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Analysis of the digital platforms developed by the Romanian Authorities during the COVID-19 pandemic

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Abstract. *The pandemic caused an increase in the use of, and demand for digital public services, accelerating the digital transformation, which necessitated rapid development and deployment of various ICT systems. The Authority for the Digitalization of Romania in partnership with Code for Romania developed a number of six digital platforms for better management of the COVID-19 pandemic. They firstly created stirioficiale.ro, a platform that was used by the Romanian government to give Romanian residents trustworthy, up-to-date information about pandemic measures, guidance, and other important information. Following that, another 5 platforms were developed with the help of over 420 volunteers in order for the government to better manage the COVID-19 pandemic, with a total of six platforms forming an ecosystem that would be used by over ten million citizens across the country to access reliable information. The main objective of the article is to observe and interpret the analytics of the official platform datelazi.ro. After a formal request to the Authority for the Digitalization of Romania, the official recorded data was received and analyzed by the authors. The main results of the study show us that the visibility of the platform is low compared to the country's population. However, due to the consistency of users in the fifth wave of the pandemic, it is reasonable to assume that there is a core use of roughly 10,000 residents who find this platform beneficial for information at this time.*

Keywords: digitalization, digitization, e-government, COVID-19, public authorities, digital transformation.

Introduction

In a world where information is varied and easily accessible online, the disadvantages are that distorted news can be made available to the public by any type of entity in order to attract views and achieve profit or increase their visibility. The public is always looking for real information, which is much needed, especially in crisis situations. In such circumstances, in which the population must act quickly and in unity, based on official data, the state government assumes the role of 'main organizer', due to its basic role of protecting its citizens. Given the health crisis that began in 2020, the Romanian government became aware of the need to inform the public not only

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through traditional channels (TV, Radio), but also through the channels they use most often, the Internet and social networks.

The Austrian National Public Health Institute in partnership with the Federal Ministry of Social Affairs, Health, Care and Consumer Protection of Austria developed a platform called datenplattform-covid.goeg in order to present the updated epidemiological status of the country (Datenplatform COVID-19, n.d.). At the same time, the German government created the digital platform Kaggle, to offer an official overview of the daily updated cases and deaths numbers, augmented with geospatial and demographics info (Kaggle, n.d.). Similarly, the GISAID Initiative developed by the French government promotes the rapid sharing of data from all influenza viruses and the coronavirus causing COVID-19 (Gisaid, n.d.). Moreover, the European Commission generated a list of platforms which provides reliable information about COVID-19 development in each country member state of the European Union (JoinUp European Commission, 2022).

This paper aims to analyze the impact of a digital solution used by the Romanian government to inform the public about the current situation related to the most relevant figures during the pandemic (number of infections, number of deaths, number of people vaccinated etc), by following the pattern of its use by Romanian citizens.

Literature review

Digitzation vs Digitalization

The term 'digitization' is shaping the 21st century. Digitization is defined as 'the process of transforming analog material into binary electronic (digital) form, especially for storage and use in a computer' (Pearce-Moses, 2005). Material is converted from an analog format that can be read by humans to a digital version that can only be read by machines through digitization. However, digitization entails more than just transferring data and performing computations and operations using digital technology.

In contrast to the definition of digitization described above, digitalization means technological changes and their effects and consequences because digital transformation in organizations affects people, machines, and products (Matt et al., 2015). The digital transformation in companies focuses on the targeted use of digital technologies in order to use them to redesign their value creation processes. This is achieved through target-oriented reactions to digitization, which are characterized, for example, by the introduction of new digital technologies and innovations such as cloud, smart devices, and the Internet of Things (Ahn, 2020).

The dematerialization of many things and the continuous translation of actions and demands into data are at the heart of the digital transformation. The bulk of everyday information now reaches people through emails, apps, and messaging services.

The global economy might be turned into a platform economy by converting goods, behaviors, and demands into data. Their rapid expansion has also been aided by network effects. A digital supplier that can attract a large number of interested parties straight away with an original service will outgrow its competitors.

The COVID-19 pandemic is fundamentally changing the digital usage behavior of digital users. In the face of the virus, habits that have been newly adapted are retained, and old behavioral patterns are thrown overboard (Bratianu, 2020; Păunescu,C. & Mátyus, 2020). The consumer, which was previously more stationary-oriented, has now come to know and appreciate a dynamic and safe digital environment (Baicu et al., 2020). A boom in online news, electronic commerce and all kinds of digital products increased the number of users in a multitude of digital platforms.

