Documents to U / MNU Lending

University of Minnesota – Interlibrary Loan Lending

OCLC MNU & UMM * DOCLINE MNUMIN

This article is delivered directly from the collections of the University of Minnesota.

Thank you for using our service.

If you have problems with delivery, please contact us within 48 hours.

MNU 1225419 / 176246089

Title: Multiteam systems: An organizational form for dynamic and complex environments,
ArticleTitle: Zaccaro, S. J., & DeChurch, L. A. (2012). Leadership forms and functions in multiteam systems.
Date: 2012   Pages: 253-288.
Series: Organization and management series
OCLC - 756377832; ISBN - 9781848728691;
Copyright:

Perito, R. M. (2005, October). *The U.S. experience with provincial reconstruction teams in Afghanistan* (Special Report No. 152). Washington, DC: United States Institute of Peace. Retrieved from http://www.usip.org/pubs/specialreports/sr152.html

Perito, R. M. (2007, March). *Provincial reconstruction teams in Iraq* (Special Report No. 185). Washington, DC: United States Institute of Peace. Retrieved from http://www.usip.org/pubs/specialreports/sr185.html

Rentsch, J. R. (1990). Climate and culture: Interaction and qualitative differences in organizational meanings. *Journal of Applied Psychology, 75*, 668–681.

Rentsch, J. R., Delise, L. A., & Hutchison, S. (2008). Cognitive similarity configurations in teams: In search of the Team MindMeld™. In E. Salas, G. F. Goodwin, & C. S. Burke (Eds.), *Team effectiveness in complex organizations: Cross-disciplinary perspectives and approaches* (pp. 241–266). New York: Routledge.

Rentsch, J. R., & Klimoski, R. J. (2001). Why do great minds think alike? Antecedents of team member schema agreement. *Journal of Organizational Behavior, 22*, 107–120.

Rentsch, J. R., Small, E. E., & Hanges, P. J. (2008). Cognitions in organizations and teams: What is the *meaning* of cognitive similarity? In B. Smith (Ed.), *The people make the place: Exploring dynamic linkages between individuals and organizations* (pp. 127–156). New York: Erlbaum.

Schneider, B. (1975). Organizational climates: An essay. *Personnel Psychology, 28*, 447–479.

Schneider, B. (1987). The people make the place. *Personnel Psychology, 40*, 437–453.

Schneider, B., & Reichers, A. E. (1983). On the etiology of climates. *Personnel Psychology, 36*, 19–39.

Smircich, L., & Morgan, G. (1982). Leadership: The management of meaning. *Journal of Applied Behavioral Science, 18*, 257–273.

Smith-Jentsch, K. A., Mathieu, J. E., & Kraiger, K. (2005). Investigating linear and interactive effects of shared mental models on safety and efficiency in a field setting. *Journal of Applied Psychology, 90*, 523–535.

Steiner, I. D. (1972). *Group process and productivity.* New York: Academic Press.

U.S. Second Fleet Public Affairs. (2009, April 2). Two dozen nations and maritime security conference enhance interoperability. Retrieved from http://www.navy.mil/search/display.asp?story_id=43978

Walsh, J. P., Henderson, C. M., & Deighton, J. (1988). Negotiated belief structures and decision performance: An empirical investigation. *Organizational Behavior and Human Decision Processes, 42*, 194–216.

Williams, C. C., & Mahan, R. P. (2006). Understanding multiteam system functioning. In W. Bennett, Jr., C. E. Lance, & D. J. Woehr (Eds.), *Performance measurement: Current perspectives and future challenges* (pp. 205–224). Mahwah, NJ: Erlbaum.

Yukl, G. A. (1989). *Leadership in organizations* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

Zaccaro, S. J., & Marks, M. A. (1998). The roles of leaders in high-performance teams. In E. Sundstrom & Associates (Eds.), *Supporting work team effectiveness: Best management practices for fostering high performance* (pp. 95–125). San Francisco: Jossey-Bass.

Zhang, Z. X., Hempel, P. S., Han, Y. L., & Tjosvold, D. (2007). Transactive memory system links work team characteristics and performance. *Journal of Applied Psychology, 92*(6), 1722–1730.

10

Leadership Forms and Functions in Multiteam Systems

Stephen J. Zaccaro
George Mason University

Leslie A. DeChurch
University of Central Florida

Multiteam systems (MTSs) exist to join the efforts of complex systems of teams toward the accomplishment of ambitious goals too large to be tackled by a single team. These systems have boundaries that differ substantially from those of teams and organizations; they span teams, functions, and geography, and stretch across organizations, industry sectors, and, quite often, nations (Mathieu, Marks, & Zaccaro, 2001; Zaccaro, Marks, & DeChurch, Chapter 1, this volume). For example, BP's Deepwater Horizon oil spill required an MTS to develop the engineering solution that ultimately stopped oil from gushing into the Gulf of Mexico; this MTS included teams with divergent complementary expertise located in corporate and public sectors in the United States and United Kingdom.

The mantra of MTS researchers is that MTSs are complex organizational forms. To be more precise, the nature of the complexity stems from the fact that unlike teams governed by forces toward uniformity (Festinger, 1950), these systems are often characterized by a powerful force toward disorder and intergroup conflict. The particular challenge this presents to leadership is not to understand how leaders create large teams but, rather, to understand how multiple leaders working within a complex system of interconnected goals jointly strike a balance between these competing forces so that the system can succeed.

As defined by Mathieu et al. (2001) and Zaccaro et al. (Chapter 1, this volume), MTSs are organization forms with components (i.e., teams) that

can exist within and across organizational boundaries, and with goal hierarchies that can create complex arrangements among these components. The systems aspect of this form means disparate teams are bound through goal hierarchies. Influences on one team, or the actions of one team, reverberate through multiple other teams. Moreover, MTSs form mostly in response to dynamic environmental contingencies and face challenges that cannot be easily addressed by more traditional organizational forms (Mathieu, et al., 2001; Zaccaro et al. Chapter 1 this volume). These qualities—the complexity of MTSs as organizational forms, the importance of boundary functions in such systems, their sensitivity to contextual dynamics, and the interconnectivity of component activity—mean that leadership processes become particularly crucial drivers of MTS effectiveness.

THE SYSTEMS PERSPECTIVE: CHALLENGES FOR LEADERSHIP

Katz and Kahn's (1978) classic formulation of organizations as open systems provides the conceptual foundation for this assertion regarding the particular importance of leadership for multiteam systems. They argued that managerial subsystems in organizations have two primary functions. First, they facilitate the coordination of activities across other subsystems within the organization. Second, they have primary responsibility for monitoring and managing relationships across the boundary between the organization and its environment. To elaborate, Katz and Kahn offered four specific requirements for leadership around these two core functions. These requirements appear even more prominently in MTSs, particularly those that are composed of teams from different organizations (called *external MTSs* by Mathieu et al., 2001). The first of these requirements follows from "the incompleteness of organizational design" (Katz & Kahn, 1978, p. 530). The actual ongoing interactions of organizational units and members do not nearly resemble formalized or written rules for such activities. Instead, normative processes arise that govern the real nature of transactions among members. These processes are often derived and reinforced through leadership activities (Feldman, 1984). Moreover, Katz and Kahn argued that leadership requirements

deriving from the incompleteness of organizational designs are most apparent in determining how different organizational subsystems are to relate to one another, and how the system as a whole is related to its embedding environment. They noted that "the articulation of parts or of the whole with its surround is not necessarily specified in the programmed arrangements. Leadership emerges as individuals take charge of relating a unit or subsystem to the external structure or environment" (Katz & Kahn, 1978, p. 532).

These issues abound exponentially in MTSs. Because teams in many MTSs can come from different organizations, the gulfs represented by their boundaries may be broader than those between subsystems or components in more traditional organizations. Moreover, what Katz and Kahn (1978, p. 532) referred to as the system's "surround," meaning its embedding context, has multiple and nuanced layers in MTSs. The MTS as a whole has a boundary with an external environment much as more traditional organizations do, and this relationship gives rise to the boundary spanning leadership requirements articulated by Katz and Kahn. However, the nature of boundary dynamics and relationships will differ across organizations—how one organization interprets and manages its environmental surround will differ in both subtle and obvious ways from those processes in another organization. Such differences will filter into the processes and activities of external MTSs, where component teams come from these separate organizations, and bring with them the different boundary relationships that characterize their parent organizations. These differences exacerbate the requirement for leadership in such MTSs.

Katz and Kahn's (1978) second leadership requirement is perhaps most directly related to MTSs because it derives from the observation that the "organization as a system ... functions in a changing environment" (p. 533). Here, the role of leadership is to help organizations react to, or even anticipate, changing environmental contingencies. We have noted the argument by Mathieu et al. (2001) that "MTSs are usually formed or develop naturally to deal with highly turbulent environments that place a premium on the ability to transform work units and to respond rapidly to changing circumstances" (p. 290). The formation of an MTS reflects a process of helping connected organizations and their work units to realign with shifting environmental contingencies. Such transformation and realignment are not likely to be initiated, much less succeed, without the input of strong leadership processes. Organizational leadership

would focus on (a) making sense of environmental changes, (b) determining that the formation of an MTS (external or internal) is an effective and warranted response, (c) facilitating or directing the emergence of the MTS, and (d) monitoring the subsequent actions of the MTS to determine that the organization or organizations involved are indeed realigned with the changed environment (cf. Zaccaro, Banks, Kiechel-Koles, Kemp, & Bader, 2009).

