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Master in Business Administration

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Leadership Approaches for Managing Hybrid Teams

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Patras, Greece, February 2026

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Abstract

The growing tendency to work remotely has given rise to hybrid teams, which include both remote and on-site workers, and have become the norm in modern organizations. Interestingly, hybrid teams introduce new leadership challenges because typical leadership approaches, which rely on physical proximity and synchronous communication, may fail to align with the distributed and technology-driven nature of remote working. To identify and explore these challenges, we conduct a literature review on leadership approaches for hybrid teams. This review reveals the increasing trend of conducting research on hybrid team leadership in the last ten years, and shows the emergence of inclusivity, transparency, digital literacy, and well-being consideration as core concerns in hybrid team management. To better communicate the findings of our review regarding the most effective leadership approaches for hybrid teams, we propose a framework that conveys essential approaches effectively by answering simple leadership questions, for example, how to organize daily teamwork, and how to cultivate team loyalty, among others. Finally, we identify and scrutinize challenges in hybrid team leadership, such as establishing effective communication, and maintaining team cohesion, and we propose directions for future research. These directions include the creation of unified communication processes and context-aware performance metrics, which can contribute to the development of novel approaches that advance the state of the art of hybrid team leadership.

Keywords

Leadership Styles, Leadership Competencies, Team Management, Remote Work, Hybrid Teams, Virtual Teams, Team Communication, Team Coordination.

Τεχνικές Ηγεσίας για τη Διαχείριση Υβριδικών Ομάδων

Βασίλειος Καραγιάννης

Περίληψη

Η τάση για απομακρυσμένη εργασία έχει δημιουργήσει υβριδικές ομάδες, οι οποίες περιλαμβάνουν εργαζομένους στον χώρο του εργοδότη και εξ αποστάσεως, και έχουν γίνει ο κανόνας στις σύγχρονες επιχειρήσεις. Οι υβριδικές ομάδες εισάγουν νέες προκλήσεις επειδή οι παραδοσιακές τεχνικές ηγεσίας, που βασίζονται στη σύγχρονη επικοινωνία και την επαφή στο γραφείο, δεν ανταποκρίνονται στην απομακρυσμένη εργασία που βασίζεται στην τεχνολογία και την απόσταση. Για να διερευνήσουμε αυτές τις προκλήσεις, πραγματοποιούμε ανασκόπηση της βιβλιογραφίας σχετικά με την ηγεσία σε υβριδικές ομάδες. Η ανασκόπηση αυτή αποκαλύπτει την αυξανόμενη τάση έρευνας στην ηγεσία υβριδικών ομάδων την τελευταία δεκαετία, και αναδεικνύει ως βασικά ζητήματα τη συμπερίληψη, τη διαφάνεια, την ψηφιακή δεξιότητα και την ευημερία των εργαζομένων. Για να γνωστοποιήσουμε τα ευρήματά μας σχετικά με τις κατάλληλες τεχνικές ηγεσίας σε υβριδικές ομάδες, προτείνουμε ένα πλαίσιο που συνοψίζει ουσιαστικές τεχνικές, απαντώντας σε πρακτικά ερωτήματα όπως η οργάνωση της καθημερινής συνεργασίας, και η καλλιέργεια της δέσμευσης προς την ομάδα. Τέλος, εξετάζουμε προκλήσεις στην ηγεσία υβριδικών ομάδων, όπως η διασφάλιση αποτελεσματικής επικοινωνίας, και η διατήρηση της συνοχής της ομάδας, και προτείνουμε κατευθύνσεις για μελλοντική έρευνα. Οι κατευθύνσεις αυτές περιλαμβάνουν τη δημιουργία νέων διαδικασιών επικοινωνίας, καθώς και δεικτών αξιολόγησης της επίδοσης, και μπορούν να συμβάλουν στην ανάπτυξη νέων τεχνικών και να βοηθήσουν την εξέλιξη της ηγεσίας σε υβριδικές ομάδες.

Λέξεις – Κλειδιά

Στυλ Ηγεσίας, Ηγετικές Ικανότητες, Διαχείριση Ομάδων, Απομακρυσμένη Εργασία, Υβριδικές Ομάδες, Εικονικές Ομάδες, Επικοινωνία Ομάδας, Συντονισμός Ομάδας.

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1. Introduction

Working remotely is now a widely used alternative of working at the office across society. The transition toward remote work has changed how teams communicate and collaborate in modern organizations. As a result, two dominant team structures have emerged: hybrid teams and virtual teams [1]. Hybrid teams are teams that include some employees working from the office, while the others work remotely from home. Interestingly, this team structure allows employees to change workplace depending on their personal flexibility or the needs of the organization. On the other hand, in virtual teams all employees work from home and collaborate with each other only with digital tools without meeting at the office. These team structures were initially introduced due to advances in Information and Communication Technology (ICT) and cloud computing, which created online collaboration tools, and made remote working possible [2]. Subsequently, the COVID-19 pandemic further enhanced their use on a global level, as on-site working posed health hazards in many places. As a result, remote working became widespread across society [3]. Today, organizations have embraced remote work, and hybrid and virtual teams have become the norm.

Remote work may provide benefits to many employees in hybrid and virtual teams [4]. Many employees benefit from less (or no) commuting time to reach their offices as well as less monetary cost to facilitate this commuting. As a result, employees save time and money that they can use to improve their quality of life and achieve better work-life balance. In addition, remote work can help people with disabilities and people caring for family members in need, to join the workforce and to have normal professional careers. This can improve their mental health and their sense of being included as members of the society [5]. Interestingly, these benefits align with many United Nations Sustainable Development Goals (SDGs) [6]. For example: SDG 3 (Good Health and Well-being) because of saving the time and money of commuting that can be invested in entertainment, fitness and activities that reduce stress. SDG 5 (Gender Equality) because of enabling more equal participation of men and women in the workforce even in cases of care givers that tend to be more often women. SDG 8 (Decent Work and Economic Growth) because people can now have access to a larger job market that spans across large geographical areas, which helps people find jobs easier. SDG 10 (Reduced Inequalities) because people can work from

home and hide their social status and ethnicity that could otherwise prevent them from specific occupations in some places.

For the employers, remote work also provides benefits [7]. Employers can search for talented employees across larger geographical areas, since office presence does not need to be frequent. Also, companies need to occupy smaller office spaces with reduced office expenses, because many employees can work from home. Such benefits contribute to SDG 9 (Industry, Innovation, and Infrastructure) because workers across different time zones support business continuity that leads to innovation, SDG 12 (Responsible Consumption and Production) because offices consume less resources, e.g., space, electricity, water, etc., and SDG 13 (Climate Action) because less employees commuting leads to less carbon emissions. Therefore, remote work is a significant advancement to traditional working from the office with many economic, social, and environmental benefits.

Despite such advantages, remote work also introduces challenges that can affect how teams are managed. Traditional leadership approaches, which are primarily designed for in-person work environments, are often not as effective in hybrid and virtual settings. Traditional leadership typically relies on face-to-face meetings, in-person supervision, and informal social interactions around the workplace, which facilitate team cohesion, trust, and performance monitoring [8]. However, in remote work environments, these tools may not be available. Instead, remote work depends on digital communication that may limit non-verbal interactions, spontaneous collaboration, and real-time feedback. As a result, leaders may struggle to monitor engagement and performance, to maintain team cohesion, and to ensure equal participation among on-site and remote employees. In addition, remote workers can suffer from miscommunication, feelings of isolation, and reduced trust. Consequently, remote work can lead to lower visibility of results, biased evaluations, decreased motivation, and limited career advancement opportunities [9]. Such issues also harm organizations by reducing productivity and increasing employee turnover. Therefore, the inability of traditional leadership to adapt to modern organizations with remote work creates new challenges in leading hybrid and virtual teams.

To address the leadership challenges in hybrid teams, this thesis provides the following key contributions:

- We conduct a literature review of leadership approaches for hybrid teams, and we focus on effective leadership styles, skills, behaviors, and practices.
- Based on this review, we identify bibliographic trends in conducting research on hybrid team leadership in the last ten years, and we show increasing interest in this topic.
- To communicate the findings of our review, we propose a novel framework that conveys the most effective leadership approaches by answering basic leadership questions.
- We identify open challenges in related literature, and we propose future research directions with broad impacts on teams and organizations.

The remainder of this thesis abides by the following structure. Section 2 outlines related work from the literature, and Section 3 describes the search process of our literature review. Then, Section 4 presents the existing works of the literature review, which are found through the search process of Section 3. Afterward, in Section 5, we present the findings of our review regarding the key leadership approaches required to lead hybrid teams, and we propose a framework that summarizes these findings. Finally, we discuss open challenges and future research directions in Section 6, and we conclude this thesis in Section 7.

2. Related Work

Since remote work is supported by multiple organizations worldwide, leadership in hybrid and virtual teams has become a widely researched topic. To present existing works comprehensively, we describe related literature reviews in Section 2.1, approaches focusing on hybrid teams in Section 2.2, and approaches focusing on virtual teams in Section 2.3. Finally, Section 2.4 provides overall observations on related work in the context of leadership for teams with remote work.

2.1 Review Papers

Lundqvist and Wallo [10] conduct a literature review, which examines how leadership affects employee well-being and work performance when employees work from home. This review leads to identifying six crucial leadership behaviors: effective digital communication, regular feedback and goal alignment, trust and autonomy, empathy and support, health promotion, and balancing individual and team needs.

Bravo-Duarte et al. [11] conduct a review of the literature, that focuses on challenges and strategies of leadership in virtual teams. This review analyzes how digital communication, trust-building, and performance management change when physical interactions are limited among employees due to remote working. This work also highlights that effective virtual leadership depends on strong communication, on technological proficiency, and on the ability of leaders to ensure team cohesion and team engagement across remote and on-site workers.

Kim et al. [12] review leadership strategies that improve the engagement of employees in remote and hybrid teams. This review analyzes the behavior of leaders that aim at increasing productivity and shows that traditional leadership approaches such as the transformational leader and leader-member exchange remain effective, although new forms of leadership such as e-leadership and family-supportive leadership are becoming increasingly important.

Ahuja et al. [13] investigate the transition from traditional leadership to e-leadership by identifying and ranking critical success factors. This review categorizes these factors into three main domains: technology management, e-motivation and well-being, and e-change management. The findings of this review indicate that employee engagement,

communication, and trust-building are the most important factors for successful e-leadership.

2.2 Papers on Leadership for Hybrid Teams

Hincapie and Costa [14] examine how inclusive leadership practices can enhance performance and well-being in hybrid teams with members that alternate between in-person and remote work. This work identifies the unique challenges that leaders face in hybrid teams, such as subgroup formation, communication misalignments, unequal career opportunities, and proximity bias, and proposes recommendations to foster inclusion and team cohesion.

Wiatr and Skowron-Mielnik [15] investigate the competencies required for managing hybrid teams through qualitative research that takes into account the management of hybrid teams during and after the COVID-19 pandemic. This work identifies several managerial challenges related to planning, communication, trust, and maintaining team cohesion.

Ebojoh and Högberg [16] identify seven aspects of effective hybrid leadership. These aspects are: organizational culture, trust, employee engagement, well-being, communication, technology use, and learning. The collection of these specific aspects shows that hybrid leadership requires trust, strong support for the well-being of workers, and access to opportunities for continuous learning and development.

Wiatr [17] identifies key managerial competencies required to effectively support members of hybrid teams. Based on interviews with hybrid team managers and employees, this work emphasizes that a strong managerial presence can be a key attribute for leaders to maintain engagement and cohesion across distributed work environments. In addition, four core competencies are found to enhance managerial presence significantly, namely, building meaningful relationships, interpersonal communication, adaptability, and resourcefulness.

2.3 Papers on Leadership for Virtual Teams

Batırlık et al. [18] look into the leadership characteristics that are specific to virtual teams of multinational companies, and discuss various managerial qualities, interactivity, human relations, personal traits, rewards, and flexibility. This work focuses on assessing leadership

effectiveness and on competencies that support trust, communication, and coordination across global teams that aim at remaining connected by using digital communication tools.

Sanchez et al. [19] investigate the leadership behaviors typically encountered in virtual teams, and focus on how different leadership approaches affect the success of the team. This work shows that practical, task-focused assistance is a very strong predictor of team success, which surpasses emotional and informational support. This work also identifies three leadership styles: unfocused, conventional, and collaborative leadership, and highlights collaborative leadership as the one that provides advice frequently, as the one creating more cooperative team cultures.

Al-Ayed et al. [20] investigate the role of e-leadership in improving the productivity of virtual teams. This work focuses on how digital leadership that includes competencies like technological proficiency, virtual communication, and relationship management, can strengthen the coordination across the team. This work concludes that such skills, which are typically seen in the digital leader, can improve communication, collaboration, and performance.

