BEYOND A SEAT AT THE TABLE: INVESTIGATING GENDER DIFFERENCES IN LEADERS' STRATEGIC CONVERSATION NETWORKS

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ABSTRACT

Theories related to the strategic management of organizations, such as the Upper Echelons Theory (Hambrick & Mason, 1984) and the Resource-Based View (Wernerfelt, 1984), suggest that *gender diversity* in leadership groups can enhance organizational strategy because women will have a tangible and unique impact on strategic decision-making. However, empirical studies based on the Upper Echelons Theory and the Resource Based View have predominantly relied on demographic representation as a *proxy* for women's impact on strategy, assuming that the presence of women in leadership equates to their influence on strategic decision-making. Research on gender and networks would suggest that women leaders are not consistently involved in critical strategic conversations—even if they are demographically represented in leadership groups. This raises an important question: *Are women leaders participating in strategic conversations at the same rate as their men counterparts, or are they still on the sidelines?* My dissertation addressed this question by drawing from theory and research at the intersection of gender and networks. I hypothesized that homophily tendencies, combined with the gender composition of organizations, makes women leaders (1) *less* likely than men to be connected with men leaders, but more likely than men to (2) reach outside of their own work groups to form connections, and (3) to form gender heterogeneous ties. In turn, the composition of women's network ties makes them *less* likely to occupy powerful, stable, and strong positions in strategic conversation networks. Further, I hypothesized that the extent to which leaders have connections with men leaders would be more strongly and positively associated with powerful network positions for women leaders than for men leaders. I tested my hypotheses in a sample of 673 upper- and middle-managers from 13 organizations across different industries who completed social network surveys. Results showed complex patterns. Despite women having

lower network 'power' than men, results showed that women had significantly fewer men contacts in their strategic networks, and that such differences were unexpectedly related to *increased* network 'power' (degree centrality). The relationship between the proportion of men leader contacts and network power was more positive, but not significant for women leaders. Contrary to expectations, women also had *fewer* contacts outside of their immediate work groups, which led to *increased* network 'stability' (contact density). When considering the larger gender composition of each organization, having more women in organizational leadership positions or on the top management team strengthened the positive indirect effect of gender on network power through having fewer men contacts. Rather than being excluded from strategic conversations as the gender and networks literature might suggest, women appear to develop alternative networking approaches that can effectively increase their involvement in strategy networks. By moving beyond demographic representation to analyze how men and women leaders participate in strategic networks, the present dissertation offers important insights into the mechanisms that shape involvement in organizational strategy networks and women's career advancement.

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CHAPTER 1: INTRODUCTION

Theories related to the strategic management of organizations, such as the Upper Echelons Theory (Hambrick & Mason, 1984) and the Resource-Based View (Wernerfelt, 1984), suggest that *gender diversity* in leadership groups can enhance organizational strategy because women will have a tangible and unique impact on strategic decision-making. According to these theories, diverse perspectives, especially those of women, contribute to an organization's competitive advantage. Research on Upper Echelons Theory suggests that gender diversity in executive leadership can shape strategic choices, potentially leading to more innovative solutions, reduced groupthink, and better alignment of strategy with diverse customer and market needs (Hambrick, 2007; Carpenter et al., 2004; Abatecola & Cristofaro, 2018). Similarly, the Resource Based View of the firm posits that gender and other forms of diversity can be valuable, rare, inimitable, and non-substitutable assets, which can differentiate the firm, drive innovation, and provide a sustained competitive advantage, particularly when diverse perspectives are fully integrated into organizational culture and strategy (Barney, 1991; Kraaijenbrink et al., 2010; Richard, 2000).

However, empirical studies based on the Upper Echelons Theory and the Resource Based View have predominantly relied on demographic representation as a *proxy* for women's impact on strategy, assuming that the presence of women in leadership equates to their influence on strategic decision-making (Zhang, 2020; Nishii et al., 2007; Torchia et al., 2011; Dezsö & Ross, 2012). This assumption represents a key limitation in the extant literature, as demographic representation alone is not sufficient to determine whether women genuinely shape strategy (Tonoyan & Olson-Buchanan, 2023; Sirmon et al., 2007; Neely et al., 2020). That is, simply

having women "in the room" does not necessarily ensure their meaningful engagement in strategic conversations or that their perspectives influence decisions.

In fact, research at the intersection of gender and social networks suggests that women leaders are *not* consistently involved in critical strategic conversations—even if they are demographically represented in leadership groups. Indeed, one of the most prevalent findings in the gender and networks literature is that women are often *excluded* from *informal networks*, especially those involving senior leaders. See Table 1 for examples of women's exclusion. Such exclusion is generally attributed to basic human tendencies toward homophily (Ibarra, 1993)—people forming relationships with others who are similar to them (McPherson et al., 2001)—combined with the typical gender composition of many organizations, where men hold the majority of senior positions (Woehler et al., 2021). This raises an important question: *Are women leaders participating in strategic conversations at the same rate as their men counterparts, or are they still on the sidelines?*

My dissertation addressed this question by drawing from theory and research at the intersection of gender and networks. I hypothesized that homophily tendencies, combined with the gender composition of organizations, makes women leaders (1) *less* likely than men to be connected with men leaders, but more likely than men to (2) reach outside of their own work groups to form connections, and (3) to form gender heterogeneous ties. In turn, the composition of women's network ties makes them *less* likely to occupy powerful, stable, and strong positions in strategic conversation networks. Further, I hypothesized that the extent to which individuals have connections with men leaders would be more strongly and positively associated with powerful network positions for women leaders than for men leaders (see Figure 1).

By investigating gender differences among organizational leaders, specifically through analyzing their social networks to assess whether women participate in strategic conversations at the same rate as their men counterparts, I make three primary contributions to organizational theory and research on gender, networks, and management. First, I empirically assessed whether women leaders are involved in strategic conversations, rather than simply using demographic representation as a proxy for involvement, thus addressing important critiques of research on Upper Echelons Theory and Resource Based View (Sirmon et al., 2007; Neely et al., 2020). By moving beyond demographic counts and focusing on whether women occupy similar positions in strategic conversation networks, I evaluated women's actual participation in organizational strategy. The empirical social network approach provides a more nuanced understanding of women's involvement in high-level decision-making.

Second, I advance understanding of whether women's exclusion from strategic conversation networks is not only holding women's careers back but also holding organizations back from capitalizing on diverse perspectives. Exclusion from informal organizational networks has long been documented as a barrier to women's influence and career advancement (Brass, 1985; McGuire, 2002; Catalyst, 2006; Greguletz et al., 2019). However, my dissertation articulates a mechanism by which such career progress may be hindered—exclusion in strategic conversations. I suggest that when women are not engaging in strategic conversation networks, they are unlikely to gain access to other influential organizational leaders, resources, knowledge, and opportunities, which further limits their organizational visibility and professional reputations (Podolny, 2001)—all of which can negatively impact career advancement (Lin, 1982; 1999; Siebert et al., 2001).

Additionally, women's exclusion from strategic conversation networks is likely to limit an organization's strategic effectiveness. Prior research shows that incorporating varied viewpoints, including those of women, fosters more effective problem-solving, strategic thinking, and generally improves performance and financial returns (Herring, 2009; Dezsö & Ross, 2012; Díaz-García et al., 2013; Ferrary & Déo, 2022; Richard et al., 2013). Therefore, without leveraging a diverse workforce's unique insights and strengths, organizations may build less effective strategies, mitigating organizational growth (Cox & Blake, 1991; Richard, 2000). Therefore, my dissertation, situated at the intersection of gender, social networks, and organizational effectiveness, advances knowledge about how promoting involvement in strategy networks may be crucial for harnessing the potential of diverse leadership.

Third, my dissertation explored an important question: Does the gender composition within organizations impact women's involvement in strategic conversation networks? The exploratory research question addresses competing perspectives. While representation alone may not be enough for women to contribute to the same extent as men in strategic conversations, following Upper Echelons Theory (Hambrick & Mason, 1984) and Resource Based View (Wernerfelt, 1984), I explore whether there is a representative threshold across (a) middle- and upper-level leaders and (b) just the upper-level leaders that may be a boundary condition impacting where women are active participants in strategic conversations. Such exploratory research question will shed light on whether there are identifiable conditions under which gender diversity translates to women's enhanced strategic involvement.

I tested my hypotheses in a sample of 673 upper- and middle-managers from 13 organizations across different industries who completed social network surveys. Despite women having lower network 'power' than men, results showed that women had significantly fewer men

contacts in their strategic networks, and that such differences were unexpectedly related to *increased* network 'power' (degree centrality). The relationship between leaders' proportion of men leader contacts and network power was also not significantly stronger or more positive for women leaders than men. Contrary to expectations, women also had *fewer* contacts outside of their immediate work groups, which led to *increased* network 'stability' (contact density). Results of the cross-level moderated mediation analyses revealed complex patterns. Having more women in organizational leadership positions or on the top management team (TMT) strengthened the positive indirect effect of gender on network power through having fewer men contacts. That is, in organizations with more women represented, having fewer men contacts led to increased network power.

Overall, by investigating these dynamics, my study contributes to a more comprehensive understanding of the interplay between gender, networks, and organizational strategic management. I advance knowledge for scholars and practitioners seeking to foster women's involvement and advance women's careers while also enhancing organizational strategy.

