

# The Impact of Social support on Performance extra-role in a Remote Working Context.

## The mediating role of Work Engagement

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### Abstract

Drawing on Social Exchange Theory, this paper investigates the relationship between perceived organizational support, perceived supervisor support and performance extra-role mediated by work engagement within a remote working context. Simultaneously, this research investigates how the frequency of digital interaction impact on perceived supervisor support and consequent how this influences the perceived organizational support. Several studies have demonstrated how work engagement impact positively on individuals and organizations, and how social variables – such as organizational support and supervisor support – positively impact on. However, we have scant empirical evidence of these relationship in highly remote settings. During the Covid19 emergency, many organizations have been forced to implement remote working. In this new normal, characterized by social distancing and isolation, it is necessary to understand how, and which kind of social support could still be effective in fostering engagement and positive behaviours. A survey on these topics has been administered to the employees on an Italian information consulting company that experienced remote working during the pandemic. Through a Structural Equation Modelling on the 410 responses collected we show that the digital frequency of interaction affects positively the supervisor support, that in turn influences the perceived organizational support. We demonstrate that supervisor support and mainly organizational support stimulate performance extra-role as creativity, adaptivity, proactivity and knowledge sharing through work engagement in a remote working context. Implications for both academics and practitioners are discussed.

*Keywords:* Work Engagement, SET, Social Support, Perceived Supervisor Support, Perceived Organizational support, Performance extra-role, Remote Working, Covid19

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### 1. Introduction

Several scholars from the fields of psychology, human relations, organizational behavior and management, have long analyzed the topic of work engagement together with its antecedents and outcomes (Kahn, 1990; Bakker et al., 2005; Rich et al., 2010). Research has shown that high levels of work engagement sustain individuals' job satisfaction, adaptivity and creativity (Eldor and Harpaz, 2016; Saks, 2006) and lead not only to higher productivity, profitability and customer satisfaction, but also to lower absenteeism and turnover (Harter et al., 2002). Monitoring and fostering engagement, it is not merely key in enhancing the general wellbeing of employees, but also in achieving organizational goals (Tims et al., 2013; Brauchli et al., 2013; Hu et al., 2011).

Many studies have tested how social support and more generally social interactions impact on work engagement. It is possible identifying different kind of relations: with colleagues, with leaders, with costumers and with family. One of the most investigated is the relationship with supervisors. For instance, studies have shown that feedback from supervisor have a good impact on engagement (McGrath et al. 2017; Xanthopoulou et al. 2008). These studies have always investigated the impact of social support on engagement within traditional work settings, characterized by the physical presence of both collaborators and supervisors in the workplace.

Given the current situation due to Covid19, however, the workplace is shifted from a physical to a virtual space, changing the way we work, and we interact with each other. Thus, many companies have redesigned their work-model implementing forms of remote working.

In this new normal characterized by social distancing, it arises the need of investigating if social support can support their collaborators and stimulate their engagement even in this remote working context. The use of suitable digital technologies used to work and interact (i.e., e-mail, social platforms, telephone, Microsoft Teams, Skype, etc.) could help supervisors to communicate.

A study on 522 remote workers conducted in China during pandemic (Wang et al., 2021) has identified four key remote work challenges represented by work-home interference, ineffective communication, procrastination, and loneliness. Additionally, the authors have identified four virtual work characteristics that affected the experience of these challenges that are respectively social support, job autonomy, monitoring, and workload (Wang et al., 2021). The results of this study demonstrated that social support in particular was positively correlated with lower levels of all remote working challenges (Wang et al., 2021).

In this case the role of social support appears to be the most relevant virtual work characteristic, generating positive indirect impacts on performance and well-being and reducing the identified challenges (Wang et al., 2021).

In this study we investigate if social support may influence positively the work engagement of remote workers during pandemic. We are mainly interested to understand which kind of social support, if organizational or supervisor support, has a stronger impact on work engagement. We hypothesize that supervisory support, given the proximal distance to the employees and being the principal actor of the organization with which employees interact with, could have a stronger impact on them. For this reason, we also hypothesize that the support perceived from the own supervisor can influence and enhance the support perceived from the whole organization. At the same time, we suppose that a more intense frequency of interaction between supervisors and their collaborators could lead employees to perceive more support from their supervisors.

Finally, we will try to investigate if work engagement in turn could impact positively on extra-role performances of employees.

Nowadays, market is characterized by competitiveness, rapid innovation, and continuous change, leading organizations to search for employees with specific competencies that can facilitate adaptation to new organizational challenges through specific behaviors as creativity, adaptivity, proactivity and knowledge sharing (Eldor and Harpaz, 2016; Griffin et al., 2007).

These kinds of behaviors could be affected by some key remote work challenges such as isolation and procrastination (Wang et al., 2021), and for this reason it is important to try to understand if even in this particular situation high levels of work engagement of employees could stimulate and facilitate these behaviors necessary to face the new remote work challenges.

## **2. Theoretical Background and Hypotheses**

### *2.1. Work Engagement*

The first relevant contribution on engagement is due to Kahn (1990), who defined it as “the harnessing of organization members’ selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances”. According to the author, personal engagement is influenced by job features, people with whom employee interacts and the organizational context.

After his conceptualization, work engagement was studied in opposition to the concept of burnout. Maslach and Leiter (1997), defined engagement as a construct composed by energy, involvement, and efficacy, considered as the three opposite factors of burnout, respectively exhaustion, cynicism, and lack of professional efficacy (Maslach and Leiter, 1997). In this view, engagement and burnout are studied and analyzed as two opposites of the same dimension, which defines the general wellbeing of employees.

Starting from this consideration, Schaufeli et al. (2002) conceptualized work engagement as a single separate construct, defining it as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption”. Vigor is characterized by high levels of energy, willingness to put effort into the job, and persistence during difficulty moments. Dedication implies enthusiasm, inspiration, awareness, proud and feeling challenged by the job. Absorption is the quality of being fully concentrated and focused on the job; time passes quickly, and it is possible to have difficulties to detach themselves from work (Schaufeli et al.,

2002). The literature review highlighted that the conceptualization of Schaufeli and colleagues is the most shared and cited – both in psychology and management fields.

