RESEARCH INSIGHTS

Steering with Both Hands:

Managing Organizational Ambidexterity While Leading a System

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https://doi.org/10.35613/ccl.2025.2068

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Executive Summary

"A bad system will beat a good person every time."
– W. Edwards Deming (1993)[1]

Systems are all around us and, as Deming noted, can have powerful effects. A system can be defined as "an interconnected set of elements that is coherently organized in a way that achieves something" (Meadows, 2008, p. 11). Organizations are quintessential examples of systems, consisting of individuals, teams, divisions, departments, and even external stakeholders (e.g., boards, consumers, regulators, suppliers, competitors) organized to achieve an outcome (Kozlowski et al., 2000; Schneider & Somers, 2006).

Leaders of organizations must strive to make their systems "better" such that the system takes advantage of synergies and maximizes the contributions of all its members.[2] Influencing a system, however, is not easy (Meadows, 2008; Schneider & Somers, 2006). The complexity of today's organizational systems present unique challenges for senior leaders (Balakrishnan et al., 2020). In fact, these challenges can be so demanding that they may require distinct approaches to leadership.

One way to manage and make sense of this complexity, and which can also be a way to guide a leader's efforts and actions, is a framework of organizational ambidexterity. According to Wikipedia, the word *ambidextrous* comes from Latin derivations meaning 'both' (*ambi-*) and 'right or favorable' (*dexter*). Taken together, *ambidextrous* means that both are right or both are favorable. In the scholarly management literature, the terms *exploration* and *exploitation* are used to represent the two sets of activities that comprise organizational ambidexterity. A framework of organizational ambidexterity presumes that organizations, like most systems, must engage in the pursuit of new resources and information to enable future performance (i.e., *exploration*) and also take advantage of currently available resources and information to enable current performance (i.e., *exploitation*).[3] Both activities are critical for a system's survival (Gupta et al., 2006) (see Figure E1). Leaders, then, seek to foster both (Klonek et al., 2023). And, yet, there is an underlying tension and seemingly inherent tradeoff that exists between exploration and exploitation activities within any system (March, 1991).

> *"What makes you successful as a team leader will not necessarily make you successful as the leader of a system."*
>
> – Dr. Stephen Zaccaro
> (2025 Smith Richardson Fellow,
> Center for Creative Leadership)

ACTIONS EXEMPLIFYING EITHER EXPLORATION OR EXPLOITATION WITHIN ORGANIZATIONS

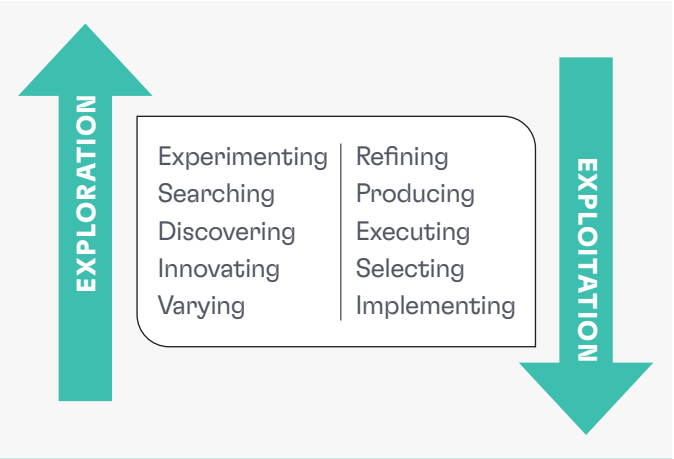


FIGURE E1

[1] Deming, considered one of the most prolific systems theory scholars, is thought to have made this statement while facilitating a seminar (Hunter, 2015).
[2] Although we focus on the role of systems, broadly defined, it is important to note even "good" systems with "bad" actors may ultimately yield poor outcomes.
[2] Because the terms "exploration" and "exploitation" are widely used within the broader academic literature as 'names' for these constructs (e.g., Gupta et al., 2006; Klonek et al., 2023; March, 1991; Rosing et al., 2011), we follow academic norms and continue to use these terms for clarity and consistency in the literature. That said, we acknowledge that such terms have negative connotations and can invoke connections to problematic histories (e.g., colonization, social class conflict, destruction of the natural environment).

Unfortunately, left to their own devices, we suspect that senior leaders may struggle with managing both exploration and exploitation activities within the systems they lead. Drawing on participant data from The Center for Creative Leadership's Looking Glass™ leadership simulation experience, as well as our HiFi Conversation Analytics™ system that captures behavioral data during the simulation (Loignon et al., 2024), we found that individuals tend to favor behaviors that facilitate exploitation—refining and implementing existing information—over those that engender exploration – discovering new information. In fact, it appears that engaging in one activity reduces engagement in the other, making organizational systems naturally biased *against* ambidexterity and underscoring the intentional effort that is needed to lead with ambidexterity. It also appears that senior leaders cannot rectify this imbalance on their own. Our data show that senior leaders, themselves, were the least likely group to engage in both exploration and exploitation activities. We also found that two primary outcomes of leadership (Alignment – whether team members' combined work "fits together" and Commitment – whether team members prioritize collective success over their own goals) would be at their highest levels when team members, on average, engaged in *both* types of activities (i.e., exploration and exploitation).

Achieving ambidexterity, which is crucial for a system's survival, requires collaboration across multiple levels and among multiple organizational members. In fact, it is an important distinction between *ambidexterity* and *ambidextrous leadership*. Ambidexterity is what an individual can do within a system (Gupta et al., 2006), while ambidextrous leadership represents what leaders can do to set the conditions for exploration and exploitation to occur (Rosing et al., 2011). Given our findings, we provide a framework on how leaders can engage in ambidextrous leadership by designing for organizational ambidexterity, with actionable practices associated with specific organizational capabilities. We also highlight system considerations and common challenges that senior leaders may face as they increase their effectiveness in leading organizational systems. Taken as a whole, our recommendations are intended to help senior leaders view ambidexterity as 'a tension to be managed' rather than 'a[nother] problem to be solved'.

> Achieving ambidexterity, vital for an organization's survival, is rarely a solo endeavor for senior leaders. It demands collaboration across all members of the organizational system.

Steering with Both Hands: Managing Organizational Ambidexterity While Leading a System

At The Center for Creative Leadership (CCL), we define leadership as a social process. By this, we mean that leadership is not something that is imbued within certain individuals or hierarchical roles. Instead, leadership is negotiated, claimed, and granted among multiple people during their interactions (Drath et al., 2008; McCauley & Fick-Cooper, 2019). Interestingly, though, how individuals engage in any social process is shaped by the context in which they find themselves (Johns, 2024; Katz & Kahn, 1978).

Most notably, as individuals progress from frontline leadership positions, where their primary focus is the performance of a small group of individuals, to senior leader positions (i.e., being responsible for entire divisions or functions in an organization), the challenges, constraints, and expectations required for effective leadership shift (McCauley et al., 1994; Tonidandel et al., 2022). This shift often goes unrecognized and can explain why some leaders struggle after being promoted (Gustafsson & Swart, 2020). Drawing on our data repository of self-reported leadership challenges from over 3,000 senior leaders, we found that 6 of the top 10 leader challenges relate to working within a larger system (Balakrishnan et al., 2020). That is, vice presidents and leaders of divisions and business functions report struggling to:

1. Maximize market growth and sales.
2. Influence the organization to improve or accept new processes.
3. Do more with less (i.e., work with fewer resources and/or budget constraints).
4. Shift organizational, market, societal, political, or environmental contexts.
5. Manage inconsistent direction by executives or senior management.
6. Develop trust among multiple stakeholders.