Katz and Kahn (1978) argued that a third requirement for organizational leadership follows from a tendency of organizations to grow and undergo structural changes as they try to absorb those aspects of their environment most influential to their operating and production processes. This dynamic may not be as prevalent in MTSs as they would not be expected to become permanent and expanding organizations in their own right (Mathieu et al., 2001). However, as environmental forces that gave rise to the emergence of the MTS shift, MTSs may need to remove existing component teams and/or add new ones. They may need to seek alliances with additional organizations and/or break off relationships with existing partners. These types of changes spark greater need for what Katz and Kahn called the processes of "coordination and adjudication" and "persisting organizational change" (p. 536) that are the province of organizational leaders.

The final leadership requirement articulated by Katz and Kahn (1978) pertains to the observation that organizational members are "above all not members of only one organization. Human membership in an organization is segmental in nature; it involves only a part of the person" (p. 534). They noted that influences from other activities and memberships outside the organization could affect work behavior to the point where adjustive or adaptive responses from leaders become necessary. Such extracurricular influences would also exist for all MTS members; however, if these members come from different organizations, demands and forces from those participating organizations can raise unique disruptions within the MTS. Indeed, Zaccaro et al. (Chapter 1, this volume) noted that external MTSs

> confront a degree of complexity of a magnitude greater than their wholly internal counterparts because they need to integrate demands not only from the environmental context common to all of the component teams, but also from their respective and different embedding organizations.

These possible conflicts, disruptions, and integration needs prime more forcefully the need for strong MTS leadership.

These arguments support our contention that leadership processes are particularly potent factors in the effectiveness of MTSs. This point was also articulated by DeChurch et al. (2011), who noted that "mission critical multiteam situations represent a point on the organizational environment continuum precisely where leaders are most needed" (pp. 152–153). Despite the importance of leadership for MTS effectiveness, however, there has been limited attention in the nascent MTS literature to those functions of leaders that optimize MTS success (for exceptions, see DeChurch et al., 2011; DeChurch & Marks, 2006). Moreover, we would argue that the qualities and characteristics of different forms of MTSs described by Zaccaro et al. (Chapter 1, this volume) will prescribe different types and functions of leadership within and across component teams. In this chapter, we describe the pathways by which leaders improve system functioning among teams in an MTS. We use functional leadership models (Fleishman et al., 1991; Hackman & Walton, 1986; McGrath, 1962; Morgeson, DeRue, & Karam, 2009; Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000) to articulate these leadership processes. Researchers have noted that such models are particularly well suited to describing MTS leadership (DeChurch et al., 2011; DeChurch & Marks, 2006).

LEADERSHIP FORMS IN MTSs

Leadership in MTSs can be exhibited through either vertical or shared forms, depending upon a number of MTS characteristics. Thus, in this chapter, we will articulate the different structures of leadership, including three forms of shared leadership—rotated, distributed, and simultaneous—that can emerge in different types of MTSs. Our central argument here is that the form of leadership that is most effective is likely to be determined by the particular compositional, linkage, and developmental characteristics of the MTS. Accordingly, we complete the chapter with a description of such moderated relationships, detailing a set of research propositions. As noted, our underlying conceptual frame rests in functional theories of leadership. We describe this perspective in the next section.

FUNCTIONAL LEADERSHIP PROCESSES
IN MULTITEAM SYSTEMS

Functional leadership theory emerged as an effort to describe the generic activities of leaders that support or enhance team effectiveness (McGrath, 1962; Roby, 1961; Schutz, 1961). The particular focus of this approach is on how leadership processes in collectives (e.g., teams, groups, or organizations) foster the emergence of effective *synergy* (Zaccaro, Heinen, & Shuffler, 2009), defined by Larson (2010) as occurring when members of an aggregate can "accomplish collectively something that could not reasonably have been achieved by any simple combination of individual member efforts" (p. 4). Larson distinguished "weak synergy" ("group performance that exceeds the performance of the typical group member"; p. 6) from the exceedingly rare "strong synergy" ("group performance that exceeds the solo performance of even the *best* group member"; p. 7). Leadership functions would then be defined as those processes that help teams establish and maintain at least a level of weak synergy across team members.

Several researchers have identified and offered generic categories of leadership functions in teams. Hackman and Walton (1986) argued that team leaders need to monitor team conditions and, when necessary, take action around fostering five conditions for team effectiveness—a clear engaging direction, a facilitating group structure, a supportive context, available expert coaching, and sufficient material resources. Fleishman et al. (1991) offered a taxonomy of leadership functions that summarized 13 sets of activities around four superordinate dimensions—information search and structuring, information use in problem solving, managing personnel resources, and managing material resources. Although their taxonomy was not explicitly about leaders fostering team synergy, the dimensions easily applied to such leadership (Zaccaro, Rittman, & Marks, 2001). Both Hackman and Walton; and Fleishman et al. highlighted two basic facilitating functions of leaders, setting direction or purpose for team action and managing or facilitating collective actions around that purpose (Burke et al., 2006; Gardner & Schermerhorn, 1992; Jacobs & Jaques, 1990; Zaccaro, 2001). Zaccaro, Heinen et al. (2009) elaborated these functions, and added as a separate set several activities related to developing the team's leadership capacity (cf. Day, Gronn, & Salas, 2004; Hackman & Wageman, 2005;

Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996; Kozlowski, Watola, Jensen, Kim, & Botera, 2009).

Another recent contribution is also noteworthy. Morgeson et al. (2009) examined team leadership functions from the perspective of the team's performance cycle in which members move reciprocally through transition and action phases (Marks, Mathieu, & Zaccaro, 2001). In the transition phase, members focus on defining the direction and goals for team action, and developing plans for achieving those goals (e.g., mission analysis, goal specification, and strategy formulation; Marks et al., 2001). Functional leadership behaviors focus then on helping team members successfully navigate this performance phase. Morgeson et al. defined seven transition phase leadership functions. In the action phase of team performance cycles, members are conducting integrated activities that drive goal accomplishment (e.g., coordination, monitoring progress toward goals, systems monitoring, and backup behavior; Marks et al., 2001). Again, the functional role of team leadership is to foster the effective occurrence of these activities. Morgeson et al. defined eight leadership functions that facilitate team action phases. Their taxonomy integrated the earlier specifications of leadership functions from several researchers (Burke et al., 2006; Fleishman et al., 1991; Hackman & Walton, 1986; Kozlowski et al., 2009; McGrath, 1962; Zaccaro et al., 2001; Zaccaro, Heinen et al., 2009) within the team performance cycle model offered by Marks et al. (2001).

DeChurch and Marks (2006) and DeChurch et al. (2011) extended functional leadership models to MTSs. In essence, the role of leadership processes within an MTS is to help team members and component teams attain levels of synergy necessary to accomplish the goals and missions of the overall system. Note that the emphasis here is on achieving process effectiveness at two levels of interaction: *within* each component team and *across* component teams (DeChurch & Marks, 2006). As DeChurch et al. noted, studies of MTSs in laboratories found that effective processes can occur within teams, but fail between teams, resulting in a breakdown of the overall MTS (DeChurch & Marks, 2006; Marks, DeChurch, Mathieu, Panzer, & Alonso, 2005). What is different about leading in a MTS is that such leadership needs to attend to multiple foci of integration. Thus, DeChurch and Marks (2006) noted that "effective *team* leadership requires synchronization of interdependent team members' action. Effective *multiteam* leadership balances the management of internal teamwork with a

significant emphasis on cross-team interdependencies in response to task and performance demands" (p. 312).

DeChurch and Marks (2006) and DeChurch et al. (2011) both used the transition–action performance cycle to articulate leadership functions that would enable collective functioning within and between component teams in MTSs. DeChurch et al. added those functions that pertain to boundary-spanning activities between the MTS and external stakeholders. Table 10.1 presents a set of leadership functions that (a) enable a clear direction for the MTS, and (b) foster coordinated actions among component teams, as well as between the MTS and external stakeholders. These functions were derived and adapted from several sources (DeChurch et al., 2011; DeChurch and Marks, 2006; Marks et al., 2001; Morgeson et al., 2009; Zaccaro et al., 2009). Following DeChurch and Marks (2006) as well as DeChurch et al. (2011), leadership functions are separated into those that enable within-team processes, between-team processes, and interactions across the boundary of the MTS. They are also separated into those functions that would facilitate team transition processes and those that facilitate action processes.

Within-Team MTS Leadership Functions

Leadership functions that enable the development of component team synergy toward goal accomplishment closely reflect those offered by Hackman and Walton (1986), Fleishman et al. (1991), Morgeson et al. (2009), Zaccaro, Heinen et al. (2009), and DeChurch et al. (2011), as well as the team processes described by Marks et al. (2001).

