Organization Science

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http://pubsonline.informs.org

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To cite this article:
Mark Mortensen, Martine R. Haas (2018) Perspective—Rethinking Teams: From Bounded Membership to Dynamic Participation. Organization Science 29(2):341-355. https://doi.org/10.1287/orsc.2017.1198

http://pubsonline.informs.org/journal/orsc/

ORGANIZATION SCIENCE
Vol. 29, No. 2, March–April 2018, pp. 341–355
ISSN 1047-7039 (print), ISSN 1526-5455 (online)

Perspective

Rethinking Teams: From Bounded Membership to Dynamic Participation

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Received: August 16, 2016
Revised: March 20, 2017; September 30, 2017; November 8, 2017
Accepted: November 22, 2017
Published Online in Articles in Advance: April 2, 2018

https://doi.org/10.1287/orsc.2017.1198

Abstract. Teams have long been defined by boundedness—a clear distinction between members and nonmembers. Yet as we argue in this perspective paper, the distinction between members and nonmembers is often blurred in today's teams, as a result of trends toward increasing team fluidity, overlap, and dispersion. These trends offer potential organizational benefits, but the resulting boundary blurring can undermine team effectiveness. Moreover, boundary blurring calls into question many of the basic assumptions underpinning our theoretical and empirical research on teams. Accordingly, it is time to rethink our fundamental conceptualization of teams and to revisit our approaches to studying them. We propose a shift from viewing teams as clearly bounded groups of members toward instead viewing teams as dynamic hubs of participants. Reconceptualizing teams in this way opens up new avenues for theory development and offers important implications for future empirical research on teams.

Keywords: teams • group structure • group processes • boundaries

Introduction

For more than 40 years, research on teams has relied on the classic definition of a work team as a bounded set of individuals who work interdependently to achieve a common goal (e.g., Alderfer 1977, Cohen and Bailey 1997, Guzzo and Dickson 1996, Hackman 1987, Sundstrom et al. 1990). The concept of "boundedness" is central to this definition. At its heart is the premise that there is a clear delineation between members and nonmembers. Yet, in recent years, this premise has seemed increasingly questionable. As teams have become more fluid, overlapping, and dispersed, team membership boundaries have become less clear. This has substantial implications for how scholars conceptualize, theorize about, and empirically study work teams, as well as for managerial understanding of how such teams should be designed and supported. It is time to update our understanding of teams to take these implications into account.

Scholars have begun to recognize and study several important ways in which today's work teams often look quite different from traditional work teams with stable, full-time, colocated members (e.g., Hackman and Katz 2010, Wageman et al. 2012). Recent research has drawn attention to three characteristics that are increasingly common. First, teams are often fluid, as individuals move on and off them during the course of their work (e.g., Dibble and Gibson 2017, Edmondson 2012, Summers et al. 2012). Second, teams often overlap, because individuals commonly work on multiple teams simultaneously (e.g., Bertolotti et al. 2015, Cummings and Haas 2012, O'Leary et al. 2011). Third, teams are often dispersed, since individuals work in different geographic locations or organizational units (e.g., Cramton 2001, Cummings 2004, Gibson and Gibbs 2006). These trends toward increasing team fluidity, overlap, and dispersion have potential advantages for firms, including greater efficiency, flexibility, and innovativeness, which make them likely to continue. However, we argue that increasing team fluidity, overlap, and dispersion each can also contribute to the blurring of team membership boundaries.

In this perspective paper, we propose that boundary blurring has important implications not only for teams themselves but also for scholarly research on teams. We start by contrasting classic conceptualizations of teams as clearly bounded membership groups with the reality that many teams today have blurred membership boundaries, as manifested by individual uncertainty and collective disagreement about who is and is not a member of the team. We then explain how boundary blurring is driven by team fluidity, overlap, and dispersion, and we propose that beyond its practical implications, the blurring of team membership boundaries has important conceptual, theoretical, and empirical implications for researchers. In particular, we argue that boundary blurring suggests the need to fundamentally rethink our traditional scholarly definition of a team, since conceptualizing teams based on membership can

be theoretically misleading as well as empirically problematic in contexts where it is not clear who is or is not a member of the team.

Accordingly, we propose a shift toward conceptualizing teams in terms of participation, rather than membership. While the concept of "membership" is binary, based on either belonging or not belonging, the concept of "participation" is continuous, and it recognizes that individuals can participate in a team to varying degrees, at varying times, with varying others, and in varying roles. By viewing teams as dynamic hubs of participants rather than as clearly bounded groups of members, we will be able to refine our current theories and develop new theories that more closely reflect the reality of today's teams. Additionally, this reconceptualization helps to reframe our empirical approaches to data collection and analysis in ways that enable us to more accurately capture, measure, and analyze team phenomena. Thus, a more generative understanding of today's teams for theory, research, and practice becomes possible.

From Boundary Clarity to Boundary Blurring

Teams as Bounded Membership Groups

In a series of seminal writings that have formed the bedrock of subsequent research on work groups, Clayton Alderfer drew on systems theory to propose that group membership boundaries "hold the system together as an organized entity and thus help to distinguish what a system is from what it is not" (Alderfer 1976, p. 1593). He defined a group as "a collection of individuals (1) who have significantly interdependent relations with each other, (2) who perceive themselves as a group by reliably distinguishing members from nonmembers, (3) whose group identity is recognized by nonmembers, (4) who, as group members acting alone or in concert, have significantly interdependent relations with other groups, and (5) whose roles in the group are therefore a function of expectations from themselves, from other group members, and from non-group members" (Alderfer 1977, p. 320). Each of these elements contributes to a view of work groups as clearly bounded systems whose membership is agreed on by both insiders and outsiders.

J. Richard Hackman built on Alderfer's work in emphasizing that "real teams" take the form of "intact social systems complete with boundaries and differentiated roles among members" (Hackman 1987, p. 322). Hackman explicitly stated that boundary clarity is critical for team effectiveness: "To work well together, team members need to know who they are. Members are sure to run into difficulties if there is so much ambiguity about who is actually on the team that they cannot reliably distinguish between the people who share responsibility and accountability for the collective outcome and others who may help out in various ways but are not team members" (Hackman 2002, p. 44). In this view, a team's success and fundamental definition rests on the premise that a team's members can be clearly distinguished from nonmembers.

