"Virtual leadership as a development opportunity in business context"

| AUTHORS | Franklin Cordova-Buiza iD
Pamela Aguirre-Parra iD
Moises Gustavo Garcia-Jimenez iD
Diana Carolina Martinez-Torres iD
R |

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
56	0	1

BUSINESS PERSPECTIVES

businessperspectives.org

BUSINESS PERSPECTIVES

Franklin Cordova-Buiza, Magister, Research and Innovation Department, Business Faculty, Universidad Privada del Norte, Peru. (Corresponding author)

Pamela Aguirre-Parra, Magister, Faculty of Psychology, Universidad Peruana Cayetano Heredia, Peru.

Moises Gustavo Garcia-Jimenez, Magister, Faculty of Law and Political Science, Universidad Nacional Mayor de San Marcos, Peru.

Diana Carolina Martinez-Torres, Magister, Business Administration Program, Fundación Universitaria Colombo Internacional – Unicolombo, Colombia.

Franklin Cordova-Buiza (Peru), **Pamela Aguirre-Parra** (Peru), **Moises Gustavo Garcia-Jimenez** (Peru), **Diana Carolina Martinez-Torres** (Colombia)

VIRTUAL LEADERSHIP AS A DEVELOPMENT OPPORTUNITY IN BUSINESS CONTEXT

Abstract

In the twenty-first century and under the framework of the fourth industrial revolution, virtual leadership emerged as a new way to direct and lead companies and organizations in the public and private sectors. In this regard, it should be mentioned that this situation is the result of the profound effects and changes of the digital revolution in the business world, which are a consequence of the globalization process and the rise of the so-called Information Technology and Telecommunications (ICT). Therefore, the objective of this narrative literature review is to know what has been written about virtual leadership between 2016 and 2021. As a result, 58 sources of information were reviewed, their level of scientific evidence was evaluated, and opportunities for growth and development in business and commercial activities were identified. In addition, a business management alternative to mitigate the impacts of the new Covid-19 (SARS-CoV-2) pandemic was analyzed. Hence, this paper is highly relevant, as it also considers elements such as personalized communication and digital tools. In conclusion, it was found that virtual work generates benefits, including time savings and quick contact. However, it presents challenges for leaders, such as the challenge of connectivity, motivation, and collaborators' commitment.

Keywords	remote work, electronic leadership, business, communication, technology
JEL Classification	D83, J21, J52

INTRODUCTION

Virtual leadership arises from the need to use technology to communicate internally and externally, during the working day and in real-time, with collaborators appertain to different organizations. Many companies already carry out virtual transactions (e-business) from anywhere through the Internet, which generates a capable global communications network to promote virtual leadership. In this way, a new way of managing work teams arises. Virtuality drives the emergence of virtual teams organized by people who work interdependently and with a common aim. Without spatial and temporal limits, distance is no longer an impediment to constant interaction between people. Among the utilities that virtuality offers, it can be found the realization of effective sales, meeting with clients and colleagues, business formalization or development, and closing of some administrative procedures. In this context, a leader, who acquires a virtual connotation, must execute orders for the goals and objectives of the collaborators. In a physical environment, collaborators meet in teams believing that the results will be optimal. From this, the questioning of knowledge related to the behavior and management of work teams in a virtual environment arises (Lordan & Jaffe, 2020).

Facing a new way of working, it is interesting to establish and analyze the organizational problems that arise with social interactions. For example, while a large percentage of the workforce works remotely in times of pandemic, many collaborators depend on interactions with the rest of the team to create innovation or assess risks. Currently, business organizations make constant changes to assume proficiency, guidelines, capacities, and qualities a leader must have to fulfill the purposes, objectives, and established goals, as well as to adapt to the new virtual communication system at work (Hargreaves & Fink, 2004). For all the above reasons, the present investigation will evaluate the following question: What has been written in the scientific literature on virtual leadership in recent years?

For this study, a Narrative Literature Review (NLR) method was used by methodological guidelines described by Ferrari (2015) and Vera-Carrasco (2009). A descriptive bibliographic review was carried out to find an approach to the most important research and studies that describe the performance of virtual leadership in business organizations in times of pandemics. Queries were made in the central databases, such as Scopus, ISI Web of Science, Redalyc, and Dialnet. The criteria for the search for descriptors and time of discovery aimed to find current research that describes virtual leadership and others that detail the consequences of leadership components in the business context. Following the criteria of rigor and relevance, characteristic of scientific research processes, in the narrative literature review, only documentary sources resulting from review processes by peers and research published in indexed journals with full-text access (written in Spanish or English and published in the last five years) were considered within an observation window between July 2021 and April 2022. A total of 58 articles related to virtual leadership, published from 2016 to 2021, were analyzed. The study approach for this paper is qualitative with a descriptive design.

Therefore, this study aims to provide a theoretical approach that allows assessing scientific evidence around virtual leadership based on an academic bibliographic review, which includes the exploration and evolution of the concept of leadership and its virtual influence, as well as the coordination between the virtual leader and collaborators of an organization.

1. LITERATURE REVIEW

1.1. Leadership and its virtual influence

Decisions in a company are possible when there is a harmonious relationship between leaders and collaborators. In this process, leadership can be defined as the art of finding solutions to more critical problems. It is a crucial element in institutions, ensuring higher quality strategies. Multiple definitions of leadership have been developed in the business environment (Cascio & Montealegre, 2016). In this regard, Hunsaker and Hunsaker (2008) state that leadership is the ability to encourage employees' work so that it is carried out enthusiastically. To do this, a leader must propose innovative ideas and not just be limited to giving orders. Day and Schoemaker (2016) address the crucial role leaders play in a company and their influence on how organizations can and should adapt to deeply uncertain futures. In this environ-

ment of uncertainty and constant changes within companies' operations, Feeney and Welch (2012) argue that communication through ICT has decreased the use of traditional physical means – memorandums and guidelines. This has also happened with meetings, emails, shared files, and telephone messages, which have been minimized through the growing use of ICT.