Transition Processes

In the transition phase of component team performance cycles, leaders help team members establish team objectives and develop a plan to meet those objectives. If necessary, leaders staff the team and train and develop team members. However, because the component team is embedded within a network of other component teams, team leaders also need to help the team establish its direction and plan tasks in concert with the dynamics and plans of the overall MTS. Indeed, a defining feature of MTSs is the degree of interdependence among component teams (Mathieu et al., 2001; Zaccaro et al., Chapter 1, this volume). The mutuality that exists among

TABLE 10.1

Leadership Functions in Multiteam Systems

	Within Teams	Between Teams	External

Transition Processes	• Interpreting and framing component team proximal goals within the context of distal goals and overall MTS strategy
	  ∘ setting team objectives
	  ∘ specifying team tasks
	  ∘ identifying necessary member resources and capabilities
	• Staffing of the team
	• Developing team capabilities necessary for MTS functioning
	• Acquiring material resources for task accomplishment
	• Communicating MTS norms, standards, and expectations to team members
	• Developing team plan to meet goals and objectives
	  ∘ assigning members to task roles
	  ∘ specifying priority and synchronization of member actions and task accomplishment
	• Communicating team plans and expectations to team members
	• Communicating team plans to other component teams in the MTS
		• Identifying component teams resources and capabilities
		• Developing shared MTS standards, norms, and expectations
		• Specifying goal hierarchy for the MTS
		  ∘ delineating distal and proximal goals
		  ∘ specifying priority and synchronization of proximal and distal goals
		• Developing action plan for how component teams will work together to accomplish MTS strategy
		  ∘ assigning component teams to positions within goal hierarchy
		  ∘ clarifying how teams need to work interdependently (i.e., pooled, sequential, intensive)
		• Communicating mission, MTS strategy, and plans across component teams
			• Environmental scanning and analysis
			  ∘ identifying and making sense of problem event and its parameters
			  ∘ identifying dynamic situational contingencies and constraints
			  ∘ specifying MTS mission
			• Strategy formulation
			  ∘ developing action plans, including contingent courses of action, for MTS
			  ∘ identifying and selecting of necessary component teams
			• Acquiring resources and support from external stakeholders
			• Integrating MTS strategy with external constituents and stakeholders
			  ∘ sense-giving; providing mission frame and plan to stakeholders
			  ∘ integrating MTS strategy with those of constituents

(continued)

TABLE 10.1 (continued)
Leadership Functions in Multiteam Systems

	Within Teams	Between Teams	External
Action Processes	• Monitoring of the sequential and synchronous coordination of member actions 　◦ providing feedback to team members 　◦ facilitating necessary backup behaviors by team members • Tracking use of material resources in task accomplishment • Monitoring of team goal progress 　◦ tracking of progress and identification of goal blockages 　◦ developing plans to resolve goal blockages 　◦ communicating goal progress to team members • Monitoring and calibrating team task accomplishment relative to actions of MTS component teams • Communicating of team actions and progress to other component teams	• Monitoring of the sequential and synchronous coordination of component teams 　◦ providing feedback to component teams 　◦ facilitating necessary backup by behaviors by component teams • Monitoring of distal goal progress (i.e., joint goal progress by two or more component teams) 　◦ tracking progress and identifying goal blockages 　◦ developing plans to resolve goal blockages • communicating goal progress to relevant component teams • Managing communications about team actions and goal progress across all component teams	• Managing communications between MTS and external stakeholders 　◦ communicating MTS actions and goal progress to external stakeholders 　◦ communicating concerns and feedback from stakeholders to MTS • Monitoring and maintaining alignment of MTS actions with external contingencies • Coordinating and monitoring the sequential and synchronous actions of the MTS with those of other external stakeholders

Note: The functions and activities specified in this table were derived and adapted from the following sources: DeChurch et al. (2011); DeChurch and Marks (2006); Marks, Mathieu, and Zaccaro (2001); Morgeson, DeRue, and Karam (2009); and Zaccaro, Heinen et al. (2009).

component teams is represented (a) in the MTS's hierarchy of proximal and distal goals, and (b) in the nature of the interdependencies among component teams (reciprocal or intensive, and input, process, and/or outcome; for more details, see Mathieu et al., 2001; Zaccaro et al., Chapter 1, this volume). When team leaders help members form task objectives and plans, they do so in terms of how planned activities need to contribute to the accomplishment of both proximal and distal goals.

For example, in an MTS established to respond to and treat accident victims (see Mathieu et al., 2001; Zaccaro et al., Chapter 1, this volume), the firefighters and EMTs have the proximal goals of extracting victims and transporting them to the hospital. Functional leadership actions center on enabling such team actions. However, these actions also need to reflect the distal goal of patient survival and recovery. Thus, several activities of the firefighters and EMTs may be geared not only toward extracting victims from the accident scene but also toward doing so in ways that enhance their physical condition and prepare them for delivery to the surgical and recovery teams. When team leaders help component teams establish task objectives and action plans, they account for the accomplishment of the teams' proximal goals, as well as their contribution to the accomplishment of shared distal goals.

External MTSs, where component teams come from different organizations, pose additional challenges to the team that call for leadership intervention. A component team will likely reflect the culture, mission, and operating norms and standards of its parent organization. When these team qualities are dissonant to those of other component teams in the MTS, then team leaders need to facilitate a better understanding and acceptance among team members of alternate cultures, norms, and standards. This is not the same as changing those aspects of the team; attempts at such change are likely to be too disruptive and generally unnecessary. Instead, team leadership processes focus on helping members respond effectively and professionally when their team culture, norms, and standards clash with those of other teams.

Action Processes

In the action phase of task accomplishment, leadership processes within component teams center on ensuring and monitoring the effective coordination of member actions. Thus, they include such activities as

providing feedback to the team when needed, facilitating member backup behaviors, monitoring the progress of the team toward proximal goal accomplishment, and tracking the use of team resources in task accomplishment (DeChurch et al., 2011; DeChurch & Marks, 2006). However, because the component team is acting within a goal hierarchy, team leadership processes also need to focus on two team boundary functions. One function entails monitoring and ensuring that the team's task accomplishment is occurring as planned in sequential or synchronous coordination with the actions of other component teams. If team actions are occurring "out of turn," then team leaders need to calibrate and adjust member actions accordingly. The second boundary function pertains to the communication of team actions and progress to other component team and MTS leaders.

Between-Team MTS Leadership Functions

The purpose of between-team leadership functions is to facilitate a degree of effective synergy and coordination among component teams in the MTS (DeChurch et al., 2011; DeChurch & Marks, 2006). The focus of leadership moves from within the individual teams to interactions occurring between and across teams. Accordingly, functional leadership processes are geared more toward enabling the smooth enactment of team interdependence as multiple teams work to accomplish distal goals. These leadership processes can also be divided into those that occur in MTS transition phases and those that occur in action phases.

Transition Phase

In the transition phase of MTS performance cycles, leadership processes focus on helping component teams define objectives within the context of the MTS goal hierarchy. To do so, MTS leaders must be fully cognizant of several interdependence demands that may be posed by the MTS's mission and task environment (DeChurch & Marks, 2006). Mathieu et al. (2001) defined three forms of functional interdependence that could exist among component teams in MTSs (see also Zaccaro et al., Chapter 1, this volume). The first, *input interdependence*, refers to shared use by at least two component teams of the resources necessary to accomplish a common (i.e., proximal) goal. In such instances, MTS leaders need to help

component teams identify necessary resources and ensure that a system is in place for their coordinated sharing. Note that the emphasis here is on shared resources, not on resources that are the sole province of a single component team. The identification of such resources for use by a single team would be the responsibility of leadership processes within that team. They become the concern of leadership at the higher MTS level at those nodes of goal hierarchy where input interdependence exists.

Process interdependence is defined as "the amount of *interteam* interaction required for goal accomplishment, and refers to the degree to which teams depend on each other to perform the tasks at hand" (Mathieu et al., 2001, p. 294). Such interdependence can take the form of sequential, reciprocal, and intensive arrangements (for a description of these forms of interdependence, see Tesluk, Mathieu, Zaccaro, & Marks, 1997; for how these forms may occur in MTSs, see Mathieu et al., 2001; Zaccaro et al., Chapter 1, this volume). The existence of process interdependence in MTSs means that MTS leaders need to help component teams develop action plans for how they will work together, including the development of necessary shared norms, standards, expectations, and interaction mental models (cf. Cannon-Bowers, Salas, & Converse, 1993). Because different combinations of component teams that share proximal goals may have different forms of interdependence, MTS leaders may need to foster the development of multiple action plans across the MTS. Thus, MTS leaders may need to develop one action plan for teams engaged in sequential interdependence to accomplish a proximal goal, but a different action plan for component teams working in intensive interdependence to achieve another proximal goal. Moreover, because these two subunits within the MTS may share a distal goal, MTS leaders also need to help them combine their respective accomplishments.

Output interdependence refers to "the extent to which personal benefits, rewards, costs, or other outcomes received by team members [in one component team] depend on the performance or successful goal attainment of [other component teams]" (Mathieu et al., 2001, p. 294). Such interdependence will reflect—and influence—the shared motivational dynamics that are occurring within the MTS (see Kanfer & Kerry, Chapter 4 this volume). MTS leadership processes in the transition phase of MTS performance cycles may entail the identification of shared benefits and outcomes, as well as the development of a plan for their equitable distribution among relevant component teams. Although we list such leadership interventions

under transition processes, they probably more likely reflect what Marks et al. (2001) referred to as *interpersonal processes*, which included "conflict management," "motivation and confidence building," and "affect management" (p. 363). As MTSs exhibit greater forms of organizational, functional, and cultural diversity among component teams, as well as greater geographic dispersion (see Zaccaro et al., Chapter 1, this volume, for a description of these MTS attributes), higher levels of outcome interdependence may result in more conflict and negative affect between teams. Thus, in such instances, MTS leaders may be required to help component teams resolve these issues.

Mathieu et al. (2001) noted that the multiple interdependencies operating among component teams are reflected in the MTS goal hierarchy. Although teams may work either independently or interdependently on lower level proximal goals, distal goals at higher levels entail the combined actions of multiple component teams, until, at the top level, all team actions contribute indirectly or directly to goal accomplishment. This quality of MTSs requires their leaders to help component teams accomplish several activities during transition phases of performance cycles. First, they must use their understanding of functional interdependencies among component teams, and their knowledge of the MTS's mission to delineate proximal and distal goals within the hierarchy. Once the goal hierarchy is established, the nature of extant interdependencies will determine the assignment of component teams to positions within the hierarchy. However, MTS leaders may still need to ascertain the best fitting arrangement of component teams, and perhaps acquire other teams to replace those that are not the most appropriate fit for a particular position within the goal hierarchy. MTS leaders also need to specify the priority and synchronization of proximal and distal goal achievement, helping component teams develop an action plan or overall strategy for goal accomplishment. Finally, MTS goal strategies and plans needed to be coordinated across all component teams (DeChurch et al., 2011).

