Leadership in virtual teams: Navigating challenges and opportunities of the digital workplace



Alexander M. Atzberger: 11354216

Annika Eckert: 12225460

Kathrin Fischer: 12530298

Sulhie Rafet: 12822043

# Abstract

In today’s knowledge economy, virtual teams are on the rise as they allow for collaboration across the globe and enable organizations to respond timely and cost-efficiently to business demands. This systematic review examines the status quo of theoretical and empirical developments in the literature on leadership in virtual teams between 2007 and 2019. Reoccurring in the selected studies is the focus on challenges faced by virtual teams and resulting obstacles. Further, it becomes evident that the literature takes a two-fold approach towards leadership, focusing on the one hand on traditional leadership and on the other hand on the social context, in which leadership emerges. In the next step, an analysis of the literature shortcomings is presented and recommendations for future research are provided to enhance understanding of the complex dynamic of the digital workplace.

*Keywords***:** Virtual teams, virtuality, leadership, traditional leadership, emergent leadership, information and communication technologies

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# Introduction

### Organizations in today’s business world are affected by two interrelated developments. On the one hand, the everyday work of organizations has become increasingly global. On the other hand, the proliferation of communication technologies has allowed for greater frequency of interactions between workers worldwide and the establishment of virtual teams (Ziek & Smulowitz, 2014). These teams portray important opportunities for organizations in the wake of globalization and complex competitive environments, which requires them to adapt quickly and pull global knowledge resources cost-efficiently together (Eisenberg, Post, & DiTomaso, 2019). Literature defines virtual teams as teams with geographically and/or organizationally dispersed experts who use information and communication technologies (hereinafter ICTs) to accomplish an interdependent task (Charlier, Stewart, Greco, & Reeves, 2016; Cogliser, Gardner, Gavin, Broberg, 2012; Malhotra, Majchrzak, & Rosen, 2007). The definition is thus, three-fold and starts with the geographical dispersion that virtual teams are facing which ultimately implies cultural and temporal dispersion (Han, Chae, Macko, Park, & Beyerlein, 2017). The second distinct feature is considered the predominant use of communication technologies to compensate for the geographic distance, firm boundaries and/or time constraints (Charlier et al., 2016; Malhotra et al., 2007; Wakefield, Leidner, & Garrison, 2008). The third aspect considers the composition of virtual teams as one of experts. This has been further elaborated by Purvanova and Kenda (2018) who describe virtual teams as teams of “exceptional task perform[ers]” who are highly interdependent and task-oriented, and part of the team based on their high level of competency (p. 736).

### Business practitioners and scholars alike highlight the significance of virtual teams in making use of global talent at lowest cost, while at the same time constituting new challenges to its leadership (Mukherjee, Lahiri, Mukherjee, & Billing, 2012; Purvanova & Kenda, 2018). As such, studies about virtual teams uncovered technological difficulties, communication and language barriers due to geographical, cultural and time dispersion (Drescher & Garbers, 2016; Nauman, Khan, & Ehsan, 2010), problematic coordination of activities (Malhotra et al., 2007), difficulties in establishing common norms and a mutual sense of responsibility (Han et al., 2017; Malhotra et al., 2007; Maduka, Edwards, Greenwood, Osborne, & Babatunde, 2018) and social distance (Liao, 2017). Furthermore, challenges of virtual teams were found to be specifically rooted in the social nature of work, which seems to be inhibited not only by the predominant task-focus of the experts, but especially by the digital work setting. Yet, literature seems to lack a clear link between the aforementioned challenges and the role of leadership to navigate through these (Malhotra et al., 2007; Purvanova & Kenda, 2018; Verburg, Bosch-Sijtsema, & Vartiainen, 2013). So far studies have predominantly focused on the traditional top-down management, even though virtual teams that manage themselves without having formally assigned leaders become more prevalent in today’s knowledge economy (Hambley, O'Neill, & Kline, 2007). This makes a more in-depth consideration of the teams’ social work dynamics and their impact on leadership even more relevant (Liao, 2017; Purvanova & Kenda, 2018; Wakefield et al., 2008).

