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## Article

# Teleworking, team work and transactive memory during the COVID-19 outbreak

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## Teleworking, Team Work and Transactive Memory during the COVID-19 Outbreak

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**Abstract:** The paper discusses the work from home (WFH) phenomenon during the Covid-19 pandemic and aspects related to teamwork performance for the case of companies operating in Romania in knowledge-intensive business services (KIBS). The paper presents the results of an exploratory investigation based on semi-structured in-depth interviews addressing the effects induced by the intensive WFH on teamwork, teamwork performance, and transactive memory systems (TMS) in the investigated KIBS, during the Covid-19 pandemic. The paper is divided into three parts. The first part presents the purpose of the investigation and the context, introducing the concepts and literature. The second part presents the research method and findings. The third part discusses the research results, indicating that the mandatory WFH imposed by the Covid-19 outbreak has disrupted the coordination between teammates, eroding TMS operation and the level of teamwork performance. The paper concludes on the strong link between teamwork performance during the mandatory WFH period and the presence of TMS reflected by specialization, credibility, and coordination within the team.

**Keywords:** work from home; WFH during the Covid-19 crisis; teamwork; TMS; team performance; knowledge-intensive business services in Romania.

### Introduction

In a world of volatility, uncertainty, complexity, and ambiguity (VUCA - Bennis & Nanus 1985), the COVID-19 outbreak added social distancing and sudden online transfer of lucrative business viability has become an issue for many organizations.

Before the COVID-19 outbreak, the share of those working from home, globally, was 3% and during the pandemic, their share rose sharply to 20% -30%, depending on the industry, country, and region (ILO, 2021). For EU countries, EuroFound (2021) estimates that the share of employees working exclusively from home amounted to 34% and 48% the share of those working from home at least once a week. The official reports (ILO, 2020, 2021; Eurofound, 2021; European Commission, 2020), show that the largest share of online transfer of lucrative activities was recorded in knowledge-intensive business services (KIBS), with an increase of exclusively remote workers from 8-14% (before the crisis) to 90% (during the crisis), depending on the country. Regarding Romania, the evolution of KIBS' work-from-home situation is not reported, but according to Eurofound (2021), less than 1% of Romanian employees from all sectors of activity worked regularly from home in 2019, comparing to 24% of the employees from all sectors in 2020.

After a year and a half of the COVID-19 crisis, restrictive measures continue to make their mark on the economy. Organizations all over the world are more and more concerned about the performance of their employees and working teams, especially since telework seems to have become the new normality, and more than half of workers prefer working from home or a hybrid model (PwC, 2021; Eurofound, 2021). Even if the WFH has become normal, for WFH employees, a daily challenge is their own ability to communicate,

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cooperate and coordinate well with their teammates, integrate their expertise in the work team, and complete their daily tasks.

In this context, the paper discusses the work from home (WFH) phenomenon during the Covid-19 pandemic, analyzing the case of companies operating in Romania in knowledge-intensive business services (KIBS). The paper presents the results of a qualitative investigation based on semi-structured in-depth interviews, exploring the presence of transactive memory systems (TMS) within working teams, as well as the impacts of WFH on TMS and teamwork performance during the period of mandatory WFH experienced by KIBS employees due to Covid-19 pandemic.

The paper is divided into three parts. The first part presents the purpose of the investigation and the context. It also introduces the concepts and specialized literature. The second part presents the research method and the results. The conclusion and research limitations are presented in the end.

### **Literature review**

The transition from the industrial to the digital society has shifted the center of gravity from tangible resource management to intangible resource management and knowledge capitalization (Subramaniam & Youndt, 2005; Pucci, Simoni, & Zanni, 2015; Dumay, Guthrie, & Rooney, 2020). Thus, the success of companies has become increasingly dependent on intangible resources and capitalization of knowledge, shaping a reality in which intellectual capital is considered the currency of the new millennium (Bontis, 2001).