Action Phase

In the action phase of MTS performance cycles, MTS leadership processes focus on helping component teams coordinate their actions to reach proximal and distal goals. This entails at minimum monitoring

the sequential and synchronous integration of team activities as they strive toward proximal and distal goal attainment (DeChurch et al., 2011; DeChurch & Marks, 2006). In the course of such monitoring, MTS leaders may provide feedback to component teams and facilitate necessary backup behaviors to help any faltering teams. Because distal goals will entail greater levels of interdependence, leaders will need to attend more closely to progress toward such goals, identifying impending and actual blockages to goal accomplishment, and developing coordinated plans to resolve such blockages. Finally, MTS leaders need to manage the communications across component teams to facilitate the timely and accurate exchanges of information at appropriate points in MTS action cycles (DeChurch et al., 2011).

Along these lines, DeChurch and Marks (2006) found that in laboratory-based MTSs where leaders were trained in specific behaviors to foster interteam coordination, component teams exhibited greater behavioral synchronization than teams in MTSs where leaders did not receive such training. DeChurch et al. (2011) examined critical incidents of MTS functioning in more realistic settings (e.g., Hurricane Katrina, or provincial reconstruction teams [PRTs] in Afghanistan), and found support for the leadership functions related to "orchestrating action and managing the flow of information" (p. 163). As an example, they cited that when large crowds began to pack the New Orleans Convention Center in the aftermath of Hurricane Katrina, contrary to expectations of MTSs on the ground, units from the U.S. Departments of Defense and Transportation, as well as state and local leaders coordinated efforts to deliver food and water. Note that this incident reflects not only the facilitation of coordinated action among teams but also an integrated reaction of MTS leaders to potential distal goal blockage (i.e., the safety and welfare of local residents). Note also that the emphasis here remains on interteam coordination. The action cycles of individual teams remain the province of team leaders, with the proviso that they convey appropriate information about their actions to MTS leaders, who in turn manage the flow of such information to other relevant component teams.

External MTS Leadership Functions

Mathieu et al. (2001) argued that "a primary reason for the existence of MTSs is their responsiveness and adaptability to challenging performance

environments" (p. 296). They noted that such environments were characterized by a greater diversity of elements and stakeholders, a higher rate of change and volatility, more unfamiliar and novel problem situations, and greater levels of ambiguity and unpredictability. They also argued that what made MTSs effective for work in such environments was their "ability to reconfigure themselves to best align with environmental demands" (p. 296). That is, the interdependent arrangements among component teams can be adjusted to accommodate changes in the MTS's operating environment. We would add that the composition of the MTS may change as well, with the addition or subtraction of particular teams to respond to new emergent challenges. This ability to be responsive to a dynamic environment places a premium on environmental scanning, sense making, and communication processes that leaders perform across the boundary of the MTS (Ancona & Caldwell, 1988, 1992; Katz & Kahn, 1978).

DeChurch et al. (2011) noted that prior studies on MTSs have focused solely on the interaction processes occurring within and between component teams, but not on those occurring across the boundary of the MTS (DeChurch & Marks, 2006; DeChurch & Mathieu, 2009; Marks et al., 2005; Mathieu et al., 2001). They argued that a "point of impact" (p. 160) for MTS leaders was the management of alignment between the MTS and its challenging external environment. Indeed, they found that half of the leadership-critical incidents they derived from the activities of Hurricane Katrina–related MTSs and military-based PRTs in Afghanistan and Iraq represented such boundary-spanning processes. Following their arguments and listing of leadership functions, we have treated external processes as a category of MTS leadership functions separate from those operating within and between component teams (see Table 10.1). We also separated these processes into those that occur in the transition and action phases of MTS performance cycles.

Transition Processes

Because transition processes are directed at developing plans for collective action (Marks et al., 2001), externally focused activities in this domain pertain to the acquisition and interpretation of information necessary to derive the appropriate mission for the MTS (DeChurch et al., 2011). Such environmental scanning and analysis would also extend to identifying

the situational contingencies and constraints that would likely influence mission accomplishment (Joshi, Pandey, & Han, 2009). These activities also contribute to another MTS leadership function, the formulation of a strategic plan that aligns MTS capabilities, resources, and actions with emergent dynamics in its operating environment. The quality of the strategic plan depends upon how well it fosters and maintains this alignment. The strategic plan also provides the basis for determining the best combination of component teams, as well as the relationships among them, to accomplish the mission.

External MTS boundary spanning also requires MTS leaders to represent their constituents to outside stakeholders often for the purpose of acquiring necessary support and resources, negotiating on their behalf, defending them against unwarranted interference, and communicating (even extolling) their progress and accomplishments (Ancona & Caldwell, 1992; DeChurch et al., 2011; Joshi et al., 2009). As part of this "ambassador" role (Ancona & Caldwell, 1992, p. 640), MTS leaders also provide to stakeholders a preview of the MTS strategic plan and ensure that this plan is integrated with those of other units and collectives in its operating environment (DeChurch et al., 2011). Finally, MTS leaders need to stay attuned to their network of stakeholders to anticipate impending environmental disruptions, shifts in alliances, or other changes that may require alterations to MTS plans and actions.

Action Processes

According to DeChurch et al. (2011), boundary-spanning processes that occur during the action phase of MTS performance cycles entail in part managing communications to and from external stakeholders. This includes information to stakeholders regarding goal progress, as well as feedback conveyed from them about concerns and issues raised by MTS actions. Also, MTS leaders need to foster the continuing alignment of the overall MTS with the changing context as the component teams engage in their actions. This includes coordinating and synchronizing the activities of the MTS with those of other MTSs and external stakeholders.

FORMS OF MTS LEADERSHIP

We have noted several leadership functions that should help MTSs accomplish their goals and overall mission. Researchers have been careful to note that the responsibilities for functional team leadership do not necessarily reside in single team leaders; they can be shared across team members (Hackman & Walton, 1986; McGrath, 1962; Morgeson et al., 2009). Conger and Pearce (2003) summarized several of the conditions or factors that would facilitate the emergence of shared leadership, most of which operate in many MTSs. One such factor refers to the degree of task competence and expertise possessed by team members. When members possess higher degrees of expertise, they are more able to contribute to situational analysis, mission specification, and the development of team action plans, prompting their greater participation in or contribution to team decision making (Cox, Pearce, & Perry, 2003; Hersey & Blanchard, 1988; Kerr & Jermier, 1978; Vroom & Yetton, 1973). This may be especially true when (a) members possess high but diverse levels of expertise (e.g., distributed expertise, informational diversity, and functional heterogeneity) (Conger & Pearce, 2003; Hollenbeck et al., 1995; Mayo, Meindl, & Pastor, 2003), and (b) the team task is highly interdependent (Cox et al., 2003; Pearce & Sims, 2000; Perry, Pearce, & Sims, 1999). Both conditions are likely to be common to many types of MTSs.

Other factors in MTSs that may support (or moderate) shared leadership factors include dispersion of power across component teams; social, cultural, and demographic diversity; geographic dispersion; shared team goals; and MTS size (Carson, Tesluk, & Marrone, 2007; Conger & Pearce, 2003; Cox et al., 2003; Yukl, 2010). Later in this chapter, we will offer propositions regarding when different forms of shared or vertical (i.e., centralized) leadership are likely to dominate, either at different nodes in the MTS's network of component teams, or in the MTS as a whole. However, before articulating these propositions, we need to delineate these various forms of leadership as they have been described in the extant literature. Note that we are describing leadership at the MTS level, or between component teams, not in the teams themselves. These forms, as described in the next sections, are summarized within Table 10.2.

TABLE 10.2

Forms of Leadership in Multiteam Systems

Forms of Leadership	Description
Vertical: Fully Centralized	Leadership responsibilities, decisions, and actions are conducted by a single individual in a formal leader role (Mehra, Smith, Dixon, & Robertson, 2006).
Vertical: Multilevel	Leadership in the MTS is organized formally in a multitier structure, in which lower level leaders are subordinated to higher level leaders (Jaques, 1990, 1996).
Shared: Rotated	The full responsibilities of leadership functions are cycled among different individual members of the MTS (Erez, LePine, & Elms, 2002).
Shared: Distributed	Different component team leaders, or members of the leadership team (DeChurch & Marks, 2006), in the MTS are individually responsible for separate leadership functions (Gronn, 2002; Hulpia, Devos, & Rosseel, 2009).
Shared: Simultaneous	All component team leaders, or members of the leadership team, are mutually engaged in leadership activities throughout phases of the MTS performance cycle (Fletcher & Käufer, 2003; Mehra et al., 2006).

Forms of Vertical Leadership in MTSs

Vertical leadership reflects the traditional form of "top-down" leadership that has been the prime focus in the leadership literature (Day et al., 2004; Hiller, Day, & Vance, 2006; Pearce & Conger, 2003). In the prototypic version of this form, "leadership [originates] from a higher level in the organizational hierarchy," and "power and authority are invested in a single appointed leader who serves as the primary source of influence, wisdom, and guidance for team members" (Houghton, Neck, & Manz, 2003, p, 125). A core assumption is that one individual, or perhaps a few individuals nested hierarchically, are considered "accountable" to stakeholders for collective functioning and goal accomplishment (Friedrich, Vessey, Schuelke, Ruark, & Mumford, 2009, p. 935). We suggest that vertical leadership can occur in MTSs in two ways. The first is a fully centralized model (Mehra, Smith, Dixon, & Robertson, 2006), in which all component team leaders are subordinate to a single MTS leader. That leader would be fully responsible for enacting the leadership functions described in Table 10.1, when conditions in the MTS warranted such intervention. Such leadership structures may sometimes be found in military-based MTSs, where

there is usually a commanding officer who is ultimately responsible for unit decisions. For example, DeChurch et al. (2011) described provincial reconstruction teams in Afghanistan as

> led by an Army commanding officer who is supported by Army Civil Affairs Teams, Military Police Units, and civilian representatives from the Department of State, the Agency for International Development (USAID), and the Department of Agriculture (USDA; Dorman, 2007). Local Afghan Ministry representatives and interpreters are also usually a part of the PRT. (p. 155)

Fully centralized vertical leadership refers to the formal decision-making structure of the MTS. However, of course, central leaders may still choose to share the responsibility and power of decision making among their subordinates (Vroom & Yetton, 1973); in such instances, leadership processes may reflect more of the shared arrangements described below.

