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Teleworking in Romania during Covid-19 crisis: From conjunctural adaptation to change of economic paradigm

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The COVID-19 crisis has led to a raise in the number of people working remotely. This paper aims at identifying the extent to which the pandemic will determine a paradigm change regarding teleworking in Romania. Our research is based on two surveys designed to assess the impact of teleworking both on individuals and on efficiency at the organizational level. The results show that, generally, teleworking has significant advantages, both for employees and employers. As we become aware of these advantages, it is quite likely that Romania will experience a paradigm shift in terms of teleworking, as both managers and employees consider that teleworking becomes a very good option. However, the changes will be gradual and with different intensities at the sectoral level, as teleworking must be adapted to the specificities of each sector or activity. While some sectors tend to make teleworking the new organizational culture, others will capitalize on the benefits of teleworking progressively, in relation to technological endowments and structural changes that will continue to occur. On the other hand, teleworking has the advantage of promoting the improvement of digital skills for employees, which is a great step forward for a higher degree of digitisation.

KEYWORDS

teleworking, survey, digitalization, crisis, paradigm shift

1 Introduction

The COVID-19 crisis is already a major challenge for the global economy, but also in terms of economic policy decisions. Sooner or later, we may find that the crisis-induced adjustments will indicate profound disruptive effects on the current economic model, that is, anyway, in an obvious transition to the digital economy and society.

In the future, disruptive trends will become the norm for many of today's sectors, which will be reconfigured either by vision or by the imperative of adaptation, under the pressure of digital innovations and technologies. Therefore, opportunities for adjustment and modernization can and must be identified in the corona-crisis equation.

In essence, the COVID-19 crisis could reshape the industrial and commercial structure on a global scale, could restructure the price system, the investment geography, human capital and, perhaps most importantly, the trade and mobility system that currently defines the order of economic globalization.

In Romania, in order to limit the spread of the SARS-COV-2 virus among the population, alike most countries of the World, a series of unprecedented restrictions were adopted (Official Journal of Romania, 2020) which had a great impact on the economy as a whole, on the labor market and on people's social lives. While the pandemic had a great impact on certain economic sectors, which were more likely to be affected by the restrictions (such as HORECA—hospitality - or tourism services), other sectors had the advantage of being able to change their strategy regarding the way of working, by offering the employees the solution of teleworking (Vasilescu, 2021).

Even if stay at home restrictions will be gradually replaced by stay safe ones, teleworking, video conferences, protection and social distance measures will continue to be part of our daily lives. Maybe some will even become business opportunities or new paradigms in social life.

Before the pandemic, Romania registered almost the lowest percentage of employed persons that were usually working from home in the European Union (only Bulgaria had an even lower percentage—Figure 1) and, of course, almost the higher percentage of employed persons that never used to work from home (98.6%). Even though the percentages are very low, women seemed to be more likely to work from home on a regularly basis (usually), compared to men (1.1% of the employed women, compared to only 0.5% of the employed men) (Eurostat, 2021).

However, the restrictions adopted alongside with the pandemic, have led to an increasing number of people

working from home in Romania, both in large and small private companies, but also in the public sector (Vasilescu, 2021).

As the readiness of countries to shift to teleworking can be measured by the level of digital skills, given that the more digitalised a country was prior to the pandemic, the more likely workers were to start teleworking in the context of the pandemic, and therefore the more societally resilient the member state was, it is considered that Romania lacked this readiness (European Economic and Social Committee, 2021).

Under these circumstances, we consider it important to assess the impact of this new situation both on employees and on firm/organizational efficiency. In particular, we aim at identifying the position of Romanian employees and employers/managers on teleworking, to diagnose the real situation of teleworking alongside the pandemic.

Also, we consider it important to assess how the Romanian employees and employers relate to the advantages and disadvantages of teleworking and what is the willingness to continue the telework activity and in the aftermath of the pandemic. We deem that the context of the pandemic might lead to a change of the paradigm regarding teleworking and therefore we might see growing numbers of the employed persons practicing it.

Given that, we consider that our paper will contribute significantly to the literature. First, due to the fact that the literature is rather scarce (given the rare incidence of teleworking in Romania), and second, given the way our paper relates to teleworking, considering a paradigm change determined by the COVID-19 crisis. Moreover, our analysis assesses the views about teleworking and its estimated impact for a broader spectrum of stakeholders. First, our respondents work both in the private and the public sectors. Second, the sample includes both managers/employers and employees, in order to have a complete image of its effects. Third, we also assess the impact of teleworking in the educational field, as online

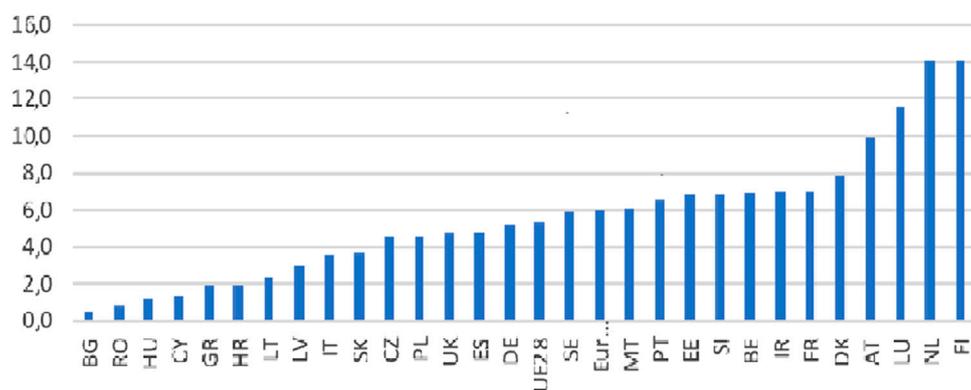


FIGURE 1
Employed persons usually working from home (% of total population 15–64 years, 2019).

schooling was much debated in the context of the changes imposed by the pandemic.