The literature (Dean & Kretschmer, 2007; Sharabati, Jawad, & Bontis, 2010; Herremans, Isaac, Kline, & Nazari, 2011) has shown that successful organizations rely on intellectual capital to gain competitive advantage, and they are using as a main resource the knowledge assets (Bratianu et al., 2020) generated by teams of knowledge workers whose members use expertise and experience to solve problems, innovate, and create added value (Lewis, 2003). This trend explains the importance of paying close attention to TMS, as a way of understanding the processes of knowledge creation and management within teams of knowledge workers.

As Wegner (1987;1991; 1995) defined it, TMS consists of the knowledge stored in each team member's memory combined with metamemory indicating the expertise area of other teammates and the division of labor that facilitates encoding, storage, and retrieval of information among team members. Therefore, team functioning relies on knowing who the knowledge experts are, what their specific expertise is, and how to access and integrate this expertise via communication, interaction, and collaboration to create added value.

According to the literature (Wegner, 1987; 1991; 1995; Hollingshead, 2001; Lewis, 2003), the research takes into consideration TMS as a shared store of knowledge within working teams, and, therefore, considered it a critical resource for teamwork performance, especially in the knowledge-intensive domains of activity. Since the mandatory WFH and social distancing imposed during the Covid-19 crisis reduced the ways of communicating and interacting between teammates we assumed that TMS functioning was also affected. That is why, our research aimed to find out the impacts of the intensive use of WFH on TMS, and further, its effects on teamwork performance and KIBS performance. KIBS companies were chosen because of their intensive use of knowledge, and their reliance on knowledge workers and teams.

Moreover, telework in the form of WFH is about to become the new "normality" for many companies (i.e. the share of employees working from home jumped during the pandemic from 3% to 20-30% worldwide - see ILO report, March 2021, and to 48% in EU - see Eurofound, 2021). As the Covid-19 crisis continues to affect society in all areas disturbing economic activity, organizations all over the world are more and more concerned about the performance of their employees and working teams.

Therefore, this study explores the impact of massive adoption of WFH on teams of knowledge workers, focusing on team performance and TMS - knowledge of who are the experts in what and the cooperative division of labor for learning, recall, communication, and management of relevant team knowledge, as stated in the literature (Wegner, 1995, 1987 and Hollingshead, 2001). The study considers the literature indicating that TMS helps teams to achieve superior performance, improved creativity, and innovation capability (Lewis 2003; Cao & Ali 2018; Levi & Askay 2020) and it is crucial when task performance depends on both the use and integration of expertise held by different team members, team effectiveness depending on the development of TMS all the more so as team members need to bring together and coordinate their knowledge to accomplish tasks (Lewis, 2003). Hence, the study investigates TMS and work team performance in KIBS in the context of mandatory WFH imposed by the Covid-19 outbreak. The following sections of the paper present the qualitative investigation performed and the research findings.

## Method

A qualitative study was conducted to find answers to the research question: What was the impact of the sudden switch to mandatory work from home on the performance of KIBS, and how is this connected to the performance variations in TMS and teamwork. The main research question was broken down into specific research questions who considered the operationalization of TMS performance on the 3 sub-dimensions (specialization, credibility, coordination) introduced by Lewis (2003), and the literature indications on the impact of TMS on creativity, innovation, and overall performance at group's level, respectively at the level of the organization that develops a TMS (Lewis 2004; Zhang et al. 2007; Zheng 2012; Anderson & Lewis 2014; Lee et al. 2014; Mell et al. 2014; Cao & Ali 2018; Levi & Askay 2020).

The study used a qualitative approach based on exploring the investigated topic with in-depth semi-structured interviews, applied online with 18 participants selected from the target population - KIBS operating in Romania. Study participants were experienced employees of Romanian or multinational companies operating in Romania in either information technology (IT) or professional services.