Zaccaro, Heinen et al. (2009) articulated several formal leadership roles that can exist even when team members share leadership responsibilities. These teams can have internal leaders, external leaders, and/or executive coordinators (see also Cohen, Chang, & Ledford, 1997; Druskat & Wheeler, 2003; Morgeson et al., 2009). We suggest that these types of leaders can all exist in an MTS having a *multilevel* hierarchical structure (e.g., Jaques, 1996). Thus, the component teams may be led as a collective by an internal leader who is heavily involved in the transition and action processes of the MTS. However, the MTS may also have an external leader that is more oriented toward the boundary-spanning activities of the MTS (Druskat & Wheeler, 2003; Manz & Sims, 1987). Such leaders may also help staff the MTS and provide its overall direction in line with a superordinate strategy, but they are still fairly disconnected from typical MTS performance cycles (Morgeson et al., 2009; Zaccaro, Heinen et al., 2009). According to Zaccaro, Heinen et al., executive coordinators often work outside of the team and have responsibility for establishing the superordinate strategic framework for collective action. Thus, in MTSs such leaders would establish the MTS itself, including its component teams, but then give MTS leaders and component teams significant responsibility for the subsequent structure, objectives, and plans of the MTS. For example, DeChurch et al. (2011) described disaster response MTSs that would form at the direction of an affected state's governor, including decisions about what units were ·

to be included in the MTS, and whether federal agencies were to be invited as well. However, planning and facilitating the structured interactions of component teams in the course of their performance cycles were more likely the province of MTS internal and external leaders.

Forms of Shared Leadership in MTSs

Pearce and Conger (2003) defined shared leadership as

> a dynamic, interactive influence process among individuals in a groups for which the objective is to lead one another to the achievement of group or organizational goals or both. This influence process often involves peer, or lateral, influence and at other times involves upward or downward hierarchical influence.... Leadership is broadly distributed among a set of individuals instead of centralized in hands of a single individual who acts in the role of a superior. (p. 1)

Friedrich et al. (2009) offered several assumptions for a framework of collective leadership that are particularly applicable to MTSs. The first is that effective collective leadership rests on a distribution of expertise and skills in the network of potential leaders. As MTSs are generally composed of teams each having a particular expertise necessary for overall MTS functioning, this assumption would likely be common to most such collectives.

Second, teams (and MTSs) need to have the mechanisms in place to foster the exchange of information necessary for effective collective leadership. As seen in Table 10.1, both transition and action processes entail significant communications of information and knowledge within and among component teams, as well as with external stakeholders. Effective functional leadership of MTSs would accordingly center on enabling such information flow (DeChurch et al., 2011). Once such exchanges are enabled, they in turn become, according to Friedrich et al. (2009), the grease for the operations of collective leadership.

Friedrich et al.'s third assumption is that collective leadership does not mean the absence of formal leadership (see also Zaccaro, Heinen et al., 2009). They argued that collectives still require persons in positions of accountability as well as those who have responsibility for functions related to staffing and constructing the team. Studies have shown that

forms of shared and vertical leadership are both necessary for team effectiveness (Ensley, Hmieleski, & Pearce, 2006; Pearce & Sims, 2002). As a final assumption, Friedrich et al. noted that forms of collective leadership are not static, and as the nature of the problems confronting the team change, members may shift their patterns of leadership. Thus, they suggested that in the course of collective responses to different situations, "there may be shifts in the need for a single leader, multiple individuals sharing the leadership role, or even a shift in the roles that each individual engages in" (Friedrich et al., 2009, p. 935).

This last assumption suggests that shared leadership can occur in several different forms, a point argued by other theorists as well (Carson et al., 2007; Erez, LePine, & Elms, 2002; Gronn, 2002; Mehra et al., 2006; Pearce & Conger, 2003). However, these different forms are not often clearly delineated. In MTSs, we suggest that shared leadership processes can take at least three forms, *rotated*, *distributed*, and *simultaneous*. Indeed, sometimes all three forms can operate within the same MTS at the same or different points in its performance cycle.

Rotated leadership refers to situations in which "different individuals provide leadership at different points in the team's life cycle and development" (Carson et al., 2007, p. 1220). Such an arrangement represents in essence a structurally hierarchical or vertical form of leadership, but one in which the responsibility for leadership is shared sequentially or serially among team members. At any point in time, the focus of leadership remains on a single individual, but over the life span of the collective, some or all members engage in leadership activities. Erez et al. (2002) argued that such leadership allows all team members to feel responsibility for collective leadership, a feeling that "should translate into a greater likelihood that members do their fair share of the team's work" (p. 933). They also reported that such leadership increased the degree to which members offer suggestions for change in the team, and the overall level of cooperation within the team.

The structure of rotated leadership, and specifically who occupies the leadership role at a particular time, can be set formally, or can depend upon who has the primary expertise and resources to solve the problem confronting the team at that point in its performance cycle (Friedrich et al., 2009). In MTSs, rotated forms of shared leadership can occur when different component team leaders assume the MTS leader role at dif-

ferent times, or when the role is rotated among members of an MTS external leader team.

Distributed leadership refers to arrangements in which members of a collective take on different leadership functions (Gronn, 2002; Hulpia, Devos, & Rosseel, 2009). Thus, one or a few members may be primarily responsible for strategy development, others for boundary-spanning activities, and still others for coordination and monitoring during the action phase of performance cycles. This kind of shared leadership arrangement may arise when members have varied skills that make each of them more suited to a subset of leadership functions. They may also occupy particular role positions (e.g., at the boundary of the group, or within the portion of the collective most responsible for ongoing action) that favor particular leadership functions over others (Gronn, 2002).

Simultaneous shared leadership refers to those instances when all members of the collective are mutually engaged in leadership activities throughout all phases of a performance cycle (Fletcher & Käufer, 2003; Mehra et al., 2006). In such instances, "every person is a leader and a follower" in the same performance cycle (Mehra et al., 2006, p. 235). Fully realized versions of this arrangement are relatively rare, as not all members of the collective will have the skills, knowledge, or inclination to engage in leadership (Friedrich et al., 2009; Mehra et al., 2006). However, MTSs may contain a leadership team that includes all component team leaders, where leadership functions are equally shared among these individuals (e.g., DeChurch & Marks, 2006). Such shared leadership arrangements are likely to be best suited to collective tasks that are highly interdependent and in which those who share leadership functions have full access to information flows within the team or MTS (Friedrich et al., 2009).

MTSs may be characterized by either vertical or shared forms of leadership, and, if the latter, rotated, distributed, or intensive forms. Because levels of interdependencies can vary at different nodes within the MTS goal hierarchy (Mathieu et al., 2001), alternate forms of shared leadership may operate at separate nodes. We suggest that several attributes of MTSs as described by Zaccaro et al. (Chapter 1, this volume) will likely determine which form of leadership is best suited for maximum system effectiveness. We elaborate on this premise in the next section of this chapter.

MTS ATTRIBUTES AND FORMS OF LEADERSHIP

Zaccaro et al. (Chapter 1 of this volume) offered a classification of attributes that distinguish different types of MTSs. They divided these attributes into three categories: compositional attributes, linkage attributes, and developmental attributes (see Table 1.1, Chapter 1, this volume). *Compositional attributes* refer to demographic characteristics of the MTS as well as the attributes of the component teams. *Linkage attributes* refer to the different kinds of attachments and relationships teams have with one another within the MTS. *Developmental attributes* refer to differences in how MTSs are initiated and grow as a collective; they also refer to the tenure and maturity of the MTS. Based on research from the shared leadership literature, we would argue that many of the attributes defined by Zaccaro et al. are likely to determine the degree to which collective forms of leadership will occur in MTSs and lead to overall effectiveness. In this section, we offer some propositions that we hope will encourage future research on MTS leadership and its moderating conditions.

Compositional Attributes and Leadership Forms

For this chapter, we have focused on how three compositional attributes defined by Zaccaro et al. (Chapter 1, this volume) might influence the degree of shared leadership likely to be displayed in the MTS. These attributes are (a) the number of component teams in the MTS, (b) the degree of diversity (organizational, cultural, and functional) present among component teams, and (c) the geographic dispersion of component teams.

MTS Size

Research on the size of the collective and the emergence of shared leadership has been limited and somewhat mixed. The lack of clarity in the literature may stem from the countervailing influences of two conditions for effective shared leadership—the need for a sufficient number of leadership partners with requisite levels of knowledge and expertise (Conger & Pearce, 2003), and cohesive and supportive relationships among members (Carson et al., 2007). Several researchers have argued that as the size of the collective grows, it is more likely to contain multiple individuals capable of sharing leadership functions

(Conger & Pearce, 2003; Cox et al., 2003). That is, more members will likely possess the skills, knowledge, and expertise required to successfully engage in leader problem-solving activities (Friedrich et al., 2009). Accordingly, we can expect that as the number of component teams in an MTS grows, there will be more team leaders that can participate in MTS leadership. However, other studies have shown that increases in team and organizational size can interfere with the development of cohesion and coordinated working relationships (Hambrick, 1994; Seers, Keller, & Wilkerson, 2003). The lack of such support and mutuality across team members is likely to impair the display of shared leadership (Carson et al., 2007; Kirkman & Rosen, 1999). This argument suggests that increases in MTS component teams will lessen such leadership.