Purvanova et al. [21] investigate the factors that influence the emergence of leadership roles in virtual teams by analyzing two independent samples of virtual teams. This work differentiates between behaviors that focus on achievement (e.g., behaviors related to monitoring and coordination) and behaviors that focus on personality (e.g., behaviors related to social interactions and attitude). The conclusions reveal that in highly virtual teams, achievement-related behaviors play a more important role in leadership emergence than personality traits, whereas the opposite is true in teams that operate mostly in person.

2.4 Overall Observations

Existing review papers from the literature, discussed in Section 2.1, provide an overview of how leadership has evolved over the years considering the widespread adoption of remote work. Collectively, such review papers reveal that effective leadership in teams with remote workers depends on a combination of aspects, such as technological competence, communication effectiveness, trust-building, and emotional intelligence. Research papers that focus on hybrid team leadership further highlight aspects related to inclusivity, trust, and communication as essential for managing spatial and social distance, which is an

inevitable consequence of remote working. These works consistently conclude that leaders need to develop competencies which promote team cohesion and fairness across remote and on-site workers, while also adapting the concepts of cohesion and fairness to the distributed nature of hybrid teams. Similarly, research papers that focus on leadership for virtual teams identify the importance of digital communication, relationship management, and collaboration as critical drivers of team success. To sum up the discussion of related work, Table 1 highlights the primary focus of related work with corresponding references.

Table 1: Primary focus of related work.

Primary Focus	Literature Review Papers	Papers on Hybrid Teams	Papers on Virtual Teams
Technological Competence	✓	✓	✓
Communication	✓	✓	✓
Trust Building	✓	✓	
Emotional Intelligence	✓		
Inclusivity		✓	
Cohesion		✓	
Relationship Management			✓
Collaboration			✓
Example References	[10], [11], [12], [13]	[14], [15], [16], [17]	[18], [19], [20], [21]

Despite the growing volume of related work, several gaps still exist. While many works identify crucial skills and competencies for leaders of hybrid teams, only few focus on communicating the best practices to leaders effectively. In addition, the connection between leadership and sustainable employee performance and well-being, which are key concerns when considering the success of the team in the long term, is not yet widely explored. To address these gaps, we conduct a review that collects relevant insights from the literature regarding hybrid team leadership, productivity, and well-being, and we propose a

framework that consolidates and conveys the best approaches by answering simple leadership questions.

3. Search Process

Defining the search process for literature reviews is essential for reducing bias and ensuring reproducibility which in turn lead to more valuable insights. To this end, Section 3.1 outlines the methodology of the literature review that is conducted in the context of this thesis, and Section 3.2 describes the search execution and elimination processes, which lead to the selection of highly relevant research papers.

3.1 Search Methodology

To ensure a comprehensive review of the literature on leadership in hybrid teams, we take into account widely used guidelines for systematic literature reviews [22] [23], and we apply the following methodology: First, we define a clear research question. Next, we deconstruct this question into specific requirements that need to be met to provide an answer. Afterward, we select databases of related literature, and we search for articles using a specified search string. Then, we apply an elimination process based on the research question and the requirements to identify results that are highly relevant to finding an answer. After the elimination process, the remaining articles are analyzed for information related to our research question. This search process is the foundation for identifying the best approaches and open challenges of leadership in hybrid teams.

The research question is defined as: *What leadership approaches are most effective for managing hybrid teams?* With this question in mind, we focus on two key requirements that are necessary for effective team leadership, namely, productivity and well-being. Considering the research question and requirements, we examine the literature of the past ten years until the end of 2025, which includes the COVID-19 pandemic and the transition to widespread remote work. For this period, we search related literature in reputable digital libraries in the fields of management and leadership, namely Elsevier ScienceDirect, Springer Link, Wiley Online Library, Taylor & Francis Online, and Sage Publications. While related literature may also include other sources, the selected libraries are considered sufficient to reflect the state of the art, while also ensuring that the search process remains reproducible, and that managing the volume of results is feasible in reasonable time.

3.2 Search Execution

The search string for our review is {"leadership" AND "management" AND "remote work" AND "virtual" AND "hybrid" AND "team"}, which includes the necessary terms to limit the results to related works. The stages of the search process are shown in the PRISMA diagram of Figure 1. Initially, the search string applied to the selected libraries during the Identification stage produces 1667 results. The Identification stage then excludes 678 results due to not focusing on both search requirements of productivity and well-being. After that, the Screening stage includes 989 results and excludes 210 results for being newsletters, book chapters, or posters with no original contribution. Finally, the Eligibility stage includes 779 results and excludes 753 results for not focusing on hybrid teams. This elimination process leads to the Included stage which produces 26 highly relevant papers that focus on answering our research question considering the key requirements.

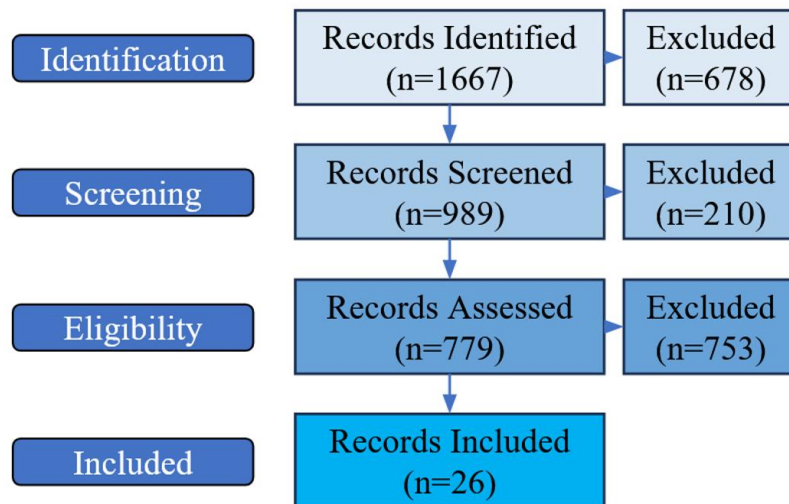


Figure 1: The stages of the search process for leadership in hybrid teams.

To present the works of the Included stage, we divide these papers into Sections 4.1-4.5, each focusing on a specific field. The coding rubric to do this systematically relies on research focus and key contributions. Specifically, every paper is included in the section that best reflects the research field of the proposed contributions. When a paper provides contributions that span multiple research fields, all contributions are discussed in the section that best matches the main contribution of the paper. Thus, no paper is described in more

than one section (across Sections 4.1-4.5). This coding rubric leads to consistent presentation of the literature across research fields and contributions, and facilitates the synthesis of our findings, which are presented in Section 5.

4. Literature Review

This section provides an outline of the current literature that focuses on the management of hybrid teams. The discussed articles are the outcome of the search process of Section 3. To present these articles in a streamlined way, we divide the included works into sections based on the main contributions of each work. Specifically, in Section 4.1 we focus on team performance, in Section 4.2 we discuss the importance of inclusivity, and in Section 4.3 we describe communication aspects. Afterward, Section 4.4 describes approaches that focus on teamwork, and Section 4.5 focuses on the development and the continuous learning of employees.

4.1 Performance and Visibility

According to the literature, leadership in hybrid teams needs to create conditions that enable high performance, clarify expectations, and ensure that the achievements of the workers remain visible regardless of working location, e.g., remotely or on-site. While concrete examples are discussed below, overall, the existing literature in this category emphasizes the role of the leader in designing effective work structures, coordinating the work pace, aligning digital and in-person workflows, and ensuring that the performance of all team members is measurable, impactful, and visible to all team members. Since remote workers can miss traditional communication opportunities, e.g., during unplanned meetings, coffee and lunch breaks, leaders need to create systems that record contributions, coordinate workflows, and mitigate disadvantages that arise from asynchronous communication and uneven access to information. These are crucial leadership practices for sustained productivity and visibility in organizations that rely on hybrid teams.

Specifically, Klonek and Parker [24] show that virtual teams can achieve high performance by adopting the SMART framework. The SMART framework proposes that work should be Stimulating, support Mastery, foster Agency, build strong Relational connections, and maintain Tolerable demands (SMART). To this end, this work discusses the guidelines to redesign tasks and roles in order to improve the communication of the members of distributed teams, but also to enhance trust and learning. This work also discusses that when the SMART framework is applied, teams can benefit from better overall operation, from increased productivity, and from more effective coordination. Furthermore, the SMART

framework is shown to be good at improving the visibility of workers that work both in remote and in on-site workplaces.

Asatiani and Norstrom [25] develop a comprehensive, interdisciplinary framework that focuses on what makes remote workplaces sustainable over time. This framework highlights five core themes: key characteristics, work-life boundaries, health and well-being, social interaction, and leadership. Interestingly, this work emphasizes that modern information systems can both alleviate and exacerbate challenges across these five themes. In addition, this work proposes a model for sustainable performance that includes two categories of factors, namely, rigid base characteristics, and contextual workplace variables. According to this work, considering these two categories of factors is essential to establishing remote workplaces that are sustainable in the long term.

Ugochukwu et al. [26] discuss the transition from traditional working to teams with remote workers and how it affected project management in the IT (Information Technology) domain. Five areas are identified, that have changed because of the introduction of remote work: communication and collaboration, technological proficiency, team performance and cultural awareness, adaptation and flexibility, and leadership. Notably, these areas show that remote work introduces new challenges and forces project managers to learn new tools and new competencies in order to lead hybrid teams. This work also highlights that secure digital infrastructure is very important to organizations because it supports communication across the teams that rely on digital tools to collaborate. Also, productivity and visibility within the team are discussed. Furthermore, this work suggests that teams with remote workers need specific strategies, e.g., frequent feedback updates and making sure that the goals are clear, to achieve high productivity and keep all the team members visible and engaged in project work.

Pesqueira and de Bem Machado [27] examine how human resources management can affect the performance of team members that work in hybrid teams. This work shows that human management that adapts dynamically to change can help organizations to manage flexible working arrangements, e.g., in hybrid teams. This can help because human resources sometimes provide collaboration tools and talent pools for finding new employees. This work also shows that team management in hybrid teams can benefit from employee evaluation that considers specific well defined evaluation metrics. This also supports decision making based on concrete metrics and results.

Griva et al. [28] discuss that time is an important aspect of leadership in hybrid teams. Temporal concepts, such as duration, intervals, synchronization, and interruptions, can affect the collaboration and the productivity of the team. This work provides the key contribution that is a time-aware hybrid work framework which distinguishes between representing work (i.e., replicating real-world temporal practices in digital spaces) and augmenting work (i.e., redesigning activities to better fit hybrid team realities). This work aims to show that digital tools can both mitigate and amplify temporal challenges of hybrid teams. For example, back-to-back meetings and asynchronous coordination can both be increased and be decreased because of using digital tools. This work also shows that considering temporal work tools, e.g., shared calendars, live digital whiteboards, and analytics from tools like JIRA can improve clarity across the team and increase synchronization, and are therefore desirable across physical and virtual workplaces.

Wiatr and Skowron-Mielnik [15] examine how managers experience and navigate the challenges of leading hybrid teams, and identify the core managerial difficulties associated with planning, organizing, leading, and controlling. The main contribution of this work is the development of the REALM model which focuses on Relationships, Effective communication, Autonomy, Leading beyond ego, and Motivation through trust (REALM). This model shows the practices managers find useful to maintain team cohesion, psychological safety, and performance when team members alternate between remote and on-site work. This work also discusses team productivity and visibility, and highlights that hybrid teams require precise task distribution, equal access to information, and clear expectations to avoid misunderstandings and marginalization of remote workers.

4.2 Inclusivity and Subgroups

Based on the literature, hybrid team leadership needs to address the challenges related to inclusivity that arise when team members alternate between remote and on-site working. While concrete examples are discussed below, overall, the literature shows that hybrid teams tend to create subgroups of on-site workers, which may socially exclude remote team members. This can lead to disparities in the sense of belonging, trust, and recognition, as well as in career opportunities. Therefore, leaders need to establish psychological safety, equitable participation, trust-building routines, and a strong sense of belonging and loyalty

that spans across locations. In fact, inclusion is essential in the management of hybrid teams, because traditional social cues and interactions are weakened or even absent, which puts remote workers at risk of marginalization and reduced influence. Effective leadership enables teams to maintain cohesion, to reduce fragmentation, and to ensure that hybrid structures do not create new forms of inequality.

Specifically, Hincapie and Costa [14] examine the challenges that arise in hybrid teams, and provide strategies that help leaders foster inclusion and cohesion. To this end, this work discusses the introduction of diversity, equity, and inclusivity aspects in hybrid teams, and highlights issues such as subgroup formation, communication failures, trust development, social loafing, unequal access to growth opportunities, and well-being risks. To address such issues, this work proposes a leadership framework, referred to as EMPOWER, MOTIVATE, and CARE, that builds psychological safety, strengthens shared team identity, leverages diversity as a resource, and creates equitable structures for communication, development, and participation.

Motsamai and Onyenankeya [29] discuss how employee relationships and conflict resolution are very much affected by the internal communication within the team. In fact, this work positions internal communication as a tool to reduce cultural conflict and to improve the trust and cohesion of the team. This work also highlights that managers should pay attention to and be aware of cultural differences across the members of the team. Thus, this work focuses a lot on cultural diversity that, if not given due attention, can lead to misunderstandings and subgroup divisions.