Taken together, these classic conceptualizations yield the foundations upon which much subsequent theory and research on work teams builds. Alderfer's and Hackman's views of teams as bounded membership groups are cited extensively, and other influential scholars have built directly on their work by similarly defining teams as intact social entities with clear membership boundaries (e.g., Ancona 1990, Cohen and Bailey 1997, Guzzo and Dickson 1996, Sundstrom et al. 1990). Most contemporary research on work teams still continues to rely on a premise of clearly bounded membership, which is often made explicit both in theoretical work (e.g., Carton and Cummings 2012, Hinds and Bailey 2003, O'Leary et al. 2011) and in empirical studies (e.g., Edmondson 1999, Gibson and Gibbs 2006, Wageman 2001). Even when not made explicit, this premise remains largely taken for granted in scholarly conceptualizations of teams. This is so even in studies that emphasize that teams are "open systems" and address issues directly related to team boundaries, such as boundary-spanning behavior (e.g., Ancona and Caldwell 1992, Marrone et al. 2007). While such studies recognize that boundaries may vary in permeability (Alderfer 1976)—that is, in the extent and type of resource flows and interactions between insiders and outsiders—they usually assume that the boundaries of a team themselves are clear.

Yet membership boundaries are often unclear in today's teams. Indeed, in some of his later work, Hackman himself observed that field researchers often encounter teams with boundaries that are much less clear than expected. For example, he noted that researchers sometimes ask managers for membership lists of teams they wish to study and encounter responses along the lines of, "Well, that's not entirely clear—it depends on how you want to define the team" (Hackman 2002, p. 47). Other scholars, too, have noted that team boundedness may vary (e.g., Ancona and Caldwell 1998) and have started to recognize the possibility of confusion about team membership (e.g., Edmondson et al. 2007, Mortensen and Hinds 2002, Wageman et al. 2012). This growing awareness reflects the increasing prevalence of a phenomenon that has important implications for research on teams as well as for teams themselves: the blurring of team member boundaries.

Today's Reality: Blurred Boundaries

We define boundary blurring as a lack of clarity about who is or is not a member of the team. This lack of clarity can exist because individuals are personally uncer-

tain about the team's membership or because they disagree with each other about the team's membership. Individuals can feel uncertain about the team's membership without strongly disagreeing with each other. For example, two people can agree that it is not clear whether or not a third person is a member of the team. Conversely, individuals can feel quite certain about the team's membership but disagree with each other. For example, two people can disagree about whether a third person is a member of the team. Our focus here is primarily on how individuals who work on a team understand its membership boundaries, although outsiders who do not work on the team can also be uncertain or disagree with each other about a team's membership.

Individual Uncertainty About Team Membership Boundaries. Each team member holds his or her own individual mental model (or psychological representation) of who is and who is not a team member. Such mental models may be based on different criteria. For example, an individual may consider the team's membership to be composed of the set of people named on an official team roster (a formal criterion), those who are labeled as team members by themselves or by others team members (an identity-based criterion), or those whose patterns of interaction identify them as team members (an interaction-based criterion) (Mortensen 2014). Notably, there may be inconsistencies between those who are identified as team members using each criterion: the official roster may not match the list of those who label themselves as team members, which in turn may not match the set of those who interact most frequently, and so on. Additionally, the choice of which criterion to use may depend on the context, including which criterion seems to best differentiate that team from others at a given point in time (Fiske and Taylor 2008). Thus, individual uncertainty about team membership may arise because an individual is not sure which criterion to use in a given context at a given point in time, and utilizing different criteria would result in different understandings of who is or is not a team member.

Furthermore, even if the choice of membership criteria is clear, there may still be potential for individual uncertainty about team membership in cases where it is not clear whether or not a particular person meets a chosen criterion, given the data available. For example, it may not be clear whether that person's levels and patterns of interaction with other members are sufficient to qualify him or her as a team member, whether that person would label or identify himself or herself as a team member, or even whether the person is named on an official team roster, since often such rosters are not readily available to the team members or do not exist at all. Hence, individual uncertainty about team membership boundaries can arise from a lack of clarity about who meets the criteria for membership, as well as from what those criteria are.

Collective Disagreement About Team Membership Boundaries. Even if individual team members feel certain in their own minds about who is and is not a team member, they may disagree with one another. In a study of 24 product development teams in five organizations, for example, Mortensen and Hinds (2002) found that team members frequently did not agree on their team's membership, with up to 25% of a team's membership contested at any point in time. To further explicate this, Mortensen (2014) developed the concept of "membership model divergence," defined as "misalignment among team members' models of who are—and who are not—team members." Such misalignment can arise because individuals are relying on different criteria for defining their team. While one individual views team membership as defined by the official roster, for example, another may view membership as defined by identification with the team, and another may view membership as defined by interaction patterns.

Even if they utilize the same underlying assumptions or criteria for how team membership should be defined, moreover, individuals may still disagree on the membership of their team because of a lack of clarity or disagreement about who meets those criteria. For example, some team members may believe that a given individual does not interact enough with the rest of the team to qualify as a member, while others may believe the opposite. Some may believe that another individual identifies as a team member, while others may not. Some may have seen the formal team roster and have accurate knowledge of the names on the list, while others may have never seen the roster and make inaccurate guesses about who is on it. Thus, collective disagreement about team membership boundaries can arise from divergence both in assessments of who meets the criteria for membership and in views of what those criteria are.

Boundary blurring thus goes beyond prior theorizing about team membership boundaries (e.g., Mortensen 2014, Mortensen and Hinds 2002) by recognizing that lack of clarity about who is or is not a team member can arise both from individual uncertainty (a cognitive state) and from collective disagreement (a social state) about membership criteria. To the extent that prior research has considered either of these, it has not conceptualized them as two related dimensions of an overarching phenomenon. Furthermore, while prior theories have recognized that there may be a lack of clarity about what a team's membership criteria are, boundary blurring arises not only from uncertainty or disagreement about the criteria to be used but also from uncertainty or disagreement about whether or

not those criteria are met. Thus, the concept of boundary blurring goes beyond prior research by recognizing the importance of both individual uncertainty and collective disagreement in assessments of whether the criteria for team membership are met, as well as in understandings of what those criteria for team membership are.

Causes of Boundary Blurring

If member boundaries are often more blurred in today's teams than our classic conceptualizations of teams would suggest, what is driving this boundary blurring? We argue that boundary blurring is driven by three relatively recent but rapidly accelerating trends toward increasing team fluidity, overlap, and dispersion. Each of these has become common in recent years because of the compelling benefits they offer teams and their organizations, including enhanced flexibility, efficiency, and learning. However, each can also lead to both individual uncertainty and collective disagreement about team membership.

