

Internet World During COVID-19 Pandemic

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Please cite this paper as:

Chitescu, R.I., Magdalena, I. and Baiasu, D., 2021, Internet World During COVID-19 Pandemic, In: R. Pamfilie, V. Dinu, L. Tăchiciu, D. Pleșea, C. Vasiliu eds. 2021. *7th BASIQ International Conference on New Trends in Sustainable Business and Consumption*. Foggia, Italy, 3-5 June 2021. Bucharest: ASE, pp. 378-386 DOI: 10.24818/BASIQ/2021/07/049

Abstract

The coronavirus pandemic has affected the global population through social and economic instability, xenophobia and racism against people of Chinese descent, and the spread of misinformation and conspiracy theories online. The imposition of isolation measures at home has favored the use of the online environment, testing the strength of fixed and mobile data providers to remain in this market.

The imposition of home isolation measures, characteristic of the COVID-19 pandemic period, has favored the intensive use of the online environment, testing the strength of fixed and mobile data providers to remain in this market. The development of online courses as well as the development of online professional activity was among the main causes of the increase in data, voice, and interconnection traffic in Romania, approximately 25%. This is associated with the increase in the first six months of the year is that of online payments, from drugs to bills.

The paper presented aimed to highlight the most important issues regarding the use of the Internet - services and consumer profile in two periods of time that characterized the pandemic period COVID-19 (alert and emergency). These were identified by reporting to benchmarks services provided by providers, the type of services used, the type of activities performed, the level of data and device security. The results obtained by analyzing the data obtained through sociological research that had as a tool the questionnaire emphasizes the change of the consumer profile in the analyzed period and the intensification of the use of the Internet and all the effects generated by it.

Keywords

COVID-19, Internet, data traffic, labour market.

DOI: 10.24818/BASIQ/2021/07/049

Introduction

The coronavirus pandemic, known as Wuhan coronavirus or COVID-19, began in December 2019 in Wuhan, China. Following the widespread alert of this virus, on March 11, 2020, the World Health Organization declared that the coronavirus outbreak had become a pandemic (Branswell and Joseph, 2020).

It plunged the world into one of the most serious human economic and social crises of modern times, causing massive human suffering and laying bare the extreme vulnerability on workers and enterprises. COVID-19's impact in the world of work has been particularly felt by the most disadvantaged and vulnerable. The pandemic has affected consumer spending, industries, investment rates, capital flows, and supply chains. According to International Labor Organization, the equivalent of 400 million full-time jobs has been lost.

In Romania, the first case was registered on February 26, 2020, in Gorj County (digi24.ro, 2020). As measures, the authorities have banned: flights to and from Romania, gatherings of more than 100 people (reaching eight people during the state of emergency - March 16 - May 14, 2020), closing schools, and teaching courses online. Also, many economic activities have shifted to e-work.

Among the negative effects that have manifested themselves have been social and economic instability in many parts of the world, xenophobia, and racism against people of Chinese origin, and the spread of misinformation and conspiracy theories online (Clamp, 2020).

The effects of the pandemic were felt in all areas of activity, at the personal, group, or country / regional, or global level. According to a forecast of the European Commission, in 2020 the economic zone of the European currency will contract with a record value of 7¼% and will increase by 6¼% in 2021. Also, the EU economy will contract by 7% in 2020, to grow by about 6% in 2021 (EC, 2020). Among the negative effects that have manifested themselves have been social and economic instability in many parts of the world, xenophobia and racism against people of Chinese origin, and the spread of disinformation and conspiracy theories online (Clamp, 2020).

Romania is no exception. The pandemic has affected, from an economic point of view, consumer spending, industries, investment rates, capital flows, and supply chains, and socially created panic, frustration, instability.

Isolation at home has led more and more people to use the online environment for various activities: social networks, entertainment, online games, educational programs, shopping other than those strictly necessary, job responsibilities.

In this context, our research tried to identify, compared to certain periods that the Romanian society did not go through, what was internet consumption, what was it used for, and whether the consumer remained the classic one or his profile changed.

The study had two research hypotheses:

1. The internet consumer during the restrictions imposed by the alert state has changed;
2. Increased use of internet traffic has increased, but so have consumer risks and vulnerabilities

These issues are intensely debated at the regional, European and national level but previous studies have not accentuated the problem and have not enhanced the value of such an approach for the segment targeting the consumer profile in terms of gender, age, profession, security concern.