Urrila et al. [30] investigate how workers experience a sense of belonging in hybrid teams, and show how on-site and remote workers experience team connection, work identity, and feelings of inclusion over time. This work also identifies six key components, namely, control over work and personal time, remote working skills, virtual communication practices, human connection, information exchange, and the perceived relevance of on-site work, that collectively explain why belonging can be either strengthened or weakened in hybrid teams. Furthermore, this work discusses how hybrid teams can lead to team member exclusion, social withdrawal, and signs of work loneliness, particularly for individuals who have previously felt marginalized. Also, this work further highlights inclusion-related challenges in hybrid teams, such as the difficulty of onboarding and integrating new

employees into the team, and the uneven social experiences that are perceived by remote and on-site workers.

Badrinarayanan [31] focuses on the leadership of virtual leaders after the COVID-19 pandemic and proposes five trust-building strategies which are: promoting open and transparent communication, following through on commitments, providing constructive feedback, sharing credit, and supporting employee well-being. This work focuses on the topic of how leaders can cultivate trust, reliability, inclusion, and psychological safety in hybrid teams that may have absence of face-to-face interactions and in person meetings.

Handke et al. [32] explore why hybrid teams are particularly vulnerable to subgroup formation by introducing the construct of co-location imbalance, i.e., the uneven distribution of in-person time across different combinations of team members. This construct explains relationship strength, relational identities, and subgroup emergence in hybrid teams. This work also discusses emergent team behaviors (e.g., All for One and One for All, Divide to Conquer, Power Dyad, us vs. them), and shows how shifting patterns of who works with whom create varying degrees of stability and fragmentation that influence subgroup formation. Interestingly, having stable in-person personnel reinforces subgroup formation, while alternating in-person personnel weakens subgroups. Mandated office days and team anchor days may also affect subgroups and either strengthen or weaken them.

Crowston et al. [33] examine how the shift to hybrid work and alternating between remote and on-site working affects team cohesion. This work shows that while workers can technically complete tasks remotely using technology, hybrid teams introduce new challenges related to coordination, quality, informal learning, and social connection. Furthermore, hybrid work can diminish work experiences, such as opportunities for learning and informal mentoring. As a result, hybrid teams can lead to subgroup formation, especially between workers who are more present on-site, and those working remotely. Overall, this work discusses both the productivity of hybrid teams, and the associated risks, especially to inclusion and team cohesion.

4.3 Communication and Knowledge Sharing

Based on the literature, effective hybrid team management depends on the leader to show the correct way for effective communication and knowledge sharing across remote and on-

site workers. While concrete examples are discussed below, overall, related literature discusses that leaders need to use different communication styles, utilize technology, tackle miscommunication risks, and make sure that both formal and informal knowledge sharing occurs across the team. Hybrid work may not have enough spontaneous face-to-face time at the workplace and the resulting informal social interactions and learning opportunities. This makes intentional communication and intentional knowledge sharing routines very important to all the team members. Thus, leaders need to demonstrate the norms for synchronous and asynchronous communication, avoiding misunderstandings, utilizing digital tools, and making sure that informal learning is achieved due to spontaneous meetings across the team members.

Specifically, Waizenegger et al. [34] discuss how the internal collaboration of the team changes a lot by using digital tools when teams switch to hybrid working. Also, the authors mention that both benefits and challenges can emerge if the face-to-face communication of the team is reduced. The benefits can be that more flexible timetables for the employees are now possible and that more diverse employees can join the team. The challenges are, e.g., reduced spontaneous knowledge sharing during breaks, more virtual meeting fatigue from back-to-back meetings, and unclear limits between personal and work time. This work also shows that the loss of social interactions at the workplace reduces casual informal coordination, as well as learning opportunities. This means that teams need to rely more on digital tools and planned digital communication.

Choi and Lee [35] investigate how teams perceive hybrid work settings, and show that individuals use these settings differently, leading to diverse individually-perceived challenges. This work also identifies three hybrid worker types, namely, Social Butterflies, Efficiency Seekers, and Flexible Adaptors, each having different priorities (such as proximity, autonomy, and pervasiveness, respectively). Interestingly, each type encounters distinct challenges when the respective preferences are not met, which highlights the need to match individual preferences in hybrid teams.

Zajac et al. [36] examine how hybrid teams reduce spontaneous communication and peer interactions, which reduces the opportunity to ask questions, observe experts, and share knowledge across the team. To counter this, this work highlights the need to support virtual informal learning in hybrid teams and to provide practical recommendations. These recommendations include establishing spontaneous virtual connections, enabling effective

e-mentoring, expanding access to development opportunities, capturing lessons learned, and building a culture of lifelong learning.

Wiatr and Skowron-Mielnik [37] show that hybrid teams need to be team-managed, with each team determining the specific settings that best suit the team tasks. Thus, this work proposes that hybrid work should not rely on one model, although a holistic organizational strategy is required to integrate culture, technology, leadership, and employee experience. Furthermore, this work emphasizes that successful hybrid teams depend on team connection, continuous support, communication, and deliberate practices that sustain cohesion.

Liden et al. [38] provide an outline of the evolution of leadership approaches and point out that digital leadership is becoming increasingly relevant for teams with remote team members. This work also discusses the importance of shared leadership and leader-member communication exchange, and notes that effective leadership increasingly depends on high-quality leader-follower exchange, information sharing across the team, and the ability to maintain strong social connections across all members of hybrid teams.

4.4 Teamwork and Agile Collaboration

Based on the related literature, leadership in hybrid teams that use agile and collaborative work methods needs to adapt traditional teamwork to mixed location work. While concrete examples of this are provided below, overall, related literature focuses on agile methods like Scrum, on how leaders handle task dependencies, and on how to make collaboration easier. Interestingly, hybrid work may not be very compatible with agile work methods such as frequent communication and quick feedback. This encourages leaders to adapt the collaboration routines so that both remote and on-site team members are available and engaged in the work tasks. Since agile methods rely a lot on the quick responsiveness of the team, which may be absent in hybrid settings, leaders need to put extra effort into establishing a collaborative culture. Thus, to achieve efficient agile collaboration such leadership adaptations might be essential.

Specifically, Przybyłek et al. [39] investigate if Scrum methods work and if they are effective after transitioning from on-site to hybrid teams. This work shows that various problems may occur, e.g., ineffective Daily Scrums, poor knowledge sharing, ignored

technical debt, and inconsistent repository governance. However, it is shown that these problems are often not consequences of remote work but more often deviations from the Scrum method. In fact, only few problems are shown to be inherently tied to remote work, for example, reduced engagement in online meetings, and communication delays due to different time zones and work schedules. To avoid such issues, adaptations of Scrum are proposed, for example, to have open cameras during meetings, to improve the documentation, to establish responsibilities and code-ownership rules, and to also keep some meetings live instead of having only asynchronous communication. These adaptations can increase the engagement of the team members in the work tasks and improve cross-team coordination.

Christensen et al. [40] investigate hybrid teams that use agile work with a focus on geographical distribution, and discuss leadership supervision, communication patterns, workplace use, coordination needs, and team creativity. This work shows that the shift to hybrid teams increases the need for deliberate coordination practices, more structured communication, and arranged on-site days to preserve team cohesion. Also, this work highlights challenges related to reduced manager awareness, and dependencies on digital tools.

Zaidman et al. [41] examine how Scrum meetings should be conducted in hybrid teams, and identify relevant factors such as meeting purpose, media choice considerations, the age and gender of attendees as well as organizational roles. According to this work, considering these factors in Scrum practices can improve collaboration within the team, communication effectiveness, and general interactions.

Paasivaara and Wang [42] outline how hybrid work spans across individual, team, organizational, process, and product dimensions. This work identifies a range of factors that affect hybrid work, including communication structures, and organizational culture. Notably, this work also discusses Agile teamwork and collaboration, and how hybrid teams affect team composition, psychological safety, team building, and high-performance collaboration.

Scortzaru et al. [43] examine adaptive leadership and how it can strengthen the teamwork, engagement, and talent retention in hybrid teams. For this, various psychological, relational, and technological needs of staff are identified including the redesigning of onboarding,

communication, and connection-building practices. This work also proposes techniques such as enhanced virtual onboarding, intentional opportunities for personal connection, technology-enabled collaboration, and continuous two-way feedback, which help to cultivate trust, a sense of inclusivity, and team cohesion in hybrid teams.

4.5 Development and Learning

According to the literature of related work, leadership is very important in enabling learning and professional development in hybrid teams. While concrete examples are discussed below, overall, the literature highlights the importance of supporting informal learning, mentoring, and skill development, as well as organizational systems to support learning for both remote and on-site workers. Interestingly, hybrid working can weaken traditional informal learning that occurs, for example, through observational learning, spontaneous feedback, and unplanned knowledge exchange. This makes leaders responsible for creating frequent learning opportunities, for encouraging knowledge sharing and feedback practices, and for maintaining structured learning systems that are accessible to all team members. In fact, prioritizing learning and development in hybrid teams is crucial for maintaining employee growth and engagement, for retaining talent, and for enabling teams to adapt effectively to changing product demands.

Specifically, Manroop et al. [44] examine how team management has changed because of remote and hybrid working. Specifically, most changes occur in training and development, in performance management, in recruitment, in compensation, and in employee engagement. This work also discusses the strategic role of team management in redesigning work practices and shows that personnel development has now moved from in-person training to virtual, hybrid, and on-demand, while also expanding development content to include digital skills, mental-health awareness, and continuous education in order to meet evolving job requirements.

Enstroem et al. [45] discuss the integration of digital technologies into human and organizational aspects of teams in order to support employee well-being and adaptability during the digital transformation of organizations. This work also suggests that technological advances and personnel skill development need to align with strategies to reduce human stress that arises from the use of technology. Also, four interconnected

components are proposed, i.e., Workforce Empowerment and Resource Strategy, Technology-Enhanced Information Architecture, Organizational Information Processing Strategy, and Knowledge Sharing Platform. These components aim at providing organizations with a model that balances operational efficiency and strategic learning within teams.

Kar et al. [46] focus on organizational behavior to address the evolving dynamics of hybrid teams. This work discusses psychological strengths and team-level interactions, and also focuses on sustainability and humanity as core elements of future work practices. Furthermore, there is an emphasis on learning positive psychological traits to strengthen team dynamics and cultivate human-centric digital cultures.

Murphy et al. [47] discuss employee well-being needs, such as fears of job displacement, and reduced satisfaction in hybrid teams, and show how digital transformations and remote work jointly affect the human experience of working. This work also proposes redesigning work to better support well-being, as well as developing new leadership skills that support employees in learning to work with digital and automated systems.

5. Findings

To present the findings of this review comprehensively, first, we present the trends of related research efforts in Section 5.1. After that, Section 5.2 categorizes the leadership approaches of the literature and shows the importance of each approach, and Section 5.3 presents the proposed leadership framework for hybrid teams.

5.1 Research Trends

Regarding research trends, we discuss how related research efforts change over time in Section 5.1.1. After that, we present the associated demographics of related research in Section 5.1.2.

5.1.1 Yearly Trends

Due to the structured methodology of the search process, discussed in detail in Section 3, we can identify the yearly trends of research efforts related to the management of hybrid teams. Interestingly, the overall tendency of conducting research on leadership for virtual and hybrid teams is increasing linearly over time since the COVID-19 pandemic initiated the digital transformation of businesses and organizations. Specifically, Figure 2 shows the number of published papers per year, found during the Identification stage. To identify the general trend of these results, we also execute regression using the Least Squares method, and examine various regression lines, e.g., linear, polynomial, exponential, etc. The linear regression, also depicted in Figure 2 with the red line, produces the highest coefficient of determination $R^2 = 99\%$, showing that the regression model fits the data very well. The function of the regression line is $y = 84x - 100$ with $slope = 84$, showing a high rate of linearly increasing publications per year. This highlights the increasing relevance of leadership in virtual and hybrid teams (i.e., the papers of the Identification stage), as a research topic in modern society.

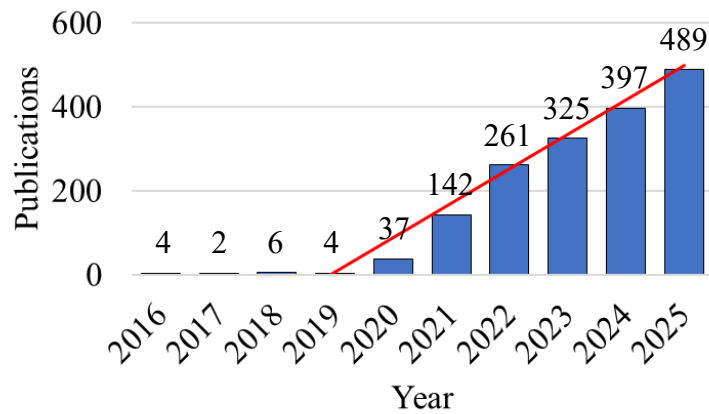


Figure 2: Published papers on leadership in virtual and hybrid teams.

