E-LEADERSHIP AS A BOOSTER OF EMPLOYEES' DYNAMIC CAPABILITIES INFLUENCE ON JOB PERFORMANCE

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Purpose: The article concerns the influence of employees' dynamic capabilities on job performance and the role of e-leadership in strengthening such a relation.

Design/methodology/approach: The hypotheses were verified among 1200 organizations operating in Poland, Italy and USA during 2nd wave of COVID-19 pandemic. The statistical reasoning was based on linear regression model with moderator.

Findings: The results show that e-leadership is indeed strengthening the positive influence of employees' dynamic capabilities on job performance, and moreover – such effect is much stronger among organizations operating in crisis during circumstances of COVID-19 pandemic, striving to survive.

Research limitations/implications: The empirical research should be treated as a pilot study, as the systemic literature review is limited and has a character of an initial review aiming at the identification of future direction of research in this regard.

Practical implications: The obtained results show that organizations, which experience crisis caused by the COVID-19 pandemic are characterized by a much higher level of EDC influence on job performance than those, which do not experience crisis. It is clearly showing the important role of EDC in managing such organizations and transforming their way of doing business in order to survive the crisis.

Originality/value: The obtained results contribute new knowledge to the field of job performance management during crisis, confirming that dynamic capabilities are crucial among employees and this specific type of capabilities should be shaped and enhanced among those organizations struggling through crisis caused by COVID-19 pandemic.

Keywords: e-leadership, employees' dynamic capabilities, job performance, COVID-19.

Category of the paper: Research paper.

1. Introduction

In the past decades, the world has been through the accelerating path towards globalization when commercial activities have no longer clear national boundaries in all areas spanning from designing, developing, shipping, marketing, and sales. This is inevitably attributed to its nature of being less bond to physical proximity throughout the whole development process (Avolio et al., 2000). It prompts companies and organizations to coordinate tasks across time, location and more flexible competence composition in order to secure the business success. Virtual team is the product of attempt to fulfill such needs (Malhotra et al., 2007). Seeing with broader view, not only the development of virtual teams is driven by companies for industry globalization and cost efficiency consideration, the unprecedented COVID pandemic has also proved the emergent need that fuels the growth of this form as an invincible external force. Such force swiftly extends this form into all industries in the society as an obligation rather than choice (Velicia-Martin et al., 2021), which will revolutionize the workplace in terms of flexibility greatly and quickly. This calls researchers to dive into the understanding of virtual teams and provide suggestions to its leaders on navigating the dynamic business environment and bettering member's job performance thus sustaining the business success (Avolio, 2000; Kayworth and Leidner, 2002).

As highly relevant to the virtualization of work environment and emergence of virtual leadership, the concept of employee dynamic capabilities (EDC) is gaining interest in the practice of management (Bieńkowska & Tworek, 2020). EDC can be understood as a micro level of dynamic capabilities as proposed by Teece and colleagues (1997) applicable at employees' level, denoting the abilities to integrate, build and reconfigure own competencies to address a rapidly changing environment thus influences job performance. It entails adaptability and problem-solving capabilities as well as long-term improvement of work processes at the job position. It was argued by Bieńkowska and Tworek (2000) to be highly relevant to job performance. It is considered necessary to sustain the lasting competitive advantage in the virtualized business environment. Although there is rich body of study on e-leadership alone, few empirical researches exist that verifies the moderating effect of e-leadership on the critical business constructs employee dynamic capability and job performance. Moreover, as virtual mode is propelled to be applied widely across all industries under the crisis of pandemic, additional interest arises among the researcher in understanding e-leadership's role between EDC and job performance in light of such circumstances.

This article aims to fill the gaps mentioned above by first examining e-leadership and its impact on employee job performance, then explores the moderating effect of e-leadership upon the relation between employee dynamic capability and job performance. Moreover, it puts the moderating effect under conditions of crisis to test the strength of the influence. Such research intent is structured by first systematic literature review on the subjects of virtual teams,

e-leadership, employee dynamic capability, job performance and existing studies on any of their correlations. This lays the foundation for the development of a conceptual model. Further on, empirical research with data collected from 1200 organizations operating in Poland, Italy and USA during 2nd wave of COVID-19 pandemic was performed, using linear regression model with moderator as the basis for statistical reasoning. The data collection and analysis process are discussed in the methodology chapter. Lastly, we summarize and discuss the results and provide implications on how the results can benefit the field practices. This research contributes to the body of academic knowledge on managing virtual teams and offers insights for leaders interested in improving job performance of their virtual team members.