Literature Review

The COVID-19 pandemic changed everybody's way of living in a very short time, causing the impact on the Internet latency caused by the increased amount of human activities that are carried out online (Massimo et al, 2020).

As a response to the COVID-19 pandemic, many governments have introduced steps such as spatial distancing and staying at home to curb its spread and impact. the importance of information and communications technology is even higher than usual, and it has been crucial in keeping parts of the economy going, allowing large groups of people to work and study from home, enhancing social connectedness, providing greatly needed entertainment, etc (Kiraly et al, 2020).

The impact of the internet is beneficial and profound but with the associated risks. The rapid evolutions of ITC technologies and applications, the entry into the labor market of the M generation have contributed to the increase of favorability for telework (Grigorescu and Mocanu, 2020). Three positive principles of the Internet altered the social and economic environment, and these are: connecting everyone, closing the loop (any initiative can receive feedback), and empowering individuals (Stephenson, 2003).

Methodology

The research method was that of a social survey to perform, by interpreting the results obtained, an analysis (having a comparative component) of the use of Internet services by the population in the socio-economic situation characteristic of the coronavirus pandemic.

In order to highlight the importance of the online environment in people's lives, we created a questionnaire, as working instrument, distributed online through social networks (Facebook, Twitter), with the possibility of distribution. The questionnaire included 5 questions (three closed and two open questions) along with those targeting the respondent's profile, to highlight people's dependence on the online environment both during and after the pandemic. The questions were asked so that we could validate the assumptions made.

Thus, we sent the questionnaire after mid-April (the state of emergency caused by the pandemic was in force in Romania), and the time allotted to respond to the questionnaire was two weeks (during the alert state).

During the state of emergency, we created a questionnaire using the same matrix, in order to make a comparison between the interest of Internet users for news in the online environment and the willingness to respond to them. We used the same way of launching the questionnaire, and the period in which it was opened (could be answered) was also two weeks. In the state of emergency, the questionnaire was distributed by 1864 people, and 1700 people answered it, with the distribution of the answers as follows: In the first week, 952 respondents answered, and in the second week 748. During the alert period, the questionnaire was distributed by 500 people, and 378 people answered it, with the distribution of answers as follows: In the first week, 270 respondents answered, and in the second week 108. It can be seen that in the first week of the state of emergency the highest number of respondents was registered, which was continuously decreasing until the last week (figure no. 1).

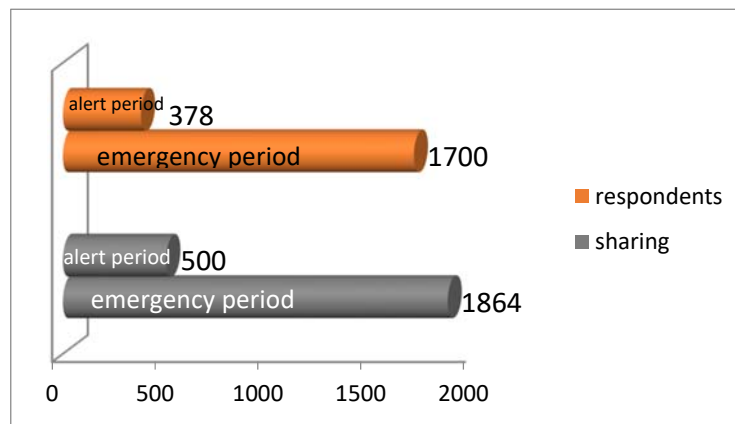


Figure no 1. Comparison on respondents' interest on questionnaires during COVID

Source: authors

Results and discussions

The profile of the respondent was important for drawing the main directions of interpretation. 42% of women and 58% of men answered the questionnaire. They were distributed by age as follows: between 13-18 years-19%, between 19-30 - 35%, 30-50 years - 29%, 50-70 years - 17%. Employees accounted for 39%, those who did not have a job at that time - 43%, pupils and students - 17%. For both periods analyzed, it was interesting to note that women used the internet less, probably the time being occupied with household activities or childcare that remained at home during the restrictions. I also noticed that the number of seniors using the internet has increased (even for paying for some services).

Through the completed questionnaire we found that all respondents used the Internet daily, 88.2% at least 5 times a day online, and 11.2% fewer times a day. During the alert state, all respondents used the internet daily, 82.4% at least 5 times a day online, and 17.6% fewer times a day. The online environment was used for social networks (70.6%), payment of bills (52.9%), information related to the pandemic (47.1%), entertainment (41.2%), household shopping (23.5%), catering services (11.8%), and payment of taxes (5.9%).