Table 1
Exemplar quotes highlighting women's exclusion from key social networks in organizations

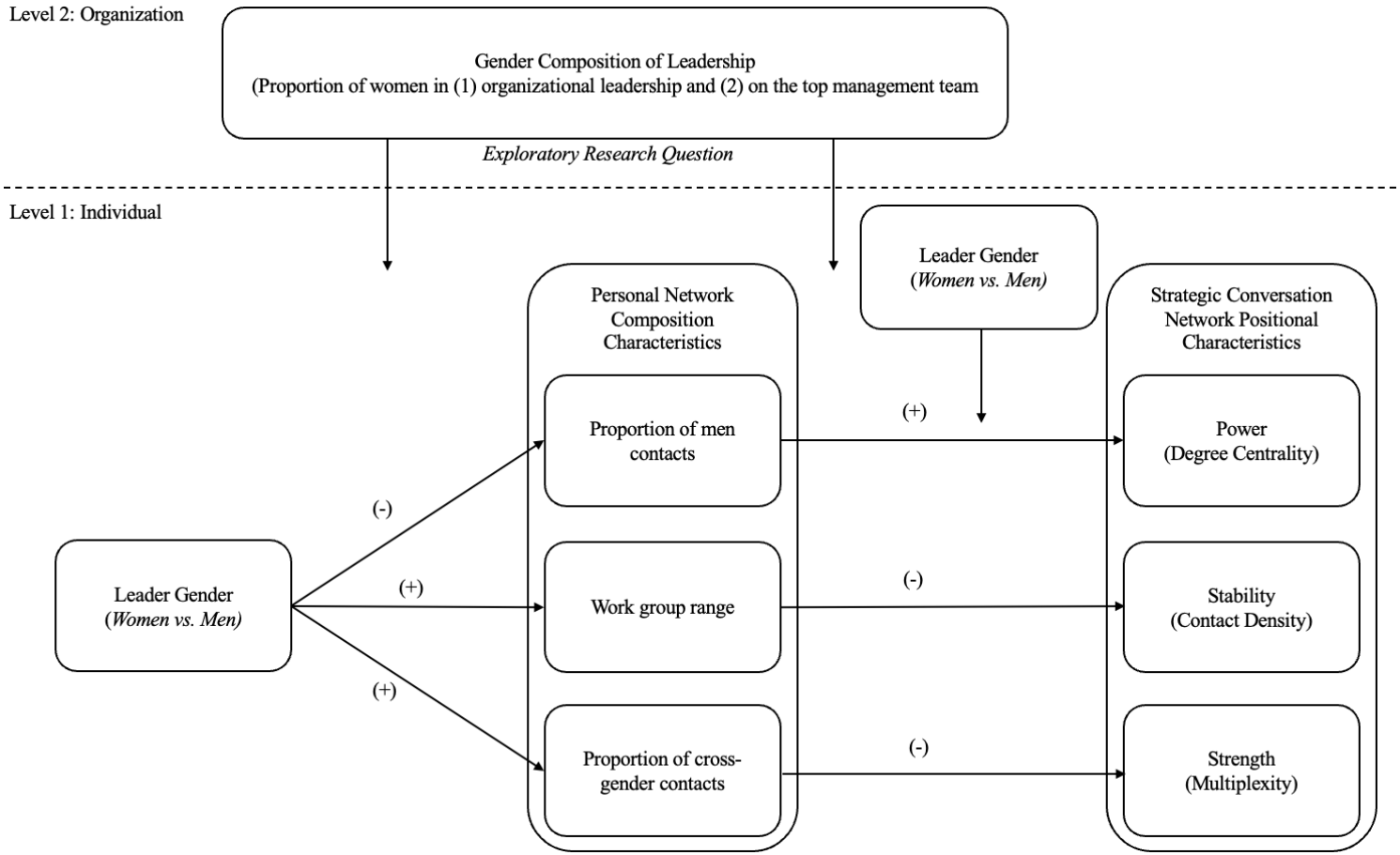
Quote	Source
"…women do not have equal access to informal interactions and communications…Women may be excluded from, or may exclude themselves from 'one of the most significant components of successful power acquisition – the development of informal/influence relationships."	Brass, 1985, p. 327
"[there is] voluminous anecdotal and survey research indicating that women in organizational settings lack access to or are excluded from emergent interaction networks."	Ibarra, 1992, p. 422
"One of the most frequently reported problems faced by women and racial minorities in organizational settings is limited access to or exclusion from informal interaction networks."	Ibarra, 1993, p. 56
"Lack of access to informal networks may be one reason women and minorities… are still underrepresented, especially in senior ranks."	Mehra et al., 1998, p. 441
"[Women are] more likely to be excluded from informal peer networks, and hence, limited in this source of power-through-alliances"	Kanter, 2008, p. 249
"The relationship opportunity structure is different for women."	Carboni, 2023, p. 105
"As relative "outsiders" to organizational inner circles, women needed strong network relationships with strategic partners in order to provide evidence or "cues" of their legitimacy as key players"	Ibarra, 1993, p. 73
"Because men have historically dominated higher-level positions, women have very limited access to informal mentors from higher organizational levels."	Fang et al., 2021, p. 1632
"In most business contexts, men and women differ in their opportunities for informal interaction with high-status, same-gender others"	Ibarra, 1997, p. 100

Table 1 (cont'd)
Exemplar quotes highlighting women's exclusion from key social networks in organizations

Quote	Source
"Furthermore, women's assigned roles associated with family responsibilities are perceived as hindrances to their desire for career advancement; therefore, women are less likely to become involved in corporate networks where access to influential people is present."	Seo et al., 2017, p. 40
"As researchers have also found in other settings, women did not tend to be included in the networks by which informal socialization occurred and politics behind the formal system were exposed… In a few cases, managers even avoided giving women information about their performance as trainees, so that they did not know they were the subject of criticism in the company until they were told to find jobs outside the sales force; those women were simply not part of the informal occasions on which the men discussed their performances with each other."	Kanter, 1977, p. 978
"A continuing barrier for senior women is the persistence of the old boys' network (Coe, 1992; Forret, 2004; Kanter, 1977; McDowell, 1997; Wajcman, 1998; Wilson, 2004; Wirth, 2001). Women's exclusion from this essentially closed, informal system where strategic tacit knowledge predominates means that women are potentially denied access to a gateway network that ultimately controls resources."	Durbin, 2011, p. 91
"Women are less likely than men to have high-status network members and to have diverse networks (Brass 1985; Campbell 1988; Ibarra 1992; McGuire 2000; Moore 1992;Scott1996)."	McGuire, 2002 p. 304
"…To the extent that professional contexts are gender-imbalanced, men and women have different opportunities to connect with others of the same and opposite gender (cf. Ibarra, 1993). Given that gender distributions are often skewed across organizational levels (e.g., U.S. Bureau of Labor Statistics, 2020), men and women also have different opportunities to connect with network contacts at upper hierarchical levels."	Woehler et al., 2021, p. 212
"…Women build less effective networks than men with less influential and powerful contacts, [which] suggests that such ineffectiveness is primarily attributable to women being at a structural disadvantage (Forret and Dougherty, 2004)."	Greguletz et al., 2019, p. 1235

Figure 1

Hypothesized conceptual model showing gender impacts personal network gender composition and strategic conversation network positional characteristics



CHAPTER 2: HYPOTHESIS & THEORY DEVELOPMENT

Strategic Conversations

Organizational strategy encompasses organizational plans (Newman & Logan, 1971; Glueck, 1976), activities (Porter, 2008), and the configuration of organizational goals, missions, and objectives (Learned et al., 1969). Strategy provides overarching 'guidelines' for organizational decisions (Mintzberg, 1978) that can help create business value, especially in terms of competing against other firms (Porter, 1980). As Mintzberg (1977) suggests, strategy is a "pattern in a stream of decisions" impacting organizational functioning (p. 28). Organizational strategy activities and phases are a continuous and iterative process whereby organizations constantly look towards the future to enable long-term competitive advantage while addressing the organization's current context, capabilities, and goals (Mintzberg, 1977; Porter, 1980; Mintzberg & Lampel, 1999).

Consequently, organizational strategy is a complex system involving multiple people (Mintzberg, 1978; Colbert, 2004; Hoon, 2007; Mantere, 2008; Jarzabkowski & Spee, 2009; Radaelli & Sitton-Kent, 2016); leaders across the organization may be involved in *strategic conversations*. Strategic conversations are intra-organizational conversations about organizational strategy among business leaders (Westley, 1990). Particularly, the TMT and middle managers may be involved in organizational strategy conversations (Floyd & Woolridge, 2017; Raes et al., 2011; Woolridge et al., 2008). All combinations of people: TMT member to TMT member, TMT member to middle manager, and middle manager to middle manager are possible strategic conversation dyads within the larger strategic conversation networks.

Traditionally, the strategic success of an organization depended upon the TMT and their ability to function as a unified team in steering the organization (Hambrick & Mason, 1984;

Hambrick, 1994). However, within the past few decades, a substantial body of research has explored the impact of middle managers on strategy outcomes (see Woolridge et al., 2008 and Raes et al., 2011 for review; Floyd & Woolridge, 2017; Tarakci et al., 2023). Middle managers' knowledge of lower-level operational activities and challenges allows them to offer valuable insights for both developing and executing strategy. They can bridge the gap between the TMT's strategy decisions and on-the-ground execution (Floyd & Wooldridge, 1997). Senior leaders may not be fully able to attend to all strategy-related cues or be aware of relevant environmental changes, which can potentially limit strategy decision-making (Mintzberg & Waters, 1985). Thus, TMT members may include middle managers in strategy conversations as an important resource (Raes et al., 2011; Radaelli & Sitton-Kent, 2016).

Strategic conversations may stem from both formal and informal organizational processes (Raes et al., 2011). Formally, top management may explicitly invite middle managers to strategy meetings (e.g., strategic planning and rollout meetings). Middle managers may also be involved through related committee responsibilities or core job requirements that integrate strategy within their teams. Organizations may additionally have policies or procedures around collecting leaders' strategy perceptions. Informally, middle and senior leaders may directly and offhandedly email, call, or message each other seeking input. If there is extra time before or after meetings, leaders may have short, informal discussions about strategy.