Digital Public Services

The development of e-government (and e-governance) was intended to enable effective delivery of governmental services to citizens everywhere, at any time. 'E-government refers to the use of Information and Communication Technologies (ICTs), particularly the internet, and automated devices to deliver services to citizens and other stakeholders, both within and outside the country's borders effectively and efficiently,' according to Chen et al. (2017) and Blom & Uwizeyimana (2020).

When a government decides to deliver full or partial e-services, it must undergo a number of organizational adjustments in order to re-engineer itself. 'Networking and cooperation' is a term used to describe the outcome of organizational reengineering (Kayizali, 2005). Networking and coordination between the government and its socio-economic partners makes traditional service delivery smoother, and it's also a key component of e-services.

However, networking and collaboration between government and citizens and business groups will not allow e-government to function successfully and efficiently if individuals do not have access to the essential ICT infrastructure and tools (Dima & Vasilache, 2016). They will also need the requisite technology tools to access e-government information and services. Two crucial components that make e-government operate are the availability of government infrastructure that delivers e-services and the availability of tools and technological equipment that citizens use to access e-services (Bakunzibake et al., 2019).

Background and actors involved

In the period 2016-2019, both right wing parties, the National Liberal Party and the Save Romania Union carried out a large-scale opposition campaign against social democratic governments. A series of legislative actions meant to favor the political leaders of the power generated mass protests that shook the entire Romanian society and not only. Hundreds of thousands of people protested against the government for months, forming an organized critical mass. The channels of communication and organization were largely digital. The opposition parties immediately understood that if they want to win the sympathy of these groups, they must adopt an attitude as favorable as possible towards the digitization processes, USR becoming the main political voice of the digital world in Romania.

At the end of 2019, two major events overlapped that would later lead to the intensification of centralized digitization processes in Romania: the COVID-19 pandemic broke out worldwide and a new government was installed at the domestic political level after a period of great instability. The Orban I government would be the one to propose the establishment of an institution whose main purpose would be to centralize the digitization processes of the Romanian state. The government led by Ludovic Orban, the leader of the National Liberal Party at the time, was installed on November 4, 2019, after the parliament voted a motion of censure by which the Prime Minister supported by the Social Democratic Party, Viorica Dăncilă, together with cabinet, were removed from office.

Among the immediate priorities of the Orban I Government was the restructuring of the entire government apparatus, considered far too large at a time when the labor crisis was beginning to affect the Romanian economy, with more and more specialists appreciating that the state apparatus is far oversized for real needs. As an immediate public measure, Prime Minister Ludovic Orban announced that he would lead a cabinet consisting of 16 ministries, compared to its predecessor, which had 24. This restructuring plan would also include the establishment of the

Romanian Digitalization Authority as a central public institution whose mission was to coordinate a fundamental process for Romania in the 2020s.

On January 28, 2020, by Government Decision no. 89, a new public entity is established, with legal personality within the working apparatus of the Government and under the direct coordination of the Prime Minister of Romania. Under the name of the Romanian Digitization Authority, simply called ADR, it has the role of realizing and coordinating the implementation of public strategies and policies in the field of digital transformation and the information society. The Ministry of Communications and the Information Society, the Agency for the Digital Agenda of Romania and the Intermediate Body for the Promotion of the Information Society, three different institutions in profile, with similar objectives, became one.

Shortly after the establishment of ADR, the first case of COVID-19 appeared on Romanian territory. From that moment, Romanian society started a fight against the clock with the main purpose of identifying viable digital solutions for the continuation of activities or for the correct help / information of the population.

At the time of the pandemic, ADR mobilized all its resources in 3 general directions:

1. The development of the public payment platform that it had under its administration, "Ghișeul.ro", so that the citizens would no longer have to travel to pay their duties to the state.
2. Support for the National Agency for Employment by developing a platform for managing cases of technical unemployment (all citizens whose work process was interrupted as a result of the introduction of restrictive measures received state aid, and their management was done digitally through platform https://aici.gov.ro)
3. Development of information platforms on the evolution of the pandemic.

