

# Communication of Ministries on Social Platforms

*Through an examination of the Facebook activity of the Ministry of Health in four Central European countries*

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## Abstract

The coronavirus pandemic, which emerged in early 2020, has brought major changes to the lives of people in every country around the world. Epidemiological measures have led to a decline in the role of some sectors, while others have experienced significant growth. The COVID-19 pandemic has reached almost every part of the world, triggering transformations in the social and economic life of national economies, though, often in different ways. The pandemic has shown that everything in our world is interconnected. Changes in the way people live, work, communicate, etc., and restrictions in everyday life have made some countries more resilient, while others more difficult to manage. In general, the added value of the EU economy fell by 5.8% on average, while in Hungary it decreased by 9.7%. The pandemic only brought positive changes for companies in the communication and financial services sector. The unfortunate outbreak and management of COVID-19 has not only intensified the need for effective communication with clients, depending on administrative responsiveness and resilience, but has made it downright unavoidable. The resources at the disposal of public administrations need to be reinforced, while at the same time being deployed along different priorities. Effective and efficient crisis management also requires the use of new methods, affecting the organisation, procedures, and staff of public administrations. In our study, we will assess the impact and consequences of the coronavirus pandemic on customer communication and customer relations in public administrations by looking at Central Europe over a three-year period. Public administrations in all countries are increasingly using ICT tools as a result of technological progress. In Hungary, over the last decade, the government has increasingly communicated with customers electronically, with the development of one-stop administrative shops, customer identification and, for example, electronic health systems. We will investigate by using statistical analysis how e-government has changed before and after the coronavirus pandemic, how community platforms have been integrated--if they have been integrated at all--and how their presence is reflected in the interaction between public administration and customers in e-government. In this study, we examine only the Facebook activity of the ministries responsible for health in four countries - Czechia, Poland, Slovakia, and Hungary - including the development of pandemic communication as compared to 2019. So as to draw country-specific conclusions, we examine the communication of the ministries in each year separately.

Keywords: Facebook post, epidemic, pandemic, health ministry

## 1. Introduction

The new social platforms gradually took over public service functions, while slowly "infiltrating" political communication. Nowadays, government officials are rarely left the choice whether or not to be present and to participate on social media, since these platforms offer themselves for significant presence of both individuals and non-traditional interest groups. Politicians responded rather quickly to the changes brought by this new medium, increasingly using social platforms such as Twitter, Facebook, and various blogs, for manifesting themselves

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online, gaining, thus, ever more support and visibility. As a result, personal profiles originally created by individuals for private use and as such belonging to the private sphere by being politicized take on a public character—especially in Anglo-Saxon countries, where the relationship between public figures and citizens is less formalised. In short, other countries including Hungary underwent the same process. In all countries, the traditional one-way political and government communication faced similar challenges in their online presence when it came to the respect for privacy or the right of citizens to free speech, especially since there is constant interaction on social platforms and virtually anyone can comment or respond to a post. Obviously, the impact of society can strongly be felt on social platforms, but this is not a one-way process. Over time, newly available technologies have changed us, as much as they have provided us with new means of communication and interaction. And with the help of these new technologies, people started to set up mainly private, smaller groups. However, with time these smaller groups grew and by today, they can form communities of up to million members. It is the shared contents communicated by this large mass of users, their shared thoughts and opinions which provide the essence and significance of social media. The social phenomenon created by these platforms, more specifically the effects of this social phenomenon having already spilled over into public administration cannot be ignored.<sup>2</sup> It is particularly exciting when we see social platforms retreating from public communication, while others move from private communication to public. Actually, in the future, new platforms are most likely to be defined along public and private lines.<sup>3</sup> This study examines the social media activity of the ministries responsible for health in four Central and Eastern European countries, but due to size constraints, we will offer a general overview of the Facebook activity of the four ministries. The aim of the study is to examine whether a global pandemic changes the way and intensity of the communication of ministries with citizens.

## 2. Theories

Social media has introduced new ways to think and perceive of the political, too. It has promoted the concept of political action as being expressive and performative, and underlying to some extent state and social supervision. Social media has greatly facilitated the manifestations of political identities and ideas, while at the same time increasing the risks and dangers that come with it. But how can we define social media?

In Carr and Hayes [2015] definition social media are internet-based, disentrained, and persistent channels of masspersonal communication facilitating perceptions of interactions among users, deriving value primarily from user-generated content.<sup>4</sup>

In Miller's approach social media is the colonization of the space between traditional broadcast and private dyadic communication, providing people with a scale of group size and degrees of privacy that we have termed "scalable sociality."<sup>5</sup>

In this article I agree with Kapoor (et al) who claims that social media is made up of various user-driven platforms that facilitate diffusion of compelling content, dialogue creation, and communication to a broader audience. It is essentially a digital space created by the people

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<sup>2</sup> Miller, Daniel, Elisabetta Costa, Nell Haynes, Tom McDonald, Razvan Nicolescu, Jolynna Sinanan, Juliano Spyer, Shriram Venkatraman, Xinyuan Wang, 2016: What is social media? In E. C. Daniel Miller, *How the World Changed Social Media*, 2016., 2:1-8, UCL Press. source: <https://www.jstor.org/stable/j.ctt1g69z35.8> (accessed: 2022.05.15.)

<sup>3</sup> More: Miller, Daniel, 2011: *Tales from Facebook*, Cambridge, Polity Press, ISBN-13:978-0745652108

<sup>4</sup> Carr, Caleb T. - Rebecca A. Hayes: *Social media: defining, developing, and divining*. Atlantic Journal of Communication 2015; 23:46–65. [https://web.archive.org/web/20190713114940id\\_/http://my.ilstu.edu:80/~ctcarr/research/CarrHayes\\_2015.pdf](https://web.archive.org/web/20190713114940id_/http://my.ilstu.edu:80/~ctcarr/research/CarrHayes_2015.pdf), (accessed: 2021.10.23.)

<sup>5</sup> Miller et al [2016]



and for the people, and it provides an environment that is conducive for interactions and networking to occur at different levels (including dimensions such as personal, professional, business, marketing, political, and societal).<sup>6</sup>

According to *Mickoleit* [2014], social media is capable of building trust between public administration and citizens, but there exists no generally valid solution to be applied in all situations, and in some cases, we even have to rely on public law for answers. Most government officials are rarely left with the choice to be present in social media, especially, since these social media platforms provide a dominant presence for both individuals and non-traditional interest groups. Politicians reacted relatively quickly to these changes and are increasingly manifesting themselves through social platforms such as Twitter, Facebook, and various blogs so as to gain more support and visibility. At the same time, we must also understand that government institutions, by virtue of their public nature, are only slowly opening up and experimenting with social media. It has also been acknowledged that social media encourages innovation in public services and in the operation of the state by exploiting the 'democratisation' effect of the internet on the public supply of information and services, while also providing an opportunity to meet public expectations in situations where traditional online government services are not able to do so. Nevertheless, state authorities also have to take into account the risks rooted in their institutional obligations, such as the protection of privacy, the reliability of information and public perception. Strategies for the use of social media by the government should therefore pay particular attention to the objectives pursued by an authority or organisation, while the use of social media alone is not a guarantee for catching the attention of social groups disillusioned with public affairs when it comes to public services or policy-making.<sup>7</sup>

As *Costa* [2016] pointed out, the result was that some political ideologies have become more visible, while others remain completely hidden. In public social media, the boundaries between visible and invisible had to be re-established; some conversation received more attention, while others remained even more hidden.<sup>8</sup>

Based on *Ines'* study [2018], while in the past the introduction of technological innovations to governance has typically taken place "from top to bottom", the spill-over of social media into government communication takes place, at least in part, in the opposite direction, having been initially less formal and only slowly taking on a more "official" character. This is mainly due to the popularity of social media, and on the other hand, to the increasing demand for information by users on these platforms.<sup>9</sup>

*Csáki* [2020] also highlights that social media has also overwhelmed previously established ways of providing information, and it seems that these new communication trends are spreading rapidly to ever wider areas of the state trying to connect government bodies with

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<sup>6</sup> Kapoor Kawal, Tamilmani Kuttimani, Rana Nripendra, Pushp Parakash Patil 2018: *Advances in social media research: past, present and future*. Information Systems Frontiers 2018; 20:531–558. [https://www.researchgate.net/publication/320882912\\_Advances\\_in\\_Social\\_Media\\_Research\\_Past\\_Present\\_and\\_Future](https://www.researchgate.net/publication/320882912_Advances_in_Social_Media_Research_Past_Present_and_Future), (accessed: 2021.10.21)

<sup>7</sup> Mickoleit, Arthur, 2014: „*Social Media Used by Governments: A Policy Primer to Discuss Trends, Identify Policy Opportunities and Guide Decision Makers*”, OECD Working Papers on Public Governance, No. 26, OECD Publishing, Paris, 2014. 3: 1-72, [https://read.oecd-ilibrary.org/governance/social-media-use-by-governments\\_5jxrcmghmk0s-en#page4](https://read.oecd-ilibrary.org/governance/social-media-use-by-governments_5jxrcmghmk0s-en#page4), (accessed: 2021.06.04)

<sup>8</sup> Costa, Elisabetta, 2016: *Social Media in Southeast Turkey: Love, Kinship and Politics*, UCL Press London, 2016., DOI: 10.14324/111.9781910634547, <http://www.ucl.ac.uk/ucl-press>, p. 128-129., (accessed: 2021.03.15.)