Taken together, these six challenges capture many of the headwinds senior leaders face when managing dynamics across the organizational systems they are tasked with leading (Balakrishnan et al., 2020, 2025). That is, senior leaders themselves report struggling with influencing, coordinating, and guiding the social processes and dynamics that unfold among the interconnected elements of their systems.

Ambidexterity as an Underlying Tension in Exerting System-Wide Influence

At first glance, the six challenges related to "working within a larger system" may seem distinct and unique, such that each challenge requires a specific solution. This fragmented view of individual challenges increases the risk of senior leaders approaching each component of the system as distinct, which can mean missing larger trends (Meadows, 2008). When viewed at the system level, we see that an underlying tension across all these challenges is the inherent tradeoff that exists between exploration and exploitation activities within any system (March, 1991). That is, far from being distinct, the six challenges confronting senior leaders related to system-wide influence generally can be reframed as dealing with one fundamental question: ***What are the most effective ways for elements of this system to engage in exploration and exploitation?***

Consider, for example, a senior leader responsible for several research and development (R&D) teams. These teams may engage in activities that pursue groundbreaking innovations which, if successful, create entirely new lines of business (i.e., exploration) or they may focus their efforts on enhancing existing products (i.e., exploitation). Novel innovations would likely lead to growing new markets, while enhancements may directly affect sales. The challenge of maximizing market growth and sales belies an inherent tradeoff between activities targeted at generating new opportunities for the organization's growth (i.e., exploration) and activities focused on capitalizing existing information and resources (i.e., exploitation) (Gupta et al., 2006). Importantly, the challenge of "doing more with less" suggests senior leaders do not have unlimited time, budgets, or personnel, which creates inherent tradeoffs between exploration and exploitation activities. In fact, "exploration and exploitation compete for scarce organizational resources. Thus, by definition, more resources devoted to exploitation imply fewer resources left over for exploration, and vice versa" (Gupta et al., 2006, p. 665). Returning to the example of R&D teams, the senior leader and their employees must decide when and how to invest their staff, time, and budget in developing new products or in the refinement of existing products.

Ultimately, the inherent tradeoffs between exploration and exploitation can create strain and conflict among different stakeholders. Senior leaders, for example, may face inconsistent or poor direction from the organization's executives or board members in terms of which set of activities is more important given the organization's current strategic priorities (Drath et al., 2008). Similarly, to the extent that exploration and exploitation activities are prioritized within different sub-units of a senior leader's system, this increases the threat of internal politics, conflicting personalities, and insufficient trust among members of sub-units. With the example of R&D teams, ill-defined strategic objectives or poorly articulated responsibilities for exploration and exploitation across sub-units may create duplication of efforts or tensions within the system (e.g., between teams or team managers).

Lastly, any changes to the system, either through self-initiated process improvements or in response to the organization's shifting external environment, will likely engender some kind of recalibration of various exploration or exploitation activities (e.g., Zaccaro et al., 2023). For example, if the senior leader implements a new project management system for their R&D teams – with the purported goal of enhancing efficiency (i.e., greater exploitation) - the time devoted to these efforts will likely deplete team members' time and efforts on exploration activities.

In sum, rather than viewing the challenges that senior leaders experience as unrelated, there is value in identifying the underlying tension that may serve to bind these challenges together in attempting to exert system-wide influence (for a summary, please see Table 1, following page) and to consider how such tensions manifest in a senior leader's own, unique, context.

CHALLENGES FOR SYSTEM-WIDE INFLUENCE AS A TENSION OF AMBIDEXTERITY

Challenge for Senior Leaders	Tension of Ambidexterity	Hypothetical Example for an R&D Division
1. Maximizing market growth and sales	Involves balancing the tradeoff between exploiting existing resources and exploring new opportunities for organizational growth.	R&D teams may pursue groundbreaking innovations to create new business lines (exploration) or focus on enhancing existing products (exploitation).
2. Doing more with fewer resources, e.g., time or budget constraints	Budget and personnel constraints exacerbate inherent tradeoffs between exploration and exploitation, which compete for limited organizational resources.	R&D teams, led by senior leaders, must decide how to allocate time and budget between developing new products and refining existing ones.
3. Managing inconsistent direction afforded by executives or senior management	Senior leaders may receive inconsistent or unclear guidance from their executives or board members about which activities are most important.	Ill-defined strategic objectives or poorly articulated exploration-exploitation responsibilities across sub-units may, for example, create duplication of efforts or tensions among the senior leaders' teams.
4. Developing trust among multiple stakeholders	If exploration and exploitation activities are prioritized differently across sub-units, it can lead to internal politics, personality conflicts, and a lack of trust among stakeholders.	
5. Influencing the organization to improve or accept new processes	Changes to a system, whether due to self-initiated improvements or shifts in the external environment, often require adjustments to exploration or exploitation activities.	The introduction of a new project management system may enhance exploitation; however, the time spent on this new initiative may diminish the R&D teams' focus on exploration activities
6. Shifting organizational, market, societal, political, or environmental contexts		

Note. Senior leaders' challenges were identified based on natural language processing of challenges provided by over 3,000 leaders who lead entire functions within their organizations (Balakrishnan et al., 2020).

TABLE 1

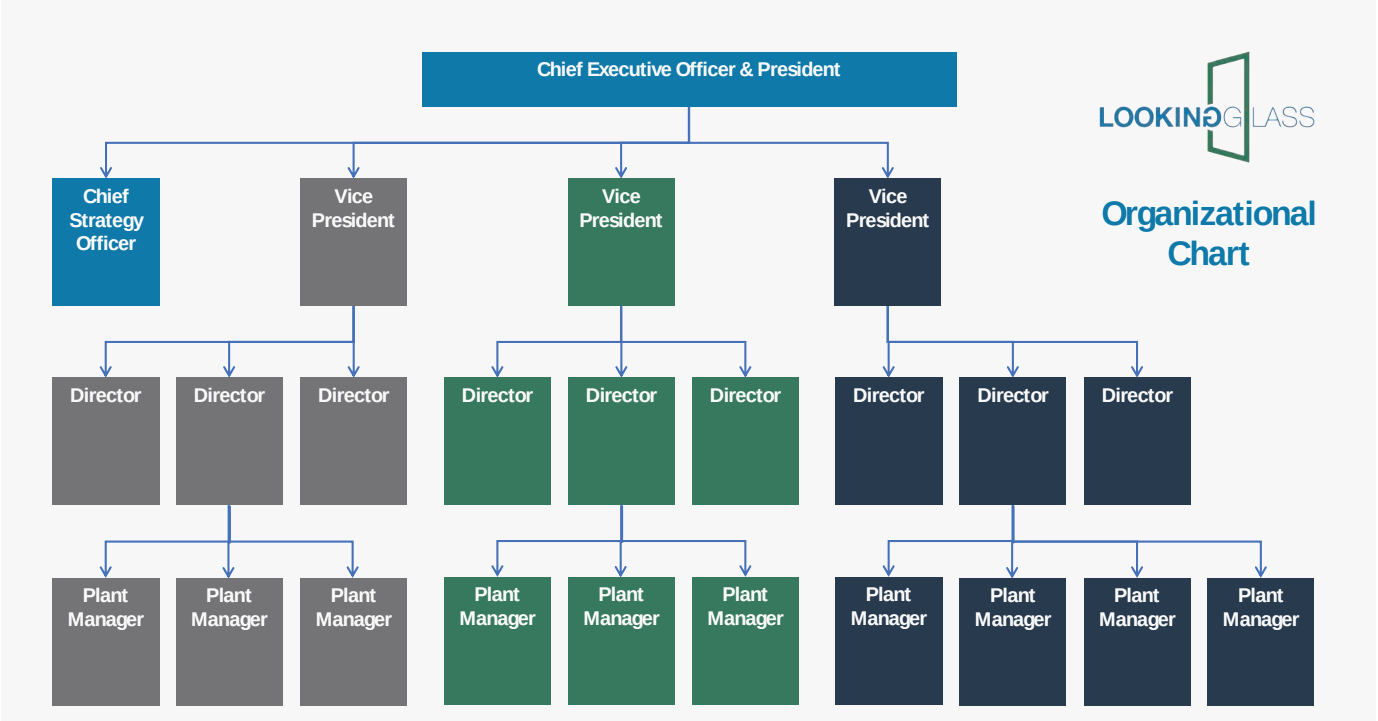
The Looking Glass Simulation: A Developmental Experience for Senior Leaders

