



www.sjm06.com

Serbian Journal of Management 19 (1) (2024) 187 - 205

Serbian
Journal
of
Management

THE ROLE AND FACTORS IMPACTING VIRTUAL HUMAN RESOURCE MANAGEMENT CAPACITY TO BUILD REMOTE TEAMS' EFFECTIVENESS AND RETENTION

Lucie Depoo* and Aimee Hermida

Department of HR Management, Faculty of Business Administration, Prague University of Economics and Business, Nam W. Churchilla 4, 130 67, Prague, Czechia

(Received 05 September 2023; accepted 22 December 2023)

Abstract

The paper investigates the impact of virtual human resource management techniques on the effectiveness of remote teams and employee's retention to the organization. The paper provides relevant and new information on virtual teams given the transformational impact resulting from the COVID pandemic. Data was gathered from 323 managers working with virtual teams formed a base for this study across the globe using an anonymous survey. Data was analysed by two-dimensional statistics. The findings revealed that the implementation of the VHRM has led to high productivity, effectiveness and retention capacity of employees as they learn to adapt to the technological changes. Results demonstrate that adequate effort and resources invested in VHRM, human resource managers can identify and implement work efficient solutions, investing in new technology/tools for virtual teams (48%), improving communications (52%), and offering new upskilling opportunities for employees, that maximize employee output. Based on the results, remote team effectiveness is not directly affected by virtual work and mainly relates to the career possibilities as well as improved communication combined with professional development. Improvement is tied to integration of Artificial Intelligence, which significantly improve efficiency and workflows, awarding performance and supporting growth.

Keywords: remote work, web-enabled, human resources, management, virtual teams, retention

1. INTRODUCTION

The importance of human resources (HR) in the current changing business

environment is crucial and cannot be understated (Aryan & Sharma, 2018). Modern technologies have enormously transformed all business functions and the

* Corresponding author: lucie.depoo@vsem.cz

DOI: 10.5937/sjm19-46329

HR function is not an exception. During the past decades we have witnessed great transformation of HR functions, especially the management of teams working remotely. HR managers currently need to be able to manage their subordinates and teams from home or an office that is not at the same location, sometimes even not at the same continent as the rest of the team (Hicks, 2018). As stated by Elvira (2017), virtual human resources (VHR) have not only become a key research topic but is of vital interest among organizations, leaders and management in today's work-related relations and the world of organizational behaviour. Gallego et al. (2021) stated that VHR had allowed organizations to create geographically dispersed virtual teams with specific home-work performance measures, in which team members operate in diverse and individualized workstations with minimal face-to-face contact but stay in touch using electronic communication to keep on tasks, maintain relationships and fulfil team goals. Morrison-Smith & Ruiz (2020) stated that expansion of virtual team has allowed workers to share their knowledge, skills and competences within a group without geographical, time and other limits to achieve even better goal. Thus, it can be seen that VHR remove all limitations and creates free way for team members to be work independently and according to their time preferences, while still contributing to a team.

The exponential growth of technology in the past and current century has greatly increased the amount, development and management of virtual employees at all levels (Aryan & Sharma, 2018). The spread of virtual teams has broadened significantly in the past years and this trend is only predicted to continue in the upcoming

period. Morrison-Smith and Ruiz (2020) stated out that virtual organizations comprise multicultural employees, and consequently that no limits prevent the current development of virtual teams. Multinational organizations (MNCs) have so far internalized the VHR approach to improve their starting position and take advantage of the new options the information technology provides (Elvira, 2017). Hicks (2018) postured that most of the MNCs increased their talent and management pool and are using new technologies to successfully get in line with electronic human resource management (e-HRM). This trend continues to bolster the expansion of virtual work and virtual groups.

Due to the benefits of the digital revolution in organizations that led to the VHR adoption, one of the many challenges is that many organizations are not prepared enough for the transition to virtual teams. If not properly organized, the construct of VHRM or managing virtual groups might end up with the detrimental impact to the organizations which were not on the accurate level for such fast change to new level. Thus, the focus of this study aims to investigate the impact of virtual/web-enabled human resource management techniques on remote teams' effectiveness and suitability.

The past COVID pandemic has revealed that organizations do not have a choice to embrace virtual team as this became the necessity for millions of organizations and their people. In fact, we witnessed that virtual work did not gradually increase and gain acceptance but was forced upon organization in an immediate manner, there was no choice in launching virtual teams. Despite almost all organizations adopting remote work, it can be argued that these organizations have no longitudinal

experience in managing virtual teams nor have they had any data or information to assess the effectiveness of such teams. This study will present data and information on how to improve virtual teams and how to retain these teams and their members. The study's aim is to investigate the impact of virtual/web-enabled human resource management techniques on remote teams' effectiveness and retention ability. Firstly, theory on the searched factors will be presented, followed by research objectives and methodology. Results follow with concrete findings and end with discussion of relevant studies and researches. The paper summarizes main findings in conclusions.

2. THEORETICAL BACKGROUND

In the last few years resulting from the pandemic, existing technologies and modifications of these technologies have led to the creation of teams that no longer necessarily worked at the same place nor even state or continent and this was across all organizations globally. The specific existence of virtual teams (VTs) has risen the need to provide solutions to VHRM (Alsharo et al., 2017). Even though this was a relatively new approach in management, VTs were automatically put under the HR department and are managed and organized by the same department (Aryan & Sharma, 2018). As mentioned by Robert and You (2018), VHRM can be defined as the art of leading and organizing employees working remotely from each other. However, Alzola (2018) noted that VHRM reaches far beyond just managing VTs to ensuring and developing adequate and preferred working conditions and taking over all the roles and tasks of HRM but through cyberspace

technology. In line with these statements, as it can be seen, VHRM is close to HRM but additionally count with geographical diversity and the use of ICT (information and communication technologies) in a team leadership without necessarily having to interact physically. Anderson et al. (2015) adds that VHRM is closely related to the key factor of human resource information system (HRIS), which organizations have to use inform on how to manage virtual teams and provide crucial data to recruit, place, develop, reward and outplace the staff who are part of these teams.

Every employee working either onsite or online requires leadership, and this becomes more necessary for virtual teams (VTs) in addition to be supported by virtual human resource management (VHRM) (Weber et al., 2020). Adamovic (2018) indicated that VHRM is the base on which VTs are constructed, on the other hand, without the VTs, VHRM would be redundant, and the vice versa also exists. In fact, one may conclude that there is a symbiotic relationship.