<sup>9</sup> Mergel, Ines, 2018: *The Public Manager 2.0: Preparing the Social Media Generation for a Networked Workplace*, 2018. <https://www.tandfonline.com/doi/abs/10.1080/15236803.2012.12001695>, (accessed: 2021.06.15.)



citizens in their official communication.<sup>10</sup> True, we also need to acknowledge that the use of social media is still characterized by the fact that it is used much more by politicians and heads of institutions than by the institutions themselves.<sup>11</sup>

## The methodology

While on the basis of the above, we distinguish between *two dimensions* of the “official” use of social media, the author uses the distinction between the political and the traditional purpose of administrative communication. Due to the nature of public administration, it can only provide real information from a reliable source in order to operate more efficiently. We must distinguish this from political communication for individual or electoral purposes, even if it comes from a government body. Due to length limitations, this study examines the use of social media exclusively for profiles of health ministries in terms of Facebook activity in four Central European countries - Czechia, Poland, Slovakia, and Hungary. The study was performed using SentiOne, a social media analysis software for statistical processing only. Our basic premise was that the ministries involved communicated less in the social media in 2019 before the outbreak of the pandemic than after COVID-19 took its tolls. We hypothesized that the pandemic also increased the Facebook activity of the top administrative bodies in 2020 and 2021, providing more information to citizens. For the pandemic period, pre-recorded keywords were identified as “vaccine”, “vaccination”, “COVID”, “Sars-CoV”, “infected”, “pandemic” “omicron”, “coronavirus”, “test”, “quarantine”, “PCR”, and “mask”.

Accordingly, the central question of the research was: Did the ministry’s social media activity increase in terms of self-displayed posts during the epidemic? If so, to what extent did this contribute to pandemic communication, based on the keywords we provided, and what proportion of posts related to the pandemic appeared in their Facebook communication?

## 3. Experiences

As a starting point, we used a quantitative analysis and examined the posts of the ministries of each country in 2019, i.e. the number of posts. Then we examined the intensity of communication in 2020 and 2021, and in these two years we also investigated the number of keyword posts.

### 3.1 Poland

During the period under review, two ministers headed the Ministry of Health in Poland: from January 9, 2018, Łukasz Szumowski<sup>12</sup>, and from August 26, 2020, Adam Niedzielski.<sup>13</sup> Both

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<sup>10</sup> Csáki-Hatalovics, Gyula Balázs 2020: *A közösségi média felhasználásának lehetőségei a közigazgatásban - nemzetközi elemzés* (~Possibilities of using social media in public administration - international analysis) In: Homicskó, Árpád Olivér (szerk.) *A digitalizáció hatása az egyes jogterületeken* Budapest, Károli Gáspár Református Egyetem, Állam- és Jogtudományi Kar, (2020) 41: 41-53.

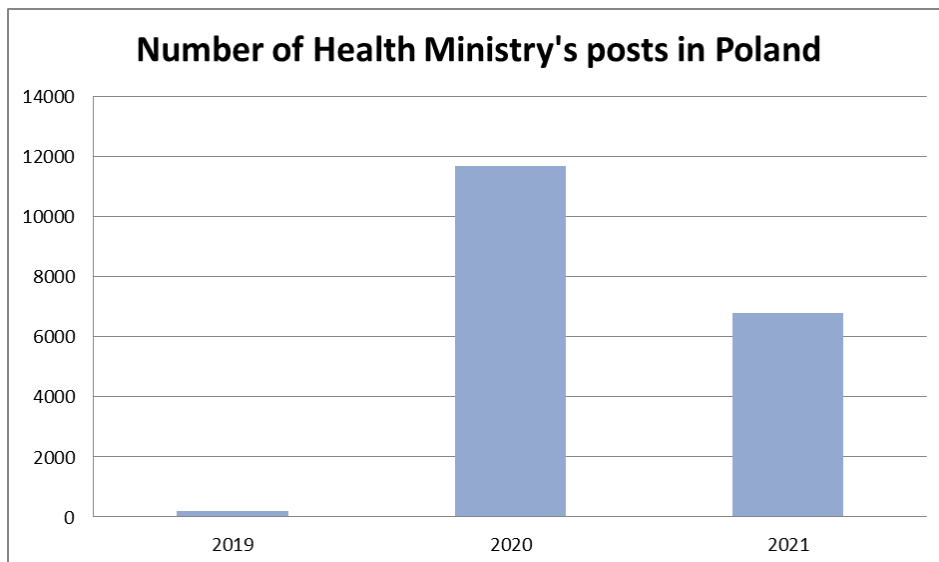
<sup>11</sup> Csáki-Hatalovics Gyula Balázs: *A digitális közigazgatás* (~The digital administration), Miskolci Jogi Szemle: A Miskolci Egyetem Állam- és Jogtudományi Karának Folyóirata 16 : 1. különszám pp. 53-61. , 9 p. (2021)

<sup>12</sup> GOLUCH, Oprac Bartosz (2018-01-10): *Łukasz Szumowski, czyli "minister zagadka". O nominacji dowiedział się dzień przed powołaniem.* (~Łukasz Szumowski, that is "the secret minister. He found out about the appointment the day before the appointment) wiadomosci.wp.pl, <https://wiadomosci.wp.pl/lukasz-szumowski-czyli-minister-zagadka-o-nominacji-dowiedzial-sie-dzien-przed-powolaniem-6207808005879425a>, (accessed: 2022.05.01.)

<sup>13</sup> GERA Vanessa (2020-08-20): *Poland's government names new foreign, health ministers*, APNews, <https://apnews.com/article/virus-outbreak-health-international-news-europe-42914766794cdb3135a2457b5ca92ff9>, (accessed: 2022.05.01.)

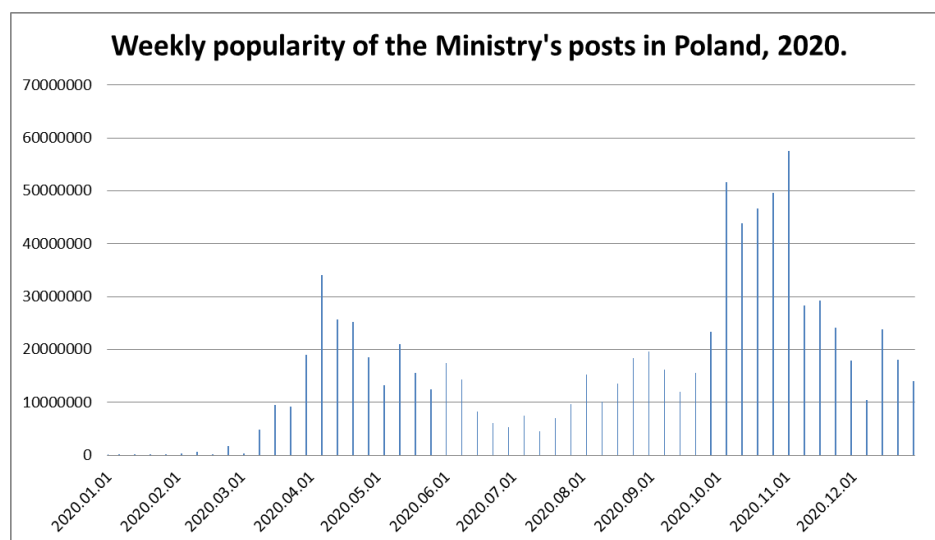


ministers subsequently held office during the coronavirus pandemic and the vaccine procurement caused difficulties for both of them. In 2019, the Department of Health<sup>14</sup> displayed a total of 211 posts, primarily related to e-recipe, various health screening and prevention programs, eating habits, cancer prevention, and developments in health care system. Compared to the activity in 2019, in 2020 the ministry posted 11,675 posts and in 2021 6,805 posts. As we can see, , the communication of the ministry increased significantly during the pandemic.



Data source: SentiOne, self-made diagram

There were three outstanding weeks in the 2020 communication; the Ministry released 532 posts in the third week of October, 514 posts in the first week of November, and 498 posts in the third week of April. The number of posts shared and of comments rose accordingly, with the most popular posts (mentions in time by reach)<sup>15</sup> being shared and commented further 55.5 million times and even more comments coming up in November. There were 51.5 million further sharing and appearance on other sites in the second week of October and another 34 million in the second and third week of April.



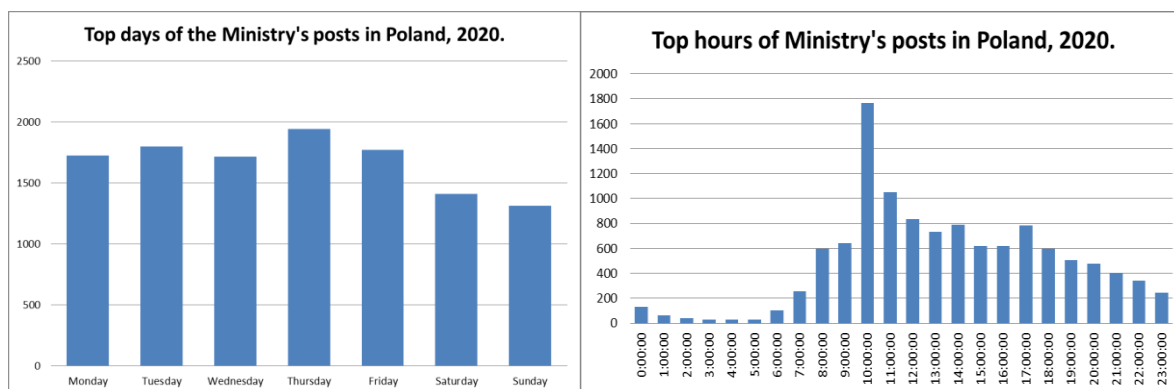
Data source: SentiOne, self-made diagram

<sup>14</sup> Ministerstwo Zdrowia, <https://www.gov.pl/web/zdrowie>, <https://www.facebook.com/MZGOVPL>

<sup>15</sup> Shows the number of mentions in time divided by reach. Reach refers to an estimation of a mention's popularity. SentiOne uses different reach estimation approaches for generic web pages and social networking sites.