Further, strategic leadership conversations can occur from both top-down and bottom-up processes. In a top-down capacity, TMT members may reach down to middle managers explicitly asking for their input. Middle managers can contextualize organizational strategy to ensure alignment with day-to-day operations (Van Rensburg et al., 2014). On the other hand, in bottom-up processes, middle managers can translate the insights compiled from lower echelons

and communicate them to TMT members (Lechner and Floyd, 2012; De Clercq et al., 2011). For instance, middle managers may engage in "issue selling," whereby they direct senior leaders' attention to critical issues (Dutton & Ashford, 1993), or in the present case, areas for organizational strategic improvement. In bottom-up influence processes, middle managers communicate their perceptions of what strategy they think the organization should pursue and how to implement it.

Overall, by utilizing both top-down and bottom-up influence processes (Ahearne et al., 2014) through formal and informal means, middle managers and TMT members form an organizational strategy network. Within such a network, the leaders can engage in strategic conversations related to the formulation and subsequent implementation of strategy.

Benefits of Strategic Conversation Involvement

Involvement in strategic conversations, especially with more senior leaders such as members of the TMT, can be crucial for people's career success (Brass, 1984; 1985; Burt, 1992; Ibarra, 1993; Kilduff & Krackhardt, 1994; Lin, 1982; 1999; Lin & Dumin, 1986). Such connections can serve as key resources for lower-level employees who do not yet occupy positions of senior leadership, such as middle-level managers. As McGuire (2002) states, "Having a network composed of diverse and powerful members is critical for employees' acquisition of resources and power in work organizations" (p. 304). When employees are connected to influential leaders, they may gain greater access to organizational resources, knowledge, and opportunities, and additionally, such connections could contribute positively to their visibility and professional reputations (Podolny, 2001).

For instance, middle managers participating in strategic conversations can acquire crucial business knowledge (Floyd & Wooldridge, 1997; Nonaka, 1994; Burt, 2004), learn about the

organization's strategic direction and priorities, and better understand senior leaders' perspectives. Research by Mom and colleagues (2007) showed that when middle-level managers received such insights from senior leaders, they were better equipped to refine their existing business acumen, leading to improvements in organizational policies and processes. The knowledge gained from involvement in these conversations can help middle managers' careers by functionally preparing them for higher-level roles (Drucker, 1992; Senge, 2006). Other research by Siebert and colleagues (2001) more generally found that when lower-level employees had contacts at higher organizational levels, they were more likely to have greater access to critical information and career sponsorship, which led to greater career satisfaction, higher salaries, and more promotions.

Involvement in strategic conversations may also signal that other organizational leaders trust and value the individuals' input, leading others to do the same. Since organizational power is partly determined by hierarchical position (Brass & Burkhardt. 1993), senior leaders naturally wield more power than lower-level employees. Consequently, connections with senior leaders can lead to power transfers via association and relationship building (Sparrowe & Liden, 2005). Ties to influential or senior leaders can serve as an implicit endorsement and visibility booster, opening future opportunities for growth assignments (Lin, 1981; 1999). For example, Brass (1985) demonstrated that ties to senior leaders were related to influence and promotions, and Burt (1992) found that such connections can accelerate career advancement.

Furthermore, the extent to which both men and women leaders are included in strategic conversation networks could also provide organizational benefits. Research shows that incorporating varied viewpoints, including those of women, fosters more effective problem-solving, strategic thinking, and generally improves performance (Herring, 2009; Dezsö & Ross,

2012; Díaz-García et al., 2013; Ferrary & Déo, 2022). Prior research has also found that when women are included in strategic decision-making, the organization is likely to have higher financial returns. For instance, Richard and colleagues (2013) found that gender-diverse management teams engaging in more participatory strategy-making processes improved performance by higher returns on their assets. Therefore, by leveraging the unique insights and strengths of a diverse workforce through strategic network involvement, organizations can build more effective strategies, which contribute to long-term growth and maintaining a competitive edge in the market (Cox & Blake, 1991; Richard, 2000).

Previous Theoretical Approaches Applied to Gender Diversity in Strategic Conversations

Given the importance of strategic conversations for not only leaders' career advancement, but also effective organizational growth and maintenance, organizations may want to capitalize on having a wide array of perspectives and people contributing to those conversations. Consequently, organizations may include minority group members, such as women. Despite occupying fewer leadership positions compared to men (Catalyst, 2022), prior research demonstrates the benefits of women leaders' presence (Krishnan & Park, 2005; Woolley et al., 2010; Lyngsie & Foss, 2017). For instance, women's representation is positively related to board monitoring and strategy involvement, sales performance, corporate social responsibility, customer safety and quality, and more generally, organizational performance (Post & Byron, 2015; Hoobler et al., 2018; Velte, 2020; Wowak et al., 2021; Sergent et al., 2020; Joo et al., 2023).

Two theories purporting the benefits of diverse individuals' representation—particularly women in predominately men leadership groups—are the Resource Based View of the Firm (Wernerfelt, 1984) and Upper Echelons Theory (Hambrick & Mason, 1984). Hambrick and

Mason's (1984) Upper Echelons Theory posits that organizational outcomes, particularly strategic choices, are reflective of the senior executives. The composition of a TMT's characteristics, specifically their values and cognitive orientations, can impact strategy choices, which subsequently affects firm effectiveness. Moreover, Hambrick and Mason posit that TMT members' demographic characteristics, including gender, are indicators of their values and cognitive orientations. If men and women differ in their values and cognitive orientations, a senior leadership team composed of gender-diverse individuals is better equipped to tackle challenges, potentially driving innovation and a more adaptive strategic scope (Post & Byron, 2015). Thus, the demographics of senior executives can shape organizational strategy, especially given that strategic conversations traditionally occur within the TMT (Chandler, 1 962; Mintzberg, 1978; Hambrick, 1994).

Similarly, the Resource Based View (Wernerfelt, 1984) focuses on the internal resources and capabilities of a firm as the foundation for achieving a sustainable competitive advantage (Madhani, 2010). Following Barney (1991), resources that are valuable, rare, inimitable, and non-substitutable are likely to contribute to a firm's long-term competitive advantage. The theory underscores that a firm's unique resources—including not only assets like technology, or intellectual property, but also its people, whose skills, expertise, and organizational knowledge are invaluable—enable sustained performance and competitor differentiation. As such, organizational leader gender diversity can be a unique and non-replicable resource that can enhance innovation, align with a diverse customer base, and provide unique insights that are difficult for competitors to match. Prior research on middle managers further suggests that they are an important organizational resource not only due to their hierarchical position, but also due to their functional translation of directives and insights across such levels (Woolridge et al.,

2008). Thus, gender diversity of organizational leaders can be an important resource for organizational strategy (Barney, 1991).

While the Upper Echelons Theory (Hambrick & Mason, 1984) and Resource Based View (Wernerfelt, 984; Barney, 1991) suggest that women's representation in both senior and middle-level leadership is positively related to organizational outcomes, a limitation of empirical studies using such theories is that most have relied on demographic representation as an indicator for women's involvement (e.g., Krishnan & Park, 2005). Such research assumes that having women in strategic roles translates into positive organizational outcomes, thus overlooking the complexities of their actual influence—representation alone may not be enough to ensure equitable participation (Neely et al., 2020; Sirmon et al., 2007). For example, Carpenter et al. (2004) emphasize that individual-level dynamics, such as power asymmetries and informal networks, can consolidate influence among select individuals, thereby restricting the voice of even highly qualified women. In parallel, prior research on gender and organizational social networks would further suggest that women's representation does not always relate to their equal participation (Woehler et al., 2021; Ibarra, 1993).

To better understand such gender dynamics in organizational strategy, I examine men's and women's strategic conversation social networks. In the following sections, I discuss three social network metrics of involvement. These network-based positional characteristics reflect the extent to which an individual in the network has sufficient power (degree centrality), stability (contact density), and relational strength (tie multiplexity) to be involved in strategic conversations.

Involvement in Strategic Conversation Networks

Strategic conversation networks are sets of relationships ("ties") between organizational leaders through which strategic conversations occur (Borgatti et al., 2009). The network connections provide pathways for information flow and resource access critical to strategic decision-making. Emerging social network research has examined the patterns of relationships a person has with others in an organizational network as antecedents or indicators of involvement (e.g., Grosser et al., 2023). A social network approach allows researchers to structurally assess whether individuals have equitable access to resources or opportunities for participation in strategic conversations.

Multiple types of social network metrics have been suggested as indicative of 'involvement.' For instance, scholars have suggested that ***degree centrality*** within organizational networks is a metric of participation and powerful positioning (Schein, 1971; O'Hara et al., 1994; Pelled et al., 1999; Farh et al., 2021). Degree centrality is a measure of the size and scope of one's network (Freeman, 1979). More specifically, degree centrality measures the number of relationships an individual has to others in the network (Borgatti & Brass, 2020). Highly central individuals are more likely to be trusted by others and experience increased social support (Feeley et al., 2010; Tasselli et al., 2023). They also often have increased access to resources and information flowing through the network, so they are more likely to have increased awareness of professional opportunities and potentially 'first dibs' (Borgatti et al., 2009). Such knowledge advantage can further translate into greater influence and power (Brass & Burkhardt, 1993), especially if individuals are central in organizational networks containing senior leaders. For instance, Farh et al. (2021) found that higher degree centrality in professional advice networks led to greater organizational involvement. Individuals' centrality in advice networks directly

reflected their participation through providing expertise and maintaining influential connections across a multinational organization. Degree centrality not only enhances one's influence but also demonstrates to others that the person's contributions are valuable and necessary, reinforcing their status as an insider (Stamper & Masterson, 2002; Podolny, 2001).