Ebrahim et al. (2012) described VTs as a group of specialists or employees in different geographical workplaces that cooperate together using ICT to perform achieve their goals while pursuing a common strategy. This definition expects that the physical separation relies on the communication through technology to keep all members closely connected.

Similar definition of VTs states that it characterizes a group of employees who work with each other within the organization tasks through virtual technology, that enables to work and achieve common goals from all over the globe at any time (Kimble, 2011). The second listed definition is consistent with the one stated by Ebrahim et al. (2012),

with specifics of ICT, in particular connected to virtual space and technology. However, this definition is introducing a phenomenon of the time difference, drawing attention to the fact that the virtual team members are separated by various distance and there is also an expectation that they will be operating at different time zones.

In line with Kimble (2011), that describes broad studies on VTs, the definitions stated above still lack important parts as they omit several variables such as relative size of teams, time zone differences of group members as well as operating hours of the organization. Nevertheless, Andersson et al. (2019) added that such definition of a virtual group could be used in case it meets four main criteria: (1) geographical dispersion, (2) communication through ICT, (3) common goal, and (4) cross-borders cooperation. Thus, the first two definitions could be accepted interchangeably to describe VTs.

Virtual teams allows the organization to further develop and achieve goals as personnel contracted or subcontracted by managers who can fill vacancies easily drawing from a global pool of talent utilizing virtual human resource management through knowledge management leads to improvement of performance of virtually managed teams (Abdulmuhsin & Tarini, 2021). Newman and Ford (2021) further investigated these results and added that virtual HR management implies to engagement and performance outputs of virtual and globally dispersed employees. On the other hand, not all organizations were successful in creating a climate of trust and thoughtful leadership communication tools (Newman & Ford, 2021). Virtual HRM has also its limitations as it relies on management effectiveness closely connected

to employee job performance in virtual environments (Bartsch et al., 2021). Even there are several criticisms appearing in theory, virtual HRM enhances organizations to manage employees in performing their tasks, goals and responsibilities (Bekirogullari & Thambusamy, 2020). Supported with such results, VT leadership is the key to manage teams during changes and crises such as the COVID-19 (Efimov et al., 2020).

Successful VHRM is not easy-going because of management-employee communication and behavioural issues, namely hardly possible trust-building, communication, and facilitation of meetings. These problems were mentioned with the results by Newman and Ford (2021) in which it was stated that the pros and cons related to VHRM show the need of each organization to focus on levels of employee commitment and top leadership support towards virtual administrations of workers.

As employees became familiar with the use of technology to performing tasks from home due to the COVID-19 past-pandemic limitations, organizations were forced to focus on processes to help remote managers and relations to keep virtual collaboration among peers and leaders. Social platforms are a significant help in supporting virtual cooperation and management, especially for continuous interaction of VTs (Waizenegger et al., 2020). Although social networks are broadly spread and used, cooperation, communication and management between teams and leaders has become a challenge when everyone works at different places and time zones (van der Lippe & Lippenyi, 2020). While VTs and HRM are great tools for organizations to not only operate but also develop their reach and overall size of company, they are struggling with low

performance if employees are not independent enough or have not enough knowledge and skills to work autonomously and keeping adequate social contacts with leaders and colleagues (Bolisani et al., 2020). Stich (2020) develops these results by pointing out the importance of virtual teams' relations and leadership; on the other hand, the study refuses VHRM can lead to sense of isolation and loneliness among managers and employees. As the social cognitive theory used by Jackowska and Luring (2021) and Stich (2020) states, VHRM is closely connected with leader's ignorance of employees' personal and virtual job contexts. Therefore, VHRM has proven its importance in today's organizational conditions, but managers and leaders need to define and focus on specific challenges that are associated with implementation of this HR approach.

Current theory focused on the well-being, experiences, and performances of remote workers, but little attention has been paid to the experiences of leaders who are in charge of virtual team management. In this area, significant data are missing to support VHRM strategy by leaders because of inappropriate experience in virtual management and loss of social interaction (Kirchner et al., 2021). Limited use of virtual employee management is also connected to a low organizational support of specific virtual challenges that virtual employees and managers face, and reluctance among leaders to upgrade their management styles (Ipsen et al., 2021). Ferreira et al. (2021) refutes these results by summarizing their findings that remote work and virtual management of workers should be greatly implemented due to cost-reduction and flexibility benefits that enhance life-work balance. While Liu et al. (2021) linked limited use of VHRM strategy

to workload, monitoring, job autonomy and social support challenges, Mysirlaki and Fotini (2020) stated that limited virtual leadership skills are leading to poor processes in VHRM. Based on these results, organizations should focus on improvement of specific leadership skills and management competencies of human resource management to boost their virtual personnel management skills.

2.1. Strategies to enhance performance of VTs

Although VTs been studied and researched since nineties, there still exist an ambiguity in identification of the factors significantly affecting performance of VTs. Most studies were oriented on ensuring efficient communication as the crucial factor to achieve the goals of VTs (Kimble, 2011; Pinjani & Palvia, 2013). Alsharo et al. (2017) showed that keeping ongoing and effective communication and feedback leads to creation and development of trust in VTs despite the distance group member face. Robert (2016) added that communication affects performance among VT focusing on the social dimension variable, which was stressed as important in defining the efficiency of communication. When applying the results of current studies, it may be summarized that communication is commonly mentioned factor in improving performance of virtual teams. Overall, to use communication as a strategy, attention should be paid to its effectivity and management have to consider various related variables, mainly diversity, and differences in culture (Anderson et al., 2015).

The management of communication appears to be a strong tool that results into improved productivity within VTs even

when a team faces great geographical distance. As Alzola (2018) revealed, both horizontal and vertical communication is required for a VT to cooperate efficiently. In spite of low level of social connection in virtual groups, horizontal communication leads to ensuring the whole VT is informed on the status of all tasks and projects, issues, priorities and other variables, including organization's mission, vision and strategy. Vertical communication is the key to ensure positive relations and trust in leadership on the strategic directions (Adiga & Bassey, 2021).