Figure 3 shows the number of papers published per year, found during the Screening stage. Among the various regression functions, (e.g., linear, polynomial, exponential, etc.), the linear regression, also depicted in Figure 3 with the red line, produces the highest coefficient of determination $R^2 = 98\%$, showing that the regression model fits the data very well. The function of the regression line, which is $y = 54x - 74$ with *slope* = 54, indicates a high rate of linearly increasing publications per year. This trend emphasizes the importance of productivity and well-being (i.e., the papers of the Screening stage) in the research field of team leadership.

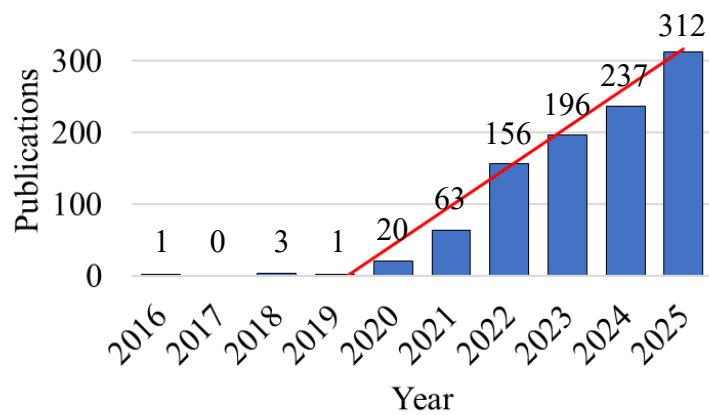


Figure 3: Published papers on leadership with a focus on productivity and well-being.

Figure 4 shows the number of papers published per year, found during the Eligibility stage. Among the various regression functions, (e.g., linear, polynomial, exponential, etc.), the linear regression, also depicted in Figure 4 with the red line, produces the highest coefficient of determination $R^2 = 97\%$, showing that the regression model fits the data very well. The

function of the regression line $y = 41x - 54$ with $slope = 41$, shows a high rate of linearly increasing publications per year. This trend highlights the increasing effort of research to produce novel approaches (i.e., the papers of the Eligibility stage) for team leadership that prioritizes productivity and well-being.

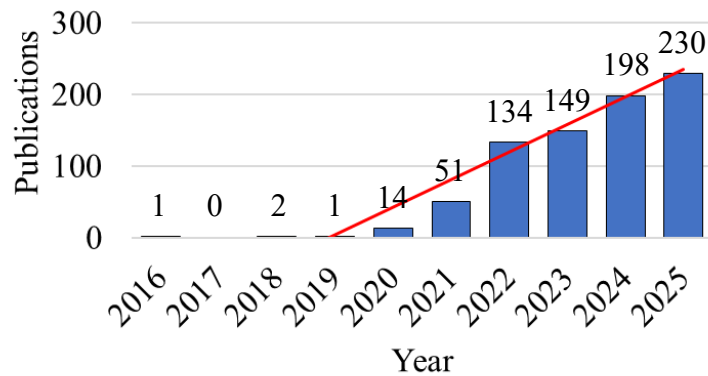


Figure 4: Published papers with novel contributions on productivity and well-being.

Finally, Figure 5 shows the number of published papers per year remaining at the Included stage. Notably, among the various regression functions, (e.g., linear, polynomial, exponential, etc.), the exponential regression, also depicted in Figure 5 with the red line, produces the highest coefficient of determination $R^2 = 92\%$. This indicates that the exponential regression model fits the data best. The function of the regression line, which is $y = 0.36e^{0.56x}$ shows an exponentially increasing number of publications per year. This trend highlights the exponentially increasing research efforts to produce novel leadership approaches that focus on hybrid teams (i.e., the papers of the Included stage), which has become the new norm.

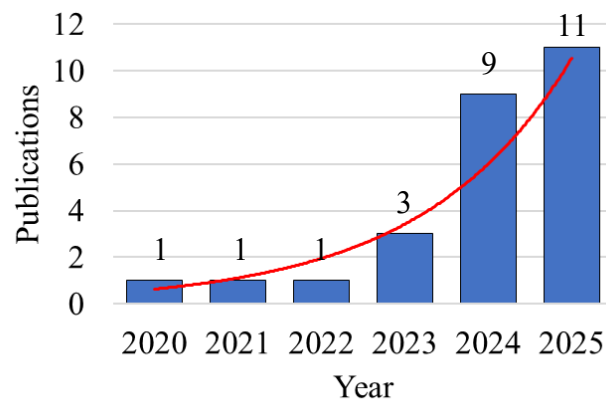


Figure 5: Published papers with novel contributions for hybrid teams.

Overall, we note that research on leadership approaches for teams with remote workers has been very slow until 2019 (as shown in Figure 2) which marks the beginning of a digital transformation, triggered by the COVID-19 pandemic. However, as also shown in Figure 2, since 2020 the research on leadership for virtual and hybrid teams has been increasing, with hybrid teams being the topic that is now experiencing exponential growth due to the importance of hybrid teams in organizations and society, and the challenges associated with effective leadership. This exponential growth is also shown in Figure 5.

5.1.2 Social Trends

To identify social trends, we plot the percentage of authors that are associated with specific demographics. Notably, when we calculate the percentages in this section, the sum of the percentages in the presented figures is not always 100% due to the rounding error, which may slightly reduce the sum. First, we examine the target domain of the authors of the papers focusing on leadership in hybrid teams (identified in the Included stage of Section 3). The target domain of the authors is derived from their institutional affiliations, which typically reveal the focus field of the authors. For example, when the affiliation of an author is a business school, this is a strong indicator that the author focuses on the domain of business. In cases where the affiliation is not indicative, the domain is derived from the author's website which commonly clearly mentions the focus field. The domain is considered as a demographic indicator that shows the context in which research on hybrid team leadership is most actively produced. Different domains of practice, such as business, technology, or healthcare, tend to face distinct leadership challenges, which affect the demand for

leadership research. Thus, examining the target domain of the authors can point to the communities that generate the strongest need for scientific insights into leadership for hybrid teams.

The number of authors focusing on each domain, based on author affiliation, is depicted in Figure 6, e.g., 35% of the authors focus on the domain of business. Actually, the domain of business is the most dominant in hybrid team leadership research and produces many of the core approaches that are adopted across fields. This is followed by the domain of technology, which contributes significantly to creating the technical infrastructure and digital tools that enable remote working and heavily relies on these tools to drive productivity through flexible work arrangements. Healthcare and management are also active in hybrid team leadership research, as these domains tend to face challenges related to complex human interactions and high demand for coordination and accountability. Finally, the remaining domains, including communications, psychology, work design, finance, marketing, and sociology, are also present in related literature but with more limited contributions. This suggests that while hybrid team leadership includes social, behavioral, and design-related aspects, the field is influenced primarily by applied domains that prioritize operational and organizational concerns.

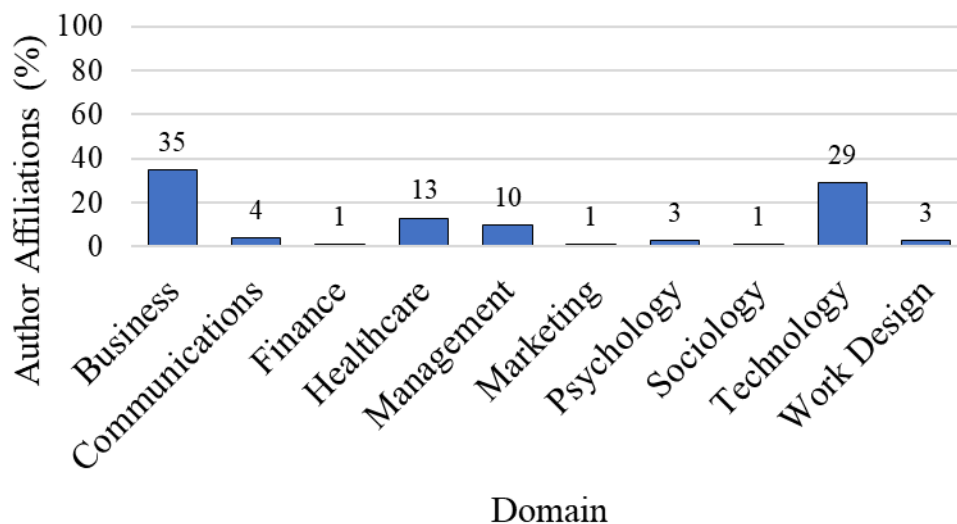


Figure 6: Domain of authors focusing on hybrid team leadership, based on affiliation.

To further identify social trends, we examine the countries associated with the institutional affiliations of the authors of the papers focusing on leadership in hybrid teams (identified in the Included stage of Section 3). The country of affiliation indicates the geographic

distribution of expertise in hybrid team leadership. This expertise is typically the outcome of countries prioritizing hybrid work as a research topic due to the significant potential, for example, in contributing to the achievement of SDGs, as discussed in Section 1. Thus, examining the countries of the authors' institutions can provide insights into the geographic locations that more actively aim to advance hybrid work arrangements through scientific research.

The number of author institutes per country, based on the author affiliations, is depicted in Figure 7, e.g., 31% of the author affiliations are associated with institutes in the USA. The results suggest that research on leadership in hybrid teams is produced primarily in the USA and Europe, which are regions characterized by advanced digital infrastructures and established regulatory frameworks that support on-site and remote working. As a result, hybrid teams have become a popular alternative for organizations, which contributes to sustained research activity in hybrid team leadership. In addition, contributions from countries in Asia, the Middle East, Africa, Australia, and South America indicate a growing global interest in hybrid team leadership.

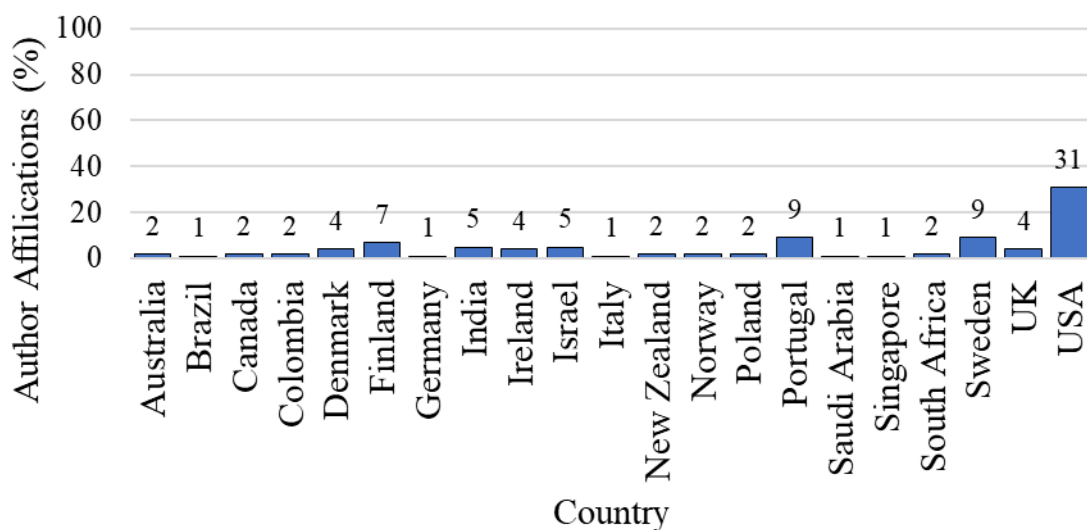


Figure 7: The country of the authors' institutions, based on author affiliation.

Finally, we examine the country composition of the author institutions at the level of individual papers. Each paper is classified based on the countries of the institutional affiliations of its authors. When all authors of a paper are affiliated with institutions in the same country, the paper is assigned to that country. When authors from multiple countries collaborate on a paper, the paper is classified as mixed. This classification shows the extent

to which research on hybrid team leadership is produced within national research contexts or through international collaboration. Thus, the composition of countries of papers functions as an indicator that reflects the geographic distribution of expertise and the degree of cross-national knowledge exchange in the field.

The number of papers produced in each country is depicted in Figure 8, e.g., 19% of the author teams that produce related papers include authors only from the USA. A substantial portion of the literature consists of papers classified as mixed, indicating that research on leadership in hybrid teams is frequently conducted through international collaborations. This suggests that hybrid team leadership is very often addressed as a global organizational challenge that benefits from the exchange of perspectives across national borders. At the same time, many teams in the USA, as well as fewer teams across the globe, tend to operate nationally. The presence of both national and international collaborations shows that hybrid team leadership is a research topic that may be difficult to address on a national level alone, requiring the combination of cross-border expertise.

