

IMPLEMENTING FULL-TIME REMOTE WORK IN THE IT SECTOR: CONSEQUENCES AND SOLUTIONS

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Purpose: The COVID-19 pandemic allowed companies to test the full-time remote work performed by the majority of employees. So far, such a workplace model has been rarely used in companies. Partial remote or full-time remote work dominated but carried out by a relatively small proportion of employees. The aim of the study was to identify the key consequences that appeared in IT companies during the implementation of full-time remote work and actions that were or may be taken in response to them.

Design/methodology/approach: Comparative case studies method – seven companies representing different segments of IT sector. Case studies were prepared with the use of interviews and documents analysis.

Findings: The assessment of the effects of full-time remote work has changed over time, from surprisingly positive in the first period to a more nuanced and complex one, including both positive and negative side effects. Over time, the approach of study participants to remote work began to change. Most of them began to gradually reduce its scale, encouraging or obliging employees to partially return to their offices.

Research limitations/implications: The subject of research is extremely dynamic due to social and technological changes. For example, the development of communication tools may have a significant impact on some of the identified effects of remote work.

Practical implications: The contribution of the study is indication of critical areas that require addressing by companies when implementing this form of work. The pandemic will bring a permanent change in the workplace organization, and the effective implementation of new hybrid models requires deep understanding of the full-time remote work consequences. This study supports the creation of such models and the selection of tools that will allow to use full potential of remote work.

Originality/value: The novelty of the research is recognizing the dynamics of the full-time remote work effects. Although the study was conducted among IT companies, its results may also be useful in other sectors.

Keywords: remote work, distant work, telework, work from home, COVID-19.

Category of the paper: research paper.

1. Introduction

Although the IT sector was particularly predisposed to use full-time remote work, until recently this form of work organization was not often used by IT companies in Poland. In a study of Polish IT specialists conducted just before the outbreak of the COVID-19 pandemic (Bulldogjob, 2020), only 8% of the respondents performed all work remotely. The survey shows that most of the respondents primarily worked in an office, and work at home accounted for a relatively small part of their professional activity (partial remote work). The situation changed with the outbreak of the pandemic. Companies had to implement such solutions overnight. In next study of Polish IT specialists (Bulldogjob, 2021) carried out almost a year after the outbreak of the pandemic, 73% of respondents still used full-time remote work. However, the end of the pandemic brought a partial return to offices in the IT sector. More and more companies (e.g. Amazon, Google, Zoom) have started to switch from full remote work to hybrid work.

The introduction of full-time remote work on a large scale is a revolution leading to a number of organizational and social consequences. There is a large body of research on potential consequences of implementing remote work (Bloom et al., 2015; Grenny, Maxfield, 2017; Nilles, 1998), but most studies refer to partial remote work, which so far occurred much more often than full-time remote work. In turn, research on virtual teams refer to organizations where remote workers are a minority (Gibson, Gibbs, 2006; Lepsinger, DeRosa, 2010). Meanwhile, full-time remote work performed by most employees in organization can lead to effects that are not observed in partial remote work or full-time remote work used by a small proportion of employees. More studies on full-time remote work used by most employees in companies have emerged during the COVID-19 pandemic. Many of them are employee opinion polls (Barrero et al., 2020; Wong et al., 2021; Maghlaperidze et al., 2021; Sami, Roychowdhury, 2021; Wrycza, Maślankowski, 2020), but relatively little illustrates the employers' perspective (e.g. Atkin et al., 2023; Gibbs et al., 2022; Jung, Silva, 2021; Yang et al., 2021). In addition, it is worth emphasizing that a large part of these studies was carried out in the first months of the pandemic, hence they may not include the effects that appear in the long term. Therefore, we can identify a research gap – lack of knowledge about the long-term effects of implementing full-time remote work used by the majority of employees in the organization.

The aim of the study is to identify the key consequences that appeared in IT companies during the implementation of full-time remote work and actions that were or may be taken in response to them. The article contributes to research on remote work by taking the employer's perspective. Furthermore, as the analysis focused on the first two years of the pandemic (2020-2022), it was possible to observe the effects from a longer perspective. The relationship between positive and negative outcomes is important for the future use of remote work after the pandemic. The author used comparative case studies method (7 companies operating in Poland).

The choice of the analyzed sector resulted from the above-average frequency of remote work in comparison to the entire Polish economy during the pandemic (GUS, 2020).

In the article, full-time remote work refers to work performed 5 days a week at any distance from the place where its effects are expected or where it would be performed within the traditional employment system, using available ICT techniques (Zalega, 2009, p. 39). So far, the term telework has been used more often in research, however, remote work, telework and telecommuting may be treated as the same.

2. Literature review

The introduction of full-time remote work is a revolution in organizations using traditional office workplace. As a result, there is a number of consequences of such a change in organizations, both for the employer, the employees affected by this change and their co-workers or clients. The literature and research most often examine the effects of remote work, without distinguishing certain types of it. Meanwhile, it is a heterogeneous phenomenon. Due to the frequency of its use, it is possible to distinguish full-time, partial and occasional remote work. This section presents the effects of implementing full-time remote work, most often indicated in the research, or universal effects identified in various types of remote work, including full-time remote work.