Romania ranks last in the 'Digital Public Services' dimension among EU Member States in the Digital Economy and Society Index 2021. Only 16% of Romanian internet users actively utilize e-government services, compared to a European average of 64% (European Commission, 2021). Also, during the pandemic period, The Authority for the Digitalization of Romania drafted an e-Government Public Policy, which was approved on June 3, 2021. Its main purpose was to align Romanian digital strategies to the EU agenda, and among its objectives was to expand the number and quality of Romania's electronic public services. By the year 2030, the goal should be achieved. The policy will include: (i) developing digital public services for citizens and businesses; (ii) increasing public bodies' capacity to function in an advanced digital environment and provide fully developed electronic public services; (iii) consolidating general digital skills among public sector employees; and (iv) increasing public-sector ICT personnel's motivation and specialization levels.

In 2020, the COVID-19 pandemic created a context in which people had difficulty finding out which source of information is reliable, and fake news was a threat to their well-being. This urged the Romanian government to take quick measures. Thus, ADR developed partnerships with some civil society actors in order to accelerate the digitization processes.

One of the most important partnerships was with Code for Romania. They used an internal task force in order to develop a platform called stirioficiale.ro that was used by the Government of Romania to provide Romanian citizens with reliable, up-to-date information regarding measures, advice and other useful information connected to the pandemic. Following this, with the help of over 420 volunteers, another 5 platforms were developed in order for the Government to better manage the COVID-19 pandemic, the total of six of them forming an ecosystem that would be used by more than ten million citizens across the country in order to access trust-worthy information.

Code for Romania is an NGO that has as a main goal aiding a multitude of governmental entities of Romania with various software solutions that benefit citizens. Its activity started in 2015 with the development of a platform called 'Vot Diaspora', which helped Romanian citizens find relevant information about the places where they could vote from abroad in Romanian elections and the conditions that needed to be met in each country. Due to the high success of this project, with hundreds of thousands of people using it, hundreds of volunteers with programming experience were willing to join the initiative. The next app was 'Monitorizare Vot', which helped observers of the voting process count and report votes using tablets.

At the moment, at the beginning of 2020, there are 2000 volunteers collaborating with Code for Romania. They have designed over 120 digital solutions, out of which 21 are live and 12 are under construction, with the total value of their solutions being estimated at 14 million euros.

The six platforms developed in partnership with the Authority for the Digitalization of Romania for a better management of the COVID-19 pandemic are as follows:

- **'Date la zi'** (Daily Data) – makes data from official sources on the progression of COVID-19 cases and the immunization program in Romania available to the general public in an easy-to-understand graphical format.
- **'Știri oficiale'** (Official news) – The information on the website is the official source of information for the public and media representatives on the situation caused by the spread of the Coronavirus illness, created in partnership with the Romanian government.
- '**Jurnal Medical'** (Medical Journal) – A platform meant to monitor one's risk of a potential infection by completing a daily survey. It also allows users to keep track of all their or their family members' outings. All data is then centralized and sent to the National Insitute of Public Health and Public Health District Authorities, in order to manage potential outbreaks and to better protect users from danger.
- **'Ro Help'** – RoHelp is a digital platform made available to organizations actively committed in mitigating the effects of the COVID-19 outbreak. By using this platform, citizens are be able to see what the most important needs of organizations in the country are, and then are able to choose which cause they want to donate to.
- **'Diaspora HUB'** – A portal where Romanian citizens living abroad can find specific aid from informal groups or non-governmental organizations registered on the platform, by using a questionnaire to define their needs. In this way, the created mechanism unites Romanian communities.
- **'Ce trebuie să fac'** (What do I have to do?) – is a guide based on a number of conceivable scenarios that the population could face in an emergency, outlining the steps that authorities prescribe for better protection of the community. The symptom assessment questionnaire is a key feature of the solution because it helps determine the degree of personal risk and the next steps to take.

Methodology

In this article we decided to analyze the official platform, named 'Date la zi', developed by Code for Romania, in cooperation with the Authority for the Digitalization of Romania in order to figure out if it had any major impact in giving to the population the data they needed to make personal decisions in the pandemic period.

Therefore, we addressed the Authority for the Digitalization of Romania and asked for the official recorded data for the website 'www.datelazi.ro'. This website had a module connected to

Google Analytics installed in the backend. In this way, it continuously tracks the number of users that access the website and also all the public information that Google collects regarding the user profile.