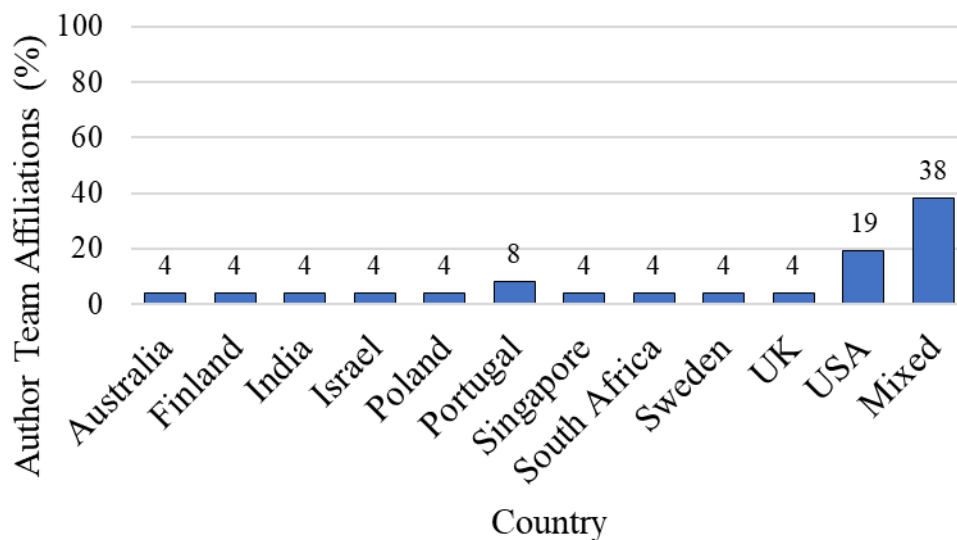


Figure 8: The country of author teams, based on author affiliation.

Overall, the two domains that produce the most articles are business and technology. These are the domains that value more productivity and coordination, so they more actively develop related expertise. Social sciences and design also produce leadership articles, but less papers are produced by these domains, comparatively. The leadership research for hybrid teams tends to be produced more by the domains that require the research findings

and by the geographical regions that allow hybrid teams in professional life. Because that is where it is the most useful.

The concentration of authors in the USA and Europe shows that stable digital infrastructure and stable regulations that control working conditions are very important to realize hybrid work and the research efforts that advance hybrid team leadership as a research topic. Papers that are authored by international collaborations are also observed to have a strong presence. This means that hybrid team leadership is now a global trend and that it may need collaboration of researchers in many different countries. Together, these social trends show that leadership approaches for hybrid teams are more relevant to developed countries that have stable regulations and digital infrastructure. But the overall field is actually shown to be addressed as a topic that is developed around the world.

5.2 Major Leadership Approaches

According to the literature, there are various approaches with distinct characteristics, which can be applied by leaders of hybrid teams for effective team management, e.g., traits, behaviors, contingencies, styles, relations, etc. [38]. To present such approaches in a comprehensive manner, we divide them into categories. Specifically, Section 5.2.1 discusses leadership styles, and Section 5.2.2 discusses leadership skills. Afterwards, Section 5.2.3 focuses on leadership behaviors, and Section 5.2.4 presents leadership practices. These categories summarize all the notable leadership approaches of our review. In addition to definitions, each section also discusses the importance of each approach in the literature of hybrid leadership.

5.2.1 Leadership Styles

Leadership styles are the recurrent behaviors and decision-making tendencies that are applied consistently by a leader. The leadership styles show how the leader motivates the team and how the team interactions among the team take place [48]. A leadership style represents the core philosophy of the leader. It affects the relationships of the team members and the team structure. The leader selects the style according to which they lead the team, which affects how the team communicates, e.g., the distribution of authority and the engagement in project work. It is important to select the appropriate leadership style that

fits well the team and the product because this brings clarity, trust and loyalty to the leader. When the right leadership styles are selected, a leader inspires motivation, psychological safety, and commitment. This can also lead to better performance, to innovation, and to the well-being of the team members. On the contrary, a leadership style that does not fit well with the team members can hinder motivation and loyalty, and may even contribute to burnout and high employee turnover [49]. Table 2 shows the leadership styles commonly mentioned in the literature according to our review, along with definitions and references.

Table 2: Leadership styles typically applied for hybrid team leadership.

Style	Description	References
Adaptive	Adapts quickly to emerging conditions by adjusting strategies, practices, and expectations.	[6], [39], [43], [17], [18], [19], [20], [21]
Agile	Plans iteratively with feedback cycles to respond quickly to evolving team and project needs.	[6], [15], [18], [20], [22], [23], [24], [25], [28], [29]
Authentic	Relies on credibility and trust, which are built on transparency, and consistent behaviors.	[15], [31], [38], [40], [43]
Empathetic	Recognizes well-being threats, as well as responds quickly to emotions and perspectives of individuals.	[14], [15], [29], [35], [43], [44]
Inclusive	Creates psychological safety and equal opportunities for participation across diverse teams.	[14], [15], [25], [26], [29], [31], [32], [34], [35], [36], [38], [43], [44]
Transformational	Fosters productivity and innovation by conveying a vision and emphasizing team potential.	[15], [24], [25], [31], [34], [38]

To better visualize these results, Figure 9 shows the percentage of the literature (identified during the search process of Section 3) that focuses on each leadership style. Interestingly, the inclusive leader has risen to be the top style, due to the importance of diversity and inclusivity in society [14]. This also aligns with SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities). The agile leader and adaptive leader are also highly regarded. The agile leader focuses on clear communication and expectations, which foster increased

productivity [39]. The adaptive leader adjusts to changing conditions, which is crucial, especially since the emergence of hybrid teams [26]. Notably, the empathetic leader is also a highly utilized leadership style, as remote workers tend to expect more flexibility to cope with other responsibilities, e.g., family matters [26]. Finally, the transformational leader is also very important, as hybrid teams require significant transformation from traditional practices to become efficient [44], and the authentic leader is also often applied to facilitate trust and credibility across the team [31].

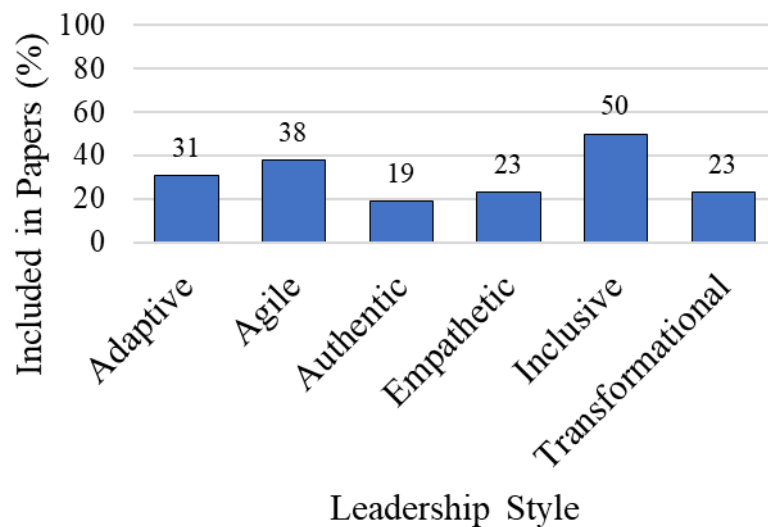


Figure 9: Leadership styles included in the literature of hybrid teams.

Overall, we note that while there are multiple leadership styles in the literature, Figure 9 shows the styles that are more often utilized for hybrid team management, with the inclusive leader being highly important, according to the literature.

5.2.2 Leadership Skills

Leadership skills are specific learnable abilities that collectively execute the leadership responsibilities [50]. Examples of skills include communication, conflict resolution, and decision-making. Leadership skills are learnt and practiced over time. They can be specific to the needs and the culture of each team. When the leader has well-developed leadership skills, this can help with allocating tasks and guiding their execution to better satisfy the needs of the product. Also, the leader can describe better what the outcomes of the tasks should be but also make adaptations to the task during execution to follow potentially

changing market demands. Thus, leadership skills are the abilities that enable the leader to lead effectively. As a result of using effective leadership skills the team is better coordinated, problem resolution takes place faster and the team shares responsibility for the goals. Also, the team operates with high morale, the tasks are executed efficiently, and there are fewer miscommunications. As a result, the team has a strong and supportive team culture with high productivity and good psychological well-being of the team members [51]. Table 3 shows the leadership skills commonly mentioned in the literature according to our review, along with definitions and references.

Table 3: Leadership skills typically applied for hybrid team leadership.

Skill	Description	References
Communication	Convey ideas clearly, listen actively, and ensure mutual understanding across diverse formats and audiences.	[14], [15], [24], [25], [26], [28], [29], [30], [31], [32], [34], [35], [36], [38], [39], [40], [42], [43], [44]
Conflict-mitigation	Resolve tensions proactively by identifying root causes, facilitating dialogue, and preserving relationships.	[14], [15], [24], [25], [26], [28], [29], [30], [31], [32], [34], [35], [38], [42]
Digital	Utilize digital tools effectively to coordinate tasks, share information, and support remote or hybrid collaboration.	[14], [15], [24], [25], [26], [28], [29], [30], [31], [32], [34], [35], [36], [38], [39], [40], [43], [44], [45], [46], [47]
Planning	Organize tasks, timelines, and resources to align team efforts with strategic priorities and expected outcomes.	[15], [24], [25], [26], [28], [29], [30], [34], [35], [36], [38], [39], [40], [44]
Trust-building	Foster reliability, openness, and integrity to create a culture of psychological safety and mutual respect.	[14], [15], [24], [25], [26], [28], [29], [30], [31], [32], [34], [35], [36], [38], [39], [43], [44]

To better visualize these results, Figure 10 shows the percentage of the literature (identified during the search process of Section 3) that focuses on each leadership skill. Notably, digital skills are now the top leadership skill, as hybrid teams rely heavily on technology with the use of digital communication and collaboration tools [34]. This has led to significant advancement of such tools, which align with SDG 9 (Industry, Innovation, and

Infrastructure). Communication skills are also very important, as efficient communication is more complicated in hybrid teams due to the combination of remote and on-site workers [36]. Trust-building and conflict-mitigation skills are also shown to be essential, because achieving team cohesion in hybrid teams still poses challenges to the leader [14]. Finally, planning skills are necessary because coordinating a team with both remote and on-site workers requires additional effort from the leader [15].

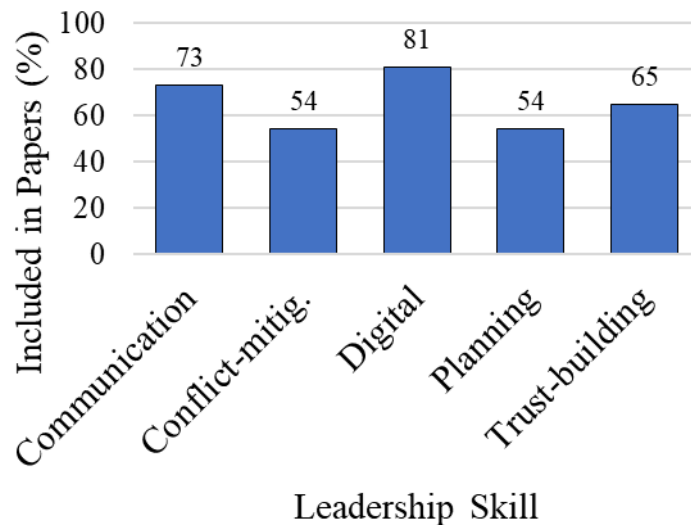


Figure 10: Leadership skills in the literature of hybrid teams.

Overall, we note that while several leadership skills are researched in the literature, Figure 10 shows the skills that are more often used in the management of hybrid teams, with digital skills being the most important, because hybrid teams depend on technology for communication and collaboration.

5.2.3 Leadership Behaviors

Leadership behaviors are observable sequences of actions that are done by a leader in order to reach specific product needs and goals [52]. For example, giving frequent feedback, recognizing contributions, and describing performance expectations. They affect how the team sees the leader and if the team trusts the competence of the leader. Good leadership behaviors can improve the values of the team when they are repeated, and also, they can establish good norms with regard to leader-follower exchange. Also, good leadership behaviors can increase team engagement in project work, encourage team members to take

accountability of their goals, and improve trust among team members. Such good behaviors can be, e.g., timely feedback and inclusive communication that treats all team members as equals. When executing good leadership behaviors frequently, this can contribute to better alignment across the team. It reduces ambiguity in executing tasks and it helps with having good well-being and job satisfaction of the team members [53]. Table 4 shows the leadership behaviors commonly mentioned in related literature according to our review, along with definitions and references.

Table 4: Leadership behaviors commonly applied for hybrid team leadership.

