Leadership & Governance Approaches for Complex Cooperative Settings[1]

Leslie A. DeChurch and Dorothy. R Carter
Georgia Institute of Technology
U.S.A.
Stephen J. Zaccaro
George Mason University
U.S.A.
Noshir S. Contractor
Northwestern University
U.S.A.

lesliedechurch@gmail.com dorothy.carter@gatech.edu szaccaro@gmu.edu nosh@northwestern.edu

ABSTRACT

Generating innovative solutions for large-scale societal or organizational challenges often demands the creative potential of large cross-functional multiteam systems (MTSs) composed of interdependent teams. Due the complex nature of these systems, collaboration is inherently challenging and thus, effective governance processes are critical to MTS success. We view multiteam leadership through the lens of shared leadership theory. Accordingly, leadership is an emergent influence process among actors in a collective to the larger good. Initial work on shared leadership has sought to understand the patterns of emergent leadership that relate to group outcomes in self-managing teams. Here, we extend this work to consider patterns of emergent leadership that relate to innovative problem solving effectiveness in self-managing cross-functional MTSs. Further, we develop specific propositions regarding the patterns of emergent leadership that are probable *given social psychological theories of self-organization, comparing these human tendencies to emergent leadership patterns that are* effective *given the task demands of MTS innovation.*

1.0 INTRODUCTION

Large-scale societal and organizational challenges such as preventing disease outbreaks, responding to natural disasters, or developing innovative new products, require the organized collaboration of systems of experts who integrate their unique knowledge areas and skill sets. Importantly, as the availability of knowledge and the complexity of societal and organizational challenges continues to grow exponentially (de Solla Price, 1986, 1963; Priem, Li, & Carr, 2012), developing innovative solutions increasingly demands the creative potential of *multiple specialized teams* who traverse their borders in search of fresh ideas from similarly specialized but differently minded teams (Cross, Ehrlich, Dawson, & Helferich, 2008; Uzzi & Spiro, 2005). These hybrid organizational forms in which two or more teams work interdependently toward one or more shared goals are termed Multiteam Systems (MTSs; Mathieu, Marks, & Zaccaro, 2001) and a growing set of findings suggests that effective *leadership* is central to their success (DeChurch and Marks, 2006; Lanaj, Hollenbeck, Ilgen, Barnes, & Harmon, 2013; Davison, Hollenbeck, Barnes, Sleesman, Ilgen, 2012; Zaccaro & DeChurch, 2012)

MTSs are assembled or emerge to tackle important challenges single teams cannot address in isolation (Zaccaro, Mark, & DeChurch, 2012). Unfortunately, rather than smooth synergistic collaboration, systems of

[1] This ideas presented in this paper are based on research supported by the US National Science Foundation awards SES-1219469 & SBE-1063901, and the US Army Research Institute for the Social and Behavioral Sciences W5J9CQ-12-C-0017. The views, opinions, and/or findings contained in this report are those of the authors, and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documents.

interdependent teams often experience significant failures. Groups or teams that are brought together to collaborate may instead compete for scare resources, develop negative outgroup perceptions of one another, and emphasize competing objectives (Hogg, van Knippenberg, & Rast, 2012). *MTS leadership*, therefore, is needed to effectively connect disparate subgoups, diverting self-interest and intergroup competition, and transforming tendencies toward insularity into intergroup collaboration (Hogg et al., 2012). As such, enabling coordination of ideas and actions across component team boundaries in MTSs is the essential function of MTS leadership.