Later, Saks (2006) defined work engagement as the result of two forms: job and organizational engagement. Job engagement is more individual and focused on the characteristics of the job and the person. Organizational engagement is related to the context and the organizational structure in which engagement is exercised. Saks noticed that the models offered by Kahn (1990) and Maslach and Leiter (1997) explained only the psychological conditions behind engagement, but not why people respond with different level of engagement. In order to deepen this aspect, he grounded his definition into social exchange theory (Cropanzano and Mitchell, 2005).

Another definition of work engagement has been proposed by Shuck et al. (2017), who provided a definition and a measure that consider both the academic as well as the managerial literature (Shuck and Wollard, 2010). The great and growing attention to work engagement during these last decades it could be motivated because of its impacts on individual and especially on organizations.

Generally, when researchers face the relationship between work engagement and its outcomes they mainly focus on final performance. Empirical studies have demonstrated that work engagement enhance individual performance-in role of employees, involving advantages both for individuals and organizations (Ozyilmaz, 2019; Byrne et al., 2016; Bakker et al., 2012; Rich et al. 2010). Furthermore, it has been shown that work engagement has also a relevant impact on the performance extra-role, such as organizational citizenship behavior (Rich et al. 2010; Zhong et al. 2016). Compared to the performance in-role, which includes actions directed to accomplishment of the tasks required by the own work role, the performance extra-role refers to a series of discretionary behaviors, which are not expected within employment agreement. Studies have shown that work engagement favors these kinds of proactive behaviors, which in turn have an important impact in achievement work goals both personal and organizational (Rich et al. 2010; Zhong et al. 2016).

At the same time, several studies have shown that the experience of engagement leads employees to evaluate their jobs as more satisfying (Haynie et al., 2016). Job satisfaction involves employees' evaluating their jobs in positive or negative ways (Christian et al., 2011). Researchers have also explained that work engagement could have an impact on private life, both positive and negative, often helping individuals to achieve a good degree of satisfaction even in their own private life (Bakker et al. 2005).

These considerations highlight how work engagement could impact both at individual and organizational level, influencing the performance and the wellbeing of employees.

## *2.2.Social support and JD-R Model*

According to the job demands resource model (JD-R), two different kind of work conditions, known as job resources and job demands, can influence the wellbeing of employees as well as the individual performance, linking job resources to positive outcomes through work engagement and/or linking job demands to negative outcomes through burnout (Schaufeli & Bakker, 2004).

Job demands refer to physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological effort (e.g. time pressure, emotional demands, physical demands). Whereas, job resources are defined as the physical, psychological, social or organizational aspects of the job that reduce job demands and that are helpful in achieving work goals or facilitate personal growth, learning and development (e.g. supportive supervisor support, coworker support and feedback) (Demerouti et al., 2001;Schaufeli & Bakker, 2004).

JD-R model provides a comprehensive theoretical framework in which job resources, such as social support, are able to enhance work engagement which, in turn, has positive consequences for employees and organizations. In line with this perspective, Schaufeli and Bakker (2004) have highlighted that social support is able to stimulate an intrinsic motivational process by satisfying employees' needs for autonomy and need to belong, as well as an extrinsic motivational process by increasing the probability to achieve work goals.

Social support has been defined as “the overall level of helpful social interaction available on the job from both co-workers and supervisors” (Karasek & Theorell, 1990).

Social support has been studied in relation to work engagement (Bakker et al., 2003; Schaufeli & Bakker, 2004). For instance, Schaufeli and Bakker (2004) conducted a study in which social support from colleagues and performance feedback were found to be positively associated with work engagement.

Other studies have demonstrated the positive relationship between social support and work engagement. Saks (2006) have analyzed the impact of perceived organizational support (POS) and perceived supervisor support (PSS) on work engagement, showing the positive influence of social support on engagement of employees.

### *2.3. Perceived supervisor support, perceived organizational support and SET*

Social support can refer to organization, colleague and supervisor support. Social Exchange Theory (SET) explains how reciprocity is one of the most important aspects able to define the relationship between employers and employees (Cropanzano and Mitchell, 2005).

In line with this theoretical perspective, when one person treats properly another one, he/she may expect favorable treatment in return, leading to positive outcomes for both parties involved (Rhoades and Eisenberger, 2002).

POS is defined as employees' feelings of the extent to which organizations value their contributions and care about their well-being (Eisenberger et al., 1986). In accord with SET, POS may lead employees to feel an obligation towards the organization and consequently help the organization in achieving its goals.

PSS is defined as the perception of employees regarding how supervisors care about their well-being and value their contributions (Kottke and Sharafinski, 1988). Specifically, PSS is a social exchange, in which employees perceive "the degree to which supervisors value their contributions and care about their wellbeing" (Eisenberger et al. 2002). The relationship with a supervisor is considered as one of the main factors of employee's work environment (Van der Heijden et al., 2010). A good supervisory feedback and communication between the supervisors and subordinates may increase employees' capabilities (Blancero et al., 1996). When employees observe their supervisors as supportive, helpful, positive feedback and helping them in career development, they believe that their supervisor has concern for their feelings and needs (House, 1981). Within a forced remote working context characterized by social distancing, the only ways to interact and consequently perceive support from the own supervisor are represented by communication digital solutions such as MTeams, Zoom, Skype, etc. Given this scenario is possible to hypothesize that perceived supervisor support will be greater when the interaction between supervisors and their collaborators, mediated by digital communication channels, will be higher.