A similar approach is carried out by Ellison et al. (2015). They highlighted the potential of social networks for mass communication, economy, and support for the different functions of an organization, hence the tendency of companies to implement platforms of social media to increase shared knowledge.

Social networks have shown great potential for mass communication, economy, and support for the different functions of an organization. For this reason, various companies have been implementing social media platforms to increase shared knowledge (Ellison et al., 2015).

For Sánchez et al. (2017), social networks are very useful in companies as they contribute to the efficient dissemination of information about their activities. On the other hand, Riquelme-Castañeda (2019) points out that a company has become a new way of challenging and integrating social media since it has components that are complex, informal, and eventual. In this regard, some authors have analyzed whether the benefits of social bonds can also be formed from virtual networks. For Sánchez et al. (2017), social networks are very useful in companies as they contribute to the efficient dissemination of information about their activities.

1.2. Virtual leadership

As part of the so-called knowledge society and in response to the challenges imposed by the current business context, characterized by the globalization of markets, new demands, economic openness, and the growing rise of ICT, new work teams have been created within organizations. They operate under a novel leadership style, alternative to the traditional one, currently known as Virtual Leadership, and in other cases as electronic leadership or e-leadership. In literature, the designation of virtual leadership is incipient in development (Großer & Baumöl, 2017). Esguerra and Contreras (2016) stated that the first studies related to the term electronic leadership date from the end of the 20th century, which shows the existence of a relatively recent issue under construction, of which there is still not enough knowledge.

Despite this, it is crucial to highlight the evolution of virtual leadership, which grows significantly every year. Among the first conceptual contributions of the term 'electronic leadership' is Avolio et al. (2000), who conceive it as the incorporation of traditional leadership in an emerging context marked by advances in information and communication technologies for massive use. Later, Avolio (2007) adds that electronic leadership is a process of social guidance that develops in proximal and distal contexts, mediated by ICT. In the same line, Al-jedaibi (2001) explained e-leadership as a kind of leadership in the e-environment context where work is mediated by information technologies, mainly the Internet.

More recently, Avolio et al. (2014) defined e-Leadership as a medium capable of generating changes in attitudes, ways of thinking, and performance of a company's collaborators. Likewise, virtual environments contribute to the formation of new work skills (Roman et al., 2019). Table 1 shows variances in definitions of virtual leadership by different researchers throughout the time.

Table 1. Definitions of virtual leadership

Source: Authors' elaboration.

Researchers	Definition
Liu et al. (2020)	A trend for the rapid progress in technology and its application during the pandemic; it presents a challenge for companies to adopt the technology, that is, to benefit from its advantages
Roman et al. (2019)	Implies the development of distinct abilities to improve organizational functioning in virtual work environments
Chua and Chua (2017)	A social influence process mediated by information and communication technology to produce a change in behavior and performance with individuals and groups in an organization
Van Wart et al. (2016)	A social influence process mediated by ICTs that can produce a change in attitudes, feelings, thinking, behavior, and performance
Avolio et al. (2014)	A social influence process embedded in both proximal and distal contexts mediated by AIT that can produce a change in attitudes, feelings, thinking, behavior, and performance
Zaccaro and Bader (2003)	Includes leaders who conduct many of the processes of leadership largely through electronic channels
Avolio (2000)	The incorporation of traditional leadership in an emerging context, marked by advances in information and communication technologies for massive use

As a result of these considerations, virtual leadership has become a promising research field of interest and a crucial part of the daily work of managers. Van Wart et al. (2019) describe some changes or challenges, which must be assumed to provide a more concrete, applied, and less abstract definition of virtual leadership. Among them, the following stand out:

1) Leaders must use and combine traditional and electronic techniques in many situations for different purposes, so a definition only focused on the use or non-use of ICT may not be helpful for all purposes; and

2) Operational definitions should disclose their assumptions. E-Leadership is about the use of ICT-mediated methods in a combined way

with traditional methods. However, e-leaders should have the responsibility for the adoption of ICT within the organization.

Thus, according to these authors, e-Leadership is the adequate use and combination of electronic and traditional communication methods. However, it implies an understanding of current ICTs, demanding the adoption of new ICTs for each person and for the organization, as well as specialized competence in the use of selected ICTs.

Cowan (2014) proposed that effective e-leadership should be characterized by building trust with each team member and establishing a virtual "presence" preventing distance from becoming a barrier.

As companies grow worldwide, virtual leaders appear with the mission of enhancing productivity and efficiency in their companies. Ultimately, e-Leadership results from technological development and the transformation of the global economy. As adaptable and virtual work options continue expanding, more employers are trying to standardize the virtual work policies and ways of managing the virtual workforce (Mesmer-Magnus & DeChurch, 2009; Olavarria-Benavides et al., 2021).

1.3. Leaders and virtual teams

Currently, business organizations have their headquarters in the world developed in a common environment for collaborators and leaders: Leading and managing effectively suggests challenges if the collaborators are in different parts of the world. Nowadays, leading online has become a daily routine of many leaders, whether they lead virtual teams whose partners have never met in person or email coworkers who meet face-to-face regularly (Darics, 2020).