Tests of the relationship between team size and shared leadership have been mixed. Several studies have reported nonsignificant correlations between size and shared leadership (Boone & Hendricks, 2009; Ensley et al., 2006, sample 2; Kirkman, Rosen, Tesluk, & Gibson, 2004; Pearce and Sims, 2002), whereas others found a positive relationship (Campion, Medsker, & Higgs, 1993; Carson et al., 2007; Ensley et al., 2006, sample 1). Thus, there is not a consistent finding that can be extrapolated to MTSs. However, based on the conceptual arguments outlined in this chapter, we would argue that MTSs need to contain enough component teams (with leaders) so that there is a sufficient reserve of expertise to engage in leadership; however, as the number of teams increases to the point where coordination and social support begin to suffer, the positive relationship between team size and displayed shared leadership will likely asymptote at a particular level and then become more negative.

> Proposition 1. A curvilinear relationship will exist between MTS size and displays of shared leadership, such that increases in the number of component teams will be associated with greater shared leadership to a point at which further increases will be associated with less shared leadership.

MTS Diversity

The influence of MTS diversity on the display of shared leadership may vary with different kinds of diversity. Mayo et al. (2003) differentiated social and informational diversity and their effects of shared leadership

in teams (see also the summary by Conger & Pearce, 2003). Social diversity reflects heterogeneity in such demographic variables as age, gender, race, and status. Teams characterized by higher levels of social diversity may find it more difficult to develop the degree of cohesion, trust, and support necessary for effective shared leadership (Cox et al., 2003; Jackson, 1992; Jackson, Joshi, & Erhardt, 2003; Knight et al., 1999; O'Reilly, Caldwell, & Barnett, 1989; Phillips, Rothbard, & Dumas, 2008; Smith et al., 1994; Van Knippenberg, De Dreu, & Homan, 2004). Based on Zaccaro et al.'s (Chapter 1, this volume) dimensions of MTS characteristics, such social diversity can occur when (a) component teams come from different organizations (organizational diversity), especially when represented organizations differ themselves on demographic and industry characteristics; and/or (b) component teams come from different nations and cultures (cultural diversity). Accordingly, we propose the following:

> Proposition 2. MTSs with higher levels of organizational diversity will display less shared forms of leadership.
> Proposition 3. MTSs with higher levels of cultural diversity will display less shared forms of leadership.

Informational diversity generally reflects heterogeneity in members' experiences, skills, abilities, expertise, and educational and functional background (see "cognitive diversity" by O'Bannon & Gupta, 1992). Such diversity would presumably bring a greater array of cognitive and informational responses to the collective, fostering better collective leadership. Several studies have shown that such diversity does indeed lead to a broader range of ideas and perspectives in teams (Joshi et al., 2009; Van Knippenberg et al., 2004), particularly in those at the top of the organization (Bantel, 1993; Wiersema & Bantel, 1992). Greater numbers of ideas should contribute richer cognitive resources to shared leadership (Conger & Pearce, 2003; Friedrich et al., 2009; Mayo et al., 2003; Pearce & Ravlin, 1987).

Informational diversity, however, may also likely increase the degree of interpersonal conflict in collectives, resulting in lower cohesion and therefore less displays of such leadership (Knight et al., 1999; Van Knippenberg et al., 2004). This suggests that when collectives possess higher levels of informational diversity, the effects of such heterogeneity

on social processes may need to be offset by those team attributes that minimize such conflict. Indeed, several studies have offered support for this premise. For example, Carmel (1995) found that effective product innovation teams were characterized by *heterogeneity* in educational backgrounds (i.e., high informational diversity) but *homogeneity* in age, gender, and home country (i.e., low social diversity). Phillips, Mannix, Neale, and Gruenfeld (2004) reported that diverse groups were better able to use information from members under conditions of higher social support. Boone and Hendricks (2009) reported that the relationship between functional diversity in top management teams and organizational performance was much higher in teams with higher levels of collaborative behavior than in teams not characterized by such behavior. Based on this research line, we expect that MTSs with higher levels of functional diversity among component teams may not use forms of shared leadership unless they were characterized by higher levels of cohesion and cooperation among the teams.

> Proposition 4. The effects of MTS functional diversity on displays of shared leadership and MTS effectiveness will be moderated by interteam cohesion and social support, such that these effects will be more positive under higher levels of cohesion and support.

Geographic Dispersion

MTSs can be characterized by component teams that are either physically co-located or geographically dispersed (Zaccaro et al., Chapter 1, this volume). Research on dispersed teams indicates that greater levels of physical distance between members decrease the development of trust (Jarvenpaa & Leidner, 1999), group cohesion (Straus, 1996; Warkentin, Sayeed, & Hightower, 1997), and the quantity and quality of communications and information exchanges among team members (Cramton, 2001; Straus, 1997). These impairments in team social and information dynamics will likely reduce the degree of shared leadership in the system.

> Proposition 5. MTSs with greater geographic dispersion among component teams will display less shared leadership.

Linkage Attributes and Leadership Forms

Linkage attributes refer to the task and goal characteristics that connect component teams to one another (Zaccaro et al., Chapter 1, this volume). We consider the influences of two such attributes, interdependence and power distribution, on adopted forms of leadership within the MTS.

Interdependence

One of the necessary conditions for an MTS—interdependence among component teams (Mathieu et al., 2001; Zaccaro et al., Chapter 1, this volume)—in turn increases the likelihood of displayed shared leadership among these teams (Cox et al., 2003). Cox et al. argued that shared leadership was more effective under conditions of high interdependence because it fostered greater information exchange and coordinated the effort that such conditions required. Accordingly, Campion et al., (1993) found that members' ratings of the amount of task, goal, and feedback interdependence required by their work were significantly correlated with their rated degree of self-management and member participation in the team. Other studies have shown that collective leadership emerged more readily from a shared purpose and common objectives among team members (Carson et al., 2007; Seers, 1996; Yukl, 2010).

Mathieu et al. (2001) noted that not all component teams in an MTS are linked functionally with all other teams. Accordingly, we would expect that the higher the degree of functional interdependence among component teams, the more likely they will display between-team shared leadership.

> Proposition 6. Those component teams linked by higher degrees of functional interdependence will display higher levels of shared leadership between them.

Mathieu et al. (2001) also contrasted sequential, reciprocal, and intensive forms of interdependence among component teams. Sequential and reciprocal forms reflect situations where particular teams take the lead at different points in the MTS performance cycle. Intensive forms entail

more simultaneous and synchronous forms of coaction among teams. Each form is likely to foster a different type of shared leadership.

> Proposition 7. Component teams that are linked by sequential and reciprocal forms of interdependence are more likely to use rotated forms of shared leadership than less interdependent teams, or teams with more intensive forms of interdependence.
>
> Proposition 8. Component teams that are linked by intensive forms of interdependence are more likely to use simultaneous forms of shared leadership than less interdependent teams, or teams with more sequential and reciprocal forms of interdependence.

Power Distribution

Zaccaro et al. (Chapter 1, this volume) suggested that MTSs may differ in the power arrangements among component teams. According to them, factors that may increase the power accrued by a component team include higher placement within the MTS goal hierarchy, the larger size of the team, their higher functional necessity for the core purpose of the MTS, and the granting of formal authority to them by external MTS leaders. When power is concentrated among few members or component teams, shared leadership is less likely to occur (Conger & Pearce, 2003; Seers et al., 2003).

> Proposition 9. MTSs that are characterized by limited or centralized power distributions will display lower levels of shared leadership.

Developmental Attributes and Leadership Forms

Zaccaro et al. (Chapter 1, this volume) argued that MTSs can also be distinguished by such attributes as how they came into being (e.g., appointed by eternal leaders, or emergent), their duration, and their stage of development (e.g., their maturation). Several models of organizational growth have suggested that as organizations mature, decision making becomes more decentralized (Griener, 1972; Quinn & Cameron, 1983; Smith, Mitchell, & Summer, 1985). In such instances, the leadership responsibilities become so numerous and varied that no single individual can handle them all (Ensley et al., 2006). These models, however, may be confounding size and maturity. Other researchers have argued that as collectives

mature in terms of their time together, members become more familiar with collective capabilities, and form more effective working relationships (Conger & Pearce, 2003; Cox et al., 2003; Kozlowski et al., 2009), factors that promote shared leadership. We would expect to see the same dynamics appear in MTSs as they mature.

> Proposition 10. More mature MTSs will display greater levels of shared leadership than less mature MTSs.

Additional Leadership Dimensions

Although this chapter advances thinking about leadership in multiteam systems by first classifying leadership in terms of forms and functions (two dimensions), and then considering the interplay of forms and functions with the attributes of MTSs to advance a contingency perspective of MTS leadership, we also wish to spark the idea that perhaps there is an additional dimension of leadership in MTSs stemming from the inherent complexity of these systems. Such a 3D conceptualization may begin with thinking about how these forms serve these functions when component teams are in nonoverlapping performance episodes, and when multiple forms of leadership are being simultaneously enacted at different locations within the system. Two necessary aspects of such a 3D view will be (a) the temporal evolution of leadership dynamics within the system; and (b) MTS leadership as a patterned, compilationally emergent phenomenon.