One of the activities carried out at a high level was to carry out online transactions (eg taxes, purchases, fines). These confirm those published in other statistics such as that presented by Statista.com, issued in April 2020, on the payments made by people in Romania in April 2020 compared to the period before COVID. It based on online interviews, which took place April 13-17, 2020, and involved 500 respondents aged between 18 and 65. The question was "Thinking about the period before the Coronavirus outbreak, how do you usually make the following payments? How have you made the following payments since the Coronavirus epidemic started?" The answers were that 80% of respondents pay their bills online (compared to 69% in the previous COVID period), 55% rates and loans (46% previously), 52% taxes (compared to 37%), 46% insurance (35%), 38% maintenance costs (27%), 25 % fines (20%), 21% buy food (12%) and 15% drugs (10%) (Sava, 2020) (figure no. 2).

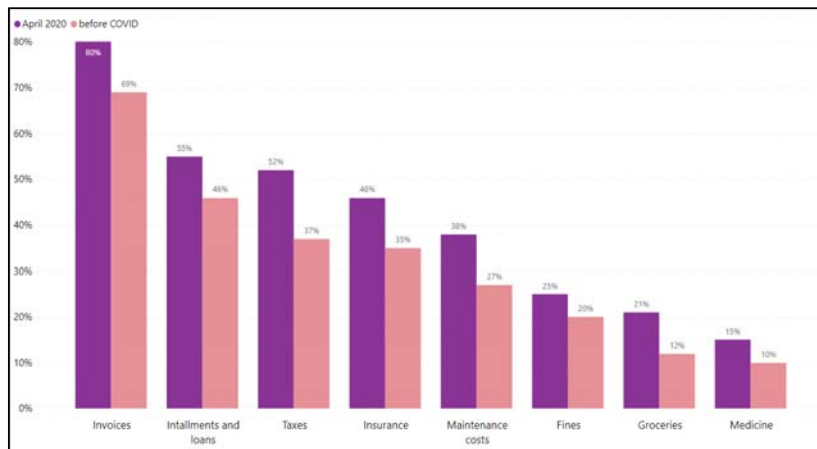


Figure no 2. Online payments in Romania before and during COVID period

Source: authors' processing, STATISTA data

The month in which respondents made the most transactions was May, compared to April identified at the European level. However, during all these months, online transactions fluctuated. There have been declines in Europe since May, with the adoption of relaxation measures.

The increases of the users' number, the widening of the age range, as well as the long time spent at home have increased the number of targeted sites and their applications. The results of our study showed the following hierarchy google.com (1), facebook.com (2), youtube.com (3), instagram.com (4), yahoo.com (5), google.ro (6), emag.ro (7), and among the applications WhatsApp (1), Messenger (2), Zoom (3), Skype (4), Google Classroom (5), Edmodo (6), Microsoft Teams (7). This hierarchy is justified by the popularity of some of the applications and by the online teaching / online school.

To observe the most searched topics on the web in Romania we used Google Trends from January 1 to July 13, 2020, and the main 10 topics of interest were: coronavirus, Cubit, Worldometers, Google Classroom, Virus, Case, Easter, Mask, Coin Master, and Yahoo.com.

Regarding the quality of internet services, the results are similar between the two surveys (dissatisfied - 47%, satisfied - 49%, do not know - 4%). These results can be interpreted by the situation found at the regional and national levels.

At the European level, the European Commission has called (March 2020) for the responsibility of streaming services, operators, and users. Thus, it was recommended that streaming platforms rather provide a standard transmission quality and cooperate with telecommunications operators. The latter should take preventive and mitigating measures, encouraging users to apply settings that reduce data consumption, including using the Wi-Fi network or reducing the resolution for content (ec.europa.eu, 2020). In response, Netflix said it would cut traffic in Europe by 25% to keep the Internet infrastructure running smoothly (digi24.ro, 2020). As expected, the level of Internet use has increased significantly in European countries as well. According to the Organization for Economic Co-operation and Development (OECD), there has been an increase in the UK between 35% and 60% for fixed data used during the week. In Spain, the increase was 40%, with mobile traffic increasing by 50% and voice traffic by 25%. Italy saw a 63% increase in online traffic, and in France, mobile data operators reported an 80% increase in traffic generated by users in France traveling to the United States (OECD, 2020).