The systematic literature review therefore sets out to answer the following research question: *What do we know about leadership in virtual teams, and what should we know about it?* To answer this question, it looks at literature published between 2007 and today. 2007 marks the introduction of a different perspective on leadership in the knowledge economy, where “knowledge is a core commodity and the rapid production of knowledge and innovation is critical to organizational survival” (Uhl-Bien, Marion, & McKelvey, 2007, p. 299). Beyond this background, it has been argued that a change in perspective about leadership is necessary because the context, in which leaders operate, is diversified (Uhl-Bien et al., 2007). Uhl-Bien et al. (2007), for instance, propose that leadership should be seen not only as a position and authority but also as an “emergent interactive dynamic – a complex interplay from which a collective impetus for action and change emerges through interaction” (p. 299).

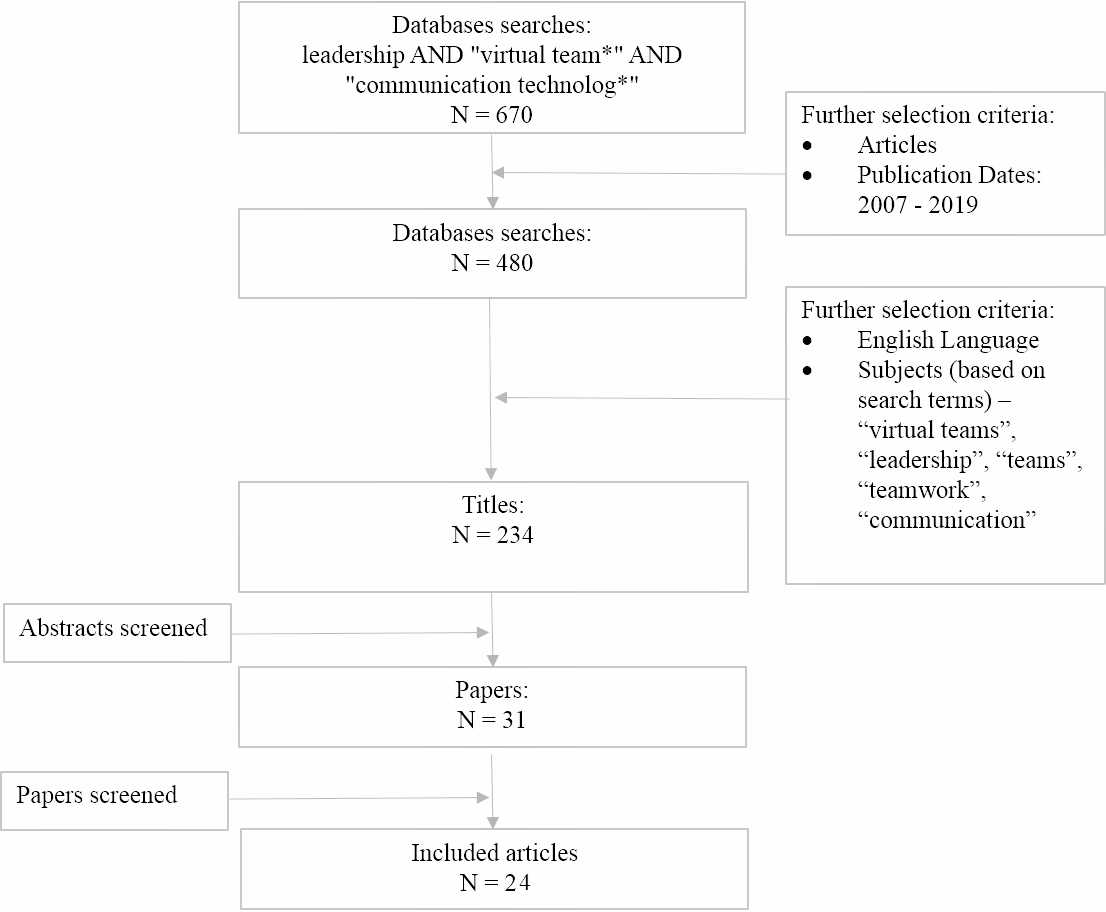
In the following, this systematic review first elaborates on the search strategy and inclusion criteria for the final sample. Next, it illustrates what is already known about leadership in virtual teams and finally concludes with recommendations for future research based on discovered shortcomings in existing knowledge.