Given that achieving system-wide influence, while also balancing the tension of ambidexterity, represents a "meta-challenge" for senior leaders, CCL regularly hosts the Looking Glass® simulation as part of our Leading for Organizational Impact (LOI) program in order to provide an opportunity for senior leaders to explore, develop, and practice their skills at exerting influence within an organizational system.

Looking Glass was developed (e.g., McCall & Lombardo, 1982) to identify and recreate the challenges and demands facing senior leaders (Mintzberg, 1979) and to provide sufficient contextual information to make the experience engrossing and engaging (Lonati et al., 2018), while also emphasizing the behaviors that leaders exhibit (i.e., rather than focusing on specific simulation outcomes). Along with supporting countless individuals' development as senior leaders via the simulation itself, structured group debriefs and facilitated feedback by skilled faculty members, Looking Glass also offers powerful insights for executive decision-making (Hough & White, 2003), leader effectiveness (Truninger et al., 2021), and group dynamics (Gersick, 1991).

Briefly, Looking Glass is set within a hypothetical, quarterly meeting for senior leaders of a glass manufacturing company (Looking Glass, Inc.®). This company consists of three distinct divisions and is led by an executive team consisting of the divisions' vice presidents, a chief strategy officer, and a chief executive officer (see Figure 1 for an organizational overview). Like contemporary organizations, Looking Glass, Inc. is beset with a series of organizational challenges that require meeting attendees (i.e., program participants) to make a series of decisions that, ideally, will leave the company better than they found it.

ORGANIZATIONAL CHART FOR LOOKING GLASS INC.



Note. Different color boxes represent distinct divisional teams. Plant managers and directors have specialized titles that correspond to their role's unique expertise within the simulation (e.g., plant manager developing products for precision optics).

FIGURE 1

Studying Ambidexterity within the Looking Glass Simulation

Along with providing an environment for leaders to experiment and develop new behaviors, Looking Glass also affords a window into how ambidexterity unfolds within the systems for which senior leaders are responsible. Within Looking Glass, like many of today's organizations, information is a key, if not the most important, resource (March, 1991; Mell et al., 2022). Members of each division within Looking Glass have unique information that can contribute to optimal organizational strategies and decisions and, importantly, this information is (at least initially) unavailable to others in the organization (Hough & White, 2003; Stasser & Titus, 2003).

For this organization to survive and thrive, its members must explore and exploit the information that is available to them. A key behavioral form of exploration is "opening" one's team or division to others within the broader organizational system to access new information through external (i.e., cross-boundary) connections (March, 1991; Rosing et al., 2011). By spanning boundaries with other teams within the organization (i.e., the broader system), individuals discover new information, identify unforeseen challenges, and propose innovative solutions (Ancona & Caldwell, 1992; Ernst & Chrobot-Mason, 2010; Faraj & Yan, 2009).

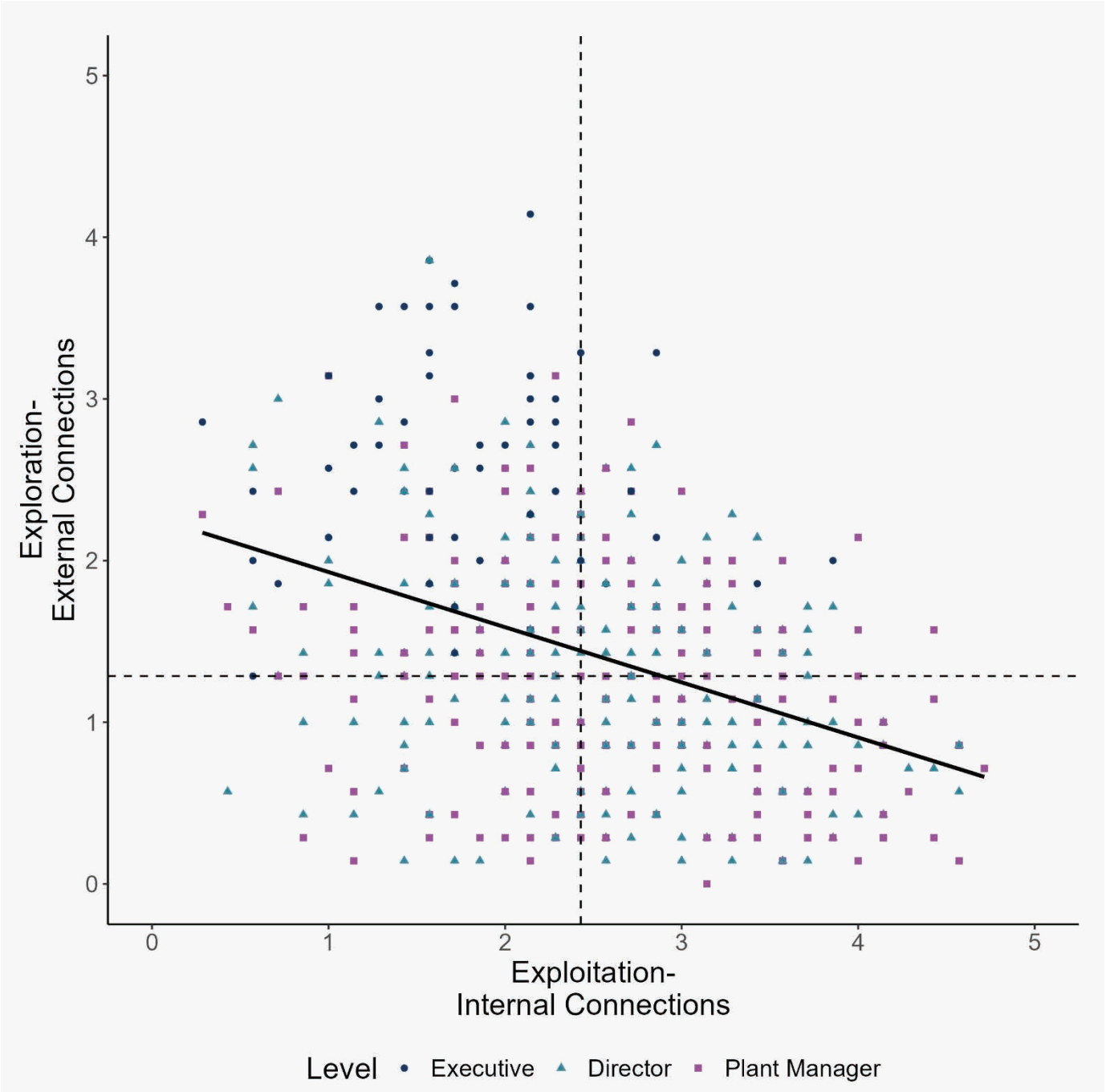
Exploitation, conversely, occurs as team members begin to "close" their boundaries to leverage the information that is already available within their group (Rosing et al., 2011). By reinforcing the social boundaries of their team and processing information internally, the group refines their existing knowledge, makes selections among various alternatives, and reaches decisions (Ancona & Caldwell, 1992; Faraj & Yan, 2009).