Certainly, leadership is a critical force for MTS success. However, due to the complexity and dynamism of these systems, leadership is often the collective responsibility of *multiple* individuals (Zaccaro & DeChurch, 2012), who might be identified formally as a group leader or may be enacting leadership informally through emergent processes (Morgeson, DeRue, & Karam, 2010). For example, as task demands shift and new issues arise, the individual(s) possessing the requisite expertise for decision-making may change (Pearce & Conger, 2003). Thus, MTS leadership is more appropriately conceptualized as a collective process of influence connecting actors in the system (Carter & DeChurch, in press; Mathieu, 2012). More specifically, MTS leadership is aligned with the recent paradigm shift occurring in the broader leadership literature that has re-conceptualized leadership as an emergent relational phenomenon. Through a social-constructionist lens, scholars now argue that leadership identities are co-constructed through an emergent process of claiming (i.e., attempting to influence) and granting (i.e., accepting a followership role; DeRue & Ashford, 2010) with dyadic leadership-followership relationships resulting in aggregate patterns of *leadership networks* in collectives over time (Contractor, DeChurch, Carson, Carter, & Keegan, 2012; DeRue, 2011). The current paper advances this topological networks view of collective leadership to understand the nature of emergent leadership in cross-functional knowledge generation systems.

1.1 Research Questions

Prior empirical work on collective leadership in self-managing single teams suggests that the degree to which leadership is mutually shared among all team members facilitates team performance (Carson, Tesluck, & Marrone, 2007). Yet, many questions remain regarding the nature of collective leadership, particularly in larger complex systems. First, research on collective leadership has, thus far, ignored groups' *natural tendencies* to develop certain patterns of emergent leadership over others. Although prior work has sought to relate patterns of emergent leadership to group outcomes (e.g., in self-managed teams), this initial work does not shed light on the degree to which those structures are easily achieved and/or likely to emerge in self-organizing systems. Whereas some patterns of emergent leadership may be highly likely but disadvantageous, other patterns may be unlikely and yet advantageous to the MTSs who evolve into them. This tension between natural self-organization and optimal self-organization is at the core of governance in multiteam systems.

Second, conceptualizing collective leadership patterns in MTSs on a strict continuum ranging from highly vertical to highly shared, as has been the focus of collective leadership research on single teams (e.g., Carson et al., 2007), may miss important information concerning the complex nature of MTS leadership structures (Carter & DeChurch, in press). For example, MTS leadership theory suggests that leadership processes might be centralized within component teams but reflect a more decentralized and shared leadership structure among the leaders of multiple teams (i.e., between-team leaders; Zaccaro & DeChurch, 2012; Mathieu, 2012). In order to make practical recommendations for developing the collective leadership capacity of today's MTSs, more research is needed that better clarifies patterns of emergent leadership that benefit MTS goals. Moreover, work that both identifies the natural tendencies of MTSs to develop particular emergent leadership network patterns as well as identifies those patterns that give rise to group success can increase the precision of theories of collective leadership and enable targeted practical suggestions for developing organizational governance.

Furthermore, given their increasing relevance, recent work has called for more examination of MTSs, particularly the drivers of MTS effectiveness across multiple contexts (Zaccaro et al., 2012; Wageman, Gardner, & Mortensen, 2012). However, the majority of existing empirical work on MTSs has focused on identifying antecedents of success in action-oriented systems (e.g., military tasks; Davison et al., 2012; Marks, DeChurch, Mathieu, Panzer, & Alonso, 2005; DeChurch & Marks, 2006; Lanaj et al., 2012). The present work focuses instead on understanding emergent leadership in cross-functional MTSs whose superordinate goal is to develop innovative (i.e., novel and useful; Amabile, 1996) solutions for complex problems. As such, the current paper develops propositions regarding the following two research questions:

> RQ1: What patterns of emergent informal leadership are *probable* in self-managing cross-functional MTSs?
>
> RQ2: What patterns of emergent informal leadership *benefit* innovative problem-solving in self-managing cross-functional MTSs?

2.0 RQ1: PROBABLE MTS LEADERSHIP NETWORK PATTERNS

Broadly, social networks are patterns of relationships (i.e., ties) connecting actors in a collective (Wasserman & Faust, 1994). To better align with newer relational conceptualizations of leadership, scholars have applied network theories and methods to conceptualize and describe emergent processes of influence (i.e., leadership Yukl, 1998) that connect actors in a given collective (i.e., leadership networks; Carter & DeChurch, 2012; Contractor et al., 2012; DeRue & Ashford, 2010). Whereas initial work using a leadership network approach has sought to identify the patterns of leadership enactment that relate to collective goals (e.g., Carson et al., 2007; Mehra et al., 2006; McIntrye & Foti, 2013), here we draw from social psychological theory to develop propositions regarding structural characteristics of emergent leadership networks that are *likely* in cross-functional MTSs.