For this article we decided to use just the number of unique visitors to create an overview of the impact of the official online broadcasting platform used by the Romanian government during the pandemic period. To understand if in some periods of time there are major changes in terms of visitors, we decided to split the periods of time we analyzed based on the main waves of the Covid pandemic.

Results and discussions

The first indicator analyzed in our paper is the number of unique visitors on the online platform datelazi.ro. According to Google Analytics (n.d.), Unique Visitors are the number of unduplicated (counted only once) visitors to the website over the course of a specified time period. In the first figure displayed below, an overview of the whole analyzed period March 1st, 2020 - March 1st, 2022 is depicted.

Datelazi.ro offers access to data from official sources on the evolution of COVID-19 cases and the vaccination program in Romania. The information posted on the website is presented through infographics and updated daily, being essential in the adoption of public health measures against the pandemic.

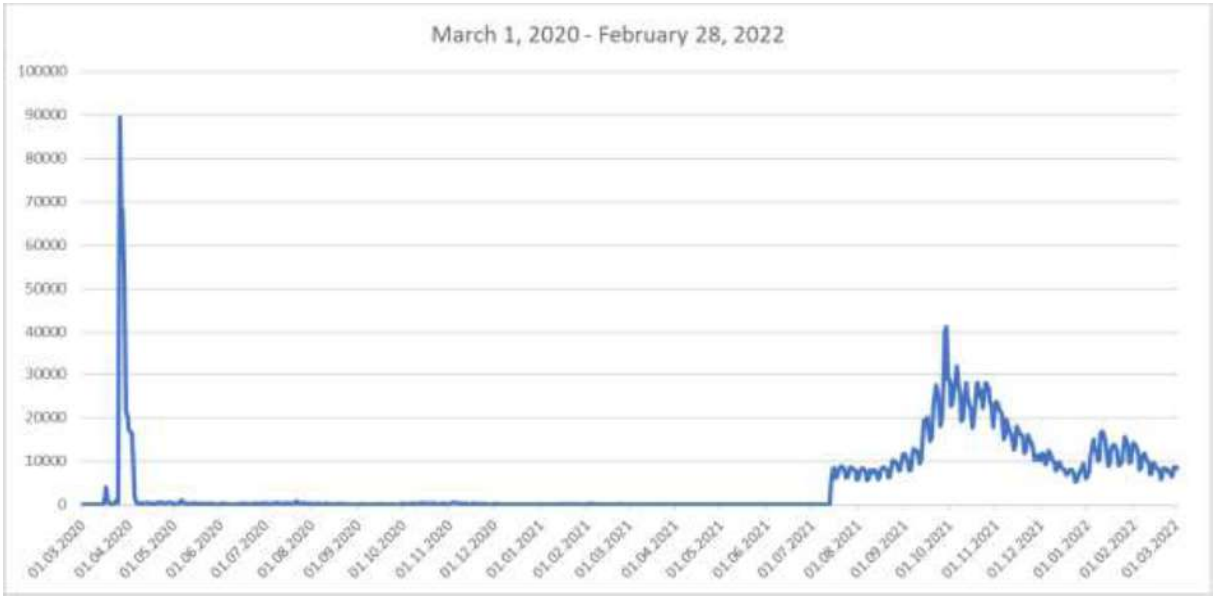


Figure 1. Monthly evolution of users on datelazi.ro

Source: Own representation based on data retrieved from the Authority for the Digitalization of Romania.

In the following graphics we investigated the evolution of unique users in depth reported to the waves of the pandemic. In order to manage the COVID-19 evolution in Romania and to approve additional countermeasures, the National Committee for Special Emergency Situations established on March 14th, 2020, the state of emergency in Romania.

