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The infocommunication and media aspects and impact of the COVID-19 pandemic on Hungary in relation to the market and the public administration theory

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Annotation

The study provides a detailed analysis of the impact of the current COVID-19 pandemic on the market as well as the organisational and legal aspects of public administration in Hungary. In particular, the study focuses on what fundamental influence the pandemic has on the communication and media market and the financial management thereof. These impacts are not necessarily negative of course, but the majority are. Nevertheless, without distinguishing between positive and negative effects, the author of the study analyses all the impacts and correlations caused by the pandemic in these two key economic segments which are relevant from the perspective of public administration.

Keywords

economic public administration, communications, media, COVID-19 pandemic

Introduction

The pandemic caused by the new coronavirus has largely shaped the year 2020 and has changed people's life and lifestyle on a micro and macro level. It would be no exaggeration to say that the effect the pandemic has had on individuals, the society, the economy, culture etc. is incomprehensible and difficult to examine, even in segments. In this summary, the pandemic situation is explored with respect to infocommunication and media in a broader sense (the traditional, primarily electronic and social media).

This study was prepared thirteen months after the detection of the virus in Wuhan, China. Recently, the delivery of SARS-CoV-2 vaccines and the vaccination of the population have begun, which offer reasons for hope, and now the end of the pandemic might be estimated to be in the foreseeable future. However, even with the application of the vaccines, the pandemic is not going to be over in a matter of weeks, what is more, a new variant of the new coronavirus has emerged in several countries, which spreads more easily.

Considering the complexity of the pandemic situation and the open-ended nature of the process, the aim of this study is to give a non-exhaustive, brief overview about the impact the pandemic has had on the infocommunication and media sectors, and about the particular phenomena that have occurred in

these areas. The main achievements of the market and the public legislation regarding infocommunication and media in the pandemic-stricken year of 2020 will also be discussed briefly.

I. Infocommunication

I.1. The effects of the pandemic on infocommunication

Due to the spread of the new coronavirus, most people have found themselves in a life situation they had never experienced before – including spending several weeks or months at home or possibly in isolation, the changed circumstances of work and school, or the uncertainty resulting from the economic recession. During the quarantine and the lockdown, electronic infocommunication has been playing a more important role; what is more, it has become paramount, strategically significant, and in terms of the national economy, the most prominent area. In these circumstances, the means to keep in touch, keep informed, study and relax made possible by the infocommunication services often become exclusive.

As a result of the pandemic, the use and load of electronic infocommunication services have increased. Voice and data traffic have grown, both in terms of fix and mobile services, networks. Most of the underlying causes are well-known facts mentioned above: quarantine, restrictions, home office, remote education etc. People have moved from an offline lifestyle onto an online one. Many white-collar workers have created a little office for themselves in a corner or a room of their home, where they organize video conferences with colleagues. In several cases, the pandemic has changed the volume of work, and blurred the line between working and free time. Children in full-time compulsory education participate in lessons via their computer, tablet or mobile. As a form of recreation, people can watch theatre plays performed in an empty theatre, “go to the cinema” and see what movies the streaming service providers have to offer, or watch television series online. Compared to the pre-pandemic period, home network load thus practically spans the entire day. Before the pandemic, the busiest hours were between 8 PM and 10 PM, however, since the pandemic, the busies hours have been between 9 AM and 10 PM – home office and distance education take place during the day, and the evening is for recreational use.

Due to the pandemic, fixed and mobile internet data traffic increased by 20-40% in the spring of 2020 in Hungary. The telecommunication infrastructure in Hungary can handle an even larger load, and looking at the issue in a broader sense, it can be established that this was only a minor spike. While in 2010, the total internet traffic in Hungary was 100 petabyte, by 2019, this amount grew twelvefold, and according to the most recent estimates, it can triple or even quintuple by 2030.[1] The mobile market report by the National Media and Infocommunications Authority (hereinafter: NMHH) examining the first half of 2020 proves that people telephoned and used the internet more because of the pandemic. Owing to the virus situation, compared to the end of 2019, call traffic increased by 13.8% and internet traffic grew by 30.1%.[2]

The data and call traffic are also significantly bigger in the second, prolonged, larger wave of the coronavirus pandemic. Summary statements are not available yet, however, as can be seen in the traffic statistics of Budapest Internet Exchange (BIX)[3], internet traffic has increased.

All in all, infocommunication networks have been able to fulfil and handle the significantly increased demand for use, for which, naturally, the active and proactive behavior of the service providers and network development were essential.