Bell and Kozlowski (2002) highlight the value of virtual team leadership, mainly based on many descriptive field studies. Virtual leaders must handle performance and execute solutions to work problems, often interlaced. At the same time, they must create and maintain uniqueness by establishing a mission/vision, sharing values and goals, and creating a reliable work environment (Bell & Kozlowski, 2002; Brewer, 2015; Ejiwale, 2012; Fay & Kline, 2011; Hambley et al., 2007).

In virtual leadership, work teams exchange information and are monitored by a leader through the screen. For this type of work, advanced technology tools are used to involve the Internet, videoconferences, teleconferences, emails, information search engines, text messages, smart apps, blogs, shared documents, and social networks, among others (Avolio et al., 2000; Zaccaro & Bader, 2003). Collaborators have hierarchy lines with a leader ubicated in the other side of the world with a significant time zone difference. The language sometimes is common for many people but often is not for everyone. The same applies to leaders: they must direct and manage a work team of numerous nationalities spread all over the world and deal with remarkably diverse corporate cultures, especially when the work team is the result of a consolidation and acquisition process. That is how leadership skills are applied. Therefore, team partners do not know each other, which adds more complexity to leaders as they do their best to create a collaborative culture.

Lamí-Rodríguez del Rey et al. (2020) indicate that technologies deliver virtual work changes, such as teleworking and videoconferencing, allowing effective communication and information dissemination in time and space. The formation of virtual work teams provides excellent opportunities for companies, such as the integration of employees. Virtuality facilitates the hiring of personnel for companies located in distant places or with difficult access. Likewise, the virtual environment offers professionals from other cultures and disciplines who can contribute with their experience or mastery of some specialty since time and distance are no longer an impediment (Contreras et al., 2020).

Lipnack and Stamps (2008) stated that a virtual team is a group of coworkers using technology to perform the purpose through space, time, and organizational boundaries. Currently, virtual work teams are made up of employees who live far from each other, and who come together through the use of new information and telecommunications technologies. In some circumstances, they are culturally different and conform temporarily. In this regard, it should be noted that, although one can take as a reference the concepts related to traditional teams to explain the behavior of virtual

teams, there are some differences, for example, in the use of technologies. Thus, they cannot be thoroughly compared alongside the lack of a precise definition that establishes their particularities (Hambley et al., 2007; Cordova-Buiza et al., 2021).

Virtual leadership is the future of organizations. Digitization has become the new paradigm, a new industrial revolution that allows for the emergence of new leadership styles and gives rise to what is now called e-leadership, which is the result of the business use of new information technologies (Mohammad, 2009).

Within the narrative review of the literature, the concept of virtual leadership is associated with frequent interrelationships with collaborators and clients through virtual communication is primarily developed in cyberspace. Lamí-Rodríguez del Rey et al. (2020), Flores-Cueto et al. (2009), and Riquelme-Castañeda (2019) agree that technology has generated important changes in work environments by encouraging teamwork over individual work. In these times, virtual work teams have increased, which marks differences from traditional teams, due to the support they have found in technology to communicate and spread information and knowledge. In this context, the virtual leader is the person in charge of executing and establishing, within such an environment, the direction and coordination of actions (Stark & Bierly, 2009). With the start of Covid-19, various business organizations are developing new ways of working, so they are moving their activities from the physical to the virtual and in just the right amount of time to carry out the planning and control processes.

Companies got over the initial hurdle of moving their workforce to a virtual format, now called virtual teams (Lordan & Jaffe, 2020; Lamí-Rodríguez del Rey et al., 2020). Leading in virtual environments is a challenge marked by changes to challenge the ability. For organizations to survive, they need dynamically adapt to the environment, in which technology can offer great opportunities. It can be taken only if a leader manages virtual teams, which allows the organization to optimize resources while benefiting cultural exchange, knowledge, and experience in other latitudes (Hunsaker & Hunsaker, 2008; Esguerra & Contreras, 2016; Chang et al., 2011).

According to Liu et al. (2020), e-leadership is an important trend not only for the rapid progress in technology and its application during the pandemic. It also presents a challenge for companies to adopt the technology, that is, to benefit from its advantages.

Globalization and technology yield continuous changes in organizations that are not only limited to one location but also occur in the virtual environment, and, for this reason, it is a new dimension for business. The transition from traditional leadership to tendencies such as virtual leadership means that the organization has to change the way they think and evaluate the leadership for the effective achievement of their goals following the challenges and uncertain future posed by the current context. Therefore, online leadership is a new leadership phenomenon (Pineda, 2019; Esguerra & Contreras, 2016).

However, the literature on leadership in virtual environments is still new, recognizing the process of adaptation that the traditional concept of leadership is going through. While the term e-Leadership began to become popular in the early 2000s, the relationship between leadership and new technologies at work is relatively recent in the field of research on the term "digital leadership" (Torre & Sarti, 2020). The mentioned studies maintain and consider virtual leadership from an independent orbit. Some definitions lean towards the conception of electronic leadership as a process of social influence mediated by ICTs (Avolio, 2007; Avolio et al., 2014), while others are more associated with the incorporation of specific competencies (Roman et al., 2019; Van Wart et al., 2019). Furthermore, it may be argued that e-Leadership is the ability to link good technology management with high-level business management. However, further attention must be placed when adopting new technologies as this implies radical changes in the organization and processes (Liu et al., 2020).

Several authors agree that the study of virtual leadership is relatively developing, and the research on this subject is lacking (Contreras et al., 2020) considering the evolution of traditional leadership. However, even if it is a recent phenomenon, e-Leadership has evolved into an advantageous field of interest analysis and was a predominant topic until five years ago (Torre & Sarti, 2020).