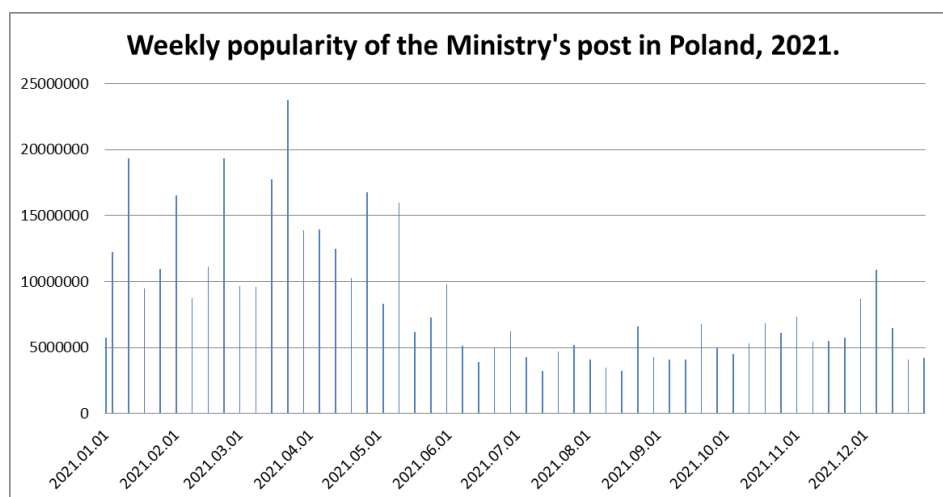


The posts appeared to a total of nearly 850 million internet users, of which 7 million negative and 3 million positive charged posts were shared. Regarding the number of the entries of the Ministry, the most active day was usually Thursday, with almost 2,000 posts and shares. All in all, there were around 1,700-1,800 posts and mentions daily dropping somewhat below 1,500 only on Saturdays and Sundays. The busiest hours were practically from 10 a.m. to 11 p.m. In 2020, the Ministry's posts elicited a total of 2.7 million mood reactions, nearly 409,000 shares and 1.231 million comments.



Data source: SentiOne, self-made diagrams

In 2021, on three occasions we observed an outstanding number of posts. The Ministry announced 305 posts in the third week of March, 284 posts in the last week of February, and 297 posts in the third week of January. It was a very interesting fact that large number of entries appeared until June 2021, however, in the following the Ministry displayed less than 100 posts per week. As to the popularity of the posts, the highest score was observed during the last ten days of March with about 24 million shares, there were 19.3 million redistributions and mentions in the last week of February, and the same number can be seen in the second week of January.



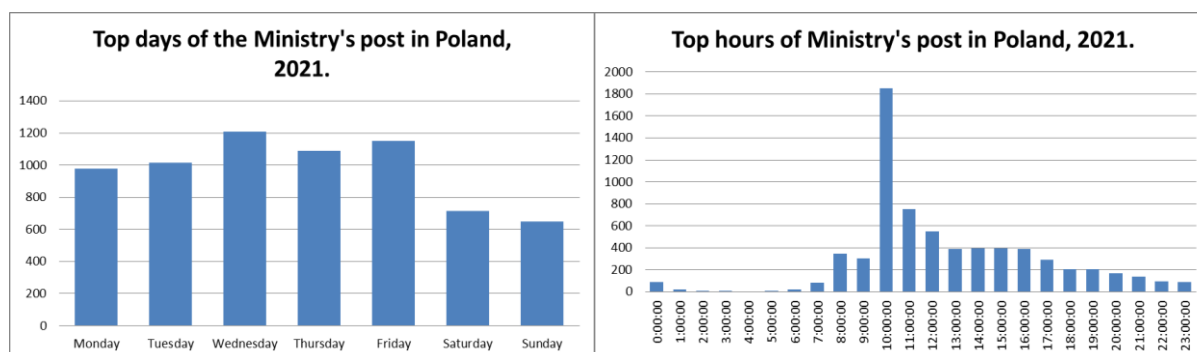
Data source: SentiOne, self-made diagram

The posts issued by the Ministry were mentioned or cited on other sites, of which 5 million were negative and 3 million were positive.<sup>16</sup> The busiest days were Wednesdays and also Fridays--with posts between 1,550 and 2,000. The other days showed entries of 1,000 or less, the weekend being the lowest at 700 +/- . The Ministry also posted the most in the period from

<sup>16</sup> Sentiment detection is based on the proprietary algorithm provided by SentiOne



10:00 to 11:00. The posts generated a total of 178,000 shares, 1.68 million mood reactions, and 714.5 thousand comments.



Data source: SentiOne, self-made diagrams

As to our keywords („Szczepionka”, „szczepienie”, „COVID”, „Sars-Cov”, „zakażony”, „epidemia”, „omikron”, „koronawirus”, „test”, „kwarantanna”, „PCR”, „infekcja”, „maska/maseczka”), only the ministerial posts were subject to investigation, so private messages, comments, shares, reviews and mentions were not analysed. In 2020, our keywords appeared in the posts of the Ministry at a total of 1,228 times, the highest score was 41 times in the third week of May, 37 times in the last week of August, and 38 times in the last week of November. Communication about the virus began in April, and a total of 627 million keyword posts were shared, mentioned, or published on other social media sites. Posts with keywords appeared in the second week of October 2020 nearly 45 million times, and in the last week of October appeared 39 million times on other social networking sites or were all referenced, and each having a 10/10 influence rate.<sup>17</sup> In October 2020, a total of 133 keyword posts were published, the word coronavirus scored the highest with 167 times and Covid scored second with 68 times. The highest proportion of keyword posts appeared on Tuesdays (204 times) and Mondays (192 times), but the sharing of information on the spread of the disease was ongoing. Keyword posts elicited 1.83 million mood responses, generating nearly 207,000 shares and 753,000 posts.

In 2021, most keyword posts appeared 36 times in the third week of April and 35 times in the first week of June. A total of 1,293 posts were published with the keywords, which were reshared or referenced a total of 282 million times on other social networking sites. The most popular posts appeared about 39.5 million times in the last week of March-as in the previous year, i.e. 2020 these were also informational posts about the spreading of the coronavirus. In March 2021, the coronavirus keyword appeared 105 times in total and our Covid keyword appeared 34 times. In April 2021, in the total of 138 keyword posts coronavirus was mentioned 95 times, Covid 99 times, and the term infected 61 times. In October 2021, the pandemic communication restarted with a total of 105 keyword posts, the term coronavirus appeared 3 times, infected 68 times, and Covid 63 times. In 2021, the highest average number of entries was 219 on Fridays, but also on other days communication took place nearly 200 times. In 2021, keyword posts generated a total of 952,000 reactions, with 66,000 shares and nearly 382,000 comments.

### 3.2 Czechia

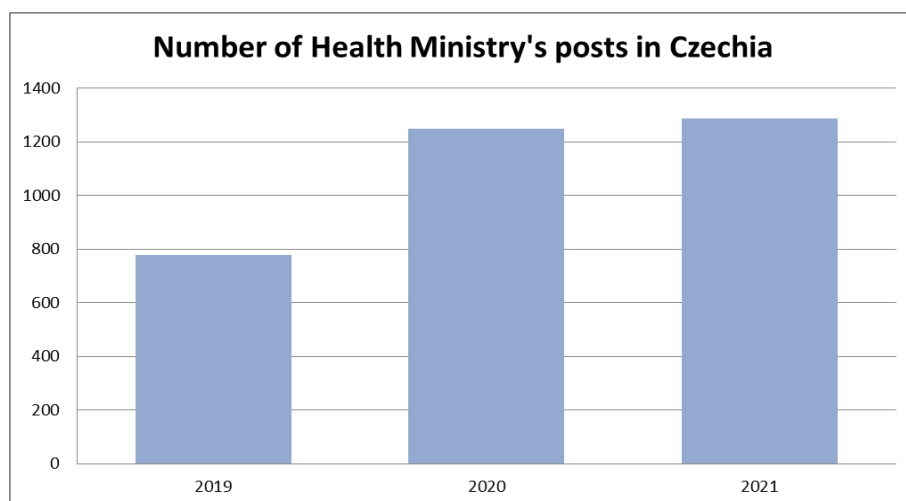
The Czech Ministry of Health was lead by several ministers subsequently during the period under review. From December 2017 to September 2020, Adam Vojtěch headed the ministry.

<sup>17</sup> Influence Score is a metric, based on mentions reach. It helps to discover the most popular and influential results.



He decided to resign due to the burden imposed on him by the spreading of the coronavirus pandemic.<sup>18</sup> He was followed by Roman Prymula who was forced to resign on October 29 after being photographed as he left a restaurant and thus, violated the safety precautions.<sup>19</sup> Until April 2021, Jan Blatný held the ministerial office, but had a dissenting opinion from Head of State Miloš Zeman on the acquisition of the Sputnik vaccine.<sup>20</sup> Finally, he also resigned, so Petr Arenberger held office until the end of May 2021. Petr Arenberger, however, soon resigned as well due to issues surrounding his properties and financial matters<sup>21</sup>, and Adam Vojtěch was again trusted with the minister's office until December 17, 2021; he was replaced by Vlastimil Valek,<sup>22</sup> who is still in office.

The Ministry of Health<sup>23</sup> published a total of 778 posts in 2019, in fact its official website was launched in March 2014. In 2019, photographs related to the day-to-day work of the Ministry and the Minister were published, and posts were made in connection with various health screening and prevention programs, various campaigns and health improvements. Compared to the activity in 2019, the Ministry posted 1,248 posts in 2020 and 1,288 posts in 2021. As it is shown by the chart, during the pandemic, the communication of the ministry almost doubled.



Data source: SentiOne, self-made diagram

<sup>18</sup> FLORIÁNOVÁ Eliška: *Ministr zdravotnictví Vojtěch odstoupil z funkce. Nahradí ho Prymula* (~Minister of Health Vojtěch resigned. Prymula will replace him), iDNES.cz 2020.09.21., [https://www.idnes.cz/zpravy/domaci/adam-vojtech-koronavirus-tiskova-konference-aktualni-situace-epidemie-ministr-zdravotnictvi.A200921\\_065128\\_domaci\\_flo](https://www.idnes.cz/zpravy/domaci/adam-vojtech-koronavirus-tiskova-konference-aktualni-situace-epidemie-ministr-zdravotnictvi.A200921_065128_domaci_flo), (accessed: 2022.05.01.)

<sup>19</sup> EuroZprávy.cz: *Schůzka v restauraci: Prymula má právní analýzu svého chování, připouští jen politickou chybu*, (~Meeting in a restaurant: Prymula has a legal explanation of his behavior, he only admits a political mistake,) 2020.10.27., <https://eurozpravy.cz/domaci/zdravotnictvi/schuzka-v-restauraci-prymula-ma-pravni-analyzu-sveho-chovani-pripousti-jen-politickou-chybu.55122bfb/>, (accessed: 2022.05.02.)