The remainder of the paper is extended as follows: [section 2](#) provides a brief review of the literature. [Section 3](#) describes the research methodology and the data used in this research. [Section 4](#) presents the results. [Section 5](#) presents the discussions of the study.

2 Literature review

The literature regarding teleworking in Romania is rather scarce, mostly due to the fact that this kind of working did not use to be very common. Therefore, regulations regarding teleworking have been issued specifically only late, in 2018 ([Dima et al., 2019](#)). Teleworking is defined as a form of work's organization through which the employee, regularly and voluntarily, performs his duties specific to his position, occupation or profession, elsewhere than the workplace organized by the employer, at least 1 day per month, using information technology and communications ([Romanian Parliament, 2018](#)).

Even though the COVID-19 crisis is a very recent event and several statistics are still unavailable for assessing its impact on the labor market, on the economy or on the society as a whole, given the fact that this is an unprecedented crisis in the recent history, with a great impact on people's lives, researchers have showed a great interest for detecting all kinds of details regarding it.

[European Economic and Social Committee \(2021\)](#) investigated how telework and information and communication technology-based mobile work has shaped the behavior of European Union workforce during COVID-19 from the perspective of European trade unions. According to the Committee, the differentiated preparedness of member states created unequal opportunities for the workforce as they had uneven access to digital means and specific digital training. Moreover, teleworking enabled them to seek novel opportunities regardless of timing and location. The study argues that democratic values and overall trust in the national government are part and parcel of the workforce's satisfaction.

According to the literature, teleworking has relevant effects both on job performance and on the organizational performance ([Calmels et al., 2021](#); [Davidescu et al., 2020](#); [National Institute of Administration, 2020](#); [Lefter et al., 2017](#); [Serban, 2012](#)). [Calmels et al. \(2021\)](#) obtained that, in France, labour productivity increased by 22% during the pandemic crisis, due to teleworking.

Moreover, some studies have revealed, both in the past and recently, that teleworking is positively associated with work-life balance ([Gregg, 2011](#); [Tremblay and Thomsin, 2012](#); [Lopes et al., 2014](#); [Dima et al., 2019](#); [Davidescu et al., 2020](#); [Calmels et al., 2021](#)). [Dima et al. \(2019\)](#) concluded that telework could contribute to a better work-life balance and could generate sustainable effects targeting the long-term management of

workforce, providing solutions to potential problems at local community levels. They evaluated the individual and social implications of telework, along with the foreseeable permanent result that could be generated, using a survey carried out on a sample of 1,180 Romanian employees.

[Davidescu et al. \(2020\)](#) obtained that the mix between working from home and working in a company's office is considered an optimal solution in increasing organizational performance, social and professional relationships, learning and personal development and the overall level of work motivation. The authors investigated the link between employee development and worktime and workspace flexibility, job satisfaction and job performance among Romanian employees in order to identify how to redesign human resource management in the context of pandemic crisis using a survey on 220 people.

A challenge for teleworking is the legal part and there are several studies that focus on this aspect ([Prosser, 2011](#); [Pyoria, 2011](#); [Popescu, 2018](#); [Belzunegui-Eraso and Erro-Garces, 2020](#); [National Institute of Administration, 2020](#); [European Economic and Social Committee, 2021](#)).

The [National Institute of Administration \(2020\)](#) evaluated the opportunity to regulate different flexible ways of working (telework, flexible schedule, hybrid system and so on) in the Romanian public administration using two questionnaires addressed to executive and management positions in the context of pandemic crisis. The result of the study states that flexible work schemes ensure a better work-life balance, conducting to a higher productivity from employees. The main challenges regarded technical, social, informational and procedural aspects.

[European Economic and Social Committee \(2021\)](#) argue that a uniform basis of rights at the EU level would support the normalisation of telework as an alternative to the traditional organisation of work, with an added value of decent and quality working conditions. [Belzunegui-Eraso and Erro-Garces \(2020\)](#) combined the legal, environmental and security factors that explain teleworking, demonstrating the lack of contingency plans in companies for responding to external factors (such as COVID-19 crisis) that imply a reorganization of work.