Team Fluidity. Team fluidity refers to the extent to which the individuals working on a team change over time as people join or leave the team in response to the evolving demands of its work and environment. Individuals who initially work with the team may depart when their contribution is completed, others may join the team later, and some may come and go several times during the course of the team's task (Ancona and Caldwell 1998, Arrow and McGrath 1995, Dibble and Gibson 2017). The higher the number, proportion, or frequency of individuals joining and leaving the team, the higher the fluidity of that team.

Fluid teams are increasingly prevalent within many organizational settings, ranging from multinational companies to healthcare organizations to government agencies (e.g., Hackman and Wageman 2004, Summers et al. 2012, Valentine and Edmondson 2014). Additionally, fluidity is commonly seen in teams composed of individuals who come from different organizations or work as independent contractors, ranging from film crews (e.g., Bechky 2006) to product design teams (e.g., Malhotra et al. 2001). In light of this trend toward greater fluidity, Edmondson (2012) identified the increasing prevalence of "teaming"—a dynamic form of collaboration in which teams are continually reconstituted as project demands change.

Fluidity has become so prevalent because many teams are designed around project-based tasks that require changing skills and expertise over the duration of the project. In fluid teams, experts can be brought in to fulfill specific short-term needs and released once their expertise is no longer needed (e.g., Zika-Viktorsson et al. 2006). This gives such teams access to the knowledge they need at the time they need it and the flexibility to respond quickly to changing task and environmental conditions. Fluidity also allows for more efficient resource allocation across teams, since limited human resources can be deployed and redeployed as needed, avoiding periods of underutilization (e.g., Hobday 2000). Additionally, fluidity facilitates learning, as new members entering the team can help to promote knowledge transfer across the firm and stimulate creativity by creating new opportunities for knowledge recombination (e.g., Kane 2010).

However, fluidity also increases the likelihood of boundary blurring. Research on "dynamic teaming" (Matthews et al. 2012) finds that membership change makes it more difficult for members to hold a cohesive picture of their team. When teams are fluid, an individual has to update his or her mental model of the team's membership every time someone joins or leaves the team, if it is to remain current. Such mental updating takes time and effort (e.g., Rentsch and Klimoski 2001), and existing team members may sometimes fail to invest the time and effort needed for this, especially if the team's membership is changing frequently. Meanwhile, new members are often thrown into the deep end of the team's work and left to figure out for themselves who is who, rather than being carefully introduced to everyone. As a result, members of a team with fluid boundaries may find themselves individually uncertain about who the other members of their team actually are at any given point in time.

Additionally, the members of a fluid team may disagree with each other about who the other members are, because they are assessing the team's composition at different points in time. Individuals form mental models as a result of their experiences (Mohammed et al. 2010), but in fluid teams, their experiences may diverge. One long-standing member may be thinking about the team's members prior to a recent membership change, while another may have taken that change into account. New members may have a different picture of the team's membership than established members because they have not yet been fully exposed to everyone on the team, or because they have been explicitly briefed on its current membership, while some established members have not been made aware of recent changes. Thus, team fluidity also increases the likelihood of collective disagreement about who is or is not a team member.

Team Overlap. Team overlap refers to the extent to which the individuals who work on a team are concurrently working on other teams, a situation sometimes called "multiple team membership" (Mortensen et al. 2007, O'Leary et al. 2011) or "multi-teaming" (Matthews et al. 2012). The higher the number or proportion of a team's members who work on other teams simultaneously, the greater the overlap with other teams. Individuals who work on other teams simultaneously may vary in how much of their time is

devoted to the focal team, as well as in how many other teams they work on concurrently (e.g., Bertolotti et al. 2015, Cummings and Haas 2012, Mortensen et al. 2007, O'Leary et al. 2011).

Team overlap is common in many organizational settings, ranging from professional service firms to multinational corporations. For example, a study of 425 individuals across multiple industries found that approximately 80% reported working on more than one team at a time (O'Leary et al. 2011). In a sample of over 1,200 employees at Intel, more than 60% were members of three or more teams concurrently (Chudoba et al. 2005). Recent research on law firms found that lawyers worked simultaneously on more than seven teams in a given day (Gardner 2017). In some teams, "core" members devote all or most of their time to the focal team while more peripheral members devote smaller proportions of their time to several teams simultaneously (e.g., Haas 2006). In others, all members divide their time between the focal team and one or more other teams: for example, a study of 2,055 members of 285 teams in a multinational conglomerate found that team members spent an average of 20%–40% of their time on the focal team in a typical week while working with an average of more than five other teams (Cummings and Haas 2012).

A key reason for the growth in team overlap is the increasing complexity of many team projects, especially in knowledge-based organizations. Teams engaged in complex tasks often share members in an effort to leverage differentiated skills (e.g., Gann and Salter 2000, Rulke and Galaskiewicz 2000). Consequently, team overlap is common in firms where specialists devote portions of their time to several projects simultaneously, such as management consulting firms, or in parts of organizations where cross-functional teams or highly technical skills are required, such as research and development (R&D) units. From the firm's perspective, assigning individuals to simultaneously work on multiple projects reduces slack time by aligning the workload peaks of one project with the valleys of another. Overlap also allows the costs of human capital to be shared across multiple projects, so that any given team can secure some of an expert's time without shouldering the expert's full cost. At the same time, team overlap facilitates learning by enabling individuals who work on several teams simultaneously to serve as conduits for knowledge diffusion, and it helps catalyze innovation through the transfer of ideas and processes from one project into another, again increasing the potential for knowledge recombination (e.g., Taylor and Greve 2006, Tucker et al. 2007).

While overlap offers such potential benefits for teams and their organizations, it can also lead to boundary blurring. When individuals simultaneously work on other teams in addition to the focal team, they have more competing demands on their attention (e.g., Cummings and Haas 2012), which may distract them from paying enough attention to the focal team to ensure that they are clear about its membership. This team may also simply be less important to them, reducing the amount of effort they are motivated to invest in understanding its membership (e.g., Mortensen et al. 2007). Concurrently working on multiple overlapping teams can also be a source of confusion because members may be aware that another individual belongs to one of the teams they work on but unsure which one (e.g., Bresnen et al. 2004). Thus, team overlap can lead to individual uncertainty about the membership of the focal team.