To examine how exploration and exploitation activities unfold within organizational systems, we used data captured with CCL's HiFi Conversation Analytics™ system (Loignon et al., 2024). This system, when deployed within Looking Glass, captures participants' conversation using wearable technology. The conversations are then transcribed using artificial intelligence, yielding analyzable transcript data that provide feedback and metrics to facilitate senior leaders' development. In this Insights paper, our analysis is based on 498 senior leaders participating in 29 separate simulation iterations. Using the data captured via HiFi, we measured the two aspects of ambidexterity as follows:

Exploration *was calculated as the number of different participants engaged with throughout the simulation by the focal participant who, on average, were outside of the focal participant's team.*

Exploitation *was calculated as the number of different participants engaged with throughout the simulation by the focal participant who, on average, were inside of the focal participant's team.*

EXPLORATION AND EXPLOITATION ARE NEGATIVELY RELATED



Note. *n* = 498 participants in 29 separate simulation iterations. Each shape represents a participant and corresponds to their formal level of authority (i.e., plant manager, director, executive). See Figure 1 for the Looking Glass, Inc. organizational chart. Vertical and horizontal dashed lines represent, respectively, the median amount of exploitation and exploration in our data. The four quadrants correspond to varying combinations of relatively high or low levels of exploitation and exploration. The solid black line represents the consistent, negative association between exploitation and exploration (= -.37, p <.001).

FIGURE 2

Several key findings emerged from our analysis. First, our data suggest that individuals are 72% more likely to engage in exploitation (median number of within-team connections is 2.43) rather than exploration (median number of external connections is 1.42) (see dashed horizontal and vertical lines in Figure 2). This trend may reflect the immediate and more certain payoffs from working with one's own team members (i.e., exploitation) compared to the longer-term, less reliable benefits of interacting with those outside of one's team (i.e., exploration) within an organizational system (e.g., March, 1991).

Second, we found a significant and consistent negative correlation between an individual's exploration and exploitation activities (r = -.37, p <.001; see solid black line in Figure 2). This indicates that the more an individual engages in greater exploration (i.e., more connections outside of their team), the less likely they are to also engage in exploitation (i.e., fewer connections within their team). Thus, rather than individuals exhibiting ambidexterity on their own (i.e., engaging in both exploration and exploitation activities), the tendency is for organizational members to gravitate towards one activity at the expense of the other activity.[4] This finding is consistent with what has been referred to as the "mutual exclusivity" principle, which proposes that it is difficult to engage in *both* exploration and exploitation due to finite resources (e.g., time and effort) (Gupta et al., 2006; March, 1991).

Third, our data suggest that how individuals engage in exploration and exploitation varies systematically based on their level of formal authority within the organization. Executives within Looking Glass are more likely to engage in exploration than exploitation. That is, 85% of executives are above the median level of exploration, but below the median for exploitation (see upper left-hand quadrant for Figure 2). This value is nearly four times greater than what we see for mid-level Directors (24%) or front-line Plant Managers (25%). Interestingly, we also found that only 15% of Executives engaged in above average levels of both exploration and exploitation (i.e., upper right-hand quadrant) during the simulation. This rate is significantly lower than that of the mid-level Directors (24%) and the front-line Plant Managers (27%). This suggests that, during the simulation, most Executives rarely engage in ambidexterity (i.e., both exploring and exploiting their connections) on their own. Instead, the most balancing of exploration and exploitation activities emerges among mid-tier or lower-level organizational members.

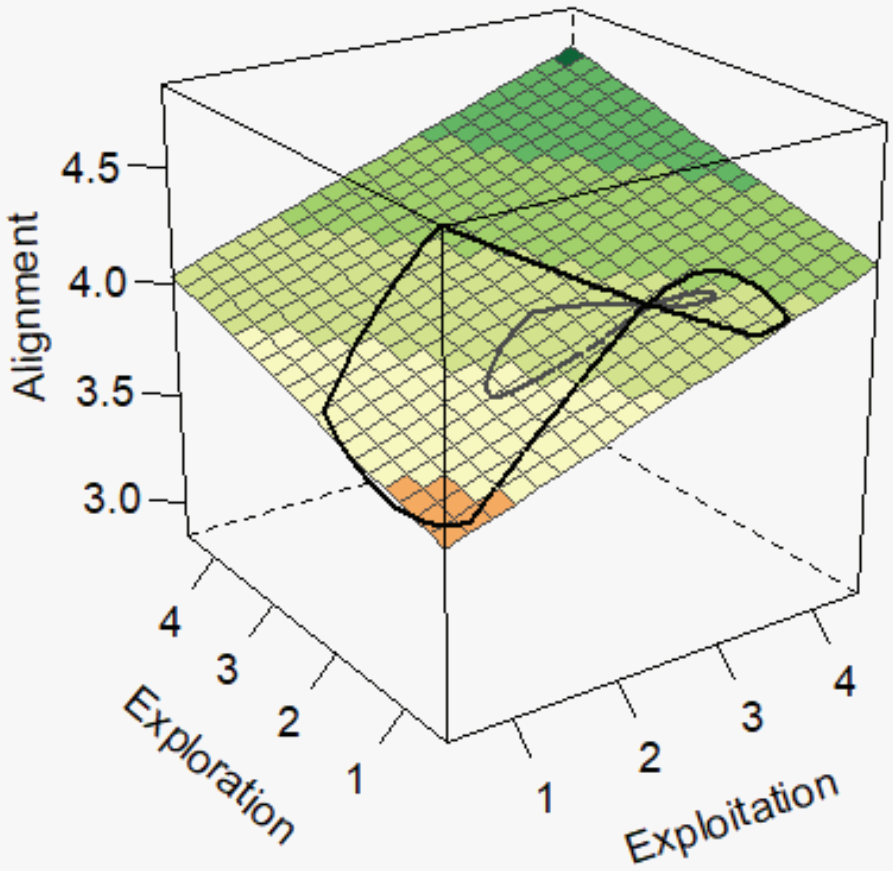
These findings help further demonstrate why senior leaders find exerting influence within a system to be challenging (Balakrishnan et al., 2020). All else being equal, individuals are more likely to gravitate towards exploitation (i.e., developing relationships that facilitate the refining, selection, or implementation of information) rather than exploration (i.e., searching or discovering new information through external connections). In fact, the more individuals engage in one form of ambidexterity, the less likely they are to engage in the other. Thus, organizational systems are already predisposed against ambidexterity due to a preference for exploitation and due to the mutually exclusive nature of exploration and exploitation. Finally, the senior leaders in our data (i.e., Executives), if left to their own devices, are the least likely to engage in both exploration and exploitation. Such preferences may also reflect a tendency toward certain leadership styles or behaviors among actors and leaders within a system (e.g., mindsets or preferences for transactional vs. transformational leadership styles) (e.g., Bass, 1991).