SUMMARY

We have focused in this chapter on leadership processes in MTSs. We have argued that the particular qualities of MTSs—their attunement and adaptability to dynamic and turbulent environments, the complexity of their boundary relationships, their complex compositional arrangements and need for interdependence, and the multiple identities of their members—especially increase the need for strong leadership processes. Leadership in MTSs has multiple levels, including within component teams, between component teams, and across

the external boundary of MTSs. We have therefore articulated sets of functional leadership processes that pertain to these levels. Because different functional leadership activities will be necessary at different points in the MTS performance cycle, we also segmented leadership processes by their primary occurrence in the transition and action phases of these cycles. We believe that different forms of vertical and shared leadership can occur in MTSs, and their display will vary according to the attributes of the MTS. We have accordingly offered several propositions about how MTS attributes influence the display of shared leadership.

There have been a fairly limited number of empirical studies on leadership in MTSs. We can think of only two (DeChurch et al., 2011; DeChurch & Marks, 2006). Because we believe that leadership processes are particularly important drivers of MTS success, additional research will be necessary to further our understanding of MTS dynamics and effectiveness. We hope this chapter stimulates such research.

REFERENCES

Ancona, D. G., & Caldwell, D. F. (1988). Beyond task and maintenance: Defining external functions in groups. *Group and Organization Studies, 13*, 468–494.

Ancona, D. G., & Caldwell, D. F. (1992). Bridging the boundary: External activity and performance in organizational teams. *Administrative Science Quarterly, 37*(4), 634–665.

Bantel, K. A. (1993). Strategic clarity in banking: Role of top management team demography. *Psychological Reports, 73*, 1187–1201.

Boone, C., & Hendricks, W. (2009). Top management team diversity and firm performance: Moderators of functional-background and locus of control diversity. *Management Science, 55*, 165–180.

Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. (2006). What types of leadership behaviors are functional in team? A meta-analysis. *The Leadership Quarterly, 17*, 288–307.

Campion, M. A., Medsker, G. J., & Higgs, A. C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology, 46*, 823–850.

Cannon-Bowers, J. A., Salas, E., & Converse, S. (1993). Shared mental models in expert team decision making. In N. J., Castellan, Jr. (Ed.), *Current issues in individual and group decision making* (pp. 221–246). Hillsdale, NJ: Erlbaum.

Carmel, E. (1995). Cycle time in packaged software firms. *Journal of Product Innovation Management, 9*, 140–147.

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.

Cohen, S. G., Chang, L., & Ledford, G. E. (1997). A hierarchical construct of self-management leadership and its relationship to quality of work life and perceived work group effectiveness. *Personnel Psychology*, 50, 275–308.

Conger, J. A., & Pearce, C. L. (2003). A landscape of opportunities: Future research on shared leadership. In C. L. Pearce & J. A. Conger (Eds.), *Shared leadership: Reframing the hows and whys of leadership* (pp. 285–303). Thousand Oaks, CA: Sage.

Cox, J. F., Pearce, C. L., & Perry, M. (2003). Toward a model of shared leadership and distributed influence in the innovation process: How shared leadership can influence new product development team dynamics and effectiveness. In C. L. Pearce & J. A. Conger (Eds), *Shared leadership: Reframing the hows and whys of leadership* (pp. 48–76). Thousand Oaks, CA: Sage.

Cramton, C. D. (2001). The mutual knowledge problem and its consequences for dispersed collaboration. *Organization Science*, 12, 346–371.

Day, D. V., Gronn, P., & Salas, E. (2004). Leadership capacity in teams. *The Leadership Quarterly*, 15, 857–880.

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

DeChurch, L. A., & Marks, M. A. (2006). Leadership in multiteam systems. *Journal of Applied Psychology*, 91, 311–329.

DeChurch, L. A., & Mathieu, J. E. (2009). Thinking in terms of multiteam systems. In E. Salas, G. F. Goodwin, & C. S. Burke (Eds.), *Team effectiveness in complex organizations: Cross-disciplinary perspectives and approaches* (pp. 267–292). New York: Taylor & Francis.

Druskat, V., & Wheeler, J. V. (2003). Managing from the boundary: The effective leadership of self-managing work teams. *Academy of Management Review*, 46, 435–457.

Dorman, S. (2007). Iraq PRTs: Pins on a map. *Foreign Service Journal*, March, 2007, 21–39.

Ensley, M. D., Hmieleski, K. M., & Pearce, C. L. (2006). The importance of vertical and shared leadership within new venture top management teams: Implications for the performance of startups. *The Leadership Quarterly*, 17(3), 217–231.

Erez, A., LePine, J. A., & Elms, H. (2002). Effects of rotated leadership and peer evaluation on the functioning and effectiveness of self-managed teams: A quasi-experiment. *Personnel Psychology*, 55, 929–948.

Feldman, D. C. (1984). The development and enforcement of group norms. *Academy of Management Review*, 9, 47–53.

Festinger, L. (1950). Informal social communication. *Psychological Review*, 57, 271–282.

Fleishman, E. A., Mumford, M. D., Zaccaro, S. J., Levin, K. Y., Korotkin, A. L., & Hein, M. B. (1991). Taxonomic efforts in the description of leader behavior: A synthesis and functional interpretation. *The Leadership Quarterly*, 2, 245–287.

Fletcher, J. K., & Käufer, K. (2003). Shared leadership: Paradox and possibility. In C. L. Pearce & J. A. Conger (Eds.), *Shared leadership: Reframing the hows and whys of leadership* (pp. 21–46). Thousand Oaks, CA: Sage.

Friedrich, T. L., Vessey, W. B., Schuelke, M. J., Ruark, G. A., & Mumford, M. D. (2009). A framework for understanding collective leadership: The selective utilization of leader and team expertise within networks. *The Leadership Quarterly*, 20(6), 933–958.

Gardner, W. L., III, & Schermerhorn, J. R., Jr. (1992). Strategic operational leadership and the management of supportive work environments. In R. L. Hunt & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational-level perspective*. Westport, CT: Quorum.

Griener, L. E. (1972). Evolution and revolution as organizations grow. *Harvard Business Review*, 50(4), 37–46.

Gronn, P. (2002). Distributed leadership as a unit of analysis. *The Leadership Quarterly*, 13, 423–451.

Hackman, J. R., & Wageman, R. (2005). A theory of team coaching. *Academy of Management Review*, 30, 269–287.

Hackman, J. R., & Walton, R. E. (1986). Leading groups in organizations. In P. S. Goodman & Associates (Eds.), *Designing effective work groups* (pp. 72–119). San Francisco: Jossey-Bass.

Hambrick, D. C. (1994). Top management groups: A conceptual integration and reconsideration of the "team" label. In D. C. Hambrick, *Research in organizational behavior* (Vol. 16, pp. 171–213). Greenwich, CT: JAI.

Hersey, P., & Blanchard, K. H. (1988). *Management of organizational behavior: Utilizing human resources* (5th ed.). Englewood Cliffs, NJ: Prentice Hall.

Hiller, N. J., Day, D. V., & Vance, R. J. (2006). Collective enactment of leadership roles and team effectiveness: A field study. *Leadership Quarterly*, 17, 387–397.

Hollenbeck, J. R., Ilgen, D. R., Sego, D. J., Hedlund, J., Major, D. A., & Phillips, J. (1995). Multilevel theory of team decision-making: Decision performance in teams incorporating distributed expertise. *Journal of Applied Psychology*, 80, 292–316.

Houghton, J. D., Neck, C. P., & Manz, C. C. (2003). Self-leadership and superleadership: The heart and art of creating shared leadership in teams In C. L. Pearce & J. A. Conger (Eds.), *Shared leadership: Reframing the hows and whys of leadership* (pp. 123–139). Thousand Oaks, CA: Sage.

Hulpia, H., Devos, G., & Rosseel, Y. (2009). Development and validation of scores on the distributed leadership inventory. *Educational and Psychology Measurement*, 69, 1013–1034.

Jackson, S. E. (1992). Team composition in organizational settings: Issues in managing a diverse work group. In S. Worchel, W. Wood, & J. Simpson (Eds.), *Group process and productivity*. Newbury Park, CA: Sage.

Jackson, S. E., Joshi, A., & Erhardt, N. L. (2003). Recent research on team and organizational diversity: SWOT analysis and implications. *Journal of Management*, 29, 801–830.

Jacobs, T. O., & Jaques, E. (1990). Military executive leadership. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership* (pp. 281–295). Greensboro, NC: Center for Creative Leadership.

Jaques, E. (1990, January–February). In praise of hierarchy. *Harvard Business Review*, 127–133.

Jaques, E. (1996). *Requisite organization: A total system for effective managerial organization and managerial leadership for the 21st century*. Arlington, VA: Cason Hall.

Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization Science*, 10(6), 791–815.

Joshi, A., Pandey, N., & Han, G. (2009). Bracketing team boundary spanning: An examination of task-based, team-level, and contextual antecedents. *Journal of Organizational Behavior*, 30, 731–759.

Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations*. New York: Wiley.

Kerr, S., & Jermier, J. M. (1978). Substitutes for leadership: Their meaning and measurement. *Organizational Behavior and Human Performance, 22*, 375–403.

Kirkman, B. L., & Rosen, B. (1999). Beyond self-management: The antecedents and consequence of team empowerment. *Academy of Management, 42*, 58–74.

Kirkman, B. L., Rosen, B., Tesluk, P. E., & Gibson, C. B. (2004). The impact of team empowerment on virtual team performance: The moderating role of face-to-face interaction. *Academy of Management Journal, 47*, 175–192.

Knight, D., Pearce, C. L., Smith, K. G., Olian, J. D., Sims, H. P., Smith, K. A., et al. (1999). Top management team diversity, group process, and strategic consensus. *Strategic Management Journal, 20*, 445–465.