<sup>20</sup> SEZNAM ZPRÁVY: *Prezident mě odvolal, je to politické rozhodnutí, řekl Blatný. Plaga zůstane*, (The president removed me, it is a political decision, Blatný said. The business will remain) 2021.07.04., <https://www.seznamzpravy.cz/clanek/blatny-konci-ve-funkci-ministra-zdravotnictvi-plaga-nakonec-zustane-149619>, (accessed: 2022.05.02.)

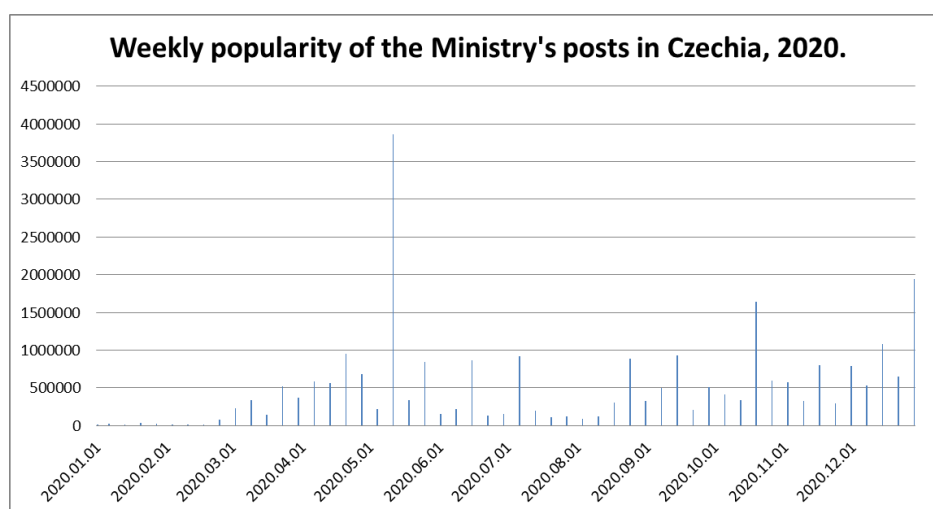
<sup>21</sup> RICHTER Jan, PERGLER Tomas: *Šest milionů za pět let: Arenberger pronajímá budovu nemocnici, kterou řídil*, (~Arenberger leases the building to the hospital he directed), Seznam Zprávy 2021.05.13., <https://www.seznamzpravy.cz/clanek/sest-milionu-za-pet-let-arenberger-pronajima-budovu-nemocnici-ktou-ridil-154477>, (accessed: 2022.05.02.)

<sup>22</sup> iROZHLAS.cz: *Zeman jmenoval novou vládu. Podívejte se na seznam těch, kteří povedou jednotlivá ministerstva* (~Zeman appointed a new government. Take a look at the list of those who will lead the individual ministries), [https://www.irozhlas.cz/zpravy-domov/seznam-novych-ministru-finance-zemdelstvi-kultura-obrana\\_2112171\\_135\\_bar](https://www.irozhlas.cz/zpravy-domov/seznam-novych-ministru-finance-zemdelstvi-kultura-obrana_2112171_135_bar), (accessed: 2022.05.01.)

<sup>23</sup> Ministerstvo zdravotnictví České republiky, <https://www.mzcr.cz/>, <https://www.facebook.com/mzcr.cz>

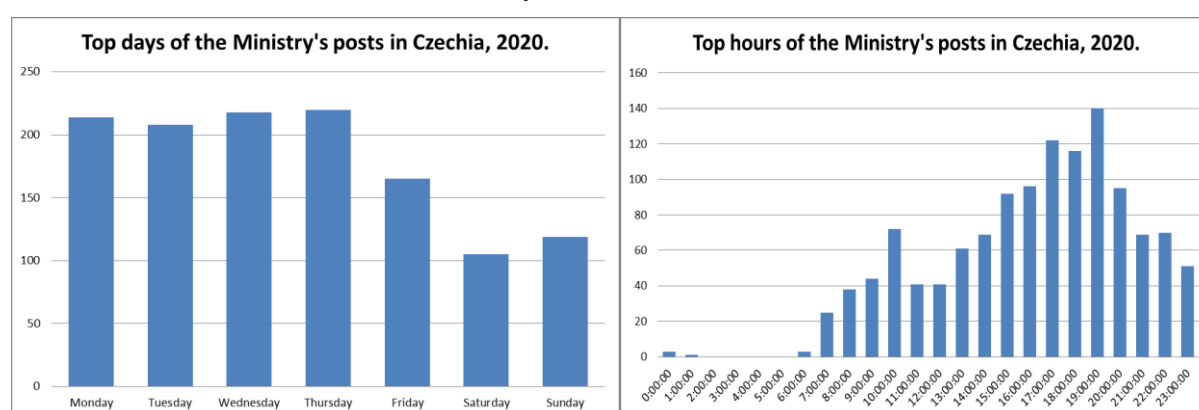


There were three outstanding weeks in the 2020 communication, with the Ministry posting 42 posts in the second week of March, and 44 posts in the third week of September, and 43 in the first week of November. In contrast, redistributions and referrals were made in the third week of May, in connection with the easing of restrictions, which appeared 3.8 million times on other social media sites. Posts published in the last week of December were redistributed or mentioned nearly 2 million times, prompting the public to be informed about the mandatory vaccination of health workers and the elderly, as well as information about tests, vaccinations and quarantine measures. Posts on restrictive measures in the last decade of October were published 1.6 million times on other sites.



Data source: SentiOne, self-made diagram

The posts of the ministry were referenced, shared or displayed elsewhere a total of nearly 27 million times, and it is a very interesting result that the positively filled posts have reached more than 6 million different surfaces. The most active day for the Ministry's posts was Thursday. In fact, there were between 200 and 220 entries every day of the week from Monday to Thursday, and between 100 and 160 on weekends-Fridays, Saturdays and Sundays. The busiest hours were practically between 5 p.m. to 6 p.m. and 7 p.m. to 8 p.m. In 2020, the Ministry's posts elicited a total of 120,000 mood reactions, nearly 41,000 shares and more than 77,000 comments.

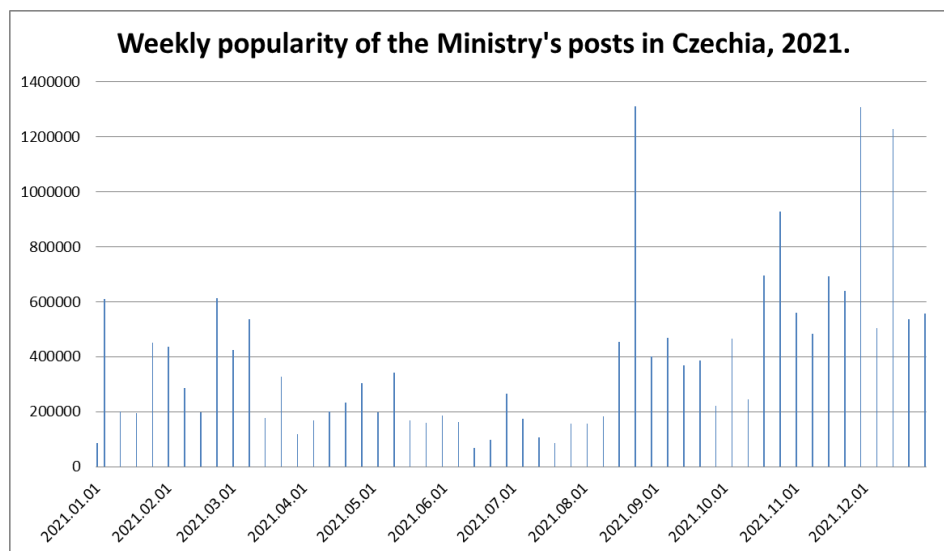


Data source: SentiOne, self-made diagrams

In 2021, four outstanding posts can be observed, the Ministry posted 52 times a week during the last ten days of September, 54 times in the third week of October, 54 times in the last week of November and 56 in the third week of December. An interesting experience was that the rapid increase in the number of posts started in early August, there were an average of 20 entries per week in the first half of the year. In the last week of August, the most popular posts appeared

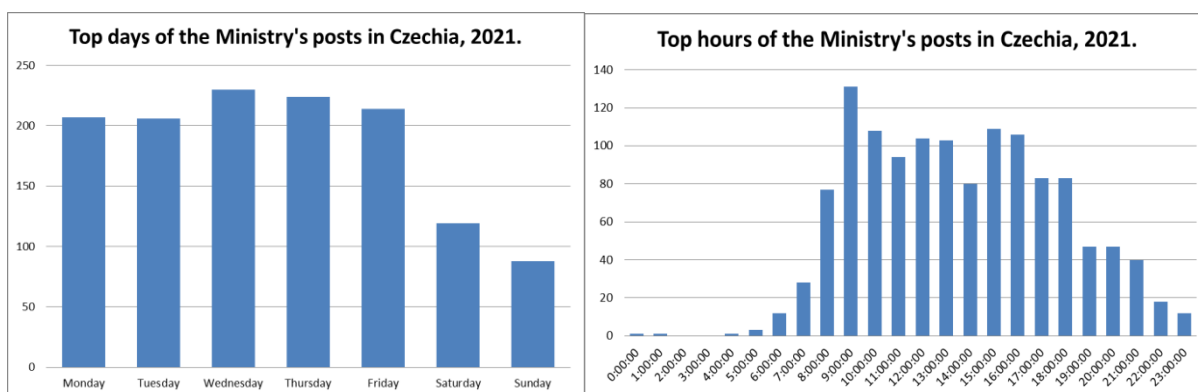


with about 1.3 million, and in the last week of November, with about 1.3 million shares and mentions. At the end of the year, in the third week of December, the Ministry's posts were further distributed or mentioned 1.2 million times, and at the end of October almost 1 million times.



