

# The impact of digitization on economy in the context of the Coronavirus pandemic

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## Abstract.

**Research background:** As COVID-19 is posing unprecedented challenges, the governments as well as the individuals have to adapt to the shift towards a new lifestyle. The preventing measures against the spread of the novel coronavirus has important consequences on economy sectors both at global and national level. In this regard, it is the right time to accelerate the development of the digital tools and technologies that can help neutralize or at least mitigate the negative effects of the COVID-19.

**Purpose of the article:** Therefore, the aim of this paper is to evaluate the current situation of digitization, focusing on the main transformations in recent months.

**Methods:** Throughout the paper, there can be distinguished both qualitative and quantitative approach. The methods used include a secondary research from official information and primary quantitative research obtained from a conducted survey that explains the importance and the impact of digitization on economy in the face of a global pandemic.

**Findings & Value added:** The article highlights the impact of digitization on the economy by comparing the findings from Romanian economy with other EU countries. It is noted that in areas where the digitization was more developed or where the adaptation to the new conditions imposed by the crisis generated by COVID-19 has been faster, the impact was significantly lower as well.

**Keywords:** *Coronavirus pandemic, digitization, remote jobs, economic environment*

**JEL Classification:** *A10; C10; I15*

## 1 Introduction

The coronavirus pandemic has changed so much the world in recent months that we can see and feel its effects everywhere, from the way we work to our daily lifestyle. The population had to learn how to manage this unprecedented situation. As the crisis and its negative effects will not disappear too soon, we decided to analyze this subject under the magnifying

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glass by trying to get a better understanding of the way in which the digital transformation can help us mitigate the negative impact, as well as the way in which we can adapt to an agile and efficient way of living.

As the COVID-19 has continued to spread all over the world, the governments have adopted important restrictions regarding the movement of persons, the functioning of services or the rules concerning physical distancing. In this regard, we can say that digital technology had the potential to maintain the economies functioning, to enable citizens to access the basic services necessary for their daily life, such as education, health, work and culture, and also to provide the opportunity to stay informed and to communicate with the competent authorities. Moreover, in the post-COVID recovery phase, digitization is undoubtedly essential for citizens and communities to return to normality, in a secure and orderly manner [1].

At the same time, the restrictions imposed by COVID-19 have also disrupted the business world. Therefore, companies had to revise their strategies in order to overcome the crisis. Many business leaders have decided to launch digital transformation initiatives in order to keep businesses running during the outbreak, but also to better prepare for the recovery phase. However, generating change in a chaotic period is difficult for both managers and employees and organizations should use this time in their advantage in order to accelerate the transition to digital transformation [2].

The most frequent negative effects of the virus on the business environment could be summed up by the decline in sales performance, the inability to resume production and the impossibility to provide customer visits. Some positive aspects emerging from this crisis are the improvement of collaboration in the work from home, the increasing capacity to develop online businesses, as well as the widespread recognition of the value of IT and digital technology among employees, customers or suppliers [2].

## **2 The acceleration of digital transformation in the context of the COVID-19 crisis**

In a European survey, about 70% of directors from Austria, Germany and Switzerland stated that the pandemic could accelerate the pace of their digital transformation. The acceleration is already obvious, given how banks have rapidly migrated from physical to online channels or how healthcare providers have quickly focused on telehealth, insurers on self-service demand assessment and retailers on shopping and contactless deliveries [3]. A huge percentage of the workforce is now working remotely and may continue to do so once the acute danger of COVID passes. There are already discussions on the need for more coherent work - family policies either from the employer or the state and it will also be important to analyze the impact of the broken wall between work and home life that many white collar workers are reporting [4].

It is to be noted that some of the transformations are not reversible. Thus, the proportion between on-site and remote work will likely not bounce back to former proportions. Not just because of preference changes, but more importantly because of technological change (tools such as hologram-assisted communication and sophisticated means of monitoring employee productivity at a distance) and politics (as remote work supports a green transformation agenda). Also, the increased use of remote work may imply smaller teams, which are easier to coordinate remotely, and an increasing use of management by individual objectives and rewards [5].