2.1. Employee productivity

In the past, many researchers indicated that remote work could contribute to an increase in employee productivity. The reasons for this effect were seen in several sources. On the one hand, the average working time of remote employees is longer than the working time of employees performing tasks in the office (Lasfargue, Fauconnier, 2015; Madden, Jones, 2008; Noonan, Glass, 2012; Tipping et al., 2012). The productivity of remote employees is influenced not only by the extension of working time, but also the ability to work in concentration. Many researchers (e.g. Golden, 2006) emphasize that working remotely from home can eliminate many sources of disruption in the office (e.g. telephones, colleagues, noise, meetings) in the employee's environment and thus increase their productivity. However, this does not apply to everyone, for example employees who live with young children or do not have a separate room to work at home.

In practice, measuring the performance of remote workers is difficult. Many studies are based on the subjective opinion of employees or their superiors. For example, in the study by FlexJobs and WorldatWork (2015), managers asked to evaluate the productivity of remote workers compared to office workers in almost half of the cases (39%) avoided the answer, indicating that it was difficult to assess. Other managers most often indicated that the level of

productivity was similar in both groups (48%), and only 12% saw a difference in productivity: 8% in favor of remote workers, 5% in favor of office workers. At the same time, as many as 97% of surveyed managers admitted that the impact of projects promoting flexibility among employees, e.g. on productivity, customer satisfaction, and product quality, is not assessed.

A different approach to assessing the impact of remote work on productivity was chosen by (Bloom et al., 2015). During the implementation of remote work in the Chinese company Ctrip, a pilot project was conducted in which the performance of remote call center employees was compared with the performance of office workers performing the same duties (control group). The productivity of the group of remote employees compared to control group increased by 13%. The increase was due to: 9% increase in effective working time (fewer breaks and sick leaves) and 4% increase in the number of calls per minute of work (quieter and more comfortable working conditions). After the end of the experiment, about half of the employees decided to continue working remotely - the increase in the productivity of this group was even higher and amounted to 22%. Employees whose work performance decreased during the experiment resigned from further remote work. This means that some of the employees using remote work recorded a reduction in efficiency.

The pandemic period has provided new opportunities to study the performance of remote workers. The obtained results are less optimistic than those previously described. Jung and Silva (2021) in a study of companies that used full-time remote work during the COVID-19 pandemic point out that high productivity was the result of increased working hours and a disruption in work-life balance. They concluded it was positive in the short-term, but unsustainable in the long-term. Atkin, Schoar and Shinde (2023) analyzed remote work in the data entry sector in India that exogenously allocates workers to the home or office. They found that the productivity of workers randomly assigned to working from home was 18% lower than those in the office. Gibbs, Mengel and Siemroth (2022) compared employee productivity in a large Indian IT services company before and during the working from home period of the Covid-19 pandemic. They found employees spent 18% more time at work, but the employee productivity (output per hour worked) fell 8-19%. An important source was higher communication costs - time spent on coordination activities and meetings increased, while uninterrupted work hours shrank considerably.

2.2. Cost savings

One of the most measurable effects of full-time remote work is cost optimization by reducing the need for office space. As a result, the costs of renting or purchasing space, office maintenance, utilities, taxes, and car park rental are reduced. On the other hand, the use of remote work requires specific expenditure related to arranging offices in employees' homes, although it is most often a one-time expense.

The research shows the different scale of savings. The analysts of Global Workplace Analytics and Flexjobs (2017) estimated that the decrease in office maintenance costs amounted to approx. 2 thousand dollars per year for one remote employee. In the aforementioned study by the Chinese company Ctrip (Bloom et al., 2015), savings related to the reduction of office space (Shanghai) and IT costs amounted to 1.4 thousand dollars per year for one remote employee.

2.3. Human Capital Management

Researchers find a number of limitations of remote work in the context of selected HR processes. These restrictions apply with on-boarding of new members. Employees deployed remotely in many cases need more time to learn tacit knowledge, develop understanding of the organization and build relationships with other team members (Ahuja, Galvin, 2003). Lowered social capital can result in weaker work identity (Gruman, Saks, 2018). For this reason, some companies use hybrid approach introducing an obligation for new employees to work the first period at the company's headquarter before they can work remotely (Matos, 2015).

The challenge for managers of teams consisting of remote employees is to develop their competences. Researchers found during the COVID-19 pandemic that remote workers received less coaching and 1:1 meetings with supervisors (Emanuel, Harrington, 2023; Gibbs et al., 2022). This may lead to lower job satisfaction and greater propensity to quit in this group.

Next challenge in distant work is to transfer the culture of the organization, which should be the bond of teams. In a traditional workplace, organizational culture is passed on in many ways, e.g. through material artifacts, relationships with superiors and colleagues, rituals, and formal tools. Meanwhile, full-time remote work limits these possibilities. The number of direct personal interactions is small and the observation of mutual behavior is limited. Gainey et al. (1999) even emphasize that remote work may weaken existing organizational cultures. The challenge of transmitting culture concerns, above all, people who have not previously worked at the office of the organization and do not know it. As a result, the transfer of culture to such people takes longer and is less effective. The result may be weaker identification of the employee with the organization, a lack of a sense of community with the team, less involvement in work or the emergence of subcultures. Kostner (1999) points out a similar problem, claiming that many remote employees, due to the virtual nature of the relationship, do not feel a significant emotional connection with the organization (low loyalty to the employer). For this reason, it is easier to build the loyalty of remote employees towards the manager and the team. This phenomenon can lead to increased staff turnover which was observed in research on distributed software teams (Smite, Solingen, 2015).