This study shows that, currently, there is still not enough knowledge about the influence of technology on business leadership. For example, there is little evidence on how technological communication affects the behavior of leaders, as well as its influence on the excellent performance of virtual work teams (Mesmer-Magnus et al., 2011).

2. GENERALIZATION OF THE MAIN STATEMENTS

Relating to the ideas presented in the literature review, it can be pointed out that the basis of good business management is when there is harmony between leaders and collaborators. In this sense, companies – in order to successfully overcome the limitations generated by the pandemic – must adopt new forms of leadership, such as virtual leadership, electronic leadership, or e-leadership, to positively influence their employees.

In this context, information and communication technologies (ICT) have allowed for the promotion of virtual leadership in companies. Thus, virtual work teams have been created, adopting new forms of communication and relationships within organizations, replacing traditional mediums and forms of communication with others that favor virtual and digital spaces. In this way, virtual leadership becomes the new paradigm of business management.

The variety of definitions of virtual leadership analyzes the implementation of this trend in the business context. This issue is quite extensive, so the paper presents several basic statements about likely ways to use virtual leadership.

Statement 1. Virtual leadership pursues the same goal as traditional leadership. According to traditional leadership, collaborators believe that the results obtained when having face-to-face meetings are optimal. According to Lordan and Jaffe (2020), efforts are focused on the behavior and management of work teams in a virtual environment.

E-leadership achieves the same goals as traditional leadership through information technol-ogy (Iriqat & Khalaf, 2017). In addition, Avolio and Kahai (2003) argue that E-leadership, as same as traditional leadership, aims to build and enhance the relationship between employees in an organization.

In addition, Mohammad (2009) states that e-leadership has different roles and responsibilities. Leaders can communicate within the organization even though they are not in the same office; that is why they must understand the specific role of technology over the employees' needs and their relationships.

E-leadership is as much about blending technologies and traditional communication as simply using more ICT-mediated communication. While there is much consistency in the types of leadership skills needed in traditional and virtual environments, they are not the same, and the differences are critical to success and failure. (Van Wart et al., 2019).

Statement 2. Effective implementation of virtual leadership requires mastery of information and communication technologies – ICT. In the past decades, companies have evolved according to new conditions of the work environment, such as globalization, fierce competition, new demographic structures, and the increasing development of ICTs (Wojcak et al., 2016).

Leadership is currently developing through the "intermediation" of new ICTs, the presence and usage of which call for a change in the way leadership is practiced (Torre & Sarti, 2020). One effect of the communication revolution has been the proliferation of new communication tools from which to choose, ease of communication, and challenging communication overload and the "constant contact" (Avolio et al., 2014).

According to Van Wart et al. (2016), e-leadership requires ICT management skills on the part of organizations and their leaders. The constant development of ICT requires permanent training to take advantage of its use; otherwise, bad experiences can be generated since not having qualified personnel can lead to a decrease in consumer preferences toward a company. For this reason, the support of organizations is essential for the proper functioning of ICTs, regardless of how arduous and complex their implementation may be.

Statement 3. Social networks represent a high contribution to the implementation of virtual leadership. The importance of social networks within different functions of an organization is widely recognized. For Sánchez et al. (2017), social networks are very useful in companies, considering their contribution to the dissemination of information. For his part, Riquelme-Castañeda (2019) suggests that a company becomes a new way of challenging and integrating social media since it has components that are complex, informal, and eventual. In this regard, some authors have analyzed whether the benefits of social bonds can also be formed from virtual networks (Sanchez et al., 2017). A similar point of view is in charge by Ellison et al. (2015). They highlight the potential of social networks for different goals, such as economy, communication, and support for functions within an organization.

This represents a challenge for companies in virtual contexts, using social networks effectively, taking advantage of the benefits that these represent as support for the development of core activities, and mitigating the weaknesses of these networks associated with their informality and complexity.

3. DISCUSSION

Based on the evidence that emerged from the exploration, review, and analysis of information obtained through different theoretical sources, it is widely recognized that virtual leadership has faced the challenge of dealing with a growing diffusion of the use of information and communication technologies as the main tool to manage relationships among workers (Avolio et al., 2000; Aljedaibi, 2001; Avolio, 2007; Esguerra & Contreras, 2016; Roman et al., 2019). In this sense, the position of many authors explored in this narrative literature review highlights the intervention of information and communication technologies and social networks (Feeney & Welch, 2012; Ellison et al., 2015; Sánchez et al., 2017; Iriqat & Khalaf, 2017; Riquelme-Castañeda, 2019).

For Iriqat and Khalaf (2017), Avolio and Kahai (2003), and Lordan and Jaffe (2020), through technology, e-leadership can meet the same goals as traditional leadership. In this regard, Mohammad

(2009) points out that e-leadership allows leaders to communicate with their employees as if they were in the same office, thereby fulfilling roles and responsibilities. In this sense, it is crucial to understand the dynamics of new technologies and their contribution when solving the needs of employees. This approach agrees with what was pointed out by Hargreaves and Fink (2004). They argue that organizations, to adapt to the new times, implement changes that allow them to establish guidelines, such as the development of e-leadership, to strengthen competencies and qualities in leaders. In this way, they contribute to the fulfillment of objectives and goals established in companies for their adaptation to a new virtual work system.

Not only companies must adapt to changes, but it is also important to positively influence employees. In this regard, Hunsaker and Hunsaker (2008), following Hargreaves and Fink (2004), regarding the emergence of e-leadership, point out that the leaders nowadays must encourage teamwork and generate positive attitudes in the spirit of collaborators to generate synergies that benefit the organization. In this sense, Day and Schoemaker (2016) describe the role of leaders in this new scenario as influential, who must demonstrate a great capacity to adapt to complex scenarios, such as the pandemic, and spread their enthusiasm to other collaborators, so that they too develop a positive attitude to face difficult times.