In other words, the COVID-19 crisis provides a quick insight into a future world, in which digital has become essential to every interaction and automated processes have become a major driver of productivity. The ways in which companies learn how to drive

new digital initiatives and adapt to today's crisis will influence their performance in tomorrow's changed world [3].

## **2.1 Economic changes during the pandemic**

Looking back, we can see that the US economy continued to function during the wars, except that during the wars, their economic strength was the essential keypoint in the final result. As the pandemic and the associated social distancing policy plunge the economy, many Americans feel they are experiencing a war and an economic recession at the same time. Through the wave of deaths caused by COVID-19, the United States have become the country with the highest number of infections and deaths. In this regard, American researchers claim that the pandemic is devastating an already troubled superpower, while promising an increase in partisan divisions and threatening a more intensely introspective America in the upcoming years [6].

Extrapolating, we can see that the pandemic had a strong impact on economic activity. Real gross domestic product (GDP) fell at an annual rate of 32.9% in the second quarter of 2020, according to an estimate published by the Office of Economic Analysis. Some companies have voluntarily chosen not to reopen, even after mandatory isolation restrictions have been lifted. Thus, a company may delay its reopening if its own employees are still afraid of the spread of the virus or if they expect that customer demands will not return immediately. At the same time, supply chain disruptions created by the pandemic may also prevent companies from immediately reopening. The negative economic effects of social distancing are most severe among businesses that rely heavily on face-to-face communication or physical proximity [7].

In order to make it easier for businesses around the world to overcome the financial difficulties caused by the pandemic, governments are responsible for helping the most severely affected companies. Lending facilities along with competitive packages would help companies and protect them for a while. This time would allow them to recover financially. Tax exemptions during the crisis allow companies to stretch their low incomes or savings to maintain their employees and operations [8].

In other words, we can say that this pandemic has created the world's strongest "stress test" for the health workforce and has shown that the arrangements for migrants providing medical care can easily collapse. As COVID-19 turned residential homes into pandemic points, it disrupted migrant care arrangements, at a time when they were most needed. This is still a problem in many countries, including high-income EU countries. In this regard, the pandemic is questioning the effectiveness and resilience of long-term care policies in the EU labor market and public health researchers need to keep in mind that patient care depends on the care of the health workforce first. There is an urgent need to improve data and to establish a health workforce monitoring system that includes migrant carers [9].

## **2.2 The importance of digital tools in the fight against COVID-19**

At the heart of all legal, ethical or scientific challenges in pandemic management lies the issue of population benefit. Similar to any healthcare intervention, such as quarantine or medication measures, the launch of public health digital tools to combat the outbreak implies realistic expectations of public benefits and clear evidence of the potential that such a benefit will offset the risks. Possible benefits associated with these technologies include predicting new infections, prompt alerting and isolating exposed individuals, thus preventing the risk of new infections, improving quarantine measures and the way in which the information is passed on to citizens [10].

Governments at the forefront of the COVID-19 crisis have adopted digital technologies not only to monitor, anticipate and influence the spread of the disease, but also to provide citizens with information on outbreaks, travel restrictions and practical guidelines for protection. In addition, they have designed new applications and services to help in the fight against the virus, such as food delivery and other essentials to those most in need. A review of the national portals of the 193 United Nations Member States showed that by 25 March 2020, 57% of them (110 countries) had posted information on COVID-19, while about 43% (83 countries) had not. However, as of 8 April 2020, approximately 86% (167 countries) have included information and guidance about the virus in their portals [11].

Digitization requires the combination of three crucial effects: to be fast, economical and popular. Individuals prefer fast technologies, therefore speed is a necessity when it comes to digitization. The quality of being economical refers to the provision of cheap or free goods and services, just as the services of top companies like Google, Facebook, Whatsapp or Instagram are free. In addition, due to low costs many people would use these digital tools, thus gaining popularity and popularity would create social awareness [12].