2. Theoretical background

2.1. Leadership in virtual teams: e-leadership

The increasing popularity of globalization, business model shifting from production to services and interorganizational alliances fuel the need for companies and organizations to set up teams across time and space which depend on computer-mediated systems to communicate and cooperate. Virtual team prevails driven by such needs. Driskell and Radtke (2003) defines virtual team as "a team or group whose members are mediated by time, distance, or technology." Attributes extended from this definition which mark a virtual team are (1) geographically distributed with no or very limited physical interactions; (2) Communicate through computer-mediated tools. A virtual team doesn't need to be cross-cultural, team members from the same country, city or even same building but with no or limited physically contact may choose to work in the virtual setup driven by various factors Virtual teams bring about significant challenges for companies and organizations. Many known challenges in traditional teams will be magnified in the virtual team context due to the organizational and process complexities. Leadership is one of them (Malhotra et al., 2007). Existing studies suggest that leadership with properly equipped skills in virtual setting is vital for business success. It necessitated a fresh inquiry into the role and nature of team leadership in virtual settings (Hoch, 2014). Existing arguments suggest the study of virtual team leadership is relevant and vital. Failure of it can cause team attrition, under-performing team members, lack of team spirit and crash of team goals (Malhotra et al., 2007).

One of the main challenges that leaders encounter in leading virtual teams is how to integrate business and information technology systems within their organizations to fully leverage the potential of virtual teams (Li et al., 2016). Though leadership in its essence is about the leader's capability to mobilize team members towards the team goal, the methods and styles applied by leaders vary depending on their voluntary or involuntary choices. One way to

generalize and categorize such differences is to divide leaders into three types: laissez-faire, transitional, and transformational (Avolio and Bass, 1991). Avolio and Bass (1991) coined it as Full Range Leadership model. Laissez-faire, also known as 'Let them do' denotes a management style that looks like complete anarchy. Leaders delegate all decisions to members and exercise the least of intervention. It's seen as the absence of leadership with negative connotation of avoiding responsibilities (Skogstad et al., 2007). Transactional leaders promote compliance through rewards and punishments. They tend to keep things the same through negotiations with team members (Waldman et al., 2001). Such negotiations require close monitoring and supervision of employees' daily work output so to apply the reward and punishment fairly. In contrast, transformational leaders promote long-term oriented and higher-ranking values to motivate members and aim to incrementally increase their commitment, confidence, and productivity so they can achieve bigger results (Podsakoff et al., 1996). Transformational leaders do not see their role as supervisor but rather coach or mentor who gives vision, answer questions, promotes group goals and set higher performance expectation (Dirk and Ferrin, 2002). Transitional leadership by its nature suits the most to managing virtual teams given the fast-changing environment and limited possibility of close task monitoring for traditional management transactions (Avolio et al., 2000; Bell& Kozlowski, 2002). Moreover, expanding industrial digitalization and the prevalence of information technology have been changing the requirements to leaders, prompting them to adapt to the fast-changing environment and co-evolve with companies and organizations (Li, 2016). On the other hand, leadership plays a pivotal role in helping companies and organizations apply culture paradigm shift so to keep up with new business opportunities and volatile environment (Waldman et al., 2001). IT is essential for virtual working environment. Leaders' vision, attitude, behaviors largely influence members' perception of IT adoption along with the changes it entails.

Based on the arguments provided before, we propose the use of term e-leadership to incorporate the emerging virtual context of leadership. We follow the definition proposed by Avolio and colleagues (2001) to understand e-leadership as a social influence process mediated by technology to produce a change in group attitudes, feelings, thinking, behaviors, and performance. Leaders who practice e-leadership aim to inspire members to develop self-management capacities from distance, who play a role as coach rather than supervisor (Kerfoot, 2010). Successful e-leadership practices require abilities to first generate and sustain trust through the use of computer-mediated communication technologies; secondly to ensure members' awareness and appreciation to the distributed diversity; lastly to manage and monitor life cycle of virtual work and transparently monitor members' progress (Malhotra et al., 2007). Empirical research made by Keyworth and Leidler (2002) revealed that e-leaders who exhibit high degree of empathy towards team members and act in a mentoring role outperform their peers in leading virtual teams. They tend to exercise their authority in a non-overbearing and flexible way. This leads us to believe that e-leadership involves the ability to motivate teams that operate primarily in a virtual mode.