The interviews were collected between March 22 and May 31, 2021, using the interview guide elaborated according to the indications of the literature (Lewis, 2003; Schein, 2010; Levi & Askay, 2020). The interview guide assessed TMS on the three sub-dimensions (specialization, credibility, coordination) proposed by Lewis (2003) in which the system of mechanisms through which the group codifies, stores and retrieves knowledge collectively, is seen as cognitive storage and meta-knowledge shared at the group level about "who and what knows" (specialization), which allows members to trust the knowledge of others (credibility) and enables them to organize and collaborate effectively (coordination). Therefore, the interviewees discussed the TMS-related aspects such as specialization, credibility, and coordination between team members, as well as the aspects related to team performance (i.e. efficiency of task fulfillment, project delivery, etc.). Respondents were specifically asked to discuss the above-mentioned topics by comparing the situation before and during the Covid-19 crisis, emphasizing the positive and negative aspects.

The interviews were applied online, using Google Meet or Zoom platforms (depending on interviewees' preference). Each interview lasted 25 to 30 minutes. The profile of the interview participants is presented in Table 1.

**Table 1. Participants' Profile**

Participants' profile	No. of participants	Percentage calculation
<b>Age Range</b>		
25-30	2	11%
31-40	10	56%
41-56	6	33%
<b>Nationality</b>		
Romanian	18	100%
<b>Education (highest level completed)</b>		
University (Graduate Studies)	15	83%
University (Post Graduated Studies)	3	17%
<b>Activity area</b>		
Technology, including IT, IT support, or data processing	15	83%
Professional Services of any kind, including audit, design, consultancy, etc.	3	17%
<b>Seniority in the current job</b>		
3-5 years	10	56%
5-10 years	4	22%
>10 years	4	22%
<b>Position within the company</b>		
Executive position	9	50%
Team Leader	1	6%
Project Manager	4	22%
Department Manager	2	11%
Top Manager	1	6%
Consultant	1	6%
<b>Place of work (office location)</b>		
Romania	18	100%
<b>Company Headquarter</b>		
Romania	9	50%
France	2	11%
USA	2	11%
UK	1	6%
Germany	2	11%
Switzerland	1	6%
India	1	6%
<b>Company's number of employees</b>		
51-100 employees	7	39%
101-500 employees	2	11%
>500 employees	9	50%

Source: authors' own research

## Findings

The transition from on-site work to WFH was fast and easy for the case of KIBS companies operating in Romania, as the majority of their employees were already familiarized with the online tools and computer-mediated communication. It was no interruption in the activity and no need for teleworking related training:

*"We are an IT company. Adapting to the working tools was not a problem for us. All tools were used before the pandemic." (P1, IT, 35 years old).*

More than half of study participants reported that working teams in their company are generally spread across several locations in Romania and /or abroad, and computer-mediated collaboration was included in their tools-kit long before the Covid-19 pandemic:

*"Working in IT, the change I felt was related only to the environment - aka the working space" (P2, IT, 51 years old)*

*"Most of the meetings were already organized on MS TEAMS anyway, so the team was accustomed to this approach" (P3, IT, 44 years old)*

Even if for KIBS the transition to WFH was rapidly and easy to implement because they already had in place all the necessary instruments and teams were used with online communication, some themes come out from the interviews.

During the COVID-19 outbreak, even if the management didn't change the communication, more communication was needed inside teams, more online meetings took place between the same team members or different teams:

*"More online communication" (P8, IT, 38 years old).*

*"More meetings with the team are necessary, from 3 meetings/month we came up to 3 meetings/week" (P9, IT, 45 years old).*

Informal communication got room even in teams' formal meetings and teammates felt the need to share their own COVID-19 outbreak experience:

*"What we did was to set aside a few minutes for each online meeting to tell personal things, everyone's personal experience during the pandemic situation" (P4, IT, 44 years old).*