Research of efficient VTs was conducted by Andersson et al. (2019) and reported that commitment to shared communication and sharing of the tasks and aims of an organization is crucial in VT performance. Brewster et al. (2016) in their work shown that common sharing of aims leads to intrinsic motivation of VTs, resulting in on-time and high standards of tasks fulfilment. A common vision relates to the fact that all team members are jointly marching towards a common goal, therefore minimizing the opportunities of failure (Anderson et al., 2015). Although the VTs are premised on shared tasks and goals, Kimble (2011) added that there VTs that had expressed joint effort to reach goals without the awareness of the end result of their work. In such environment, it was explained that the management needs to have full control over the process and work tasks, and each VT member have to work independently on each one's part of a task (Lukić & Vračar, 2018). The final production is then processed by another team, as periodically seen in key projects, such as national security (Tenopir et al., 2011). Moreover, a common vision and aim is the key as it significantly stimulates each team and also improves trust among VT

members and leadership.

Marlow and Dabbish (2012) stated that role clarity is one of the paths that leadership can drive effectiveness of virtual teams. Parreira et al. (2017) added that undefined roles can lead to problematic assignment of goals, overlapping or missing parts or lack of cooperation and communication in VTs, that leads to duplication of tasks and prolongation of timelines, unmet deadlines of tasks of VTs. Research by Brewster et al. (2016) stated that more than quarter of VTs confirmed that they experienced delicacy of tasks in VTs. Therefore, clear definition of roles and task assignment would avoid failure in meeting deadlines and additional costs. Due to that fact, efficient leaders of VTs focus on clear division of roles and ongoing review and assessment of performed tasks to keep high performance of VTs (Gallego et al., 2021). Also (Chen & Fulmer, 2018) confirmed that management approach to VTs and projects is crucial to reach high performance. Scott and Wildman (2015) add that involving culture and relationships to all virtual employees is the key to organizational cooperation and solidarity and leads to higher confidence of team members. Furthermore, this approach of VT management creates and improves trust among the VT and leaders of these teams.

Training is another key factor leading to high concentration on tasks and improve performance of these teams (Elvira, 2017). Lukić and Vračar (2018), which confirmed the role of training among VTs to commitment and is related to trust the leadership put in their teams. This result supports Marlow's need for self-actualisation, a phenomenon that directly affect motivation of employees (Chen & Fulmer, 2018). The Marlow's theory states that activity stimulates workers to

development and leads to career advancements (Caligiuri et al., 2020). Marlow et al. (2017), which also show the relation between VT training and retention. On the other hand, Andersson et al. (2019) add that even for short-term teams' trainings make significant impact on VT performance during the period of a project the team was composed for.

Manea et al. (2021) state that efficient VTs need to possess independence or have to be composed of specialists who are independent and able to achieve set goals without high involvement of supervisor. Shaik et al. (2021) stressed that to achieve requested results, VTs have to be trained to gain adequate competences relevant to the goal and develop milestones according to the organizational rules and regulations. Gallego et al. (2021) added that solely VTS that are informed and using function communication channels are able to achieve required outputs and performance. Due to this fact, HR departments need to implement KPIs and inform workers regarding new job tasks, requirements and virtual tools to fill them with information needed to perform and create synergies in cooperation, moderate and resolve problems in virtual environment, and support commitment of workers to organizational mission. To achieve expected performance among VTs, HR department need to focus on efficient definition of job descriptions that are aligned to employee competencies. Each job position requires different competencies that lead to optimum outputs and performance. Manea et al. (2021) and Shaik et al. (2021) published their results that to improve VTs' performance, HR department need to focus on involvement of all workers to team environment and create commitment to organizational mission. Moreover,

Abdulmuhsin & Tarhini (2021) added that VTs needs to be supported in adoption of new technologies and its impact on employees' health. HR department should also offer professional development to improve workers virtual skills and use online tools internally and externally with an emphasis on conflict management. Another driver of performance is information sharing. To achieve team's performance, attention needs to be paid to compose team according to different skills and competences of each member of a team. But the composition of the team does not work in case team members do not share. It was found that sharing among teams leads to higher performance (Chartered Institute of Personnel and Development, 2020). Common sharing helps VTs to cooperate on common goals. Moreover, sharing leads to team unification, trust and this leads to performance. Based on the study results, VTs gain worse results in communication than usual teams. Performance among VTs is connected with communication of goals, building relationships and knowledge of each team members competences. This helps VTs to understand task division and sharing, and commitment.

3. METHODS

This paper presents data from survey of managers of virtual teams (Saunders et al., 2015; Gebresenbet & Ayele, 2017). The survey was composed to verify significant factors related to virtual teams' effectiveness, retention, performance and welfare based on study of literature presented in theoretical background. Questionnaire contained questions on respondents' perception of online work

environment and ability to be effective, virtual job conditions and relations, efficiency and retention using statements on their willingness to recommend their employer to other people or their willingness to continue working for current organization, questions on benefits, satisfaction and willingness to accept another job elsewhere.

The questionnaire consisted of six identification questions and three sections with three to five multiple-choice sub-questions. Each respondent was answering sets of questions on a five-point Likert-type

scale from strong agreement to strong disagreement or indicate that a question is not applicable. The structure of questionnaire is in Table 1.

The survey was tested for validity and internal consistency using the Cronbach's Alpha (CA) test (Bell et al., 2019). The correlation among intra-classes was also employed (Bolarinwa, 2015). The Pearson correlation (r) test was conducted to test validity and to reveal relations among variables.

The Table 1 shows results of reliability

Table 1. Summary of Reliability and Validity Tests

Category	Sub-Category	Number of questions per sub-category	Number of sample responses	Summary of reliability testing	Summary of validity testing	
I.	Virtual Resource	a. Measures taken by an organisation for employee safety and welfare.	9	10	CA 0.997	r <0.05
					∴ Reliable	∴ Valid
	Human Resource Management	b. Quality of communication with organizational HR team virtually.	11	9	CA 0.996	r <0.05
		c. Measures of change management related to the COVID-19 remote working.	9	9	CA 0.960	r <0.05
		a. Home office policy of a workplace.	4	9	CA 0.979	r <0.05
		b. Home working experience.	10	9	CA 0.996	r <0.05
II.	Home and Employee Reliability	c. Distractions of employees at home office.	12	9	CA 0.997	r <0.05
		d. Effect of the home office on the performance appraisal of home work.	10	9	CA 0.984	r <0.05
		e. Perception of the effects of remote work.	6	9	CA 0.997	r <0.05
III.	Employee Retention	a. Willingness to recommend current job to friends and retention at current job.	7	9	CA 0.981	r <0.05
				∴ Reliable	∴ Valid	

and validity tests. Based on the results, the data are consistent and can be used for further analyses.