Behavior	Description	References
Clarify expectations	Define roles and goals to reduce ambiguity and align team actions.	[24], [28], [30], [31], [34], [35], [38], [39], [40]
Foster equal treatment	Ensure fairness in participation and opportunity across all team members.	[14], [15], [25], [28], [29], [30], [31], [34], [35], [36], [44]
Offer mentorship	Guide team growth with identification of best practices, and timely feedback.	[5], [6], [16], [19], [20], [22], [23], [24], [27]
Recognize effort	Acknowledge contributions openly to reinforce motivation and engagement.	[5], [6], [20], [21], [23], [30]
Support well-being	Address workload, stress, and work-life balance to promote sustained morale.	[14], [15], [24], [25], [26], [28], [29], [30], [31], [32], [34], [35], [36], [38], [39], [40], [42], [43], [44], [45], [47]

To better present these results, Figure 11 shows the percentage of the literature (identified during the search process of Section 3) that focuses on each leadership behavior. Notably, focusing on employee well-being is now the top leadership behavior, because neglecting a healthy work-life balance can lead to burnout, high employee turnover, and loss of talent [49]. Interestingly, supporting employee well-being also aligns closely with SDG 3 (Good Health and Well-being). Equal treatment is also an essential leadership behavior, as remote workers tend to suffer from isolation and loss of opportunity [33]. Moreover, mentorship and clarifying expectations are crucial in hybrid teams, especially because spontaneous feedback and knowledge exchange is now less frequent due to reduced social interactions at the office [34]. Finally, recognizing efforts and sharing credit are also crucial leadership

behaviors in hybrid teams, because significant efforts of remote workers may remain unnoticed [31].

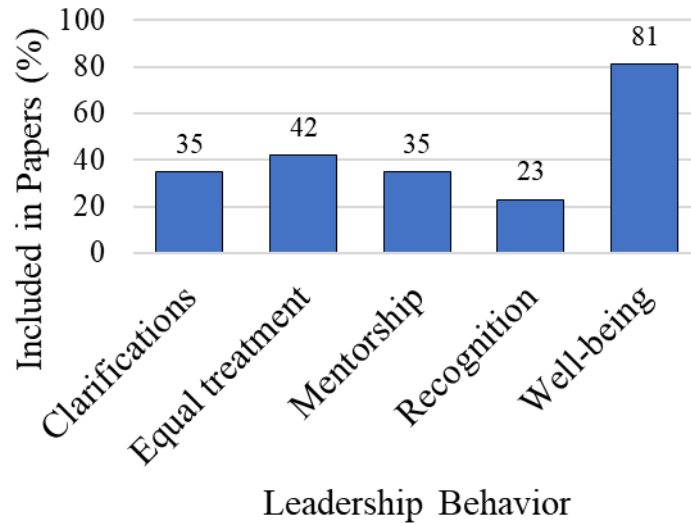


Figure 11: Leadership behaviors in the literature of hybrid teams.

Overall, we note that while there are numerous leadership behaviors discussed in the literature, Figure 11 shows the behaviors that are more frequently utilized in hybrid team management, with the focus on employee well-being now being highly important, according to the literature.

5.2.4 Leadership Practices

Leadership practices are repeatable activities and routines that facilitate the responsibilities of the leader and support the coordination of the team [54]. Examples are to organize regular meetings, to establish workflows for admin processes, and to create guidelines for remote working. It is important to implement and communicate these practices because this makes communication across the team transparent, consistent and fair for all the team members. In essence, the leadership practices realize the intentions of the leader regarding team management. For the team to feel trust toward the leader, it is important that leadership practices are the norm, and that spontaneous and ineffective behaviors, such as unplanned lengthy meetings or decision-making without the right people involved, are not frequently applied. In fact, applying effective practices can have many benefits such as high efficiency, low uncertainty, and predictable performance across the team. In many cases, this is

important for satisfying the product requirement. In addition, applying thoughtful leadership practices that consider the individual needs of the team members supports psychological safety for the team and minimizes role and task confusion [55]. Table 5 shows the leadership practices that are commonly mentioned in the literature according to our review, along with definitions and references.

Table 5: Leadership practices commonly applied for hybrid team leadership.

Practice	Description	References
Hybrid team balance	Alternate working location of team members and assign appropriate tasks.	[5], [18], [21], [22], [25], [29], [31]
Work structure	Establish clear processes, such as Scrum, to guide team focus and performance.	[28], [31], [39], [40]
Preventing subgroups	Manage team interaction patterns to reduce division, exclusion, and isolation.	[5], [27], [30], [32], [33]
Transparent collaboration	Establish documentation routines for open access to information across team members.	[15], [24], [26], [29], [30], [31], [35], [39]
Work design optimization	Configure physical and digital workplaces, meeting formats, and task structures.	[15], [21], [23], [26], [27], [33], [35]

To better present these results, Figure 12 shows the percentage of the literature (identified during the search process of Section 3) that focuses on each leadership practice. Interestingly, transparent collaboration has risen to be the top leadership practice, because remote workers may miss informal interactions, which can lead to unequal access to information [15]. As a result, innovative digital collaboration platforms have been developed, which document and maintain information exchange between team members to be open across the team. This also aligns with SDG 9 (Industry, Innovation, and Infrastructure). Designing appropriate workplaces across physical and digital settings, and selecting suitable meeting formats for interactions is also very important to facilitate efficient collaboration across hybrid teams. Furthermore, appropriate work location arrangements are essential, so that team members alternate between remote and on-site working without becoming isolated or forming subgroups [40]. In fact, avoiding subgroups is also a very important leadership practice [32]. Finally, since hybrid teams may suffer from

reduced opportunity for synchronization and alignment, leaders need to establish clear processes that guide productivity and priorities according to the market demands [42].

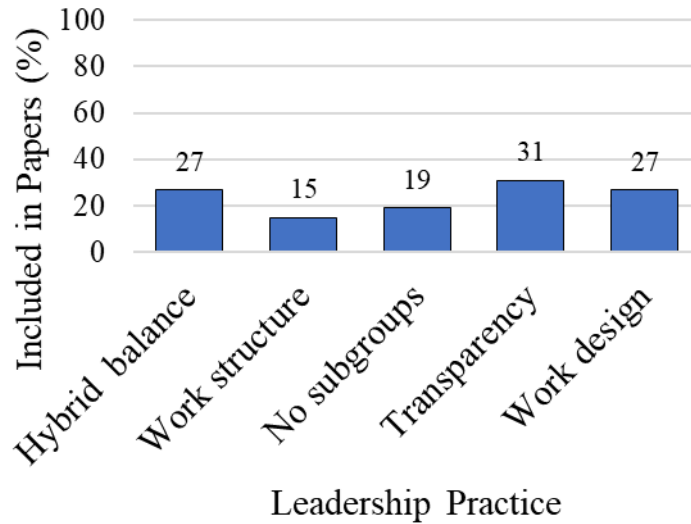


Figure 12: Leadership practices in the literature of hybrid teams.

Overall, we note that while there are numerous leadership practices in the literature, Figure 12 shows the practices that are more often utilized for hybrid team management, with transparent collaboration being highly important, based on the literature.

5.3 Proposed Leadership Framework

As discussed in Section 5.2, there are several leadership approaches in the literature, which may belong to various categories. Consequently, providing specific and actionable recommendations to leaders, as to how to manage teams, may become a complicated task because the volume of recommendations can be overwhelming. To tackle this problem, we summarize the learnings of our review by answering four specific questions. These questions are formulated to be straightforward and cover a wide range of leadership approaches. This way, leadership recommendations can be communicated effectively to leaders. The questions refer to Communication Organization Loyalty Adaptation (COLA). For this reason, we refer to this style of communicating leadership approaches as the COLA framework. Specifically, the COLA questions are:

1. How to communicate with team members?
2. How to organize the daily teamwork?

3. How to cultivate team loyalty?
4. How to adapt to team expectations?

To better visualize this approach, the COLA questions are also shown in Figure 13.

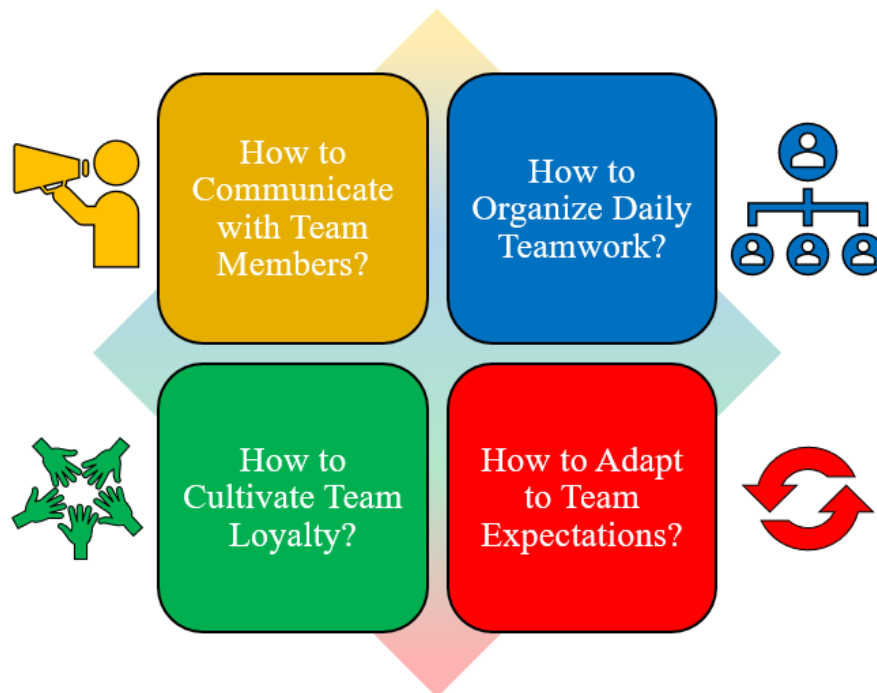


Figure 13: The COLA framework to communicate leadership recommendations.

In the following, Section 5.3.1 focuses on communication, and Section 5.3.2 discusses organization. Afterward, Section 5.3.3 describes loyalty, and Section 5.3.4 discusses adaptation.

5.3.1 How to Communicate with Team Members?

First, we discuss the rationale behind the selection and formulation of this question. This question considers that communication is a leadership action and not just a background activity. The goal is to communicate with all the members of hybrid teams effectively and not ignore people that tend to be unresponsive or busy. Authentic and transformational leadership styles are very important to answer this question because communication that is clear can enhance credibility and the ability to convey a compelling vision. These are crucial for hybrid team management. Trust is also important because collaboration in hybrid teams depends a lot on asynchronous exchanges. Thus, it is important to make expectations clear.

This is actually a key leadership behavior to answer this question, as well as transparent collaboration. These make communication a continuous process of making work, decisions, and achievements visible.

Based on these approaches and the learnings of our review, we now focus on answering the communication question. Leaders who want to communicate effectively with team members of hybrid teams can ponder this question and derive concrete practices that match individual teams. Based on the literature, leaders can establish communication norms for specific channels, response times, and levels of detail, and can communicate these norms to the team, explaining the rationale and acknowledging relevant constraints, limitations, and shortcomings. This way, the team can consciously (or subconsciously) try to avoid the shortcomings. Communication within the team can be improved by preparing guidelines, by asking summarizing questions at the end to make sure everyone is on the same page, and by adapting the language to the background of the team. Trust across the team can be improved with open communication, i.e., in meetings that are open to everyone who is interested, by always discussing the context of the matters at hand in the beginning, by discussing signals of risk, and by having follow-ups to check on progress. It is also important to always make sure that all the expectations are clarified and that the goals and vision are clear. The leader also needs to have regular feedback conversations, so that the responsibilities are clear and also the ways by which success is measured. Having shared documents and meeting notes can help team members understand discussions they have missed regardless of physical location. Follow-up meetings can wrap up previous discussions, acknowledge contributions openly and make sure that all the team members have the long-term vision in mind when executing their tasks.

5.3.2 How to Organize Daily Teamwork?

First, we discuss the rationale of this question. It aims at organizing collaboration as a well-thought leadership action rather than a formality to distribute the work tasks. The agile and the adaptive leaders are taken into account. These leaders focus on task allocation and feedback loops, both of which are important for daily teamwork of remote and on-site workers. This question also takes into account digital skills and planning because the selection of digital tools and the planning of the timeline of project tasks are important for the success of the team. Work structure and hybrid team balance are the main leadership

practices to consider. They are based on the literature of daily teamwork where spontaneous encounters are scarce, and it becomes difficult to maintain team cohesion.

Based on these approaches and the learnings of our review, we now aim at answering the organization question. Leaders that want to organize teamwork can ponder this question and think of the practices that can bring structure to hybrid teams. According to the literature, the leaders can use regular planning cycles, they can define short-term goals, they can prefer to assign smaller tasks instead of large, and they can discuss responsibilities clearly. During the planning of the tasks, shared digital tools for calendars and kanban boards can be useful to improve task allocation. This way, progress and the contributions can be always visible. Leaders can also distribute responsibilities considering who is working from the office or from the home, for example, by giving tasks that require a lot of collaboration in days where people work together from the office. Short daily meetings to touch base and short check-in questions can help with team synchronization. Also, shared documentation can help with synchronizing, especially when people work from different time zones. The leaders can start practicing these approaches and adapt them based on performance so that daily teamwork improves.