A number of researches and surveys monitor the infocommunication aspect of the pandemic; for example, people can keep up with the processes and news on TeleGeography's website[4]. The site describes these developments either in terms of network impacts or industry response, also taking into account the challenges emerging due to the presence of home office. Several of the news posted on the webpage confirm the increased traffic and bandwidth demand.

More prognoses, analysis and adjusted analyses in view of the development of the virus are available online. Regarding telecommunication and media, the analyses of Analysys Mason are the most authoritative. According to a forecast they published during the first wave[5], the infocommunication industry can only fully recover in 1–4 years. The report describes three scenarios: The first, optimistic scenario states that none of the economic areas will suffer much from the loss, they will recover in approximately one year, provided that by the end of 2020, an effective cure for coronavirus is developed. The second, realistic scenario is based on the prognoses of the International Monetary Fund issued in April 2020 for 2020 and 2021, pursuant to which at least two years is necessary for producing the same economic results as before. The third, pessimistic scenario anticipates a protracted slump, in which the second wave also prevents the normalization of the conditions, and presumes the occurrence of other events implying instability; this scenario expects the crisis caused by COVID-19 to be similar to the recession of 2008. The research done by Analysys Mason shows that in comparison to Q2 2019, the operating results of large infocommunication service providers in North America and Western Europe dropped by 5% in Q2 2020. Compared to the same period of the previous year, these negative results were a general trend, and mainly mobile service revenues declined. This, however, was not due to the decrease of subscribers, but to the loss of roaming revenues. The increasing or stagnating number of subscribers was coupled with decreasing traffic revenue per subscriber – which did not necessarily mean that traffic declined, considering for example the several gigabyte free data traffic packages offered by service providers during the quarantine –, and this is what caused the mobile results to go down. By the beginning of the second wave, it had become apparent that the research company's mild, optimistic forecast was not going to become reality, nevertheless, there is still hope that it will take less than four years for the infocommunication sector to reach the pre-pandemic and pre-crisis results.

The impact of the pandemic and the crisis on the infocommunication sector is thus mixed. The industry suffers the consequences, however, the changed circumstances require the safer provision of infocommunication services on a larger scale, and the increasing needs and demand lessen the negative effects. Some analyst companies have provided the infocommunication market players with crisis management, "survival" strategies and advice. In its analysis on the Central and Eastern European region, PricewaterhouseCoopers (hereinafter: PwC) points out that since the effect the pandemic has on businesses is increasing more and more, if telecommunication companies wish to overcome the crisis, they need to adapt to these new circumstances, too. They need to concentrate on the following five, and in terms of the future, crucial areas:

– reconsider the multichannel approach and digital customer experience;

– prepare for possible governmental interventions in the economy, such as asymmetric taxation of quickly growing industries, or the restriction of debt collection for the protection of at-risk consumers;

– bear liquidity in mind, and prepare for the possible surge of bad debts;

– assess acquisition opportunities; and

– consider joining new market segments with higher potential, such as online education or telemedicine.[6]

I.2. Infocommunication against the pandemic

The unusual circumstances caused by COVID-19 have triggered surprising reactions in people and social groups, and have intensified existing, unfounded fears. Until the spring of 2020, almost 140 telecommunication infrastructure elements (mainly cell towers and base stations) were damaged in Europe out of fear of health risks associated with the fifth-generation mobile network, in particular, the spread of the virus SARS CoV-2 through 5G systems. The most cell towers were vandalized in Great Britain, but many were damaged in the Netherlands. In some cases, the vandalized tower did not even have an infocommunication element necessary for the provision of 5G services, or an antenna. The issue was discussed in the World Health Organization (hereinafter: WHO) and at the higher levels of the European Union, and fake news and conspiracy theories were scientifically refuted. The Hungarian National Public Health Center also published an information notice about the health issues related to 5G systems, and drew attention to the fact that the coronavirus and other viruses are not able to spread via radio waves or mobile networks.[7] Other horrible, "trolling" conspiracy theories about 5G also circulated, which then had to be proven false by the scientific community. For example, it needed to be established that the nose wire in surgical masks is not a 5G antenna, and there is no 5G or other type of nanochip, containing the circuit of pedals used for distorting the sound of electric guitars, in the vaccine.[8]

Despite rationally inexplicable phenomena like these, infocommunication undoubtedly contributes to the fight against the pandemic: the aggregated, country-specific and mobile network-based understanding of people's pattern of movement is useful for the authorities during the pandemic, because it might help monitoring the spread of the virus, which is necessary for making decisions aiming at restraining the pandemic. It is important to mention that data protection principles and rules need to be applied, that is, information that might identify the customer (e.g. name or phone number) need to be removed from the data.