We term the first characteristic of emergent leadership network patterning likely in MTSs *"in-group preference."* This refers to the tendency for MTS members to develop leadership reliance relationships with members of their own teams rather than granting leadership identities to those on other teams. Because of the often-observed characteristics of MTSs—specialized teams, geographic dispersion, and different organizational memberships—social divides are likely at the boundaries between component teams. Social identity theory suggests that different memberships are sufficient to create in-group-out-group attitude structures (Turner, 1984) whereby people favour members of their in-group over those in the out-group (Tajfel & Turner, 1979). Negative attitudes toward out-group members can be exacerbated when out-group members have different backgrounds or values, are from different geographic locations, or when opportunities for socialization are limited (Lau & Murnighan, 1998; Li & Hambrick, 2005). As such, the MTS structure creates a situation in which members most strongly identify and communicate with those of their own component team—thereby limiting opportunities for members to develop informal leadership relationships with members of other teams. Thus, we posit:

> **Proposition 1: Leadership ties are more likely to form among members of the same team, rather than among members of different teams.**

The second structural characteristic of emergent leadership in cross-functional MTSs is "status preservation." This refers to the degree to which actors who have claimed and are granted a leadership identity by other actors tend to maintain their higher status in the relationship rather than grant leadership identities to their followers. Theories of social status preservation suggest that status concerns are strong motivators of behaviour (Frank, 1985) and that group members actively try to maintain and improve their position in the status hierarchy of their groups (Loch et al., 2001). A recent examination of the patterning of advice networks in organizations suggests

that in triads of actors, higher status individuals avoid asking advice of lower status individuals (Agneessens & Wittek, 2012). Like leadership, seeking advice from another actor represents granting the focal actor some level of prestige, whereas asking advice represents a decrease in one's relative social standing (Agneessens & Wittek, 2012). We expect a similar human tendency to preserve social status to emerge in informal leadership relationships. Specifically, we propose that it is unlikely MTS members will tend to grant a leadership identity to those who have granted them a leadership identity:

Proposition 2: Reciprocated leadership ties are unlikely.

The final structural characteristic of emergent leadership in self-managing cross-functional MTSs is the degree to which "hubs" are likely to form—the degree to which a hierarchical structure emerges where certain actors have many followers. Interestingly prior theory suggests two alternate and competing perspectives regarding the likelihood of MTS hub formation.

On the one hand, prior research suggests that completely flat structures run counter to human nature; people trend naturally toward *hierarchy* (Ahuja & Carley, 1999). Through an evolutionary process of natural selection, certain group or organizational members tend to emerge as more central than others in relational networks (Simon, 1977). Over time, even in groups with no formal hierarchical structure, members begin to identify those members with specialized knowledge and/or expertise (Lewis, 2003). Through repeated interactions, groups' informal structures become more stabilized and centralized such that relationships are centered on fewer people (e.g., those possessing the most relevant expertise).

On the other hand, for several reasons, emergent leadership network hubs may be *unlikely* in cross-functional MTSs. First, cross-functional MTSs are comprised of many diverse actors who possess different identities. Social identity theories of leadership suggest that actors are more likely to emerge as leaders of a particular group when they are highly prototypical of key characteristics of the group (Hogg, 2001). Prototypical emergent leaders then tend to reinforce their leadership role by offering additional demonstrations of their prototypicality as well as highlighting their differences with members of other groups. In larger complex systems, where *multiple* group memberships and identities exist, actors who are prototypical among some subgroups may not be prototypical among others. Thus, although some actors will invariably influence other actors, clear hubs based on prototypically across the entire system are unlikely. Second, recent work on patterns of emergent leadership in self-managed single teams suggests power relationships among actors shift to better align team member capabilities with dynamic situational demands (Aime, Humphrey, DeRue, & Paul, 2013). In other words, self-managed teams tend to display a pattern of *heterarchy* with multiple members claiming and granting leadership identities over time as task demands shift. In cross-functional knowledge generation systems, assembled with the goal of integrating actors' unique areas of expertise, this situation of shifting power dynamics in relation to task demands is likely. In other words, emergent leadership networks in cross-functional MTSs may display a heterachical as opposed to hierarchical structural pattern.