A second social network metric of strategic conversation involvement is ***contact density,*** which can be indicative of network 'stability' (Ibarra, 1993). Contact density reflects the extent to which a focal individual's contacts are also connected to each other (Marsden, 1990). Individuals in highly dense networks create a more insular community that regulates itself based on the group's established values, norms, and interaction patterns (Coleman, 1990). As such, members in a dense network may feel included when they follow such behavioral guidelines. Similarly, prior research shows that dense networks can provide increased social support (Chung et al., 2011; Venkataramani & Dalal, 2007). For instance, Ferrin and colleagues (2006) found that a higher degree of shared network contacts between a focal individual and another person was positively related to interpersonal organizational citizenship behaviors, such as helping a coworker with a work-related task. Generally, individuals are more likely to demonstrate prosocial behavior with those with whom they share common ties, which fosters involvement. Additionally, although dense networks can create redundancy by relying on well-connected contacts (Burt, 1992), they also facilitate involvement through shared information access. Individuals embedded in strong, dense networks are more likely to exchange knowledge (Nieves & Osorio, 2013), and since information access is a key driver of involvement (Roberson, 2006), members of such networks are more likely to be involved (Grosser et al., 2023). Overall, dense and stable networks provide a structural foundation for a shared social community, fostering more equitable involvement.

A third social network metric of strategic conversation involvement is ***multiplexity,*** which is an indicator of network tie strength (Brass, 2022; Ibarra, 1993). Because ties are relationships between individuals within a network, 'strong ties' are deeper relationships developed from more time spent together and a reciprocated emotional connection (Granovetter, 1973). Comparatively, 'weak ties' are ones in which actors have spent limited time together and have a more surface-level connection. Individuals with strong ties are more likely to be involved compared to those with weak ties in part due to strong ties offering increased social and emotional support (Granovetter, 1973; Krackhardt, 1992), an increased willingness of others to help and share information (Levin & Cross, 2004), and potentially greater cooperation to effectively transfer knowledge (Levin et al., 2015). Individuals with strong ties can capitalize on their rich relational benefits to become involved in strategic conversations.

As a form of strong ties, multiplex ties also signal involvement. Multiplex ties are network connections where more than a single relationship exists between network members (Kadushin, 2012a; Ertug et al., 2023). For instance, a relationship with one person could provide not only instrumental benefits such as key job-related information and advice, but also expressive benefits like friendship and social support. Mentor-protégé relationships are an example of multiplex relationships whereby protégés may experience both career-related and psychosocial support (Kram, 1988). Due to their multipurpose nature, which typically requires more relational commitment, multiplex ties tend to be stronger ties (Tichy, 1981; Granovetter, 1973), providing deeper levels of support (Cotton et al., 2011) through enhanced visibility and proactive advocacy (Higgins & Kram, 2001). Having multiplex ties can also lead to more frequent interactions, increased trust, and a sense of shared community in which members may more readily share pertinent information (Kadushin, 2012b; Uzzi, 1996). For instance, as Cullen-

Lester and colleagues state, “groups characterized by strong, positive, *multiplex* [emphasis added], and reciprocated network ties have greater cooperation and information sharing, which enables resources to ‘flow’ more easily among group members…” (p. 151). With multiple types of ties within a single connection providing increased support and information access, multiplexity serves as a key indicator of organizational involvement (Shore et al., 2011; Roberson, 2006).

In summary, prior research suggests that specific structural network patterns can serve as important indicators of strategic conversation involvement (e.g., Farh et al., 2021; Grosser et al., 2023). The three key network metrics are: (1) network power (degree centrality), (2) stability (contact density), and (3) strength (tie multiplexity). For my dissertation, I used each metric as a separate indicator of strategic conversation involvement. In the following sections, I explore how research and theory suggest gender differences in these social network metrics, particularly highlighting how women are less likely to be involved compared to men.

Gender Differences in Strategic Conversation Involvement

Despite comprising 50% of the United States population and approximately 57% of the U.S. workforce (U.S. Bureau of Labor Statistics, 2022), women hold only 8% of CEO positions in the S&P 500. Remarkably, until 2023, there were more men named John in CEO roles than women in CEO roles (The CEO Magazine, 2024). Women’s underrepresentation in senior leadership positions presents significant challenges for organizations that extend beyond issues of gender equality. For example, research has shown that lower gender diversity in senior leadership is negatively associated with business growth (Clarke, 2011; Heller & Stepp, 2011; Torchia et al., 2011; Welbourne et al., 2007). Therefore, understanding the factors contributing

to women's underrepresentation in senior leadership remains a critical focus of organizational research, with potential implications for employees, organizations, and society as a whole.

Researchers have identified numerous factors that might contribute to women's underrepresentation in senior leadership. These factors include gender biases that favor men (Eagly et al., 1992), stereotypes about leadership as a 'masculine' phenomenon (Koenig et al., 2011), socialization and gender norms (Ridgeway & Correll, 2004), women bearing a disproportionate share of family and caregiving responsibilities (Munch et al., 1997), gendered social systems (Terjesen & Singh, 2008), occupational segregation (Glick et al., 1995), and a lack of support for diversity (Prasad & Śliwa, 2024).

In addition to the above explanations, scholars have often highlighted women's *exclusion* from *informal organizational networks*—especially those involving more senior influential leaders—as a key explanation for women's lack of representation in senior leadership (see Table 1). Such exclusion is aligned with prior research suggesting that women's networks create and escalate inequity (Brands et al., 2022). To understand women's lack of equitable involvement in organizational networks, scholars have articulated how the pervasive human tendency toward *homophily* in relationships, such as *gender-based homophily,* combines with the *gender composition* of organizations and senior leadership, to determine differences in the gender composition of men's and women's personal networks (Ibarra, 1993).

Gender-based homophily refers to the tendency for people to form relationships based on a shared gender identity (McPherson et al., 2001). Both men and women tend to form more gender-based homophilous relationships than would be expected by chance (Woehler et al., 2021; Brass, 1985; Ibarra, 1992; 1997; Singh et al., 2010; Kleinbaum et al., 2013; Psylla et al., 2017; Burt, 2019; Greguletz et al., 2019; Wang et al., 2023; DeHart-Davis et al., 2024). Even

though women have been and often are underrepresented in organizational leadership positions (Catalyst, 2022), women still tend to have more connections with other women in organizations than they do with men. This inclination of 'like calling to like' can lead to compositionally different personal networks—men and women may be more likely to inhabit and maintain networks composed of people of the same gender (Ertug et al., 2022).

However, the men-dominated nature of many organizations and the greater concentration of men in positions of power likely lead to discrepancies in gender-based homophily. Women typically exhibit *less* homophily compared to men (Ibarra, 1997; McPherson et al., 2001). In a recent review, Woehler and colleagues (2021) show that one of the most consistent findings in the gender and networks literature is that both men and women show gender homophily tendencies, but that men show *stronger* patterns of it than women. Men tend to preferentially form and continue connections with other men, thus fostering men-dominated networks. Women, while showing some preference for same-gender ties, have connections to men, but fewer than their men counterparts do (Ibarra, 1997; McPherson et al., 2001).

Research on gender and networks emphasizes that the personal networks of men and women in organizations not only exhibit different gender demographic compositions or structural characteristics, but those characteristics also have different *effects* on men's and women's involvement in organizational decision-making and their career success (Woehler et al., 2021). For example, although there is a general trend of increasing women's representation in C-suite roles (LeanIn & McKinsey & Co., 2024), women generally occupy fewer senior leadership seats than men. Thus, given women's underrepresentation within senior leadership, women's homophilous relationships are assumed to be less 'valuable' to their career success compared to those of men (Ibarra, 1993). In fact, Brass (1985) argued that homophilous

networks are detrimental for women because men tend to occupy influential formal and informal leadership positions, and thus, men have more control over the promotion decision-making processes. Brass's piece of advice from over forty years ago is that women should connect with men in order to be closer to those in power.

In general, I expected that women's homophilous ties are likely to hinder involvement in strategic conversation networks partly because women often occupy roles with less authority in the lower levels of an organization (McGuire, 1999; 2000; McDonald, 2011). For instance, Ibarra (1992) found that women often try to expand their network scope by seeking advice from men and relying on women for support. Ibarra suggests this strategy arises because their homophilous ties, while more emotionally supportive, tend to be less instrumental. However, such differentiated networking and homophily can actually decrease women's network centrality and their connections with senior leaders. Lower centrality means that women are not only less likely to have immediate access to influential network members, but that they will have a harder time making new connections given their existing ties' lower instrumental value.

A more recent example showcasing how women's homophily tendencies are less likely to provide instrumental benefits is Greguletz and colleagues (2019). In an interview study where the researchers met with women leaders from German companies, they found that homophily negatively contributes to the effectiveness of women's networks. Women tend to form more socially based homophilous ties, which lead to structural exclusion from powerful informal networks. Insofar as women's networks contain same-gender relationships (but less than men's), homophilous tendencies may limit women's involvement in strategic conversation networks compared to men.

Generally, research since the 1980s (e.g., since Brass, 1985) has also suggested that women may need to be connected to men for their career progression (Ibarra, 1992). For instance, McDonald (2011) explored how gender and race differences in social networks can impact job leads. He found that individuals in White men-dominated networks received more job leads than individuals in racial-minority or women-dominated networks. Homophily and status were contributing factors in that influential men tended to help other men advance their careers more compared to women. However, when women were included in White men's networks, they were able to access the men's resources and social capital and thus also reported higher levels of job leads. Such findings are consistent with research indicating women may need to borrow instrumental resources from men to access the same level of resources as their men peers (Burt, 1998; Woehler et al., 2021). Jung and Welch (2022) further support the notion that women benefit from having more men contacts. They found that women with gender heterogenous networks reported higher perceived inclusion, whereas men reported higher involvement when occupying predominately men networks. The researchers suggest that women's attempts at integrating themselves within men-skewed networks to 'get ahead' contributed to their findings. In sum, research suggests that when women have a higher proportion of men contacts, they can not only gain the instrumental benefits typically associated with men (e.g., increased social capital), but also experience more involvement. Men's generally higher status can afford their women connections, higher social capital and influence by association (Podolny, 2001; Lin et al., 1981; Lin, 1999).