*H1. Frequency of interaction is positively related to perceived supervisor support in remote working context.*

Some studies have demonstrated that PSS can contribute to increase the degree of POS because supervisors can be considered as representative actors of the organizations, who convey information from the organizations to employees directly (Eisenberger et al., 2002, 1986). In addition, employees may perceive that the evaluations from their supervisors are reported to the organizations, leading employees to think that receiving supervisor support is associated with receiving organizational support (Rhoades and Eisenberger, 2002).

In the current situation represented by a forced remote working context, organization could be less present in supporting their collaborators at least superficially. In this scenario supervisor become more than before the key actor able to represent the whole organization. Starting from this consideration we propose the following hypothesis:

*H2. Perceived supervisor support is positively related to perceived organizational support in remote working context.*

Both POS and PSS have been studied in relation to work engagement (Saks, 2006). In line with SET, when employees perceive that their organization and supervisor take care about their feeling and concern, they return with higher levels of engagement (Saks, 2006). The majority of these studies have analyzed mainly the relationship between work engagement and PSS rather than POS (Matthews et al., 2014; James et al., 2011; Siu et al., 2010).

For instance, Freeney and Fellenz (2013) have published a study in which have analyzed the influence of supervisor support on work engagement, showing the positive impact on the engagement of 182 midwives from two maternity hospitals.

Few studies have investigated the impact of PSS and POS separately on work engagement at the same time. A study 343 PhD students developed by Caesens and colleagues (2014) has shown how PSS and POS impact positively on wellbeing of employees through work engagement. Another research carried on healthcare sector in Malaysia has demonstrated the positive impact of POS and PSS on individual performance mediated by work engagement (Nasurdin et al., 2018).

In both the studies PSS has exhibited a stronger impact on work engagement compared to POS and this it could be explained because supervisor represent a more proximal exchange actor compared to the organization. In addition, supervisor is considered as one of the main actors able to directly represent the whole organization.

Previous studies on work engagement have always focused their attention on a traditional work context, in which employees work in the same space at the same time.

In this changed scenario, characterized by social distancing, it appears crucial to investigate whether work engagement could still be affected by those antecedents previously studied in relation with it. Specifically, it could be interesting investigate if social and relational variables, such as social support, could still positively influence engagement, as demonstrated in several empirical studies characterized by social proximity (Breevaart et al., 2014; Schmitt et al., 2016).

In a remote work context experienced during pandemic we expect that POS and PSS can influence positively the work engagement, reducing the sense of isolation due to social distancing. Additionally, given the current situation in which employees interface mainly with supervisors we expect that PSS could be impact the work engagement of employees stronger than POS.

Given these considerations, we propose the following hypothesis:

*H3. Perceived organizational support is positively related to work engagement in remote working context.*

*H4. Perceived supervisor support is positively related to work engagement in remote working context.*

#### *2.4. Performance extra-role and work engagement*

In the current market characterized by competitiveness, rapid innovation, and continuous change the traditional behaviors related only to in-role performance are not more sufficient (Eldor and Harpaz, 2016).

Organizations are seeking for employees with specific competencies and extra-role behaviors that can facilitate adaptation to new organizational requirements in order to answer effectively and dynamically to the contemporary organizational challenges (Eldor and Harpaz, 2016; Griffin et al., 2007).

Starting from these considerations, we are interested to investigate if work engagement can promote these essential behaviors represented by proactivity, knowledge sharing, creativity, and adaptivity.

With proactivity we intend the self-initiated and future-oriented performance aims at changing a specific situation (Grant & Ashford, 2008; Eldor and Harpaz, 2016). Knowledge sharing represents the process with which individuals exchange knowledge more or less explicitly, creating a new one shared by the whole organization (Inkpen & Tsang, 2005; Van den Hooff & De Ridder, 2004). Creativity refers the generation of new, innovative and useful ideas regarding processes, products, services, and procedures in organizations (Eldor and Harpaz, 2016; Zhou & Shalley, 2008). Adaptivity means the ability of employees to respond in a construct way to new and unpredictable work settings (Griffin et al., 2007; Pulakos, Arad, Donovan & Plamondon, 2000).

Different studies have investigated the relationship between work engagement and performance extra-role within traditional working context (Xanthopoulou et al., 2008; Schmitt et al., 2016; Eldor and Harpaz, 2016). A study developed by Schmitt and colleagues (2016) has highlighted the positive impact of work engagement on proactive behaviors of 148 employees. Another research conducted on 222 flight attendants by Xanthopoulou and colleagues (2008) has demonstrate that work engagement mediated the relationship between self-efficacy and performance both in-role and extra-role.

The strong energy experienced by engaged employees could lead them to adopt behaviors such as proactivity and knowledge sharing, stimulating them to take the initiative to achieve the organization's goals (Frese & Fay, 2001; Grant & Ashford, 2008; Shirom, 2010).

Furthermore, and in accord with to the broaden-and-build theory (Fredrickson, 2001), engaged employees can experience positive emotions such as joy, interest, enthusiasm, and inspiration (Eldor and Harpaz, 2016).

These positive emotions can lead employees to think outside the box, changing their visions and thoughts and becoming more adaptive and creative in their work.

All the studies focused on the relationship between work engagement and performance extra-role have always investigated it within a traditional work context. In this study we intend analyze this relationship in a remote working context that could present different problems as isolation and procrastination able to influence negatively specific behaviors as those above mentioned (Wang et al., 2021)

In accord with these considerations, we propose the following hypothesis:

H5. Work engagement is positively related to proactivity in remote working context.

H6. Work engagement is positively related to knowledge sharing in remote working context.

H7. Work engagement is positively related to creativity in remote working context.

H8. Work engagement is positively related to adaptivity in remote working context.

Figure 1 reports the seven hypotheses and the overall model that will be empirically tested.