Another dimension that makes e-leadership differ from traditional leadership is that it relies largely on computer-mediated communication between leaders and members as well as members themselves. The traditional leadership requires leaders to transmit the leadership via traits, behaviors, cognitions, and psychological influences (Hernandez et al., 2011). This becomes challenging in the virtual environment when social clues such as facial expression, body language, dressing code etc. are no longer at presence or blurred. In such context, e-leaders are obliged to act more proactively in creating structures that foster the communications over computer-mediated tools, optimally integrate human and information technology systems to leverage the leadership transmission (Avolio et al., 2000). In other words, e-leaders must be able to hold teams that work in a virtual mode accountable.

2.2. Employees' dynamic capabilities, e-leadership and job performance

Job performance has been studied extensively over the past decades, largely due to its importance to the success of organizations. Campbell (1990) defines job performance as the behaviors of an individual to perform a job which can be judged in the context of organizational goals. It has both behavioral and outcome aspects which concerns directly observable actions or intellectual products such as decisions. While behavioral aspect examines actions that are judged against organizational goals on its effectiveness and efficiency, outcome aspect focuses on the outcomes and consequences (Sonnentag & Frese, 2001). In terms of measurements, job performance is first considered as the combination of five aspects: task proficiency, task meticulousness, work discipline, work improvement, and readiness for innovation (Ali-Hassan et al., 2015; Kwahk & Park, 2018; Yuen et al., 2018). However, when putting job performance in virtual business environment while employees are facing a dynamic and rapidly changing environment and they are supposed to perform their tasks efficiently in such circumstances, dynamic capabilities of employees become critical (Bieńkowska& Tworek, 2020).

Employees 'dynamic capabilities (EDC) are defined as "abilities to integrate, build, and reconfigure employees' competencies to address rapidly changing environment, which is directly influencing the performance of tasks in the workplace" (Bieńkowska & Tworek, 2020) and refer not only to the current adaptability and ability to solve problems but also long-term learning and reshaping of business processes. The results available in the literature show that there is a clear relation between EDC and job performance. The two dimensions of EDC taken from adaptive performance, sensitivity to changes and adaptation to changes, are studied richly in relation with job performance (Shoss et al., 2012). Moreover, there are scientific attempts to unravel the relation of proactive personality and job performance (Fuller et al., 2010). Fuller and colleagues (2010) argue that the relation between proactivity and job performance is not as simple as previously assumed in the way that proactivity alone may not be as strong a trait as reported and other traits should coexist to significantly influence job performance. Therefore, it remains aligned with our claim that job performance can be understood as the effectiveness of the activities of employees that contribute to the realization of organizational

goals. This leads us to believe that include EDC in contemporary job performance models is necessary. Considering the above, we hypothesize that:

H1: Employee dynamic capability (EDC) and job performance is positively correlated.

In response to the fast-changing business environment, success of modern organizations depends largely on how fast it can integrate new knowledge and capabilities that can be deployed in ongoing activities for continuously deliver business values (Purvis et al., 2001). Global organizations which have their staff dispersed physically and time-wise face the challenge that knowledge and capabilities are not equally distributed among all employees or functional units. Instead, 'pockets' of specialized knowledge exist across spatial and temporal borders which are often dynamically and continuously generated through practice by individuals on different projects, products and processes at different locations at different times. Such dynamicity is a crucial constituent in EDC according to its definition as the ability to integrate, build and reconfigure employees' competence to address rapidly changing environment (Bieńkowska & Tworek, 2020). This necessitates the need of linking, combining and organizing such pockets of knowledge to form effective work teams throughout the whole organization (Kogut & Zander, 1996). E-leadership fulfills such need when leaders connect members through the effective communication media and hold them accountable of passing necessary information and knowledge among the team in order to form a cohesive team.

Beyond the above arguments which are given from the business necessity's point of view, we shall also look at the issue from team members' motivation point of view. The relation between motivation and job performance was already established in 1974 by Hackman and Oldham (Hackman & Oldham, 1974). Motivation is being constructed and measured from the aspects of skill variety, task's identity, task significance, autonomy and feedback, and can influence members' outcome and performance. Later studies on job performance re-confirmed the significance of motivating employees in order to engage them for improving the job performance which will result in organizational success (Campbell, 1990). When we define e-leadership, one important attribute that empowers e-leadership is the ability to motivate teams that operate primarily in a virtual mode. This reasonably leads us to believe that e-leadership plays a moderator role between EDC and job performance through leaders' capability to motivate. Based on these arguments, the following hypothesis may be formulated:

H2: E-leadership moderates the relationship between EDC and job performance.