Various boards, researches, regulators, recommendations etc. are concerned with this issue. A study[9] prepared in the spring of 2020 by the Cullen International on 13 European countries summarizes the measures implemented by the governments and authorities of participating countries for the fight against coronavirus disease, the data sharing and data processing requirements set down by electronic infocommunication service providers, and voluntary data sharing agreements. For example, the Czech Republic, Slovakia and Spain passed a separate act on obligating electronic infocommunication service

providers to share data with authorities. In Belgium, France, and Italy, drones were used for monitoring the public's compliance with social distancing rules.

The industry organization GSM Association (hereinafter: GSMA), with more than 750 mobile service providers and 400 other organizations as members, discussed the usability of mobile data in its summary[10] published in May 2020. The study divides the huge amount of data generated during the operation of mobile networks into three categories: *a)* data on the structure and state of the given network, *b)* customer relationship management data, including the social and demographic data of customers, such as age, gender or other social characteristics, *c)* event data, which are the most unique and contain the most personal information. Event data usually records information about interactions between subscriber and network devices, including phone calls, SMS and internal network data generated during data traffic, related to traffic and not content. Event data also include call description records (CDRs), sometimes referred to as metadata, containing information about traffic patterns, and data showing which cell tower a particular SIM card is related to at a specific time. Depersonified data can be utilized for several purposes: aggregate network traffic data can reveal the number of calls to services providing information and assistance in connection with the COVID-19 state of emergency, and to regular helplines. Origin-destination (OD) matrixes show the volume of people's movement between locations or regions. These can be used to build network models that help predict the spread of infection, monitor the impact of travel restrictions over larger distances, and understand how people move during the crisis. The study contains several examples of cooperation between service providers and authorities, demonstrating that even for the sake of data supply sharing, market players collaborated with the government/authorities to fight against the pandemic. Data collected through mobile applications were also discussed in the study. In most of the participating countries, health authorities were granted access to data collected through mobile applications; usually, data sharing was based on users' consent.

In April 2020, the European Commission (hereinafter: Commission) published a recommendation[11] for the development of a European toolbox concerned with the use of mobile applications and mobility data supporting the fight against COVID-19 (*EU toolbox*). In the recommendation, the Commission asked EU Member States to inform the Commission and the other Member States, for the purposes of expert review, about their measures taken in connection with mobile applications and mobility data supporting the fight against COVID-19. Moreover, the document offered some general guarantees, such as personal data can only be processed for the protection against the virus, not for commercial or law enforcement purposes. It needs to be examined regularly whether personal data are necessary, and if not, the data in question need to be destroyed, unless the scientific value of these data exceeds their impact on personal rights. Furthermore, the Commission underlined that mobility data are essential for mapping and forecasting the spread of the pandemic.[12] Following the recommendation, the document detailing the toolbox, the guidelines facilitating interoperability, and the document containing the technical specifications were also published.[13] In its guidelines about the application of mobile applications related to the fight against COVID-19, the European Data Protection Board (hereinafter: EDPB) pointed out that the user's consent is not necessary for the processing of personal data by public authorities. According to the EDPB, an act referring to an overriding public interest stipulating the processing of personal data by authorities is an appropriate legal basis. In exceptional

circumstances, the tracking of end users of infocommunication services (i.e. using and processing historical, non-anonymous location data) can be considered proportional, states EDPB.

In connection with data supply, the Government Decree in force during the state of emergency in the spring of 2020 laid down a general rule stating that the Minister of Innovation and Technology is entitled to know and process every available data for the purposes of preventing a human pandemic that endangers life and property and causes massive disease outbreaks, for the purposes of eliminating its consequences, protecting the health and life of Hungarian citizens, and modelling and analyzing the spread of the pandemic, moreover, public and municipal entities, business entities and individuals shall support the Minister in carrying out his tasks, and supply the required data.[14]

In Hungary, several mobile applications are available for the protection against the virus. The contact tracing application VirusRadar stores the anonymous data of users with whom the user has been at one location for a considerable amount of time. If either of them is tested positive, the system notifies the others of the risk. During its operation, the central data registry does not receive data; the user's mobile phone monitors the surrounding devices via Bluetooth Low Energy, collects their unique identifier, and stores it for the duration of the virus' approximate incubation period, i.e. for about two weeks. In order for a contact to be stored, the two devices need to be within about two meters for 20 minutes; the program therefore does not register the momentary proximity of two people passing each other on the street. Data need only be submitted to the centre, which can be done by tapping the appropriate button in the application, if the user has been tested positive for coronavirus. Afterwards, the relevant telephone numbers are generated based on the unique identifiers, and text messages can be sent by the health center's contact tracing experts to other users, informing them that they might have been infected and should stay in quarantine.