# Methodology

The following section explores the steps undertaken to discover which literature relates to the main research intention and should be included in the final sample selection. Figure 1 below summarizes thesearch strategy and inclusion process.

**Figure 1**

*Search Strategy*



*Search terms and initial search filters*

The search terms of “virtual team\*” and “communication technolog\*” as visible in Figure 1 are followed by the asterisk symbol (\*) to include research that has focused on the plural and singular versions of the terms. The “communication technolog\*” term has been added as these types of technologies facilitate virtual teamwork and make collaboration possible. In doing so, it was ensured that only literature which highlights communicative interaction in those teams was included in the initial sample. Moreover, only journal articles in English were considered to allow all research members to equally participate and understand them.

*Time period*

Only research published between 2007 and 2019 was included. Academically, 2007 is a relevant starting point, as Uhl-Bien et al. (2007) formally suggested leadership research to move away from its traditional focus on individual characteristics and work outcomes and towards an in-depth consideration of the interactive dynamics of systems. Their proposal does not completely disregard the existence of more administrative leadership functions, but positions them as complementary to enabling, emerging and interactive forms of leadership. This systematic review is interested in discovering how much leadership research thus far has responded to this call and has accounted for these complex interactive dynamics in the context of virtual teams.

*Subject filters*

To discover themes relating to our main research question and search terms (Short, 2009), the filter of “Subjects” provided by the University of Amsterdam’s database was utilized. The subjects of “virtual teams”, “teamwork”, “communication”, “leadership”, and “teams” were deemed important for discovering and addressing research that considered the relevant aspects of communicative interaction in the digital workplace. This brought down the initial sample from 480 potentially relevant articles to 234 articles. Following this, all 234 abstracts were screened and 24 papers were selected based on the criteria further explained below. All relevant 24 papers were read in their entirety.

*Research focus*

Virtual teams have proven to be necessary for organizations in the current knowledge economy as they enable to pull global expertise cost-efficiently together (Eisenberg et al., 2019). Following the abstract screening, two additional inclusion criteria arose to reduce the sample size to a smaller quality sample of 24 articles. First, studies comparing virtual teams and interactions in face-to-face teams were regarded relevant, since the degree of virtuality that teams are facing can differ. Second, studies investigating thoroughly the role of leadership in virtual teams had to be added because the initial sample showed numerous studies in which leadership represented only one variable out of many and/or was referred to in a brief sentence within the implication section. Literature reviews were excluded because they merely reflect an evaluation of other scholars and do not create a foundation for the review intention at hand. The literature matrix in Appendix A provides a brief overview of the key findings in the final sample of 24 articles.

# Systematic Review on Leadership in Virtual Teams

The following review is clustered according to the dominant themes found in the 24 relevant articles. These include the challenges that virtual teams are facing and how leadership is dealing with these. In this context two prevailing research strings are evident, one focusing on traditional leadership in virtual teams and the other one on the social context in which leadership emerges.

**Challenges of virtual teams**

Literature on leadership in virtual teams has extensively focused on challenges of virtual teams, which it attributes to the technology-enabled and spatially distributed nature of virtual work (Purvanova & Kenda, 2018; Verburg et al., 2013). While triggered by conditions specific to virtual teams, scholars highlighted that resulting challenges are not virtuality-specific but also apply to more traditional teams (Purvanova & Kenda, 2018), even though they are often found less pronounced in traditional settings (Malhotra et al., 2007).

At the team level, existing research showcases interaction challenges (Hambley et al., 2007), technological difficulties, communication and language barriers due to geographical, cultural and time dispersion (Drescher & Garbers, 2016; Nauman et al., 2010), problematic coordination of activities (Malhotra et al., 2007), difficulties in establishing common norms and a mutual sense of responsibility (Han et al., 2017; Maduka et al., 2018; Malhotra et al., 2007) and social distance (Liao, 2017). Resulting from these challenges, scholars have predominantly discussed the following obstacles for effective outcomes: inhibited information sharing, relational conflict, and lack of trust.