3.1. Data and Sample

The questionnaire was distributed through Qualtrics online survey mailer. Random population was selected and the sample was defined based on Cochran's (1977) formula ($p=0.5$) and 95% confidence level with $\pm 5\%$ precision. The result revealed the required sample size as of 384 respondents. Further, the Cochran's formula allows slight reduction of the sample size. With the instructions, the survey was distributed to over 750 individuals, with the required number of respondents at least 254. This number would be significant and reliable for survey results ensuring a representative sample. Due to these calculations, the sample presented in this study that consisted of 323 respondents can be considered representative sample.

Respondents were included in the survey by satisfying in case the pre-defined conditions: age range between 18-65 and had experience with online work in organizations and had experiences with interactions with HRM associate.

The sample was distributed as follows: 156 males (48.3%), 167 females (51.7%); 43.0% (139) were in age group 21-38, 43.3% (140) were 39-56 years and 13.6% (44) were 57-65 years old.

Respondents were working in different states and countries all around the world including Africa, North America, South America, Asia, Europe, and Oceania. The questionnaire was directed to all countries worldwide and had good geographical coverage due to the online data collection. The job area respondents worked were 18%

operations, 11% administrations, 10% IT, 9% finance, 6% sales, manufacturing (5%), quality (5%), supply chain (4%), marketing (4%), legal (3%), R&D (3%), HR (2%), regulatory (1%) and procurement (1%).

According to the organizational size 19% of the respondents worked in small organizations (1-49 employees), 35% medium-sized organizations (50-999 employees), 22% in large organizations (1000-4999) and 24% in large multinationals (over 5000 employees).

The questionnaire was anonymous and only contained identification questions such as gender, age, organization size and country they operate at. Also, respondents were required to read and confirm electronic informed consent to state they willingly took part in the research.

3.2. Data Analysis

All data were exported from survey tool to Excel for data cleaning and control and later for further analyses. The SPSS software was used to ran statistical tests. The statistics used were central tendency, variability, correlations and regressions analyses. To work with results and find significant relations and intercorrelations and differences, the data were tested by multiple linear regression (MLR) and ANOVA.

4. RESULTS

The outputs of the survey show (Table 2), that most of the organizations in relation to online or virtual work have adjusted working policies to fit the individual needs. There is minor part of organizations that are still changing their working environment. Most commonly, organizations who shifted to

online communication and leadership focuses on management through virtual technologies to select and monitor employees to make sure they participate and cooperate on work tasks. Further, organizations declared changes in policies and payments, and significantly invested in new technologies that includes immersive technology and data analytics. Other significant changes appeared in adjustments of organisational culture and shifted meeting etiquette to fit the virtual conditions. According to the respondents, the changed conditions with emphasis on virtual work were suitable. On the other hand, several respondents stated that shift to online environment significantly changed their work habits, with more working hours and increased screen time due to lack of physical workspaces. These challenges have been noticed by majority of managers due to the fact that organisations continue to measure screen time. Further, respondents indicated that virtual management contain challenges due to differences in working environment, especially distractions when performing tasks from home. Responding indicated that their teams were effective.

The section that was investigating employee retention, especially the fact that employees would recommend their employer to other workers and their retention ability at current work revealed that many employees feel comfortable at their virtual jobs and feel opportunities for career development. The main reason to leave their current job was in 32.78% due to no possibility to grow, 23.84% due to perceived low or below-average remuneration, and 21.52% might leave because of unpleasant relationship with their manager. The main reason of one third of employees leave virtual environment due to impossibility of career development or

opportunities and when they feel that they are not able to grow at their employer. Working conditions were not a major consideration in leaving job. The table also shows that most of virtual workers are oriented at career development through further trainings. Impossibility to grow might lead most of virtual employees to quit their current job. On the other hand, there is still about one fifth of employees who would prefer a higher salary compare to career development.

The virtual human resource management questions were investigating employee safety and welfare; quality of interactions with HR team online; and changes to enhance online work environment. The Pearson correlation (r) test presents that the above mentioned three categories of questions were significantly positively related ($r = .691, p < .01; r = .720, p < .001$). The results show there is a strong, positive relationship between the categories of questions related to virtual HRM). The F-test in the ANOVA shown statistical significance of the regression model. The independent variables statistically significantly predict the dependent variable, $F(2, 320) = 222.831, p < .0005$. It is possible to consider the model as a good fit of the data, $p < .05$.

Investigation of virtual work and impact on effectiveness, the categories were investigating relations among the home office policy; virtual job experience; distractions employees face from home office; and the impact of the virtual environment on performance, and effects of virtual environment. Most of the respondents tended to agree with statements provided. The overall mean was 4.071 on the five-point scale where 5 was total agreement were provided on the fact that organisations

inspire employees to work virtually; a mean of 4.248 agreed that organisations appointed workers with skills to work virtually. The sick leave policies had an average of 3.937 positive responses, which shows less activities of organizations in order to address these sick days in virtual workspace.

Outputs confirmed that questions in this category are positively correlated ($r = .634, p < .001, r = .348, p < .01, r = 0.009, p = 0.873$). On the other hand, the final category was not statistically significant. The results show strong evidence that respondents do not see and correlations between working from home and managing distractions on their performance appraisal. The ANOVA F-ratio, $F(4, 315) = 54.431, p < .0005$ confirms that the independent variable (home office policy) is statistically significant predictor of the dependent variables e.g. virtual job experience and distractions, and effects of home office.

The section investigating employee retention consisted of two categories: recommendation of current employer; and retention ability at current job. Results shows significant positive correlation ($r = .634, p < .001; r = .348, p < .01$). The ANOVA shows the regression model is a good fit ($F(1, 308) = 285.454, p < .001$).

The analysis revealed the respondents were providing very positive answers with lowest values on 4.29. The outputs denote non-existent relationship between virtual HRM and employee retention, and the main reason for departure is career development, contrary to diverse virtual strategies that may affect virtual job environment.