2.4. Relationships in teams

Full-time remote work may hinder team building due to constraint or elimination of face-to-face contacts between employees. Many researchers emphasize the importance of F2F contacts as a catalyst for the process of increasing social cohesion in teams (Lu, 2015). In particular, the importance of a face-to-face meeting at the beginning of the team's work is emphasized. Research shows that new teams that start cooperation from such a meeting and then work remotely achieve similar results as teams that are physically in the same place all the time (Coenen, Kok, 2014). Lepsinger and DeRosa (2010) comparing the functioning of 48 virtual teams operating in various organizations and industries concluded that the teams that met face to face at the beginning of the project were more effective than those that did not have such a meeting.

Loss of relationships was identified among companies implementing full-time remote work during the pandemic as one of most common challenges (Jung, Silva, 2021). Despite the effort put in staying connected virtually employee relationships became more limited to their departments and teams.

The other consequence was loss of in-person innovation and collaboration (Jung, Silva, 2021). The replacement of white boarding sessions and other in-person meetings with virtual meetings was limited and oftentimes frustrating substitute. Employees lost a chance to interact with colleagues outside of one's regular teams. Meanwhile, these types of interactions with new people – the power of “loose ties” – are conducive to innovation (Davis, 2008).

Research conducted during the pandemic at Microsoft illustrates the impact of full-time remote work on teamwork and communication (Yang et al., 2021). Researchers concluded that firm-wide remote work caused the collaboration network of workers to become more static and siloed, with fewer bridges between disparate parts. Furthermore, there was a decrease in synchronous communication and an increase in asynchronous communication. Together, these effects may make it harder for employees to acquire and share new information across the network.

3. Methodology

The aim of the study was to identify the key consequences that appeared in IT companies during the implementation of full-time remote work and actions that were or may be taken in response to them. The effects were analyzed from the employer's perspective.

The research questions (RQ) were:

RQ1: What were the short and long-term effects of the full-time remote work implementation for IT companies?

RQ2: What actions have employers taken to adapt their organizations to the challenges arising from full-time remote work?

RQ3: Which remote work challenges require additional action?

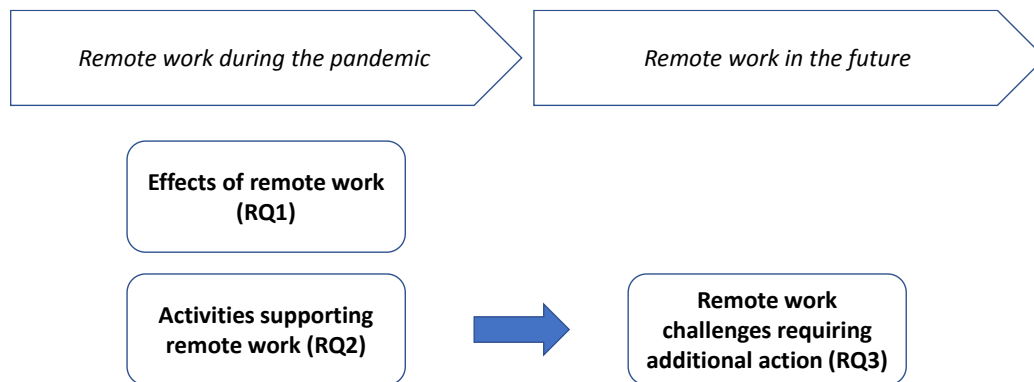


Figure 1. Research framework.

Source: own elaboration.

Most studies so far focused on partial remote work, which occurred much more often than full-time remote work. Only the pandemic became a stimulus for the massive implementation of remote work performed five days a week. We lack knowledge about the long-term effects of implementing full-time remote work used by most employees in the organization. Meanwhile, increasing the effectiveness of this form of work requires a better understanding of its mechanisms. The comparative case studies method allows for a more in-depth understanding of the phenomenon than quantitative research.

The research sample of 7 companies was chosen using the following criteria:

- organizations operating in Poland in the IT sector or IT departments of large enterprises;
- companies employing at least 20 IT staff members;
- organizations using full-time remote work in their activities during the COVID-19 pandemic.

The IT sector consists of companies with a very different profile of activity. The strength of the research sample is its diversity, from e-commerce company through software houses, companies implementing ERP systems based on third-party software, to companies providing IT services for international holdings.

The study was carried out in two stages:

- about a year after the pandemic began in Poland (2021);
- two years after the start of the pandemic (2022).

In each stage, at least one semi-structured in-depth interview was conducted with representatives of each surveyed organizations (company management or HR units). Interviews were conducted by phone or by videoconference.

Surveyed organizations were asked to provide three categories of internal documents: remote work regulations, existing analysis of the use of remote work during a pandemic, employee opinion surveys on the use of remote work. Not all companies had these documents, and those that did not always decided to share them. Eventually three companies made their documents available (A, D and F). For this reason, this source of information was rather complementary.

Table 1.