Data source: SentiOne, self-made diagram

The Ministry's posts were redistributed or displayed on other community sites 21 million times in 2021, of which three million were positive in their attitude. In terms of weekly activity, Wednesdays and Thursdays were the busiest days, with 230 posts and entries on Wednesday, and 224 posts on Thursday. More than 200 entries were made on the other working days of the week. In 2021, the most active period was between 9 a.m. and 10 a.m., with an average of 131 posts. In 2021, the posts of the Ministry elicited a total of 99,000 mood reactions, nearly 31,000 shares, and more than 56,000 comments.



Data source: SentiOne, self-made diagrams

In 2020, a total of 223 entries were published for our keywords („vakcína”, „očkování”, „COVID”, „Sars-Cov”, „infikovaný”, „epidemický”, „omikron”, „koronavirus”, „test”, „karanténa”, „infekce”, „maska/ maskovat/ maskou”). The term Covid appeared 85 times, coronavirus 59, while the term test 17, and pandemic 15 times in these posts. The highest value was measured in the second week of March 2020 with about 12 posts published, 11 posts were published in the last week of March and the third week of December. In the last week of April and the third week of September, the Ministry posted 9 posts each. In terms of the popularity of keyword posts, those which appeared at the end of October were in the highest proportion



present on other social networking sites by having been reshared more than 1 million times. The keyword posts that registered at the end of October reached the highest number of other internet sites - they appeared or were mentioned more than 1 million times. The posts announced in the last week of August and the second week of July reached other sites 900,000 times; and posts in the third week of June and the third week of December, were published more than 800,000 times on other online interfaces. A total of twelve million keyword posts were redistributed or displayed on other online interfaces, and as all entries in 2020, one-third, i.e. four million with positive content. The busiest days in 2020 were Monday and Thursday with an average of 42 posts, and the busiest hours were an average of 25 posts from 7 p.m. to 9 p.m. In 2020, keyword entries elicited nearly 50,000 emotional reactions, generating more than 22,000 shares and more than 35,000 comments.

In 2021, a total of 196 keyword posts were published, the largest number, counting 9 keyword posts, was in the third week of October. The Ministry published 8 entries each in the first week of October, the second week and the fourth week of November, and 7 entries in the last week of March and the last week of August. In these posts, vaccination appeared 132, Covid 66, epidemic 6, test 37, coronavirus 10, and vaccine 14 times. The posts created in the last week of August 2021 appeared most on other surfaces - more than 1 million times, and there were nearly 1 million connections of posts published in the last week of November. The posts at the end of October appeared on other surfaces with redistributions numbering approximately 715,000. Keyword posts were subdivided a total of 11 million times and positive posts 2 million times. The busiest day was Thursday with an average of 39 entries, and Wednesday with 37 entries. The Ministry made an average of 30-33 entries with the keywords on the other working days of the week and an average of 13-14 entries on the weekends. The busiest hour was between 4 p.m. and 5 p.m. with an average of 29 entries. In 2021, keyword posts generated more than 11,000 shares, nearly 39,000 mood responses, and generated more than 27,000 comments.

### 3.3 Slovakia

The Slovak Ministry of Health<sup>24</sup> was headed by Andrea Kalavská from March 2018 who was followed by later Prime Minister Peter Pellegrini from December 2019, after the Government did not accept Kalavská's hospital reform plan and she decided to resign<sup>25</sup>. Pellegrini was replaced by Marek Krajčí from March 2020 until March 2021, when a government coalition crisis erupted over the procurement of vaccines.<sup>26</sup> From March 2021, Vladimír Lengvarský<sup>27</sup> is the present Minister of Health.

In 2019, the Ministry posted a total of 526 posts. These were primarily related to prevention programs, working conditions for health workers, hospital and childcare developments, the mandatory vaccination program, and hospital reform. Compared to the activity in 2019, 1,591

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<sup>24</sup> Ministerstvo Zdravotníctva Slovenskej Republiky, <https://www.health.gov.sk/Titulka>, <https://www.facebook.com/MinisterstvoZdravotnictvaSR>

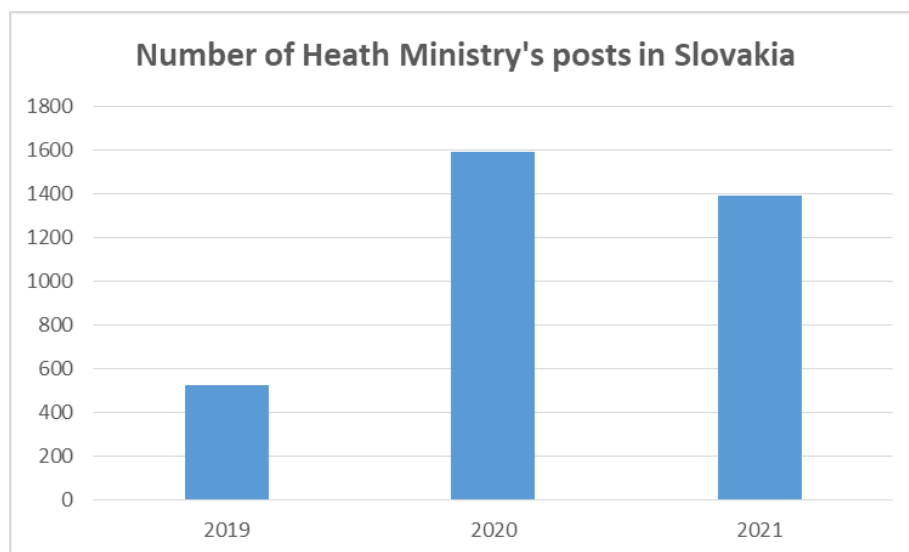
<sup>25</sup> HNOnline.sk: Čaputová prijala Kalavskej demisiu. Rezort zdravotníctva povedie Pellegrini (~Čaputová accepted Kalavská's resignation. The Department of Health will lead Pellegrini), 2019.12.17., <https://hnonline.sk/slovensko/2060005-caputova-prijala-kalavskej-demisiu-rezort-zdravotnictva-povedie-pellegrini>, (accessed: 2022.05.06.)

<sup>26</sup> SME Domov: Krajčí podá demisiu, Matovič to považuje za absurdné (~Krajčí resigns, Matovič considers it is absurd), 2021.03.11., <https://domov.sme.sk/c/22615393/marek-krajci-konci-vo-funkcii-ministra-zdravotnictva.html>, (accessed: 2022.05.06.)

<sup>27</sup> FOLENTOVÁ Veronika, ŠNÍDL Vladimír: Ministrom zdravotníctva sa má stať generál a Nad'ov nominant z vojenskej nemocnice (The General's and Nad'ov's nominee from the military hospital is to become the Minister of Health), DENNÍKN.sk 2021.03.29., <https://dennikn.sk/2332350/ministrom-zdravotnictva-sa-ma-stat-general-a-nadov-nominant-z-vojenskej-nemocnice/>, (accessed: 2022.05.06.)

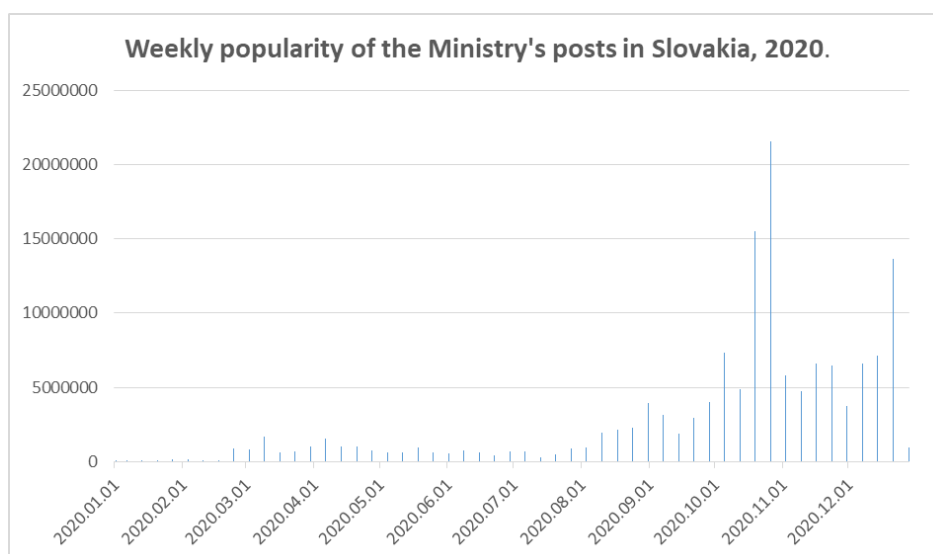


posts were published in 2020 and 1,393 posts in 2021. The below chart shows that during the pandemic, the communication of the ministry doubled or tripled.



Data source: SentiOne, self-made diagram

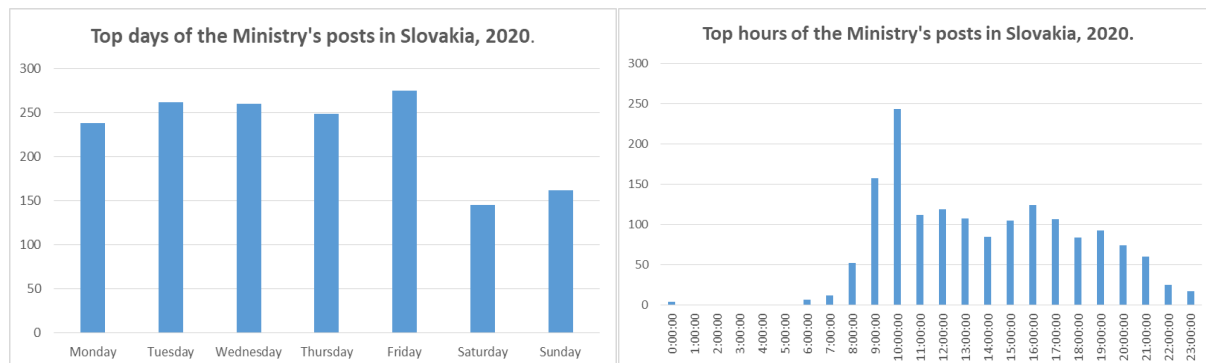
In 2020, we can observe three outstanding weeks: during the period from October 26 to November 2, a total of 76 posts were published, while in the last decade of December, and in the second week of September 44 posts were announced each. Entries made in late October and early November 2020 were almost exclusively related to testing and testing results, and posts in December provided mainly infection data related to new epidemic measures. Entries in the first two weeks of September were made in connection with the introduction of data that could be linked to the re-intensification of the epidemic, as well as medical information on the pandemic. The posts of the Slovak Ministry of Health in 2020 were distributed or referenced a total of 147 million times, the positive posts 33 million times, while the negative posts 4 million times. The highest number of sharings, according to the Ministry's communications, belonged to the posts edited in late October and early November 2020 and amounted to about 21.6 million times; and posts registered in the third decade of December were cited or published on other social media sites 13.6 million times.