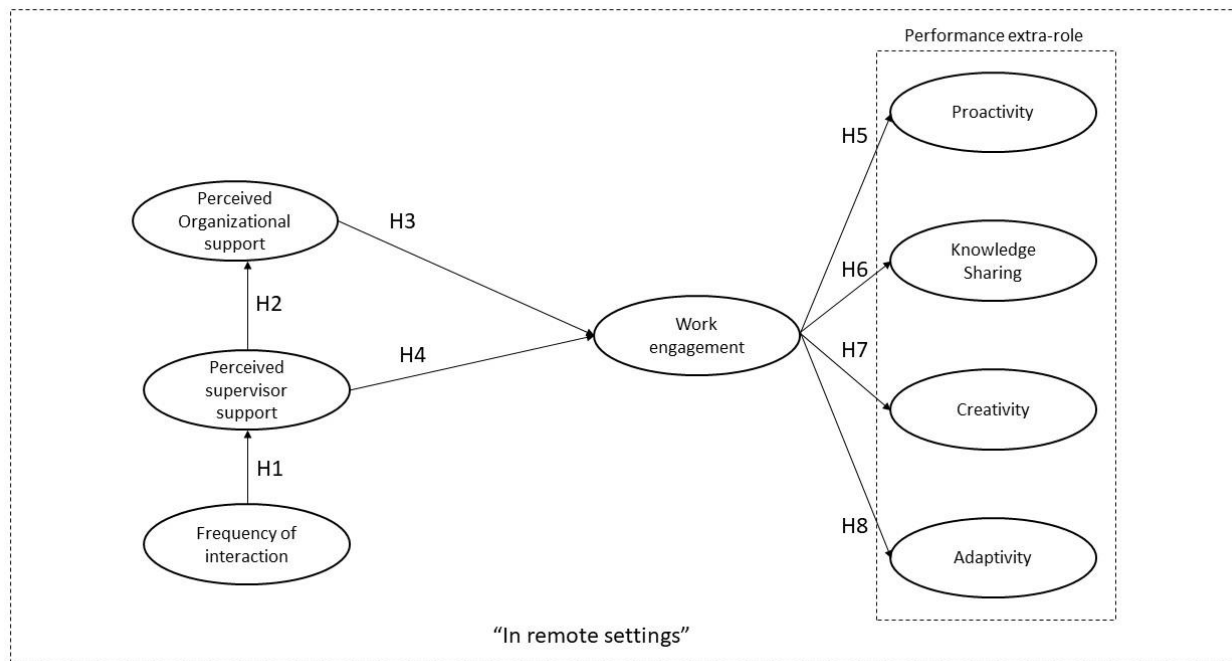


Figure 1. Model and hypotheses

### 3. Method

#### 3.1. Context, participants, and procedure

The research model was tested using data gathered through a survey administrated from November 2020 to December 2020 within *Altea Federation*, an Italian information consulting company that implemented remote working practices during the pandemic associated to Covid19.

The questionnaire was distributed with the help of HR department through an e-mail in which the aim of the research was explained, ensuring employees on the anonymity of the gathered data. The questionnaire was articulated in two parts. The first included demographic questions (e.g., age, gender, work years) and questions related to the frequency use of different communication channels between employees and their supervisors before and during the pandemic. In accord with the organization, as communication channels we have included eight different ways of communicating and interacting such as face-to-face, video call, call, shared document, instant messaging, blog and forum, email, and Fax. Additionally, we also asked participants to indicate the mean frequency with which they used to interact with their supervisors in pre and during pandemic.

The second part of the questionnaire included questions related to the constructs, perceived supervisor support, perceived organizational support, work engagement and performance extra-role.

The questionnaire was only filled in once and it required approximately 20 minutes to be completed.

A total of 410 respondents out of 1,540 took part to current study, showing interesting response rate (27%) and representativeness of the whole population of employees. The final sample was composed by 127 women (31%) and 283 men (69%), with a mean age of 42 years (SD = 10.08). Participants have claimed to work within the organization from 5 years as mean (SD = 5.35).

### 3.2. Measures

*Perceived supervisor support* was measured with the four-item, Italian version scale adapted from the SPOS (Rhoades et al., 2001). A sample item for PSS is “My supervisor cares about my opinions”. Participants could respond to the items using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). All items were summed to form one index of perceived supervisor support, showing good internal consistency (Cronbach's alpha = 0.87).

*Perceived organizational support* was measured with four items, Italian version scale adapted from the SPOS (Rhoades et al., 2001). A sample item for POS is “My organization really cares about my well-being”. Participants could respond to the items using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). All items were summed to form one index of perceived organizational support, showing good internal consistency (Cronbach's alpha = 0.89).

*Work engagement* was measured with the nine-item version of the Utrecht Work Engagement scale (UWES; Schaufeli et al., 2002). The UWES assesses the three dimensions of work engagement: vigor, dedication, and absorption. Sample items include the following: “At my work, I feel I am bursting with energy” and “When I get up in the morning, I feel like going to work.”. Participants could respond to the items using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). All items were summed to form one index of work engagement, showing extremely good internal consistency (Cronbach's alpha= 0.94).

#### *Extra-role performance*

*Proactivity* was measured with the three-item, Italian version of proactivity scale developed by Griffin et al.'s (2007). The scale examines the employee's degree of actively initiating changes. Sample items include the following: “Made changes to the way his/her core tasks are done” and “Initiate better ways of doing his/her core tasks.” Participants could respond to the items using a five-point Likert scale, ranging from 1 (very little) to 5 (great deal). All items were summed to form one index of proactivity, showing good internal consistency (Cronbach's alpha= 0.76).

*Knowledge sharing* was measured with the three-item, Italian version of proactivity scale developed by Van den Hooff and Hendrix's (2004). Sample items include the following: “Regularly informs colleagues of what s/he is working on” and “When he/she gains new knowledge, makes sure that his/her colleagues will know it too.”. Participants could respond to the items using a five-point Likert scale, ranging from 1 (very little) to 5 (great deal). All items were summed to form one index of knowledge sharing, showing good internal consistency (Cronbach's alpha= 0.84).