The Home Quarantine System (hereinafter: HQS) is an application that helps monitor compliance with quarantine rules in the case of people placed in official home quarantine due to COVID-19 infection, and enables the registration and supervision of ill people in quarantine. HQS can only be used by people placed in official home quarantine. The system supervises compliance with home quarantine rules through remote monitoring (with login requests): it gathers the spatial coordinate data of the person in home quarantine from their smartphone, and checks the identity of the smartphone's user based on their self-portrait via a built-in facial recognition system. The user may fill out a short health assessment questionnaire in the application three times a day. The questionnaires are used anonymously, on an aggregate basis, to estimate the number of serious cases in the near future.

Technology and infocommunication assist the control of and fight against the pandemic in several other ways. For example, in China, police officers were supplied with intelligent helmets that notify the person wearing them about people with high body temperature. Intelligent bracelets are also available, which warn users if their body temperature is significantly higher than the normal level. Connected thermometers are used in several Chinese hospitals, which conduct real-time monitoring of the body temperature of coronavirus patients, and forward the obtained data wirelessly to the central patient care station for constant observation. Data collected from connected thermometers were used to draw up maps that show aggregated temperature and fever data per region and county. Comparing body temperature data and the number of casualties of the COVID pandemic per county, it was found that the change in body temperature data is followed by the change in the number of casualties in eighteen

days. As a result, based on body temperature data, the expected evolution of the pandemic can be forecast two and a half weeks ahead.

II. Media and social media

Some of the media trends emerged due to the pandemic are evident, although this does not affect the weight or significance of the observed phenomena. For example, that fact that the virus has changed media consumption habits and increased content consumption is self-evident. A study showed that in the spring of 2020, every fifth household in the UK subscribed to some sort of new streaming service. Quarantine fatigue also appeared in the sense that as more and more time passed in isolation, media consumption, digital presence, playing online games etc. somewhat decreased.[15] Experience shows in Hungary, too, that media content consumption has undergone major transformations, nevertheless, the presence of television is still justified as older consumers are strongly attached to it.

Important cultural, media, sport etc. events have been canceled due to the pandemic, and the circumstances of content production have become more difficult. As a result of the economic shutdown in the spring and the economic problems still persisting, businesses have reduced marketing and advertising costs first, causing the income of media market players to drop. The delay in content production and the decrease, stagnation and slower-than-before increase of money spent on advertising by different media have had an adverse effect on the media industry and commercial media. This is partly compensated by expanded media consumption.

The European Union dealt with the state of the cultural and creative industry (hereinafter: CCI), which, in a broader sense, also includes the media. CCI plays a crucial part in the Union's economy, and has long-term, enormous growth potential. The cultural and creative industry provides a bridge between art, culture, business and technology. It has been established that within CCI, media sector needs direct support. The industry needs to be saved, because both smaller and larger media have lost a significant portion of their advertising income and supporting them is essential for the preservation of healthy democracy and the fight against disinformation. The Commission stated that it would reinforce European audiovisual players against global competitors by tightening up the rules related to cross-border cooperation and fair competition, in particular concerning audiovisual media available via platforms, and that it would create a separate financial framework for the Creative Europe program[16], which enables the test of innovative financial solutions supporting the media industry, the full-scale dissemination and adoption of digital technologies, and the development of firm European content creation mechanisms.

II.1. Media services

The impact of the pandemic on television has several aspects. Linear media consumption has increased, although content has partly changed.