Due to that reason, at the start of the pandemic of Covid-19 (SARS-CoV-2), various businesses are developing new conditions of work, transferring the activities from the office to the virtual level and in just time to carry out planning and control processes. This situation has resulted in people having to work more online to stay productive and perform well in times of pandemic (Fachriansyah, 2020). According to Contreras et al. (2020), teleworking has quickly grown and shown remarkable direct changes in work methods in recent months. In general terms, companies have overcome the initial obstacle of changing their workforce to a virtual format, which is now called virtual teams.

However, not all the collaborators of companies, nor companies themselves, are at the same technological level to adapt to a virtual network job or to carry out remote. These activities also require train-

ing to exercise virtual leadership, which allows successfully, forceful, and effective face the demands that work demands. For this reason, companies in the world prepare annual budgets and invest in promoting the development of leadership in their employees, as they consider it to be an important skill for them (Roman et al., 2019; Chang et al., 2011; Altschuller & Benbunan-Fich, 2010).

On the other hand, virtuality generates another vision of the collaborator: just the respect for the human person was achieved in the history of humanity, it must also provide respect in this digital age. It is a priority to attend to a permanent assessment of digital advances from the compliance and application of ethics to not allow threats to people (Muñoz-Gómez, 2019; González-Romá & Hernández, 2014).

Research on virtual leadership is necessary nowadays because the heads in charge of virtual workgroups need to know new leadership processes, which can be developed through electronic channels, finding new challenges that must be addressed and overcome. Accordingly, virtual leadership is an answer and solution to global changes caused by technological evolution. In line with the abovementioned, supporting the theoretical contribution of Torre and Sarti (2020), virtual leadership is a multidimensional concept that should be understood as a process that involves management of both traditional and electronic communication methods effectively and adaptively. Therefore, it should be considered that e-Leadership is a part of the wider domain of science and practice of leadership, and should be examined coherently.

Business leaders face new challenges due to the presence of e-leaders who develop other styles of leadership. Electronic leadership is presented as the new paradigm for business leaders, representing a new way of managing human capital. Companies are moving to virtual environments in different parts of the world, where they develop new forms of exchange between leaders and collaborators. Digital communication replaces traditional face-to-face contacts since supervision, work instructions, and feedback are currently carried out under a digital structure scheme (Hill & Bartol, 2016).

Even though many authors within this narrative literature review agree that traditional leadership pursues the same objectives as virtual leadership, conventional leadership differs from virtual leadership. Virtual leaders can lead teams without the need for physical or face-to-face contact; they can also manage virtual work teams in different moments of space and time. The places of interaction are the virtual channels of communication (Holtbrügge et al., 2011).

This confidence in the new virtual work is related to what was pointed out by Lordan and Jaffe (2020), who affirm that the current leader must develop a virtual connotation to achieve the objectives and goals of the organization in coordination with the collaborators. The physical space moves to the virtual one.

Consequently, information technologies facilitate interaction between company members through virtual leadership. Likewise, it contributes to the constant flow of information required to develop organizational work. The virtual leader is the protagonist of a new social impact in companies, a place in which changes in attitude are generated in the face of new forms of organization and with the support of advanced communication and information technologies (Wildman et al., 2012).

Due to the pandemic, more virtual than traditional leadership is required in the future. Nevertheless, virtual teams continue because of the opportunities they offer. Regardless of the leadership style, virtual team leaders must direct and communicate the vision and the structure of the organization based on values; however, the method is still unclear (Contreras et al., 2020).

In this sense, to consolidate virtual leadership, it is important to take into consideration the appropriate support to virtual teams like human resources policies for members and leaders, training of the virtual team, a responsive organizational culture, and continuous administrative support. In addition, the authors highlight the necessity to provide virtual teams with a solid and responsive service to do their work efficiently (Krumm et al., 2016).

The paper emphasized the importance of interspersing traditional communication with virtual meetings to construct relationships and commitments that improve team performance. As suggested by Contreras et al. (2020), teleworking was imminent, but the Covid-19 pandemic has created a compulsion. It is speculated that the model of this new global work would continue even after the pandemic is overcome. In this regard, it is worth highlighting the Mesmer-Magnus and DeChurch (2009) approach, which highlights the adaptability capacity of employers who seek to standardize virtual work in the future and in a post-pandemic scenario to promote a workforce that thrives in digital environments.

However, these changes will require time and dedication, not only from employers but also from employees, even more so, considering that the concept of virtual leadership is new and, apparently, was not yet present in the mind of entrepreneurs until the pandemic began. This agrees with Esguerra and Contreras (2016), who argue that electronic leadership is a subject on which there is still much to learn.

CONCLUSION

To fulfill the objective proposed in this paper, to investigate and learn about the theoretical approaches related to virtual leadership as an alternative to face the possible adverse effects of the new coronavirus Covid-19 pandemic on business management, the following conclusions can be made.

In the literature review, the authors show that today's organizations must face serious challenges related to the transformation of the world and modify the way they apply strategies and mechanisms within their processes. Studies also indicate that virtual leadership is the new way of directing human interactions in the midst of the advancement of new information and communication technologies, an opportunity in which new leaders can direct projects regardless of distance.

Given that virtuality establishes differences in relation to face-to-face work, new forms of work are required, which are supported by technology and the formation of virtual work teams. In this way, a virtual organization is constituted in the companies whose support is the strength of the capacity of the employees and bosses in the management of the new technological tools. For this reason, it is necessary to continue exploring the capacities that virtual teams can develop and thus achieve the fulfillment of objectives established by companies with the support of technology-based communication.