Interview participants declared that the change of working mode and environment forced them to find creative ways to face the new situation, perceiving an increase in their creativity during this period:

*"It took quick solution to adapt to the new situation, which stimulated creativity and innovation" (P15, IT, 37 years old).*

*"The creativity and innovation of the team increased due to technical limitations" (P10, IT, 44 years old).*

Regarding WFH impact on performance, most participants in the study (67 %) declared that the companies they are working for managed to maintain the efficiency and performance of the work teams, resulting in that most of the KIBS operating in Romania were not affected in terms of performance by the transition from onsite-work to WFH and the restrictions related to the measures against the spread of the SARS-COV-2 virus.

*"Our results were in line with expectations. We have met the objectives set before the pandemic" (P11, IT, 32 years old).*

*"In our company, the teams and their projects are mostly international. That's why, not much has changed, most of the communication between teammates occurred online during the pandemic as well as before it. Performance is still there." (P12, IT, 34 years old).*

Moreover, one participant in the study indicated a WFH-related increase in performance:

*"I consider that our performance increased during the pandemic because remote work reduced a part of the interruptions. The work interruptions occurred more frequently in the office" (P5, Professional Services, 29 years old).*

Performance drops of any kind were reported by only a quarter of the respondents:

*"We are managing a much higher volume of requests in this period, but we have to deal with them using the same number of employees as we used before, and facing technological limitations. "(P3, IT, 44 years old).*

*"We managed to overcome the limitations induced by remote work because the team was well consolidated before the pandemic, the stage of product development was advanced, and all these helped us to go on during the period of working from home. Even in these conditions, I estimate a decrease in the productivity of our team of 25-30%, due to the extra hours consumed to perform tasks involving the collaboration of several team members. This type of activity lasted longer than normal" (P14, IT, 38 years old).*

At this point, we can conclude that most KIBS has managed to maintain the level of performance thanks to a high level of familiarity with online tools and teleworking among their employees gained in the pre-pandemic times, and thanks to the experienced and well-established teams, consisting of members very accustomed to working together on a specific project (or projects of a certain type) who were able to keep up teamwork performance, participants' responses suggesting that the decline in performance would have been expected otherwise.

The interviews revealed a strong linkage between interviewees' statements regarding teamwork performance upholding (versus performance drop) during the period of mandatory WFH imposed by Covid-19 outbreak, and TMS presence (versus its absence) reflected by specialization, credibility, and coordination within the team. Thus, the interviewees who indicated the drop in teamwork performance (33% of participants) during mandatory WFH imposed by the Covid-19 crisis, have also reported serious problems related to team members' specialization, credibility, and coordination, indicating the absence of TMS.

The problems related to team members' specialization and credibility were present exclusively in the declarations of those who have indicated the drop in teamwork performance during mandatory WFH:

*"There are growing misunderstandings about what needs to be done, about understanding the project. This is because employees do not have adequate experience, even in positions where this experience would be necessary and would make a difference. Employees are not involved exclusively in their areas of competence and expertise. They are sometimes involved in activities and projects about which they do not have enough information. They do not have a clear understanding of the project, they do not have visibility on the project and they do not have the expertise, the necessary competencies to perform well" (P9, IT, 45 years old).*

Still, most participants reported good levels of specialization (67% of the interviewees), credibility (67% of the interviewees), and coordination (50% of the interviewees) within teams. These participants were the same interviewees reporting teamwork performance upholding (or even teamwork performance rise - one case) during mandatory WFH.

As we can observe from the figures mentioned above, some interviewees reported that coordination problems have arisen during mandatory WFH, although specialization and credibility were not affected:

*"There have been cases where certain activities have been poorly done and need to be reworked."*(P18, IT, 31 years old).

Thus we can conclude that WFH imposed by the outbreak of Covid-19 has disrupted the coordination between teammates, eroding TMS operation and the performance of teamwork.