Other studies are focusing on the impact of teleworking on gender roles ([Giovanis, 2018](#); [Alon et al., 2020](#); [Avdiu and Nayyar, 2020](#); [Hupkau and Petrongolo, 2020](#); [Kristal and Yaish, 2020](#); [Lopez-Igual and Rodriguez-Modrono, 2020](#); [Calmels et al., 2021](#)). Some papers show an increase in gender inequality during the pandemic due to the increase in care work done by women, while other studies obtained an equalization of gender roles, as during lockdown a certain distribution of domestic tasks has been observed. [Lopez-Igual and Rodriguez-Modrono \(2020\)](#) analysed the new profiles of teleworkers, by examining the main factors that increase or decrease the likelihood of different telework and mobile work arrangements, based on information and communication

technology. They analysed a survey based on 20,000 workers in EU15 area and confirmed the heterogeneity in the profiles of workers. According to the authors, occasional teleworkers are usually man managers or professionals, but home-based teleworking is also spreading into more precarious, temporary and lower-paid jobs.

Avidu and Nayyar (2020) analysed the vulnerability of jobs to social distancing, even in the context of lifting lockdown restrictions, by measuring the importance of face-to-face interactions with consumers. The results show that industries vary in whether they emphasize face-to-face interactions or home-based work and the two do not always go hand-in-hand. The authors found that occupations that are more intensive in face-to-face interaction are largely concentrated among lower wage deciles. Moreover, a large share of women's employment is accounted for by occupations that are intensive in face-to-face interactions.

Some studies research the work pressure generated by teleworking. For example, Thulin et al. (2019) examined how changing conditions for home-based telework affect the quality of life and social sustainability of workers in terms of time pressure and time use control in everyday life, using a survey on a sample of 456 home-based teleworkers employed by six governmental agencies in Sweden. The authors concluded that time pressure is not associated with job type in terms of distinguishing between bounded case work and more independent analytical work.

Time pressure is intensified by family-related factors, telework performed outside of working hours and part-time work. Also, family situation and having small children at home reduce time use control, according to the paper.

Other studies focus on the mentality of teleworkers (Toniolo-Barríos and Pitt, 2020; Radulescu et al., 2021). Radulescu et al. (2021) searched for the impact of the COVID-19 pandemic on the Romanian labour market using a survey on 548 people. According to their analysis, the respondents obtained better results and maintained a similar income, but the pandemic influenced the mentality of the employees, with a focus on safety conditions and complex health insurance. Moreover, the authors obtained that the pandemic induced an increase of unemployment in Romania.

3 Research methodology and data

In order to assess the impact and perspectives of teleworking both on employees and employers, we collected data based on two volunteer online surveys, during February 19th and 4 March 2021. Similar methods have also been used in the literature (Dima et al., 2019; Thulin et al., 2019; Belzunegui-Eraso and Erro-Garces, 2020; Davidescu et al., 2020; Lopez-Igual and Rodriguez-Modrono, 2020; National Institute of Administration, 2020; European Economic and Social

Committee, 2021; Radulescu et al., 2021). We opted for this method as it is an efficient method, it does not involve high costs (such as sending people, who are trained to explain the survey, to the field) and it is not dependent on the geographical position of the authors (given the fact that the survey is sent online).

The surveys are presented in Annex one and Annex 2, at the end of the article. The main objective is to identify the position of Romanian employees and employers/managers on teleworking, to diagnose the real situation of teleworking alongside the pandemic. Plus, we want to assess how the Romanian employees and employers relate to the advantages and disadvantages of teleworking and what is the willingness to continue the telework activity and in the aftermath of the pandemic.

The sample addressed to the employees on execution positions is composed of 400 respondents, while the sample regarding the employers and management positions consists of 121 respondents. The survey encompasses closed questions with a single answer option or multiple options using the Likert 5-trep scale as used in Dima et al. (2019) and Davidescu et al. (2020). The results for horizontal analysis are presented as absolute frequencies, relative frequencies and weighted averages for items measured with the Likert scale and have been obtained by using SPSS 23.0 Statistical Package for Social Sciences.

For all the questions we have obtained the p -value lower than 0.001, which leads to the conclusion of normal distribution for respondents with execution positions. We have tested for the normality of the answers' distribution using the Kolmogorov—Smirnov methodology, which is based on the comparison of the cumulative proportions of the observed and theoretical frequency distribution derived from H_0 (Pupion and Pupion, 1998):

$$D_t = 1.36 * \sqrt{\frac{n_1 + n_2}{n_1 * n_2}}$$

n_1, n_2 being the volume of the two compared samples. As we considered that the significance level α equals 0.05, according to the methodology, the resulted value of the variable t is 1.36. For data collected using the 5-step Likert scale, we have tested the reliability of the scale using Cronbach 'Alpha coefficient (Goforth, 2015):

$$\alpha = \frac{N * \bar{c}}{\bar{v} + (N - 1) * \bar{c}}$$

where, α = Cronbach 'Alpha coefficient; N = number of scale items; \bar{c} = average of all covariances used between items; \bar{v} = average variance of each item.

The values obtained for this coefficient differ between and across the two surveys, depending on the questions. For instance, in the case of the executive functions survey, all values obtained are above or approximately equal to 0.7, which indicates a good reliability of the statistical scale, while in the case of the survey regarding the management positions, the Cronbach 'Alpha

coefficient is above 0.7 for items that measure personal advantages and disadvantages (0.863 and 0.824 respectively) and those perceived for the organization (0.702 respectively 0.936). For the other items, the coefficient is below the accepted level of 0.7.