The VRHM, organizations were testing different concepts and investing large amount of money to support virtual work and innovations. The results revealed that significant challenges affecting HR

managers in virtual environment were mental health, career progression and development, and employee job satisfaction. The majority of organizations were working non-stop to make sure their employees were well-taken care of (66% agree, out of 32% strongly). Most of the responses to this area of questions reached over 4.0 (see Table 2). Majority of respondents also confirmed they received health protection, organizations raised sick leaves, provided flexible schedules, emotional support, mental health support and transportation programme. The data show that VHRM was implemented fully and fast since the COVID-19, and workers perceive VHRM strategies as efficient.

The effects on employee effectiveness shown overall result values over 4 (Table 2). It confirms that employees positively rate virtual trainings sufficiently and emphasis on performance among virtual employees. Employees in COVID-19 perceived encouragement to work remotely positively. Moreover, employees stated that shift to virtual work has not significantly impacted their performance. Organizations were still required to improve policies on sick leave because employees could get impacted by virus even when they work virtually and wished to have procedures in place to recover.

Employees in 60-65% stated they feel comfortable working virtually and have opportunities to grow. On the other hand, much higher percentage of respondents stated they would leave in case they had no possibility for career development. Generally, majority of respondents stated that the virtual management of their current organization is suitable and their interactions with VHRM have not impacted their intention to stay or leave. Further, the results

Table 2. Summary of Survey Data Analysis

Category	Sub-Category / Theme	Summary Statistics	Summary of data analysis results*
I. Virtual Human Resource Management During COVID-19	Basic Information / Demographics	51.7% Females	
		48.3% Males	
		43.0% Gen Y	
		43.3% Gen X	
		13.6% Baby Boomers	
		18% health industry	
		17% other industry	
		11% education industry	
		18% operations division	
		11% support/admin division	
10% IT division			
46% large companies (1000+)			
a.	Questions related to measures taken by an organisation for employee safety and welfare.	Survey questions rating scale data collected	<p><u>Measures of central tendency</u> Min = 0.0, Max = 6, Mean = 4.40</p> <p><u>Measures of variability</u> $\sigma = 1.07$</p> <p><u>Correlations</u> $r(322) = 1, p < .01$</p> <p><u>Multiple Regression Analysis</u> Model Summary $R = .736, R^2 = 0.582$</p>
	Questions related to the quality of interactions when dealing with the organizational HR team virtually.	Survey questions rating scale data collected	<p><u>Measures of central tendency</u> Min = 0.0, Max = 6, Mean = 4.43</p> <p><u>Measures of variability</u> $\sigma = 1.03$</p> <p><u>Correlations</u> $r(322) = .691, p < .001$</p> <p><u>F-ratio ANOVA</u> $F(2, 320) = 222.831, p < .001$</p>
	Questions related to the measures taken by the organisation to adapt to change during the COVID-19 remote working.	Survey questions rating scale data collected	<p><u>Measures of central tendency</u> Min = 0.0, Max = 6, Mean = 4.4</p> <p><u>Measures of variability</u> $\sigma = 1.13$</p> <p><u>Correlations</u> $r(322) = .720, p < .001$</p> <p><u>Coefficients</u> $p < .001$</p>
II. Impact On Remote Working And Employee Reliability	a.	Questions related to the work from home policy of an organization.	<p><u>Measures of central tendency</u> Min = 0, Max = 6, Mean = 4.07</p> <p><u>Measures of variability</u> $\sigma = 1.25$</p> <p><u>Correlations</u> $r(322) = 1, p < .01$</p> <p><u>Multiple Regression Analysis</u></p>
		Questions related to remote working experience.	<p><u>Measures of central tendency</u> Min = 0, Max = 6, Mean = 4.23</p> <p><u>Measures of variability</u> $\sigma = 1.08$</p> <p><u>Correlations</u> $r(322) = .634, p < .001$</p> <p><u>Model Summary</u> $R = .639, R^2 = 0.409$</p>
	c.	Questions related to the distractions employees are facing while working from home.	<p><u>Measures of central tendency</u> Min = 1, Max = 6, Mean = 3.94</p> <p><u>Measures of variability</u> $\sigma = 1.00$</p> <p><u>Correlations</u> $r(322) = .348, p < .01$</p> <p><u>F-ratio ANOVA</u> $F(4, 315) = 54.431, p < .001$</p>
		Questions related to the impact of the pandemic on the performance appraisal, and effects of remote working.	<p><u>Measures of central tendency</u> Min = 1, Max = 6, Mean = 4.11</p> <p><u>Measures of variability</u> $\sigma = 1.11$</p> <p><u>Correlations</u> $r(322) = 0.009, p = 0.873$</p> <p><u>Coefficients</u> $p < .001,$ <u>Distractions</u> $p = 0.428$</p>

indicate that respondents appreciate the VHRM attitude. Respondents confirmed that VHRM is significant partner and contact point in the organizational leadership and helping solve problems; additionally, 48% of

respondents indicated they were supported by PPE, emotional and mental consultancy, and/or financial bonuses or possibility of insurance.

5. DISCUSSION

Employees who work in remote teams have reported a positive experience while also fulfilling organizational goals. Virtual work has been widely spread since COVID-19 and workers are hesitating to return back to offices; many of them are looking for flexibility in their lives and refer to suitable conditions leading to the same or increased productivity and work morale – this was also confirmed by the results of this study. Results presented are consistent line with Zaharie (2021) stating that managers can efficiently manage online workplace using updated rules, regulations and communication to fit virtual environment. In fitting conditions, TVs communicate efficiently and support trust in their organization (Quade et al., 2020, Velez-Calle et al., 2020). Research shown that under good conditions, virtual communication is suitable for VTs operation and performance; but the process of adaptation and support needs to be in place (Shaik et al., 2021). Thus, this study resulted in accordance with Aranaz-Andrés et al. (2021), Ipsen et al. (2021) showing virtual technologies may result into work-life balance issues. Contrary to Ipsen et al. (2021), the results indicated that online workspace affect organizational culture and agree that social interactions lead to cohesion.