In theory, virtual teams possess an extensive amount of knowledge and social capital, as members are assigned due to their high level of competency. They also have access to dispersed personal networks, which easily exceed those of co-located teams (Purvanova & Kenda, 2018). Yet, research has proven that virtual team members in practice often do not make use of their social capital and prioritize work over relationship-building, which impoverishes them socially (Purvanova & Kenda, 2018). However, because social capital is key to knowledge sharing, virtual teams are often unable to successfully draw on their knowledge capital, thereby also inhibiting information exchange at the detriment of successful work outcomes (Mukherjee et al., 2012; Purvanova & Kenda, 2018). Also, Drescher and Garbers (2016) and Liao (2017) find that social distance results in less information sharing, but attribute this to the lack of psychological safety in teams without face-to-face interaction.

However, exactly this psychological safety is required for meaningful relationships and understanding (Han et al., 2017). This leads to the other obstacles inherently discussed in literature: the lack of trust (Cogliser et al., 2012; Han et al., 2017) and increased conflict potential (Wakefield et al., 2008). Again, they are ascribed to the nature of virtual work, in which asynchronous communication channels (e.g. emails) constraint the ability of members to interact effectively in ‘real time’ (Liao, 2017; Mukherjee et al., 2012). Depending on the degree of virtuality and the features of communication technologies used, social cues have been found to be more or less present (Purvanova & Kenda, 2018). As a consequence, literature finds that in virtual teams, mutual awareness is often disrupted, confusion and misunderstanding increased and ultimately, more relational conflict present, which negatively impacts team functioning (Nauman et al., 2012; Purvanova & Bono, 2009).

Concluding on the above, it seems that task orientation and performance do not portray the biggest problems for leadership in virtual teams, since these teams are comprised of high performers and capable knowledge workers. Challenges seem to rather lie within the social nature of work, which is complicated in the virtual work setting compared to the more traditional, face-to-face one. This offers challenges to leadership of virtual teams, and poses questions on what we know about how these challenges can be managed and whether different types of leadership are required.

**How literature on leadership is** **addressing the challenges and dynamics of virtual teams**

The literature on leadership in virtual teams can be distinguished on the one hand on research that focuses on formally assigned leaders (transactional, transformational), and on the other hand on research that emphasizes leadership as a dynamic process that occurs within virtual teams (emergent, empowering, shared leadership).

*Focus on traditional leadership in virtual teams*

When reviewing the literature, it becomes evident that the majority of scholars examines leadership in virtual teams through a traditional leadership lens. In this sense, they focus on performance outcomes attributed to individuals that navigate virtual teams and motivate team members (Drescher & Garbers, 2016; Hambley et al., 2007). The strength of this research lies within its feasibility and practical relevance, as it offers the possibility to empirically validate performance outcomes through conventional ways (Purvanova & Bono, 2009; Purvanova & Kenda, 2018).

The predominantly used framework within the traditional approach refers to the transformational and transactional leadership. Whereas transactional leaders view the leader-follower relationship as a process of exchange in terms of rewards and punishment, transformational leadership is claimed to center around motivating and empowering employees to make them perform beyond expectations. In that regard, it is comprised of the following characteristics: (1) idealized influence (or ‘‘charisma’’), (2) inspirational motivation, (3) intellectual stimulation, and (4) individualized consideration (Hambley et al., 2007).

In fact, research has shown that transformational and transactional leadership traits are beneficial for virtual team effectiveness. In particular, when managing performance in virtual teams, transformational and transactional leaders’ social and behavioral capabilities, such as maintaining motivation, trust, and team identification are of great importance (Mukherjee et al., 2012; Robinson, 2016). In that way, leaders can create a psychologically safe environment, which helps to overcome the obstacles of lacking trust and team cohesion (Greenberg, Greenberg, & Antonucci, 2007; Rapp, Ahearne, Mathieu, & Rapp, 2010). Moreover, research illustrates that transformational and transactional leaders can help develop a shared understanding within the team, which is crucial to achieve favorable performance (Mukherjee et al., 2012; Rapp et al., 2010).

Literature has also found communication competencies of virtual team leaders to be crucial and include giving constant feedback, task clarity, clear directions and guidance, and reliability (Greenberg et al., 2007; Maduka et al., 2017). Working in virtual teams, in which knowledge professionals are geographically, culturally and temporarily dispersed, requires such competencies to be amplified to overcome social distance. In that regard, leaders are advised to put additional efforts in their communication, and to generate more and longer messages to improve effective coordination (Fjermestad & Ocker, 2007; Nauman et al., 2010).