In May 2020, Ampere Analysis discovered, and predicted, that the pandemic had hindered the production of 60% of scripted television (content produced with a script e.g. series, movies), and the premiere of about half of the content intended for 2020 had been delayed. The proportion of non-scripted productions (content produced without detailed script, e.g. talk shows, game shows and remotely produced mini-series) had increased, and these programs were shot quickly to cover gaps in

the television program schedule.[17] Television broadcasting companies left their more expensive, already finished productions "unpacked", because due to the drop in advertising income, broadcasting them would have been unprofitable. Besides broadcasting fictional and entertainment content, and news, television plays a significant role in remote education, rivalling other online remote education solutions, especially in low-income countries. According to UNICEF's worldwide research, television reaches more than 80% of the school-aged population, however, there is great diversity: in some African regions, this number is less than 10%. 77% of the analyzed countries broadcast educational programs in television during school closures resulting from the pandemic.[18]

The topic of how the pandemic is, and will be, represented in fictional media content is interesting, although not easy to discuss. Screenwriters will be able to draw heavily on the events of 2020. Non-fictional movies and series about the pandemic and its impact on human relationships have already been broadcast. For example, *Coastal Elites*, aired on the American HBO in September 2020, includes the monologues of five people living in New York and Los Angeles, sharing their thoughts on life before and after the quarantine. Interestingly, the movie was entirely shot via Zoom. The series titled *Connecting* follows the life of a group of friends during the pandemic, showing how they keep in touch. *Social Distance* discusses life spent in quarantine from the viewpoint of family, friends and couples.[19] Hungarian movie artists, now locked up at home, such as screenwriter and director Ildikó Enyedi, have also been concerned with the topic of isolation. However, her short movie prepared upon the request of the Thessaloniki International Film Festival was not broadcast on television but was available online, along with other short movies constituting a part of the Film Festival's project.[20]

Regarding television, advertising spending has decreased, even if consumers have not necessarily noticed the fall in the amount of television advertisements.

During the first wave of the pandemic, the NMHH monitored the development of the Hungarian television advertising market and the impact of coronavirus on the media market. The study focused on the effect the coronavirus pandemic and the related series of governmental measures had on the television advertising market.[21] By June, the downwards trend of advertisement volume had stopped, what is more, compared to May, a slight increase could be observed. However, numbers were still significantly lower than one year before. More and more advertising minutes were sold: the daily average was only 238 hours in March, 205 in April, and 151 in May, yet, in June, 167 hours were recorded as sold. The plummet of the number of new advertisements broadcast for the first time seemed to come to an end by June as well: In June 2019, approximately just as many commercials were broadcast as in 2020 (371 vs 361). The difference between these rates in March, April and May were 13%, 51% and 64%, respectively. The development of the sector-level distribution of advertisements was mainly characterized by food, trade, medicinal preparations, cosmetics and household commodities commercials, whereas the advertising of other sectors (such as leisure, financial institutions, services) dropped significantly.

During the pandemic, television and online media analysis constitute the largest part of media research. Furthermore, studies have to take into account – as established by the UNESCO, too – that in the majority of the developing world, radio is still the most reliable and most affordable way of accessing and sharing information. For example, in Eastern African countries, community radio stations

serve as social channels, and about 20-25.000 people participate daily in the broadcast radio talks. The public, anonymous discussions on the radio are usually accounts of events the citizens have experienced firsthand, not recorded elsewhere. Naturally, during the pandemic, most of these accounts are opinions about the unfolding COVID-19 crisis Public radio talks are an important source of information, because although only a part of the population's belief and experience are represented and included, the amount of these data exceeds the volume of data collected through other means. The UN Global Pulse[22] conducted a research in Uganda in April 2020, and, with the help of artificial intelligence, analyzed millions of anonymous opinions heard on the radio in order to utilize this information source in the fight against the pandemic. Even though it has receded into the background in the developed world, radio is, after all, still an important medium.

II.2. Press

The pandemic has had an especially adverse effect on the newspaper printing market, which had already been dwindling due to the expansion of digital media. The number of newspapers sold has dropped, causing the number of advertisements to plummet, and subscribers have been faced with unreliable deliveries. As coercive measures, newspapers have been suspended, their number has been decreased, or issues have been combined. Some representatives of the printed media say the future of printed press is at state.In several European countries, comprehensive programs have been launched to support publishers, and it has been generally established that the innovation of the media market and the digitalization of media products and their distribution – and reasonable support for all this – are required for the protection of the content industry.[23]

Miklós Vaszily, President of TV2 Group, in an op-ed article[24] in March 2020, stated that the pandemic might be the last nail in the coffin of printed text (press), the Gutenberg Galaxy. Looking back some months later, it is clear that although printed press products have been suffering from the pandemic, it is still too early to say goodbye to daily newspapers and periodicals. The dominant role of digital press products is, however, significant. In his presentation on the future of journalism, John V. Pavlik, Professor at Rutgers State University of New Jersey, emphasized that traditional journalism is in a crisis, and "local news deserts" have formed in smaller towns and regions due to the disappearance of news agencies and periodicals in smaller communities. Nevertheless, he stated that there is demand for trustworthy, quality news from reliable sources, especially in connection with the pandemic. This demand can be satisfied by digital platforms, which, thanks to new business models and subscription plans, are able to finance their operations and create the conditions for quality journalism. The data from the Reuters Institute's 2020 survey confirm the increase in the number of subscriptions in the United States, which proves that people are willing to pay for quality news.[25]