Regarding the specialization, these participants indicated that team members' specialization can be considered a strong asset of their team and company in general. They have stated that each team member covers by his/her expertise certain aspects of the project and that they have specific knowledge on a certain area of the project, knowledge that is not covered by any of the other colleagues:

*"There is a set of common skills that we share, which enables us to temporarily replace each other in the case of emergency, and continue the project in an 'emergency' formula. It is equally true that each of us has particular, in-depth knowledge in the well-defined area he is responsible for"* (P7, IT, 45 years old).

*"Everyone is an expert on their own very specialized area, but we have a common knowledge that we rely on to help each other when needed."* (P5, Professional Services, 29 years old).

The declarations of the same participants have shown they are aware of the crucial importance of specialization. They know what the specific area of expertise is of each team member and they are highly aware that the contribution of each teammate is necessary to carry out the project.

*"Because projects are multidisciplinary, each person's expertise is essential to the success of the project. Each of us is personally responsible for the quality of his work and we all depend on the quality of the work of the others"* (P3, IT, 44 years old).

*"In our field of activity, there has always been the concept of team and team leader. The leader assigns tasks to teammates, so there were no overlaps. The context of the pandemic did not affect this, as long as the project was well organized. Personally, I have not experienced such problems"* (P6, Professional Services, 28 years old).

*"The team is divided into several areas of specialization and each specialization area is led by a manager who is responsible for assigning the activities of the person with the appropriate expertise and the necessary time available. Every day these managers have a synchronization session which is moderated by the project manager and in this meeting members from different other specializations can be invited to join, depending on the existing issues"* (P16, IT, 37 years old).

Study participants who have reported high levels of specialization reported also high levels of credibility (67 % of the interviewees) within teams. If already present, the credibility was not hampered by the mandatory WFH during the COVID-19 outbreak. Interviewees declared their trust in their colleagues' expertise is still there, and they did not perceive any changes in their credibility within the team during WFH. They trust the validity of the knowledge of their teammate, they rely on the information provided by them, and accept their suggestions on the work process.

*"I gained the trust of my teammates and they have gained my trust. The credibility was built in time, step by step. After I gained my credibility in front of the team, I was not challenged for a second"* (P17, IT, 35 years old).

Appropriate coordination between team members was reported only by half of the interviewees (50%), although specialization and credibility within teams were mentioned by 67% of participants.



Three interviewees (17% of participants) reported that coordination problems have arisen during mandatory WFH, although team members' specialization and credibility were not affected:

*"There have been cases where certain activities have been poorly done and rework has been necessary, in matters that can normally be avoided once the whole team is present at the office and coordination and interaction between team members are not overly formalized and people communicate better and the opinions of experts are easier to share"*(P3, IT, 44 years old).

*"Coordination between team members has weakened so much that we needed much more time than normal to integrate a newcomer and we had to postpone some deadlines. This was bad, especially because our organization's expectations about employees' availability for daily job tasks have increased during this period"*(P14, IT, 38 years old).

*"The lack of face-to-face talks and joke-like exchange of knowledge hampered our group members' coordination, so the quality of the work we delivered was not exactly as good as it used to be"* (P7, IT, 45 years old).

The analysis of study participants' responses has shown that the WFH imposed by the Covid-19 outbreak has disrupted the coordination between teammates, eroding TMS operation and the performance of teamwork.

The other half of study participants reported that teammates' coordination within their team was appropriate. Nine out of 18 respondents mentioned that the work within their team was well coordinated and they did not have situations in which they would have to resume the project from the beginning. They consider that they had very few misunderstandings about their tasks and there was no confusion about what is to be done.

*"Professional collaboration is the same, but we lack social interactions. We have coordinated well because we were used to online planning since project management was done online even before the pandemic"* (P11, IT, 32 years old).