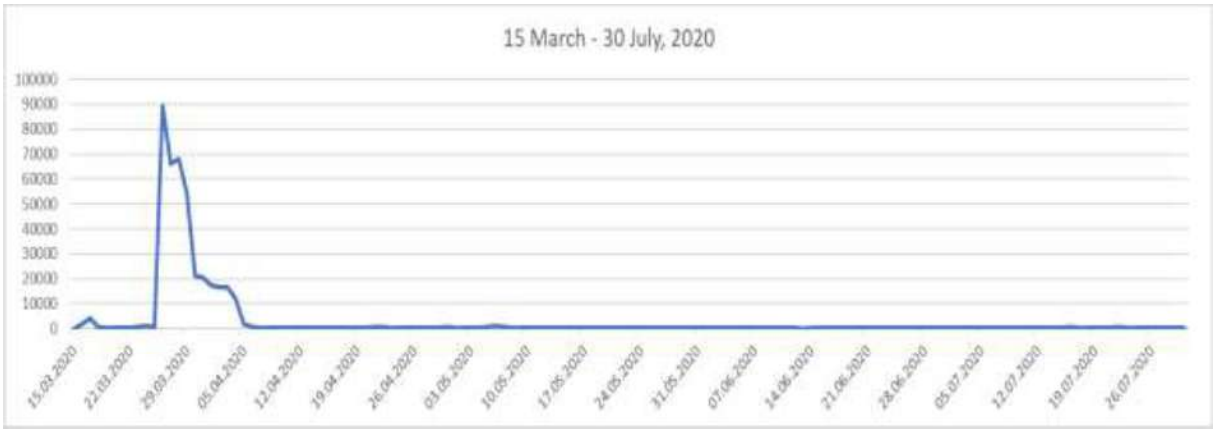


Figure 2. Evolution of users on datelazi.ro between March 15 and July 30 - First wave of the pandemic

Source: Own representation based on data retrieved from the Authority for the Digitalization of Romania.

With a great spike in usage at the beginning, most likely caused by the novelty of the platform, it can be seen, as presented in Figure 2, that up until the 30th of July the website averaged 298 users daily. In our mean calculation we excluded the outliers from the beginning of the time period (10 days of over 10 000 users), because introducing them would have presented a distorted view of the overall data average.

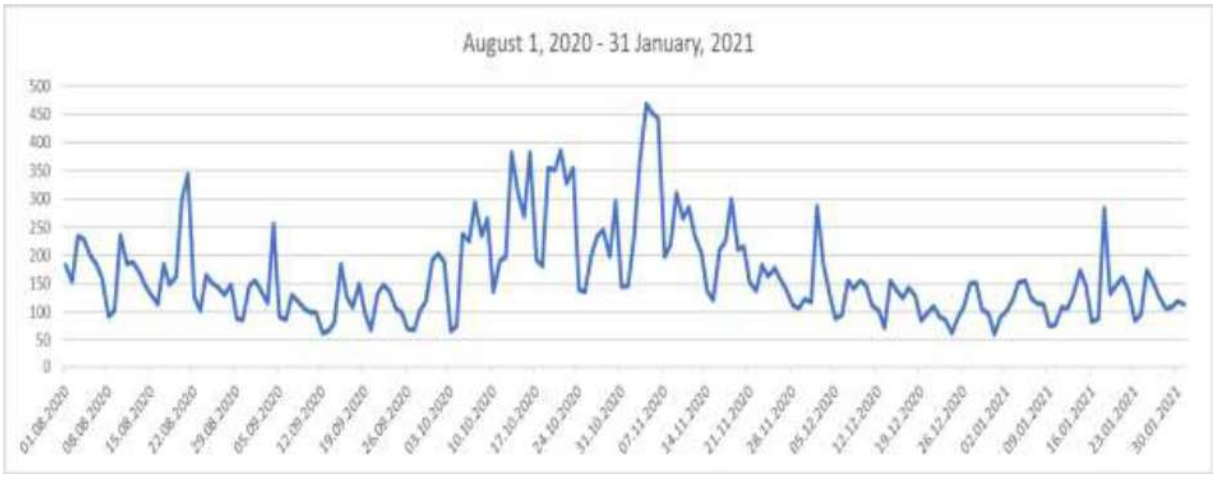


Figure 3. Evolution of users on datelazi.ro between August 1, 2020 and January 31, 2021 - Second wave of the pandemic.

Source: Own representation based on data retrieved from the Authority for the Digitalization of Romania.

During the second wave of the pandemic, although the number of users were starting to become more stable, the overall average of their visits went down to 165 users per day.