### **2.3 The benefit of digital transformation around the world**

During the pandemic, the world has been struggling to find solutions in order to return to a normal life, while being limited to a much smaller world, consisting of sofas and home offices. Work, family and friendships, exercise, entertainment and all the other elements of normality have been overturned and the effort to maintain productivity has initiated a digital mass migration, a movement from life to e-life [13].

Digital health technology facilitates the response to the pandemic in ways that are difficult to achieve manually. It is noted that countries that have managed to maintain a low mortality per capita seem to share strategies meant to integrate digital technology into processes that include early surveillance, testing, contact tracing and strict quarantine [14]. Tools such as migration maps, mobile payment apps and social media to collect real-time data about people's locations, have allowed Chinese authorities to track the movement of people visiting Wuhan, the epicenter of the pandemic. Taiwan's proximity to Wuhan has made the region particularly susceptible to COVID-19, but by using big data effectively, the number of cases and deaths has remained low. In Sweden, the authorities have developed a platform for healthcare workers to report real-time data on COVID-19 patient volumes, personal protective equipment, ventilator use and other resources [14].

Unlike other countries, Iceland has launched large-scale testing of asymptomatic individuals using mobile technology. Thus, data on patient-reported symptoms are collected and combined with other data sets to reveal information about the pathology and spread of the virus. Germany has launched a smartwatch application that collects data on heart rate, temperature and sleep pattern to detect signs of viral disease. The data in the app is presented on an online, interactive map, in which the authorities can assess the probability of the incidence of COVID-19 within the country [14].

A recurring disadvantage of digital tools is represented by the security of user data. There has been a whole global debate about how virus tracking applications should be built and what safeguards are needed so as not to put in danger the privacy of entire populations. This debate revolved mainly around choosing a centralized or decentralized architecture for these contact tracking applications. Centralized systems can collect more data, useful for both epidemiology and tracking contacts, but the question arises whether they can be sufficiently anonymized for privacy. Instead, a decentralized system provides complete protection of privacy, as the data collected remains on users' phones, although some experts say that they are less useful for long-term suppression of the disease [15].

### 3 Method and material

This paper explores the importance of digitization of various processes, for both the economic sector and for the general population, in the special context created by the pandemic with the new Coronavirus. In addition to analyzing the latest digital tools that have helped reduce the negative effects of the crisis, we decided to enrich the study with our own survey, conducted on Romanian population.

The main purpose of the survey was to quantify the impact of digitization on the employees from Romania, in the context of changes caused by the COVID-19 crisis. The survey was conducted on a sample of 100 people active in the workplace, working either in public or in private sector, in various fields of activity. The questions from the survey addressed the changes in the workplace during the pandemic, such as the percentage of people who worked from home and those who worked from the office, the impact on the individual's income, the speed with which the company adapted to the new requirements, or the need for assistance in the use of digital technology. The assessment of the pros and cons of the work from home or for the way in which companies adapted to the restrictions of COVID-19 was made through questions such as simple choice question, evaluation scale or answer matrix. Among the objectives that focused on the economic plan, we wanted to find out what measures would help the Romanian economy recover, as well as the extent to which employees agree with economic developments in the context of the pandemic.

The results obtained from the survey were processed using IBM SPSS Statistics<sup>†</sup> software and further, we compared the situation from Romania with the levels of digital transformation identified in other European countries and in the world. The studies we chose for the comparison regarding the impact of COVID-19 on the economic world were conducted by Uplers<sup>‡</sup>, which targeted more than 130 digital agencies worldwide, and Digital Europe<sup>§</sup>, conducted on a sample of 634 European digital businesses. Thus, the article brings a new perspective on the importance of digitalization in the continuation of economic activities, despite the crisis caused by the pandemic.

### 4 Results and discussions

#### 4.1 Romanian status in the context of the COVID-19

According to official data published by the National Institute of Statistics in Romania<sup>\*\*</sup>, in recent months there has been a slight increase in the activity in the construction and retail sectors, but also a slight increase in prices in the retail sector. Regarding the services sector, the stability was much more visible compared to other sectors. Thus, both the turnover and the number of employees in this field remained approximately constant during the pandemic [16].