When business environment becomes dynamic as we argued before, they're deeded normal as long as they do not endanger the functioning of the organization. But when the environment reaches the level as largely unpredictable and potentially hazardous that influences organizations' normal operations, we rate it as crisis condition. Such conditions can severely disturb the sustainability of the organization, threaten its survival by triggering escalation of negative phenomena in the organization (Bienkonwska & Tworek, 2020). The state of epidemic crisis that swapped the world in 2020 can doubtlessly fit into the extremely critical conditions in the range of crisis. Its extent and magnitude went far beyond the assumption of the models

of job performance existing in the literature. One unprecedented impact is that it forces many organizations across all industries to function in the virtual mode. Allowing employees to work remotely from home magnified the degree of virtuality even for IT companies which had been used to operation globally before the pandemic period. Ensuring employees understand principles of virtual mode and are able to utilize computer-mediated tools to sustain the same level of communication, as well as motivating them to stay connected become crucial to the continuity of business performance. (Hoch & Dulebohn, 2017) E-leaders under such circumstances are given much bigger challenges. We can legitimately argue that e-leaders who are better at motivating members to operate in virtual mode and holding member accountable of their work are more likely lead the team to outperform under such circumstances while e-leaders who do not acquire such abilities can make the team drift loose and decrease its momentum to perform. Thus, we posit:

H3: The moderation effect of e-leadership between EDC and job performance is more significant when organization is operating under crisis.

3. Research methodology and results

3.1. Research method

In order to verify the proposed hypotheses, an empirical research was conducted. The research was based on a survey, which took place in the last quarter of 2020. It was preceded by the pilot study aimed at determining the quality of the research tool and was conducted among 25 managers who played the role of competent judges. The main survey was performed among 1200 organizations operating in Poland, Italy and USA during 2nd wave of COVID-19 pandemic. The study was conducted using the CAWI (Computer-Assisted Web Interview) method. The sample was purposefully selected, limited by the geographical scope of the activity. Despite the fact that the selection of organizations for the sample was not representative, it seems possible to formulate conclusions due to the diversity of the organizations included in the study (see Table 1).

Table 1.
Research sample characteristic

Country	Not in crisis	In crisis	Total
Poland	83	343	426
USA	95	406	541
Italy	45	188	233
Total	130	109	1200

To allow verification of hypotheses the following variables were used: E-Leadership, Employees' Dynamic Capabilities, Job Performance (table 2).

Employee dynamic capabilities was measured based on 4 previously defined dimensions based on a 5 points' Likert scale with 6 items: sensitivity to changes in the environment, ability to adapt to changes in the environment, ability to solve problems in the workplace (including innovation in the workplace), as well as the ability of continuous personal development (Bienkonwska & Tworek, 2020).

E-leadership was measured based on 5 points' Likert scale concerning 9 items: based on E-communication, E-social, E-team, E-change, E-tech, E-trust.

Job Performance was measured based on 5 points' Likert scale with 7 items: based on the task proficiency, task meticulousness and work discipline.

To address the issue of crisis, to control variable was included, in which organizations were asked whether COVID-19 pandemic caused crisis within the organization, which needed to be addressed by changing the way of their operations (and introducing virtual mode of operations).

For each variable, the homogeneity and reliability of scales was verified using Factor Analysis and f Cronbach's α of the obtained research sample and is presented in Table 2. The results show high internal reliability of the scales and measurements.

Table 2.
Defined variables along with the results of the reliability analysis of scales

No.	Variable	No. of scales	Cronbach's α	Factor analysis
1	E-leadership	9	0,843	56,895
2	EDC	8	0,843	47,896
3	Job performance	4	0,753	57,759

3.2. Research results

The hypotheses verification was performed using linear regression analysis with moderator. Statistical tests were performed using Macro Process for IBM SPSS Software. The sample was divided into two groups: organizations declaring crisis occurring within due to COVID-19 pandemic and those declaring normal operations despite the COVID-19 pandemic, in order to verify whether the crisis is strengthening the role of E-leadership in moderating the influence of EDC on job performance. The moderated regression analysis procedure was performed among both groups of organizations. In every case, a moderator was introduced as a new variable in the relation. It was built as a product of two independent variables, which have been standardized. The first linear regression model was built as a base for comparison (and only EDC was added as predictor). The second linear regression model used both EDC and moderator as predictors. To confirm the moderation, the third linear regression model was based only on moderator as independent variable. The results of the analysis are presented in Table 3.