Furthermore, the transfer of social capital is likely to be crucial for women's involvement in strategic conversations. As Burt (1992) suggests, senior leaders are busy. They are more likely to rely on network-based information about whether someone is credible for participation in their

network. Ahearne and colleagues (2014) provide an example of how a middle manager's social capital can influence TMT members' willingness to include them. They found that middle managers' social capital improved their ability to influence senior leaders on organizational strategic issues. Extending the findings, TMT members may be more likely to include middle managers with higher social capital—even if by association from ties to men contacts.

However, the extent to which women may benefit from having a higher proportion of men contacts in part depends on the men's willingness to 'share' their influence and resources. Research has similarly suggested that men may perpetuate an 'old boys' network' whereby even when men know a well-qualified woman, they may still pass over her and instead focus on or help another man (McGuire, 2002; Greguletz et al., 2019; Beaman et al., 2018). Indeed, women may need to 'work twice as hard' to be considered on par with their men counterparts (Williams & Dempsey, 2014; Ridgeway et al., 2022). In combination with gender homophily tendencies, women likely have fewer men contacts than men. Given research suggesting that access to men in positions of power plays a crucial role in women's career trajectories and strategic influence (Ibarra, 1992, 1993; McDonald, 2011), women may be less likely to be involved in strategic conversations compared to men because they tend to have fewer men contacts. As such, I pose the following hypotheses,

Hypothesis 1a: Women's strategic conversation networks contain a lower proportion of men contacts than men's.

Hypothesis 1b: Women's positions in strategic conversation networks are less powerful (lower degree centrality) than men's due to the lower proportion of men contacts in their networks.

Hypothesis 1c: The proportion of men contacts is more strongly and positively associated with network power (degree centrality) for women than men.

In addition to gender homophily tendencies likely leading to women being less involved in strategic conversations—occupying less powerful strategic conversation network positions—compared to men due to their lower proportion of men contacts, gender homophily is also likely driving less involvement through women having wider-ranging networks. Specifically, women often reach outside of their immediate work groups to form more gender homophilous connections (Ibarra, 1992; 1993; Carboni et al., 2020). For instance, Kleinbaum and colleagues (2013), in a large network study based on email correspondence, found that women had significantly wider-ranging networks compared to men. Following gender homophily tendencies, women formed more connections with other women across intra-organizational boundaries than men, who tended to stay within their work group boundaries.

To illustrate this, consider a scenario in which a woman belongs to a team consisting of one other woman and five men. Following gender homophily tendencies, she is likely to connect with the other woman team member. However, to expand her network, she will likely seek connections outside her immediate work group to engage with more women. Conversely, the men in this work group have more opportunities to create networks within their own group, thus potentially making them less inclined to reach beyond those boundaries to form gender-homophilous ties. This dynamic reflects a strategic adaptation to organizational constraints and highlights the search for resources and information available outside immediate work units (Ibarra, 1992; Brass, 1985).

When women do tend to reach outside of their work groups, the chances of connecting to more senior and influential leaders within that organization are more limited compared to men.

In a recent LeanIn and McKinsey report (2024), they found evidence of a 'broken rung.' That is, one of the biggest hurdles women face when it comes to climbing the corporate ladder is that they have difficulties in even attaining first-step managerial positions compared to their men counterparts. Fewer influential women leaders means that when women are reaching beyond their work groups, they are more likely to connect with other lower-level leaders.

Additionally, women are often tasked with non-essential business duties that are not directly related to the organization's core operations (Heilman & Chen, 2005; Williams & Dempsey, 2014; Babcock et al., 2017). By participating in more peripheral business activities, women are even more restricted from strategic involvement and the people who conduct such conversations (Durbin, 2011). The hierarchical position and corresponding role duties, coupled with homophily tendencies, lead women to form ties with other women in lower-level positions and non-core business functions. Thus, women's access to or the ability to form connections with strategic conversation members may be more limited.

Furthermore, the structural characteristic of higher workgroup range in women's networks likely impedes network stability. Networks with higher work group range tend to indicate less contact density, reducing the perception of cohesiveness (Ibarra, 1993). That is, when network contacts are dispersed across different organizational units, they are less likely to know or interact with each other, which can reduce the collective support towards and involvement of a focal individual. For instance, Coleman (1988) shows that when individuals' contacts are also connected to each other (high closure), it creates structures of mutual obligation, trustworthiness, and effective information flow. Denser networks enable collective monitoring and participation. Reagans and McEvily (2003) further support such findings in that more stable networks facilitate knowledge transfer through cooperative norms, enhanced trust,

and reduced competitive barriers. In strategic conversation networks, individuals with more stable networks—where strategic conversation partners are also well connected to each other—may foster broader participation by creating social capital that can be leveraged by all members, not just those in traditionally powerful positions. The social obligations and reputational concerns that arise in more stable networks can compel influential individuals to include and engage with others who might otherwise be marginalized from strategic discussions.

More recently, Asikainen et al. (2020) found that triadic closure—the tendency for individuals to form connections with their contacts' contacts—serves as an important mechanism for network stability and cohesion. The researchers showed that when individuals' contacts are not well connected to each other, network structures become less stable. What starts as small differences in how people build their networks can snowball into much bigger patterns over time as the initial networking preferences can create self-reinforcing cycles leading to a distinctive organizational pattern where one homophilous group forms a densely interconnected core while another becomes more peripheral. Applied to men and women leaders in regard to involvement in strategic conversation networks, network instability can contribute to women's exclusion from strategic conversation involvement. The study highlights how triadic closure reinforces such core versus peripheral structures. In organizations where women's networks are structurally unstable, they may lack the reinforcing ties necessary to access and contribute to high-level strategy conversations.

Overall, women are more likely to have unstable networks as they follow gender homophily tendencies and seek out connections to other women outside of their immediate work groups compared to men. In strategic conversation networks, the lower network stability likely impedes involvement because dispersed contacts lack the collective capacity to advocate for and

protect each other's interests. Unlike dense networks where interconnected contacts can coordinate their influence and provide mutual support, networks with low contact density offer limited collective backing in strategic discussions (Ibarra & Andrews, 1993). This structural disadvantage may contribute to women's reduced involvement in strategic conversations, as their network positions lack the stabilizing effects of tight knit, mutually reinforcing relationships. I thus hypothesize the following,

Hypothesis 2a: Women's strategic conversation networks have higher network range than men's.

Hypothesis 2b: Women's positions in strategic conversation networks are less stable (lower density) than men's due to greater workgroup network range.

The third network characteristic that is likely to impact involvement in strategic conversations is the extent to which one's personal network is composed of cross-gender contacts. While women demonstrate homophily tendencies, organizational power structures and demographic constraints have led to women having more men contacts than would be expected by chance but still having fewer men contacts than their men counterparts. The recent review by Woehler et al. (2021) provides evidence that women's networks exhibit higher gender heterogeneity than men's networks, reflecting both active networking strategies and organizational demographics. For instance, women may find themselves needing to connect with men to advance their careers (Ibarra, 1992; 1993; Burt, 1998). With women's lower representation in managerial positions (U.S. Bureau of Labor Statistics, 2022), women may even strategically seek out connections to men in more senior leadership positions for professional gain (Brass, 1985). In tandem, there is evidence of a White men premium in mentorship because of the power and status typically afforded by such a group of people; protégés with such mentors

can capitalize on increased career-related outcomes (Allen et al., 2017). Thus, women tend to have more gender heterogeneous networks compared to men, but still less access to the influential contacts with whom they could develop deeper relationships.

Multiplex ties, which are multifaceted connections between two individuals denoting separate kinds of relationships (e.g., trust and strategic conversation involvement), are typically characterized as not only being stronger or relationally 'deeper,' but also mutually reinforcing with increased social and professional support (Shah et al., 2017; Methot & Cole, 2023). The importance of multiplex ties extends beyond simple relationship depth. These relationships serve as conduits for multiple forms of resources and support, creating redundant paths for information flow and influence. When relationships span multiple contexts—professional, social, and strategic—they become more resilient and reliable channels for organizational influence. This resilience is particularly crucial for strategic conversations, where trust and mutual understanding facilitate more open and substantive exchanges. Indeed, many of the benefits of gender homophilous ties are found in multiplex ties, including more trust, communication, cooperation, and general connectedness (e.g., Vissa, 2011; Melamed et al., 2020). Both homophilous and multiplex ties enable stronger relationships—homophilous ties often provide a foundation of shared experiences and mutual understanding (McPherson et al., 2001), while multiplex ties deepen relationships through repeated interactions across different contexts (Methot & Cole, 2023). These parallel processes are also likely to be mutually reinforcing as shared identities and experiences can create opportunities for interactions across multiple domains. In sum, networks characterized by homophilous and multiplex relationships can enable strategic conversation involvement (McEvily et al., 2003; Lazega & Pattison, 1999; Cross & Sproull, 2004).

While connections to men may be necessary for women to not only fulfill their job duties or advance their careers due to men's disproportionate representation in powerful positions (see Hypothesis 1a; Brass, 1985; Ibarra, 1992), such connections may inadvertently constrain women's ability to develop the deep, multiplex relationships that also facilitate meaningful participation in strategic conversations. Women's gender heterogeny is particularly challenging because while women may need more connections to men to access strategic conversations, men tend to form stronger, more supportive relationships with other men (Ertug et al., 2022), creating a persistent advantage for men in organizational networks. Women's more gender heterogenous networks holding back multiplex ties with men is further challenges by the fact that women's networks still tend to contain fewer men contacts than men's networks. With fewer men contacts, but more cross-gender contacts (compared to men), this creates a double disadvantage. women not only have fewer connections to powerful men but also face greater challenges in developing those connections into strong, multiplex relationships that could support meaningful strategic involvement. Thus, while women's strategic necessity to connect with men may provide basic access to strategic conversations, the relative weakness of these ties compared to men's homophilous relationships may still result in diminished participation and influence within these conversations.