II.3. Social media

Another characteristic of the coronavirus pandemic is that many communication channels are available, and the flow of information is extremely fast and hard to follow or control. Social media platforms play an important role in this plethora of communication, information and content production, and even though some had already, long before the pandemic, considered them a dominant way of (mass) communication and contact, the virus has rendered social media even more

essential. The time when it was still regarded as an entertainment platform is already history; nowadays, politicians are seeking a way to connect with their voters on these platforms, crucial decisions are announced on Facebook, and the former President of the United States has published his thoughts on Twitter. People can read, write, watch and publish videos on social platforms, and can immediately add their comments. People can also advertise, and if they are determined, persuasive and attractive enough, they can take up the role of a billboard themselves.

Therefore, these platforms can be used for many purposes. During the pandemic, the composition and distribution of social media use have transformed. News consumption in social media has been gaining prominence in recent years. According to a statement[26], most people use social media in order to stay informed and up-to-date, and for 36% of users, this is the top reason for logging in. As stated in the survey, staying in touch with friends, consuming funny, entertaining content, and "filling up spare time" on social media platforms are the main motives for using social media. Some users, mainly from the younger generation, however, also concentrate on self-expression and content production. Video production has multiplied since the pandemic, due also to TikTok, though quality movie content is rare. The effect social platforms have on mental well-being has also become more significant during the pandemic. A lot of users log in to not feel isolated, and to relieve some tension and anxiety.

The huge body of information available on social media has advantages but also dangers regarding the coronavirus. In many cases, official medical information and the development of protocol have been preceded and assisted by the flood of medical information in social media. According to a Brazilian author duo, the responsible use of the potential offered by social media can help spread new information, and is suitable for the sharing of scientific results and diagnostic and therapeutic methods, all without geographic boundaries. Nevertheless, one needs to exercise reason and caution when using social media platforms for these purposes. The author duo names the fast sharing and dissemination of medical information, experience and protocols as main advantage, which has facilitated the work of the staff at smaller hospitals and treatment centers at identifying and treating people infected with coronavirus. Quoting a survey, they state that until 5 March 2020, the view count of YouTube videos mainly searched for with the help of the keyword "coronavirus" and posted by news channels reached 165 million, however, only one third of these videos contain methods of prevention and only half of them list the symptoms of coronavirus, while 90% deal with casualties, the quarantine etc. Based on these numbers, the authors believe that both YouTube and the news channels have missed the opportunity to impart quality information on prevention and diagnostics.

The dissemination of scientific materials and results in social media increases the number of their downloads and references. Moreover, social media enables research cooperations and collaborations, regardless of physical distance.

The biggest risk of gathering information from social media is information not being up to date, verified, applicable for the situation concerning which it was searched, or being downright false. Furthermore, via algorithms in social media applications, users may find themselves in a so-called "information bubble", which means that based on their searches, the algorithms offer them similar content, thus locking them in a small "box of information" and keeping them from other sources. The most considerable disadvantage of social media is the fact that this flood of information, especially if it contains distorted, false, exaggerated information, may lead to fear, stress or depression in people with

otherwise no psychiatric disorders. This is particularly dangerous in an uncertain situation such as the one caused by the pandemic.[27]

False information and fake news are dangerous not only in general, but also regarding the flow of medical information; during the pandemic, fighting them is crucial. Manipulating smaller communities or masses with distorted information and fake news is a method as old as humanity itself, and it can serve the authorities. However, fake news is not only an instrument of politics; it can be used by anyone with malicious intent, or for fun[28]. For this, the worldwide internet and – as already mentioned – social media, which is the simplest way of individual content production, provide an unlimited set of tools. The most characteristic symptom of this tech-oriented era permeated by fake news is the age of post-truth, where public opinion is shaped less by objective facts and more by emotions and beliefs.[29] All this provides a breeding ground for the acceptance and sharing, i.e. the dissemination, of false information. Today, the pandemic provides a breeding ground for the spreading of fake news. For this reason, it is essential for people to recognize fake news and to equip themselves with the ability to filter out false and misleading information. Providing reliable and credible information is a complex issue which raises ethical, legal and social questions. In recent years, many studies have been published on the fake news phenomenon and the fight against its spread. Most of the authors agree on the question of practical measures: fake news can only be overcome by making credible information available and emphasizing source criticism.

