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Identification of the key challenges and opportunities of leadership in a virtual teams' organizational structure, and assessment of the key strategies for a formal leader to be successful in this context.

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Master in International Management

Supervisor:

PhD, Leandro Luís Ferreira Pereira, Assistant Professor, Department of Marketing, Strategy and Operations

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Resumo em Português

Liderança tem sido um tópico de pesquisa há vários anos. Contudo, ainda há muito a estudar sobre o tema em contexto virtual, e a sua importância tem vindo a aumentar ao longo dos últimos anos, aumento este especialmente causado pela pandemia de COVID-19. Para responder a esta necessidade, foi feita uma revisão sistemática de literatura. Primeiramente, fez-se uma categorização dos artigos selecionados em quatro grupos diferentes [teorias e *frameworks* (de liderança), desafios da liderança virtual, oportunidades da liderança virtual e capacidades necessárias num líder (para ultrapassar esses desafios e tirar partido dessas oportunidades)]. Esta categorização permitiu identificar os tópicos mais estudados na área de liderança virtual. Em segundo ludar, os artigos selecionados foram usados para explorar 11 *teorias e frameworks* existentes e a sua aplicação à liderança virtual, das quais sete foram usadas para a discussão. Os artigos foram ainda usados para identificar os principais desafios e oportunidades para líderes virtuais formais, e as estratégias e práticas-chave para ultrapassar esses desafios e tirar partido dessas oportunidades. Em terceiro lugar, com base nas boas práticas identificadas na revisão da literatura, foram criadas recomendações para líderes virtuais formais. Por fim, foram sugeridas direções para pesquisa futura.

Abstract

Leadership has been a research topic for several years. However, there is still a lot to study about it in a virtual context, and its importance has been growing over the last years, especially boosted by the COVID-19 pandemic. To address this concern, a systematic literature review was performed. First, a categorization of the papers into four main groups [(leadership) theories/frameworks, virtual leadership challenges, opportunities and skills] allowed to understand the most researched topics in this area. Second, the selected papers were used to explore 11 existing theories and their applications to virtual leadership. The papers were used also to identify key challenges and opportunities for virtual formal leaders, and key strategies to overcome these challenges and take the most out of these opportunities. Third, based on best practice found in the review, a set of recommendations for formal virtual leaders was created. Finally, directions for future research were suggested.

Keywords: "international virtual teams", "global virtual teams", "virtual teams", "virtual organi*ations", "future of work", "workplace of the future", "future of organi*ations" (included in the title, abstract and/or keywords).

Contents

CHAPTER 1

Introduction

This study, conducted under a Master in International Management thesis, will be a dissertation about the Future of Work (FoW) and the role of leadership in a virtual teams' organizational structure. A more and more technology-driven business reality is demanding significant changes from most businesses, and leadership is key to succeed. The thesis will be a systematic literature review, related to corporate governance.

Organizations are in a constant and/or increasing fast change. Therefore, what is important to them now can quickly change tomorrow, and technological advancements are the main driver of change, directly or indirectly. For organizations to survive, they need to explore various new possibilities for organizational structure, processes in getting work done, where work gets done, the talents and skills required, the appropriate leadership practices, etc. There are, however, some types of change that are more substantial and long-term than others (Church and Burke, 2018).

This need for change was even more accelerated by the Covid-19 pandemic: if transformation was already a priority for several companies worldwide, it is now a requirement for most of them to survive. Without the possibility to have all their employees working in the offices, companies had to adapt. In fact, the pandemic was not a short-term event in the sense that it led to new technology-driven practices at work due to the requirement of social distancing, and these practices are long-term, forming part of "the new normal". The rapid growth in remote working teams also brought opportunities to improve teamwork and virtual leadership (Carroll & Conboy, 2020). Consequently, leaders must adapt to this new reality to be able to manage their teams without being physically together with their team members, and achieve good performance.

This stated, every organization needs to be prepared to adapt and to plan in advance, to avoid going obsolete. However, as will be evidenced next, most companies are already behind the market pace in their journey towards the Future of Work (FoW), as the urgency of a pandemic did not allow them to plan ahead of the forced changes. And the only way to keep up with this market pace is via effective leadership. In their study *Toward the workplace of the future: How organizations can facilitate digital work*, by analyzing three case studies, Dittes et

al. (2019) identified four major challenges that needed to be addressed before initiating digital work:

- Digital work overload: How to avoid technostress and achieve a better work-life balance
- Culture and leadership paradigm: How to align with the prevailing organizational culture and leadership paradigm
- Digital natives and digital immigrants: How to meet their different expectations
- The top management: How to be both pioneers and apprentices

With an emergence scenario caused by the COVID-19 pandemic, most companies did not have the chance to address these challenges in advance before starting remote work, but rather had to face them "on the spot". Two of these challenges, namely in the "culture and leadership paradigm" and "top management" spaces, reinforce how important it is to explore the virtual leadership topic, as leadership is key to facilitate digital work.

Advanced technology available alone is not enough to ensure effective management of virtual teams, as skilled leadership is needed to lead internationally dispersed team members, across different time zones (Vătămănescu et al., 2022). And good teams' performance is one of the main factors that leads an organization to success.

This stated, the current dissertation has the objective of answering the following research problem: Identification of the key challenges and opportunities of leadership in a virtual teams' organizational structure, and assessment of the key strategies for a formal leader to be successful in this context.

This problem is, as the below-mentioned literature will highlight, a very important topic on the global agenda. This study will then focus mainly on an assessment of how leadership is key for companies to be successful in a virtual teams' structure. The purpose is also to understand what the key behaviors that leaders in international companies need to adopt and decisions they need to make today are, as these will influence where the companies they work for will be in a medium to long-term future.

This systematic literature review will be crucial to understand the context and delimitations of this problem and complement the abovementioned reasons on why this topic is relevant.

CHAPTER 2

Methodology

A systematic literature review is a method of answering to the research problem using what is already known about the topic in the existing literature (secondary data). This is done by identifying, gathering, evaluating, selecting, analyzing and synthetizing existing high-quality research from different sources, to allow for comparing the conclusions from different authors, finding differences and common conclusions and reaching conclusions that can be generalized.

This literature review was started by defining the objective and selecting the sources to consult: the Scopus (Elsevier) database and Web of Science (WoS). It was done according to PRISMA's (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach. The PRISMA consists of a 27-item checklist of the steps that need to be followed and a four-phase flow diagram (figure 2.1), to help authors improve the quality of reporting of systematic reviews (Moher et al., 2009).

The search criteria were the following: published papers in English in Scopus (Elsevier) and Web of Science (WoS). The search was done with the keywords "international virtual teams" OR "global virtual teams" OR "virtual teams" OR "virtual organi*ations" OR "future of work" OR "workplace of the future" OR "future of organi*ations", included in the title, abstract and/or keywords. The time span was 5 years, from 2017 to 2022 (July).

In Scopus, the results were firstly screened by subject area, due to the fact that the five subject areas (mapped by the database) with more published articles were Engineering, Computer Science, Social Sciences, Medicine and Physics and Astronomy, and from these five only one is relevant to this study: Social Sciences. Therefore, all the articles that were not related to one of the following subject areas were excluded: Social Sciences; Business, Management and Accounting; Mathematics; Decision Sciences; Economics, Econometrics and Finance.

In WoS, the records were screened by subject using the following 'Web of Science' categories: Management, Business, Economics, Information Science Library Science, Social Sciences Interdisciplinary, Operations Research Management Science, Business Finance, Mathematics, and Social Sciences Mathematical Methods.