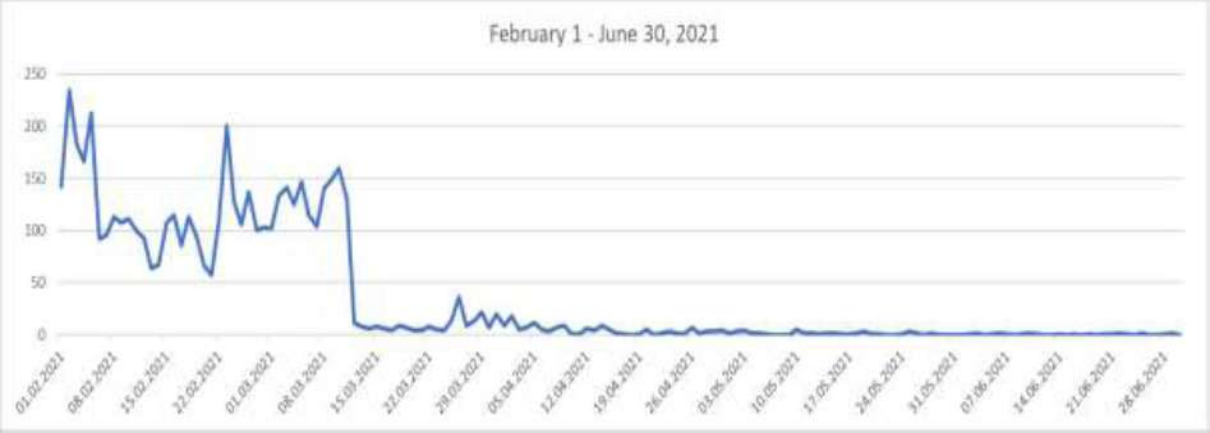


Figure 4. Evolution of users on datelazi.ro between February 1, and June 30, 2021 - third wave of the pandemic

Source: Own representation based on data retrieved from the Authority for the Digitalization of Romania.

The lowest average of users was during the third wave of the pandemic, with 40 users daily. The last four months of it averaging 4 users daily, with a maximum of 36.

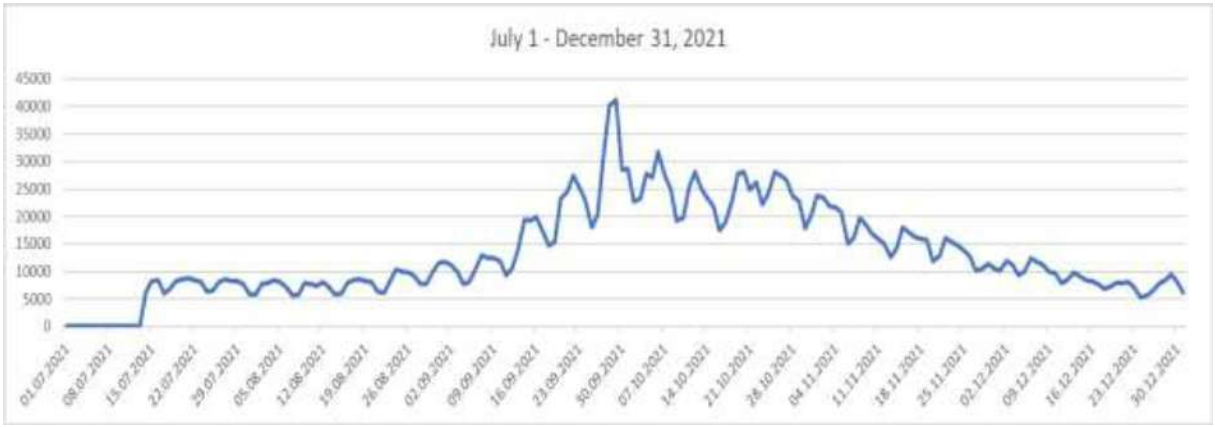


Figure 5. Evolution of users on datelazi.ro between July 1, and December 31, 2021 - fourth wave of the pandemic

Source: Own representation based on data retrieved from the Authority for the Digitalization of Romania.

After a period of four months of very low usage of the platform, visits spiked on the 14th of August 2021 to 6138 users, from 1 user the previous day. The average number of daily users became 13253.