*Creativity* was measured with six item, Italian version scale adapted and developed by Zhou and George's (2001). Sample items include the following: “Comes up with creative solutions for problems” and “Being an inspiring source for creative ideas.” Participants could respond to the items using a five-point Likert scale, ranging from 1 (very little) to 5 (great deal). All items were summed to form one index of creativity, showing extremely good internal consistency (Cronbach's alpha= 0.88).

*Adaptivity* was measured with the three-item, Italian version of adaptivity scale developed by Griffin et al.'s (2007). The scale analyzes how well the employee adapts to change. Sample items include the following: “Coped with changes in the way s/he was asked to do his/her core tasks” and “Successfully adapted changes in his/her core tasks.” Participants could respond to the items using a five-point Likert scale, ranging from 1 (very little) to 5 (great deal). All items were summed to form one index of adaptivity, showing good internal consistency (Cronbach's alpha= 0.84).

#### 3.2.1. Control variables

In line with other studies, three socio-demographic variables – age, gender and years of work in the organization – have been included in the model as control variables (Breevaart et al., 2014). Previous studies

have demonstrated that age may have a direct effect on work engagement. This relationship could be observed even within remote working context (Breevaart et al., 2014).

### 3.3. Statistical analysis

First, descriptive statistics were used to show a general overview of the constructs considered as well as the frequency of interaction and of the communication channel used by employees (face to face, call, videocall, etc.) before and during pandemic. Means, standard deviations, correlations and frequencies of the variables analyzed are shown in the next paragraph.

Second, Structural Equation Modelling (SEM) was used to test the hypotheses and the relationships among the various constructs. SEM, which combines factor and regression analyses among one or more dependent and independent variables (Muthén & Muthén, 1998-2015), is one of the most effective techniques used to test models that include work engagement and the related constructs. All the analyses were performed in Stata 14. Additionally, Comparative Fix Index (CFI; Bentler, 1990), the Standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990) are reported in order to test the model fit. The CFI is considered the best approximation of the population value for a single model, with values greater than or equal to 0.90 considered indicative of good fit (Medsker et al., 1994). The SRMR is a standardized summary of the average covariance residuals. A favorable value is less than 0.10 (Kline, 1998). The RMSEA is a measure of the average standardized residual per degree of freedom. A favorable value is less than or equal to 0.08, and values less than or equal to 0.10 are considered “fair” (Browne and Cudeck, 1989).

## 4. Results

### 4.1. Descriptive statistics

Table 1 presents means, SDs, and correlations of the study variables. Results indicated that demographic variables (age, gender, work years) were not significantly correlated with the variables investigated in this study. We therefore excluded demographic variables from further analyses. Frequency of interaction between supervisor and collaborator related positively to perceived supervisor support, perceived organizational support and work engagement. Results show that high levels of work engagement coincide with higher levels of perceived supervisor support and perceived supervisor support.

Also, results show that work engagement is positively related to performance extra-role, especially to proactivity and knowledge sharing.

Taking into consideration performance extra-role, results show that proactivity, adaptivity and creativity are positively related between them.

*Table 1. Means, standard deviations, inter-correlations and internal consistencies\**

	Mean	SD	FI	PSS	POS	WE	Pr
<b>Frequency of interaction</b>	5.39	1.91					
<b>Perceived supervisor support</b>	5.44	0.93	0.3150**	(.87) *			
<b>Perceived organizational support</b>	5.20	1.19	0.3471**	0.5348**	(.89) *		
<b>Work engagement</b>	5.38	1.16	0.3291**	0.3799**	0.5580**	(.94) *	
<b>Proactivity</b>	3.94	0.59	0.0774	0.1228	0.1663	0.3060**	(.76) *
<b>Knowledge Sharing</b>	4.28	0.63	0.2146**	0.1995	0.2794**	0.3491**	0.2935**
<b>Creativity</b>	3.78	0.69	0.1147	0.1565**	0.1403	0.1912**	0.5452**
<b>Adaptivity</b>	4.08	0.59	0.1590	0.1361	0.1592	0.2691**	0.4387**
<b>Gender</b>	1.30	0.46	0.0595	-0.0188	-0.0037	0.0603	-0.0584
<b>Age</b>	41.18	10.15	-0.0580	-0.1118	-0.0277	0.1030	-0.0267
<b>Work years</b>	5.34	5.34	-0.0452	0.0094	-0.0616	0.0145	-0.0730

	KS	Cr	Ad	Gender	Age	W.years
<b>Knowledge Sharing</b>	(.84) *					
<b>Creativity</b>	0.3081**	(.88) *				
<b>Adaptivity</b>	0.2798**	0.4613**	(.84) *			



<b>Gender</b>	0.1388	-0.0869	-0.0034	1.000		
<b>Age</b>	0.0424	-0.0671	-0.0507	-0.1847**	1.000	
<b>Work years</b>	0.0127	0.0457	-0.0801	-0.0640	0.2844**	1.000

Note. \*\* = Significant at  $p < 0.05$

Results show that before and during the pandemic the frequency of interaction with supervisor is not significantly changed. Before the pandemic 57% of employees used to interact with their supervisor at least 2 or 3 times per week. During the pandemic, the situation has remained fairly similar with more than half employees (52%) affirming to interact with their supervisor at least 2/3 times a week (see table 2).

**Table 2.** Frequency of interaction between collaborators and their supervisors in pre and during pandemic

Frequency of interaction	Pre-pandemic		During pandemic	
	Respondents	Percentage	Respondents	Percentage
Never	6	1.56%	6	1.53%
Rarely	38	9.90%	30	7.65%
1 time per month	28	7.29%	34	8.67%
2/3 times a month	47	12.24%	60	15.31%
Once a week	48	12.50%	59	15.05%
2/3 times per week	79	20.57%	89	22.70%
1 time per day	49	12.76%	31	7.91%
Many times per day	89	23.18%	83	21.17%
<b>Total</b>	<b>384*</b>	<b>100%</b>	<b>392**</b>	<b>100%</b>

\* Pre pandemic,  $N = 384$  employees

\*\* During pandemic,  $N = 392$  employees

Results pre-pandemic show that email, face-to-face and call are the most used communication channels by employees to interact with their supervisors (respectively with a use of 47%, 37% and 30% very frequently or systematically). As depicted in Table 3, videocall, blog, forum and fax have been rarely used. Email, video call and call are the communication channels mostly used by employees to interact with their supervisors during pandemic (respectively with a use of 49%, 45% and 35% very frequently or systematically). Even in this case, the use of blog, forum and fax is very uncommon.