Several fact-checking websites (such as NewsGuars) refute fake news. These sites, usually run by journalists, examine different webpages with regard to, among others, their creator, source of content, advertisement placement, title giving habits, and often use a scoring system to determine how reliable and credible each page is. The fight against fake news is made difficult by the fact that fake news spreading in the closed groups of social media platforms are invisible to those trying to eliminate them.

WHO's technical risk communication and social media team is continuously monitoring misconceptions and false statements, and provides credible answers and information refuting them. With the help of six regional offices and their partners, the headquarters of WHO in Geneva is working day and night on identifying the most widespread alarmisms and fake cures, because these have the potential to cause damage to public health. Besides running a webpage supplying credible information about coronavirus, the WHO[30] has created a mythbusters site[31], where the previously mentioned statement about 5G towers not spreading the virus is also available. WHO's mythbusters team aims at preventing the circulation of fake news with the help of companies such as Facebook, Google, Pinterest, Tencent, Twitter, TikTok and YouTube.

Facebook, for example, deletes content deemed false by WHO, and sends a notification to users having come into contact with the fake news in question, containing the refutation of WHO's mythbusters team. Moreover, Facebook collaborates with sixty organization in fifty languages on marking suspicious cases and removing fake news. Even though social media platforms, under pressure from public opinion, are trying to take action against fake news, they have not been able to delete all of them, because destroying the initial piece of news does not prevent the spread of its copies and shares like wildfire. News reported as fake by fact-checkers – who are, of course, not infallible themselves – are only partly blocked by social media sites; according to a source (an estimate) more than half of them

and nearly a quarter of them are still on Twitter and Facebook, respectively. Naturally, public entities and government bodies also contribute to the fight against fake news, just like, with their own tools, the custodians and guards of the Gutenberg Galaxy: the libraries.[32]

Many claim that algorithms used by social media platforms to filter out fake news and content not belonging to the category of freedom of expression are "digital censorship". There are initiatives for the "boycott" of the most significant social media sites and the creation of new platforms. In December 2020, the social media site "HunDub" – referred to as "Hungarian Facebook" by journalists – was launched, which, according to the creators' statement, was developed due the increasing number of Facebook bans, and promises the absence of "political censorship" to its Hungarian target audience. Regarding its services and appearance, the alternative social media site bears resemblance to its "big brother". How successfully it can compete with it, though, remains to be seen.

Social media had already been developing rapidly before the pandemic, and its opinion-forming, economic etc. force has been undeniable for a long time. The pandemic situation has caused social media use to grow, thus increasing the responsibility and economic power of the site operators. Regardless of the pandemic, but related to the power and position of social media companies, Facebook and Google are going to be faced with competition lawsuits in 2021, where the split of these large companies will be at stake. These notable events will be followed by procedures against other tech giants (Amazon, Netflix).

II.4. Coronavirus and freedom of the press

The protection of the freedom of the press is especially in extraordinary situations, under special legal order. Several organizations are examining whether the freedom of the press is exercised during the coronavirus.

In its report[33] of October 2020, Freedom House established that since the pandemic began, the condition of democracy and human rights has grown worse in 80 countries. Among the experts surveyed, more than half agreed that the impact of the COVID-19 pandemic on democracy and human rights will be mostly negative over the next three to five years. Almost half of the examined 192 countries have experienced restrictions in the news media as part of the response to the coronavirus outbreak. Among others, governments have limited independent questioning at press conferences, and investigative journalists covering the pandemic have been persecuted and arrested. International Press Release collects and publishes data concerning the restriction of the freedom of the press on its website[34]. The evaluation of these data goes far beyond the limits of this study.

In the spring of 2020, Hungary faced a barrage of national and international criticism for the amendment on fearmongering of Act C of 2012 on the Criminal Code (hereinafter: Criminal Code). As a result of the amendment, the Criminal Code penalizes if someone "during the period of a special legal order and in front of a large audience, states or disseminates any untrue fact or any misrepresented true fact that is capable of hindering or preventing the efficiency of protection". (Paragraph (2) of Section 337 of the Criminal Code). The Constitutional Court of Hungary declared that – based on Paragraph (1) of Article IX and Paragraph (4) of Article XXVIII of the Fundamental Law of Hungary –, when interpreting and applying Paragraph (2) of Section 337 of the Criminal Code, it is a constitutional