We have applied Oneway ANOVA (as in [Davidescu et al., 2020](#)) in order to analyse the existence of significant differences between the average scores recorded by items measured with the Likert scale (positioning against telework, perception of telework efficiency, personally perceived advantages and disadvantages, advantages and disadvantages for the organization). We only present the results for which the p -value is lower than 0.05. ANOVA examines the differences between the average values of the dependent variable (scores given to statements measured with the Likert scale) under the effect of independent variables, such as the type of organization in which they work or hold management positions ([Malhorta, 2004](#)). The independent variable is usually qualitative and the null hypothesis H_0 refers to the equality of the average scores ([Ostertagova and Ostertag, 2013](#)) of the categories of respondents holding an execution/management position depending on the type of institution/organization or its size.

We have also applied the nonparametric Mann - Whitney U test in order to analyse whether there are statistically significant differences between the items measured by the Likert scale for women and men. We only present the results for which the p -value is less than 0.05. The test has been also used as a bidimensional analysis of a nominal-ordinal pair of variables and is determined as follows ([Nachar, 2008](#)):

$$Z_U = \frac{U_{calc} - \frac{n_1 \cdot n_2}{2}}{\sqrt{\frac{n_1 \cdot n_2 (n_1 + n_2 + 1)}{12}}}$$

where n_1 and n_2 represent the sizes of the two independent samples. The Mann - Whitney U test is applied when in the study there are ordinal variables on a variable coming from two independent samples (in our case men/women) and there is scope for verifying the existence of a difference between these two groups ([Lambin et al., 1990](#)).

In order to analyse the degree of association/correlation between the Likert scale items related to the positioning of respondents to telework and the perception of the efficiency of this activity, both for respondents with executive and management positions, we have applied Pearson parametric correlations ([Brooks, 2008](#)):

$$\rho_{x,y} = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}}$$

where: n is the sample size, x and y represent the individual values of the two variables.

As for the structure and characteristics of the two surveys, one is based on the perceptions of employees holding executive

positions and the other is based on the perception of managers regarding teleworking, in order to assess its impact both on employees, but also on firms' efficiency.

Most respondents with executive positions are employed in private institutions or companies (55.5%) with over 250 employees (61.5%), the average age is about 40 years, and the average monthly net income about \$ 1,360, more than two-thirds of the respondents being women. A large proportion of the managers (86%) come from private companies, with a high share of those with less than 50 employees (77%), the proportion of women/men is approximately equal, the average age is 45 years old, and monthly net average income is \$ 1,509. ([Table 1](#)).

4 Empirical results

The results obtained on the basis of the two surveys reveal that 48% of the executive staff performed telework permanently in the context of the pandemic, compared to 22.3% of the managers. On the other hand, 37.2% of the respondents with management positions benefited from a hybrid scheme combining telework and physical presence at the workplace (compared to 34.5% among executive staff), and 30.6% performed telework occasionally (compared to 14.5% among executive staff), the remaining 9.9% of respondents with management positions stating that they did not practice telework at all (compared to 6% of respondents with executive positions).

Prior to the COVID-19 crisis, only 36.5% of the executive staff performed telework occasionally, while among the management staff, 6.6% performed telework on a permanent basis, 37.2% occasionally and more than half (56.2%) never. There has been, therefore, a significant increase in teleworking in the context of the pandemic, which is more pronounced in terms of executive functions.

Teleworking is seen by both management and executive staff as a good option, stating that work can be carried out efficiently both at the workplace and at home. The options related to total disagreement (I totally dislike it) and the existence of disruptive factors in teleworking conditions have registered quite low scores ([Table 2](#)).

The attitude of the respondents regarding their efficiency while performing teleworking is similar for the two categories, both for managers and executive staff being marked approximately neutral scores. Thus, an important part of the respondents consider that they have a higher efficiency or are equally efficient when practicing teleworking, compared to the situation in which they are physically present at the workplace.

During teleworking, the main ways of interaction, for both samples, were: email, phone calls, instant messaging applications and dedicated meeting platforms (Zoom, Google, etc.). A very small part of the respondents claim that they did not use these communication channels.

TABLE 1 The structure of the two samples.

Socio demographic variable	Executive positions n = 400		Management positions n = 121	
	Absolute frequency	Relative frequency	Absolute frequency	Relative frequency
Gender				
Males	124	31%	56	46.3%
Females	276	69%	65	53.7%
Age				
Less than 25	32	8%	2	1.7%
26–40	264	66%	51	42.1%
41–55	86	21.5%	43	35.5%
Over 55	18	4.5%	25	20.7%
Net monthly wage				
Minimum wage	12	3%	-	-
\$321 - \$619	26	6.5%	-	-
\$620 - \$1,236	144	36%	42	34.7%
\$1,237 - \$1857	142	35.5%	51	42.1%
\$1857 - \$2472	54	13.5%	21	17.4%
Over \$2472	22	5.5%	7	5.8%
Type of institution				
Public	124	31%	12	9.9%
Private	222	55.5%	104	86%
Educational (public)	54	13.5%	5	4.1%
Size of the institution				
Less than 10 employees	28	7%	52	43%
11–50 employees	56	14%	41	33.9%
51–250 employees	70	17.5%	19	15.7%
Over 250 employees	246	61.5%	9	7.4%

TABLE 2 Positions regarding teleworking (medium scores).