I am not suggesting that women are unable to form multiplex ties but rather having the opportunity and resources to form them with men are more limited. For example, in a large-scale study of multiplex networks, Szell and Thurner (2013) found that women can develop multiplex relationships, particularly with other women to form tighter, more clustered networks. The women also maintained more heterogeneous networks overall. Such asymmetric pattern of cross-gender ties, where men-to-women connections were more common than women-to-men

connections, suggests that while women successfully form multiplex ties with other women, they may have more difficulty in forming multiplex connections with men. Other research has shown that minority group members tend to separate social and professional networks rather than maintain more integrated, multiplex ties compared to majority group members (Ibarra, 1992; 1995; Friedman et al., 1998). Furthermore, women may face more challenges in forming multiplex ties with men when organizations have outside-of-work-hours events aimed at fostering interpersonal relationships (e.g., after-work-hours get-togethers, happy hours, etc.), which may limit women from joining due to women on average fulfilling more caretaking duties (National Partnership for Women and Families, 2023; Greguletz et al., 2019). These findings align with previous research suggesting women must maintain more gender-heterogeneous networks due to men-dominated organizational structures (Brass, 1985), while simultaneously facing challenges in developing the strong multiplex ties that tend to emerge from homophilous relationships (Cotton et al., 2011).

Overall, women's organizational networks tend to exhibit greater heterogeneity compared to men's (Woehler et al., 2021). Network heterogeneity generally provides access to diverse information and resources (Burt, 1992), yet for women, it can simultaneously constrain the development of deep, multiplex relationships with influential organizational leaders (Ibarra, 1993). Even when women successfully establish connections with influential men, these ties often remain relatively weak or uniplex compared to the multiplex relationships that characterize men's homophilous networks (Ibarra, 1993; McPherson et al., 2001). Because multiplexity is indicative of strong ties where individuals are more likely to be active participants, women may be less likely to be involved in strategic conversations. Therefore, I pose the following hypothesis,

Hypothesis 3a: Women's strategic conversation networks contain a higher proportion of cross-gender contacts than men's.

Hypothesis 3b: Women's positions in strategic conversation networks are weaker (lower multiplexity) than men's because their personal networks are more gender heterogeneous.

Hypotheses 1 through 3 consider the gender composition of leaders' personal networks and how tendencies toward gender homophily may lead men and women to form different networks, which also have implications for involvement in strategic conversation networks. In the following sections, I focus on potential boundary conditions for these hypotheses. Specifically, I pose a research question to explore whether (1) women's increased representation across the organization's middle- and upper-managerial levels or (2) just within the TMT may impact the negative implications of gender-based homophily for women's involvement in strategic conversations (Ibarra, 1993).

Prior research suggests that because of gender homophily networking tendencies, women may seek out connections with other women (McPherson et al., 2001). However, because the number of women in an organization may be fewer than the number of men or because those women tend to occupy fewer positions of power, women's homophilous relationships may not provide as instrumental benefits compared to men's (Ibarra, 1992; McGuire, 2002; McDonald, 2011; Lyness & Grotto, 2018; Woehler et al., 2021). To gain homophilous relationships, women may be more likely to extend beyond their boundaries into other teams or departments, especially if there are a limited number of women in their work groups (Ibarra, 1993; Kanter, 1977; Kleinbaum et al., 2013).

However, when organizations achieve a 'critical mass' of women in leadership positions, a shift can occur whereby women's ability to influence decision-making increases significantly (Torchia et al., 2011; Konrad et al., 2008). For instance, Saggese et al. (2020) found that a critical mass of women in governance structures enhanced organizational innovation. Dobija et al. (2021) found that increased women representation on supervisory boards is associated with improved financial oversight and reporting quality. Reaching critical mass can mitigate tokenism or marginalization where women may experience heightened scrutiny, leading them to overperform or withdraw from strategic conversations (Kanter, 1977).

With more women present in organizational leadership or in the TMT reaching critical mass, women's ability to form instrumental homophilous ties increases as more high-status women are available for network formation (Ely, 1994; Brass et al., 2004). For example, Edacherian et al. (2024) showed evidence of gender spillover where more women on boards can lead to an increase in women in executive positions and enhance firm performance. Their meta-analysis found that gender-diverse boards positively influence the advancement of women into top leadership roles, reducing dependence on men-dominated networks and opening new avenues for women to gain critical organizational information. When there are more women leaders, women may not need to rely on their men connections to receive critical organizational information and resources as much (Cook & Glass, 2013). Gender balance can help level the playing field by distributing power and influence across men and women (Ibarra, 1993; Carboni et al., 2019), thus allowing women leaders more pathways to involvement through their women *or* their men contacts (Kleinbaum et al., 2013). Women may more readily form homophilous relationships and benefit from powerful and stronger ties (Ibarra, 1993).

Women's homophilous connections may also be more conducive to facilitating communication and more cooperative interactions (McPherson et al., 2001). Previous research on women's relationship orientation depicts them, on average, as being more collaborative, participative, and democratic than men (Eagly & Carli, 2003; Eagly & Johnson, 1990). Therefore, women's presence in more powerful roles can foster more balanced decision-making processes and an increased consideration and involvement of other people.

Dezsö and Ross' (2012) research found empirical support for organizational benefits when those organizations had more women. In a study of top management teams in the S&P 1,500, the researchers found that women's representation in senior leadership boosted organizational performance, particularly when the organization focused on strategic innovation. Such an increase in organizational performance occurred partly because of its positive impact on the lower-level leaders. The researchers argued that gender diversity at the senior levels subsequently increases women middle managers' motivation for career advancement and realigns norms such that it is more acceptable for middle managers to pursue and attain similar senior-level positions. Gender diversity in senior leadership overall is related to improved financial performance (Brahma et al., 2020), innovation (García-Meca et al., 2023), corporate social responsibility (Beji et al., 2020), and—important for involvement in strategic conversations—is likely to "encourage more open conversations" (Bear et al., 2010, p. 210).

On the other hand, simply increasing women's representation may not be sufficient to ensure equal strategic conversation involvement—a point I highlighted as a limitation of Upper Echelons Theory (Hambrick & Mason, 1984) and Resource Based View (Barney, 1991). Having more women within organizational leadership or on the TMT may not directly translate to the purported benefits of homophilous ties or career-advancing connections (Kurtulus &

Tomaskovic-Devey, 2012). For instance, even when women are formal leaders, an informal lack of power may supersede their formal power, limiting their influence. In an interview study, Greguletz et al. (2019) demonstrated that senior-level women face exclusion from influential professional networks due to gender homophily. Despite women having similar qualifications and experiences as men counterparts, men still tended to mentor and promote other men, thus creating a cycle of exclusion even at the highest organizational levels. Therefore, even when women hold formal leadership positions, they may still face challenges in leveraging their influence within strategic conversation networks (Brass & Burkhardt, 1993).

Additionally, increased representation may not necessarily positively impact leaders' networks because of the organization's norms, culture, or entrenched informal networks (Brass et al., 2004; Tasseli et al., 2015). For instance, in 2003 Norway mandated that corporate boards comprise at least 40% women. However, the policy had unintended consequences in that organizations then often appointed women primarily to non-executive positions, at the same time reducing the number of women executive directors. Rather than facilitating women's advancement into top leadership, the law inadvertently obstructed their career progression by confining their influence to advisory roles with limited strategic power (Garcia-Blandon et al., 2023). Further, the law led to the formation of a new, highly concentrated network of elite women holding multiple directorships, rather than broadly expanding women's access to leadership networks (Strøm, 2019). Network analysis also showed that after the reform, the overall connectivity of board networks declined, reducing the flow of information and limiting the potential for women to leverage these networks for broader leadership opportunities (Strøm, 2019). Research on women directors in the UK and France additionally challenges critical mass theory by revealing that women's board representation does not guarantee equal participation in

key decision-making (Tilbury & Sealy, 2023). Increasing women's representation marks an essential step toward gender equality but is unlikely to alone dismantle the 'old boys network.'

Network cognition research also suggest that individuals perceive and recall networks based on existing cognitive schemas rather than actual organizational structures, which can perpetuate the exclusion of women from informal strategic influence circles even when they are present in leadership roles (Smith et al., 2020). For instance, individuals' perceptions of network centrality and influence are often misaligned with objective structural positions. Such misalignment can lead to persistent under recognition of women leaders (Brands, 2013). Research on small-world network perceptions also shows that people tend to overestimate the influence of historically dominant actors while underestimating the strategic value of those who have not traditionally held power (Kilduff et al., 2008). That is, because men have long occupied key decision-making roles, these perceptual distortions can inadvertently sustain assumptions that men leaders remain the primary conversants of strategic conversations—even in organizations with higher proportions of women leaders. Therefore, simply increasing the number of women in leadership may not automatically grant them greater strategic influence or create pathways for other women to advance as cognitive biases can shape perceptions of influence.

Furthermore, even when women reach senior positions, their ability to help other women often depends on whether they can change the organization's existing power structure and culture. Research on informal organizational influence suggests that the persistence of men-dominated sponsorship and mentorship channels can limit the extent to which women leaders are able to redistribute strategic opportunities (Battilana & Casciaro, 2012). Without shifts in how resources, sponsorship, and key information flow within the organization, greater representation

alone may inadvertently and persistently reproduce, rather than change existing gendered network structures. Therefore, the structural constraints that lead women to form different types of networks, including informal exclusion from men-dominated circles may continue to operate independently of leadership demographic composition (Ibarra, 1992; McPherson et al., 2001). The underlying structure of who is included in strategic conversations may remain unchanged.