requirement that the provision on the offence of fearmongering only sanctions the disclosing of a fact which the perpetrator should have known was false at the time the act was committed or which was distorted by the perpetrator himself, and which is suitable to prevent or hinder protection during the special legal order.Paragraph (2) of Section 337 of the Criminal Code cannot be generally applied, not even on the basis of criminal law dogmatics, to public debates. The measures of the exercisers of public authority can be criticized, judged. The rule of the Criminal Code narrows the range of prohibited disclosures to pieces of (false) information that can hinder or prevent the efficiency of protection under special legal order. The same follows from the provisions of the Fundamental Law. Paragraph (2) of Section 337 of the Criminal Code, according to its aim, does not contain restrictions regarding public debates. In public discourse, opinions can be freely expressed regarding the questions what the debate is about between laymen and experts, are certain measures justified, or what facts should the public be informed about.The examined provision does not prohibit the above, but forbids the expression of opinions that are based on evidently false (or distorted) facts and that can, due to their impact on the audience, hinder protection.In this case, the restriction is included in an act.The reason for the restriction of expression under special legal order is a social interest in connection with protection, to address the cause of the special legal order, and its efficiency, i.e. to return to the normal exercise of constitutional power as soon as possible.[35]

III. Regulatory novelties of 2020 and the major events of Hungarian sector-specific applications of law

In 2020, the regulation of the infocommunication and media sectors and the application of regulations required special preparedness from legislative bodies and appliers of the law. The implementation of the reviewed EU media regulation, its completion – in Hungary, following the amendment of media regulations in 2019, the adaptation of EU regulations concerning social media and video sharing platform service providers into Hungarian legal order – and the majority of the previously initiated adaptation process of the Electronic Communications Code (hereinafter: Code)[36] happened this year. By adopting the amendment of Act C of 2003 on Electronic Infocommunications in July 2020, Hungary was one of the firsts to implement the provisions – requiring legislative regulation – of the Code, and completed the adaptation by the adaptation deadline with a lower level of legislation by reviewing, amending and creating more than twenty NMHH Presidential decrees.

NMHH did not forget about its other infocommunication aims and plans during the pandemic waves in the spring and autumn: in March 2020, NMHH conducted the auction for the entitlement to use of the frequency bands 700 MHz, 2100 MHz and 3600 MHz suitable for 5G mobile technology and wireless broadband services, giving entitlement to frequency use to the three service provider winners until 2035, and in October 2020, initiated an auction process for the entitlement to frequency use of the frequency bands 900 MHz and 1800 MHz.

By granting concessions, the Hungarian state reduced the expenses of the population and sectors afflicted by the pandemic. For example, in the second half of 2020, media service providers were not under the obligation to pay media service fees, and students and teachers n digital education were given free internet access for thirty days.[37] Market players have contributed to the adaptation to the pandemic. According to the Commissioner for Media and Communications – who performs non-

authority application of law –, they "performed well" in the first wave of the pandemic. During the state of emergency, despite additional burdens, infocommunication service providers demonstrated extraordinary foresight and fairness. Certain service providers did not restrict services in case of arrears, what is more, did not even send payment reminders, while others agreed to requests for installments or interruption without examination. Several service providers introduced special measures: declared moratorium on invoice payment for clients who had lost their job, suspended debt collection, or decided not to restrict services in case of arrears. They also increased the number of issues to be resolved by call centre (balance tracking, invoice payment and balance top-up without registration, ordering services even without registration, electronic contracting, tariff change etc.).[38]

The comprehensive regulation, and the creation of a regulatory system regarding social media, online markets and other online platforms operating in the European Union are on the agenda in the EU. The focus of the two proposals for the Digital Services Act and the Digital Markets Act[39] is European values. These new regulations are going to increase the protection of consumers and fundamental rights, and are going to result in fairer and more open digital markets. These two proposals are the cornerstone of the Commission's aim to make this decade Europe's digital decade.

IV. Conclusion

Infocommunication was able to hold its ground in the pandemic-stricken year of 2020, and could satisfy the increased demand for its services. Due to the pandemic, traditional, linear media and the press also found themselves in a difficult situation, and social media continued to grow. As a result of the pandemic, the national economic, social and public safety significance of electronic infocommunication services became strategically important, and these services are now paramount with regard to home office, education etc.

The hopes are that in a couple of months – after and due to the vaccination, which has only now begun and is now considered a relative turning point –, the pandemic will be a resolved issue, and the mitigation and eradication of the economic impacts of the pandemic can progress without health risks.

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