Data source: SentiOne, self-made diagram

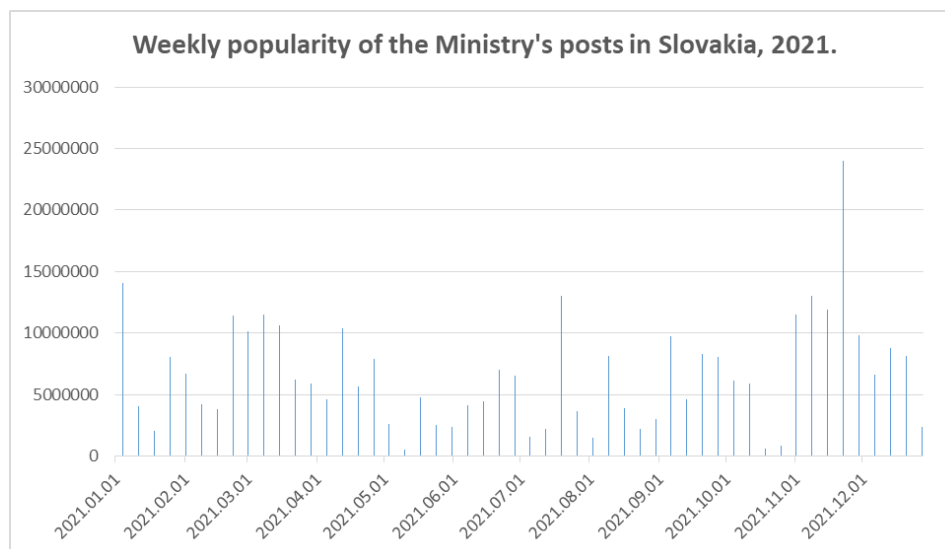


In terms of the Ministry's posting habits, Friday was the strongest with an average of 275 entries made, and posts ranging from 240 to 260 on the other working days, and 150 on weekends. On a daily scale, the most active period was from 9 a.m. to 11 a.m., with an average of 158 posts between 9 a.m. and 10 a.m. and an average of 244 posts between 10 a.m. and 11 a.m. The 2020 posts elicited more than 441,000 mood reactions, with more than 133,000 shares and 234,000 comments.



Data source: SentiOne, self-made diagrams

In 2021, the Ministry's entries showed a declining trend from January to early October, while in the first ten days of January there were in average 56 entries, rising to an average of 30 daily entries in early October and then to 35 in the third week of December. 2021 posts were referenced a total of 341 million times on other community interfaces, of which 51 million times were positive and 8 million were negative. In terms of popularity, it can be said that despite the above, the most prominent posts were made in the last week of November with nearly 24 million further referrals and subdivisions. These entries were briefings on protocols for disease control measures, posts on infection data, and the usefulness of vaccination.

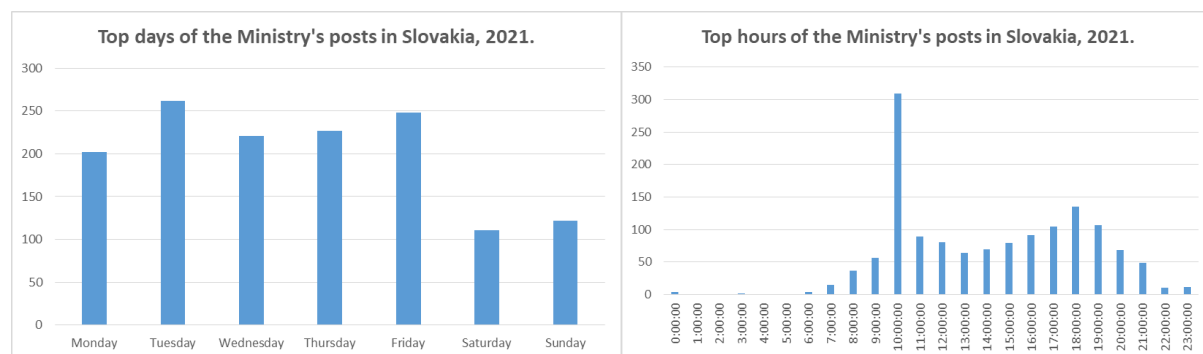


Data source: SentiOne, self-made diagram

In 2021, the ministry published the most posts on Tuesdays (262) and Fridays (248). On the other working days, between 200 and 230 posts were edited, and on weekends, an average of 100-120. The busiest hour was the period from 10 a.m. to 11 a.m. with an average of 309 posts. These entries elicited nearly 993,000 mood responses with nearly 189,000 shares and 332,000



comments. As to the ministries surveyed, the Slovak Ministry achieved the highest Brand Health Index<sup>28</sup>, on a scale of 0.00-1.00. Very good job!



Data source: SentiOne, self-made diagrams

The keyword posts ("Vakcína", "očkovanie", "COVID", "Sars-Cov", "infikovaný/nakazený", "epidémia", "omikrón", "koronavírus", "test", "karanténa", "PCR", "maska") were as follows. In 2020, the highest rate was in the period between the end of October and early November when 157 keyword posts were edited, while 41 posts appeared in the last decade of December and 39 posts in the second week of March. The Ministry published a total of 1,117 keyword posts in 2020 that were cited 116 million times on other community sites, 21 million times being positive, and 3 million times negative. Keyword posts in late October and early November were viewed nearly 14 million times, while those in December nearly 10 million times by other community interfaces. It has been fully demonstrated that the 2020 ministerial communication shifted completely towards pandemic communication. The busiest days were also Tuesday and Friday, with 191 posts on Tuesdays and 178 on Fridays. The Ministry posted an average of around 170 entries on the other working days and 120 entries on weekends. The busiest hours were also between 9 a.m. and 11 a.m. with an average of 132 posts between 9 a.m. and 10 a.m. and 214 between 10 a.m. and 11 a.m.. Keywords such as Covid appeared 839 times, coronavirus 473, and the term test 552 times. In 2020, keyword posts generated nearly 337,000 mood responses, more than 111,000 shares, and more than 189,000 comments.

In 2021, the Ministry edited a total of 1,052 keyword posts, most of them at the beginning and the end of January amounting to an average of 44. On other social sites, keyword posts were displayed a total of 284 million times, of which 39 million times were positive and 7 million negative. The most popular posts appeared in the last week of November 2021, and were published nearly 22 million times by other sites, and the most active days were again Tuesdays and Fridays with 180-190 daily entries. The Ministry also posted between 160 and 170 entries on other working days, and around 100 on weekends. In 2021, the busiest period was between 10 a.m. and 11 a.m., with a total of 289 posts. All keyword posts generated a total of 798,000 mood reactions, 168,000 shares, and nearly 275,000 comments in 2021. Among our keywords, Covid appeared 1,064 times, vaccine 446 times, inoculation 364 times, PCR 355 times, and the term test 306 times.

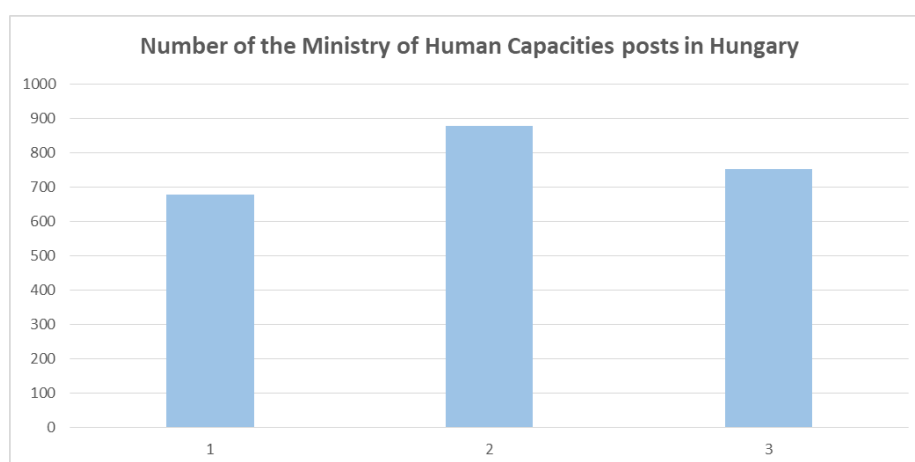
### 3.4 Hungary

<sup>28</sup> Shows the ratio of positive to negative statements in a given time period. Based on a built-in program, the software evaluates each word in the posts and gives a score. It cumulates the score of all the words in all posts and determines whether the page is branded with a positive or negative attitude. The scale can give data between 0.00 and 1.00.



There is no separate ministry responsible for health care in Hungary. The Ministry of Human Resources was set up in 2012 during the second Orbán-Government. As early as 2010, the portfolio of the predecessor institution included education, culture, health, social and labor affairs, and sports. With the transformation of 2012, the responsibilities of the ministry were extended to social inclusion, the development of social and civil relations, the coordination of relations with the churches, the policy of nationality and the social integration of the Roma people. During the period under review, i.e. in the period from May 2018, Miklós Kásler<sup>29</sup> headed the ministry, and Ildikó Horváth<sup>30</sup> was Secretary of State for Health<sup>31</sup>. It is interesting that two Facebook profiles are currently available under the same name - the Ministry of Human Resources. One of them offers almost daily insights into the “everyday life” of the Secretary of State for Development Policy of the European Union<sup>32</sup>, so for the purpose of the present analysis we chose to examine only the official page.<sup>33</sup>

In 2019, the Ministry published a total of 677 posts, of which 213 were health related. These reported mainly about national health - hospital, ambulance, etc. - developments and about the Healthy Budapest Program.<sup>34</sup> In 2020, the Ministry published a total of 876 entries, and in 2021, a total of 753 entries.