Description of the research sample

Code	Type of activity	Number of IT employees	Respondents
A	E-commerce company operating in Poland	30	CEO
B	IT subsidiary that supports global production holding	300	CEO
C	IT department in a production company operating worldwide	20	Head of programmers
D	Software house operating worldwide	200	Project Manager
E	IT company implementing ERP systems under license in Poland	50	Head of the implementation department
F	Software house operating in Europe	400	HR Director
G	IT subsidiary that supports global conglomerate	> 1000	Team leader

Source: own elaboration.

4. Results

4.1. The use of remote work in the surveyed companies

The analysis and drawing of conclusions from case study method requires knowledge of the context of the studied phenomenon. Before the outbreak of the pandemic, analyzed companies had a very different approach to remote work. Among the participants there is a company (C), which did not use this possibility at all, as well as two companies (D and G) for which it was already the dominant form of workplace organization. The remaining four companies used partial remote work to a small extent.

In March 2020, the beginning of pandemic triggered lockdown, all surveyed companies introduced remote work as the basic form of workplace organization and used it intensively until the day of the study (two years after the outbreak of the pandemic). So it was a revolution for five of the seven companies. Employees mainly used remote work from home. In the first period of the pandemic, companies introduced full-time remote work. Over time, the approach to remote work began to diversify between study participants. Some of them maintained full-time remote work (A, D, G), and some began to gradually reduce its scale, encouraging (B, F) or obliging (C, E) employees to partially return to their offices. In most companies, the phenomenon is quite heterogeneous: some workers do all duties at home, while others work partly from home and partly from the office.

4.2. The effects of the full-time remote work implementation for IT companies

The introduction of full-time remote work on a large scale contributed to several consequences, some of them were positive, but there were also negative side effects. Some of the effects were seen in the first weeks, others only after a long time.

Table 2.

Selected effects of full-time remote work implementation observed in the surveyed companies

The effect	Type of effect (positive, neutral, negative; immediate, postponed)	Company						
		A	B	C	D	E	F	G
Maintaining business continuity	Positive, immediate							
No drop in employee productivity	Neutral, immediate							
Increasing the efficiency of office space use	Positive, postponed							
Loosening of interpersonal ties and erosion of organizational culture	Negative, postponed							
Departure of employees	Negative, postponed							
Acquiring employees from new labor markets	Positive, postponed							
Difficulties in onboarding new employees	Negative, postponed							

Source: own elaboration.

Maintaining business continuity

Remote work has long been indicated as a solution enabling organizations to maintain business continuity in the event of natural disasters, extraordinary situations. However, so far this factor has played a minor role, for short periods in a limited territory, e.g., during the crisis at the Fukushima nuclear power plant. The outbreak of the COVID-19 pandemic and the introduction of lockdown restrictions forced organizations to implement full-time remote work. Despite the relatively low popularity of full-time remote work in the IT sector before the pandemic¹, these companies were nevertheless technologically very well prepared for such organizational innovation and in most cases had experience of partial remote work. As a result, the surveyed entities, despite the lack of formal Business Continuity Plans, continued their activities without major disturbances.

No drop in employee productivity

The surveyed companies did not conduct comprehensive and systematic analyzes of the performance of remote employees. Performance assessments were based primarily on the opinions of managers who formulated them, most often analyzing the time and quality of executed tasks. After two years of using full-time remote work, management feedback has been positive. The most common opinion was that the change in workplace organization did not contribute to the decline in productivity at the level of the organization as a whole.

¹ Only 8% of IT employees in Poland before the outbreak of the COVID-19 pandemic (November 2019 - January 2020) used remote work 5 days per week (Bulldogjob, 2020).

Some survey participants (company A) emphasized that in the case of individual employees such a decrease took place. It turned out that due to the lack of self-discipline and independence, not every employee was able to effectively work remotely, such people were dismissed.

The tasks performed in the surveyed companies are of a very diverse nature and this has a significant impact on the efficiency of remote work. According to the survey participants, most of the work of employees was relatively easy to transfer to a new form of work organization. However, there were tasks where it was more difficult or even impossible:

- tasks requiring access to resources located in the office, e.g. maintenance of IT infrastructure [companies B, C];
- tasks that require a large group of people to work together to solve unique, non-routine problems, e.g. strategic workshops [company A], workshops initiating the project with the participation of customer representatives [companies D, F], internal workshops as part of Scrum Day [company F], creating innovation [company G];
- tasks that require a lot of interpersonal contacts in order to understand the context of the work being carried out, e.g. the work of a developer or analyst who should understand the business processes and expectations of software users [companies B, D];
- tasks requiring deep interpersonal contact, e.g. interviews as part of the performance appraisal system [company A];
- tasks that are difficult to measure, which makes it difficult to monitor the work [company A];
- recruitment meetings due to the much smaller possibilities than before to make a good impression on the candidate for work (no possibility of presenting the office and future colleagues) [company F];
- integration activities, mainly concerning new employees [companies F, G].

Several respondents [companies A, B, C] additionally indicated that cooperation is troublesome when some people work in the office, and some remotely. It is especially noticeable during meetings, when the discussion takes place mainly among office workers, and the activity of remote participants of the meeting is much lower.