It is suggested that effectiveness in a global environment and with inherent continuous changes, virtual teams need specific leadership strategies; each leader must be communicative to keep empathy with a work team. A leader always has in mind the need to work in a great environment and the requirements that society demands.

Amid transformation and the Covid-19 pandemic, there have been modifications in work systems. In this regard, specific and permanent leadership means acting with empathy and keeping a continuous cooperative relationship with the workgroup. Another way is to focus on cooperation and technology preparation, proposing previous background as a critical factor before virtual team execution, also emphasizing the need for the organization to know about association technology before implementing virtual teams. This includes collaboration and technology readiness. Finally, the virtual communication changes via virtual networks are necessary so leaders and the collaborators can communicate orderly, carrying obligations in a context of collaboration and teamwork, marked by the leadership.

AUTHOR CONTRIBUTIONS

Conceptualization: Franklin Cordova-Buiza, Pamela Aguirre-Parra, Diana Carolina Martinez-Torres.
Data curation: Pamela Aguirre-Parra.
Investigation: Franklin Cordova-Buiza, Pamela Aguirre-Parra, Moises Gustavo Garcia-Jimenez, Diana Carolina Martinez-Torres.
Methodology: Franklin Cordova-Buiza.
Resources: Moises Gustavo Garcia-Jimenez.
Supervision: Franklin Cordova-Buiza.
Validation: Moises Gustavo Garcia-Jimenez, Diana Carolina Martinez-Torres.
Writing – original draft: Pamela Aguirre-Parra, Moises Gustavo Garcia-Jimenez, Diana Carolina Martinez-Torres.
Writing – review & editing: Franklin Cordova-Buiza, Pamela Aguirre-Parra, Moises Gustavo Garcia-Jimenez, Diana Carolina Martinez-Torres.

REFERENCES

1. Al-jedaibi, H. K. (2001). *Determining how information technology is changing the role of leadership in virtual organization* (Masters' Thesis). Wisconsin: The Graduate College University of Wisconsin-Stout. Retrieved from https://minds.wisconsin.edu/bitstream/handle/1793/39813/2001aljedaibih.pdf

2. Altschuller, S., & Benbunan-Fich, R. (2010). Trust, performance, and the communication process in ad hoc decision-making virtual teams. *Journal of Computer-Mediated Communication, 16*(1), 27-47. https://doi.org/10.1111/j.1083-6101.2010.01529.x

3. Avolio, B. J. (2007). Promoting more integrative strategies for leadership theory-building. *American Psychology, 62*(1), 25-33. https://doi.org/10.1037/0003-066X.62.1.25

4. Avolio, B. J., & Kahai, S. S. (2003). Adding the "E" to E-leadership: How it may impact your leadership. *Organizational Dynamics, 31*(4), 325-338. https://doi.org/10.1016/S0090-2616(02)00133-X

5. Avolio, B. J., Kahai, S., & Dodge, G. E. (2000). E-leadership: Implications for theory, research, and practice. *The Leadership Quarterly, 11*(4), 615-668. https://doi.org/10.1016/S1048-9843(00)00062-X

6. Avolio, B. J., Sosik, J. J., Kahai, S. S., & Baker, B. (2014). E-leadership: Re-examining transformations in leadership source and transmission. *Leadership Quarterly, 25*(1), 105-131. https://doi.org/10.1016/J.LEAQUA.2013.11.003

7. Bell, B. S., & Kozlowski, S. J. (2002). A typology of virtual teams: Implications for effective leadership. *Group & Organization Management, 27*(1), 14-49. https://doi.org/10.1177/1059601102027001003

8. Brewer, P. E. (2015). *International virtual teams: Engineering global communication.* Hoboken, NJ: Wiley.

9. Cascio, W., & Montealegre, R. (2016). How Technology Is Changing Work and Organizations. *Annual Review of Organizational Psychology and Organizational Behavior, 3,* 349-375. https://doi.org/10.1146/annurev-orgpsych-041015-062352

10. Chang, H. H., Chuang, S. S., & Chao, S. H. (2011). Determinants of cultural adaptation, communication quality, and trust in virtual teams' performance. *Total Quality Management, 22*(3), 305-329. https://doi.org/10.1080/14783363.2010.532319

11. Chua, Y., & Chua, Y. (2017). How are e-leadership practices in implementing a school virtual learning environment enhanced? A grounded model study. *Computers & Education, 109,* 109-121. https://doi.org/10.1016/j.compedu.2017.02.012

12. Contreras, F., Baykal, E., & Abid, G. (2020). E-Leadership and Teleworking in Times of COVID-19 and Beyond: What We Know and Where Do We Go. *Frontiers in Psychology, 11,* 590271. https://doi.org/10.3389/fpsyg.2020.590271

13. Cordova-Buiza, F., Huaringa-Castillo, F., & Trillo-Corales, C. (2021). Corporate social responsibility actions in agribusiness: Towards sustainable community development. *IEEE Sciences and Humanities International Research Conference (SHIRCON).* https://doi.org/10.1109/SHIRCON53068.2021.9652243

14. Cowan, L. D. (2014). E-Leadership: Leading in a virtual environment-guiding principle for nurse leaders. *Nursing Economic, 32*(6), 312-322. Retrieved from https://pubmed.ncbi.nlm.nih.gov/26267962/

15. Darics, E. (2020). E-Leadership or "How to Be Boss in Instant Messaging?" The Role of Nonverbal Communication. *International Journal of Business Communication, 57*(1), 3-29. https://doi.org/10.1177/2329488416685068