After removing duplicates, the records were screened by document type. Only non-early access articles or conference papers were analyzed.
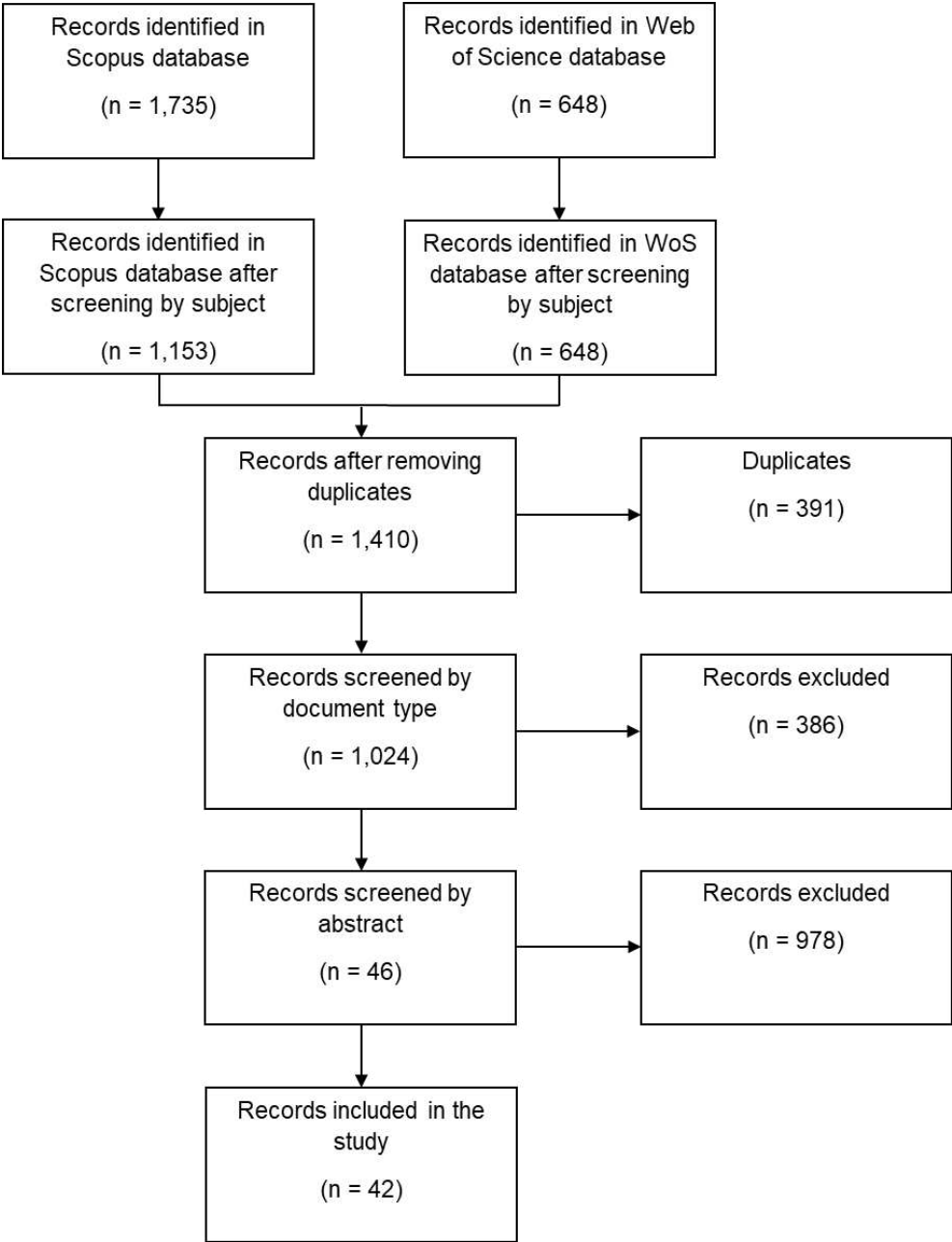


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┌──────────────────────┐      ┌──────────────────────┐
│ Records identified in│      │ Records identified in│
│  Scopus database     │      │  Web of Science      │
│                      │      │    database          │
│   (n = 1,735)        │      │   (n = 648)          │
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┌──────────────────────┐      ┌──────────────────────┐
│ Records identified in│      │ Records identified in│
│  Scopus database     │      │  WoS database after  │
│  after screening     │      │  screening by subject│
│  by subject          │      │                      │
│   (n = 1,153)        │      │   (n = 648)          │
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              │ Records after        │      │     Duplicates       │
              │ removing duplicates  │─────▶│                      │
              │   (n = 1,410)        │      │    (n = 391)         │
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              │ Records screened by  │      │  Records excluded    │
              │ document type        │─────▶│                      │
              │   (n = 1,024)        │      │    (n = 386)         │
              └──────────┬───────────┘      └──────────────────────┘
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              ┌──────────────────────┐      ┌──────────────────────┐
              │ Records screened by  │      │  Records excluded    │
              │ abstract             │─────▶│                      │
              │   (n = 46)           │      │    (n = 978)         │
              └──────────┬───────────┘      └──────────────────────┘
                         ▼
              ┌──────────────────────┐
              │ Records included in  │
              │ the study            │
              │   (n = 42)           │
              └──────────────────────┘
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Figure 2.1 – Records selection process

CHAPTER 3

Results

The systematic literature review was initially designed to identify the key trends about virtual teamwork, within the Future of Work area. However, when reading the abstracts, the key topics identified in this area were: Leadership, Virtual teamwork (in general), Technology, Employment and Cultural diversity. The author of this systematic literature review decided to focus on one particular area of these – Leadership –, since, as previously stated, virtual leadership is crucial for companies to succeed in the abovementioned "new normal", and is a subject on which there is still limited research.

The articles selected were published between 2017 and 2022 (as of July). All articles were included in a descriptive analysis to look for patterns or tendencies.

The 42 papers included in this study originated from 38 sources. Out of these 42, there are only four sources with more than one paper (Table 3.1).

Source Title	Papers
International Journal of Business Communication	2
Sustainability (Switzerland)	2
Team Performance Management	2
Group and Organization Management	2
Other	34

Table 3.1 - List of sources (Source: Authors)

Figure 3.1 shows the list of the authors with more selected papers, with two papers selected each. Nevertheless, the number of published papers is not necessarily related to the number of citations.
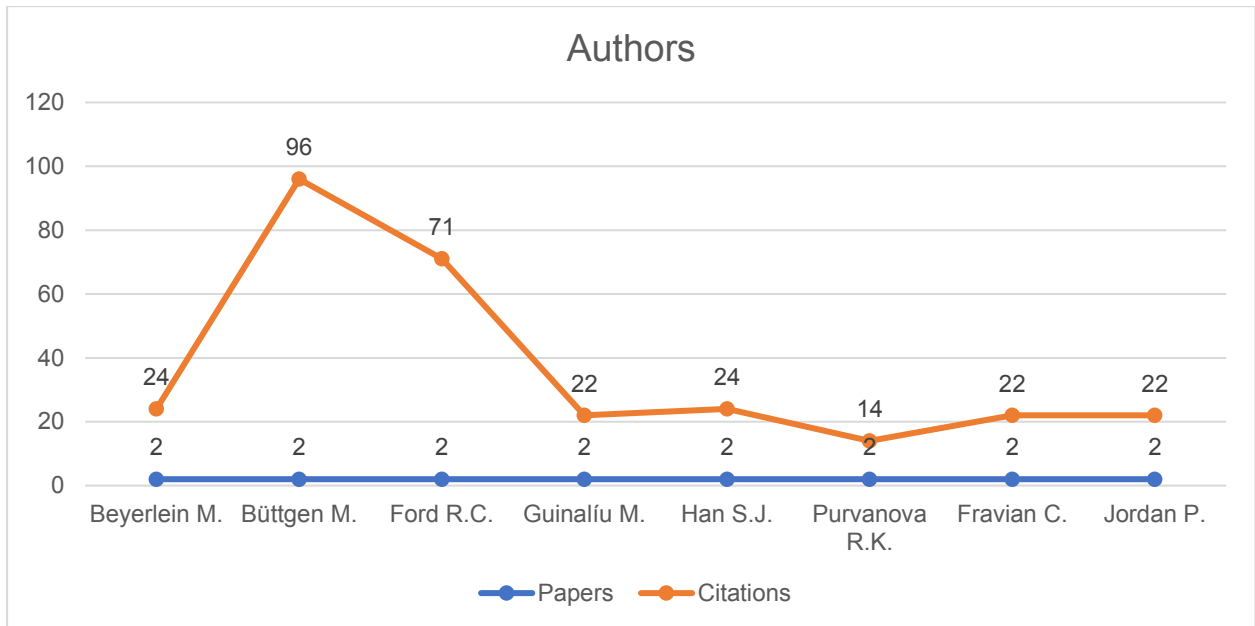
Figure 3.1 – Authors with more selected papers (Source: Authors)