On the other hand, there were tasks in which a clear increase in productivity was visible as a result of the remote work use. During the removal of system failures, communication and cooperation in a large group of employees from different locations was more efficient than before (company B). Thanks to technology, these workers were more accessible without having to meet in the same place.

Increasing the efficiency of office space use

The introduction of full-time remote work enables organizations to reduce office maintenance costs. Among the surveyed companies, despite the fact that two years have passed since the outbreak of the pandemic, only one (company E) has renegotiated the office lease agreement, reducing the used office space by approximately a half. The second company (A) is

preparing to reduce the existing space by approx. 75%. The third company (B) will increase employment without increasing the existing office space. One of the companies (F) even took the opposite action - while at the stage of rapidly increasing the scale of its operations, it decided to open another office in a new location, but relatively small one. Three other companies are refraining from taking any action in this area, keeping the existing office space. It may indicate that they treat remote work as a temporary solution assuming that employees would return to offices.

Loosening of interpersonal ties and erosion of organizational culture

The result of remote work is the replacement of face-to-face contacts in the office by exchanging e-mails, chatting on IM and during videoconferences. The intensity of communication in teams is declining - instead of a constant conversation with a wide group of colleagues in a common space, communication is shifted to periodic virtual meetings and to a narrower group through instant messaging. Additionally, employees miss opportunities for random conversations in the hallway or a break area, especially with people outside of their team. The chance for an exchange of ideas, mutual spontaneous inspiration, and building team spirit decreases. As a result, managers of all surveyed companies see the problem of loosening interpersonal ties in their teams. This is particularly evident in teams where new people have already appeared during the pandemic. In such teams, internal divisions sometimes appear - old vs. new employees [company E].

An even greater problem of loosening interpersonal ties arises if a broader perspective of analysis is adopted, going beyond a single team. While employees maintain constant contact with colleagues within their team, contacts with people from other teams are much less frequent than before the pandemic [companies A, E, F, G]. While we can talk about maintaining employees' attachment to their team, the level of identification with the company decreases [companies A, C, F, G].

Traditionally, many cultural artifacts are tangible (e.g. office design and furnishings) or held in offices (e.g. some rituals). Reducing majority of contacts to electronic communication limits the possibilities of shaping and transmitting organizational culture. It is particularly troublesome in the case of new employees, the possibilities of shaping their behavior are shrinking. Additionally, there is the challenge of maintaining the coherence of the culture within the entire company. The much smaller number of contacts with colleagues from other teams than before makes it difficult to use top-down approach in shaping the culture and may lead to the formation of subcultures in teams. As a result, there is a risk of a gradual erosion of organizational cultures.

Acquiring employees from new labor markets

In the first months of the pandemic, the recruitment of new employees was suspended in all surveyed companies. Returning to the recruitment, companies faced the challenge of finding talents. The labor market of IT specialists in Poland has been an employee's market for a long time. In such a situation, the possibility of going beyond the current local labor markets thanks

to the implementation of full-time remote work was attractive for employers. Among the respondents, four companies [A, B, F, G] extended the geographical scope of recruitment to other local labor markets in Poland, and one [D] is looking for employees also in other countries, including non-European countries. The motivations behind entering new labor markets include the lack of candidates in the existing markets and sometimes also the desire to reduce personnel costs (e.g. recruiting cheaper employees in Romania or in small towns in Poland). New employees recruited in such markets will also work remotely after the pandemic, which means that expanding the scope of recruitment will make full-time remote work permanent in these organizations.

Departure of employees

The competitors of the surveyed companies also take advantage of the possibility of recruiting employees on new labor markets. For some employees, full-time remote work performed for Polish or foreign organizations does not differ much, apart from salaries. Among some companies it was observed that their employees received job offers, in particular from Western European companies [companies B, F]. As a result, some employees have already left. This is dangerous because, according to some respondents, working remotely 5 days a week causes the previously mentioned problems of loosening interpersonal ties, weakening organizational cultures and, as a result, a decrease in employee loyalty to the company [companies A, C, F, G]. Additionally, this phenomenon is overlapped with the reduced need to identify with the company among the youngest employees [B, E]. As a result, this leads to a situation where when comparing job offers, employees focus primarily on the amount of remuneration. Moreover, it is more difficult for managers of remote employees to notice red flags that may indicate an intention to leave a given employee.

Difficulties in onboarding new employees

During the pandemic, all surveyed companies employed new workers. The onboarding of new remote employees was a challenge primarily for line managers. The vast majority of these activities in the first year of pandemic took place remotely. Despite the great effort put by the organization to introduce a new employee, this process was much slower than before. It was also difficult to integrate such a person into the team in this way. Moreover, some of the new employees felt uncomfortable with this way of entering the new organization. Getting to know your duties, colleagues and the company itself was much more difficult than before [company E, G]. Among the surveyed organizations, there were cases of resignation of new employees for this reason during the first weeks of employment [company C, G].