5.3.3 How to Cultivate Team Loyalty?

First, we discuss the rationale of this question. It discusses loyalty as the outcome of effort from the leader and not just an expectation. Psychological safety and equal access are important to achieve loyalty so the inclusive and the empathetic leaders are relevant as they build an emotional connection. The core skills to take into account for this question are conflict mitigation and building trust. When employees are treated well their loyalty improves. The main behaviors that can help with loyalty are equal treatment, recognizing effort, and employee well-being. Preventing subgroups is also important. Subgroups can actually cause feelings of isolation and reduce loyalty. Finally, empathy can cultivate commitment.

Based on these approaches and the learnings of our review, we now focus on the loyalty question. The leaders that want to improve loyalty within the team can think of this question and decide on appropriate practices. Based on the literature, open task allocation and task recognition routines can avoid misinterpretations and provide credit for achievements. This

improves loyalty. Empathetic leadership, which has frequent interactions that also consider emotions, also helps. When these interactions detect signs of distress, these signs need to be followed up by adjustments which demonstrate care. Otherwise, only pretending to be empathetic can have the opposite effect. Conflict-mitigation is important, and even minor tensions have to be addressed promptly, otherwise they might escalate. Doing this creates a safe space for the team to discuss work and culture-related issues. For loyalty, it is also important to support well-being as a leader, e.g., through workload distribution that considers personal aspects, discussions on mental health, and by making sure that workers have the resources they need to avoid stress. To avoid subgroups, rotating office days can be determined, or simply the arrangement of common office days for the people that work on the same project. This can also help the team bond over tackling challenges together in person. These approaches aim to convey that each member matters and that work location is irrelevant.

5.3.4 How to Adapt to Team Expectations?

First, we discuss the rationale of this question. It discusses adapting to team expectations as the outcome of specific actions from the leader. Adaptive leadership is the main leadership style that focuses on this question. The question also brings up digital, communication, and trust development skills, because the teams can have specific expectations about these aspects. The leader can offer mentorship and help the team members grow while at the same time conveying how task expectations need to be met in alignment with the team vision. Work design optimization is also especially important. It can help the leader to adapt the workplace, e.g., the utilized digital tools, the physical environments, the meeting formats, and cover the expectations of the team. Thus, such approaches can support the leader in adapting to individual and team expectations.

Based on these approaches and the learnings of our review, we now focus on answering the adaptation question. Leaders who want to adapt to team expectations in hybrid teams can think this question through and ponder appropriate actions. Based on the literature, leaders can implement feedback loops, for instance, retrospectives, anonymous surveys, and open dialog sessions. These reveal expectations regarding various aspects of working such as flexibility, presence, collaboration and development. Based on that leaders can adjust the team norms and show the team that the expressed opinions matter. This also makes the team

feel more involved in team management, which helps with team engagement. Work design optimization can help to realize the feedback and show the adjustments in everyday work, e.g., by adjusting meeting formats, digital tools, and workplace configurations. In addition, mentorship from the leader can support team members in difficult periods, which is also a typical expectation of employees. Learning processes that address open concerns can also be helpful, e.g., to learn about new digital tools and new available resources. With these actions the leader can create a culture where the team feels like their expectations matter. For the leader, this can bring a long-term commitment to the team.

6. Future Work

In this section, we describe future work on the topic of leadership in hybrid teams, according to our review. To derive promising research directions for future work, first we discuss open challenges in the literature in Section 6.1. After that, we present the corresponding research directions to tackle these challenges in Section 6.2.

6.1 Open Challenges

Despite the contributions of the current literature, hybrid team leadership still faces various open challenges. These challenges (also shown in Figure 14) include the following:

1. Ensuring effective communication and knowledge sharing.
2. Maintaining team cohesion and inclusion.
3. Managing performance and accountability.
4. Supporting well-being and work-life balance.
5. Coordinating agile workflows and collaboration.
6. Fostering career development and learning.

Interestingly, Figure 14 also shows interdependence across the challenges. Specifically, we note that communication issues can weaken team trust and create feelings of exclusion. In turn, fragmented teams can underperform, and members may avoid accountability, reducing the sense of achievement and job satisfaction. This can hurt well-being and work-life balance because certain team members may try to overcompensate while others to undercompensate. As a result, team coordination declines, and members may neglect development and learning opportunities, which also leads to reduced feedback, and knowledge exchange across the team, so communication deteriorates. Therefore, these challenges can lead to a cycle that hurts team cohesion due to poor leadership.



Figure 14: Open challenges in hybrid team leadership.

Each challenge of Figure 14 is further discussed in the following. Specifically, for every challenge, we discuss what the challenge is, why is this challenge relevant to hybrid teams, and why is this challenge difficult to overcome.

6.1.1 Ensuring Effective Communication and Knowledge Sharing

The first challenge is effective communication and knowledge sharing across hybrid teams. Hybrid collaboration relies widely on digital tools so teams can experience communication failures more often, e.g., when messages lose context. The lack of in-person social cues, no tone of voice, no body language, and no spontaneous clarifications during breaks means that remote communication can be easier to misunderstand. With fewer spontaneous interactions and discussions around the office, sharing updates and touching base regarding various work tasks can become harder.

Hybrid teams amplify communication hurdles because of operating with both in-person and virtual interactions. Team members working from home may not receive information shared informally at the office, leading to knowledge asymmetry. In fact, team members at the office may even neglect or unintentionally forget to share such information. Additionally,

hybrid teams may have to use multiple platforms (e.g., emails, instant chat, forums, kanban boards and meeting chats) to stay connected, which can lead to frustration and fragmented communication. The loss of casual office interactions means that leaders need to create recurrent opportunities for knowledge sharing without imposing significant distractions from the actual work tasks.

Despite the innovation and development of many new digital communication tools, achieving seamless collaboration in hybrid teams remains difficult. The digital tools help with communication, but they do not replace personal contact. Moreover, remote team members may suffer from online meeting fatigue that makes communication tiring. Thus, striking the right balance between synchronous meetings and asynchronous coordination in hybrid teams is still an ongoing topic of research.

6.1.2 Maintaining Team Cohesion and Inclusion

Maintaining cohesion and ensuring inclusion across hybrid teams is challenging. Team members can switch between remote and on-site work. However, subgroups can be formed, especially when some groups of employees share physical space often. These divisions can lead to unequal access to information, reduced social cohesion, and perceptions of marginalization among remote workers. Without intentional leadership interventions, hybrid teams may experience exclusion, reduced trust, and loss of engagement that can weaken a collaborative team spirit.

In hybrid teams, there can be cohesion challenges because remote and on-site workers have different opportunities for bonding and socializing. At the office, people working in person have spontaneous conversations and effortless visibility. On the contrary, remote workers may feel disconnected. Such feelings become stronger when they miss events and notable conversations. As a result, they miss a sense of team unity. Over time, such feelings can lead to proximity and favoritism bias, especially when contributions of remote workers are not celebrated by the whole team.

Despite growing awareness of issues related to inclusivity in hybrid teams, achieving consistent cohesion remains difficult because the social dynamics of hybrid teams are inherently complex. Leaders may attempt to rotate office days or introduce structured social events, but relational imbalance across the team can persist due to differing personal

preferences, job roles, and organizational constraints. Moreover, equality and inclusion rely on behavioral habits, such as equal recognition, informal spontaneous conversations, and unbiased decision-making, which require sustained effort from the team. Consequently, avoiding subgroup formation and maintaining a strong team spirit require continuous attention, which makes team cohesion a difficult challenge in hybrid team leadership.

6.1.3 Managing Performance and Accountability Remotely

Another challenge is to establish fair performance monitoring in hybrid teams. Supervision at the office is not really an effective measure anymore. Working at different time zones and locations also makes performance monitoring difficult. As a result, leaders find it more difficult to establish accountability, to make their expectations clear, and to distribute the workload equally. At the same time, remote workers worry that hard efforts go unnoticed, leading to decreased motivation and uncertainty about career progression.

Hybrid teams can make these difficulties worse, because showing effort and engagement becomes more difficult when working remotely. On-site workers are typically judged based on presence and perceived busyness, but remote employees are judged solely on results. These are uneven standards for comparison. Also, assessing performance of workflows that include both on-site and remote workers becomes difficult because of additional delays due to asynchronous communication.

Despite the development of digital outcome-based evaluation tools, managing performance in hybrid teams remains an open challenge. Leaders rely on monitoring digital tools and automated metrics, which can damage team trust, and neglect contextual performance, e.g., helping others or following time consuming administrative processes. Furthermore, proximity bias, particularly in favor of those working on-site, remains difficult to eliminate due to legacy mentality that spending time at the office means being productive.

6.1.4 Supporting Well-Being and Work-Life Balance

Supporting employee well-being and healthy work-life balance poses an additional leadership challenge in hybrid teams. Hybrid working has flexibility, but using the same space for work and personal life can often lead to prolonged working time and difficulties in disconnecting from work stress. Remote employees may also experience social isolation

or reduced access to informal support from colleagues, which can affect motivation and mental health.

Such well-being concerns are even more difficult in hybrid teams because the work location affects the work experience a lot. Team members that work remotely may feel pressure to appear constantly available online. This contributes to digital fatigue and reduced recovery time. In contrast, members who work at the office can take a break anytime. On the other hand, members that commute long-distance to the office may face problems with being available on time, while remote workers can more easily join meetings.

Maintaining well-being in hybrid teams is still quite difficult. Differences in coping from an individual perspective, differences in remote work experience, and individual personal view on boundaries mean that no universal approach fits all teams. As a result, the leaders are often not aware of stress levels and the struggles of remote workers. For this reason, detection of problems and appropriate intervention can be difficult. Workshops to improve well-being are helpful, but they might also add overhead which can increase stress if the team is otherwise very busy. Such complexities, along with the evolving hybrid team norms and technologies, make achieving well-being an open challenge for hybrid teams.

6.1.5 Coordinating Agile Workflows and Collaboration

Coordinating workflows efficiently in hybrid teams is also a leadership challenge. Hybrid work can break established processes and complicate the alignment of tasks, schedules, and dependencies. Without the ease of in-person coordination, leaders rely mostly on well-thought planning and clear workflows to ensure smooth progress. However, ineffective coordination can lead to delays, duplicated effort, and low-quality results, especially in teams that require close collaboration due to having multiple interdependent tasks.

Hybrid working can make the coordination of work tasks more difficult for the leader. Team members can have different availability and work rhythms that are no longer synchronized as it was with office work. Also, the agile workflows, which have quick interactions and feedback, can be interrupted if remote workers suddenly have other responsibilities, e.g., as care givers. As a result, the work pace can be broken anytime. This also reduces motivation for the members that have task dependencies and cannot proceed.

Despite advancements in collaborative and workflow tools, achieving seamless coordination in hybrid teams is still challenging. Technology does not fully replace the social aspect of in-person coordination, and excessive digital interactions can lead to digital fatigue. Also, the structure of hybrid work may differ across organizations, teams, and projects, which makes it difficult for leaders to establish a universal team management process. Thus, since hybrid workflows need to be flexible, and coordination processes may change with every project, developing stable and effective coordination models for hybrid teams is still challenging.

6.1.6 Fostering Career Development and Learning

Making sure that career development and learning opportunities are equal for all the members of hybrid teams is another challenge. Physical separation reduces opportunities for informal mentoring, spontaneous feedback, and observational learning, which typically support skill development and career growth. Remote workers may find it harder to gain visibility, to demonstrate leadership potential, and to undertake assignments with significant learning opportunity. This makes remote workers skeptical regarding long-term career prospects.

Hybrid teams in particular can suffer from such issues because learning experiences differ significantly between remote and on-site workers. Team members in the office may benefit from spontaneous coaching, proximity to senior colleagues, and exposure to strategic discussions. In contrast, remote workers typically miss such experiences, which are often crucial to career development and learning.

Despite the adoption of virtual training programs and digital knowledge platforms, making development opportunities equal continues to be difficult. Mentoring relationships are harder to develop without consistent in-person interactions, and virtual development programs may seem tedious and require high engagement and commitment, which not all employees possess. Moreover, career progression often still relies on visibility and informal advocacy, which tends to disadvantage remote workers. Therefore, career development and equal progression in hybrid teams is still an open challenge.

6.2 Research Directions

Based on the challenges of Section 6.1, we now derive relevant promising research directions for the leadership of hybrid teams. Specifically, the research directions, which are also shown in Figure 15, refer to the following:

1. Unified communication processes.
2. Context-aware performance metrics.
3. Well-being analytics.
4. Career progression and learning platforms.