According to task-media fit model, attention needs to be paid to appropriateness of communication channels and media, as those may lead to emotional changes, that could affect performance in organizations (Hewett et al., 2018). Therefore, organizations need to monitor and reflect on employees' emotions and performance, that results from information sharing. Information platforms or social media within

an organization are the source of information and are impacting the actual mood and performance of employees consistent with Hewett et al. (2018). This leads to strong recommendation to monitor and analyse changes in emotions, performance, and information exposure of virtual employees within each organization (Shaik et al., 2022). As results of presented study suggest, VHRM can help with these processes and monitoring to improve organizational culture and employees' reactions. As Ipsen et al. (2021) stated the crucial factor is change in management to virtual management using virtual tools to inform and communicate with subordinates. Virtual communication needs to be fitted to the virtual conditions to provide assistance and leadership to virtual employees to achieve goals, as validated by findings of this study and in line with (Velez-Calle et al., 2020).

While we noticed a significant number of organizations reported productivity drop during the pandemic, the results of this paper are consistent with Morrison-Smith & Ruiz (2020) findings that correctly set-up VTs increased individual performance, which would lead to improved organizational goals. Moreover, the results show that virtual communication is perceived as efficient, and employees are satisfied with online communication, which is supported by Shaik et al. (2021) and Newman and Ford (2021).

VTs in literature were presented as less reliable by Nguyen-Duc et al. (2015), and can have emotional and social problems that may impact their performance (Trotter, 2016), but can be led by transparent communication and clear set of responsibilities (Wang et al., 2013, Parreira et al., 2017). Most importantly, the study findings are in line with previous findings of the VHRM importance and requirements.

The theory suggests that VHRM may be responsible for VTs training to organizational online communication tools and channels; and VT members need to have technical abilities (Borst et al., 2019) and, as stated by Conway et al. (2016), practical training is essential to improve VTs to achieve their goals and compensate their geographical dispersion and reliance on technologies to communicate.

This study revealed that respondents evaluated VHRM positively and stated they were supported by adequate working environment in reskilling and mental support. This is supported by results of Morrison-Smith & Ruiz (2020) also stating that VT's training in technology and other support is essential. VHRM support organizations and employees to perform while suggesting tools and leadership for VTs (Zafer & Thambusony, 2020), which was confirmed by the study findings.

The study also provided evidence that some respondents indicated dissatisfaction or overload and loneliness, dissatisfaction with online environment and low social interactions. The feeling of loneliness and overload was significantly spread through the responses which was connected by lower evaluation of VHRM. This shows the importance of quality VHRM and significance of their role and impact on VTs.

6. CONCLUSIONS

VHRM shown to be critically important in virtual employee retention, effectiveness and performance. The virtual leadership needs to be modified to meet expectations and requirements of virtual teams to support their communication, information sharing, technology training and trust that leads to

reliability and performance. VTs commitment is crucial as without it virtual teams are not reliable and struggles with low performance and mental problems. Results shown that VTs need to stay current with technologies that are the only connection with the rest of the team and VHRM needs to continuously support VTs. The VHRM is more complicated as they can only use online platforms to train, engage, connect socially and support all virtual employees. Results also revealed that key activities are needed by VHRM to manage virtual employees and focusing on emotional and physical needs VTs.

The study shown that VT effectiveness is not affected by online environment but strongly relates to career development opportunities. VHRM could use AI to support some of their activities, such as monitoring and assessment of work efficiency and performance, supporting training, adopting Data-Driven Strategies, identify risk factors and support factors leading to found relations with reliability and retention.

Retention of VTs relates to development activities and can be improved by offering e-learning trainings that would be connected to career development, ongoing learning and development. It is also necessary to engage virtual employees for example by team building that enhance relationships building and creation of cooperative culture.

Modern online HR technologies are necessary to adjust and update VHRM for efficient and up-to-date HR practices, such as recruitment, administration, monitoring performance, career management and communication. Automatization and virtual tools have to be implemented in VHRM to ensure capacities for other key activities. Repeated and simple processes can be

automated first with high impact and fast implementation. Organizations can choose from various virtual tools, platforms or virtual reality to support their processes and employees to enhance learning capacities and develop talents and continuous learning in a controlled virtual environment.

The study limitation is focus on solely virtual employees with emphasis on HR management who were willing to participate voluntarily. Therefore, a shift to motivated virtual worker might impact the results. However, the results indicated significant group of employees which struggle from virtual environment and social isolation. This confirmed the correct data gathering and sampling. Future research could extend these findings to further focus on VTs specific determination and their impact, such as cultural differences, team size, length of cooperation, history, culture, shifting working hours based on time zones to investigate such variables impact on reliability and retention.

References

- Abdulmuhsin, A.A., & Tarini, A. (2021). Impact of knowledge leadership on the challenges and innovative performance of virtual teams: An empirical examination in oil sector companies. *International Journal of Knowledge Management Studies*, 12 (1), 1-33.
- Adamovic, M. (2018). An employee-focused human resource management perspective for the management of global virtual teams. *The International Journal of Human Resource Management*, 29 (14), 2159–2187.
- Adiga, M., & Bassey, E.U. (2021). COVID-19 pandemic: implications on HRM and sustainability in the new normal. *African Journal of Business and Economic Development*, 1 (1), 29-42.
- Alsharo, M., Gregg, D., & Ramirez, R. (2017). Virtual team effectiveness: The role of knowledge sharing and trust. *Information & Management*, 54 (4), 479–490.
- Alzola, M. (2018). Decent work: the moral status of labour in human resource management. *Journal of Business Ethics*, 147 (4), 835–853.
- Anderson, A.J., Kaplan, S.A., & Vega, R.P. (2015). The impact of telework on emotional experience: when, and for whom, does telework improve daily affective well-being? *European Journal of Work and Organizational Psychology*, 24 (6), 882–897.
- Andersson, U., Brewster, C.J., Minbaeva, D., Narula, R., & Wood, G.T. (2019). The IB/IHRM interface: Exploring the potential of intersectional theorising. *Journal of World Business*, 54 (5), 100998.
- Aranaz-Andrés, J.M., McGee-Laso, A., Galán, J.C., Cantón, R., Mira, J., & on behalf of the team of work COVID-19. (2021). Activities and perceived risk of transmission and spread of SARS-CoV-2 among specialists and residents in a Third Level University Hospital in Spain. *International Journal of Environmental Research and Public Health*, 18 (6), 2838.
- Aryan, R., & Sharma, D. (2018). Transforming HRM through technology: Future of HR. *International Journal of Emerging Research in Management and Technology*, 6 (6), 265.
- Bartsch, S., Weber, E., Buttgen, M., & Huber, A. (2021). Leadership matters in crisis-induced digital transformation: how to lead service employees effectively during the COVID-19 pandemic. *Journal of Service Management*, 32 (1), 71-85.
- Bekirogullari, Z., & Thambusamy, R.X.