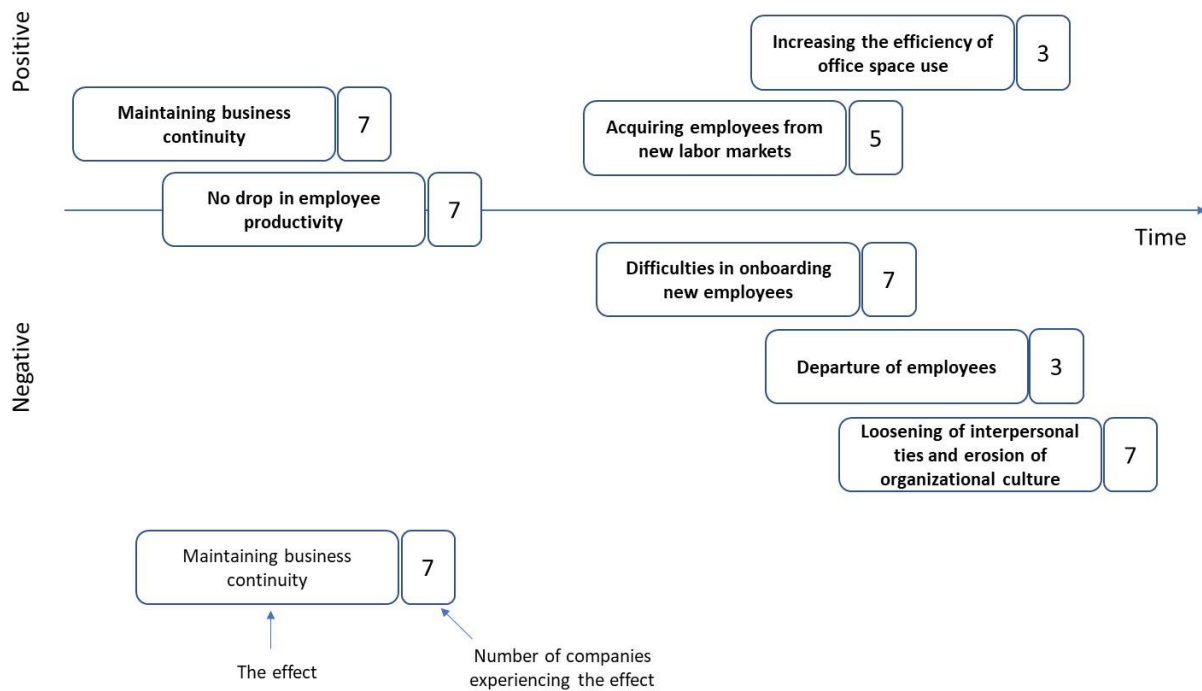


Figure 2. The order of appearance of remote work results.

Source: own elaboration.

At the beginning of the pandemic, there were positive effects of implementing full-time remote work related to maintaining business continuity in the new work organization model without negative effects on productivity. Therefore, the first evaluations were positive and optimistic. As time passed, however, some negative side effects of a social and organizational nature began to be noticed in all companies. New opportunities also began to emerge (access to new labor markets, the possibility of reducing office costs), but only a part of the surveyed companies took advantage of them.

4.3. Response of the surveyed companies to the challenges arising from remote work

The implementation of remote work required the adoption of several technical tools as well as making organizational changes. In the first place, solutions aimed at ensuring the efficient performance of the main tasks of employees were implemented. Over time, managers observed the side effects of remote work and looked for solutions that prevented them or minimized their consequences.

In order to maintain the continuity of processes and projects and to ensure employee productivity, IT tools were implemented, where they had not existed before, to facilitate cooperation between remote employees and help managers to supervise the team [company A]. In some companies, the rules of conducting electronic communication have been specified in detail [company B]. The limitations of this form of communication were noticed in the surveyed companies and in the case of tasks in which electronic communication does not fully work, face-to-face meetings were used. All the surveyed companies tracked work performance

primarily using the existing measures, e.g. resulting from the applied project management methodologies. Their design depended on the specificity of the team's work. In some cases (e.g. secretary), the work was not measurable enough to use such solutions.

The respondents often pointed out that work productivity is an important problem for management and is subject to monitoring. In two cases [companies B, C] it was found that the challenge for IT managers was to convince top management that the effectiveness of remote work was not lower than before the COVID-19 pandemic. In several interviews, opinions appeared that top management returned to stationary work after the initial period of the pandemic and was suspicious of remote work [companies C, E]. In one of the surveyed companies [company C], the top management expected the introduction of software for monitoring computers of remote employees. In another [company E], reporting on work was introduced more detailed than before. After some time, when it turned out that the productivity did not decrease, the scope of reporting was limited.

The problem of loosening interpersonal ties was noticed after a few months of full-time remote work in practically all the surveyed companies. In larger entities [companies B, F, G], not only managers but also HR departments monitored employees' morale. Two of the surveyed companies [A, G] conducted a survey of employees in order to find out their opinions on the organization of remote work.

Actions aimed at reducing the problem of loosening interpersonal ties were of various nature, both top-down and bottom-up, which means that the problem was noticed by both the managers and the employees themselves. Top-down actions sometimes led to forcing certain behaviors by, for example, introducing the obligation to work in the office on certain days [companies C, E]. In other cases, the actions were less restrictive and were intended to encourage employees to visit the office periodically [companies B, F, G]. Typically, there were more top-down activities in larger companies that have HR departments. These were both initiatives inspired by company top management and line managers who reported such needs to HR units. On the other hand, bottom-up activities were undertaken more often in a small groups of people, e.g. a project teams or narrow groups of people who had close relationships with each other. They involve organizing social meetings (on-line and traditional) or spending time together playing online games.