16. Day, G. S., & Schoemaker, P. J. H. (2016). Adapting to Fast-Changing Markets and Technologies. *California Management*

Review, 58(4), 59-77. https://doi.org/10.1525/cmr.2016.58.4.59

17. Ejiwale, J. (2012). The changing global context in virtual workforce. *Journal of Education and Learning, 6*(4), 231-238. Retrieved from https://moam.info/the-changing-global-context-of-virtual-workforce_5b998460097c474b6a8b45e9.html

18. Ellison, N., Gibbs, J., & Weber, M. (2015). The use of enterprise social networks sites for lnowledge sharing in distributed organization: the roles of organizational affordances. *American behavioral Scientist, 59*(1), 103-123. https://doi.org/10.1177/0002764214540510

19. Esguerra, G., & Contreras, F. (2016). Liderazgo electrónico, un reto ineludible para las organizaciones de hoy. *Estudios Gerenciales, 32*(140), 262-268. (In Spanish). https://doi.org/10.1016/j.estger.2016.08.003

20. Fachriansyah, R. (2020, March 15). *Work-from-home policy in effect at major Jakarta companies over virus concerns.* The Jakarta Post. Retrieved from https://www.thejakartapost.com/news/2020/03/15/work-from-home-policy-in-effect-at-major-jakarta-companies-over-virus-concerns.html

21. Fay, M. J., & Kline, S. L. (2011). Coworker relationships and informal communication in high- intensity telecommuting. *Journal of Applied Communication Research, 39*(2), 144-163. https://doi.org/10.1080/00909882.2011.556136

22. Feeney, M., & Welch, E. (2012). Electronic participation technologies and perceived outcomes for local government managers. *Public Management Review, 14*(6), 815-833. https://doi.org/10.1080/14719037.2011.642628

23. Ferrari, R. (2015). Writing narrative style literature reviews. *Medical Writing, 24*(4), 230-235. https://doi.org/10.1179/2047480615Z.000000000329

24. Flores-Cueto, J. J., Morán Corzo, J. J., & Rodríguez Vila, J. J. (2009). *Las redes sociales.* Universidad de San Martín de Porres. (In Spanish). Retrieved from https://www.usmp.edu.pe/publicaciones/boletin/fia/info69/sociales.pdf

25. González-Romá, V., & Hernández, A. (2014). Climate uniformity: Its influence on team communication quality, task conflict, and team performance. *Journal of Applied Psychology, 99*(6), 1042-1058. https://doi.org/10.1037/a0037868

26. Großer, B., & Baumöl, U. (2017). Why virtual teams work – State of the art. *Procedia Computer Science, 121,* 297-305. https://doi.org/10.1016/j.procs.2017.11.041

27. Gubert, X. A. (2019). Industry 4.0, the new engine of industrial innovation. *Management and Organization, 69,* 99-110.

28. Hambley, L. A., O'Neill, T. A., & Kline, T. J. (2007). Virtual team leadership: Perspectives from the field. *International Journal of E-Collaboration, 3*(1), 40-64. https://doi.org/10.4018/jec.2007010103

29. Hargreaves, A., & Fink, D. (2004). The seven principles of sustainable leadership. *Educational Leadership, 61*(7), 8-13. Retrieved from https://www.ascd.org/el/articles/the-seven-principles-of-sustainable-leadership

30. Hill, N. S., & Bartol, K. M. (2016). Empowering leadership and effective collaboration in geographically dispersed teams. *Personnel Psychology, 69*(1), 159-198. https://doi.org/10.1111/peps.12108

31. Holtbrügge, D., Schillo, K., Rogers, H., & Friedmann, C. (2011). Managing and training for virtual teams in India. *Team Performance Management, 17*(3/4), 206-223. https://doi.org/10.1108/13527591111143727

32. Hunsaker, P. L., & Hunsaker, J. S. (2008). Virtual teams: a leader's guide. *Team Performance Management, 14*(1/2), 86-101. https://doi.org/10.1108/13527590810860221

33. Iriqat, R. A. M., & Khalaf, D. M. S. (2017). Using E-Leadership as a Strategic Tool in Enhancing Organizational Commitment of Virtual Teams in Foreign Commercial Banks in North West Bank – Palestine. *International Journal of Business Administration, 8*(7), 25-32. https://doi.org/10.5430/ijba.v8n7p25

34. Krumm, S., Kanthak, J., Hartmann, K., & Hertel, G. (2016). What does it take to be a virtual team player? The knowledge, skills, abilities, and other characteristics required in virtual teams. *Human Performance, 29*(2), 123-142. https://doi.org/10.1080/08959285.2016.1154061

35. Lamí-Rodríguez del Rey, L. E., Guirado-Rivero, V. D. C., León-González, J. L., & Rodríguez-del Rey Rodríguez, M. E. (2020). El aprendizaje en las comunidades virtuales. *Conrado, 16*(74), 261-265. (In Spanish). Retrieved from http://scielo.sld.cu/pdf/rc/v16n74/1990-8644-rc-16-74-261.pdf

36. Lee, M. R. (2009). E-ethical leadership for virtual project teams. *International Journal of Project Management, 27*(5), 456-463. https://doi.org/10.1016/j.ijproman.2008.05.012

37. Lipnack, J., & Stamps, J. (2008). *Virtual Teams: People Working Across Boundaries with Technology.* Net Age. Retrieved from https://www.semanticscholar.org/paper/Virtual-Teams%3A-People-Working-Across-Boundaries-Lipnack-Stamps/4f4a9828ccea5ecb3c8d6d42f5d6045b55613976