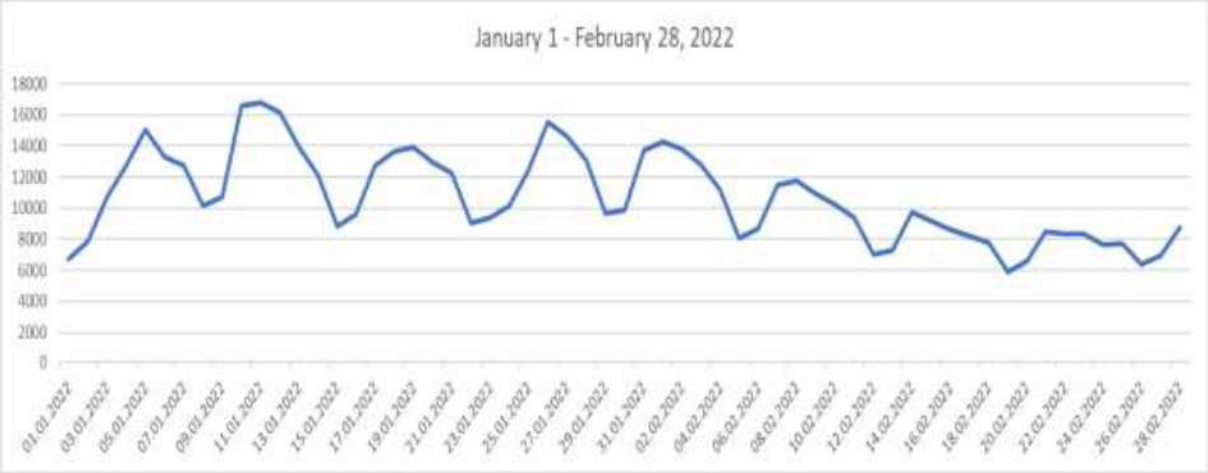


Figure 6. Evolution of users on datelazi.ro between January 1, and February 28, 2022 - fifth wave of the pandemic

In the fifth wave of the pandemic, up until the 28th of February 2022, there was an average of 10720 users per day. With a median of 10.148 users, the distribution was fairly symmetrical, which makes it the most stable period of this platform since its inauguration.

Table 1. Location of the users datelazi.ro

Country	Users	Sessions	Pages/session	Average session duration
Romania	1283424	4002179	1,20	52,30
Italy	26534	57509	1,16	42,41
Germany	25480	61699	1,19	47,79
United Kingdom	24502	47810	1,17	40,70
Spain	8957	17313	1,13	29,15
France	8146	20071	1,17	43,76
Austria	7301	18721	1,20	45,12
United States	6779	16435	1,14	36,28
Netherlands	6040	17859	1,23	59,08
Moldova	5975	14614	1,19	50,59
Total	**1456747**	**4408804**	**1,20**	**51,56**

Source: Own representation based on data retrieved from Authority for the Digitalization of Romania.

Table 1 presented above indicates the geolocation of the users from the moment of accessing the platform. Being a website with data about the evolution of the pandemic in Romania, it is clear that most of the connections were placed in Romania (88,11%). However, the webpage was accessed also from countries like Italy, Germany, UK, Spain, France, Austria, the US, the Netherlands and the Republic of Moldova. In this case, two different scenarios are possible. On one hand, the users might be Romanian people who emigrated to these countries or Romanians on vacation eager to find out the pandemic condition at home. On the other hand, it is known that a

few Internet users might apply a VPN to secure their connection, meaning that the geolocation gathered by Google Analytics is not the correct one.

Conclusion

The Romanian state acted very fast in order to combat the fake news regarding COVID-19 pandemic. The development of the platforms mentioned above was an important step to calm the population and to give people some answers in a period of time when nobody could grant any certainties. The impact though was not the one that everybody was looking for, the number of people interacting with the platforms being pretty low. Unfortunately, this is not the first time when a Romanian digital public service has low results. In the last 10 years Romania recorded some failures, this being due the absence of a strategic marketing campaign for promoting the service to all the citizens.

In our case, "datelazi.ro" platform is a very good software, developed fast, very steady and reliable but with a low profile. Considering that it was created for all the people to stay informed, the Romanian state should have been considered to develop a project to promote the service to all the people.

Although constantly accessed especially during periods of fluctuations of infected people, the success of this application, compared to the total population of Romania, can be considered low, but it was expected precisely because it is not built to bring sensational news or attract clicks, but simply to provide a platform for the public in which they can view real information, endorsed by the Romanian government. From this point of view, despite the low interest of the population, the platform operated without major problems for 2 years, providing anyone with the necessary information.