The risk of organizational culture erosion and the problem of limited possibilities of transferring it were less noticed among the surveyed companies. This challenge was considered key by one of the surveyed companies [B]. One of the actions taken was to change the scope of tasks of the current HR Partner positions and rename these positions to Culture manager. In the remaining companies, no activities related to this threat were identified.

Each of the surveyed organizations developed new rules for onboarding process. The process in some companies [A, B, C, E] began with a visit to the office and getting to know the supervisor (but no co-workers who worked at home) in a traditional way. In the remaining companies, even the first contacts were only virtual. A new employee in the first period - usually

a few weeks - was supported by a manager or designated employee (buddy system) or internal trainers [all surveyed companies]. During this time, the newly hired person carried out tasks that introduce him or her to new duties. This stage of cooperation was usually remote. Introducing a new employee to work was focused on formal and legal issues and substantive preparation for work, little attention was paid to soft issues, so that the employee felt part of the team. Only two companies [F, G] used some virtual social activities. What's more, the interviewees emphasized that new people did not have a chance to watch other employees, listen to their conversations, and so far it had been an important factor in the development of new employees. Knowledge diffusion often occurred unplanned when working together in one room. As a result, the period of reaching the desired level of professional maturity took much longer than before.

One of the companies [A] was planning to record tutorials on how to perform selected tasks. In this way, the people looking after new employees would be partially relieved, and they, in turn, would be able to use the hints at any time without involving other employees.

A serious problem for some of the surveyed companies was the loss of employees to employers from other countries offering higher wages. The pandemic made foreign competitors implement remote work and as a result they started to hire workers all over Europe. This is a challenge that is difficult to deal with directly. The surveyed companies declared that they used indirect solutions, trying to create non-material benefits for employees. Unfortunately, the possibilities of creating a friendly atmosphere and close relationships are limited in the realities of remote work. While long-term employees stick to the company because of existing strong ties, new people have very limited opportunities to create them, so the risk of their departure is greater than those who started working in a traditional office.

5. Discussion

5.1. The effects of the full-time remote work implementation for IT companies

The study highlights changing nature of full-time remote work effects over time. In the short term, the assessment of the remote work implementation was very positive. This change in workplace organization allowed companies to maintain business continuity in a pandemic without adversely affecting work performance. With a few tasks, the limitations of remote work became apparent, which, however, does not undermine the claim that work performance has been maintained. Some researchers (e.g. Atkin et al., 2023; Gibbs et al., 2022) indicate that remote work during the COVID-19 pandemic led to a decline in labor productivity. Meanwhile, in the case of most tasks, the respondents did not notice a significant change in productivity, although there was also a small part of the tasks where this negative effect was clearly noticed.

The new workplace organization created some new opportunities for companies: reduction of the costs of maintaining the office, recruitment of employees on new labor markets. The latter has become more popular than the first. Both these chances resulting from remote work were highlighted in previous research (e.g. Bloom et al., 2015; Mueller-Langer, Gómez-Herrera, 2021; Oshri et al., 2015).

In the long-term perspective, the assessment of the introduced change in the workplace organization was not so clear. Remote work influenced the existing organizational culture and the possibilities of its shaping. Some researchers (e.g. Jung, Silva, 2021) highlights positive cultural changes: increase in trust and flattened hierarchy. The others show remote work makes collaboration in large organizations more siloed (Yang et al., 2021). As researched companies gradually observed the weakening of interpersonal ties, transmitting values became more and more difficult which confirms the conclusions of other researchers (Gainey et al., 1999). This process may lead to organizational culture erosion in the future.

As a further consequence, there was a decline in employee loyalty and attachment to companies, which may lead into increased employee turnover. These results are similar to those of Kostner (1999) who found that many remote workers, due to the virtual nature of the relationship, do not feel a significant emotional connection with the organization. It was observed during the pandemic, e.g. in global study of more than 30,000 people 46% of workforce was planning to leave their employer because they could work remotely (Microsoft, 2021).

What's more, researchers (Bell, Kozlowski, 2002) indicate that remote work on a significant amount of time causes the remote worker to become "invisible" to the group of people with whom he or she does not cooperate closely and has less contact with superiors and colleagues. As a consequence, this may have a negative impact on individual position in the organization, as well as the chances of promotion (Emanuel, Harrington, 2023) and an increase in earnings. It can also lead to higher employee turnover.

This study shows that full-time remote work may lead to disintegration of the organization if efforts are not made to build and maintain interpersonal relationships in teams and beyond teams to strengthen the organizational culture.

The other challenge remote work brought was onboarding process. All researched companies found onboarding new employees slower and less effective comparing to pre-pandemic. It was much more difficult for new hires to build relationships with colleagues, and this may also result in increased staff turnover.

Taking a broader perspective, it can be expected that the implementation of remote work on a large scale will have a significant impact on the functioning of the labor market of IT specialists. On the one hand, it enables the acquisition of employees in new labor markets, but at the same time it means a greater risk of losing own employees to employers from other countries. As a result, competition for IT workers will increase and labor markets will lose their local character.