Similarly, disagreement about the membership of a focal team is more likely when individuals work on other teams simultaneously, because the time they spend on their other teams leaves them less time for working together on the focal team. This may reduce their ability and motivation to develop a joint understanding of what that team is and who is in it. For example, a study of 38 product development teams in a multinational software company found that belonging to more teams simultaneously was associated with members dedicating less time to the focal team, which in turn was associated with increased membership model divergence among them (Mortensen 2014). Accordingly, overlap can increase collective disagreement as well as individual uncertainty about the membership of a team.

Team Dispersion. Team dispersion refers to the extent to which the individuals who work on a team are geographically and/or organizationally dispersed. They are geographically dispersed when they are physically located in different sites, cities, or countries (e.g., Gibson and Gibbs 2006, Martins et al. 2004). They are organizationally dispersed when they belong to different functional areas, divisions, or business units within an organization, or to different organizations altogether (e.g., Cummings 2004, Majchrzak et al. 2007). The greater the number or range of geographic locations or organizational areas in which these individuals work, the higher the dispersion of the team.

The growing prevalence of both geographically and organizationally dispersed teams has been widely recognized. Extensive research has examined the implications of geographic dispersion, including the effects of physical distance (e.g., Hoegl and Proserpio 2004), linguistic differences (e.g., Neeley 2013), cultural diversity (e.g., Stahl et al. 2010), and working across time zones (e.g., Massey et al. 2003). Meanwhile, the implications of organizational dispersion have been examined in research on the difficulties of communication and coordination in cross-functional and cross-departmental teams (e.g., Bechky 2003, Carlile 2004, Dougherty 1992), as well as in teams that span organizations with

distinct rules, policies, norms, and processes in contexts ranging from disaster relief (e.g., Majchrzak et al. 2007) to infrastructure megaprojects (e.g., Edmondson et al. 2015).

Increasing team dispersion is driven again by the demand for more flexible and efficient resource utilization, since it allows resources to be applied to organizational needs irrespective of their location. By establishing cross-border teams, for example, firms can bring to bear relevant expertise from around the world, take advantage of lower labor costs in some locations, establish 24-hour workday cycles, or maintain close ties to local contexts (e.g., Gibson and Gibbs 2006, Schiller and Mandviwalla 2007). Likewise, cross-functional teams are often driven by the need for diverse knowledge to perform key organizational tasks, such as developing breakthrough innovations, while cross-organizational teams reflect the demand for close partnerships between organizations to address complex challenges, such as managing strategic alliances. Team dispersion can also increase the potential for learning: for example, geographically dispersed teams can benefit from the knowledge of cosmopolitan team members who have general technical expertise as well as local team members who have more country-specific insight (Haas 2006). Similarly, the members of organizationally dispersed teams can learn from each other and combine their knowledge in novel ways that can improve their products or services (e.g., Cummings 2004).

While offering such advantages, however, team dispersion also simultaneously increases the potential for boundary blurring. For an individual member, keeping track of everyone else on the team becomes more difficult when the team is more geographically or organizationally dispersed (Cramton 2001), as dispersed teams often divide up into subgroups where each individual interacts primarily with a small subset of the other members (e.g., Carton and Cummings 2012, Hinds and Cramton 2013). Even if they make an effort to communicate electronically, those in different locations or units typically have fewer opportunities to interact face-to-face, making it harder for them to get to know each other (e.g., Hinds and Mortensen 2005). Thus, individuals may be uncertain about who is or is not a team member as a result of the physical, social, and psychological distance created by team dispersion.

In addition, members of dispersed teams may be more likely to disagree with each other about the team's membership because their views of the team are partial rather than complete; that is, their understanding of the team's entire membership may be inaccurate because they interact primarily with a subgroup of the team (e.g., Van den Bulte and Moenaert 1998). Moreover, the inaccurate view of a member from one subgroup may be different from the inaccurate view of a member from a different subgroup, given their different vantage points. Thus, for example, the members of a global team that spans Brazil, France, and China may disagree with each other because the Brazilians interact primarily with the French and have only a hazy sense of who the Chinese members are, and the Chinese members have a similarly hazy sense of who the Brazilian members are, while the French have a more accurate sense of who the Brazilian and Chinese members are. Thus, geographic and organizational dispersion can increase disagreement over team membership boundaries.

Interactions Between Team Fluidity, Overlap, and Dispersion. While increased team fluidity, overlap, and dispersion can each independently lead to boundary blurring by increasing both individual and collective uncertainty about team membership as discussed, they can also interact with each other to amplify these independent effects. For example, there may be a compound effect of fluidity and overlap, such that individuals who belong to multiple teams simultaneously are less invested in each team and therefore less likely to expend the time and effort required to update their team membership models when the members of a team change as a result of individuals entering and leaving the team. Similarly, there may be a compound effect of fluidity and dispersion, such that it will be even harder for members of more fluid teams to be fully aware of who has joined or left a team in a different location or unit. There may also be a compound effect of overlap and dispersion, such that individuals who work on more other teams simultaneously may be less able and willing to devote the time and effort needed to ensure they know all the members of a team that is more geographically or organizationally dispersed. In each of these situations, the result of interactions between team fluidity, overlap, and dispersion may be increased individual uncertainty as well as increased collective disagreement about team membership.

Implications of Boundary Blurring: Reconceptualizing Teams

We have argued that the boundaries distinguishing team members from nonmembers are often blurred rather than clear in today's teams as a result of the increasing prevalence of team fluidity, overlap, and dispersion. These trends provide valuable organizational benefits, including increased responsiveness, more efficient resource utilization, and opportunities for learning, making it unlikely that organizations will revert to the predominantly stable, full-time, colocated teams of the past.

From a practical perspective, while the organization as a whole may benefit from greater team fluidity,

overlap, and dispersion, the resulting boundary blurring can lead to problems that reduce the effectiveness of a given team. When there is individual uncertainty or collective disagreement about a its membership, a team is more likely to experience process losses (Steiner 1972) as a result of increased difficulties of both coordination and cooperation. On the coordination side, for example, a lack of clarity about team membership can lead to the omission of some individuals from discussions or decisions, which can impede the team's ability to communicate effectively (Cramton 2001), build consensus (Moore et al. 1999), make good decisions (Cannon-Bowers et al. 1993), generate creative solutions (Hargadon and Bechky 2006), establish common norms (Hinds and Bailey 2003), and avoid breakdowns (Wilson et al. 2007). On the cooperation side, a lack of clarity about team membership can lead to reduced trust (Mayer et al. 1995) and group cohesion (Reynolds et al. 2003), which in turn can increase the possibility of conflict within the team (Jehn 1997) and impede cooperative behaviors such as knowledge sharing (Kane et al. 2005), advice giving (Klein et al. 2004), and resource sharing (Polzer 2004).