Figure 3.2 shows the top ten authors with more citations. Their average number of publications selected is 1.2 papers.
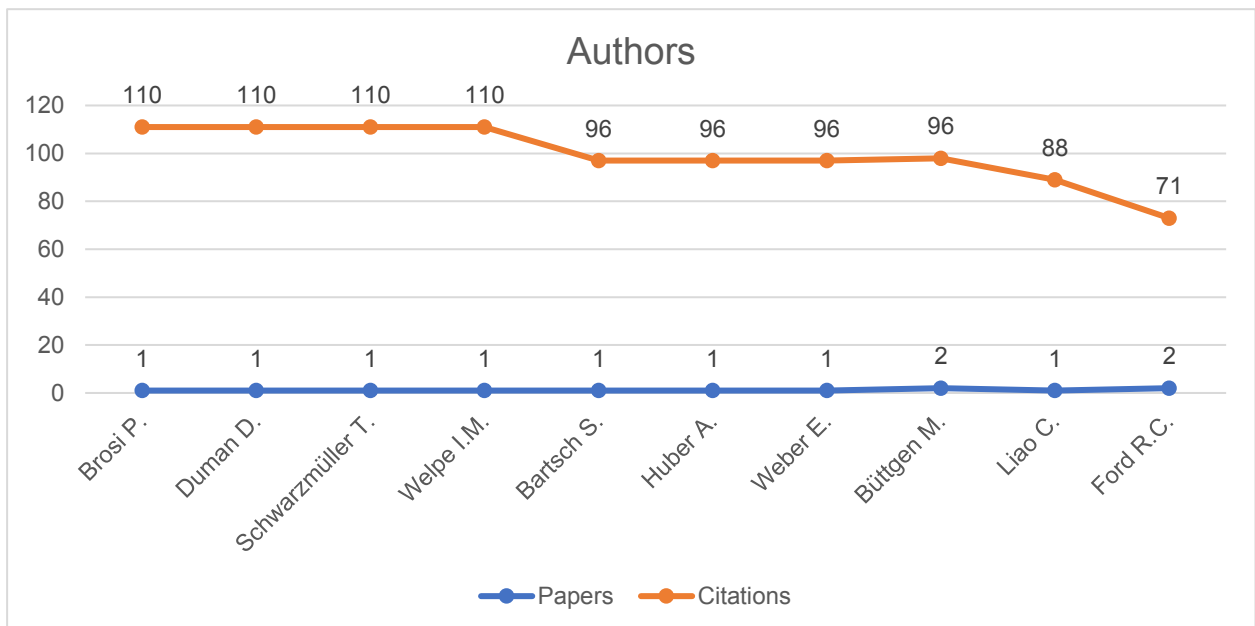

Figure 3.2 – Authors with more citations (Source: Authors)

The papers were first analyzed to identify the methodology used. Figure 3.3 shows the methodologies' distribution. The most popular methodologies applied were Survey (20) and Conceptual analysis/Theoretical Proposal (12).
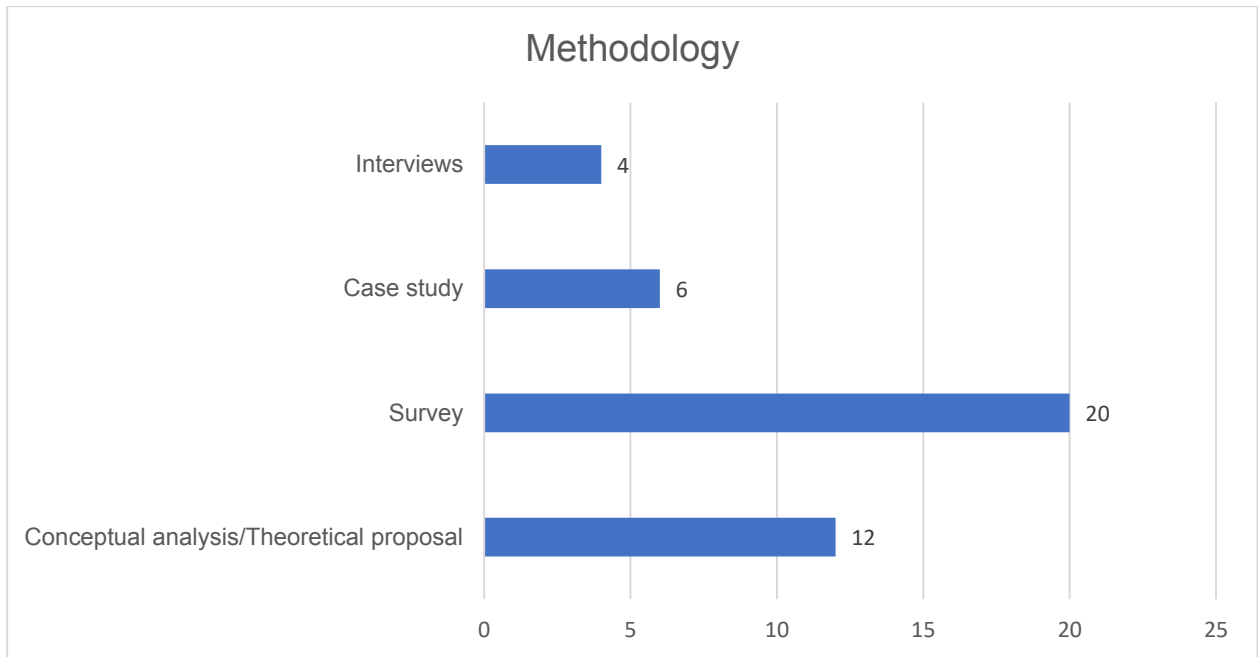
Figure 3.3 - Papers per Methodology (Source: Authors)

The selected papers were analyzed using text mining techniques to identify patterns. The keywords with more frequent occurrence (Table 3.2) were "Virtual teams(s)" (14), "Leadership" (12), "Trust" (7) and "Virtual leadership" (6). This shows the importance of leadership in a virtual teams' context, and that trust plays a relevant role to succeed.