5.2. Previous and future activities of companies supporting the remote work

The surveyed organizations first focused on activities aimed at maintaining the continuity of processes and projects and sustaining employee productivity. These were both technical and organizational solutions, enabling employees to cooperate efficiently and supporting managers to control employees and provide them with support.

As time passed, managers began to notice negative side effects of working remotely and introduced solutions that can minimize them. This applies in particular to the problem of loosening interpersonal ties in teams and more broadly in entire organizations. After the initial period of the pandemic, some of the surveyed companies introduced the obligation to work in the office on certain days. Work has also been undertaken to integrate employees. The impulse for such actions came from both the managerial staff and the employees themselves. So far, however, the frequency of integration activities has been quite modest. It seems that if companies decide to maintain a large amount of remote work at home (4-5 days a week) in the future, it will require integration activities on a much larger scale than before. This will be especially important for companies with above-average employee turnover. It will also be necessary to search for a new formula of integration activities combining traditional and virtual methods. Sources of inspiration can be found among companies that have long used virtual, global teams (e.g. Moe, 2020).

Organizational culture plays an important role in employees' integration. Only one of the seven researched companies appreciated the risk of organizational culture erosion creating the position of Culture manager. The others did not undertake any specific actions in this regard. In the short term, this threat is less tangible, but has a number of serious consequences in the future, ranging from lower identification with values, declining employees' loyalty to the disintegration of the entire company. According to the research this was the most serious consequence of full-time remote work. Undoubtedly, the popularization of this form of work will have to be accompanied by the development of methods of virtual transmission of organizational culture. Some of them may involve Mixed Reality, where physical and digital objects co-exist and interact in real time (Shao, 2021).

At the beginning of the pandemic, recruitment processes were suspended, but after a few months the researched companies started hiring new employees. In each of the surveyed companies, measures were also taken to virtualize the on-boarding process of new people, but the assessment of its effectiveness is quite critical. Of the four building blocks of successful onboarding (Jones, 1986), organizations focused on only two – compliance and clarification, not addressing two others: culture and connection. It seems that further use of full-time remote work will require a far-reaching redefinition of this process. The on-boarding experience of companies using virtual teams might be helpful. It points out that the virtual process must be very well thought out and organized, involving many employees (Gruman, Saks, 2018; Elset, 2018).

Prystupa-Rządca (2018) suggests that dispersed teams are a complicated social construct that requires appropriate managerial support. Meanwhile, no training for managers in managing dispersed teams was conducted in any of the surveyed companies. Also research done before the pandemic showed that the use of training in companies implementing remote work was quite modest (WorldatWork, 2011). It seems that the respondents underestimated the complexity of managing dispersed teams. Employing without direct contact with the candidate, building task and social cohesion of teams, or introducing solutions monitoring distant work, but not leading to negative social effects, requires specific knowledge and a lot of managers energy. Meanwhile, a small proportion of the organizations surveyed had experience with full-time remote work prior to the outbreak of the pandemic. This attitude seems to be due to the fact that most of the surveyed companies used partial remote work prior to the pandemic. At the same time, this study shows full-time remote work contributes to a different dynamics of effects and leads to problems that were not visible before.

6. Summary

The results of the study may lead to reflection on the future of remote work and the role of offices in the IT sector. Two years of experience from the pandemic period shows that it is easier to transfer to full-time remote work repetitive tasks which require only digital resources and are carried out by employee teams that have had the opportunity to get to know and learn to cooperate in a traditional office. Difficulties arise when it is necessary to solve complex problems by people who have not had the opportunity to get to know each other better. Tasks requiring deep interpersonal contact may also suffer. An in-depth discussion leading to getting to know the broad context of the analyzed problem becomes a challenge in virtual surrounding.

Will offices survive the current revolution? It seems that it will result in a much wider use of remote work than before the pandemic. However, full-time remote work has several negative side effects that companies find difficult to deal with. For this reason, the dominant model in the coming years will be a hybrid model combining work in the office with remote work, and not full-time remote work. Similar conclusions are reached by (Yang et al., 2021). This is confirmed by the activities of the surveyed companies that gradually transitioned from full-time remote work to a hybrid model over the two years of the pandemic. As a result, the role of offices will change, becoming places where new employees are adapted and where intensive, deep teamwork is carried out. Relationships will be built and cemented in offices, they will become key places for fostering organizational culture. In this way offices will reduce side effects of remote work. However, in the distant future as Mixed Reality develops it may turn out that offices will start to disappear.

It can be concluded that the use of remote work will increase importance of HR departments. The tasks of these units will include, in particular, supporting the process of adapting new remote employees, monitoring morale, supporting distant managers in problematic situations, conducting integration activities and managing organizational culture.

The limitations of the study have a twofold character. Firstly, the subject of research is extremely dynamic due to social and technological changes. Secondly, the pandemic affected social behavior in an unprecedented way. The beginning of the pandemic was a period of great mobilization of employees, but later, the morale began to worsen. Moreover, the intensity of the pandemic has been changing influencing the scale of remote work use in researched companies.

Although the scope of the study was limited to the IT sector, it seems that at least some of the identified effects of remote work are universal and may occur in other sectors employing office workers. Future research should delve deeper into effectiveness of different solutions taken by companies to prevent side effects of remote work. This will make hybrid workplace models more sustainable.

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