Importantly, our data also provide evidence of the value of ambidexterity. Specifically, we considered the degree to which a division's average rate of exploration and exploitation predicted leadership outcomes – namely, Direction – Alignment – Commitment (DAC).™ Leadership is thought to be functioning effectively based on the extent to which group members report a clear direction, alignment among team members, and a strong commitment to the group (McCauley & Fick-Cooper, 2019). Our findings suggest that when team members, on average, engaged in *both* exploration and exploitation we see the highest levels of alignment and commitment within each division (see Figure 3 for a visualization using the divisions' ratings of alignment). This underscores the importance of ambidexterity in predicting important leadership outcomes. Thus, ambidexterity, which is critical for nearly any system's survival (Gupta et al., 2006; March, 1991), is not something that should be left to chance.

[4] Because the simulation lasts for five hours, time pressures may contribute towards the preferences for one activity versus the other. Yet, as has been noted previously (e.g., Gupta et al., 2006) such pressures also pervade organizations. Thus, we would expect that, in many ways, such preferences would generalize to other systems.

[5] During the simulation, vice presidents are both the formal leaders of their own division and members of the organization's executive team. This structure, which is not uncommon in contemporary organizations, may explain, in part, their elevated rates of exploration.

EXPLOITATION AND EXPLORATION COMBINE TO PREDICT A DIVISION'S ALIGNMENT



Note. We tested three polynomial regression models in which each division's (n = 83) average level of direction, alignment, and commitment were regressed onto their levels of exploration and exploitation (e.g., Shanock et al., 2010). These models controlled for different aspects of the simulation (e.g., whether the simulation was held at CCL's primary campus) as well as the division's average rate of speaking time, which reflects, in part, division members' overall engagement during the simulation (e.g., Loignon et al., 2025). Across the three models, we found that the joint effects of exploration and exploitation contributed incremental predictive validity for commitment ($\Delta R2 = .11$, $p < .05$) and alignment ($\Delta R2 = .12$, $p < .05$). More specifically, as depicted in the response surface using observed values above, both outcomes of leadership reached their maximum levels when members of a division, on average, engaged in high levels of *both* exploration and exploitation (i.e., dark green shaded region in far, back corner). For the sake of parsimony, we simply display the effects for alignment. Complete model results are available from the first author upon request.

FIGURE 3

How to Lead an Ambidextrous System

Leading a system – rather than a single team – can be a steep learning curve and pose unique challenges for formal leaders. A leader's job is to improve the system and maximize individual members' contributions to the system. This means finding the most effective way to engage in exploration (innovation and adaptation) and exploitation (efficiency and optimization). Unfortunately, this can be difficult because, often, leaders 'don't know what they don't know,' which can be exacerbated in systems that are more complex and which may have differences in information availability and opacity (Luciano et al., 2018). As such, leaders who try to cultivate ambidexterity on their own are unlikely to find success and, instead, run the risk of micromanaging their colleagues, leading to less engagement and commitment.

Before delving into recommendations, we highlight three important points. First, given limited resources, it is best to hold a 'this is a tension to be managed' mindset about ambidexterity rather than a 'this is a problem to be solved' mindset. Doing so can limit frustrations and allow leaders to embrace the idea that managing ambidexterity is an ongoing process that requires flexibility, feedback and (re)assessment over time. Second, a single individual (whether a formal leader or not) is unlikely to perform both key activities (i.e., exploration and exploitation). For a system to be ambidextrous, there is a need for multiple individuals (or teams) to be engaged in both sets of activities. Finally, there exists a key distinction between ambidexterity and ambidextrous leadership. *Ambidexterity* is what an individual can do within a system (Gupta et al., 2006), such that exploration and exploitation is the *doing* of these activities. In contrast, *ambidextrous leadership* is what team leaders or senior leaders can do to set the conditions for exploration and exploitation (Rosing et al., 2011).[6]

> *"A leader who singlehandedly tries to manage every component team, all the dynamics, and the system as a whole – it just doesn't work. In another frame, this would be called a micromanagement problem."*
>
> – Dr. Stephen Zaccaro (2025 Smith Richardson Fellow, Center for Creative Leadership)

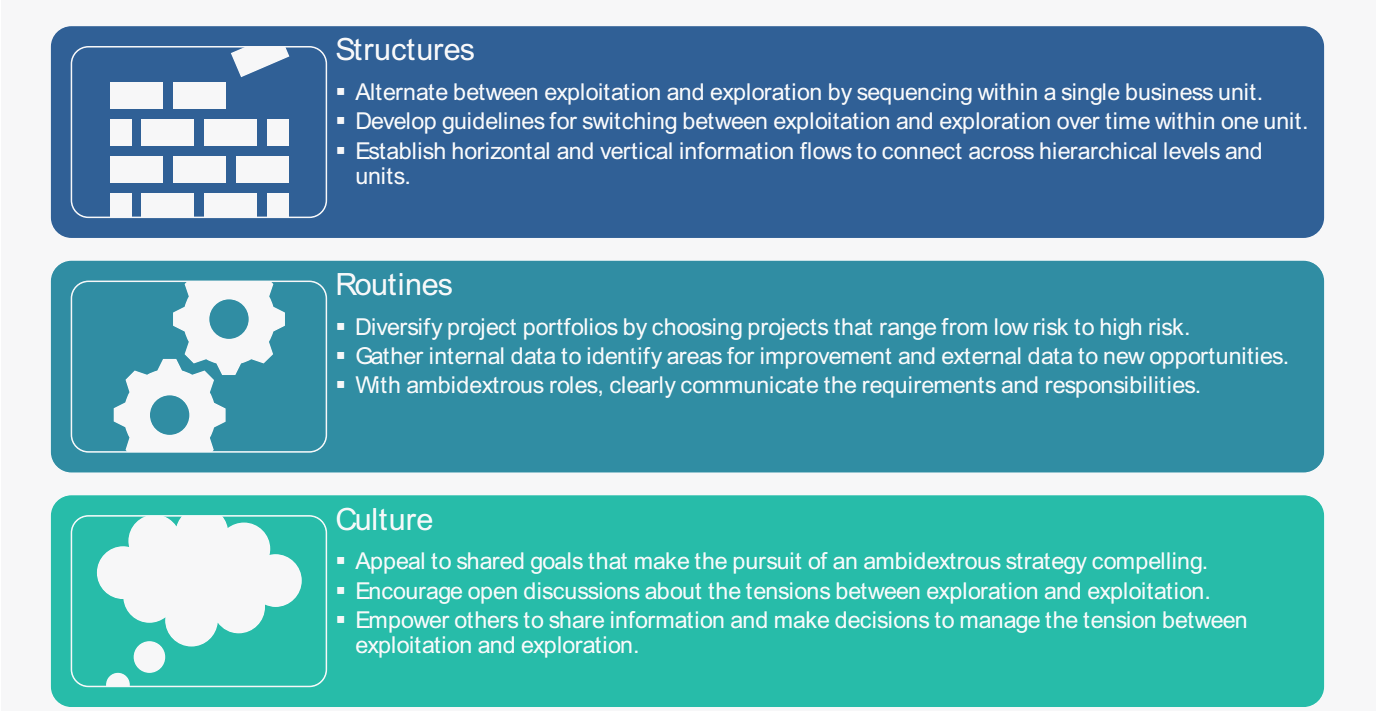
We know that most leaders are unlikely to lead in a way that fosters ambidexterity. That is, despite the benefits of cultivating ambidexterity within a system, our results, which are consistent with earlier findings (Gupta et al., 2006), evidence a greater tendency towards exploitation (i.e., internal connections) rather than exploration (i.e., external connections). This is not surprising because exploration requires vulnerability and risk, as well as additional time and effort, to form connections throughout the system (Mell et al., 2022). According to March (1991) the returns from exploration are less certain, less predictable and less immediately connected to specific actions than the returns from exploitation. Thus, few individuals readily engage in similar rates of both activities. We also know that, when strained for resources (e.g., time, budget), a system tends to revert to exploitation. Therefore, rather than relying on sheer will or good intentions, it is more effective for leaders to design for ambidexterity by creating structures and practices that foster organizational ambidexterity (e.g., Bass, 2000; Thaler & Sunstein, 2009).