In sum, leaders who enhance interactions among virtual team members, provide guidance, resources, coaching, trust and identification among team members enhance virtual team effectiveness (Fjermestad & Ocker, 2007; Liao, 2016; Maduka et al., 2017; Mukherjee et al. 2012). These findings highlight that due to the complicated sending and receiving of social cues and the lack of trust, leaders need to consider those aspects triggered by the virtuality context (Balthazard, Waldman, & Warren,, 2009; Rapp et al., 2010). When team leaders exhibit the roles of a monitor, facilitator, mentor, and coordinator, team members indicate less overall conflict and attribute greater effectiveness to the team (Cogliser et al., 2012; Wakefield et al., 2008). However, since virtual teams without formally assigned leaders are on the rise, approaching leadership only through the traditional leadership lens paints a partial picture of what has been investigated and leads to the following sub-section.

*Focus on the social context of leadership in virtual teams*

As the majority of the research on virtual team leadership does well to describe the skills and competencies needed to guide effective teams, it is often presupposed that virtual teams have formally assigned leaders. Yet, in today’s global knowledge economy, many virtual team leaders emerge on their own to direct the groups’ actions (Ziek & Smulowitz, 2014). Accordingly, this cluster of literature examines the social-oriented aspects of leadership within a virtual work context (Cogliser et al., 2012; Nauman et al., 2019) and takes a more holistic perspective with the emergence of leadership as a result of group interactions (Lynn Shollen & Cryss Brunner, 2016; Ziek & Smulowitz, 2014). In that sense, in virtual teams of “exceptional performers”, status is attributed to team members based on limited cues such as character traits and communication skills to make sense of team dynamics (Charlier et al. 2016; Cogliser et al., 2012; Ziek & Smulowitz, 2014).

In terms of personality factors, research showed that agreeableness and conscientiousness resulted in leadership emergence (Cogliser et al., 2012). Following this, team members who are perceived as reliable, kind, sympathetic and warm are more likely to be attributed to a leadership role. While asking questions, cognitive and creative ability, and vision setting have proven to be important competencies for leaders in face-to-face settings, they are also found to be crucial for emergent leaders in virtual teams (Ziek & Smulowitz, 2014). In that regard, similar competencies are required in virtual contexts, although they need to be amplified through the use of communication technologies. When using these, research found that team members higher on text-based communication abilities and lower on communication apprehension were more likely to be perceived as leaders because those are the tangible cues they can send to others in the virtual context (Charlier et al., 2016).

The above illustrates the social dynamic of leadership, which has been investigated under the umbrella of emergent leadership in virtual teams as counterpart to traditional leadership. As part of this, scholars have examined shared leadership, in which traditional roles of team members start to blur, resulting in the emergence of multiple leaders and idiosyncratic hierarchies (Charlier et al., 2016; Purvanova & Bono, 2009; Shuffler, Wiese, Salas, & Burke, 2010; Ziek & Smulowitz, 2014). Shared leadership includes the distribution of leadership responsibility within a virtual team in a self-managing format (Rapp et al., 2010; Shuffler et al., 2010). Therefore, shared leadership adds a more interactive and independent component to the team and reiterates the shift from the figure-ground traditional view on the relationship between leadership and teamwork to a modern emerging approach; A shift from leadership as exercised based on organizational mandates towards leadership implemented within the teams themselves.

# Shortcomings and recommendations for future research

After shedding light on the two dominant directions in the literature on leadership in virtual teams, this section elaborates on three shortcomings and suggests recommendations for future research to enhance the understanding of leadership in virtual teams.

The previous section clearly shows that human-centered approaches to leadership and the focus on individual characteristics and behaviours have prevailed in addressing the challenges of virtual collaboration across time and space. Yet, not enough emphasis and nuance has been put on the virtuality context, in which teams operate. In fact, the degree of virtuality affects the social nature of work and the presence of social cues, and often leads to the fact that challenges are experienced in more profound ways (Malhotra et al., 2007; Purvanova & Kenda, 2018). Different degrees of virtuality stemming from two sources, 1) the dispersion a team faces, and 2) the features of ICTs used, should be accounted for more sensitively in the future.