The need for real information is constant to manage a crisis, so it can be considered that, thanks to truthful information, constantly updated, it can be considered a success, making available not only to the general population, but also to all companies and nongovernmental or state organizations, real information that could help address the pandemic more effectively. Due to the stability of the users in the fifth wave of the pandemic, it can be supposed that there is a core usage at this moment of about 10 000 citizens that find this platform useful in order to get information.

Limitations and further research

First and foremost, the data we examined represented website visits, as determined by statistics obtained from The Authority for the Digitalization of Romania. Although Google Analytics is a trustworthy way to track website traffic, there are times when the app may become unavailable, which makes it not 100% reliable. Second, our empirical testing is lacking in quantitative methodologies. However, in future research, we intend to conduct a survey of users of governmental digital platforms to learn more about their perspectives on digital public services. Aside from the lack of empirical research to support the analysis, the situation with COVID-19 is continually changing, with various uncertain consequences. As a result, a promising avenue for future research is to follow governments' responses to COVID-19 through these several faces. Research that provides a better knowledge of how a government might establish resilience capacities to adapt to pandemics could enhance the literature. Examining the impacts of sluggish digitalization in leading to possible political failures might be a worthwhile direction for future research.

References

Ahn, S. J. (2020). Three characteristics of technology competition by IoT-driven digitization. Technological Forecasting and Social Change, 157, 120062. Authority for the Digitalization of Romania. (n.d.). Programe În Parteneriat. Retrieved online from: https://www.adr.gov.ro/

Baicu, C., Gârdan, I., Gârdan, D. & Epuran, G. (2020). The impact of COVID-19 on consumer behavior in retail banking. Evidence from Romania. Management & Marketing. Challenges for the Knowledge Society,15(s1) 534-556. https://doi.org/10.2478/mmcks-2020-0031

Bakunzibake, P., Klein, G.O., Islam, S.M. (2019). E-Government Implementation Process in Rwanda: Exploring Changes in a Socio-technical Perspective. Business Systems Research, 10(1):53-73.

Blom, P. & Uwizeyimana, D.E. (2020). Assessing the Effectiveness of e-Government and e-Governance in South Africa: During National Lockdown 2020. Research in World Economy, 11(5):208-219.

Bratianu, C. (2020). Toward understanding the complexity of the COVID-19 crisis: a grounded theory approach. Management & Marketing. Challenges for the Knowledge Society,15(s1) 410-423. https://doi.org/10.2478/mmcks-2020-0024

Chen, Y., Dawes, S.S., Chen, S. (2017). E-government support for administrative reform in China. Paper presented at: The 18th Annual International Conference on Digital Governance Research; 2017 June 07–09; Staten Island, NY: Association for Computing Machinery; 2017. pp. 329-335.

Daily data. (n.d.). Date La Zi. Retrieved online from: https://datelazi.ro/

Datenplatform Covid-19 (n.d.) Retrieved online from: https://datenplattform-covid.goeg.at/

Dima, A. & Vasilache, S. (2016). Trends in the internationalization of European higher education in a convergence perspective. Management & Marketing. Challenges for the Knowledge Society,11(2) 449-457. https://doi.org/10.1515/mmcks-2016-0008

Gisaid (n.d.). Retrieved online from: https://www.gisaid.org/

Joinup European Comission, Digital Response to COVID-19 (2022). Retrieved online from: https://joinup.ec.europa.eu/collection/digital-response-covid-19/useful-information-and-resources#Information%20on%20COVID-19

Kayizali, C.C. (2005). E-governance in Rwanda: application of ICT in the delivery of public services. MA Dissertation submitted for the degree of Master of Arts in diplomacy and international studies to the University of Nairobi.

Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. Business & Information Systems Engineering, 57(5), 339-343.

Our Solutions. (n.d.). Code for Romania. Retrieved online from: https://code4.ro/ro/solutiile

Păunescu, C. & Mátyus, E. (2020). Resilience measures to dealing with the COVID-19 pandemic Evidence from Romanian micro and small enterprises. Management & Marketing. Challenges for the Knowledge Society,15(s1) 439-457. https://doi.org/10.2478/mmcks-2020-0026

Pearce-Moses, R. (2005). Digitization. In A glossary of archival and records terminology. Retrieved online from: http://www2.archivists.org/glossary/terms/d/digitization