УЛОГА И УТИЦАЈНИ ФАКТОРИ СПОСОБНОСТИ ВИРТУЕЛНОГ УПРАВЉАЊА ЉУДСКИМ РЕСУРСИМА ЗА УСПОСТАВЉАЊЕ ЕФИКАСНОСТИ И ЗАДРЖАВАЊЕ УДАЉЕНИХ ТИМОВА

Lucie Depoo, Aimee Hermida

Извод

У раду се истражује утицај виртуелних техника управљања људским ресурсима на ефикасност удаљених тимова и задржавање запослених у организацији. Рад пружа релевантне и нове информације о виртуелним тимовима с обзиром на трансформациони утицај који је резултат COVID пандемије. Подаци су прикупљени од 323 менаџера који раде са виртуелним тимовима широм света и који су формирали базу за ову студију, користећи анонимно анкетирање. Подаци су анализирани дводимензионалном статистиком. Резултати су открили да је имплементација VHRM-а довела до високе продуктивности, ефикасности и способности задржавања запослених док уче да се прилагођавају технолошким променама. Резултати показују да адекватан труд и ресурси уложени у VHRM, менаџери људских ресурса могу да идентификују и имплементирају ефикасна решења, улажући у нову технологију/алате за виртуелне тимове (48%), побољшавајући комуникацију (52%) и нудећи нове могућности за усавршавање запослених, који максимизирају учинак запослених. На основу резултата, на ефикасност тима на даљину не утиче директно виртуелни рад и углавном се односи на могућности каријере, као и на побољшану комуникацију у комбинацији са професионалним развојем. Побољшање је везано за интеграцију вештачке интелигенције, која значајно побољшава ефикасност и токове рада, награђивање учинка и подржавање раста.

Кључне речи: рад на даљину, web доступност, људски ресурси, менаџмент, виртуелни тимови, задржавање

(2020). Virtual Leadership in Small Businesses during the COVID-19 Pandemic: Challenges and Possibilities. *The European Journal of Social & Behavioral Sciences*, 29 (3), 3214-3224.

Bell, E., Harley, B., & Bryman, A. (2019). *Business research methods*. Fifth edition. Oxford: Oxford University Press.

Bolarinwa, O.A. (2015). Principles and methods of validity and reliability testing of questionnaires used in social and health science research. *The Nigerian Postgraduate Medical Journal*, 22 (4), 195–201.

Bolisani, E., Scarso, E., Ipsen, C.,

Kirchner, K., & Hansen, J.P. (2020). Working from home during COVID-19 pandemic: lessons learned and issues. *Management & Marketing*, 15 (s1), 458-476.

Borst, R.T., Kruyen, P.M., & Lako, C.J. (2019). Exploring the Job Demands–Resources Model of Work Engagement in Government: Bringing in a Psychological Perspective. *Review of Public Personnel Administration*, 39 (3), 372–397.

Brewster, C., Mayrhofer, W., & Smale, A. (2016). Crossing the streams: HRM in multinational enterprises and comparative HRM. *Human Resource Management*

Review, 26 (4), 285–297.

Caligiuri, P., De Cieri, H., Minbaeva, D., Verbeke, A., & Zimmermann, A. (2020). International HRM insights for navigating the COVID-19 pandemic: Implications for future research and practice. *Journal of International Business Studies*, 51 (5), 697-713.

Chartered Institute of Personnel and Development (2020). *Developing effective virtual teams*. London: Chartered Institute of Personnel and Development.

Chen, Y. & Fulmer, I.S. (2018). Fine-tuning what we know about employees' experience with flexible work arrangements and their job attitudes. *Human Resource Management*, 57 (1), 381–395.

Cochran, W.G. (1977). *Sampling techniques*. Third edition. John Wiley & Sons.

Conway, E., Fu, N., Monks, K., Alfes, K., & Bailey, C. (2016). Demands or Resources? The Relationship Between HR Practices, Employee Engagement and Emotional Exhaustion Within A Hybrid Model of Employment Relations. *Human Resource Management*, 55 (5), 901-917.

Ebrahim, N.A., Ahmed, S., Abdul-Rashid, S.H., & Taha, Z. (2012). Technology use in the virtual R&D teams. *American Journal of Engineering and Applied Sciences*, 5 (1), 9-14.

Efimov, I., Harth, V., & Mache, S. (2020). Health-oriented employee leadership in virtual teams: a qualitative study with virtual teams. *International Journal of Environmental Research and Public Health*, 17 (18), 6519-6529.

Elvira, M. (2017). Leading virtual teams: Managing geographically dispersed virtual teams is a growing reality. Here are five aspects that make all the difference. *IESE Insight*, 1 (34), 5.

Ferreira, R., Pereira, R., Bianchi, I.S., & da Silva, M.M. (2021). Decision factors for remote work adoption: advantages, disadvantages, driving forces and challenges. *Journal of Open Innovation: Technology, Market, and Complexity*, 7 (1), 70.

Gallego, J., Ortiz-Marcos, I., & Romero Ruiz, J. (2021). Main challenges during project planning when working with virtual teams. *Technological Forecasting and Social Change*, 162 (1), 120353.

Gebresenbet, M.W., & Ayele, M.A. (2017). Enhancing secondary school students' understanding of descriptive statistics using a modelling instructional approach. *Education Journal*, 6 (1), 5-21.

Hewett, R., Shantz, A., Mundy, J., & Alfes, K. (2018). Attribution theories in Human Resource Management research: a review and research agenda. *The International Journal of Human Resource Management*, 29 (1), 87-126.

Hicks, M. (2018). How HR execs can use technology to connect a divided workforce. *Strategic HR Review*, 17 (1), 23-28.

Ipsen, C., van Veldhoven, M., Kirchner, K., & Hansen, J.P. (2021). Six key advantages and disadvantages of working from home in Europe during COVID-19. *International Journal of Environmental Research and Public Health*, 18 (4), 1826.