Compared to the pre-pandemic period, results also show that the frequency of use of instant messaging and shared document grew up (respectively with a use of 32% and 30% very frequently or systematically).

**Table 3.** Frequency of use of communication channels between collaborators and their supervisors in pre and during pandemic

Pre-Pandemic	Face-to-face		Video call		Call		Shared document		Instant messaging		Blog, forum		Email		Fax	
	Re	Perc	Re	Perc	Re	Perc	Re	Perc	Re	Perc	Re	Perc	Re	Perc	Re	Perc
Never	17	4.3	129	32.9	14	3.65	49	12.4	36	9.1	256	65.0	1	0.3	297	75.2
Very rarely	39	9.9	88	22.4	33	8.4	61	15.5	47	11.9	66	16.8	16	4.1	46	11.7
Rarely	31	7.9	54	13.8	39	9.9	48	12.2	56	14.1	35	8.9	14	3.6	21	5.3
Sometimes	73	18.6	71	18.1	94	23.9	90	22.8	92	23.2	18	4.6	52	13.3	16	4.1
Frequently	87	22.1	25	6.4	95	24.1	67	17.0	73	18.4	10	2.5	123	31.4	5	1.3
Very frequently	73	18.6	19	4.9	75	19.0	45	11.4	64	16.2	6	1.5	104	26.5	5	1.3
Systematically	73	18.6	6	1.5%	44	11.2	34	8.6	28	7.1	3	0.8	82	20.9	5	1.3

During Pandemic	Face-to-face		Video call		Call		Shared document		Instant messaging		Blog, forum		Email		Fax	
	Re	Perc	Re	Perc	Re	Perc	Re	Perc	Re	Perc	Re	Perc	Re	Perc	Re	Perc
Never	195	49.1	17	4.3	21	5.3	60	15.1	38	9.6	261	66.2	3	0.8	335	84.4
Very rarely	115	28.9	25	6.3	31	7.9	42	10.6	38	9.6	57	14.5	13	3.2	31	7.8
Rarely	41	10.3	27	6.8	28	7.1	32	8.0	34	8.6	27	6.9	25	6.3	13	3.3
Sometimes	24	6.1	64	16.1	80	20.3	62	15.6	80	20.2	21	5.3	41	10.4	8	2.0
Frequently	15	3.8	85	21.4	97	24.6	83	20.9	79	19.9	13	3.3	121	30.6	4	1.0
Very frequently	3	0.8	89	22.4	79	20.0	65	16.3	73	18.4	11	2.8	94	23.7	4	1.0
Systematically	4	1.0	90	22.7	59	14.9	54	13.6	55	13.9	4	1.0	99	25.0	2	0.5

#### 4.2. Confirmatory Factor Analysis

We considered seven nested models with various numbers of factors. In particular, we considered (a) a single factor model that incorporates all seven constructs; (b) a two-factor model combining POS, PSS and work

engagement (factor 1), and knowledge sharing with proactivity, creativity and adaptivity (factor 2); (c) a three-factor model combining POS and PSS (factor 1), work engagement (factor 2) and knowledge sharing with proactivity, creativity and adaptivity (factor 3); (d) a four-factor model that combines POS and PSS (factor 3) and proactivity with creativity and adaptivity (factor 4); (e) a five-factor model that combines POS and PSS (factor 4) and creativity with adaptivity (factor 5); (f) a six-factor model that combines POS and PSS; (g) a model that considers each construct as a separate factor. The fit indexes of the models are presented in Table 4 and confirm that the seven factors model is the one with the better good fit (for all the indexes). Thus, it is the best approach as the measurement part of our model. The factor loadings of all items were significant at  $p < 0.01$ .

Table 4. Results of the confirmatory factor analysis

Model	CFI	TLI	RAMSEA	SRMR	$\chi^2$	df	Difference
1 factor	0.457	0.421	0.157	0.157	4993.627	495	
2 factors	0.643	0.619	0.127	0.102	3450.810	494	1542.817*
3 factors	0.785	0.767	0.099	0.90	2269.553	487	1181.257*
4 factors	0.834	0.819	0.088	0.94	1861.840	484	407.713*
5 factors	0.842	0.826	0.086	0.93	1790.953	480	70.887*
6 factors	0.879	0.866	0.075	0.86	1476.563	475	314.389*
7 factors	0.941	0.934	0.053	0.63	957.910	469	518.653*

Note: CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR= Standardized Root Mean Squared Residual; Difference = difference in chi-square between the consecutive models; \* = Significant at  $p < 0.01$

#### 4.2. Hypotheses testing – Path analysis

Figure 2 shows the structural model of the relationship between the various constructs. The hypothesized model showed good fit to the data ( $\chi^2(601) = 1100.096$ , CFI = 0.939, SRMR = 0.051 and RMSEA = 0.048). Results indicate that frequency of interaction is significantly and positively related to perceived supervisor support ( $\beta = 0.48$ ,  $p < 0.01$ ). The model indicates that perceived supervisor support affects significantly and positively perceived organizational support ( $\beta = 0.66$ ,  $p < 0.01$ ) and work engagement ( $\beta = 0.18$ ,  $p < 0.05$ ). Results show that perceived organizational support affects significantly and positively work engagement more than perceived supervisor support ( $\beta = 0.51$ ,  $p < 0.01$ ). Results indicate that work engagement impact significantly and positively performance extra role. Specifically, work engagement is significantly and positively related to proactivity ( $\beta = 0.37$ ,  $p < 0.01$ ), knowledge sharing ( $\beta = 0.39$ ,  $p < 0.01$ ), creativity ( $\beta = 0.23$ ,  $p < 0.01$ ) and to adaptivity ( $\beta = 0.33$ ,  $p < 0.01$ ). Thus, taking into consideration all the performances extra-role considered in this research, knowledge sharing and proactivity are the ones more and positively affected by work engagement. As for the control variables, age has a significant effect on work engagement ( $\beta = 0.10$ ,  $p < 0.05$ ), whereas gender and work years have an insignificant one ( $\beta = 0.05$ ,  $\beta = 0.02$ ).