Keyword	Occurrences
Virtual teams	10
Virtual team	4
Leadership	12
Trust	7
Virtual leadership	6
Team performance	3
Shared leadership	3
Global virtual teams	3

Table 3.2 – List of author keywords (Source: Authors)

Moreover, when analyzing the titles and abstracts of the articles, the keywords with more frequent occurrence (Table 3.3) were "Leadership" (1st, identified 122 times) and "Leader" (2nd, identified 82 times), which were not part of the original keywords used for the current study and were even more frequent than the keywords "Team", "Virtual team" and "Global Virtual Team" (3rd together, identified 111 times). This is in line with the findings generated via analysis of author keywords, as it reinforces the relevance of leadership within any team, as a key driver of that team's "(Virtual) (Team) performance" (4th together, identified 64 times).

Furthermore, the words "Employee" and "Team member" are not very specific without the context in which they appear, but they show the importance of people within the teams, as success within any team also depends on the "Relationship", "Trust" and "Communication" between the team members and leaders.

The words "Covid" and "Pandemic" were also identified a significant number of times, which matches with the abovementioned assumption that the Covid-19 pandemic accelerated the implementation of virtual teams in a world that was already more virtual than ever before.

It is also important to mention a caveat: not much attention was drawn to the words "Study", "Research" and "Originality value" because these are some of the most common words in papers' abstracts. The same level of attention was applied to "Effect", "Work", "Organization", "Task" and "Practical implication", given that without the context in which they appear in the title and abstract these words are vague and do not contribute to the analysis.

Word		Bigrams	
Leadership	122	Virtual team	43
Leader	82	Team member	20
Study	62	Team performance	17
Team	58	Originality value	11
Relationship	40		
Trust	40	**Trigrams**	
Research	35	Virtual team performance	14

Effect	33	Design methodology approach	11
Performance	33	Global virtual team	10
Employee	32	Practical implication	10
Work	24		
Communication	22		
Organization	20		
Task	18		
Pandemic	13		
Covid	12		

Table 3.3 – Word frequency (Source: Authors)

After a first reading of the articles, these were organized into four different categories (Table 3.4). Most articles take into consideration both the leader's perspectives and the team members' perspectives. However, the majority of these papers still tends more to one of these team "sides" perspective. Accordingly, two sub-categories were created: Leader-focused and Team members-focused articles. This categorization allowed the author of the present literature review to have a first glance at the most researched topics within the leadership in virtual teams' area.

Category	Description	Leader-focused	Team members-focused
Leadership theories/frameworks	Traditional leadership theories/frameworks applied to the virtual context, new leadership	Varma et al., 2022; Castellano et al., 2021; Van Zyl & Hofmeyr, 2021; Brown et al., 2021; Hanna et al., 2021; Acton et al., 2019; Nordbäck &	Hundschell et al., 2022; Williams et al., 2022; Eseryel et al., 2021; Bartsch et al., 2021; Han et al., 2020; Lin et al., 2019;

	frameworks for the virtual context	Espinosa, 2019; Eisenberg et al., 2019; Purvanova & Kenda, 2018	Robert Jr. & You, 2018
Virtual leadership challenges	Focus on different leadership challenges in the virtual teams' context	Krehl & Büttgen, 2022; Gilstrap, 2019; Schwarzmüller et al., 2018; Ng & Tung, 2018; Han et al., 2017	Zander, L., 2020; Nizhegorodtsev & Goridko, 2019; Lauring & Jonasson, 2018; Robert Jr. & You, 2018; Poulsen & Ipsen, 2017; Liao, 2017; Ford et al., 2017
Virtual leadership opportunities	Focus on different leadership opportunities in the virtual teams' context	Schmidt & Van Dellen, 2022; Batırlık et al., 2022	Zhang & Guo, 2019
Virtual leadership skills	Focus on leadership skills that are key in the virtual teams' context	Wittmer & Hopkins, 2022; Turesky et al., 2020	Zhang et al., 2022; Chaudhary et al., 2022; Vătămănescu et al., 2022; Cripe & Burleigh, 2022; Flavián et al., 2022; Newman et al., 2020; Presbitero A., 2020; Ben Sedrine et al,, 2020; Darics E., 2020; Flavián et al., 2019

Table 3.4 – Categorization of selected papers (Source: Authors)

This categorization also made it possible to understand that there was an evolution of the different virtual leadership topics between the pre-COVID-19 pandemic and the post-COVID-

19 pandemic periods (Table 3.5). However, it also showed that virtual leadership is not a new topic, given that before the pandemic (and the consequent acceleration of the virtuality of teams) virtual leadership was already a relevant study area for scholars. This is evidenced by the fact that 18 out of the 42 selected papers were published between 2017 and 2019, and the first cases of COVID-19 appeared only in November 2019 and it was declared a pandemic by the World Health Organization only in March 2020. It is also important to highlight that the peak of the pandemic occurred during 2020 and 2021, years in which the number of new papers about the virtual leadership topic was steady. This is relevant when looking at the significant increase in the number of selected papers published in 2022 compared to previous years: 12 articles only seven months in (as of the end of July). This shows that after two years in which COVID-19 was at the center of the global agenda (2020 and 2021), there was an increase in the attention that is given to virtual teams by researchers. This is probably due to the influence of the global agenda on the research agenda in the immediately following period, as virtual leadership is a crucial part of the "new normal" worldwide.

Furthermore, this categorization also allowed for an analysis of the most studied topics within virtual leadership. There were many more papers published about the categories "leadership theories and frameworks", "virtual leadership challenges" and the "virtual leadership skills" needed to overcome these challenges than about "virtual leadership opportunities". This may be a sign of the urgency for research to look at leadership theories and frameworks that could help tackle challenges and identify skills needed for that, as these challenges would be a bottleneck for businesses.

Category	2017	2018	2019	2020	2021	2022	Total
Leadership theories/frameworks	**0**	**2**	**4**	**1**	**6**	**2**	**15**
Leader-focused	0	1	3	0	4	1	9
Team members-focused	0	1	1	1	2	2	7
Virtual leadership challenges	**4**	**3**	**1**	**0**	**0**	**1**	**9**
Leader-focused	1	2	1	0	0	1	5

Team members-focused	3	2	1	1	0	0	7
Virtual leadership opportunities	**0**	**1**	**1**	**0**	**0**	**3**	**6**
Leader-focused	0	0	0	0	0	2	2
Team members-focused	0	0	1	0	0	0	1
Virtual leadership skills	**0**	**0**	**2**	**5**	**0**	**6**	**12**
Leader-focused	0	0	0	1	0	1	2
Team members-focused	0	0	1	4	0	5	10
Total	**4**	**6**	**8**	**6**	**6**	**12**	**42**

Table 3.5 – Categorization and yearly distribution of selected papers (Source: Authors)

3.1 Theories applied to virtual leadership

The selected papers applied 11 different existing theories to the virtual leadership topic (Table 3.6). Shared leadership was the theory considered more times. Shared leadership is leadership that emanates from the members of teams, and not simply from the appointed team leader (Pearce & Sims Jr., 2002).

In their study *Are you satisfied yet? Shared leadership, individual trust, autonomy, and satisfaction in virtual teams*, Robert Jr. & You (2018) explored how shared leadership, by moderating the relationships of individual trust and autonomy, facilitates satisfaction and team performance. To explain the effects of shared leadership, Robert Jr. & You (2018), employed also another existing theory - The Social Exchange Theory (SET). SET states that when individuals receive a service or favor they feel that they must pay back with a similar offer, while the giver also expects future repayment from the receiver. When these expectations are met, people can develop cohesive and supportive relationships (Wayne, Shore and Liden,1997

as cited in Robert Jr. and You, 2018). Applying this to business, the "individuals" are the team members and the "service" is performing leadership roles and responsibilities on behalf of the team, which requires assistance from other team members, being therefore dependent on a net of social exchanges within the team.