[6] Interestingly, some of the earliest research on ambidextrous leadership emerged in response to the seemingly conflicting recommendations that existed for engendering creativity and innovation within organizational systems (e.g., Rosing et al., 2011).

Designing for Organizational Ambidexterity

We present a framework and recommendations for how senior leaders can positively affect their systems to engender organizational ambidexterity rather than inhibit it. In what follows, we first describe three organizational capabilities (i.e., structure, culture, routines) and specific actionable practices that can help a system become more ambidextrous (e.g., Stelzl et al., 2020). We then discuss system considerations, common challenges and pitfalls, and three tensions that must be balanced in the pursuit of ambidexterity.

ACTIONABLE PRACTICES TO ENHANCE A SYSTEM'S CAPABILITY FOR AMBIDEXTERITY



Note. These practices are adapted from Stelzl et al. (2020).

FIGURE 4

Organizational Capabilities

Balancing exploration and exploitation is critical as both sets of activities can result in conflicting managerial demands, require different capabilities and are in competition for the same scarce resources (Tushman & O'Reilly, 2004). For each capability, see Figure 4 for actionable practices.

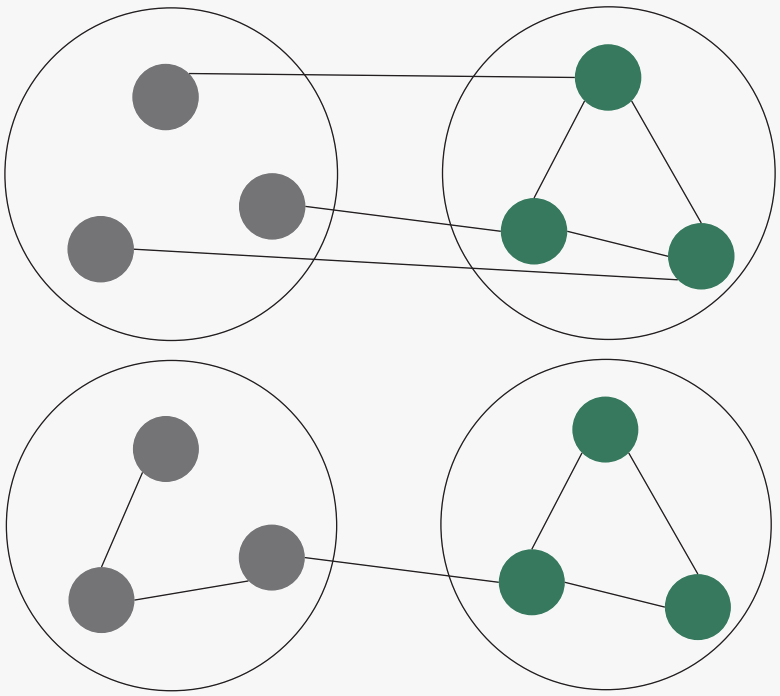
Structure refers to the organizational units and activities that influence how a system functions to reach its objectives.

One of the main design decisions is whether ambidexterity will be encouraged across component *teams* or component *roles* (see Figure 5).[7] If a leader

[6] Depending on the size, type of system, and organizational strategy, leaders may also have an overall hybrid design in the organization in which ambidexterity is encouraged across component teams *and* component roles. For instance, some functions may encourage ambidexterity by mostly using component teams while another function may mostly use component roles.

chooses component teams, this means that entire units will focus on one activity or the other (i.e., either exploration *or* exploitation). To mitigate the risk of creating silos or in-groups and out-groups, leaders can be explicit about the contributions of each team and create a common language to inculcate a shared identity across teams. If a leader chooses roles, this means that ambidexterity happens within a team, with individual team members focused more on one activity or the other (i.e., either exploration or exploitation). These social structures can 'grease the skids' for ambidexterity. However, there is no 'right' answer as to which structure is best, and both will require leader discernment and efforts to balance any potential downsides.

PROTOTYPICAL EXAMPLES OF TEAM-BASED (TOP) VS. ROLE-BASED (BOTTOM) AMBIDEXTERITY STRUCTURES



Note. Each node in this graphic represents a different member of the system. Different teams are reflected by distinct colors. The top graphic depicts a system in which entire teams are engaging exclusively in exploration (i.e., gray nodes) or exploitation (green nodes). The bottom graphic depicts a system where different members of each team engage in either exploration or exploitation (i.e., within and cross-team interactions).

FIGURE 5

Routines include communication and information flows, decision-making processes, project management activities, and roles and responsibilities within a system (Pentland & Hærem, 2015). Routines are a "repetitive, recognizable pattern of interdependent actions, involving multiple actors" (Feldman & Pentland, 2003, p. 96). We intentionally use the term 'routines' as it implies fluidity and reinforces the notion that routines can be modified and adjusted over time to respond to changing strategy and circumstances.

Between-team processes are critical to system effectiveness. Leaders need to identify interdependencies between and across teams and focus their efforts there (Tetrick et al., 2016). Because a single formal leader cannot manage all interdependencies, it is important to set up shared leadership mechanisms so that information flows across teams rather than up or down a system hierarchy (e.g., McGuire & Palus, 2018). Leaders can create protocols for the appropriate between-team interactions that might include who needs to be connected to whom and when (e.g., a time- or event-based initiative), what information should be shared, and how to resolve conflicts around cross-team

activities and communication (Ascencio et al., 2012).

Culture encompasses the shared values, beliefs, assumptions and actions of individuals within an organization (Schein, 2010). This can include leadership practices that contribute to (or inhibit) achieving strategic objectives and fostering a supportive environment.