Notably, some network research has found support for women's homophilous ties and career-related outcomes; however, the mere increase in women leaders within an organization may not necessarily translate into women's greater involvement in strategic conversations. For instance, Yang et al. (2019) found that graduate students' social networks influenced post-graduation job placements. Network centrality predicted placements for both genders, but women with diverse, homophilous connections secured higher positions, while men relied primarily on their own centrality for placement. However, such research may be more of an example of how women may need to 'borrow' network brokerage—having contacts who span network boundaries, which provides women with increased access to resources and information—from someone of either gender rather than the immediate benefits of homophily (Burt, 1998). Furthermore, other research on the benefits of women's homophilous ties has focused on women scientists and academics for instance (Whittington et al., 2018; McMillan et al., 2018), who may benefit from smaller collaboration groups and are not subject to the same larger corporation hierarchies or politics where homophily may be less advantageous.

Plus, recent research demonstrates there could be potential hidden costs to homophilous relationships. For instance, Snellman and Solal (2023) explored how women entrepreneurs initially funded by women venture capitalists were significantly less likely to receive additional

financing than if a man venture capitalist initially funded the women entrepreneurs. Pitch evaluations were also significantly lower when women venture capitalists supported women entrepreneurs. The researchers suggest that the homophilous connection between women entrepreneurs and venture capitalists increased the salience of gender stereotypes. Specifically, evaluators perceived the women entrepreneurs as less competent because of their homophilous connections—that the women entrepreneurs were supported because of gender similarity, not their accomplishments. Therefore, homophilous ties may trigger cognitive biases that reinforce gender-based discrimination (Ridgeway & Correll, 2004), which could limit women's involvement in strategic conversations.

In sum, structural constraints within an organization surrounding women's representation in middle management and senior leadership positions are a potentially important boundary condition on women's involvement in strategic conversations. Without consistent evidence to suggest that women's increased representation leads to more or less involvement, it remains an open question. Thus, I pose the following exploratory research question,

RQ: Does the gender composition of leadership alter the impact of strategic conversation network position through personal network composition?

CHAPTER 3: METHODS

Participants & Archival Data Collection Procedures

To test my hypotheses (See Figure 1), I analyzed archival data from a large social network database, which includes network data collected from 673 participants who worked as members of the top management team and upper middle-level managerial groups from 13 organizations across the U.S and Spain. The organizations represented a wide range of industries, including energy, education, healthcare, and more. Within each organization, the top management team members (e.g., Chief Executive Officer) and next level down management (i.e., middle managers) were surveyed. Table 2 summarizes the industries, sample sizes, and gender composition for each organization.

Table 2
Industry, sample size, and percent women within participating organizations

	Sample Size (Percent Women)		
Organization Industry	Total Sample	Middle Managers	Top Management Team
1. Training & Development	32 (75%)	24 (83%)	8 (50%)
2. Non-profit	13 (62%)	9 (67%)	4 (50%)
3. Education	26 (88%)	23 (91%)	3 (67%)
4. Healthcare	23 (39%)	17 (41%)	6 (33%)
5. Education	52 (60%)	45 (62%)	7 (43%)
6. Facilities Management	118 (33%)	112 (30%)	6 (83%)
7. Healthcare	39 (51%)	30 (50%)	9 (56%)
8. Non-profit	52 (33%)	49 (35%)	3 (0%)
9. Energy	159 (23%)	148 (24%)	11 (18%)
10. Cleaning	47 (30%)	36 (39%)	11 (0%)
11. Education	52 (54%)	40 (60%)	12 (33%)
12. Facilities Management	33 (64%)	28 (68%)	5 (40%)
13. Education	27 (44%)	18 (50%)	9 (33%)

The data were collected as part of a larger research project, which assessed and analyzed social network data for organizational leaders to improve interpersonal collaboration and organizational strategic performance. Data collection for each organization unfolded in a series of three steps. During Step 1, organizational representatives provided the research team with Human Resources (HR) data containing the names, gender, role (i.e., if the participant was a middle manager, TMT member, or the CEO), reporting structures, and team memberships of the top management team members and middle managers. After receiving informed consent from the participants, in Step 2, the research team developed a custom social network survey for the organization, which reflected the nesting of employees within managerial groups. In Step 3, participants received survey links via their work emails and completed the surveys asynchronously. Lastly, the research team compiled and reported the results to the CEO in a consultation, detailing the nature of the organization's social network, collaboration patterns, and strategic alignment.

Notably, a 'whole network approach' within each organization was used in this study to map the patterns of relationships among leaders. A whole network approach allows a more comprehensive view of an organization's leaders by mapping all relationships (Marin & Wellman, 2009). Comparatively, ego networks are social networks constructed from a single actor's ratings of alters, which can be unreliable and lead to single-source bias (Balkundi & Kilduff, 2006). Whole network approaches map all relationships among a set of actors, thereby allowing researchers to use individual, group, and organization-level structural metrics to better understand interaction patterns, such as the measurement of network centrality (Hanneman & Riddle, 2011). As such, a whole network approach is particularly appropriate for exploring gender differences in network characteristics and ultimately, involvement in strategic leadership

conversations because such approaches enable a clearer understanding of positional characteristics indicative of strategic conversation network involvement within larger 'wholes' (Tichy et al., 1979).

Measures

To take a network approach to involvement in strategic conversation networks, I measured advice networks capturing upper- and middle-level managers' conversations on strategy formulation and implementation. These are strategic conversation networks or 'strategy networks' for brevity. From a full list of all TMT members and middle managers from their organization, participants were asked to select individuals with whom they "have regular, meaningful conversations"—a popular method to capture organizational social networks (Balkundi & Kilduff, 2006; Adams & Lubbers, 2024). Following, from the narrowed-down list of individuals the participants know, participants were then asked to select people with whom they (1) "regularly exchange information regarding *forming* [their organization's] strategy" (i.e., the 'strategy formulation' network) and (2) whom they "regularly exchange information regarding *implementing* [their organization's] strategy" (i.e., the 'strategy implementation' network). I also created a single 'strategy combined' network that merged the strategy formulation and implementation networks. Specifically, I overlayed the two networks and compiled all unique, undirected relationships to have an overarching strategy network of all formulation and implementation conversations.

Furthermore, I took an *undirected* network approach to more liberally capture relationships amongst the leaders. For instance, in the network, if Person A reported a relationship with Person B, then a 'tie' or connection was counted between them. A tie would be counted even if Person B did not report a relationship with Person A—direction does not matter.

If both Person A and Person B reported ties to each other, then a single tie was counted. That is, ties are symmetrized and measured binarily—one exists if any person or both people in a dyad reported it (Borgatti & Brass, 2020). The use of undirected strategy networks focuses on involvement in terms of mutual engagement and communication, rather than strictly unidirectional network flows (Reagans & Zuckerman, 2001). Strategy conversations naturally involve at least two leaders collaboratively exchanging information. Thus, a connection reported by one or both should be counted. Undirected networks can also reduce measurement error that may impact real gender differences in strategic network positioning. For instance, people are not likely to remember all the strategy conversations they had with different people as Brass (1985) found. Symmetrizing can help ensure accuracy of exactly who had strategy conversations with whom.

Additionally, participants also responded to 'trust network' questions. From the narrowed down list of individuals whom a participant knew, all participants were then asked to select individuals "whose motives, honesty, and character [they] strongly trust." One organization (#6 in Table 2) did not respond to trust network questions. Rather all leaders in that organization completed leadership network questions whereby they selected individual whom they rely on for leadership—select "the following people [who] lead you." Leadership networks often reflect trusted relationships (Hoppe & Reinelt, 2010); trust can be important for effective leadership (Dirks & Ferrin, 2002). Therefore, such network was used as a proxy for the trust network.

To have a more conservative understanding of the trust networks, I used only (directed) outgoing ties from network members to a focal individual. For instance, if Person A reported they trusted Person B, then the connection was counted as a single outgoing trust tie. However, in such example, unlike undirected ties, the reciprocated trust tie would not be counted for

Person B to Person A. Prior research suggests that trust is inherently relational and often asymmetric (Mayer et al., 1995). Trust relationships may have important asymmetries that reflect status or power dynamics within organizations (Tasselli & Kilduff, 2021; McEvily et al., 2017) and can impact one's ability to access and leverage social capital in organizational networks (Burt & Burzynska, 2017; Levin & Cross, 2004). Thus, utilizing outgoing trust ties allows for a more precise measurement of an individual's "trustworthiness" as perceived by others.

All participants strategic formulation, implementation, and trust networks were compiled into symmetrized adjacency matrices—a file containing all organizational network members listed in the first row and again in the first column with 1s placed to denote connections between network members. An adjacency matrix was created for each network such that there were three total matrices per organization. Using the matrices, I assessed participants' personal network composition characteristics and calculated social network metrics of strategic conversation involvement: degree centrality (power), contact density (stability), and tie multiplexity (strength) for all strategy networks: formulation, implementation, and combined networks.

Personal Network Composition Variables

Gender. To identify participants' gender, I used the Human Resources data provided by each organization. All organizations recorded gender binarily. I thus coded gender as 0 is men, 1 is women.

Proportion of men contacts. I calculated the proportion of men contacts by cross-referencing the gender data given by the organizations' HR departments and participants' contacts in both the strategic formulation and implementation networks. I recorded the number of unique men contacts each participant had within the strategic formulation, implementation, and combined networks separately and divided them by the participant's' total number of contacts

within that network. For instance, for one participant, I took the total number of men contacts in their strategy formulation network and divided that by the total number of contacts in the formulation network. I repeated this for the implementation and combined strategy networks. Values ranged from 0 to 1 where scores closer to 1 indicate the participant has a higher proportion of men contacts.