The potential problems arising from boundary blurring might seem easily addressed by ensuring that all team members are carefully and fully informed about who is working on the team at all times. Yet, very often, the need for greater clarity on team membership is not recognized or not addressed if it is recognized. This is perhaps partly due to a lack of understanding of the importance of boundary blurring, but it is also likely due to the reality that addressing boundary blurring is more difficult than it seems. Boundary blurring is not only about the lack of accurate information; it is also about different views of what the most important criteria for team membership should be and what it takes to meet those criteria, and it is about a lack of ability and willingness to invest the time and effort required to build and maintain a firm understanding of the membership of fluid, overlapping, or dispersed teams. As a result, the problems created by boundary blurring are not necessarily easy to resolve.

From a scholarly perspective, moreover, the existence of boundary blurring in many teams today highlights important limitations of the existing research on teams. Most of this extensive research either explicitly or implicitly assumes a clarity of team membership boundaries that increasingly often does not exist. As a result, scholars are at risk of making inaccurate theoretical assumptions about how teams work, and adopting empirical approaches to studying teams that are potentially misleading or invalid. In light of this, we suggest that it is time to fundamentally reconsider how we conceptualize teams and, in turn, to consider new theoretical directions and empirical approaches to studying them.

Below, we propose a shift away from conceptualizing teams as bounded membership groups and toward instead conceptualizing teams as dynamic participation hubs. This new conceptualization of teams neither explicitly requires nor implicitly assumes a clear team membership boundary. As such, it allows us to better accommodate the realities of boundary blurring in understanding teams and teamwork. Importantly, we are not advocating throwing away the term "team" or the past decades of research on teams. Even without clear membership boundaries, the concept of a team is still valuable: those who manage and work in teams, as well as scholars who study them, will not readily discard this term in favor of a new label or no label at all. Furthermore, many of the theories and concepts developed in this literature will continue to be valid under certain conditions or with some modifications. Rather, we advocate shifting our conceptualization of teams to better capture the reality we face today—where membership boundaries are often blurred—while still remaining applicable to traditional teams. With this shift, we seek to open up new avenues for theoretical exploration and refocus our empirical approaches.

From Bounded Membership Groups to Dynamic Participation Hubs

Teams have traditionally been defined in terms of a clear distinction between members and nonmembers, but this seems inappropriate when team boundaries are blurred because of fluidity, overlap, and dispersion. To better reflect these realities, we suggest that teams can be more fruitfully conceptualized as often dynamic rather than stable, in terms of participation rather than membership, and as hubs rather than groups.

Viewing teams as often dynamic rather than stable recognizes that many teams today are characterized by multiple simultaneously moving parts: participants entering and leaving over time, juggling their work on multiple teams at the same time, and working with other participants in different geographic locations or organizational units, who themselves are also entering and leaving the team and juggling their work on several teams. As a result of such convergence of fluidity, overlap, and dispersion, the boundaries of many teams are continuously changing. Prior research has noted that certain specialized types of teams tend to exhibit high levels of dynamism, such as disaster relief teams or emergency room medical teams (e.g., Klein et al. 2006, Majchrzak et al. 2007, Valentine and Edmondson 2014), but high levels of dynamism are becoming increasingly widespread in many team settings, including professional service teams, R&D teams, and software implementation teams. Explicitly incorporating dynamism into the way we conceptualize teams thus positions us to develop theoretical

insights and empirical approaches that directly recognize and address this reality, rather than assuming it away or leaving it unspecified.

Viewing teams in terms of participation rather than membership allows for relationships between individuals and a team that are continuous rather than binary; that is, while "membership" implies that an individual is either in or out of the team, "participation" allows for relationships that can vary in duration, intensity, and content. Individuals can participate in a team at varying times: for example, a participant can join the team for all of its work or only part of its work, and he or she may join and leave the team several times during a given period. Individuals can also participate to varying degrees: for example, participants can spend 10% of their time working with a given team or 100% of their time with that team. Furthermore, individuals can participate in varying roles: for example, a participant can be responsible for providing specific country knowledge, specialized technical expertise, or a particular functional perspective. Acknowledging the potential for such variations in the duration, intensity, and content of participation reflects the realities of working in teams that are fluid, overlapping, and dispersed.

Viewing teams as hubs rather than groups recognizes that many teams are not clearly bounded sets of individuals who work interdependently to achieve their team's goal. Instead, many teams serve as hubs—centers of activity to which individuals connect in different ways as they contribute to that activity. Participants can connect with all other participants equally, but often they connect with some more than others. In a fluid team, for example, a participant may interact only with those who are actively engaged with that team at the same time, rather than with all others who contribute to the team over time. When teams overlap, a participant who works with several teams simultaneously may interact only with those on the focal team who are most relevant to their work, rather than with every other participant who works on the team at the same time. In a dispersed team, a participant may interact primarily with those in the same location or unit and rarely with those in other locations or units. Conceptualizing teams as hubs rather than groups enables us to readily incorporate such variations in connectedness.

When we take these three attributes together, our view of teams as dynamic participation hubs builds on emerging themes in recent research while both integrating and extending them further. In its emphasis on dynamism, there are commonalities with the idea of "teaming," which similarly recognizes that the composition of a team may change frequently as individuals join to contribute particular expertise and then leave when their contributions are complete (e.g., Edmondson 2012, Matthews et al. 2012). In its emphasis on participation, our view has commonalities with research that takes a social network approach to identifying teams "from the bottom up" by examining individuals patterns' of interactions (e.g., Carton and Cummings 2012, Murase et al. 2012). In conceptualizing teams as hubs, there are commonalities with the literatures on "multiteam systems" (e.g., Marks et al. 2005), multiteam projects (e.g., Hoegl and Proserpio 2004), and multiple team membership (e.g., O'Leary et al. 2011), which move away from assuming that teams are unitary entities toward instead expecting teams to function as interconnected modular, multicomponent systems. However, viewing teams as dynamic participation hubs goes beyond these existing paradigms, not only by combining elements from all three but also by avoiding any assumption of team boundedness, while still recognizing the importance of a central focus for the participants' activities.