Packet Clearing House (the international organization responsible for providing operational support and security to critical Internet infrastructure) informed that Internet bandwidth has increased in 23 EU member states (from 5% in Belgium to 224% in Luxembourg) (PCH, 2020) (figure no. 3).



Figure no. 3. EU countries Domestic Band with Production

Source: Packet Clearing House data

Between January and June 2020, online transactions fluctuated at the European level, with April being the month in which the highest percentages were registered. For example, statista.com conducted a study with these increases for Italy, Spain, and Germany. If in January 2020 in Italy online transactions accounted for 8%, in June they reached 66%, and in April 187% (Sabanoglu, 2020) (figure no. 4). Of the three states, Spain recorded the highest percentage in April (200%) and Germany the lowest (63%). There have been decreases since May, with the adoption of relaxation measures.

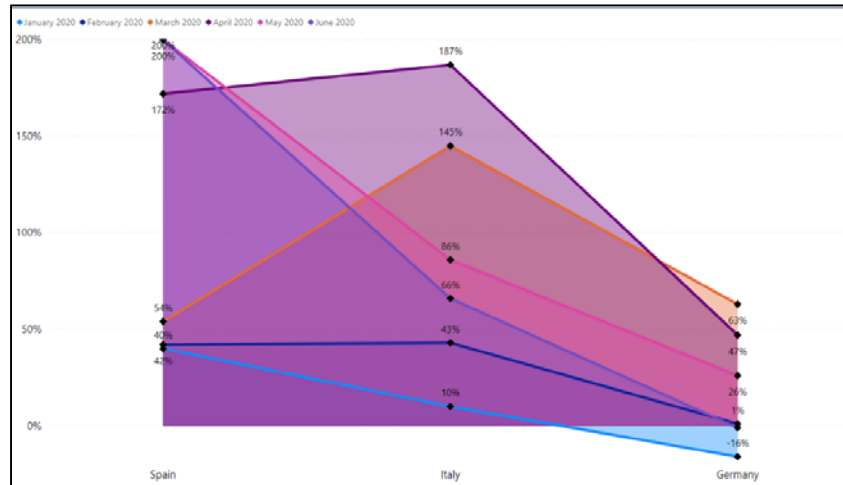


Figure no.4. January-June 2020 online payments in Italy, Spain and Germany

Source: authors' processing, STATISTA data

In Romania, according to a survey requested by the National Authority for Administration and Regulation in Communications and published (April 8, 2020) by the hotnews.ro website, the following data emerged:

Between 26 February and 1 April 2020, the total interconnection traffic increased, on average, by 21% in mobile networks and by 19% in fixed networks. In mobile networks, **data traffic** recorded average increases of 12% (with increases of between 7% and 20%). In fixed networks, data traffic increased on average by 20.9%, with providers reporting increases of between 18% and 27%. **Voice traffic** increased on average by 22% (with increases of between 18.2% and 24%), and in fixed networks, by 22.7%, with providers reporting increases between 8.5% and 44.7%. **The total interconnection traffic** reported by electronic communications providers recorded an average increase of 21% in mobile networks, with increases between 17.7% and 24%. In fixed networks, total interconnection traffic increased on average by 19%, with increases reported between 6.3% and 41%. On the other hand, providers have experienced an increasing number of congestion situations on mobile access networks (over 80% loads of used ports and access radio resources) (Vasilache, 2020). All these increases were registered in the context of the development of school and university courses, of the professional activity in the online environment, as well as of the growth of the online entertainment component.

In Romania, according to the site similarweb.com, the first 10 sites accessed in the first half of the year were: google.com, facebook.com, youtube.com, google.ro, emag.ro, yahoo.com, olx.ro, xnxx.com, instagram.com and wikipedia.org (SimilarWeb, 2020). To conduct online courses, applications and platforms were used such as: Whatsapp, Messenger, Skype, Zoom, Google Meet, Google Classroom, Edmodo, Easy Class, ClassDojo, Microsoft Teams, 24edu.ro, JAInspire.

According to the same data published by Packet Clearing House, the speed of internet use in Romania increased from 222 G (in July 2019) to 277 G (July 2020), which means an increase of 25% (PCH, 2020).

From an economic point of view, the Romanian authorities adopted the law for granting facilities to taxpayers economic operators, a law that displeased Internet operators' members of the National Association of Internet Service Providers (ANISP) on the grounds that the normative act would close some operators.