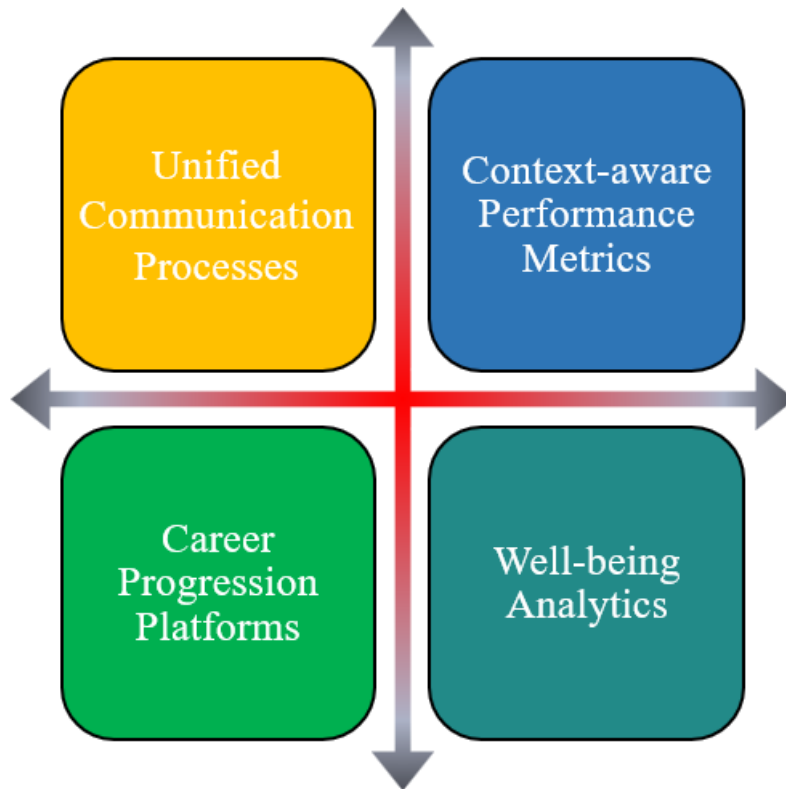


Figure 15: Research directions on the leadership of hybrid teams.

For every research direction, in the following, we discuss how this direction is incremental to the state of the art, and what is the impact of following this research direction on teams and organizations.

6.2.1 Unified Communication Processes

A promising research direction refers to the development of unified communication processes that explicitly address the failures described in Section 6.1.1 about effective communication. Current communication processes in hybrid teams tend to rely on technology and sometimes utilize too many digital tools, which are loosely connected, and may overcomplicate synchronous and asynchronous communication. Research that focuses on designing unified communication processes that conserve context, maintain cross-channel information, and include machine-assisted features, such as search across multiple tools (e.g., email, calendar, meeting notes, etc.), can substantially reduce communication fatigue. Such processes may compensate for the loss of social cues, communication delays, and information asymmetry that are observed in hybrid teams. Furthermore, interdisciplinary research integrating human-computer interaction, psychology, and media communication can contribute to designing digital communication processes that maintain common understanding across the team.

Such advances in communication processes reduce ambiguity in expectations and lower the risk of misunderstandings, so they actually affect leadership. The leader can utilize an existing communication structure provided, e.g., by the human resources of the organization, which offers transparency and provides equal access to information. This addresses the team cohesion concerns discussed in Section 6.1.2. Organizations also benefit, e.g., from more effective workflows, with more reliable documentation of tasks, and with less overhead from redundant interactions. In the long term, unified communication processes can form the basis for novel leadership practices that are less dependent on physical proximity and have equal participation for remote and on-site workers.

6.2.2 Context-Aware Performance Metrics

Another direction is to design performance metrics that are context aware and take into account the challenges of Section 6.1.3 about performance management and accountability. Existing approaches are influenced by visibility norms, e.g., that on-site workers are more productive. This may be a biased observation. Also, current digital tools pay attention to output but may not consider contextual performance, e.g., mentorship or following admin processes. Thus, new research can develop metrics to quantify performance considering also work location and role. Advances in measurement and data science might be needed to

achieve that and find appropriate indicators, e.g., of engagement, of value creation, and of task progress, which do not rely only on physical presence and results. Nevertheless, it is important that new research creates such metrics without discriminating against remote or on-site workers.

New performance metrics can have an impact on leadership. They can help to reduce the evaluation bias of employees based on their work location. This can also improve trust in leadership decisions because of better assessments. Actually, if the leaders use better metrics, it can also decrease anxiety among remote workers who suspect that they are discriminated against because of their work location. This way the proximity bias is reduced, that is discussed in Section 6.1.2 about cohesion and inclusion. Organizations also have benefits. Due to more accurate performance assessment, organizations can make an effort to keep talented professionals. Finally, with these metrics, leaders can select appropriate advancement opportunities for the workers based on capability, which addresses the development concerns described in Section 6.1.6.

6.2.3 Well-Being Analytics

Another research direction refers to the development of well-being analytics and early warning systems that directly respond to the challenges described in Section 6.1.4 regarding employee well-being and work-life balance. Remote work may hide visual and behavioral social cues that traditionally signal employee strain or burnout, which makes well-being assessment more complex. Research is needed to understand how digital data, work patterns, and workload can serve as indicators for well-being risks, without invading privacy or triggering surveillance concerns. Additional research into computational and artificial intelligence models that detect early signs of digital fatigue, workload imbalance, or prolonged isolation can provide leaders with evidence-based insights into hybrid work strain. This research direction may require an integration of psychology, data science, and ethics to ensure that analytics are accurate, transparent, and supportive.

Improved well-being analytics impact teams and organizations by enabling more timely and targeted interventions to employees that require help. Leaders can be supported in recognizing emerging well-being risks before performance degradation or disengagement occurs, which reduces the communication and coordination challenges described in Sections

6.1.1 and 6.1.5, respectively. Also, organizations can benefit from healthier teams with increased work pace, lower employee turnover, and more sustainable hybrid work. These improvements also reinforce psychological safety, which aids team cohesion and inclusion and can address the challenge of Section 6.1.2.

6.2.4 Career Progression and Learning Platforms

The final research direction refers to the design of equal progression and learning platforms that address the concerns of Section 6.1.6 about career development and learning. Remote workers typically face obstacles in accessing informal learning and mentorship, as well as reduced visibility for advancement. Research on learning and progression platforms for hybrid teams can focus on distributed mentoring systems, digital role-shadowing technologies, and career development models that rely on concrete measurable achievements. Moreover, research can focus on understanding how learning barriers of on-site and remote workers vary across different roles, seniority levels, and team cultures, and how novel learning technologies can address these barriers.

Equal career progression and learning platforms can support leadership by enabling more consistent, transparent, and inclusive team development opportunities that reduce the advancement gaps described in Sections 6.1.2 and 6.1.3. Leaders can now suggest learning opportunities and career paths to all team members through common progression platforms that provide equal access across all work locations. Also, organizations can benefit from more predictable talent development, talent retention, and reduced inequalities in advancement opportunities. The broader impact can be an organizational shift toward hybrid work with career progression that no longer depends on workplace presence, thereby supporting motivation, engagement, and commitment across hybrid teams.

6.3 Limitations

In literature reviews, it is important to mention the associated limitations in order to provide transparency and to acknowledge that the interpretation of the results may miss or intentionally exclude certain aspects. For example, as discussed in Section 3, the search process focuses on the literature of 2016-2025 because major contributions in the field are triggered by the COVID-19 pandemic in 2020. While this time span is selected to capture

how related literature evolved before, during, and after the pandemic, which is a major goal of this review, we cannot exclude the possibility that relevant works are published before this period. Therefore, explicitly discussing such limitations clarifies how the findings and conclusions of this review are interpreted.

An important limitation refers to the search process described in Section 3. Even though the search methodology is applied systematically, relevant works that do not follow the nomenclature or fall outside the selected time span are missing. The search process is made broad and combines multiple closely related terms to reduce the chances of excluding important contributions while also avoiding irrelevant works that could mislead our findings. It also explores several academic databases. Nevertheless, despite these precautions, related work that falls outside the scope of the defined search process may still exist to a limited extent.

Another limitation is related to the selection of databases and publication types. This review focuses on peer-reviewed journal articles indexed by credible, well-established digital libraries. This ensures a high level of quality and reproducibility. However, insights from practitioner-oriented publications, white papers, blog posts, and social media content are not taken into account. Such sources may provide different perspectives, e.g., from leadership practitioners, and often disseminate findings faster than peer-reviewed papers. However, these works may lack methodological rigor and can introduce personal bias, which could compromise the validity of our findings. For this reason, this review relies exclusively on peer-reviewed publications from established academic databases.

Finally, the presentation of the reviewed literature and the synthesis of our findings may include a limited degree of unconscious bias. Even though we did use a structured coding rubric to classify the included works, a minor level of subjectivity might inevitably still be there. To reduce this limitation, a consistent methodology is described, justified, and applied holistically across all stages of the review. As a result, the review aims to be comprehensive and transparent, and also to minimize subjectivity.

Overall, even though consistent methodological choices and mitigation strategies are employed to reduce the limitations of this work, certain limitations may still be present. Therefore, the findings of this review should be interpreted with these limitations in mind.

6.4 Discussion

To summarize future work, Table 6 outlines the identified challenges and maps these challenges to corresponding literature contributions, to thesis contributions, and to future directions.

Table 6: Prime challenges, contributions, and future work in hybrid team leadership.

Open Challenge	Literature Contributions	Thesis Contributions	Future Work Directions
Effective Communication	Identifies related problems. Proposes appropriate routines and documentation practices.	Proposes using specified channels, sharing context, clear expectations.	Cross-tool communication (across chat, email, docs, etc.).
Team Cohesion/ Inclusion	Explains subgroup formation and proximity bias. Provides guidelines for equal participation and sharing credit.	Highlights transparent decisions and achievement recognition.	Analytics to detect inclusion gaps and proximity bias.
Performance/ Accountability	Highlights limitations of reduced visibility. Proposes transparent workflows and avoiding excessive surveillance.	Proposes observable tasks, explicit task ownership, and regular feedback.	Context-aware performance metrics that rely on work output.
Work-life Balance	Acknowledges digital fatigue, and isolation. Proposes empathetic leadership.	Highlights regular check-ins and adaptive workload distribution.	Analytics to detect excessive workload, fatigue, and isolation.
Workflow Coordination	Identifies difficulty in rapid feedback and synchronization. Suggests adoption of Scrum/agile methods.	Emphasizes short planning cycles, and dependency management.	Analytics to improve adaptive work distribution with agile workflows.
Career Development	Acknowledges reduced mentoring and unequal access to learning. Proposes equal learning routines for everyone.	Highlights work-design optimization with integrated development plans.	Career progression platforms with equal access and advancement criteria.

Overall, our review and findings indicate that leadership in hybrid teams plays an important role in organizational efficiency, in economic sustainability, and in workforce resilience of modern organizations. The challenges we identify and the corresponding directions for future research show many managerial concerns, e.g., productivity, team cohesion, accountability, well-being, coordination, and career development, are now very much related to organizational performance, talent retention, long-term competitiveness, and organizational economics. Specifically, our findings show that organizations need to change from visibility- and location-based management toward evidence-based, digitally supported, and human-centered management that also takes into account inclusion, and empathy. In fact, these are shown to be very important in modern hybrid teams. From an organizational economics perspective, effective hybrid leadership reduces coordination costs, inefficiencies caused by information asymmetries and bias, and enhances returns on human capital by creating teams with sustainable performance.

7. Conclusion

This thesis examines how leaders can manage hybrid teams effectively by conducting a literature review and gathering relevant insights. This review considers the literature of the last ten years and shows an increasing research interest in leadership of virtual and hybrid teams since the COVID-19 pandemic. In fact, the research efforts toward effective leadership for hybrid teams are shown to grow exponentially, which indicates the importance of hybrid team leadership in society. Based on our literature review, we identify four major categories of leadership approaches, namely, styles, skills, behaviors, and practices, and we highlight the approaches that are most frequently applied for managing hybrid teams. To convey our findings effectively, we also design the COLA framework, which communicates the most important learnings by answering simple leadership questions regarding communication, organization, loyalty, and adaptation.

In addition, due to the comprehensive examination of related literature, this thesis reveals persistent open challenges that leadership research needs to address to make hybrid work more sustainable and efficient. Among them, we highlight effective communication, cohesion and inclusion, performance and accountability, well-being and work-life balance, agile collaboration, and career development. Based on these challenges, we derive the corresponding research directions for future research on this topic. In general, we note that unified communication processes, context-aware performance metrics, well-being analytics, and career progression platforms constitute promising research directions on hybrid team leadership.

Interestingly, based on our review, we can address various recommendations to the stakeholders involved in hybrid team management. Leaders should try to align their styles, skills, behaviors, and practices to their team and follow suitable leadership approaches that are effective for both remote and on-site workers, avoiding discrimination. Organizations and human resource departments should support leaders by providing unified communication tools, performance evaluation systems, and equal career development opportunities. The employees can engage in frequent knowledge sharing and helping remote workers proactively. Also, they should keep in mind that skill development and transparent collaboration help build trust and cohesion. Together, these recommendations are shown to

enhance productivity, sustainability, well-being, and long-term organizational growth, and are therefore beneficial to all stakeholders.

Overall, the contributions of this thesis, including the literature review, the COLA framework, the open challenges, and the research directions, aim at providing researchers and leaders with a condensed view of the current state of the art in hybrid team leadership.

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