New Opportunities for Theory Development

Reconceptualizing teams as dynamic participation hubs with boundaries that are often blurred rather than clear has implications for many of our theories of team inputs, processes, and outcomes. To illustrate the scope of these implications, we offer some potential new opportunities for several major areas of interest to team researchers, including theories of team boundary spanning, commitment, composition, learning, and collective emergent states such as transactive memory, psychological safety, or shared identity. While far from exhaustive, these illustrations demonstrate how recognizing the realities of boundary blurring can catalyze a wide array of novel and potentially insightful theoretical approaches to studying teams.

From Boundary Spanners to Resource Brokers. A substantial literature has taken an "external perspective" that argues that effective teams engage in boundary-spanning behaviors (Ancona and Caldwell 1992), which can increase their communication with external stakeholders (e.g., Aldrich and Herker 1977), facilitate knowledge search (e.g., Hansen 1999), and ultimately improve their viability and performance (e.g., Choi 2002, Marrone et al. 2007). In examining the interactions between team members and outsiders, this literature usually assumes a clear distinction between members and nonmembers. This is problematic, however, in teams with blurred boundaries, where a clear distinction is not always apparent.

Viewing teams as dynamic participation hubs can help to advance research in this area by avoiding this assumption. Rather than classifying some team members as boundary spanners, all team participants may be viewed as resource brokers—that is, as individuals who may, to varying extents, exchange resources (such as knowledge, advice, and social or political support)

with other participants as well as with those not currently participating on the team. This view does not rely on a premise of "insiders" and "outsiders." It also recognizes that any participant can engage in resource brokerage activities, rather than reserving brokerage roles for particular individuals. It builds on the core arguments found in the boundary-spanning literature regarding the benefits of certain activities (ambassadorial, gate keeping, etc.) while reframing them as part of a cost–benefit assessment for any participant. This approach can help to advance our theoretical understanding of specific behaviors that are potentially important for teams. For example, research on knowledge sharing within and across teams could examine whether a participant's decision to withhold particular information rather than share it with someone more peripheral might be based on an assessment of the risks with respect to information control or overload. It also suggests that such decisions may be fruitfully analyzed at the level of specific interactions, which vary across time, target, and context, rather than as aggregate behaviors in which a team does or does not engage. Thus, viewing team participants as resource brokers can enable us to build on the foundations established by prior research on boundary spanning while mapping our understanding of such activities more closely to the configurations and complexities of today's teams as well as forging stronger connections with research on networks, knowledge sharing, and information withholding.

From Commitment to Competing Demands. Many scholars have argued that the commitment of members to the team is an important antecedent to team effectiveness (Shapcott et al. 2006), as well as a valued outcome in its own right (Kirkman and Shapiro 2001). The trend toward boundary blurring poses threats to the prospects for strong commitment, however, since the lack of clarity about membership weakens participants' sense of the team as an entity (Spencer-Rodgers et al. 2007). As a result, they may be both emotionally and behaviorally less committed to the team (Sherman et al. 1999). In addition, they may have a reduced stake in the team's outcomes, as well as competing demands on their attention and their loyalties from other teams, further reducing their commitment to that team (Cummings and Haas 2012).

Viewing teams as dynamic participation hubs encourages greater focus on how individuals experience and manage their commitment to their teams, including how they understand, prioritize, and manage these motivational challenges and competing demands. This suggests opportunities to advance our understanding of team commitment by drawing on insights from different theoretical areas. For example, applying the concepts of limits on attention and competition for attention from theories of organizational attention (e.g., March and Simon 1958, Ocasio 1997) could help to shed light on the conditions under which team commitment is most endangered, as well as when such commitments are likely to translate into overload and stress. Highlighting the possibility of variance in participants' levels of commitment also opens up a largely unexplored domain of questions related to the attractive force a team exerts on its current and potential participants. This suggests that there may be insights to be gained by examining matches or mismatches between individuals and teams at the dyadic level, based on the attractiveness of a team's project or current participants to a target participant. Viewing teams in this way still allows researchers to explore and assess concepts such as overall commitment to the team while providing a means for a more nuanced assessment of how those forces vary within and across teams and how they grow or ebb in strength during the lifetime of a team.

From Member Composition to Participant Contributions. A central focus of the extensive literature on team composition has been exploring the impact of member diversity on team processes and outcomes (e.g., Srikanth et al. 2016, Williams and O'Reilly 1998). This research typically conceptualizes member diversity as a feature of the team that is constant and clear over time. This can be problematic, however, when team fluidity, overlap, and dispersion affect the set of individuals who participate in a given component of the team's work, thereby changing the demographic attributes as well as the knowledge, skills, and abilities of those in the mix. The resulting blurring of team membership boundaries may also change the set of others against whom a participant assesses team diversity, increasing or decreasing the salience of particular differences to that participant (see Fiske and Taylor 2008). As a result of such variations in salience, diversity may be experienced differently by different participants.

Viewing teams as dynamic participation hubs helps to address these concerns by encouraging researchers to explore diversity in terms of participant contributions (i.e., what they do) as well as participant characteristics (i.e., who they are), and to see diversity as changing and subjective rather than stable and objective. New possibilities for exploring the effects of diversity in teams may be generated by drawing on approaches to understanding teamwork that focus directly on the content and timing of participant contributions. For example, applying the concept of interaction episodes from sociological theories of interaction rituals (Collins 2004) can help researchers to focus on key participation events, such as dyadic conversations, subgroup meetings, or sessions where the full team participates (e.g., Metiu and Rothbard 2013). Such an approach could illuminate how diversity may

affect interaction processes and outcomes differently depending on the nature, timing, purpose, and structure of the interaction episode, as well as generate insight into how a diverse team might manage its patterns of interaction episodes over time to perform more effectively. Other possibilities relate to minority influence (e.g., De Dreu and West 2001): viewing diversity as changing and subjective rather than stable and objective suggests that minority status is likely to be temporally and contextually dependent (e.g., Choi and Levine 2004). The same participant may be in the majority at one time or in one context but in the minority at another time or in another context, depending on who is currently contributing to the team. Participants may also view themselves as in the majority or minority because of how they understand the team's membership, even if their understanding is not completely accurate or shared because of boundary blurring. These varying experiences of minority status are likely to have implications for how, when, and by whom influence is exerted in teams. Thus, viewing teams as dynamic participation hubs can lead to new ways of thinking about team composition that highlight the varying contributions of different participants over time and across contexts.