This stated, Robert Jr and You (2018) concluded in their study that shared leadership facilitates the social exchanges that take place while sharing leadership, and that therefore these social exchanges facilitate trust and create a climate of mutual respect and cooperation, which generally facilitates satisfaction. Considering these two theories, Robert Jr and You (2018) proved some of their study hypotheses and concluded that there is indeed a correlation between all these variables in a virtual teams' context: Shared leadership was not positively related to individual autonomy, but was positively related to satisfaction and individual trust.

In line with this, Nordbäck & Espinosa (2019) also investigated how shared leadership relates to team effectiveness in a virtual context, particularly in the software development companies. They found that this correlation exists, but also that this impact is more positive when shared leadership is coordinated implicitly (with members sharing same perceptions or cognitive schemas regarding who has leadership over what) and behaviorally (with the explicit actions aimed at coordinating the leadership activities taking place in the team). Therefore, if leadership is highly shared in a team but uncoordinated, it can lead to lower team effectiveness (Nordbäck & Espinosa, 2019). Their *Effective Coordination of Shared Leadership in Global Virtual Teams* study evidences that shared leadership is "a double-edged sword", as only with the right mix of leadership coordination mechanisms can the team synchronize leadership actions and act as a cohesive whole leading to superior performance. These are good news for practitioners who have seen a proliferation of self-managed teams, which emphasize leadership originating from within a team (Nordbäck & Espinosa, 2019), but this can also be an opportunity in teams where there is a formal leader who aims to develop leadership skills in their team members.

In their study *Developing virtual team performance: an integrated perspective of social exchange and social cognitive theories*, Lin et al. (2019) had also confirmed that applying the social exchange theory (already explored in the current literature review, that led to the conclusion that psychological contract fulfillment and knowledge-oriented leadership are imperative for a good virtual team performance) and the social cognitive theory [according to which "the basic idea of shared belief is foundational to sociological theories of the self and has been extended to describe how a team's employing organization and leaders influence its own efficacy and subsequent outcome" (Gecas, 1982 as cited in Lin et al., 2019)] together helps understand the development of the performance of virtual teams. Furthermore, Lin et al.

(2019) concluded that, in the Information Technology industry, virtual teams that received more knowledge-oriented leadership can more easily succeed, via knowledge-based collaboration. The main implication of this for leaders is the importance of knowing how to receive and apply creative ideas and also share new ideas with their team individuals. Even though this conclusion was taken by studying the high-tech industry, it can be extrapolated for companies in other industries that currently work in a virtual teams' structure.

These examples suggest that, in order to be successful, a leader can and should consider best practice proposed by several theories and shape their leadership approach accordingly (e.g., SET theory can be transversal to several other theories).

Castellano et al. (2021) also analyzed the impact of self-leadership and shared leadership on the performance of virtual teams, in particular R&D (research and development) teams. Self-leadership is a process via which individuals get self-direction and self-motivation that are needed to complete their tasks at work (Houghton and Neck, 2002 as cited in Castellano et al., 2021). Their results showed that self-oriented leaders need potency and commitment to extract higher performance levels from virtual R&D teams, and that trust (which will be explored further in the current paper) is key in that process. It is also crucial that leaders choose the leadership style they want to implement to generate the best team performance possible, and in their study the authors concluded that applying shared leadership leads to better results in virtual R&D teams, that are composed by geographically dispersed members (Castellano et al., 2021). Even though these findings came from a study focused on this type of team (R&D), they can be extrapolated to other types of virtual teams that have a similar nature.

Another relevant leadership theory similar to Shared Leadership is Emergent Leadership, as it also considers lateral leadership without a formal team leader. However, there is a key difference between them: the first focuses on "a collective's leaderlike influence in leading a team", and the latter on the emergence of an individual as a leader (Hanna et al., 2021).

According to the traditional leadership emergence research paradigm, "group participants might be measured on a number of traits that could possibly be related to leadership behaviors. Members of the group then interact while carrying out a task. Then magic happens and a leader emerges from the group at the end of the discussion period" (Guastello, 2007, p. 357 as cited in Acton et al., 2019). However, this theory does not consider leadership a mutual social influence process, as in fact leadership emerges through dynamic interactions (Lichtenstein et al., 2006 as cited in Acton et al., 2019) in which any team member can participate as a leader or a follower at different points in time (Acton et al., 2019). Therefore Acton et al. (2019) developed a process-oriented framework of leadership emergence that

considers both the "leader" and the "follower" perspectives, and incorporates individual, relational and collective levels in one single multilevel framework of leadership emergence. This framework also incorporates the key mechanisms of any leadership emergence process identified by the authors in the literature review: self-structures (cognitions about the self) and enacted structures (behaviors, expressions, and communications used in the social construction process between leaders and followers). Based on this, this process-oriented framework describes the emergence process across the three abovementioned levels and over time, and in terms of each of the mechanisms (Acton et al., 2019), which is an important contribution to the leadership research as it presents a future research direction.

More recently, Hanna et al. (2021) criticized the existing literature about emergent leadership, being the main argument the fact that "emergent leadership research has grown exponentially but it lacks structure and coherence". They went one step further and offered five directions for future research, starting by identifying the main elements of emergent leadership: lateral influence (related to the perceptions that colleagues have of an individual as a leader despite him not being a formal leader), unit of analysis (as the leaderlike influence comes individually from each member, not from the team as a collective) and temporal duration (as a team member may emerge as a leader only for a certain amount of time) (Hanna et al., 2021). Based on this, Hanna et al. (2021) defined emergent leadership as "the degree to which an individual with no formal status or authority is perceived by one or more team members as exhibiting leaderlike influence". Like Acton et al. (2019), Hanna et al. (2021) give importance to the individual, the relational and the collective level, but with a stronger emphasis on the individual one, considering it the basis for all the other levels. In summary, their framework stipulates two types of moderating variables: team and individual factors. And virtuality is, obviously, a very important team moderating factor, as is team dispersion. That is why considering this theory is so important for the virtual leadership topic.

Purvanova & Kenda (2018), based on the Paradoxical Virtual Leadership theory, tried to show that "virtuality is a paradox, therefore virtual leadership's core function is to deal with paradox" and defined a leadership model with three leadership styles: synergistic, selective, and stagnant. According to the authors, the synergistic leadership style is the most effective. These synergistic virtual leaders track productivity and motivate team members to perform beyond expectations, set straightforward goals and build relationships with meaning, and stimulate both individuality and flexibility and manage the process (Purvanova & Kenda, 2018).

Functional leadership suggests that the team leader's main responsibility is to close any gaps that need to be addressed to meet the needs of the team (Brown et al., 2021). In their *Leadership and virtual team performance: A meta-analytic investigation*, Brown et al. (2021)

concluded that relationship-focused leadership (concerned with facilitating teamwork) and task-focused leadership (concerned with facilitating taskwork) are relevant for a more effective virtual team performance.

Eseryel et al. (2021), based on prior theory and empirical studies, proposed a theory of leadership in self-managing virtual teams, taking into account that shared leadership may be more general than self-management: "an outcome of successful self-management in teams" (Yang, 1996 as cited in Eseryel et al., 2021). Their model proposes that, to be successful, self-managing virtual teams should exhibit a "paradoxical combination of widely shared, distributed functional leadership complemented by strong, concentrated, and centralized visionary leadership". In their model, Eseryel et al. (2021) show how a mix between findings from different theories (in this case, the explored above paradoxical virtual leadership, shared leadership, functional leadership and emergent leadership, and the visionary leadership theories) can contribute to the success of a virtual team.

These examples also suggest that, in order to be successful, a leader can and should consider best practice proposed by several theories and shape their leadership approach accordingly.