	Executive positions	Management positions
For me it is a perfect option	3.71	3.57
I am able to work efficiently both when teleworking and at the workplace	3.76	3.69
I totally dislike it	1.9	2.09
When teleworking, I consider myself to be less efficient, due to the distractions like family/children	2.38	2.61

For executive staff, professional communication with colleagues/superiors/subordinates/partners/clients during telework periods was slightly affected, as follows: for 10% - largely (8.3% among management staff), 26.5% - moderate (20.7% among management staff), 31.5% - to a small extent (similar weight for both samples), 32% - not at all (39.7% among management staff).

For executive staff, the aspects regarding expenses affecting the personal budget in order to create at home a proper working environment, reveal that 47% of the respondents have made such expenditures, 38.5% have stated that they had all the necessary means for teleworking, and only for 14.5% the employer provided all the necessary means.

TABLE 3 Advantages of teleworking (medium scores).

	Executive staff	Management staff
Saving the time spent in traffic	4.35	4.22
Work schedule flexibility and better schedule management	4.05	4.09
Saving money (for food, fuels, clothes, shoes, and so on)	3.67	3.86
Better management of the balance between private and professional life balance	3.53	3.32
Better supervision of children	3.35	3.31
Lower stress due to better time management: punctuality (related to time no longer spent in traffic)	3.49	3.9
Work efficiency (I work better when I'm alone than surrounded by colleagues at the office)	3.29	-
Development of digital skills	3.37	-

TABLE 4 Individual disadvantages related to teleworking (medium scores).

	Executive positions	Management positions
Reduced socialization	3.57	3.76
Existence of disruptive factors (noise, family tasks)	2.9	2.91
Difficulties in coordinating with other team members	2.79	2.86
The way of monitoring telework does not allow for an adequate reflection of the complexity/volume of the performed activities	2.96	2.94
Distorted perception regarding the professional efficiency during teleworking of the superiors/colleagues who do not practice teleworking	2.81	-
Lack of procedures regarding teleworking	2.68	2.85
Lack of an electronic signature	-	2.69

Most employees spent on furniture (118), consumables (paper, toner, etc.- 90), computer/laptop/printer (78), ensuring ergonomic comfort at home - 162, the average amount spent being about 1,300 lei. The structure of the amounts spent is as follows: under \$25-14.5%, \$25 - \$124: 19%, \$124 - \$ 248: 12%, \$248 - \$1,238: 18.5% and over \$1,238 - only 2.5%.

With regard to overtime during teleworking periods, the structure of the responses is somewhat similar for the two samples: 16.5% of executive staff answered "yes, to a large extent" (compared to 11.6% of the management staff), 32% - moderate (36.4% of managers), 6% - to a very small extent (25.6% of managers) and 25.5% never (25.6% of management). Regarding the advantages related to telework, the respondents from both samples consider that saving the time spent in traffic and flexibility of the work schedule are the most important advantages, but the other advantages also registered high scores. In the case of executive staff, the efficiency of the activity and the development of digital skills are also noted (Table 3). In contrast, the biggest disadvantages perceived in both surveys relate to reduced socialization (Table 4).

Instead, the biggest disadvantages perceived in both samples refer to the low degree of socialization.

An important conclusion of our research is that teleworking is beneficial to the profitability/efficiency of the organization, according to the answers provided by management staff, and this idea is reinforced by the relatively low scores obtained in the case of the options related to a negative impact of telework on the organization's activity or employees' lower efficiency (2.45 and 2.53, respectively).

The respondents holding management positions show a somewhat neutral opinion (sometimes disagreeing) on the advantages and disadvantages highlighted by the situation so far. One possible explanation is that the benefits are likely to be visible over a longer period of time (Table 5).

About half (49.8%) of the respondents holding management positions claim that the organizations in which they operate have provided funds to employees for the purchase of goods needed in telework, the structure of destinations being as follows: consumables - 34%, payment of part of utilities - 12%, office furniture - 19% and 36% for the purchase of a computer/laptop.

Out of the 121 respondents holding management positions, almost one-third (30.6%) will offer employees the opportunity to choose between telework and physical presence at the workplace, 28.1% only when appropriate, 19% consider it not to be a good option, 14.9% stated that the final decision does not belong to

TABLE 5 Advantages and disadvantages for the organization.

Advantages		Disadvantages	
Lower salary costs	2.13	Lower efficiency of the entire company/institution	2.4
Lower operating costs (utilities, rents, etc.)	2.88	Lower efficiency of some employees	2.46
Improved organization	2.66	Difficult communication	2.5

them and only 7.4% will offer this possibility only where teleworking is suitable. The results we obtained confirm, therefore, the idea circulated in other papers, according to which teleworking replaces the physical presence at work, and its significant practice will be maintained even after the pandemic.