From Cumulative Learning to Continuous Relearning. Team learning is a topic that has increasingly engaged scholars of groups and teams. Research has examined the antecedents of learning inside (Edmondson 1999), outside (Bresman 2010), and between (O'Leary et al. 2011) teams, as well as the dynamics of team learning (Ellis et al. 2003) and its impacts on performance (Van der Vegt and Bunderson 2005) and creativity (Hirst et al. 2009). Central to such research is a basic premise that learning is about improvement over time along some dimension (Argote et al. 1995). Ideally, teams are engaged in a process of continuous improvement in which they are constantly working to gain more knowledge, incorporate it into their existing knowledge, and improve their performance as a result.

Viewing teams as dynamic participation hubs pushes us to recognize that learning processes may be more sporadic, less spontaneous, and more localized than a process of continuous (or S curve) improvement would suggest. Learning processes may be sporadic both because new participants join the team, bringing fresh insights, and because old participants leave, leading to knowledge losses. Insight into how such sporadic learning unfolds may be gained by taking an evolutionary perspective (Nelson and Winter 1982) that views learning in teams as involving iterative cycles of variation, selection, and retention (e.g., Haas and Cummings 2017). Progress through a cycle may be derailed when participants leave the team, while the arrival of new participants may lead to revisiting of earlier stages in the cycle, both productive (e.g., because valuable new ideas and insights are generated) and unproductive (e.g., because there is confusion or disagreement about earlier decisions). Thus, team learning is likely to involve multiple iterative cycles, raising questions about when iteration is beneficial versus detrimental to progress and how to manage such cycles most effectively. Learning processes may lack spontaneity, meanwhile, because participants who are not devoted to the team full time may be tempted to withhold information as a result of doubts about whether they will receive credit for their contributions (e.g., Bikard et al. 2015), concerns about knowledge ownership (e.g., Haas and Park 2010), or lack of interpersonal trust when they do not know the other team members well (e.g., Huckman et al. 2009). This suggests the need to explore the incentives and motivations that may increase willingness to contribute knowledge to a team even if participation is limited in scope or duration. Learning processes may also be more localized, because knowledge that is shared inside a subgroup may not reach other subgroups within a geographically or organizationally dispersed team, as a result of barriers or "faultlines" between participants (e.g., Haas and Cummings 2015, Lau and Murnighan 1998, Polzer 2004). This possibility raises questions of how such barriers can be overcome within dynamic participation hubs.

From Robust Team-Level to Fragile Multilevel Emergent States. Last, team researchers have developed a number of influential theoretical constructs that capture important collective emergent states. For example, teams can vary in the extent to which they have an effective transactive memory system (i.e., a shared understanding of who knows what in the team; Lewis and Herndon 2011), psychological safety (i.e., a shared belief that the team is safe for interpersonal risk taking; Edmondson 1999), or a strong collective identity (i.e., a shared self-definition; Abrams and Hogg 2003). Such states are typically characterized as team-level phenomena that develop cumulatively over time (e.g., Schulte et al. 2012). However, much of the research on these constructs focuses on identifying their features and establishing their effects, rather than on examining how they are developed. Moreover, since they are formulated at the team level, they typically rely on an assumption of clear team membership boundaries.

Reconceptualizing teams as dynamic participation hubs suggests two potentially valuable directions for future research on such emergent states. First, it undermines the premise that these can be viewed as robust attributes of the team and instead suggests that they are likely to be inherently fragile. Teams with blurry boundaries are likely to find it harder to both develop and sustain collective emergent states such as transactive memory systems, psychological safety, or shared

identity as a result of the fluidity, overlap, and dispersion of their participants. Accordingly, viewing teams as dynamic participation hubs highlights the need for future research to direct more attention toward exploring how such emergent states are built and maintained, as well as the conditions under which they are likely to be more robust or more fragile.

Second, viewing teams as dynamic participation hubs suggests that such emergent states may be better conceptualized as multilevel rather than team level, since it is possible that weaknesses (or strengths) in team-level properties may be compensated for (or complemented by) strengths in these properties at other levels of analysis. For example, a team may have difficulty establishing a strong team-level transactive memory system because of its fluid, overlapping, or distributed participants, but transactive memory may exist at the dyad or subgroup level because some of the participants are working together on other teams, or at the unit level or organization level as a result of the shared experiences of numerous individuals who have participated in many teams over time. A team that has difficulty developing a strong team-level transactive memory system may be able to draw on transactive memory at other levels to compensate for its weakness at the team level. Indeed, dynamic participation hubs may actually increase the opportunities to develop transactive memory at other levels because of the complex, intersecting patterns in which their participants are assigned to work within and across teams. Thus, the possibility that such team-level emergent states may have parallels at other levels that can complement or compensate for them suggests potentially promising avenues for future exploration.

Challenges for Empirical Analysis

Recognizing that many teams today look more like dynamic participation hubs than bounded membership groups has implications not only for future theorizing about teams but also for empirical approaches to studying them. It is worth noting that these issues exist irrespective of whether we explicitly adopt the concept of dynamic participation hubs in defining and theorizing about teams. In particular, we point to the need to strengthen our studies by collecting time-varying measures, accounting for interdependence, identifying metastructures and substructures, conducting multilevel analyses, and recognizing the potential fragility of team-level constructs.

Time-Varying Measures. In teams where participants change over time, the set of participants relevant to a given measure depends on the point in time at which the team is assessed. However, with the exception of a small number of studies that explicitly examine team membership change as their central phenomenon, either experimentally (e.g., Kane et al. 2005) or in the field (e.g., Chandler et al. 2005), our current methods for studying teams rarely acknowledge the potential need for time-sensitive measures of team inputs, processes, and outputs. Typically, experimental studies of team dynamics constrain the possibility of ambiguity in team membership by design, with most relying on stable sets of people working together on a task in a laboratory. For such studies, external validity is compromised, since in reality, many teams do not have stable membership. In field studies, meanwhile, data collection instruments are also typically designed to eliminate any ambiguity in team membership, for example, by providing respondents with a list of names and asking them to respond with respect to that list. Yet, in reality, the team's participants at a particular point in time may differ from the participants at a previous or later point in time. Additionally, field researchers sometimes use questions that refer to a team by name without specifying a reference period, which runs the risk that respondents may be referring to different sets of participants. The consequence is that researchers risk relying on inaccurate, incomplete, or mismatched empirical measures when examining relationships between inputs, processes, and outcomes. To address such concerns, future research can benefit from developing strong qualitative understandings of how participation unfolds in particular settings through intensive field-based interviews and observations. Such understandings can offer valuable insights into the frequency and volume of participant turnover, the varying intensity of participant contributions over time, and the reasons for these fluctuations, which, in turn, can facilitate the construction of appropriate quantitative measures and application of appropriate time-dependent analytic techniques. Researchers might also become aware of additional levels or units of analysis that might be informative, such as dyadic relationships, interaction episodes, or patterns of events over time (e.g., Leenders et al. 2016, Metiu and Rothbard 2013, Murase et al. 2012). In parallel, experimental research can take advantage of the controlled laboratory setting to manipulate participation over time, in order to shed light on the micromechanisms at work in teams that look more like dynamic participation hubs than bounded membership groups.

