CE%9D_COVID19.pdf

6. Karamalis, P. and Vasilopoulos, A. (2020). *'The digital transformation in public sector as a response to COVID-19 pandemic: The case of Greece', in XIV Balkan Conference on …, pp. 476–480.* Available at: https://www.researchgate.net/profile/Athanasios-Vasilopoulos/publication/346657230_The_digital_transformation_in_public_sector_as_a_response_to_COVID19_pandemic_The_case_of_Greece/links/5fccd749a6fdcc697be4f83d/The-digital-transformation-in-public-sector.

7. Ministry of Digital Governance (2022). *Question number 4615/12.04.2022 (ΥΨηΔ 14597 ΕΞ 2022/14-4-2022).*

8. *OECD/European Observatory on Health Systems and Policies (2021). 'Greece: Health Profile 2021, State of Health in the EU'*, OECD Publishing, Paris.

9. Press Release of the Ministry of Digital Governance (2020). *110 millions of SMS via 13033* , Accessed on :

https://mindigital.gr/archives/1408

10. Press Release of the Ministry of Digital Governance (2020). *Participation in digital solidarity and volunteering platforms is constantly on the rise,* Accessed on : https://mindigital.gr/archives/1317

11. Press Release of the Ministry of Digital Governance (2020). *'Staying at home' with Culture - Online screenings of canceled National Theater performances,* Accessed on :https://mindigital.gr/archives/1314

12. Press Release of the Ministry of Digital Governance (2021). *Medical Certificates are issued digitally – Available to citizens through the MyHealth application,* Accessed on :https://mindigital.gr/archives/2635

13. Press Release of the Ministry of Digital Governance (2022). *Two years of gov.gr at the service of citizens,* Accessed on: https://mindigital.gr/archives/3050