*"Obviously, it was a transition period that was necessary for adjustments related to redefining tasks and assuming them by those responsible. There were no slippages. The main transformation was related to the fact that we have switched from predominantly oral communication to the written message to avoid confusion. But the written message in turn has become more exhaustive because in the context of remote work you can no longer receive the advice and opinions of your colleagues sitting on your left, or in front of you, to fill the gaps of communication that are poor or imperfect"* (P13, Professional Services, 30 years old).

## Conclusions

Our exploratory study conducted with 18 participants employed in knowledge-intensive businesses operating in Romania has shown that the transition from on-site work to home-based teleworking was fast and easy for these employees, as the majority of them were already familiarized with the online tools and computer-mediated communication. Some of the study participants pointed out that the change of working mode and environment forced them to find creative ways to face the new situation, perceiving an increase in their own creativity during the WFH. However, there was no interruption in the professional activity of KIBS employees and no need for teleworking-related training. Indicating that most of the KIBS operating in Romania were not affected in terms of performance by the transition from onsite-work to WFH during the 1<sup>st</sup> year of the Covid-19 outbreak, the results we have drawn from our investigation, are in line with the findings reported by other studies and the reports at international level (PwC, 2021; Eurofound, 2020; Eurofound, 2021).

In line with the results of the aforementioned reports (PwC, 2021; Eurofound, 2020; Eurofound, 2021) our study has found that in most cases the level of teamwork performance was maintained during the WFH period. Digital literacy and teleworking experience gained by KIBS employees in the pre-pandemic times contributed to this accomplishment.

Still what made the difference between team's ability to keep up the level of performance in 67% of the cases investigated in this study (versus teamwork performance drop – for the other 33% of the cases) during the period of mandatory WFH imposed by Covid-19 outbreak was mostly related to TMS presence (versus its absence) reflected by specialization, credibility, and coordination within the team. So, those who managed to maintain or increase during WFH the pre-pandemic level of work-team performance were the experienced and well-established teams. Those who indicated the drop in teamwork performance (33% of participants) during mandatory WFH imposed by the Covid-19 crisis, were those who have reported the absence of a collaborative memory system at the team level (namely TMS), reflected by the serious problems they reported to have with members' specialization, credibility, and coordination. In this regard, we highlight the fact that the problems related to team members' specialization and credibility were reported exclusively by those who have indicated the drop in teamwork performance during mandatory WFH.

Because 17% of participants reported that coordination problems have arisen during mandatory WFH, although team members' specialization and credibility were not affected, our research result indicates that WFH imposed by the Covid-19 outbreak has disrupted the coordination between teammates, eroding TMS operation and the performance of teamwork. Although the lack of face-to-face talks and social interactions, communication gap, and poor (or ineffective) exchange of knowledge are indicated by our study participants' declarations as some of the issues responsible for the negative impacts on TMS and teamwork, further studies are needed to deeply investigate this phenomenon. Our study revealed this issue, but it did not do an in-depth investigation of its causes and explanations, which might be viewed as the main limitation of this research. A second limitation might be considered the number of research participants.

Still, the study has the merit to reveal two issues related to the impact of the Covid-19 outbreak on KIBS teamwork performance, both findings being of high importance for managers and practitioners. Firstly, this study indicates that the drop of KIBS's teamwork performance during mandatory work-from-home correlates with the absence of a collaborative memory system at the team level. Secondly, it shows that the work-from-home imposed by the Covid-19 outbreak has disrupted the coordination between teammates for some of the teams which have developed a transactive memory system during on-site working in the pre-pandemic times. Disrupting coordination (one of the three 'core ingredients' of the transactive memory systems operating at the team level) the mandatory work-from-home has hampered TMS functionality and the performance of teamwork.

Overall, our study adds to the findings investigating TMS on Romanian samples, and more importantly, it contributes to the scarce literature (Tortorella, Narayanamurthy, & Staines, 2021) exploring the impact of the Covid-19 outbreak on the relationship between TMS functionality and teamwork performance.

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