Kozlowski, S. W. J., Gully, S. M., McHugh, P. P., Salas, E., & Cannon-Bowers, J. A. (1996). A dynamic theory of leadership and team effectiveness: Developmental and task contingent leader roles. *Research in Personnel and Human Resources Management, 14*, 253–305.

Kozlowski, S. W. J., Watola, D. J., Jensen, J. M., Kim, B. H., & Botero, I. C. (2009). Developing adaptive teams: A theory of dynamic team leadership. In E. Salas, G. F. Goodwin, & C. S. Burke (Eds.), *Team effectiveness in complex organizations* (pp. 113–156). New York: Psychology Press.

Larson, J. R., Jr. (2010). *In search of synergy in small group performance.* New York: Taylor & Francis.

Manz, C. C., & Sims, H. P. (1987). Leading workers to lead themselves: The external leadership of self-managing work teams. *Administrative Science Quarterly, 32*, 106–128.

Marks, M. A., DeChurch, L. A., Mathieu, J. E., Panzer, F. J., & Alonso, A. A. (2005). Teamwork in multi-team systems. *Journal of Applied Psychology, 90*(5), 964–971.

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review, 26*(3), 356–376.

Mathieu, J. E., Marks, M. A., & Zaccaro, S. J. (2001). Multi-team systems. In N. Anderson, D. Ones, H. K. Sinangil, & C. Viswesvaran (Eds.), *International handbook of work and organizational psychology* (pp. 289–313). London: Sage.

Mayo, M., Meindl, J. R., & Pastor, J. C. (2003). Shared leadership in work teams: A social network approach. In C. L. Pearce & J. A. Conger (Eds.), *Shared leadership: Reframing the hows and whys of leadership* (pp. 193–212). Thousand Oaks, CA: Sage.

McGrath, J. E. (1962). *Leadership behavior: Some requirements for leadership training.* Washington, DC: U.S. Civil Service Commission, Office of Career Development.

Mehra, A., Smith, B. R., Dixon, A. L., & Robertson, B. (2006). Distributed leadership in teams: The network of leadership perceptions and team performance. *The Leadership Quarterly, 17*(3), 232–245.

Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2009). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management, 36*, 5–39.

Mumford, M. D., Zaccaro, S. J., Harding, F. D., Jacobs, T. O., & Fleishman, E. A. (2000). Leadership skills for a changing world: Solving complex social problems. *Leadership Quarterly, 11*, 11–35.

O'Bannon, D. P., & Gupta, A. K. (1992, August). The utility of homogeneity versus heterogeneity within top management teams: Alternate resolutions of the emerging conundrum. Paper presented at the annual meeting of the Academy of Management, Las Vegas, NV.

O'Reilly, C. A., III, Caldwell, D., & Barnett, W. (1989). Work group demography, social integration, and turnover. *Administrative Science Quarterly, 34*, 21–37.

Pearce, C. L., & Conger, J. A. (2003). All those years ago: The historical underpinnings of shared leadership. In C. L. Pearce & J. A. Conger (Eds.), *Shared leadership: Reframing the hows and whys of leadership* (pp. 1–18). Thousand Oaks, CA: Sage.

Pearce, C. L., & Sims, H. P. (2000). Shared leadership: Toward a multi-level theory of leadership. In M. M. Beyerlein, D. A. Johnson, & S. T. Beyerlein (Eds.), *Advances in interdisciplinary studies of work teams: Team leadership* (Vol. 7, pp. 115–139). Greenwich, CT: JAI.

Pearce, C. L., & Sims, H. P. (2002). Vertical versus shared leadership as predictors of the effectiveness of change management teams: An examination of aversive, directive, transactional, transformational and empowering leader behaviors. *Group Dynamics: Theory, Research, and Practice, 6*, 172–197.

Pearce, J. A., & Ravlin, E. C. (1987). The design and activation of self-regulating work groups. *Human Relations, 40*(11), 751–782.

Perry, M. L., Pearce, C. L., & Sims, H. P., Jr. (1999). Empowered selling teams: How shared leadership can contribute to selling team outcomes. *Journal of Personal Selling and Sales Management, 19*, 35–51.

Phillips, K. W., Mannix, E. A., Neale, M. A., & Gruenfeld, D. H. (2004). Diverse groups and information sharing: The effects of congruent ties. *Journal of Experimental Social Psychology, 40*, 497–510.

Phillips, K. W., Rothbard, N. P., & Dumas, T. L. (2008). To disclose or not to disclose? Status distance and self-disclosure in diverse environments. *Academy of Management Review, 34*(4), 710–732.

Quinn, R. E., & Cameron, K. (1983). Organizational life cycles and shifting criteria of effectiveness: Some preliminary evidence. *Management Science, 29*, 33–51.

Roby, T. B. (1961). The executive function in small groups. In L. Petrullo & B. Bass (Eds.), *Leadership and interpersonal behavior.* New York: Holt, Rinehart & Winston.

Schutz, W. C. (1961). The ego, FIRO theory and the leader as completer. In L. Petrullo & B. M. Bass (Eds.), *Leadership and interpersonal behavior* (pp. 48–65). New York: Holt, Rinehart & Winston.

Seers, A. (1996). Better leadership through chemistry: Toward a model of emergent shared team leadership. In M. M. Beyerlein & D. A. Johnson (Eds.), *Advances in the interdisciplinary study of work teams: Team leadership* (Vol. 3, pp. 145–172). Greenwich, CT: JAI.

Seers, A., Keller, T., & Wilkerson, J. M. (2003). Can team members share leadership? Foundations in research and theory. In C. L. Pearce & J. A. Conger (Eds.), *Shared leadership: Reframing the hows and whys of leadership* (pp. 77–101). Thousand Oaks, CA: Sage.

Smith, K. G., Mitchell, T. R., & Summer, C. E. (1985). Top level management priorities in different stages of the organizational life cycle. *Academy of Management Journal, 28*(4), 799–820.

Smith, K. G., Smith, K. A., Olian, J. D., Sims, H. P., O'Bannon, D. P., & Scully, J. A. (1994). Top management team demography and process: The role of social integration and communication. *Administrative Science Quarterly, 39*, 412–438.

Straus, S. G. (1996). Getting a clue: The effects of communication media and information distribution on participation and performance in computer-mediated and face-to-face groups. *Small Group Research, 27*(1), 115–142.

Straus, S. G. (1997). Technology, group process, and group outcomes: Testing the connections in computer-mediated and face-to-face groups. *Human-Computer Interaction*, *12*(3), 227–266.

Tesluk, P., Mathieu, J. E., Zaccaro, S. J., & Marks, M. A. (1997). Task and aggregation issues in analysis and assessment of team performance. In M. T. Brannick, E. Salas, & C. Prince (Eds.), *Team performance assessment and measurement: Theory, methods, and applications*. Mahwah, NJ: Erlbaum.

van Knippenberg, D., De Dreu, C. K. W., & Homan, A. C. (2004). Work group diversity and group performance: An integrative model and research agenda. *Journal of Applied Psychology*, *89*(6), 1008–1022.

Vroom, V. H., & Yetton, P. W. (1973). *Leadership and decision-making*. Pittsburgh, PA: University of Pittsburgh Press.

Warkentin, M. E., Sayeed, L., & Hightower, R. (1997). Virtual teams versus face-to-face teams: An exploratory study of a web-based conference system. *Decision Sciences*, *28*, 975–996.

Wiersema, M. F., & Bantel, K. A. (1992). Top management team demography and corporate strategic change. *Academy of Management Journal*, *35*, 91–121.

Yukl, G. (2010). *Leadership in organizations* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Zaccaro, S. J. (2001). *The nature of executive leadership: A conceptual and empirical analysis of success*. Washington, DC: APA Books.

Zaccaro, S. J., Banks, D., Kiechel-Koles, L., Kemp, C., & Bader, P. (2009). *Principles and strategies for developing skills that promote adaptive performance*. Arlington, VA: U.S. Army Research Institute for Behavioral and Social Sciences.

Zaccaro, S. J., Heinen, B., & Shuffler, M. (2009). Team leadership and team effectiveness. In E. Salas, G. F. Goodwin, & C. S. Burke (Eds.), *Team effectiveness in complex organizations: Cross-disciplinary perspectives and approaches* (pp. 83–111). New York: Routledge.

Zaccaro, S. J., Rittman, A. L., & Marks, M. A. (2001). Team leadership. *Leadership Quarterly*, *12*, 451–483.

11

Conflict in Multiteam Situations

Verlin B. Hinsz
North Dakota State University

Kevin R. Betts
North Dakota State University

Task success in modern organizations often requires that multiple teams work in concert. Multiple teams often bring with them additional resources that allow them to outperform individual teams. However, multiple-team situations may also lead to conflict. Examples of conflict in multiple-team situations may include coordination difficulties, role conflicts, competition, and antagonism between teams. Conflict in teams involves perceived differences between parties about things that matter to them (e.g., beliefs and resources) (De Dreu & Gelfand, 2008). From this perspective, conflict can be seen as potentially arising within and between teams in multiple-team situations. We begin this chapter by describing "Multiple Teams Working in Concert," which encompasses both multiteam systems and teams-of-teams. We then describe the inherent potential for conflict when multiple teams work in concert, identify sources of conflict, and discuss potential remedies for reducing this conflict.

MULTIPLE TEAMS WORKING IN CONCERT

Mathieu, Marks, and Zaccaro (2002) provided the widely accepted definition of *multiteam systems* (see DeChurch & Mathieu, 2009; Zaccaro, Marks, & DeChurch, Chapter 1, this volume). Perhaps the critical element of multiteam systems is to consider them as "tightly coupled networks of teams" (DeChurch & Mathieu, 2009, p. 271). In that regard, a multiteam