Moreover, for virtual leaders to be successful there is another theory that is worth considering in a virtual teams' context: Leader-member exchange (LMX) theory. This because the social relationships established between peers (already considered above) are different from the social relationships established between supervisor and subordinate. Varma et al. (2022) drew upon the FoW and leader-member exchange theories to explore how remote work will change the supervisor-subordinate relationships' quality. And according to LMX, supervisors develop relationships of different qualities with different subordinates. This means that leaders tend to create closer relationships with some of the team members and, ultimately, cause a gap between their in-group and out-groups within the same team. In an international virtual teams' context, the quality of these exchange relationships becomes even more important. This because usually there is a big diversity of personal attributes such as cultural background, that can influence the leader's empathy towards each member and, therefore, benefit a small part of the members to the detriment of the rest of the team. LMX has three key dimensions - respect, trust, and obligation - (Graen and Uhl-Bien, 1995 as cited in Varma et al., 2022) that are key in the context of remote work, as this reality brings less opportunities for members to interact with leaders and there is a need for leaders to allow everyone in the team to have the same chances to succeed. Based on LMX, Presbitero A. (2020) found in the study *Task performance in global virtual team: Examining the roles of perceived cultural dissimilarity and cultural intelligence of member and leader* that the leader's cultural intelligence is crucial

for good performance and effectiveness of global virtual teams, reducing the effects of high levels of perceived cultural dissimilarity, which are common in global multicultural teams.

Within the leader-member relationship, there is also another theory that it is pertinent to consider: the self-concept theory. This theory defends that "leaders affect subordinates' attitudes by directly influencing how they define their self-identities" (Lord et al., 1999 as cited in Hundschell et al., 2022). Based on this theory, Hundschell et al., 2022 concluded in their *study Leaders' cultural gap bridging behaviors and subordinates' work engagement in multinational teams* that subordinates' engagement is enhanced by their perception on the leader's cultural gap bridging (CGB) behaviours (through social identification of the team member with the team). In global virtual teams, there is usually a high level of cultural diversity, being social identification key for the success of multicultural collaboration and, consequently, team performance. Effective leader's CGB behaviours hence contribute to the success of the team they are leading.

In the present systematic literature review, the author decided not to explore Input–process–outcome (IPO), Workplace power theories and Transformational Leadership as these are general approaches for which there was only one selected paper for each, and with a very particular focus, which might affect the reliability of the conclusions of the current study. Bartsch et al. (2021) studied a specific crisis period of the COVID-19 pandemic in which service employees were forced to work virtually, without time for the businesses to gradually transform to a virtual work environment; Williams et al. (2022) focused on team members' engagement with unpleasant tasks; Han et al. (2020) focused on new product development teams and their study did not show evidence of the Behavioral Complexity in Leadership Theory applied to virtual teams.

(Leadership) theory	Applications
Shared leadership (including self-leadership)	General analysis (Robert Jr. & You, 2018); Software development companies (Nordbäck & Espinosa, 2019); General analysis (Acton et al., 2019); R&D teams (Castellano et al., 2021); Non-formal teams (Van Zyl & Hofmeyr, 2021); General analysis (Eseryel et al., 2021)
Social exchange theories	General analysis (Robert Jr. & You, 2018); Information Technology industry (Lin et al.,

	2019); Human resources development (Varma et al., 2022)
Self-concept theory	Multinational teams (Hundschell et al., 2022)
Social cognitive theories	Information Technology industry (Lin et al., 2019)
Emergent leadership	General analysis (Acton et al., 2019); General analysis (Hanna et al., 2021)
Behavioral complexity in leadership theory	Product development teams (Han et al., 2020)
Functional leadership theory	General analysis (Brown et al., 2021); General analysis (Eseryel et al., 2021)
Input–process–outcome (IPO) framework applied to leadership	Services (Bartsch et al., 2021)
Workplace power theories	Several industries (Williams et al., 2022)
Transformational leadership	Innovation teams (Eisenberg et al., 2019)
Paradoxical Virtual Leadership theory	General analysis (Purvanova & Kenda, 2018)

Table 3.6 – Theories applied to the virtual context (Source: Authors)

With the most used theories explored in the selected papers stated and explained, it is also important to reinforce that some are more easily applicable to one of two leadership settings: formal leadership and informal leadership. A formal leader is somebody who is officially appointed as the team leader; an informal leader is somebody who leads without power and authority being officially assigned to them. However, all the theories can and should be applied to both leadership settings, as they are insightful for all leaders, given that both formal and informal leaders must define their leadership style, which will influence the team's performance and consequent organizational success. In the present study, the author decided to focus their analysis on formal leadership, as the discussion section will evidence.

3.2 Virtual leadership key challenges and opportunities

While investigating different contexts, several authors were able to identify the main challenges and opportunities for virtual leadership, as well as the "must haves" to be successful in this context. Tables 3.7 and 3.8 present a summary of the key challenges and opportunities for formal virtual leaders.

Challenges	Authors
Team creativity and success	Han et al., 2017
Scheduling issues	Han et al., 2017
Complexities of day-to-day remote leadership due to the lack of face-to-face communication	Ford et al., 2017; Ng & Tung, 2018; Krehl & Büttgen, 2022
Choosing the right digital tools to communicate and meet their goals	Ford et al., 2017; Han et al., 2017; Schwarzmüller et al., 2018; Gilstrap (2019); Krehl & Büttgen, 2022
Uncertainties when there are changes/crisis	Schwarzmüller et al., 2018; Krehl & Büttgen, 2022
Changes in work-life and health and lack of boundaries (wellbeing)	Poulsen & Ipsen, 2017; Schwarzmüller et al., 2018; Chaudhary et al., 2022
Higher job demands for both leaders and members, due to increased pressure for speed and innovation	Schwarzmüller et al., 2018
Performance and talent management	Poulsen & Ipsen, 2017; Schwarzmüller et al., 2018
Team motivation and inspiration	Schwarzmüller et al., 2018
Knowledge diversity	Zhang & Guo, 2019
Deficient inclusiveness	Lauring & Jonasson, 2018
Cultural differences	Ng & Tung, 2018; Presbitero A., 2020; Zander L., 2020

Language barriers	Ng & Tung, 2018

Table 3.7 – Virtual leadership challenges (Source: Authors)

Opportunities	Authors
Machines and information technology can support leaders by providing more (real-time) data.	Schwarzmüller et al., 2018
Teamwork: collaboration within teams can be facilitated by digital technologies and communication	Schwarzmüller et al., 2018
Increased (real-time) participation of employees in organizational decision making	Schwarzmüller et al., 2018
Knowledge diversity	Zhang & Guo, 2019
New possibilities for businesses brought by technology advancements	Batırlık et al., 2022

Table 3.8 - Virtual leadership opportunities (Source: Authors)

3.3 Must haves to overcome challenges and take advantage of opportunities

As indicated earlier (table 3.3), some of the most common keywords in the selected papers are "Relationship", "Trust" and "Communication", that are vital both between the team members and with the leaders. The selected papers explored leadership practices focused mainly on these three leadership "must haves" for virtual teams to be successful, which are related and transversal to most challenges, opportunities and best practices.

"Communication", "Trust" and "Relationship" are so important that not only they are mentioned in almost all the papers but also there are papers fully focused on these topics. These three dimensions are also all interconnected and dependent on each other, as will be evidenced below.