Because of the conflicting nature of prior research relevant to the probability of emergent leadership hubs in self-managing cross-functional MTSs, we offer both perspectives as competing propositions:

Proposition 3: Leadership hubs are likely to form—once a MTS member has one follower, there will be an increased likelihood that they will attract an additional follower than if the member had no followers.

Alternate Proposition 3: Leadership hubs are unlikely to form—once a MTS member has one follower, there will be a decreased likelihood that he or she will attract an additional follower than if the member had no followers.

3.0 RQ2: BENEFICIAL MTS LEADERSHIP NETWORK PATTERNS

Functional leadership theory argues that the role of leadership is to address group needs for task accomplishment (e.g., McGrath, 1962; Zaccaro, Rittman, & Marks, 2001). To identify functionally effective leadership behaviours requires an understanding of the collective's task demands. Similarly, we posit that to identify functionally beneficial *patterns* of emergent leadership requires an understanding of the particular challenges faced by the collective. In the following, we consider the demands of innovative problem solving in cross-functional MTSs and how structural characteristics of emergent leadership networks might reflect the collective enactment of leadership that meets these demands.

First, although MTSs offer the promise of comprehensive solutions to complex problems, the nature of these structures and the members' tendencies toward in-group preference can also prove challenging to collective innovative problem solving. Collective innovation requires processes of group creativity and divergent thinking as well as critical evaluation of ideas from multiple perspectives and successful coordination of group actions as the system implements generated solutions. In such situations, insular teams that tend to look internally for leadership present a problem. Research shows teams struggle with divergent thinking, and trend naturally toward convergent thinking (Nemeth & Nemeth-Brown, 2003). However, creativity benefits from relationships that bridge boundaries—termed structural holes in social network research (Uzzi & Spiro, 2005; Oh, Chung, & Labianca, 2004). Thus, MTS creativity should be maximized when component team members bridge team boundaries and accept the influence of members of different functional teams in the system. Furthermore, for idea evaluation and implementation aspects of innovative problem solving, constituent cross-functional teams coordinate and collaborate intensely as they work in concert with one another to converge upon and/or implement the solution. Broadly speaking, MTS success depends on the degree to which component teams effectively coordinate with one another (Davison et al., 2012; DeChurch & Marks, 2006; Lanaj et al., 2013; Marks et al., 2005). Thus, especially during periods of time requiring intense coordination of actions (e.g., idea evaluation and implementation phases) leadership requires a shift in focus from facilitating processes within single teams, to facilitating processes connecting distinct component teams (DeChurch et al., 2011).

Because of the importance to MTS innovative problem solving success of leadership that allows the flow of diverse perspectives throughout the system and aligns component team efforts toward common goals, we expect that emergent leadership relationships that traverse functionally diverse team boundaries, should benefit MTS innovation, and relatively more so than influence connecting members within component teams. In other words, MTSs are likely to be more successful when they can overcome their natural tendencies toward in-group preference in emergent leadership. Hence we posit:

Proposition 4. The extent to which leadership ties are generated by in-group preference will be inversely related to innovative problem solving success in cross-functional MTS.