Interdependent Units. When participants work on multiple teams simultaneously, these teams are no longer independent units. Instead, they are interdependent, creating challenges for both our research designs and statistical analyses, which typically assume that teams operate essentially in isolation from one another. Taking concerns about interdependence seriously may require mapping the ecology of teams in the research setting—that is, developing detailed understandings of which teams overlap with which other teams, how

much, and through which specific overlapping participants. Given the possibility that participants move on and off teams over time, such mappings may also be needed for several points in time. These mappings should then be taken into account in developing data collection strategies. For example, researchers who are collecting survey data may have to think carefully about whether to ask a participant who is on four teams, say, to complete four different surveys, which is onerous; or whether to apply that participant's answers for one team across all their other teams, risking the loss of important variance; or whether to develop a hybrid approach. In addition, the statistical techniques chosen must be able to account for the nonindependence across teams induced by their shared participants.

Metastructures and Substructures. Teams whose participants are organizationally or geographically dispersed also pose challenges for empirical research, including accurately understanding the scope of the team and the distribution of its participants. A substantial part of the challenge here lies in the need to consider and address the possible existence of metastructures when examining smaller teams or of substructures when examining larger teams. Is the team under scrutiny a single autonomous entity, a component hub (i.e., a substructure) within a larger hub, or an overarching entity (i.e., a metastructure) that includes multiple component hubs? And does this change over time? Such considerations are critical to ensure accurate and informative identification of participants. Defining the scope of a team too narrowly may lead to inadvertently overlooking the inputs of important participants, while defining it too broadly may lead to the inclusion of some participants who do not play important roles in the team. Again, a key way for researchers to begin to address such concerns is to develop a strong understanding of how the teams under study operate and intersect with each other over the course of their work, as well as with other governance units in the research setting (such as functional areas, operating divisions, or country offices), to help guide research design and data collection. Statistical techniques that can account for the embeddedness of subteams within metateams may also be needed to address analytic issues arising from nested data structures, along with longitudinal modeling approaches that can help to account for changes over time.

Multilevel Analysis. Relatedly, as discussed earlier, some constructs that have been studied at the team level may increasingly operate across levels of analysis. In light of this, careful thought should be given to the appropriateness of measuring collective emergent states such as transactive memory, psychological safety, or collective identity solely at the team level. In some settings, it may be useful to collect data on parallel constructs at other levels of analysis to develop a richer set of insights into how these different levels of analysis may reinforce or undermine each other. Team scholars have already recognized the potential insights to be gained by "bracketing" the phenomenon of interest (Hackman 2003)—that is, considering how a team is affected by characteristics, behaviors, or attitudes one level up (e.g., at the organization level) and one level down (e.g., at the individual level). Recognizing that teams may look more like dynamic participation hubs than like bounded membership groups adds urgency to this. Not only may insights be gained by collecting data at multiple levels, but important phenomena may be misidentified or misunderstood if such data are not collected. Again, this suggests an increased need for multilevel statistical models that can incorporate multiple levels of analysis simultaneously and enable investigation of interactions across levels (e.g., Klein et al. 1999).

Team-Level Constructs. Finally, future empirical research on teams should not necessarily expect constructs to be robust at the team level or require that robustness be established. Instead, researchers should expect team constructs to be inherently fragile and perhaps even welcome this fragility as creating opportunities for further study and new insights. Currently, statistical metrics such as intraclass correlations or within-group reliability measures are widely used in studies of teams to justify the aggregation of individual-level data to the team level. Yet such metrics require a clearly bounded group within which to assess agreement among the members. When participants change over time, researchers will need to carefully consider whose ratings must be compared to calculate such metrics, to avoid generating weak aggregate measures. Additionally, when participants devote only a small proportion of their time to a focal team, researchers will need to make thoughtful decisions, based on deep understanding of the context, about whether, when, and how to include their inputs in team-level constructs, to avoid giving them disproportionate weight or excluding important contributors entirely. Furthermore, when participants are asked questions about the team as a whole, uncertainty and disagreement about team membership may result in weak team-level constructs, perhaps because participants are evaluating different entities at different points in time or have only partial perspectives on the team. Researchers who wish to identify team-level constructs will need to account for such possibilities by recognizing that participants' views may vary with the intensity, nature, timing, and context of their participation. In summary, robust team-level states may be less likely to emerge in today's teams as well as more difficult to identify and establish empirically. Going forward, such concerns should lead scholars to consider the question of whether particular

team-level constructs are still relevant for dynamic participation hubs and, if they are still relevant, to address the conditions under which they may be more or less important, acknowledge their inherent fragility, and recognize the resulting challenges of studying them. Greater attention to these issues, and deliberate investment in developing research designs and analytical methods to address them, could enable researchers to improve their data collection processes, strengthen the internal validity of their measures, and increase the external validity of their findings.

Conclusion

As teams become more fluid, overlapping, and dispersed, our traditional conceptualization of teams as clearly bounded membership groups is increasingly challenged. While these trends offer important benefits, they can also lead to boundary blurring that undermines team effectiveness. To provide a new perspective that can help to advance our understanding of teams with blurred boundaries, we have proposed a shift from viewing teams as clearly bounded groups of members toward instead viewing teams as dynamic hubs of participants. This shift allows us to build on the extensive existing literatures on teams while opening up a wealth of new questions for future theoretical exploration and highlighting important considerations for future empirical research. Engaging with such questions and considerations provides a critical and compelling research agenda for scholars concerned with understanding how today's—and tomorrow's—teams function, and how they can function more effectively.

Acknowledgments

Both authors contributed equally to this article. The authors would like to thank their editor and three reviewers for valuable feedback that helped to sharpen and deepen this paper. They would also like to thank the late J. Richard Hackman, who was a strong supporter of early versions of this work.

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