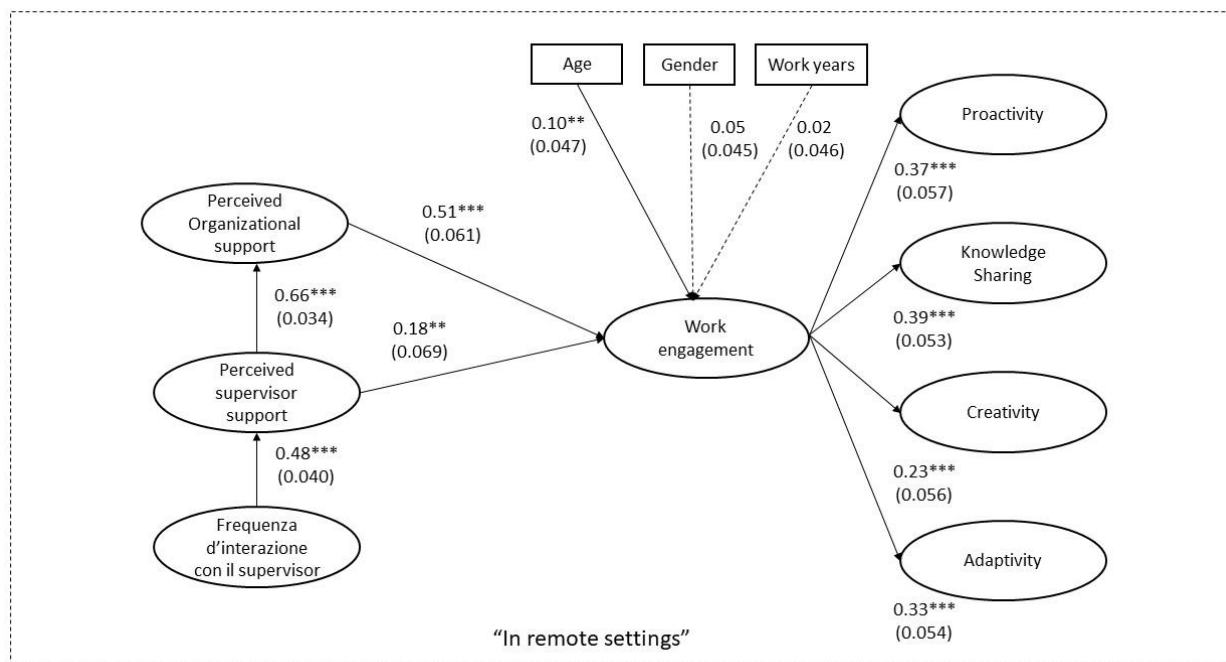


Figure 2. SEM results of the hypothesized model

Notes: Standardized coefficients are reported, with standard errors in the parentheses. \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

## 6. Discussion and conclusions

### Theoretical contributions

Our first contribution concerns the impact of the interaction between supervisor and their collaborators on PSS. Results confirm the first hypothesize, suggesting us that a higher frequency of interaction influence positively the support perceived from supervisor. This result could be easily predictable but not for this reason surely expected. If from one hand a higher interaction with the own supervisor by employees could be perceived as greater support, from other hand it could be mean higher levels of work pressure and less levels of autonomy. As already illustrated, during pandemic period many employees have communicated with their supervisors frequently through video call and call and, thus, through tools which are able to offer a rich and synchronic communication. Compared to other communication channels, these solutions allow individuals to communicate in a way that resembles face-to-face interaction, permitting the exchange of different levels of communication that include also paraverbal language (i.e. tone and speed of voice, body language, etc.). These last considerations and the use of these communication channels could explain why, even in a forced remote working context, supervisors were able to positively impact on the perceived supervisor support and, consequently, on the degree of employee's engagement.

Our research it is one of the first studies to investigate this kind of relationship within a remote working context, expanding the boundaries of SET and the current knowledge on social support and more specifically on supervisory support.

The second contribution concerns the strong impact of PSS on POS. In line with other studies (Eisenberger et al., 2002, 1986), our research demonstrate that the support offered by supervisor is able to influence the support the whole organization even, and probably mainly, within a forced remote working context. This it could be explained, as discussed previously, because the role played by supervisor is able to represent the organization itself. During pandemic employees have been less able to perceive the proximity of the own organization if not mainly through the interaction with the own supervisor, and this situation could have reinforced the role of supervisors in representing the organization within the collective consciousness of employees.

Third, in line with SET and previous studies (Bakker et al., 2003; Schaufeli & Bakker, 2004) our results have confirmed the third and fourth hypothesis, namely that social support and specifically POS and PSS impact positively on work engagement in a remote working context. Offering care and support about felling and needs of employees generates a relationship of reciprocity of the actors involved which in turn lead employees to return with higher levels of engagement.

In contrast with previous studies which have highlighted a major contribution of PSS in enhancing the engagement of employees (Caesens et al., 2014; Nasurdin et al., 2018), our results have highlighted a stronger impact of POS compared to PSS.

These results are unexpected because we have previously hypothesized that PSS could have a stronger impact on engagement of employees, especially in a remote working context in which supervisor represent the first organizations' referent point with whom employees interact with.