3.3.1 Communication

According to the findings of *Adding Knowledge to Virtual Teams in the New Normal: From Leader-Team Communication towards the Satisfaction with Teamwork* (Vătămănescu et al., 2022), conducted with a focus on the COVID-19 pandemic period, effective communication between leaders and team members positively influences the team performance and the strength of the team culture in virtual teams. Furthermore, the strength of the team culture positively influences the team performance which, itself, positively influences satisfaction levels. Most virtual leaders have access to advanced IT tools that allow the management of dispersed and asynchronous teams, that they can use for empathic communication and ongoing knowledge sharing (Vătămănescu et al., 2022). Furthermore, knowledge diversity can be both a challenge and an opportunity for virtual leaders (Zhang & Guo, 2019), and communication is key to take advantage of it. As aforementioned when exploring the Social Exchange Theory, virtual teams that receive more knowledge-oriented leadership can more easily succeed, via knowledge-based collaboration (Lin et al., 2019). And the best way for a leader to ensure knowledge sharing within their team is via open communication, where they are open to receive and apply new ideas and share them with the team members and "cultivate a social climate where team members feel psychologically safe to speak up" (Han et al., 2017). These positive interactions should be guided by "team norms", in order to boost team creativity, and leaders should take into consideration their team members' ideas when making decisions (Han et al., 2017; Schwarzmüller et al., 2018).

Furthermore, in their research *Virtual Team Leader Communication: Employee Perception and Organizational Reality*, Newman et al. (2020) found that team members' perceptions of their leader's effective communication are related to how these members perceive their team's performance. The authors also concluded that trust (that will be explored next in the current paper) makes this relation stronger, however, the employee's perception of the leader's communication did not influence the balanced scorecard results, which shows a gap between the employees' perceptions and the actual results that are measured by the company. This is potentially caused by leaders communicating in "overly confident and complex language", which shows the importance of communicating in a simple and effective way to team members, especially in a virtual teams' setting (Newman et al., 2020).

Moreover, trust is strongly dependent on communication, given that without good communication it is very difficult to build trust, as will be evidenced next.

3.3.2 Trust

Trust is key for the good performance of virtual teams. In fact, "trust plays a mediating role between leadership styles and team performance", as does operational cohesion, and this "operational cohesion" is itself influenced by leadership styles, as is team trust (Ben Sedrine et al., 2020). And this influence depends on the communication done via media richness, hence the importance of techniques such as periodic conference calls, face-to-face meetings and team building to boost the team dynamics. This also shows that technology is key for organizations to take the most out of the opportunity that it is to have a virtual structure with members in different physical locations, time zones and cultural settings, and using the right communication media is crucial to tackle the barriers that these boundaries bring. (Ben Sedrine et al., 2020; Krehl & Büttgen, 2022; Batırlık et al., 2022).

In line with this, Turesky et al. (2020), in their study *A call to action for virtual team leaders: practitioner perspectives on trust, conflict and the need for organizational support*, concluded from interviews with virtual leaders that there are some key leadership best practices that most leaders implement: Expect a relationship of trust; Be transparent in information sharing; Communicate excessively for clarity; Be consistent in communication; Address conflict immediately; Coach and guide employee's development; Set up team member buddy and/or shadow system; Support autonomy; Recognize high performance; Advocate for one another; Create personal connections with and among team members.

Flavián et al. (2019) also confirmed that trust in the leader is of huge importance, in their study *Antecedents and consequences of trust on a virtual team leader.* Key strategies to build this trust are: promote empathy via communication (chat, video conference, e-mail and, if possible, at least an initial face-to-face meeting between all the team members); ensure justice and fairness through managing personal biases, being transparent about the decisions made and guarantee feedback loops; paying attention to their own image, as more attractive leaders generate higher levels of trust.

These findings show how a high level of trust depends on good communication practices.

3.3.3 Relationship

The leader's communication and the team members' trust on them are key for a good relationship. However, interpersonal relationships are influenced by other key leadership factors, especially in a virtual teams' context.

In geographically and temporally distributed teams, employees tend to take over more responsibilities. Therefore, a high relationship-orientation from the leader is key to help them

meet the job demands. It is also important that leaders coach and advise their team members, and facilitate their development, as well as make sure that there are enough resources for members to meet their challenges autonomously, hence contributing to the team performance while they achieve personal growth. Likewise, it is crucial that leaders do not focus their management practices only on organizational performance, but also on wellbeing, as wellbeing and organizational performance are interdependent given that fulfilling basic needs strongly contributes to the employees' motivation levels, which directly affect performance (Schwarzmüller et al., 2018; Poulsen & Ipsen, 2017). Thus, emotional intelligence is a must have skill for a leader to deal with the team, especially when they are faced with challenges of leading virtually in times of crisis, which increase the difficulty of ensuring team members' wellbeing (Wittmer & Hopkins, 2022; Chaudhary et al., 2022).

In organizations where employees have flexibility in terms of space and time (which they usually experience positively), leaders tend to be more output-oriented, more focused on results and performance measurement when evaluating employees. It is therefore vital that, to ensure high levels of motivation of the team members and consequent team effectiveness, leaders give importance to goal setting, performance management and rewards and recognition in different milestones, to allow "encouragement, reinforcement, confirmation, and satisfaction" (Poulsen & Ipsen, 2017; Schwarzmüller et al., 2018; Lauring & Jonasson, 2018; Ng & Tung, 2018).

As previously stated, a leader's cultural intelligence is also a relevant skill of a leader to build good interpersonal relationships, as it is critical for good performance and effectiveness of global virtual teams, reducing the effects of high levels of perceived cultural dissimilarity (Presbitero A., 2020). Last but not the least, another relationship skill that is imperative in virtual leaders is authentic leadership, that may have a positive influence on a virtual team's performance, being this correlation mediated by interpersonal relationships of good quality. Authentic leadership is based on building good relationships, and "authentic leaders will proactively and consciously direct the relationship-building process, which in turn team members can actively develop and maintain interpersonal relationships within a virtual team by emulating their authentic leader" (Zhang et al., 2022). In other words, an authentic leader, with a focus on team relationships, will be a good example that team members are likely to follow, therefore having positive relationships with their teammates, which will positively impact teamwork and consequent team performance.

CHAPTER 4

Discussion

Although leadership has been a research topic for several years, there is still a lot to study about it in a virtual context. It is not a brand-new topic, but its importance has been growing over the last couple of years, especially boosted by the COVID-19 pandemic. This can be concluded from the results of the present study, with approximately 29% of the selected papers published between 2017 and 2022 having been published in 2022 (only in the first seven months, as of end of July). This also shows how "real-life" business challenges on the global agenda are a catalyst for academic research about those topics, in an attempt to find past knowledge and good practices that can be applicable in the present and future situations to help address those challenges.

This systematic literature review answered the key parts of the research problem: Identification of the key challenges and opportunities of leadership in a virtual teams' organizational structure, and assessment of the key strategies for a formal leader to be successful in this context.

The selected papers exposed the key challenges and opportunities of leadership in a virtual teams' structure (which were organized in Table 3.7 and Table 3.8), and allowed the identification of "must haves" (strategies) for the leaders' success.

The systematic literature review performed identified 11 theories that have already been applied to research about virtual leadership. Out of these 11, seven were selected by the author of the present study as the key ones from where we can retrieve knowledge that is relevant to support formal virtual leaders in overcoming their challenges and taking advantage of their opportunities. A key finding from the analysis of the theories was that, in order to be successful, a leader can and should consider best practice proposed by several theories and shape their leadership approach accordingly. This study highly contributes to existing theory as the findings also evidence that even leadership approaches that were formulated with a focus on informal leadership settings include key best practices that formal virtual leaders can implement to succeed.