Second, although status preservation may be likely, recent work on collective leadership structures in teams suggests that when leadership is distributed among two or more members, the degree to which those leaders reciprocate leadership reliance on one another predicts team processes and performance (Mehra et al., 2006; McIntrye & Foti, 2013). In other words, teams function most efficiently when leaders lead one another. Similarly, intergroup leadership theory posits that mutual reliance among leaders increases members' perceptions that the system is functioning as a coherent whole, thereby decreasing possible ingroup-outgroup

perceptions and making members more open to collaboration (Hogg et al., 2012). In MTSs, reciprocity in leadership enables the aspects of shared leadership that benefit innovation (i.e., expanded ideas, motivation, collective involvement in decision-making; Hoch, 2012) to accrue benefiting the quality of innovative problem solving throughout the system. As such, we posit:

> **Proposition 5. Leadership mutuality will be positively related to innovative problem solving success in multidisciplinary MTS innovation.**

Finally, in the MTS context, some degree of collectively enacted leadership may be a necessity. However, as collectives increase in size and complexity—from single co-located teams to functionally heterogeneous, distributed MTSs—all members leading one another simultaneously can be confusing, unsustainable, and unnecessary. In fact, findings suggest MTS performance can be harmed by unbridled communication and direct lateral coordination processes across component teams (Davison et al., 2012). Rather, leadership teams or subsystems are often best suited to manage "aspects of coordination that are beyond the scope of the component teams" (Davison et al., 2012, pp. 7; Thompson, 1967). Whereas highly shared leadership structures may be possible and beneficial in single teams (i.e., all members leading/influencing all other members; Mehra et al., 2006; Carson et al., 2007) managing multiple component may be better handled by fewer as opposed to all actors.

Furthermore, prior work suggests centralized organizational structures are more efficient for tasks with clearly defined components (Ahuja & Carley, 1999; Shaw, 1964; Monge & Contractor, 1998; Perrow, 1970). Thus, concentrated leadership structures (i.e., "hubs") are especially suited for innovative problem solving activities that require higher levels of coordination as members enact previously developed plans. Although heterarchy may benefit the creativity needed for idea generation aspects of innovative problem solving (Aime et al., 2013) too little coherence in leadership during idea selection/implementation phases may be harmful. As such, emergent leadership hubs may become a necessity, particularly when MTSs engage in aspects of innovative problem solving implementation phases where coordinated interteam action becomes more critical.

> **Proposition 6. Leadership hub formation is positively related to innovative problem solving success in cross-functional MTS, in particular when systems engage in idea selection and implementation phases of innovation.**

4.0 CONCLUSION

Leadership in complex collectives is often the responsibility of multiple actors, working in concert to coordinate the collective efforts of multiple teams toward shared superordinate goals. Here, we delineate three aspects of leadership network structures that are *probable* in cross-functional MTSs and three that are *effective.* Our full presentation will discuss findings from a large-scale study of 30 cross-functional MTSs whose task was to develop an innovative solution to a complex environmental problem by integrating expertise in business, psychology, and environmental science. Results suggest that certain aspects of MTS leadership network structure are likely (e.g., high levels of in-group preference, low levels of leadership mutuality, and low levels of emergent leadership hubs). On the other hand our findings suggest slightly different patterns of MTS leadership networks are effective, particularly in later phases of MTS innovative problem solving (e.g., low levels of in-group preference, high levels of leadership mutuality, and high levels of emergent leadership hubs). Thus, this initial work suggests that developing governance capacity in large-scale collectives may require shifting people's natural preference for certain leadership relationships.

5.0 REFERENCES

[1] Agneessens, F., & Wittek, R. (2012). Where do intra-organizational advice relations come from? The role of informal status and social capital in social exchange. *Social Networks, 34,* 333-345.

[2] Ahuja, M. K., & Carley, K. M. (1999). Network structure in virtual organizations. *Organization Science, 10,* 741-757.

[3] Aime, F., Humphrey, S. E., DeRue, D. S., & Paul, J. B. (2013) The riddle of heterarchy: Power transitions in cross-functional teams. *Academy of Management Journal*. Published online Jan 2013.

[4] Amabile, T. M. (1996). Creativity and innovation in organizations. *Harvard Business School Note*. 396-239.

[5] Carson, J. B., Tesluk, P. E., & Marrone, J. A. (2007). Shared leadership in teams: An investigation of antecedent conditions and performance. *Academy of Management Journal, 50*, 1217-1234.