We complemented our research with a vertical analysis of the two surveys. Thus, we applied Oneway ANOVA in order to test the existence of statistically significant differences (p -value < 0.05) between the average scores given in the case of the statements from the items measured with the Likert scale. We obtained statistically significant results for the executive staff depending on the type of institution in which they operate and in the case of the management staff depending on the size of the organization. We have chosen the size of the organization considering the fact that, according to the survey structure, 86% of the management respondents come from an institution/company with private capital.

Thus, we have found differences of opinion and perception regarding the positioning about telework (“It is a perfect option for me” and “I totally dislike”), in the case of respondents employed in public education institutions (3.15 and 2.33), on the one hand, those employed in public institutions (3.74 and 1.92) and those employed in companies with private capital (3.83 and 1.77), on the other hand. The same grouping of different perceptions is maintained from the perspective of telework efficiency, respectively between employees in public educational institutions (2.70), on the one hand, and those employed in public institutions (3.34) and or in private companies (3.11), on the other hand.

Regarding the personal advantages felt in the context of teleworking, only for one of the eight stated advantages there were significant differences, so that although the respondents from public institutions (3.56) and those from private companies (3.64) agree that they managed more effectively the balance between private and professional life, public education employees have a neutral opinion on this issue.

There are also different opinions regarding the following disadvantages of teleworking: the distorted perception of the efficiency of teleworking by superiors/colleagues who do not practice teleworking, on the one hand, and the lack of procedures for telework, on the other.

Within the survey for management positions, opinions and perceptions have registered statistically significant differences in

the case of perceived efficiency in telework, respectively of the opinion: “It depends on the situation, sometimes more efficient, sometimes less efficient”. Respondents agree with this statement (with a score of 3.89) in organizations with more than 250 employees, as opposed to organizations with less than 250 employees, that register an overall neutral-positive opinion (from 3.1 to 3.43).

The statement “Distorted perception of the efficiency of professional work through telework by superiors/colleagues who did not work telework” registers a neutral - positive score (3.17) in micro organizations (less than 10 employees) and a slight disagreement (between 2.56–2.68) in all other cases.

In addition, the statement “Employees you have subordinated were less efficient in professional activities carried out through telework, if they were physically present at work” led to the grouping of respondents’ opinions as follows: those in organizations with 11–50 employees disagreed with this statement, while all the others were neutral. It can therefore be concluded that teleworking does not affect the efficiency of employees, but most likely this depends on the organization of the entity.

According to managers, one of the disadvantages of teleworking for the organization, respectively lower efficiency of the entire company/institution, grouped the opinions as follows: managers in organizations with 51–250 employees were neutral while all the others disagreed. For the other disadvantage (difficult communication), the opinion of those in organizations with 51–250 employees differs from the others’ (neutral for the first group vs disagreement for all the others). Therefore, we can conclude that, in general, telework does not affect the efficiency of companies or communication in a professional sense.

However, the results obtained by running Oneway ANOVA indicate that, for these items there were large, statistically significant variations (differences of opinion) around the average score both within each group (type of organization in the case of execution positions, respectively size organization in the case of management positions), as well as between groups.

We used the nonparametric Mann - Whitney U test in order to analyse the statistically significant differences between the positioning of men and women regarding teleworking, its efficiency, advantages and disadvantages, both in the case of executive functions (Table 6) and in the case of positions management (Table 7).

TABLE 6 Results of the Mann–Whitney U for executive positions.

	Mann-whitney U	Wilcoxon W	Z	Asymp. Sig. (2-Tailed)
Positioning about teleworking				
During teleworking I am distracted and consider myself less efficient, due to the fact that I live with children/family	3,241.000	12,832.000	-2.830	0.005
Perceived efficiency in the context of telework				
Generally, less effective compared to when physically present at the workplace	3,497.500	13,088.500	-2.129	0.033
Perceived disadvantages in the context of telework				
Reduced socialization	3,548.000	13,139.000	-1.995	0.046
The way of monitoring telework does not allow for an adequate reflection of the complexity/volume of the performed activities	3,569.500	13,160.500	-1.931	0.050
Lack of procedures regarding teleworking	3,384.500	12,975.500	-2.452	0.014

TABLE 7 Results of the Mann–Whitney U test for management positions.

	Mann-whitney U	Wilcoxon W	Z	Asymp. Sig. (2-Tailed)
Positioning about teleworking				
It is a perfect option for me	1,399.000	3,544.000	-2.269	0.023
I am able to work efficiently both when teleworking and at the workplace	1,353.500	3,498.500	-2.563	0.010
Disadvantages regarding teleworking				
Lack of procedures regarding teleworking	1,456.000	3,601.000	-1.973	0.048
Advantages for the organization due to teleworking				
Lower operating costs (utilities, rents, etc.)	1,327.500	3,472.500	-2.638	0.008
Disadvantages regarding teleworking for the organization				
Lower efficiency for the entire company/organisation	1,394.500	2,990.500	-2.291	0.022
Difficult communication	1,482.000	3,078.000	-1.814	0.050

The results show that women have a different perception than men regarding the lower efficiency in the context of telework while living with family and/or children, compared to the physical presence at the workplace: men have a neutral position (2.71 and 2.68), while women disagree (2.22 and 2.32). Therefore, the results obtained indicate that women have the ability to optimize their work and administrative activities related to family/children, in line with the results obtained in the literature.