The results obtained from the survey conducted for this paper reflect in detail the main changes that occurred during the Coronavirus pandemic. Thus, a positive aspect is that only 4% of respondents went into technical unemployment, while for 23% of them nothing has changed. At the same time, it is noted that the lack of changes is more common among the public employees, where for 50% of them there were no changes in terms of their daily work. An interesting statistics refers to work from home versus office work. Therefore,

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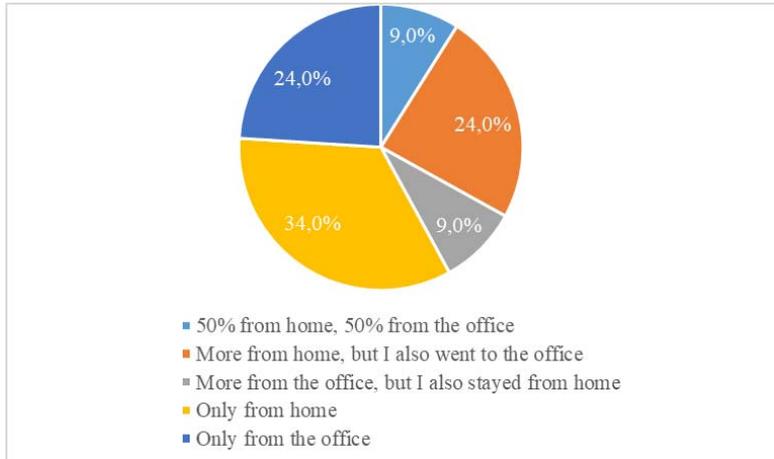
<sup>†</sup> <https://www.ibm.com/analytics/spss-statistics-software>

<sup>‡</sup> [www.uplers.com/digital-agencies-covid19-survey-report/](http://www.uplers.com/digital-agencies-covid19-survey-report/)

<sup>§</sup> [www.digitaleurope.org/resources/pan-european-survey-on-the-impact-of-covid-19-on-the-digital-industry/#impact](http://www.digitaleurope.org/resources/pan-european-survey-on-the-impact-of-covid-19-on-the-digital-industry/#impact)

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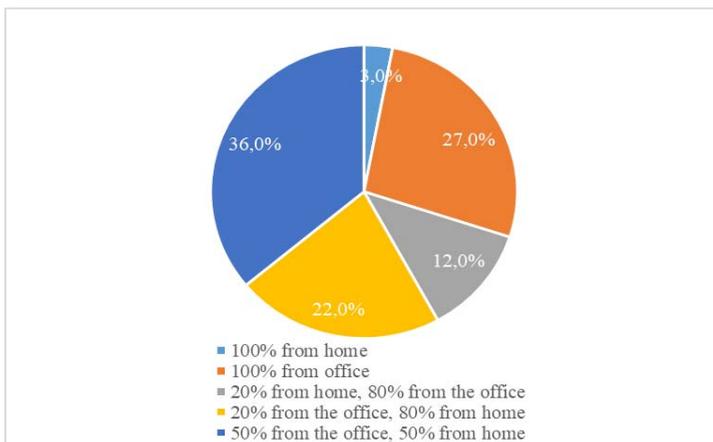
42% of respondents alternated between going to the office and working from home, 34% worked only from home and 24% only from the office. When it comes to public versus private, only 10% of employees in the private sector were forced to work 100% from the office, unlike the public sector where more than half of the respondents continued to work only from the office.



**Fig. 1.** The working place in the last months

Analyzing the evolution of revenues and how were they affected, we see a stability in terms of wages, so that for 75% of employees revenues remained unchanged, 8% were positively affected, benefiting from a slight increase, while for 17% there was a decrease in their monthly income.