Data source: SentiOne, self-made diagram

In 2020, the highest number reported about 130 entries in the third week of March and 24 in the last week of June. The posts of the Ministry appeared on other community sites a total of 15 million times - the highest number in the first two weeks of November with about 3.8 million times, while an another outstanding week was the third week of March. However, these scores were significantly lower than in November when only approx. 1 million people shared or referenced the posts of the Ministry. Of the 15 million appearing posts, the positive posts were mentioned or displayed nearly 2.9 thousand times, while the negative posts 32 thousand times. Posts published in the first two weeks of November included information related to the pandemic measures, vaccination and testing.

<sup>29</sup> Kormany.hu, <https://kormany.hu/emberi-eroforrasok-miniszteriuma>

<sup>30</sup> Kormany.hu, <https://kormany.hu/emberi-eroforrasok-miniszteriuma/allamtitkarok>

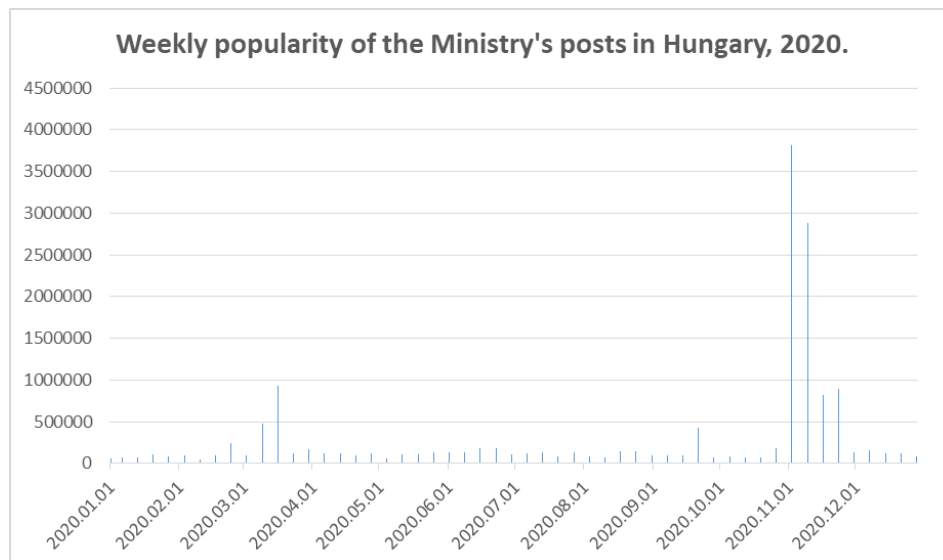
<sup>31</sup> Following the parliamentary elections in April 2022, the new system of Government of the fifth Orbán-Government still doesn't have independent ministry responsible for national health.

<sup>32</sup> <https://www.facebook.com/pages/Emberi-Er%C5%91forr%C3%A1sok-Miniszteriuma/249149391870968>

<sup>33</sup> <https://www.facebook.com/emberieroforrasokminiszteriuma>

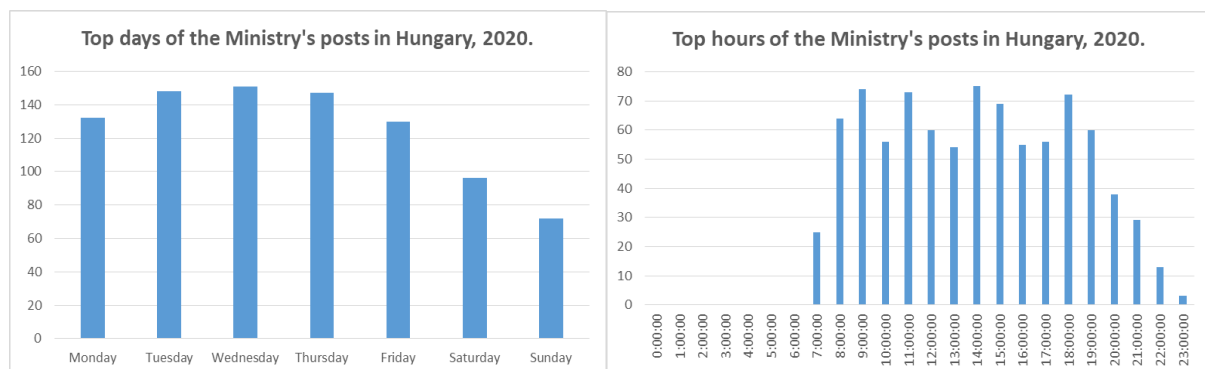
<sup>34</sup> eGov.hu: <https://hirlevel.egov.hu/?s=eg%C3%A9szs%C3%A9ges+budapest+program>





Data source: SentiOne, self-made diagram

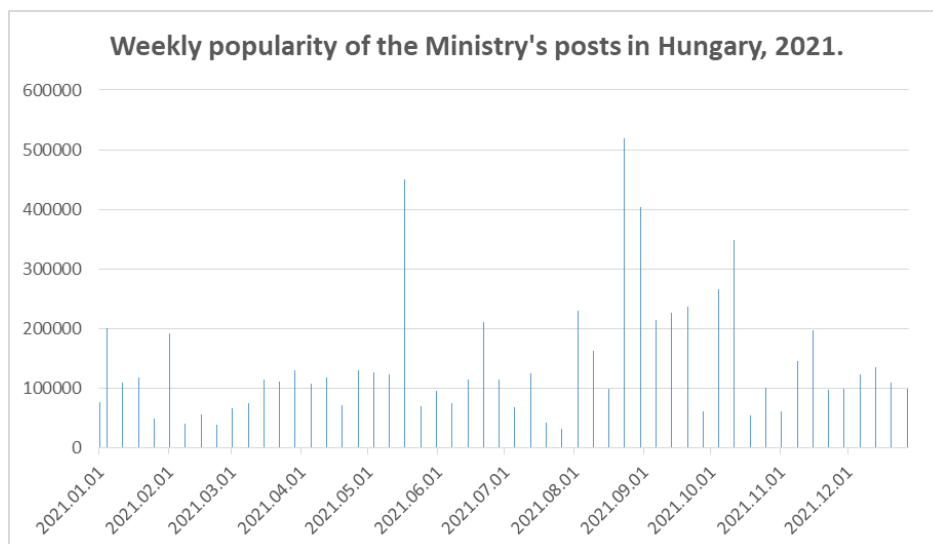
In 2020, the busiest day was Wednesday, with 151 entries. The Ministry was active with 148 posts on Tuesdays, 147 on Thursdays, 130 on Mondays and Fridays, 96 on Saturdays, and 72 on Sundays. Within a day, the Ministry was active in several time zones, posting an average of 74 in the period from 9 a.m. to 10 a.m., a total of 73 in the period from 11 a.m. to 12 a.m., the most active period was from 2 p.m. to 3 p.m. with 75 posts, then between 6 p.m. and 7 p.m. with 72 posts. The posts of the Ministry elicited just over 65,000 mood reactions, generated nearly 14,000 shares and more than 5,000 comments in 2020.



Data source: SentiOne, self-made diagrams

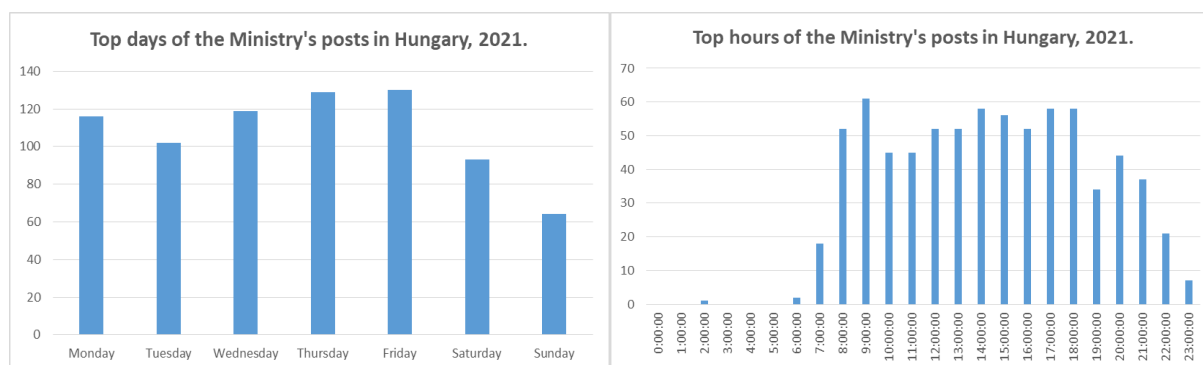
In 2021, the Ministry had an outstanding peak in the fourth week of June, displaying 26 posts. The health-related posts were mainly about rising temperatures and the heat at the time and its effects, and with respect to our topic, they described in detail the vaccination offered to the surrounding countries. The Ministry's posts were displayed on or reached other surfaces a total of 7 million times with 74,000 positive, and 357,000 negative posts. The highest sharing rate of 520,000 times was for posts published in the last week of August, while posts made available in the third week of May were cited more than 450,000 times. Posts created in the second week of October reached other surfaces nearly 350,000 times. The health-related posts made at the end of August were mainly related to the WHO visit to Hungary, as well as the domestic situation of the blood supply emergency and the promotion of vaccination. The posts edited in May were written in connection with blood donations related to accident care, the expansion of ambulances care and services, registration for vaccinations, and epidemic measures in health care. In October, communication on the delta variant began.