Regarding the disadvantages of teleworking, men agreed with reduced socialization, while women had a neutral opinion. Also, women did not perceive as a disadvantage of teleworking the lack of procedures, while men did.

The different opinions depending on the gender of the respondents holding a leadership position are presented in Table 7.

The positioning regarding telework is perceived differently depending on the gender of the respondents. Men holding management positions agree that teleworking is a perfect option (3.82), while women position themselves somewhat

neutral (3.35). The same differentiation between opinions (men agree, women are neutral) was registered for the statement “I can carry out my work efficiently both while teleworking and at the workplace”.

Statistically significant differences were also registered in the case of the lack of procedures for teleworking, men adopting a neutral position, while women disagreeing. At the same time, men agreed on the advantage of lower costs for the organization due to teleworking, while women were neutral. The results indicate that men disagree, and women are neutral in terms of lower efficiency for the entire company/institution and also in the case of difficult communication.

We also evaluated the degree of association between the items related to the respondents’ positioning towards telework and the perception of its efficiency using the Pearson parametric correlation, both in the case of execution functions (Table 8) and in the case of management positions (Table 9).

The results obtained in the case of the executive staff indicate the existence of either direct (+) or inverse (-), low intensity (0.208–0.344) or moderate (0.458–0.546) correlations.

TABLE 8 Pearson correlation coefficients for execution functions.

	Generally, more effective than when physically present at the workplace	Generally, less effective than when physically present at the workplace	Always equally effective	It depends, sometimes more efficient, other times less efficient
It's a perfect choice for me	0.344	-0.465	0.458	-0.055
I can carry out my work efficiently both while teleworking and at the workplace	0.307	-0.343	0.339	-0.003
I totally dislike it	-0.302	0.539	-0.253	0.223
During teleworking I am distracted and consider myself less efficient, due to the fact that I live with children/family	-0.208	0.546	-0.247	0.273

TABLE 9 Pearson correlation coefficients for management positions.

	Generally, more effective than when physically present at the workplace	Generally, less effective than when physically present at the workplace	Always equally effective	It depends, sometimes more efficient, other times less efficient
It's a perfect choice for me	0.623	-0.617	0.488	-0.167
I can carry out my work efficiently both while teleworking and at the workplace	0.590	-0.454	0.493	-0.013
I totally dislike it	-0.421	0.487	-0.339	0.195
During teleworking I am distracted and consider myself less efficient, due to the fact that I live with children/family	-0.457	0.479	-0.561	0.058

By analysing the direction and intensity of correlations between items that measure the position of managers regarding teleworking and the perception of their efficiency (Table 9), we can see that they have the same direction as those obtained for the executive functions, but the correlations are of medium to moderate intensity, as the values of the coefficients are higher than those obtained for executive functions. The results indicate the existence of both direct (+), and also inverse (-) correlations, of medium/moderate to strong intensity (0.421–0.623).

5 Discussion

In the context of the restrictions imposed by the COVID-19 crisis, our research reveals a significant increase in the practice of teleworking, more accentuated for executive positions, compared to management ones.

According to the results we have obtained, the efficiency with which people carry out their professional activity through telework is similar or even higher, compared to the situation in which they are physically present at the workplace. Similar results have been obtained by Calmels et al. (2021), Davidescu et al. (2020),

National Institute of Administration (2020) and Radulescu et al. (2021).

We can conclude, therefore, that teleworking has become, at least for some sectors, a determining factor of productivity growth, and this evolution will continue and will be amplified, most likely, through digitalization.

According to the respondents, teleworking has many advantages, both for management and executive functions, most important being the time saved by avoiding traffic and also making the work schedule more flexible, that indicates a new paradigm in time management and significant effects in terms of social relations. Respondents also significantly appreciate the fact that, in the context of teleworking, they saved significant amounts of money, managed the work-life balance more effectively, eliminated the stress of punctuality and even had the opportunity to supervise their children more closely. Similar results have been obtained by Dima et al. (2019), Calmels et al. (2021), Davidescu et al. (2020), Tremblay and Thomsin (2012), Lopes et al. (2014). In the case of the executive staff, it is also noted a higher efficiency of the activity, in the conditions of a quieter work environment, but also the development of increased digital skills. However, Vasilescu (2021) highlighted the fact that

almost half of the houses in Romania are overcrowded and this might be a disadvantage when working from home. The idea of intensified time pressure when teleworking within an overcrowded house is also supported by Thulin et al. (2019).

Beyond the benefits above reported by individuals, according to managers, telework is beneficial to the profitability/efficiency of the organization, as they, in general, disagree on the negative impact of telework on the organization's activity or lower employee efficiency while teleworking.

Thus, most managers agree to offer employees the opportunity to choose between teleworking and physical presence at work, in general, when appropriate, or where teleworking is favorable, while less than one-fifth believe that teleworking is not a good option. Therefore, a flexible scheme that combines teleworking with physical presence at the workplace would be a suitable option for the future, in order to find a balance between streamlining the activity of organizations, on the one hand, and optimizing the professional/personal activities of employees, on the other hand. The mix idea is also supported by Davidescu et al. (2020) and National Institute of Administration (2020).