Organizational culture contributes to ambidexterity by fostering an environment that supports both exploration and exploitation. Consider, for example, that a culture reflects the shared values and beliefs of system members. In this way, a culture that values innovation, learning, and adaptability encourages exploration. This includes being open to new ideas, taking calculated risks, and learning from failures. As such, psychological safety is a critical factor (e.g., Edmondson, 1999; Loignon & Wormington, 2022). Cultures that punish mistakes or failures will not yield much innovation. Likewise, a culture that emphasizes meeting deadlines, reaching pre-specified targets, and maximizing efficiency can expect to see the system tilt towards exploitation.

When trying to cultivate a culture within the systems they lead, leaders can start by considering their own actions and behaviors (Hemshorn de Sanchez et al., 2022) and assessing how they respond to new ideas, risk-taking and failure. In addition, leaders who model and reward both innovative and efficient behaviors assist in creating a culture that supports ambidexterity by setting the tone for balancing short-term performance with long-term innovation (e.g., Rosing et al., 2011).

Similarly, leaders often have outsized input on how rewards are provided within the systems they lead. Such rewards – whether formal (e.g., evaluations) or informal (e.g., public praise) can serve as a strong signal of whether exploitation, exploration, or ambidexterity is valued. Systems that reward one behavior over another will see more of what is rewarded (Kerr, 1995).

System Considerations

External Environment. The external environment serves as a catalyst for organizations to continuously assess and adjust their strategies to manage the tension between exploration and exploitation. A critical factor is the extent to which an organization operates in an external environment that is more dynamic versus more stable. Dynamic environments require organizations to stay nimble and quickly adapt to changes. For instance, *market dynamics,* or rapid changes in market conditions or customer preferences, often require organizations to be agile and adaptable, promoting exploration to innovate and respond to new opportunities. Similarly, *technological advancements* and emerging technologies can create opportunities for exploration through innovation and new product development, while also necessitating the exploitation of existing technologies to improve efficiency. Lastly, *economic fluctuations* can impact resource availability, influencing the balance between exploration and exploitation. In times of economic downturn, organizations may focus more on exploitation to ensure stability; in growth periods, they may emphasize exploration to capture new opportunities.

System Feedback. System feedback plays a crucial role in organizational ambidexterity by providing the information and insights needed to ascertain whether exploration or exploitation is more important at any point in time. Unfortunately, there is no easy answer to questions about 'what is the right amount' of either exploration or exploitation. March (1991) notes the importance of feedback loops and learning from the experience of distributing resources between exploration and exploitation. Overall, system feedback enables organizations to be more responsive, adaptive, and strategic in managing the dual demands of exploration and exploitation, ultimately enhancing their ability to manage the tension inherent in ambidexterity.

Ensuring that the system has mechanisms for capturing and leveraging feedback is critical for supporting leaders in managing ambidexterity. First, *monitoring performance* helps leaders (and system members) track success in both exploratory and exploitative activities, allowing them to assess whether strategic goals are being met and where adjustments in the system may be needed. Second, *monitoring external risks* affords timely information about threats and opportunities, thus enabling the system to anticipate and mitigate issues that could impact the ability to manage the tension between exploration and exploitation. Third, *monitoring resource allocation* ensures that resources (e.g., budget, time) are allocated across exploratory and exploitative initiatives and that these investments are aligned with wider priorities and organizational strategies.

Pay Attention to Two Tensions

In managing organizational ambidexterity, we see two critical tensions that leaders must balance.

Tension #1: Too Much Versus Too Little Boundary Spanning

Although boundary spanning is critical for leaders and their systems (Ernst & Chrobot-Mason, 2010), too much cross-team boundary spanning may negatively impact system performance (e.g., Davison et al., 2012; Loignon et al., 2022). Specifically, while coordination among specific component teams can have a positive relationship to performance, efforts to include all system members can harm overall system performance. Similar results have been found with regard to innovation outcomes (Larson et al., 2023) in that "too much cross-functional communication may force teams to underutilize the functional expertise and strengths that they each uniquely bring to the collaboration" (Larson et al., 2023, p. 331). This points to the importance of boundary maintenance as there may be a 'too much of a good thing' effect (Pierce & Aguinis, 2013) on team outcomes. A certain level of cross-team communication is necessary for effective functioning but, beyond a point, communication has detrimental effects. Consistent with our earlier recommendation to consider team- vs. role-based structures, Asencio et al. (2023) suggest that "... having certain individuals enact the boundary spanning role allows the team to benefit from novel perspectives, without undermining the internal coherence of the team" (p. 41).

Tension #2: Managing Between-Team Teamwork and Taskwork

Put simply, when there is too much effort fostering between-team relationships and collaboration, task accomplishment can suffer. In this way, a leader's teams begin to lag in their exploitation activities as deadlines are missed and objectives are not met. One way to manage this tension is to focus teamwork-intensive processes during periods of transition (Marks et al., 2001). For instance, after a team reaches a major milestone (e.g., quarterly earnings period, completion of a project, submitting a proposal), they can invest more time in cultivating and developing strategies and preferences for working together with other teams. Efforts focusing on developing teamwork should also be centered between teams that rely on each other more within the system (e.g., teams whose work products are interdependent; teams whose goals and objectives are proximally related) rather than on teams that operate more independently of other teams (Rico et al., 2016).

Looking Further and Broader: Ambidexterity in Multiteam Systems?

Although extensive detail is beyond the scope of this Insights paper, it is important to mention a particular type of system – the multiteam system. A multiteam system (MTS) refers to *"two or more teams that interface directly and interdependently in response to environmental contingencies toward the accomplishment of collective goals"* (Mathieu et al., 2001, p. 290). MTSs are distinct from other collections of teams that exist in most organizations. A distinguishing feature of an MTS is that the teams within this type of system work very closely together in that they exhibit a high degree of interdependence with at least one other team in the system. In fact, Looking Glass is an example of this type of system. According to Zaccaro et al. (2023) "MTSs are bounded by a shared, superordinate goal, toward which all component teams in the system work, while simultaneously pursuing their own proximal goals" (p. 355; see also Mathieu et al., 2001). MTSs are important as they are a distinct organizational form that allows for quicker and more adaptive responses to environmental challenges because they bring together different functional resources across multiple teams (Mathieu et al., 2001).

Most large-scale innovations typically entail MTSs due to the fact that organizational innovation often requires a significant need to work across cross-functional teams (e.g., Zaccaro et al., 2017, 2023). Indeed, innovation may emerge from the integration of different ideas stemming from different functional areas (e.g., Uzzi & Spiro, 2005). A key challenge for MTS performance is developing effective between-team collaboration (Zaccaro et al., 2012). Our finding that teams focus more on within-team interactions, rather than on cross-team boundary spanning, is concerning because it suggests a direct challenge to innovation. When exploration (i.e., cross-team interaction) does happen, it may not translate to exploitation (i.e., within team interactions). Leadership in an MTS needs to foster systemic between-team boundary spanning, as well as within-team information sharing, sense-making, and utilization of ideas from these between-team exploration activities. This can occur through horizontal coordination across team leads at particular points in the innovation cycle (Larson et al., 2023) and in vertical integration with top MTS executives (Davison et al., 2012). Managing organizational ambidexterity in an MTS adds additional layers of complexity because component teams can also differ on a wide range of diverse attributes such as the number of component teams, geographic location, societal culture and business function (Zaccaro et al., 2020). For additional MTS resources, see DeChurch & Zaccaro (2010) and Shuffler & Carter (2018).