Jackowska, M., & Lauring, J. (2021). What are the effects of working away from the workplace compared to using technology while being at the workplace? Assessing work context and personal context in a global virtual setting. *Journal of International Management*, 27 (1), 100826.

Kimble, C. (2011). Building effective virtual teams: How to overcome the problems of trust and identity in virtual teams. *Global Business and Organizational Excellence*, 30 (2), 6-15.

- Kirchner, K., Ipsen, C., & Hansen, J.P. (2021). COVID-19 leadership challenges in knowledge work. *Knowledge Management Research and Practice*, 19 (4), 493-500.
- Liu, Z., Mei, S., & Guo, Y. (2021). Green human resource management, green organization identity and organizational citizenship behavior for the environment: the moderating effect of environmental values. *Chinese Management Studies*, 15(2), 290-304.
- Lukić, J., & Vračar, M. (2018). Building and nurturing trust among members in virtual project teams. *Strategic Management*, 23 (3), 10-16.
- Manea, A.A., Radzi, A.R., Rahman, R.A., & Haron, A.T. (2021). Strategies for virtual teams in construction: Easiness-effectiveness analysis. In *IOP Conference Series: Earth and Environmental Science*, 641, 012009.
- Marlow, J., & Dabbish, L. (2012). Designing interventions to reduce the psychological distance in globally distributed teams. *Proceedings of CSCW'12 Companion*. New York: ACM, 163-166.
- Marlow, S.L., Lacerenza, C.N., & Salas, E. (2017). Communication in virtual teams: A conceptual framework and research agenda. *Human Resource Management Review*, 27 (4), 575-589.
- Morrison-Smith, S., & Ruiz, J. (2020). Challenges and Barriers in Virtual Teams: A Literature Review, *SN Applied Science*, 2, 1096.
- Mysirlaki, S., & Fotini, P. (2020). Emotional intelligence and transformational leadership in virtual teams: lessons from MMOGs. *Leadership & Organization Development*.
- Newman, S.A., & Ford, R.C. (2021). Five steps to lading your team in the virtual COVID-19 workplace. *Organizational Dynamics*, 50 (1), 100802.
- Nguyen-Duc, A., Cruzes, D. S., & Conradi, R. (2015). The impact of global dispersion on coordination, team performance and software quality – A systematic literature review. *Information and Software Technology*, 57, 277-294.
- Parreira, M.R., Machado, K.B., Logares, R., Diniz-Filho, J.A., & Nabout, J.C. (2017). The roles of geographic distance and socioeconomic factors on international collaboration among ecologists. *Scientometrics*, 113 (3), 1539-1550.
- Pinjani, P., & Palvia, P. (2013). Trust and knowledge sharing in diverse global virtual teams. *Information & Management*, 50 (4), 144-153.
- Quade, M.J., McLarty, B.D., & Bonner, J.M. (2020). The influence of supervisor bottom-line mentality and employee bottom-line mentality on leader-member exchange and subsequent employee performance. *Human Relations*, 73 (8), 1157-1181.
- Robert, L.P. (2016). Far but near or near but far? The effects of perceived distance on the relationship between geographic dispersion and perceived diversity. *Proceedings of CHI'16*. ACM, New York, 2461-2473.
- Robert, L.P. Jr, & You, S. (2018). Are you satisfied yet? Shared leadership, individual trust, autonomy, and satisfaction in virtual teams. *Journal of the Association for Information Science and Technology*, 69 (4), 503-513.
- Saunders, M., Lewis, P., & Thornhill, A. (2015). *Research Methods for Business Students*. s.l.: Pearson Education Limited.
- Scott, C.P.R., & Wildman, J.L. (2015). *Culture, communication, and conflict: A review of the global virtual team literature*. Springer, New York.
- Shaik, F.F., Makhecha, U.P. & Gouda,

- S.K., (2021). Work and non-work identities in global virtual teams: Role of Cultural intelligence in employee engagement. *International Journal of Manpower*, 42 (1), 51-78.
- Shaik, R., Nambudiri, R., & Yadav, M.K. (2022). Mindfully performed organisational routines: reconciling the stability and change duality view. *International Journal of Organizational Analysis*, 30 (4), 1019-1038.
- Stich, J.F. (2020). A review of workplace stress in the virtual office. *Intelligent Buildings International*, 12 (3), 208-220.
- Tenopir, C., Allard, S., Douglass, K., Aydinoglu, A.U., Wu, L., Read, E., Manoff, M., & Frame, M. (2011). Data sharing by scientists: practices and perceptions. *PLoS ONE*, 6 (6), e21101.
- Trotter, M. (2016). *The resilient practitioner: burnout and compassion fatigue prevention and self-care strategies for the helping professions*. New York: Routledge.
- van der Lippe, T., & Lippenyi, Z. (2020). Co-workers working from home and individual and team performance. *New Technology, Work and Employment*, 35 (1), 60-79.
- Velez-Calle, A., Mariam, M., Gonzalez-Perez, M.A., Jimenez, A., Eisenberg, J., & Santamaria-Alvarez, S.M. (2020). When technological savviness overcomes cultural differences: millennials in global virtual teams. *Critical Perspectives on International Business*, 16 (3), 279-303.
- Waizenegger, L., McKenna, B., Cai, W., & Bendz, T. (2020). An affordance perspective of team collaboration and enforced working from home during COVID-19. *European Journal of Information Systems*, 29 (4), 429-442.
- Wang, L., Liao, S., Chen, M., Yang, D., & Dai, G. (2013). Transactive memory system theory in virtual teams: status and future. *Advances in Psychological Science*, 21 (8), 1512-1520.
- Weber, E., Bartsch, S., Buttgen, M. & Huber, A. (2020). Leadership matters in crisis-induced digital transformation: how to lead service employees effectively during the COVID-19 pandemic. *Journal of Service Management*, 32(1), pp. 71-85.
- Zafer, B. & Thambusamy, R. X. (2020). Virtual leadership in small businesses during the COVID-19 pandemic: challenges and opportunities. *The European Journal of Social & Behavioral Sciences*, 29(3), pp. 3214-3224.
- Zaharie, M. (2021). Challenges, Trust and Performance in Virtual Teams: Examining the Role of Openness to Experience and Preference for Virtual Teams. *Team Performance Management*, 27 (3/4), 210-228.