Data source: SentiOne, self-made diagram

In 2021, the busiest days were Friday and Thursday with 130 and 129 posts per day. They published from 100 to 120 posts on other days of the week, 93 posts on Saturdays, and 64 posts on Sundays. The busiest hours in 2021 were the period from 9 a.m. to 10 a.m. and from 15 p.m. to 7 p.m.. 2021 posts generated a total of 44,000 mood reactions, more than 4,600 shares and more than 3,720 comments.



Data source: SentiOne, self-made diagrams

The keyword analysis yielded the following results. In 2020, the Ministry published a total of 329 keyword posts. In the highest proportion, it posted about 17 posts in the third week of March and 12 posts each in the first and fourth weeks of April. In terms of the popularity of keyword posts, the highest proportion of posts reaching other community interfaces were published at the end of November 2020 with a ratio of three million. Another outstanding achievement is the number of appearances amounting to 800,000. The number of posts edited by the Ministry and appearing on other surfaces is a total of 11 million, of which the redistribution of negative posts totals 16,000 times, while positive entries did not appear on other surfaces at all. The busiest days were Tuesdays with 59 posts and Fridays with 54 entries. There were also 50 to 53 entries on the other days, 30 +/- on the weekends. Considering the most active hours, a kind of regularity can be observed in the reporting of results and data, as well as in communication. The Ministry displayed an average of around 30 posts in the evening from 7 p.m. to 8 p.m., from 10 a.m. to 11 a.m. in the morning, from 12 p.m. to 1 p.m. and from 2 p.m. to 3 p.m.. The keyword posts in 2020 resulted in a total of 40,000 mood reactions, 10,000 shares and 3,700 comments. Among our keywords, the term coronavirus appeared 202 times and the term epidemic 177 times.



In 2021, the Ministry published a total of 230 keyword posts. The highest number of entries occurred in the last week of March with 10 published posts, 9 posts appeared in the first week of January, 8 in the second week of May and 8 in the first two weeks of June. The 2021 keyword posts were displayed a total of 3 million times on other surfaces, and only the negative posts were displayed 16 thousand times. The largest number of posts published in the first decade of October reached other user interfaces almost 230 thousand times, the posts published in the third week of May amounted to 196 thousand, and the posts published in the last week of June appeared in other user interfaces almost 170 thousand times. The Ministry's busiest day was Friday with an average of 43 posts, and nearly 40 posts were published on both Wednesdays and Thursdays. On the other working days of the week and surprisingly also on Saturdays, the Ministry made about 30 posts. Regularity can be observed in the busiest hours in 2021 as well, with an average of 20 posts appearing between 9 a.m. to 10 a.m. and 4 p.m. to 5 p.m. The 2021 keyword posts generated just over 15,000 mood reactions, 1,800 shares and 1,700 comments. Among our keywords, the term vaccination appeared 209 times, coronavirus 88 times, epidemic 70 times, and vaccine 61 times.

#### **4. Results**

Based on available data, the Polish Ministry of Health was clearly more active in its communication practices during the pandemic than before. It is important to underline that communication on prevention and screening programs, improving eating habits, e-prescriptions and trends of development have been regular topics in the interaction with citizens before, so all in all, the Ministry can be considered an active player in the community space. In the first year of the pandemic, a much larger number of the Ministry's announcements appeared on other surfaces, in the second year this number went back by 50% as did the number of elicited reactions. In 2021, almost the same number of keyword posts appeared, but the number of references on other sites went back to one-third of the original number. The 2020 keyword posts also accounted for a significant proportion of mood reactions, comments and sharings related to the posts on the page. Thus, the figures on the keywords also proved that in 2020 and 2021 greater attention was paid to pandemic related communication. Nonetheless, regarding the brand health of the site it scores below neutral, i.e. it tends to move rather towards negative. From among the ministries surveyed, the Polish was the most active participant. Good performance!

Public opinion of the liability of the minister of health was the highest in the Czech Republic. During the pandemic, communication did not reach twice the level of 2019, so the relations of the Ministry with citizens can be considered relatively balanced, it was rather the content that shifted towards pandemic communication. In the second year of the pandemic, the appearance of ministerial posts on other surfaces decreased by only 23%, with the same proportion of evoked reactions. Interestingly, the re-shares of the keyword posts in 2021 went back by 50% as compared to 2020, however, they generated a similar number of emotional responses and comments, and the access of other internet interfaces remained the same as well in 2021. Keyword measurements also proved that communication related to the pandemic increased significantly in 2020 and 2021, so we can conclude that the Ministry also played an important role in providing and disseminating information on the pandemic, and the site continued to convey a very positive attitude (0.84 and 0.89 Brand Health index). Nice job!

In the case of Slovakia, it was clear that the ministry's communication increased threefold in 2020 and twice in 2021 compared to the pre-pandemic period, and based on available information, it clearly shifted towards pandemic communication in terms of content. This was also confirmed by the keyword entries, in both pandemic years, two-thirds of the entries



contained pre-set keywords fully reflecting the prominent role of the Slovak Ministry of Health in pandemic communication. In contrast to the Czech Republic, in Slovakia the posts for 2021 appeared in a higher proportion on other surfaces - more than twice as many as in 2020. At the same time, the incidence of positively and negatively charged posts remained nearly the same. During the two years under investigation, the number of the created keyword posts was almost the same, but in 2021 they reached two and a half times as many surfaces as in 2020. It was a nice outcome that the Slovak site (0.92) reached a more favourable score than the Czech page (0.89), which can be considered the more positive since there was a significant fluctuations in the leadership of the Ministry. Very nice job!

Regarding Hungary, it is interesting that there is no independent ministry responsible for national health care. And there will be no changes to this in the near future. Hence, the communication of the super ministry responsible also for health care is divided between the several areas under its jurisdiction, but examining the data for 2019, 2020 and 2021, we found that approximately one third of the communication was devoted typically to health-related entries. This score was also confirmed by keyword studies, with keyword posts accounting equally for one-third of the total communication. It can be stated that during the pandemic, the health-related entries of the Ministry were almost entirely related to the pandemic, so the previous practice was transformed into pandemic communication in terms of content, but in terms of quantity it did not significantly contribute to the dissemination of information. During the pandemic, no significant increase in the number of posts was observed. Overall, this was the most negative site of those surveyed with mostly negative emotional posts appearing on other surfaces, as well. Moderate pleasure.

The daily communication practices of the ministries were relatively balanced day in Czechia, Poland and Slovakia, while in Hungary they were more fluctuating - either rising and then falling or alternating. At the same time, in intraday communication, it can be observed that in Hungary there were several active time periods, while in the other countries the ministries typically communicated during outstanding time periods. Looking at both types of available data, the procedure might have been as well planned by the ministries as it may have been rather random, however, based on the hourly graphs of the countries under investigation, we would rather vote for planned communication.

## **5. Conclusions**

In the case of all four ministries, we can conclude that social media as such has not become an integral part of e-administration, especially since all countries entertain their own official interfaces for this purpose. At the same time, information in connection with the electronic interfaces and the administrative procedures and processes were to a significant extent transferred to the community interfaces, since they ensure that large numbers of customers can be reached quickly and simultaneously. The same tendency applied to encouraging the communication on data regarding the spreading of the disease or the uptake of vaccines, thus strengthening prevention. In all four countries, we see that the communication of the ministries has changed compared to the period of 2019, however, when it comes to defining this change there are clear-cut differences. In Poland, the communication of the ministry multiplied, thus, showing a significant increase in numbers. It can be stated that social media is deeply embedded in keeping customer relations and providing information. Looking at the data analysis of the three years under investigation, in the first year of the pandemic, considerable attention was paid to the ministry's announcements - they appeared very often on other internet user interfaces, but in the second year this number decreased by half, while still being significant in numbers compared to other countries. It can be assumed that citizens have become accustomed



to the newly introduced procedures and processes in administration, and although they continued to monitor the activities of the ministry, the information provided there became part of their daily routine. With this in mind, the use of community interfaces has proven to be effective in informing customers. In Czechia, the Ministry's communication increased somewhat, but not to a large extent in the years concerned. The extent of communication activity, thus, remained almost the same, although, in terms of content it shifted towards pandemic communication, taking on a significant role in informing citizens. Posts published by the ministry appeared a quarter less times on other sites in the second year, while the number of keyword posts fell by half. Here, we also came to the conclusion that the ministry's information activities, although they played an important role, became commonplace in the lives of citizens, as evidenced by the changing of emotional reactions. The site, like the Slovak ministry, also used positive communication. In Slovakia, the number of posts published by the ministry multiplied, i.e. epidemic communication played a significant role. However, unlike other countries, the second year of the pandemic showed an increase in the display of ministerial posts on other surfaces, this meaning that in 2021, more people paid attention or reacted to the information provided by the Slovak ministry on its site, this is surprising, since it was from the start the most positive of all sites analysed in terms of its communication. This may be due to the fact that the official pandemic communication - similarly to Hungary - took place primarily with the participation of the Prime Minister or the officials authorized by him. In the case of Slovakia, the Minister of Health, the Prime Minister and the National Chief Medical Officer, in the case of Hungary, the Chief Medical Officer and the State Secretaries of the various areas formed the team responsible for official communication (Operative Staff). Based on the above, it can be assumed that the ministry provided continuous information, but in the second year, citizens also started to follow the site. In Hungary, the ministry responsible for health care has several other areas under its jurisdiction, so there is no communication page exclusively devoted to health care. The Ministry of Human Resources (MHR) communicated almost as much in the years under review, rising somewhat but not significantly during the pandemic. In Hungary, too, the content changed moving towards information about the pandemic, even though, the ministry did not play a decisive role in pandemic communication. With the formation of the fifth Orbán-Government, the MHR ceased to exist, however, the areas such as national health and education will not have independent responsible ministries, but will be integrated into the Ministry of Interior from 2022 onwards.

The impact of the pandemic also had its impact on the functioning of public administration, since it had to adapt flexibly to available administrative and information opportunities. The importance of the topic is also shown by the fact that vaccine purchases have caused social controversy in all states, and pandemic management is likely to have significantly influenced ministry work. An exception to this is Hungary, where vaccine purchases were made with the full support of the Government; even if there were conflicting opinions, these did not affect the provision of vaccines to citizens. This, however, could be an exciting subject for another study.



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