Table 3.
Regression models' statistics

Model description	R2	Delta R2	Moderator coeff.	Standard error	t Stat	P Value*
ORGANIZATIONS IN CRISIS						
EDC E-Leadership, Moderator dependent v.: job performance	0,38	0,023	0,697	0,112	5,704	0,005
ORGANIZATIONS NOT IN CRISIS						
EDC, E-Leadership, Moderator dependent v.: job performance	0,27	0,01	0,350	0,085	4,123	0,020

*Accepted level of significance 0,05.

The research results allowed for two main conclusions. However, it is worth mentioning at the beginning that those conclusions may be formed because R2 obtained for all models was sufficient and models were statistically significant. The model obtained for organizations operating in crisis is characterized by ($F_{(3,942)} = 116,403$, $p < 0,05$), and the model obtained for organizations operating not in crisis is characterized by ($F_{(3,210)} = 43,941$, $p < 0,05$). Both models were a basis for results, which clearly show that E-Leadership is a statistically significant moderator between EDC and job performance in both groups of organizations. However, the moderation effect of E-Leadership on the relation between EDC and Job performance is stronger among organization in crisis than those, which are not in crisis. Therefore, as shown in Table 3, obtained results allow to accept hypotheses H1, H2 and H3.

4. Discussion

The obtained results show that organizations, which experience crisis caused by the COVID-19 pandemic are characterized by a much higher level of EDC influence on job performance than those, which do not experience crisis. It is clearly showing the important role of EDC in managing such organizations and transforming their way of doing business in order to survive the crisis. It confirms the views of (Purvis et al., 2001, who stated that in response to the fast-changing business environment (which may cause a crisis in the organization), success is highly dependent on how fast it can integrate new knowledge and capabilities that can be deployed in ongoing activities for continuously deliver business values. However, the obtained results allow to contribute new knowledge to this field of study, confirming that dynamic capabilities are crucial among employees and this specific type of capabilities should be shaped and enhanced among those organizations struggling through crisis caused by COVID-19 pandemic.

Furthermore, the results confirmed the fact that e-leadership role in strengthening such relation. The role of e-leadership is significant among contemporary organizations, which are more and more relying on virtual mode during the every-day operations. Returning to the definition of e-leadership, which, among others, refers to the ability of leaders to motivate teams that operate primarily in a virtual mode it is not surprising that e-leadership was proven to be an important mechanism allowing organizations to boost the job performance of their employees. As it was assumed, the obtained results confirm that especially in circumstances connected to the COVID-19 pandemic (forcing virtual mode of operations and much heavier load of work relying on IT) boost the importance of e-leadership. The strengthening role of e-leadership is also higher among organizations operating under crisis. Hence, the mechanisms which enable organizations to obtain benefits form EDC are having much more significant role among organizations operating in such circumstances, which also confirms that there is a significant need for shaping and boosting specific dynamic capabilities among employees.

5. Conclusion

The paper was devoted to analyzing the role of e-leadership in shaping job performance by EDC. Moreover, such a role was analyzed among organizations operating during COVID-19 pandemic, which caused most organizations to change the way of operating and introducing virtual mode. The hypotheses were verified based on empirical research performed among organizations operating during 2nd wave of COVID-19 pandemic in Poland, Italy and USA and two groups were distinguished among them: those, in which the situation has not caused a crisis and those, in which the crisis occurred. The results clearly show that during such conditions both groups of organizations are experiencing benefits from e-leadership, which is strengthening the role of EDC in boosting job performance of employees. However, such a strengthening effect is much more visible among organizations operating in crisis, for whom high EDC and the ability to properly use such capabilities and translate them into job performance seems to be crucial for their survival.

Such results contribute to the theory of organizational management during crisis, showing not only the importance of dynamic capabilities among employees working under critical conditions of crisis in organization but also the need for shaping e-leadership as a method for boosting the job performance of employees (especially those operating in organizations experiencing crisis). The results contribute also to the practice of management (utilitarian conclusions) stating the mechanism, which can be use among organizations experiencing crisis during COVID-19 pandemic.

The empirical research should be treated as a pilot study, as the systemic literature review is limited and has a character of an initial review aiming at the identification of future direction of research in this regard. Even though such limitations exist, the extensive empirical research, which is a basis for forming conclusions (sample is large and diverse, covering multiple countries) allows to form solid conclusions and clearly show such future directions.

Acknowledgments

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