[6] Carter, D. R., & DeChurch, L. A. (2012). Networks: The way forward for collectivistic leadership research. *Industrial Organizational Psychology Perspectives on Science and Practice, 5,* 412-415.

[7] Carter, D. R., & DeChurch, L. A. (in press). Leadership in Multiteam Systems: A network perspective. In D. V. Day (Ed.), *Oxford Handbook of Leadership*, New York: Oxford University Press.

[8] Contractor, N. S., DeChurch, L. A., Carson, J., Carter, D. R., & Keegan, B. (2012). The topology of collective leadership. *The Leadership Quarterly. 23*, 994-1011.

[9] Cross, R., Ehrlich, K., Dawson, R., & Helferich, J. (2008). Managing collaboration at the point of execution: Improving team effectiveness with a network perspective. *California Management Review, 50*, 74-98.

[10] Davison, R. B., Hollenbeck, J. R., Barnes, C. M., Sleesman, D. J., Ilgen, D. R. (2012). Coordinated action in multiteam systems. *Journal of Applied Psychology, 97*, 808-824.

[11] de Solla Price, D. (1963). *Little science, big science.* New York: Columbia University Press.

[12] de Solla Price, D. (1986). *Little science, big science… and beyond.* New York: Columbia University Press.

[13] DeChurch, L. A. & Marks, M. A. (2006). Leadership in multiteam systems. *Journal of Applied Psychology,* 91, 311-326.

[14] DeChurch, L.A., Burke, C.S., Shuffler, M., Lyons, R., Doty, D., & Salas, E. (2011). An historiometric analysis of leadership in mission critical multiteam environments. *The Leadership Quarterly, 22*, 152-169.

[15] DeRue, D. S. (2011). Adaptive leadership theory: Leading and following as a complex adaptive process. *Research in Organizational Behavior, 31,* 125-150.

[16] DeRue, D. S., & Ashford, S. J. (2010). Who will lead and who will follow? A social process of leadership identity construction in organizations. *Academy of Management Review, 35*, 627-647.

[17] Frank, R. H. (1985). *Choosing the right pond: Human behaviour and the quest for status*. Oxford: Oxford University Press.

[18] Hoch, J. E. (2012). Shared leadership and innovation: The role of vertical leadership and employee integrity. *Journal of Business and Psychology, 28,* 159-174.

[19] Hogg, M. A., van Kippenberg, D. & Rast, D. E. (2012). Intergroup leadership in organizations: Leading across group and organizational boundaries. *Academy of Management Review, 37,* 232-255.

[20] Hogg, M. A. (2001). A social identity theory of leadership. *Personality and Social Psychology Review, 5,* 184-200.

[21] Lanaj, K., Hollenbeck, J. R., Ilgen, D. R., Barnes, C. M., Harmon, S. J. (2012). The double-edged sword of decentralized planning in multi-team systems. *Academy of Management Journal, 56,* 735-757.

[22] Lau, D. C., & Murnighan, J. K. (1998). Demographic diversity and faultlines: The compositional dynamics of organizational groups. *Academy of Management Review, 23*, 325-340.

[23] Lewis, K. (2003). Measuring transactive memory systems in the field: Scale development and validation. *Journal of Applied Psychology, 88,* 587-604.

[24] Li, J., & Hambrick, D. C. (2005). Factional groups: A new vantage on demographic faultlines, conflict, and disintegration in work teams. *Academy of Management Journal, 48,* 794-813.

[25] Loch, C. Yaziji, M., Langen, C. (2001). The fight for the alpha position: Channelling status competition in organizations. European Management Journal, 19, 16-25

[26] McGrath, J. E. (1962). *Leadership behavior: Some requirements for leadership training* [Mimeographed]. Washington, DC: U.S. Civil Service Commission.

[27] Marks, M. A., DeChurch, L. A., Mathieu, J. E., Panzer, F. J., & Alonso, A. (2005). Teamwork in multiteam systems. *Journal of Applied Psychology, 90,* 964-971.