Among the main risks and vulnerabilities that we can find are:

- **Internet collapse** (31%), choice justified by the large number of accesses in the online environment and the increase of data traffic. Although internet providers have taken steps to

ensure quality services, to more effectively monitor the available capacity of the network and to intervene where necessary, as well as measures to modernize network equipment and simplify and streamline the procurement process, it is perceived as the greatest risk.

- **fake news (5%)** – related to the topic of COVID-19 globally, a series of misinformation appeared, distributed mainly on social networks. They are used either to make a profit, to support certain geopolitical interests, or to discredit official sources. In order to combat this phenomenon, the main measure taken by the authorities was to publicly inform the real situation, to provide secure methods of information (official pages), and to take action against those who carry out such activities. For example, on March 16, 2020, the President of Romania signed a decree offering the possibility for the National Authority for Administration and Regulation in Communications to close the sites containing fake news related to the pandemic (presidency.ro, 2020).
- **exposure of children (37%)**– which has been argued by conducting online schooling / online leisure which affects health and safety, as it increases the possibility of young people being more exposed to risks of sexual exploitation, harassment and seduction in the online space. UNICEF published a technical note in April 2020 drawing attention to the possibility of young people being more exposed to increased risks of sexual exploitation, harassment, and seduction online (UNICEF, 2020).
- **data security (27%)** – in the context of the pandemic, state authorities are taking measures that can affect data security by implementing digital solutions. Digital solutions provide information and analysis on information on geolocation, facial recognition, etc. Improper use of these solutions can lead to a violation of the individual's right to liberty. Recently, countries such as Italy, Germany, and France have adopted laws empowering certain organizations to request personal data from people considered to be infected with the COVID-19 virus. There are also countries (eg the Republic of Korea, Singapore, and Israel) that have collected geolocation data without adopting new legislation. Authorities in Argentina, Australia, Canada, Finland, France, Germany, Ireland, New Zealand, Poland, Slovakia, Switzerland, and the United Kingdom have also published guidelines for data processors to comply with legal regulations. In this context, the European Union also published a declaration signed by Alessandra Pierucci (Chair of the Convention Committee 108) and Jean-Philippe Walter (Data Protection Commissioner of the Council of Europe) guiding European states to comply with data protection legislation (Pierucci and Walter, 2020). Internet users have a duty to protect their devices through which they access various sites so as not to fall victim to hackers.

Conclusions

The analysis of the results validated the assumed hypotheses. There has been a change in the profile of the consumer (most men compared to the previous period; seniors use online tools to pay for utilities and various services; the user becomes more inattentive to fake news or data security).

As we have shown, the activity in the online environment has intensified considerably in 2020 as a result of the isolation measures imposed by the authorities from all states, which made the fixed and mobile data operators intensify their activity in order to prevent possible failure of online access. However, there were no major issues with online operations or site access.

Perceived one of the main risks, however, there were no major problems in this segment related to online operations or access to sites. The diversification of topics of interest has led to the change of hierarchy within the same sites, and e-work and online school to the use of new applications. The abuse of technology, justified or not during this period, has led to awareness of the negative effects of increased exposure of children to the online environment (risk at the top of the hierarchy), as well as the social implications, interpersonal relationships that degrade in these conditions.

These problems, temporary or not, can be solved through the intervention of the authorities, civil society and each individual.

The results of the study must be seen in terms of the limitations imposed by this research - relatively small number of respondents, small number of data and information to present detailed analyzes on this issue by service providers - lack of national and regional benchmarks for comparison, time decreases as a percentage of the pandemic period - the approach of the beginning period, respondents still under the umbrella of pandemic effects.

From an economic point of view, there were many more online transactions compared to the period before the pandemic, which could become a habit for every person. The increasing use of online or card payments could raise some questions about the future of cash. Should this period be an end to cash transactions?

Socially, spending a long time on the internet can lead to social isolation, the loss of interpersonal connections. Also, exposing children to the online environment as well as the poor security of personal data is a danger to anyone.

Overall, the current crises, and especially the restrictive measures, have a major impact on the labor market. The European Commission and national governments already implemented several financial measures to support workers and companies that are struggling to survive. However, expectations are that the labor market and the way we work will change permanently.

High unemployment should worry everybody even if the economic recovery were quick, the consequences could be long-term. Job losses affect earnings and may damage workers' long-term mental and physical health.

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