This it could be explained through the confirm of the second hypothesize. When the relational distance between employees and organization become larger, supervisor assumes even more than a traditional working context, the representative role of the whole organization. Thus employees, when interact and fell that supervisor care about their feelings and concerns, they reflect the perception of this support offered by a single actor to the whole organization.

This study highlights for the first time the impact of two components of social support, distinguished in POS and PSS, on work engagement in a forced remote working context as that experienced by employees during pandemic. These results might suggest us that social support can mitigate the sense of isolation experience by employees during pandemic (Wang et al., 2021), reinforcing the engagement of employees toward their job role identity.

From a eudemonic point of view, work engagement could be considered one of the faces that describes the psychological wellbeing of employees (Grant et al., 2007). In line with this perspective, another contribution of this study concerns the positive impact of PSS and mainly POS on psychological wellbeing of employees in a remote working context.

Finally, results have demonstrated that high levels of work engagement influence and facilitate the performance extra-role of employees in a remote working context, confirming the fifth, sixth, seventh and eight hypotheses.

Specifically, work engagement is positively related to creativity and proactivity and strong related to adaptivity and knowledge sharing. These results are in line with previous studies had previously studied this kind of relationship in a traditional working context (Xanthopoulou et al., 2008; Schmitt et al., 2016; Eldor and Harpaz, 2016).

These results are relevant if we consider the empirical context in which research is carried on. The implementation of remote working practices during pandemic have shown the rise of different remote work challenges affecting the wellbeing and the behaviours of employees as isolation and procrastination (Wang et al., 2021).

These problems could impact negatively on the capacity of workers to share information, to be creative and proactive as well as to adapt themselves to a new approach of working, but results have demonstrated that social support through work engagement can stimulate positive behaviors.

This relationship could be explained through SET (Cropanzano and Mitchell, 2005). The social support perceived by employees during pandemic has mitigate certain negative remote work challenges, creating a relationship based on reciprocity between employees, supervisors and the whole organizations.

The good perception of support offered by organizations and supervisors to employees, lead them to return this concern through positive actions, helping organization in achieving their goals (Rhoades and Eisenberger, 2002).

### *Practical contributions*

This research provides some useful indications to organizations to deal with the remote working challenges risen during pandemic that have negatively impact the wellbeing of employees (Wang et al., 2021). It is possible to hypothesize that in future these practices characterized by spatial and time flexibility could be adopted with more frequency.

First, results have demonstrated that a higher frequency of interaction between supervisor and their collaborators influence positively the perception of the support offered. This finding provides a guideline to managers that want offer and maintain high levels of support within a forced remote working that for its nature is characterized by physical social distancing. This study suggest also that the adoption of suitable digital solutions channels could allow employees to communicate in a more efficient and effective way, permitting supervisor to support their collaborators effectively.

Second, that social support, distinguished in supervisory support and organizational support, is able to stimulate the engagement of employees. In particular, the support offered by the organization in this situation characterized by social distancing has demonstrated to have a strong impact in influencing work engagement

that in turn stimulate performance extra-role. These results suggest us that if organization shows the ability to support and care about the feelings and the concerns of their employees in a remote working context, it will be able to stimulate their degree of engagement. We can consider engagement also as the attachment towards the own job role (Kahn, 1990), that means that it represents one of the multiple identities that individuals play within society (Goffman, 1959). That means also that offering this social resource, individuals are less vulnerable to lose their identity connected to work. This finding is very relevant if compared to remote working context experienced during pandemic characterized by a high sense of isolation (Wang et al., 2021).

Finally, this study demonstrated that offering social support to employees in a remote working context and mediated by work engagement, employees respond in turn offering positive behaviors as proactivity, adaptivity, creativity and knowledge sharing.

As discussed previously, these kinds of behaviors help organizations in achieving their own goals (Frese & Fay, 2001; Grant & Ashford, 2008; Shirom, 2010) and are essentials in a context in which many of them could be compromised by remote working challenges as for example isolation and procrastination (Wang et al., 2021).

Offering support and take care about feelings and concerns of employees are all important actions that an organization can implement in a remote working context in order to stimulate the engagement and performance extra-role of employees, that in turn leading to positive outcomes for organizations (Rich et al. 2010; Zhong et al. 2016).

#### *Limitations and avenues for future research*

This study presents some limitations. First, the research analyzes a sample composed by only one work category (consultants). For this reason, final considerations may not be extended to the general working population. Second, it was possible to add other variables related to the communication channels and its features in the test model, in order to better understand its impact on the relationship between employees and supervisors.

Third we have found that POS impact more strongly than PSS on work engagement, but we cannot affirm with certainty if that is due to the perception of the support offered by organization is effectively more relevant than support offered by supervisor, or because supervisor support is perceived as the principal mediator of the organizational support (despite we have shown the positive impact of PSS on POS).

For the future, it could be useful to include even the third dimension of social support represented by the support offered by colleagues, with the aim to understand which kind of social support is more relevant in stimulating engagement and performance extra-role.

It could be also interesting to investigate how digital technologies and communication channels may moderate the relationship between supervisor and collaborator within remote work context. This area of research could represent an interesting opportunity of study being poorly investigated.

#### *Conclusions*

This research demonstrated that a higher digital presence of supervisor towards their collaborators lead them to perceive grater support within forced remote working context. Consequently, we have shown that the PSS influence positively the POS of employees, demonstrating that the proximal distance exhibited by supervisors to their collaborators in a digital remote working is able to enhance the perception of the support offered by the whole organization. This effect could be explained because supervisor plays a key role in representing the own organization.

Additionally, our study demonstrated how social support, divided in PSS and POS can positively influence the engagement and the performance extra-role of employees within remote working context.

All these findings represent an important contribution in the field of remote working studies. As discussed previously, the empirical context in which the research is carried on present different remote working challenges as isolation and procrastination that can compromise the wellbeing of employees as well as the achieving of organizational work goals.

This study offers also useful guidelines that organizations can adopt in order to deal with remote working challenges stimulating engagement and positive behaviors of employees.

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