[28] Mathieu, J. E. (2012). Reflections on the evolution of the multiteam systems concept and a look to the future. In S. J. Zaccaro, M. A. Marks, and L. A. DeChurch (Eds.), *Multiteam systems: An organizational form for dynamic and complex environments*. (pp. 505-537)New York: Routledge

[29] Mathieu, J. E., Marks, M. A., & Zaccaro, S. J. (2001). Multiteam systems. In N. Anderson, D. S. Ones, H. K. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work, and organizational psychology,* vol 2, (pp. 289-313) London: Sage Publications.

[30] McIntyre, H. H., & Foti, R. J. (2012). The impact of shared leadership on teamwork mental models and performance in self-directed teams. *Group Processes and Intergroup Relations, 16,* 46-57.

[31] Mehra, A., Smith, B. R., Dixon, A. L., & Robertson, D. (2006). Distributed leadership in teams: The network of leadership perceptions and team performance. *The Leadership Quarterly, 17,* 232-245.

[32] Monge, P., Contractor, N. (1998). Emergence of communication networks. In F. Jablin, & L. Putnam (Eds.), Handbook of Organizational Communication, 2nd ed. Thousand Oaks, CA: Sage.

[33] Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2010). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management, 36,* 5-39.

[34] Nemeth, C. J. & Nemeth-Brown, B. (2003). Better than Individuals? The potential benefits of dissent and diversity for group creativity. In P. Paulus & B. Nijstad (Eds.), *Group creativity: Innovation through collaboration*. New York, New York: Oxford University Press, Inc.

[35] Oh, H., Chung, M., & Labianca, G. (2004). Group social capital can group effectiveness: The role of informal socializing ties. *Academy of Management Journal, 47*, 860-875.

[36] Pearce, C. L. & Conger, J. A. (2003). *Shared leadership: Reframing the hows and whys of leadership*. Thousand Oaks, CA: Sage.

[37] Perrow, C. (1970). *Organizational analysis: A sociological view*. Belmont, CA: Wadsworth.

[38] Priem, R. L., Li, S., & Carr, J. C. (2012). Insights and new directions from demand-side approaches to technology innovation, entrepreneurship, and strategic management research. *Journal of Management, 38,* 346-374.

[39] Shaw, M. (1964). Communication networks. L. Berkowitz (Ed.), *Advancements in experimental psychology*, vol. 1. New York: Academic Press.

[40] Simon, H. (1977). *The new science of management decisions*. Englewood Cliffs, NJ: Prentice Hall.'Tajfel, H., & Turner, J.C. (1979). An integrative theory of intergroup conflict. In W. G. A. S. Worchel (Ed.), *The social psychology of intergroup relations* (pp. 33 - 47). Monterey, CA: Brooks/Cole.

[41] Turner, J. C. (1984). Social identification and psychological group formation. In H. Tajfel (Ed.), *The social dimension: European developments in social psychology* (Vol. 2, pp. 518 - 538). Cambridge, England: Cambridge University Press.

[42] Uzzi, B., & Spiro, J. (2005). Collaboration and creativity: The small world problem. *American Journal of Sociology, 111,* 447-504.

[43] Wagemen, R., Gardner, H., & Mortensen, M. (2012). Teams have changed: Catching up to the future. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 5*, 48-52.

[44] Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications*. Cambridge: Cambridge University Press

[45] Yukl, G. (1998). *Leadership in organizations* (4th ed.). Englewood Cliffs, NJ: Prentice Hall.

[46] Zaccaro, S. J., & DeChurch, L. A. (2012). Leadership forms and functions in multiteam systems. In S. J.

[47] Zaccaro, M. A. Marks, & L.A. DeChurch (Eds.), *Multiteam systems: An organizational form for dynamic and complex environments*. New York: Routledge.

[48] Zaccaro, S. J., Rittman, A. L., & Marks, M. A. (2001). Team leadership. *The Leadership Quarterly, 12,* 451-483.