Research so far has applied virtual teams in a broad manner. In some works, face-to-face teams with some technology-mediated communication were considered virtual (e.g. Liao, 2017), while others applied this term to teams without any face-to-face interaction (e.g. Cogliser et al., 2012; Rapp et al., 2019; Verburg et al., 2013). Future research needs to more carefully consider the level of dispersion that teams face to clarify implications when studying virtual teams. In that sense, more attention would be dedicated to the challenges of the respective teams and clearer context-specific inferences could be made on how to find solutions through leadership. Furthermore, a more nuanced picture needs to be drawn on the ICTs used, as they also provide different degrees of virtuality and the potential to send social cues ‘online’. Some ICTs allow for synchronous, real time communication and face-to-face interaction (e.g. video conferencing, Skype for Business). Therefore, they have been claimed to improve the sending and receiving of social cues, by making them more tangible to others. For instance, Lynn Shollen and Cryss Brunner (2016) showed that the closer the virtual team comes to real face-to-face interactions, the more social cues are visible, and the easier it is to overcome obstacles such as the lack of trust and relational conflict. It would be interesting for future research to look specifically at such ICTs that enable face-to-face interactions to examine if the presence of social cues indeed catalyzes navigation through challenges, also accounting for inhibited knowledge sharing.

Following the above, it becomes apparent that ICTs carry both opportunities and challenges and are therefore, paradoxical in nature. While ICTs can connect team members across time and space, and allow for global collaboration, at the same time, they create social distance and complicate interactions (Eisenberg et al., 2019; Greenberg et al., 2007; Rapp et al., 2010). This paradox has a clear implication on leadership in virtual teams, which current studies do not consider sufficiently given their predominant focus on traditional top-down leadership. In fact, they disregard that the biggest problems for virtual teams are not task orientation and performance, but the virtual setting and the paradoxical nature stemming from ICTs. Hence, future research on leadership in virtual settings would benefit from a more holistic position that recognizes the very dynamic context of virtuality and its paradoxical implications on human beings. It could borrow assumptions from other research areas, in which the paradoxical nature of technology usage has been elaborated on already (e.g. Jarvernpaa & Lang, 2005; Mazmanian, Orlikowski, & Yates, 2013).

Also worth investigating areother dynamics in virtual teams that could help overcome communication barriers and have only been touched upon briefly yet (Han et al., 2017; Purvanova & Kenda, 2018). In that regard, the selection and composition of virtual teams are essential. For instance, many virtual teams are composed of high performing experts to help organizations respond quickly and cost-efficiently to business demands in today’s knowledge economy. This might imply higher status similarity among team members and thereby, could result in higher levels of psychological safety, team cohesion and trust in the first place (Greenberg et al., 2007; Mukherjee et al., 2012). Since teams managing themselves without having formally assigned leaders become more prevalent, power asymmetries are even further reduced (Hambley et al., 2007). Flattened hierarchies might thus, empower team members to contribute, engage, collaborate and ultimately, facilitate communication through alternative routes (Hoch & Kozlowski, 2014; Verburg et al., 2013).

Including all aspects above, future research should not regard individual leaders as obsolete in the virtual context, but rather, move towards an in-depth consideration of the complex interactive dynamics of virtual teams. Such a shift in emphasis would thereby, add depth to the understanding of leadership in virtual teams, which so far, has only been scratched upon at the surface-level. The proliferation of virtual teams makes it even more imperative for academia to grasp the real life complexities and provide guidelines for practitioners faced with these in today’s knowledge economy.

# Concluding remarks

The present review systematically organizes literature on virtual team leadership published between 2007 and 2019. This is not without limitations, of which the following three are of relevance. First, the choice of search terms and subject criteria involved a subjective starting point, which might have skewed the resulting sample of articles, thereby, overlooking alternative aspects. Potentially relevant research areas such as economics, marketing, and human resources were therefore not consulted. Second, utilizing only the database of the University of Amsterdam’s library provided a one-dimensional Western overview of journals and articles. Yet, it enabled the researchers to gain access to the studies included. Third, the abstracts of the studies might not have accurately reflected the researchers’ findings, thereby potentially misguiding the abstract scanning process. Nonetheless, this review paints a nuanced picture of the academic status quo with regard to leadership in the context of virtual organizational communication and lays a thorough foundation for future empirical work.

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