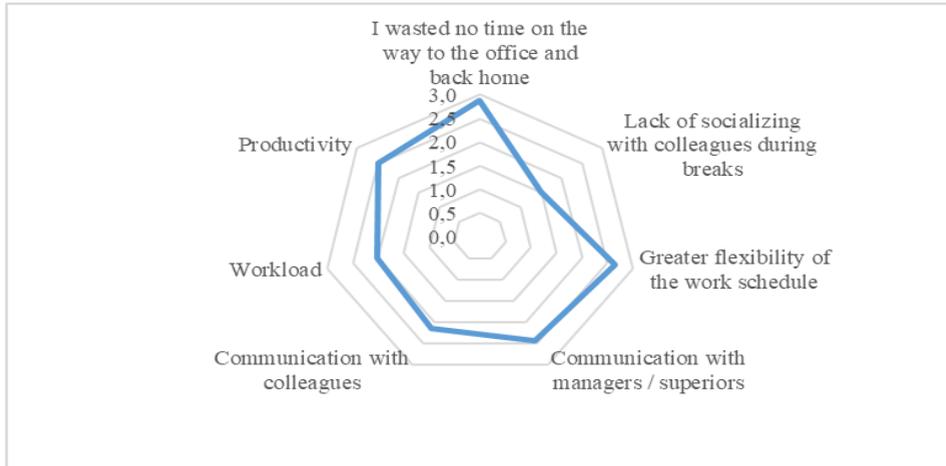
Going a few steps back and analyzing the way of work before the pandemic, we noticed that for 27% of the respondents there was already the possibility to work from home approximately 1-2 days a week. What is important to mention is that in the case of employees in the public sector there was not any possibility to work from home before the pandemic. However, among the public employees, education employees had the opportunity to organize online classes, so they did not have to go to work physically. Among the employees in the private sector, the employees in the field of constructions and services stated that their activity could not be performed remotely, so they had to go to work physically to carry out their daily tasks.



**Fig. 2.** Preference regarding the workplace

The companies' compliance with the conditions imposed by COVID-19 took place in an alert manner, most respondents declared themselves satisfied with the way their company has adapted to the new conditions, while the average adaptation time was about 1-2 weeks.

The satisfaction of the employees during the period when they worked from home is different depending on the approached subject. The main reasons for satisfaction were the lack of wasted time on their way to work, a greater flexibility of work schedule and a higher productivity. An average satisfaction is found in the case of daily communication with managers/superiors and co-workers, whereas the lack of socializing with colleagues during breaks generates rather dissatisfaction among employees.



**Fig. 3.** Satisfaction regarding different topics

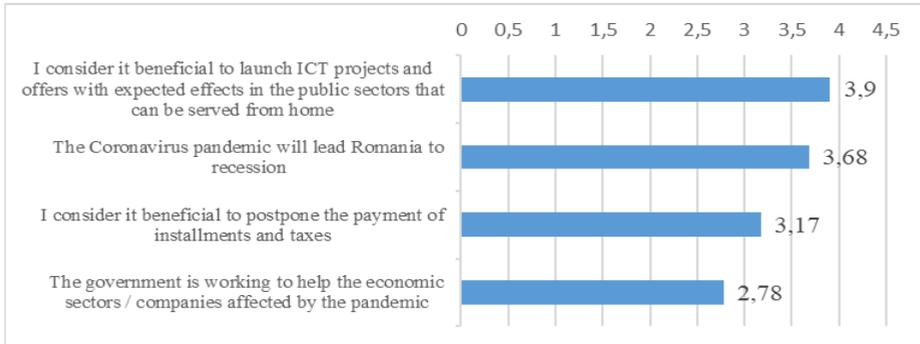
When it comes to Romanians' preferences regarding the place where to carry out their professional activity, opinions are quite divided: 25% would prefer to work in a proportion of 80-100% from home, 39% would prefer to work in proportion of 80-100% from the office, and the remaining of 36% would prefer half from home and half from the office. The main reasons given by respondents for which they would rather work from home are the saving time lost on the road, the flexibility and the ability to organize their program according to personal priorities, comfort and high productivity in a peaceful environment. On the other hand, the preference to work from the office is related to socializing with colleagues, coffee breaks that inspire and provide energy, higher productivity within the team and the impossibility of carrying out professional activity remotely (especially for teachers and construction employees).