Conclusion

Managing organizational ambidexterity is not for the faint of heart. As an illustrative metaphor, prevailing global estimates suggest that only 1% of the population is ambidextrous (i.e., having the ability to use both hands equally well). Given the challenges senior leaders face in exerting influence within a system, it is not surprising that so few leaders lead for ambidexterity. To make this task a bit easier, we have presented a framework that can assist leaders in designing for ambidexterity. We hope this framework, and the actionable practices associated with specific organizational capabilities, helps leaders 'use both hands equally well' in managing the tension that exists between exploitation and exploration.

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Appendix A. Additional Information About Our Approach and Findings - Participants and Procedures

Participants consisted of attendees in an onsite 5-day, proprietary leadership development program for senior executives that is offered throughout the year. Based on 29 separate program runs, our sample consisted of 498 participants working in 83 teams (average size = 6 members, range = 4-8 members). The majority of participants were male (65%), identified as White (56%), were aged 35-49 years old (62%), were native English speakers (85%), and held either an undergraduate or master's degree (80%). The majority of participants were either upper-middle (e.g., plant managers) or executive-level leaders (e.g., vice president) (79%), worked in for-profit companies (67%), and were responsible for either a function, division or their entire organization (58%). All participants signed consent forms agreeing to participate in this study.

At the end of the first day, participants are provided background information on a 5-hour organizational simulation (Looking Glass Inc.), in which they are instructed to self-manage and run a fictitious glass production company (McCall & Lombardo, 1982). The organization consists of three teams or 'divisions' (Divisions A, B, and C) and four hierarchical levels comprised of distinct roles: a Chief Executive Officer; a Chief Strategy Officer, and three Vice Presidents; nine Directors and 9-10 Plant Managers (see Figure 1 for the organizational chart). Participants are informed that their organization must address a range of issues (e.g., financial issues, competitive threats). Specifically, the stated goal is for participants to reach decisions and identify priorities by the end of the 5-hour simulation.

As per the informed consent and information session, lanyards with audio recorders were distributed to all participants. Participants turned on their recorders and, separately, recorded a brief introductory phrase that allowed the researchers to match each recording to the individual's role in the simulation. Participants kept their audio recorders on during the entire simulation. At the conclusion of the simulation, participants shut off their recorders, which were then collected. In addition to the data generated by the audio recorders, participants individually completed a survey with various perceptual measures regarding their experiences during the simulation.

Additional Findings

Along with primary results reported in the paper, we also briefly review more specific results here. First, in Table A1 we report descriptive statistics and correlations for the variables included in our predictive models. Most notably, even at the aggregate, team-level, we again find a consistent, negative association among exploration and exploitation activities ($r = -.38$). This suggests that as members of a division engaged in one activity, they tended to not engage in the other. This suggests our findings for individual participants are homologous across levels of analysis (Chen et al., 2005) and point to the difficulties of achieving organizational ambidexterity.

Second, in Table A2, we present the parameter estimates from our polynomial regression models using division-level exploration and exploitation as predictors of outcomes of leadership (Shanock et al., 2010). As noted in the manuscript, the additional polynomial terms (i.e., squared and interaction effects), provided incremental validity above and beyond the main effects of either exploration and exploitation when predicting Alignment and Commitment. The coefficients, reported in Table A2, suggests that this incremental validity can be attributed to, at least in part, negative curvilinear effects for exploitation (i.e., diminishing returns on increasing amounts of internal connections) compared with positive curvilinear effects for exploration (i.e., rapidly increasing outcomes with more external connections). When considered together, these coefficients provide further evidence of the joint effects of both exploitation and exploration.

DESCRIPTIVE STATISTICS AND CORRELATIONS FOR DIVISION-LEVEL ANALYSES

	Mean	SD	1	2	3	4	5	6	7	8
1. Exploitation - Division	2.49	0.72								
2. Exploration - Division	1.42	0.46	-.38							
3. Commercial Glass Division	0.35	0.48	-.15	.04						
4. Advanced Products Division	0.30	0.46	.16	-.12	-.48					
5. Speaking Time - Division	28.08	4.81	.00	-.31	.01	-.02				
6. Primary CCL Campus	0.39	0.49	.06	.15	-.01	.02	-.17			
7. Direction	3.46	0.57	-.08	.16	.06	.05	-.35	.03		
8. Alignment	4.06	0.46	.21	.00	-.02	.13	-.30	.20	.67	
9. Commitment	4.21	0.43	.00	.04	.11	.14	-.41	.13	.62	.72

Note. n = 83 divisions/teams consisting of 498 participants working in 29 distinct simulated organizations. $|r| > .21$ are significant at the $p < .05$ level. rwg indices for Direction, Alignment, and Commitment, while assuming a uniform null distribution, were, on average, .59, .68, and .72, respectively. This suggests that, although most divisions members reported similar levels of these measures, there is also likely instances of disagreement and dispersion (e.g., LeBreton et al., 2003; Woehr et al., 2015). ICC(2) estimates ranged from .43 to .52, which also suggests that division members' ratings are unlikely to be interchangeable (Bliese, 2000). We also observed ICC(1) estimates of .11 to .15, which suggests that 11% to 15% of the variance in ratings of Direction, Alignment, and Commitment can be attributed to the division that one belonged to during the simulation.

TABLE A1

SUMMARY OF POLYNOMIAL REGRESSION MODELS PREDICTING DIRECTION, ALIGNMENT, AND COMMITMENT BASED ON A DIVISION'S LEVEL OF EXPLORATION AND EXPLOITATION

Predictors	Direction			Alignment			Commitment		
	b	SE	*p*	*b*	SE	*p*	*b*	SE	*p*
(Intercept)	3.42	1.63	.04	3.62	1.26	.01	5.37	1.11	.00
Exploitation	2.31	1.99	.25	1.20	.59	.05	.71	.52	.17
Exploration	.43	1.72	.80	-.57	.88	.52	-1.27	.78	.11
Exploitation^2	-1.09	.70	.12	-.18	.08	.02	-.15	.07	.03
Exploitation*Exploration	-.45	1.03	.67	-.12	.20	.57	.02	.18	.90
Exploration^2	.01	.56	.99	.26	.19	.18	.37	.17	.03
Control Variables									
CGD	.10	.15	.52	.04	.12	.74	.15	.10	.14
APD	.13	.15	.38	.11	.12	.37	.20	.10	.06
Division Speaking Time	-.04	.01	.00	-.03	.01	.01	-.04	.01	.00
Primary Campus	.00	.13	.99	.16	.10	.11	.10	.09	.28

Note. n = 83 divisions/teams consisting of 498 participants working in 29 distinct simulated organizations.

TABLE A2

About the Authors

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Andy Loignon is a Senior Research Scientist at CCL. His interests lie at the intersection of teams and leadership. He is currently studying topics like collective leadership, network models of boundary spanning, and how influence is shared and negotiated in groups. You can find some of his other research by visiting his Google Scholar page.

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