38. Liu, C., Van Wart, M., Kim, S., Wang, X., McCarthy, A., & Ready, D. (2020). The effects of national cultures on two technologically advanced countries: The case of e-leadership in South Korea and the United States. *Australian Journal of Public Administration, 79*(3), 298-329. https://doi.org/10.1111/1467-8500.12433

39. Lordan, D. G., & Jaffe, R. (2020). *Cinco lecciones de ciencias del comportamiento para las reuniones virtuales de equipo.* (In Spanish). Retrieved from https://blogs.lse.ac.uk/businessreview/2020/05/19/cinco-lecciones-de-ciencias-del-comportamiento-para-las-reuniones-virtuales-de-equipo/

40. Mesmer-Magnus, J. R., & DeChurch, L. A. (2009). Information sharing and team performance: A meta-analysis. *Journal of Applied Psychology, 94*(2), 535-546. https://doi.org/10.1037/a0013773

41. Mesmer-Magnus, J. R., De Church, L. A., Jimenez-Rodriguez, M., Wildman, J., & Shuffler, M. (2011). A meta-analytic investigation or virtually and information sharing in teams. *Organizational Behavior and Human Decision Processes, 115*(2), 214-225. https://doi.org/10.1016/j.obhdp.2011.03.002

42. Mohammad, K. (2009). E-Leadership: The Emerging New Leadership for the Virtual Organization. *Journal of Managerial Sciences, 3*(1), 1-21. Retrieved from https://www.qurtuba.edu.pk/jms/default_files/JMS/3_1/01_khawaj.pdf

43. Muñoz-Gómez, D. S. (2019). *La persona: on-off Desafíos de la familia en la cuarta revolución industrial.* Universidad de La Sabana, Instituto de La Familia. (In Spanish). Retrieved from https://philarchive.org/archive/JIMTIV

44. Olavarria-Benavides, H. L., Carassa, A. G. C., & Cordova-Buiza, F. (2021). Travel influencers as a factor in choosing a tourist destination post covid-19: Analysis of the national tourist. *2021 IEEE Sciences and Humanities International Research Conference (SHIRCON).* https://doi.org/10.1109/SHIRCON53068.2021.9652385

45. Pineda, R. (2019). *Qué es el liderazgo positivo y cómo utilizarlo con éxito* (pp. 10-23). Digital y Revista APD. (In Spanish).

46. Riquelme-Castañeda, J. (2019). El liderazgo, la cultura y los desafíos de la educación. *Ingeniare. Revista Chilena De Ingeniería, 27*(1), 5-7. (In Spanish). http://dx.doi.org/10.4067/S0718-33052019000100005

47. Roman, A. V., Van Wart, M., Wang, X., Liu, C., Kim, S., & McCarthy, A. (2019). Defining e-leadership as competence in ICT-mediated communications: an exploratory assessment. *Public Administration Review, 79*(6), 853-866. https://doi.org/10.1111/puar.12980

48. Sánchez, M. A., Schmidt, M. A., Zuntini, J. I., & Obiol, L. (2017). La influencia de las redes sociales virtuales en la difusión de Información y conocimiento: estudio de pymes. *Revista Ibero Americana de Estratégia, 16*(4), 69-90. (In Spanish). https://doi.org/10.5585/ijsm.v16i4.2522

49. Stark, E. M., & Bierly, P. E. (2009). An analysis of predictors of team satisfaction in production development teams with differing levels of virtualness. *R&D Management, 39*(5), 461-472. https://doi.org/10.1111/j.1467-9310.2009.00571.x

50. Torre, T., & Sarti, D. (2020). The "Way" Toward E-leadership: Some Evidence from the Field. *Frontiers in Psychology, 11,* 554253. https://doi.org/10.3389/fpsyg.2020.554253

51. Van Wart, M., Roman, A., & Pierce, S. (2016). The rise and effect of virtual modalities and functions on organizational leadership: Tracing conceptual boundaries along the e-management and e-leadership continuum. *Transylvanian Review of Administrative Sciences, 12,* 102-122. Retrieved from https://www.semanticscholar.org/paper/The-Rise-and-Effect-of-Virtual-Modalities-and-on-Wart-Roman/c9d90077607be71846d0a-397ca2549ca3bf201fc

52. Van Wart, M., Roman, A., Wang, X., & Liu, C. (2019). Operationalizing the definition of e-leadership: identifying the elements of e-leadership. *International Review of Administrative Article Sciences, 85*(1), 80-97. https://doi.org/10.1177/0020852316681446

53. Vera-Carrasco, O. (2009). Cómo Escribir Artículos De Revisión. *Revista Medica La Paz, 15*(1), 63-69. (In Spanish). Retrieved from http://www.scielo.org.bo/pdf/rmc-mlp/v15n1/v15n1_a10.pdf

54. Wildman, J. L., Thayer, A. L., Rosen, M. A., Salas, E., Mathieu, J. E., & Rayne, S. R. (2012). Task types and team-level attributes: Synthesis of team classification literature. *Human Resource Development Review, 11*(1), 97-129. https://doi.org/10.1177/1534484311417561

55. Wojcak, E., Bajzikova, I., Sajgalikova, H., & Polakova, M. (2016). How to achieve sustainable efficiency with teleworkers: Leadership model in telework. *Procedia – Social and Behavioral Sciences, 229,* 33-41. https://doi.org/10.1016/J.SBSPRO.2016.07.111

56. Zaccaro, S. J., & Bader, P. (2003). E-leadership and the challenges of leading e-teams: Minimizing the bad and maximizing the good. *Organizational Dynamics, 31*(4), 377-387. https://doi.org/10.1016/S0090-2616(02)00129-8