The key learnings for formal leaders that can be taken based on these theories and implemented in practice are:

- Shared leadership facilitates virtual teams' satisfaction and performance, as while sharing leadership team members perform social exchanges between them, which facilitate trust and a climate of mutual respect and cooperation (Robert Jr. & You, 2018; Nordbäck & Espinosa, 2019; Eseryel et al., 2021). Formal leaders should learn from this theory (usually more explored in the informal context) and *promote shared leadership behaviors in their geographically dispersed teams, for a better team environment*.

- Emergent leadership entails the emergence of a team member as a leader when there is not a formal team leader. According to the theory, any team member can be a leader or a follower at different points in time, via lateral leaderlike influence (Acton et al., 2019; Hanna et al., 2021). However, formal leaders can also learn from this theory to motivate their teams, in the sense that it is important to *encourage team members to have leadership behaviors, as a way to improve their performance by gradually giving them more responsibilities, upskill them and prepare them for career progression*.

- However, *there must be a balance*, as the formal leader should empower their team members to take leadership actions at different times, but also coordinate these actions to synchronize them, to make the team *act as a cohesive group* (Nordbäck & Espinosa, 2019), and to make sure that these "emergent leaders" in the team *do not overstep the leader's decision-making power*.

- Psychological contract fulfillment and knowledge-oriented leadership are crucial for a good virtual team performance, so leaders must *promote knowledge-based collaboration and be able to receive and apply creative ideas and share them with their team members* (Han et al., 2017; Lin et al., 2019; Zhang & Guo, 2019; Vătămănescu, 2022).

- Relationship-focused leadership (concerned with facilitating teamwork) and task-focused leadership (concerned with facilitating taskwork) are both relevant for a more effective virtual team performance. Leaders can never forget the first one in favor of the latter, as *high relationship-orientation is key* in meeting team members' needs and helping them achieve their job demands, be autonomous and contribute to a good team performance (Schwarzmüller et al., 2018; Brown et al., 2021).

- Leaders must *give everybody the same opportunities* to succeed and grow, regardless of how close their relationship is with each team member. According to the LMX theory, supervisors develop relationships of different qualities with different subordinates (Varma et al., 2022). To tackle the gap that this can cause, there is a need for *good quality leader-member exchanges*, especially in a context of international virtual teams where there is a big diversity of personal attributes (with which the leader can relate more or less), and where face-to-face opportunities for members to interact with leaders are scarce or inexistant.

- This high level of cultural diversity also requires social identification for the success of multicultural collaboration and subsequent team performance. The self-concept theory defends that team members' self-identities and consequent attitudes are affected by leaders, therefore leaders must have *effective cultural gap bridging behaviors that allow for members' social identification and cultural intelligence to ensure good team performance* (Presbitero, 2020; Hundschell et al., 2022).

At the centre of these recommendations for formal virtual leaders are three "must haves" that they need to ensure and that most literature mentions: Communication, Trust and Relationship. It is crucial that leaders ponder their actions always taking into consideration how they will impact these three variables of the leader-member teamwork dynamics, which are themselves interlinked. In summary, good communication from the leader is key to ensure a high level of trust of team members on the leader and to build and nurture the relationship, whereas when the trust or relationship variables are negatively affected, communication is also the way to restore them. Virtual leaders must therefore:

- Choose the *right media/IT tools* and make use of them to keep a good flow of information sharing with the team and be perceived as an empathic leader (Ford et al., 2017; Han et al., 2017; Schwarzmüller et al., 2018; Flavián et al., 2019; Gilstrap, 2019; Krehl & Büttgen, 2022; Vătămănescu et al., 2022). If possible, *face-to-face meetings and team building activities* can help achieve a better team dynamic, especially if employees have never met personally (Ben Sedrine et al., 2020; Krehl & Büttgen, 2022).
- *Transparent communication, clear goal setting and monitoring, thorough performance management and rewards and recognition, ensuring wellbeing and coaching* are crucial to ensure high levels of motivation and performance (Poulsen & Ipsen, 2017; Schwarzmüller et al., 2018; Lauring & Jonasson, 2018; Ng & Tung, 2018; Purvanova & Kenda, 2018).

In summary, nowadays what is important to an organization now can quickly change tomorrow, and these organizations are becoming more and more virtual. To be successful, formal virtual leaders must be prepared to adapt, apply appropriate practices and make sure their teams' performance meets (or even exceeds, if they can take advantage of the opportunities of virtual work) the expected standards. The research findings confirm the initial expectations of the present study: with the COVID-19 pandemic, companies were forced to become more digital, however, a lot of companies are still behind the market pace in their journey towards the Future of Work (FoW), and the only way to keep up with it is via effective leadership.

CHAPTER 5

Conclusion

The goal of this literature review was not only to assess the main trends in the virtual leadership arena but also to identify which existing frameworks can be applied to this more and more common reality, and what are the best practices they include that can be implemented to help formal virtual leaders meet their challenges and make the most of their opportunities, and how. As abovementioned, it was possible to conclude what the key challenges and opportunities are, as well as what leadership strategies can be appropriate. Furthermore, some of the studied approaches have been studied mainly in an informal teams' context (which is also more common than ever before), however, as discussed and evidenced in the current study, best practice from them can be valuable to a formal teams' context.

Despite the existence of different practices that can be more or less applicable to certain teams depending on internal organizational factors, they all focus on the importance of communication, trust, and relationship between the team members and the leader. With a more and more technology-driven business reality demanding significant changes from most businesses, organizations must embrace change and leaders must adapt to that change and take advantage of it whenever possible, to lead their teams to good performance and success. Therefore, as the current study concludes, trying to implement existing leadership best practice before "reinventing the wheel" will make it faster and more effective for leaders to succeed, by minimizing failures in this process.

There were however some research limitations that it is important to highlight. The papers selected for the current systematic literature review are all written in English and were retrieved only from two databases (Scopus and Web of Science). For these reasons, there could be other papers that could be relevant for this study and were not considered. Furthermore, one of the steps of the screening was done by reading the abstracts, which can contain limited information about the content of the full paper. Consequently, there are two caveats that must be made. First, some excluded papers might include pertinent information to answer this literature review question that was not included in the study because it could only be found in the body of the paper text, which was not read. Second, with the same rationale, five papers that seemed to meet the criteria from the reading of the abstracts did not have their content included in this study because, when reading the full paper, the author considered that it was not relevant enough for the scope that is being studied.

Moreover, this systematic literature review considered only literature that was specific to (international) virtual teams. Consequently, there may be some leadership theories and best practice that, because researchers never applied them to study virtual teams, were left out of the current study. Therefore, it was not possible to understand if knowledge from those might eventually be relevant for this "new normal".

Furthermore, the papers selected showed applications of the different theories to different industries. The goal of identifying the key skills and strategies needed for a formal leader to be successful in general was met, but it would be interesting to understand in future research if for specific industries and scope of teams there are certain leadership styles that lead to better performance.

Despite these limitations, the key findings of this study allowed to identify key leadership practices that were found in academic research and can be implemented by organizations and their formal virtual leaders in their daily lives. The systematization of the existing theories applied to the virtual leadership context can also be used as a starting point for (both theoretical and practical) research on and creation of new leadership theories that can be more appropriate and useful for the virtual context.

The papers' categorization done in this systematic literature review also allowed for an analysis of the most studied topics within virtual leadership. There were many more papers published about leadership theories and frameworks, virtual leadership challenges and the skills needed to overcome them than about virtual leadership opportunities. This is probably a sign of the urgency for research to look at leadership theories and frameworks that could help tackle challenges and identify skills needed for that, as this was likely to be a bottleneck for businesses. However, it also shows that the focus of academic research about virtual leadership has not been on the opportunities. Therefore, future research should explore in more details these opportunities and how to capitalize them.

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