The use of digital technologies and platforms does not seem to be a problem among Romanian employees, most of them being independent users, without the need for additional support. However, one fifth of the employees in the public environment state they need guidance in the use of technologies and 10% of them said they do not use digital platforms in their day-to-day activities. In the private sector, over 90% of the employees are independent users, without the need of support or training.

When it comes to the impact over time generated by the Coronavirus crisis, opinions are divided, the assessments varying between 6 months and 2 years. More specifically, 37% of employees believe that the impact will last between 6 months and 1 year, while 40% consider a longer period of 1-2 years. Only one fifth of the respondents are more skeptical and believe that the impact will be felt for more than 2 years.

Concerning the government involvement and actions in mitigating the impact of the pandemic, employees find it beneficial to launch ICT projects and offers in those public sectors that can be served from home, but postponing the payment of installments and taxes

is not considered a measure of major impact. In addition, opinions are divided whether Romania will enter into recession or not.



**Fig. 4.** Employees' opinion on different topics

## 4.2 Comparison with other states

Globally, large organizations have also conducted surveys on larger samples. According to Uplers<sup>††</sup>, a study which targeted more than 130 digital agencies worldwide confirms that the effects of the new Coronavirus were felt by all types of companies around the world, such as more than half of the agencies surveyed (57%) anticipated that the impact of COVID-19 would last for more than 6 months and 66% of agencies saw a decrease in their total revenue. It was noted that the use of technology has played a significant role in recent months. Among the positively impacted economic sectors were the technological sector, which recorded the highest growth (by 16%), followed by e-commerce and healthcare (by 15% and 14% respectively). The sectors with a negative impact were consulting, legal services and production. Out of these three, production was the worst affected, falling by 5% [17].

However, some approaches are considered in order to fight the crisis: 29% of agencies said they would explore new services for their current clients and an equal number would explore new channels for new businesses. Approaches include presenting new services to customers through cross-selling, approaching new customers and industries and exploring outsourcing for its cost-effectiveness and flexibility advantages. According to the survey, more than half of the companies offered flexibility in their contractual conditions, and 28% reduced their taxes in the context of this new and difficult situation. [17]

Another survey conducted by Digital Europe on the impact of COVID-19 shows that up to half of respondents believe that their government is not doing enough to support companies in need. The majority of respondents (82%) stated they migrated relatively easily to work from home. While 55% of respondents "fully agree" that the new Coronavirus will lead to a global recession, a higher percentage of 73% "completely agreed" that it will lead to a recession in Europe. The most requested measure remains the assistance provided by governments to pay a part of the employees' wages, with 19% of respondents stating this as "necessary to avoid bankruptcy". Postponing tax payments comes as a secondary measure, with more than two-thirds of companies deeming the measure necessary to avoid bankruptcy [18].

The responses emphasize that digitalisation must be at the heart of the EU's recovery and reinvention, while the COVID outbreak is subsiding. Indeed, respondents believe that

<sup>††</sup> [www.uplers.com/digital-agencies-covid19-survey-report/](http://www.uplers.com/digital-agencies-covid19-survey-report/)

the best way to help the economy recover would be through a stimulation package aiming the digital transformation of large economic sectors [18].

## 5 Conclusions

In human affairs, it usually happens that the most important lessons emerge from the most devastating times of crisis. Thus, companies that can handle and also overcome the new daily requirements imposed by the COVID-19 will obtain unique information to ensure that their digital future is more robust after exiting the crisis than before it set in.

Summarizing the results of our research, as well as those obtained in other regions, we can say that most companies have been allowed employees to work from home. In this regard, their satisfaction came from the lack of wasted time on their way to work, while a disadvantage was the lack of socializing with colleagues during breaks. However, it is worth mentioning that a third of employees would prefer to work 100% from home even after the crisis would be over. At the same time, governments have tried to help affected companies by offering technical unemployment assistance or postponing the payment of installments and taxes until the end of the year. IT development projects that facilitate remote work are also encouraged. Thus, we can say that technology has proved to be a tool not only useful, but especially necessary, that has ensured the continuous provision of essential public services by the governments severely affected by the crisis generated by COVID-19.

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