An important aspect obtained from our research refers to the fact that there are differences of opinion at the level of staff working in public education institutions, compared to the other respondents. In general, they do not feel comfortable with the telework option and are generally of the opinion that their efficiency is lower than in the conditions of physical presence, which indicates that teleworking is still being improved in relation to the efficiency of the teaching-learning process, this situation being different from other types of activities. For example, Raišiene et al. (2021) obtained a similar result in their study, but Catană et al. (2021) obtained that teachers state that blended learning (mixed system) is the best way, while students and auxiliary and non-teaching staff consider that the traditional system (face-to-face) represents the best way to carry out the educational process.

In fact, education employees have a neutral opinion about the fact that, in the context of telework, they had the opportunity to manage more effectively the balance between private and professional life, while other respondents fully confirmed this idea. Such a conclusion seems to confirm the inertial and gradual character by which the great public systems assimilate the challenges of digitalization, given the low degree of technological and digital endowment in the Romanian education system. The use of teleworking methods in education is likely to become one of the strongest challenges of the XXI century, especially in the university education, whose profile favors distance learning much better.

Prior to the COVID-19 crisis, Romania had an extremely low share of teleworkers compared to EU countries, most likely for reasons related to the structure of the economy (lower value-added sectors, lower share of services and high share of agriculture), the lack of regulations on telework and probably the lack of large-scale digital skills. For example, in 2019, less than a third (31%) of Romania's population reported basic or advanced digital skills,

one of the lowest shares in Europe, while the EU average was 56%. As mentioned above, our study reveals an intensification of employees' digital skills due to telework, as a result of the restrictions imposed by the sanitary crisis.

Given the positioning of individuals holding both management and executive positions, regarding the efficiency of teleworking, as well as in relation to advantages and disadvantages, we believe that, among other changes that will take place at the economic and social level, the COVID-19 crisis could train a paradigm shift regarding the practice of telework in Romania, in the sense that it will be used more intensively and will be a way to streamline business in various economic sectors that are characterized by high added value (such as business development services, IT services, consulting, etc.), alongside with an improvement of the balance of personal/professional life. Labor efficiency is a delicate topic within the European Union, as it is considered that the EU promotes income growth in areas that account for low labor efficiency, which leads to moral hazard effects on the efficiency of firms (Jianu et al., 2021).

Thus, it is expected that these changes will increase the share of these branches in total national production, as Romania has a potential for development in these sectors. In fact, in 2020, despite the pandemic context, some of these sectors recorded increases that were likely to have a positive impact on both macroeconomic developments and the current account balance. For example, in 2020, Romania registered an increase in current account surpluses for IT services (by 5.8%) and business services (by 61%).

Given the financial instruments offered by the European Commission in the context of the pandemic, Romania benefits from consistent support for economic recovery, the transition to a green, digital economy and achieving a high degree of resilience. The significant financing Romania can benefit from in this context represents a huge opportunity in the sense of modernizing and developing the economy, by streamlining activities, by stimulating high-tech sectors which produce high added value, by accelerating the digitization process, both in the private and especially in the public sector. However, it must be noted that some authors found that the efficiency of the employees in the public sector during teleworking is questioned, due to the negative perception of the public regarding public servants and also by the limited trust that public institutions manage properly their digital procedures (Vasilescu, 2021).

6 Conclusion

We conclude that the Covid-19 pandemic will lead to a paradigm change in the sense of accelerating the use of teleworking, which will contribute to growing labor productivity, enhancing firms' efficiency and profitability, while having several advantages both for employers and

employees, and thus contributing to life improvements for the people involved.

In all the respects described in our paper, teleworking can have a significant beneficial impact: it determines the productivity growth and the streamline of the companies' activity, accelerating the digitization process, and, last but not least, it can contribute to reduce carbon dioxide emissions, by reducing territorial mobility, especially in urban areas, where pollution is one of the major problems. In fact, the biggest advantage of teleworking perceived by respondents in our study refers to the reduction of time spent in traffic, which is equivalent to a reduction in pollution.

However, beyond the social and environmental consequences, teleworking is asserted mainly by its economic motivations, by increasing productivity and overall efficiency of activity in public and private organizations, that opens new technological and institutional challenges in terms of digitalization and regulation in the legislative plan.

An important limitation of our study regarded the difficulty of obtaining a consistent number of answers, which depended on the willingness of employees and managers to respond to the survey. That is why we opted for an anonymous survey easy and fast to fill out.

A future research direction would consist in resending the survey when the pandemic is over and making a comparison between results obtained in 2021 and those that would be obtained in the future. Also, it would be interesting to assess the results obtained for this survey in other countries (similar developing countries in the region or developed EU Member States) and make comparisons between the results.

However, given also the issues presented in other papers (Vasilescu, 2021), maybe the most interesting future direction for research regarding teleworking in Romania would refer to testing

the theory according to which teleworking in local public administration is quite a challenge.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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