Work group range. To determine the extent to which participants had contacts outside of their own work groups, a 'work group range' metric was calculated as the proportion of contacts in a strategy network that are not part of the focal participants' formal work groups. That is, based on formal work group membership information provided by the organizations' HR departments, I created an adjacency matrix of shared work group members (i.e., a "1" was marked if the two leaders shared a formal work group). Following, I then compared that work group matrix to each strategy network to determine how many connections the participant has that are *not* in the work group membership network. The number of connections outside of the participants' work group was then divided by the total connections within the corresponding strategy network. That is, I took the number of contacts outside of participants' work group for the strategy formulation network and divided it by the participants' total number of contacts in the strategy formulation network and repeated this for the implementation and combined networks. If participants were not part of any formal work groups (only 6 participants out of 673 were not a part of a formal work group), they received a 1. Values ranged from 0 (no contacts outside of their work groups) to 1 (all contacts outside of their work groups); higher scores indicate the participant had a larger work group range.

Proportion of cross-gender contacts. The proportion of cross-gender contacts was calculated by referencing the gender data given by each organizations' HR department and

participant's' contacts in the strategic formulation, implementation, and combined conversation networks. Taking into account a focal participant's gender, I recorded the number of cross-gender contacts (e.g., if the focal participant was a man, I recorded their number of women contacts) across all strategy networks. I then divided the number of cross-gender contacts by the focal participant's total number of contacts within the corresponding strategy network. Values again fall between 0 and 1 with higher scores indicating that a participant has more cross-gender contacts in their strategic conversation networks.

Strategic Conversation Network Positional Variables of Involvement

Power. To assess the extent to which individuals occupy positions of power within strategic conversation networks, I calculated participants' degree centrality in all strategy networks. Specifically, within each strategy network, I calculated degree centrality by taking an individuals' total number of connections and dividing that by the total number of possible connections within an organization (n-1). Values fall between 0 and 1 where scores closer to 1 indicate the participant is more central within their network. Such normalization allows for comparison across different organizations' networks, which also vary in size (Wasserman & Faust, 1994).

Stability. I calculated participants' contact density to create a metric of network stability. For each participant across all strategy networks, I identified their contacts and computed the proportion of actual connections between those contacts relative to the total possible—a measure of the extent to which a participants' *contacts* are well connected to each other. This density score was calculated using the formula $d = 2l/[n(n-1)]$, where l represents the number of observed ties between a participants' contacts and n represents the number of contacts. Density scores range from 0 to 1 with higher values indicating more stable networks.

Strength. To calculate network strength, I calculated participants' multiplexity scores by measuring the overlap between each strategic conversation network and the trust network. For each strategic conversation network, I counted the number of contacts that also existed as *outgoing* ties in the trust network, then divided this by the total number of contacts in the strategic conversation network. Note that the strategy networks were symmetric, while the trust network was asymmetric, only including outgoing ties. For example, if participant A had relationships with Person B and C in their strategy formulation network (2 contacts total), and Person B had an outgoing true tie to them in their trust network (1 overlapping tie), Person A's multiplexity score would be 1/2 = 0.50. I calculated these scores separately for the strategy formulation-trust, strategy implementation-trust, and strategy combined-trust network pairs. Scores ranged from 0 to 1 with higher scores indicating more overlap between the strategic conversation and trust networks.

Organizational Gender Composition of Leadership Variables

Proportion of women on TMT. To assess the proportion of women in each organizations' TMT, I referenced the gender and role data provided by each organization's HR department. Within each organization, for participants who were part of the TMT (the CEO was included as a TMT member), I determined each person's gender and then counted the number of women on the team. Then, I divided the number of women by the total number of people in the TMT. As an organization-level variable, each organization had a proportion of women in the TMT variable. Values fell between 0 and 1 with higher values indicating there were more women on the TMT.

Proportion of women in organizational leadership. Similar to how I calculated the proportion of women in the TMT, to calculate the proportion of women in organizational

leadership (i.e., the proportion of women middle and upper leadership positions), I referenced the gender data from each organization's HR department. I counted the number of women leaders and then divided that number by the total number of leaders in the organization. As the name suggests, the proportion of women in organizational leadership is an organization-level variable. Values ranged from 0 to 1 with higher scores indicating the organization had more women leaders.

Controls

In addition to the metrics described above, I also considered two control variables in the analyses: (1) leadership status and (2) team size. Leadership status was tested as a control variable for all three hypotheses; team size was only tested as a control variable for H2.

Leadership status was an HR data given variable that binarily showed whether a participant was a formal work group leader (value of 1) or not (value of 0). While the present study's sample is composed of middle managers and TMT members, some (e.g., "senior" middle managers) were formal work group leaders—leaders who led groups comprised of other organizational leaders. Given that leaders may have different network structures or decision-making authority (Brass, 1984; Carter et al., 2015), this variable accounted for potential differences in strategic conversation network positioning.

Team size was a variable to depict the proportion of organizational members who are work group members—it takes into account the size of participants' work groups. It was calculated by dividing the total number of unique work group members across all work groups an individual belongs to (excluding the focal individual) by the total number of leaders in the organization.

CHAPTER 4: RESULTS

Preliminary Analyses

Before conducting hypothesis and research question testing, I conducted preliminary analyses to evaluate the multilevel nature and structure of the data and determine statistical power to detect statistically significant effects.

Intraclass correlation coefficients (ICCs) were calculated using null models for each mediator and dependent variable to assess the proportion of variance attributable to differences between the organizations. See Table 3 for ICCs and design effects across all hypotheses and strategy networks. All ICC values showed substantial between organization differences. For the mediator variables, ICC values ranged from .111 (proportion of cross-gender contacts in H3, strategy formulation network) to .698 (proportion of men contacts in H1, combined strategy network). For the outcome variables, ICC values ranged from .168 (contact density in H2, strategy formulation network) to .489 (degree centrality in H1, strategy implementation network). Further, with the average organization size of approximately 52 employees per organization, substantial design effects ranged from 6.64 to 36.44, far exceeding the conventional threshold of 2.0 (Muthén & Satorra, 1995). These findings strongly supported the decision to account for organizational clustering in the analytical approach as ICC values as low at .05 can be preliminary evidence of a group effect (LeBreton & Senter, 2008). Without accounting for organizational grouping, the standard errors would be considerably underestimated (Kish, 1965).

Table 3
Intraclass correlation coefficients and design effects

	Strategy Network		
	SF	SI	SC
H1: Gender → Proportion of Men Contacts → Degree Centrality			
Mediator Model	.606 (31.77)	.661 (34.56)	.698 (36.44)
Outcome model	.461 (24.40	.489 (25.83	.484 (25.57)
H2: Gender → Work Group Range → Contact Density			
Mediator Model	.389 (20.75)	.407 (21.66)	.441 (23.39)
Outcome model	.168 (9.53)	.235 (12.93)	.282 (15.32)
H3: Gender → Proportion of Cross-Gender Contacts → Multiplexity			
Mediator Model	.111 (6.64)	.118 (6.99)	.116 (6.89)
Outcome model	.397 (21.16)	.375 (20.04)	.396 (21.10)

Note. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy network. ICC(1) values are depicted with design effects in parentheses. $N = 673$ participants across 13 organizations. Average organization size is approximately 52 leaders, ranging from 13 to 159.

Following, I conducted preliminary diagnostic analyses. First, I assessed the level of missingness across all variables used in my hypothesis and research question testing. No missing data was found. All participants completed the social network survey. Additionally, by utilized symmetrized strategy networks, analyses incorporated both the connections initiated by participants (outgoing connections) and the connections received by participants (incoming connections) in personal network composition characteristic calculations and strategic conversation network positional characteristics.

Then, I conducted Shapiro-Wilk tests, which showed all variables were significantly non-normal at both individual and organizational levels (p-values <.001). The individual level

variables included all mediators, outcomes, and control variables across strategy formulation, implementation, and combined networks. The organization level variables were my moderators in RQ1: the proportion of women in organization leadership and only on the TMT.

Breusch-Pagan tests indicated heteroscedasticity in a majority of the models. For H1 examining the proportion of men contacts as a mediator of gender's effect on degree centrality, heteroscedasticity was present in all mediator (formulation network: $\chi^2 = 10.43$, $p = .001$; implementation $\chi^2 = 21.82$, $p < .001$; combined $\chi^2 = 14.11$, $p < .001$) and outcome models (formulation $\chi^2 = 42.63$, $p < .001$; implementation $\chi^2 = 17.83$, $p < .001$; combined $\chi^2 = 22.40$, $p < .001$) for all strategy networks. For H2 examining network range as a mediator of gender's effect on contact density, heteroscedasticity was present in all mediator models (formulation network: $\chi^2 = 4.01$, $p = .045$; implementation $\chi^2 = 4.90$, $p = .027$; combined $\chi^2 = 5.83$, $p = .016$) and the outcome model for strategy formulation ($\chi^2 = 12.49$, $p = .002$), but homoscedasticity in outcome models for strategy implementation and combined networks ($p > .10$). H3, which examined the proportion of cross-gender contacts as a mediator of gender's effect on multiplexity showed heteroscedasticity in all mediator models for all strategy networks (formulation $\chi^2 = 10.43$, $p = .001$; implementation $\chi^2 = 21.82$, $p < .001$; combined $\chi^2 = 14.11$, $p < .001$), yet homoscedasticity in all outcome models ($p > .10$). For my research question, Breusch-Pagan tests showed significant heteroscedasticities ($p < .01$) for all moderated mediation models in all strategy networks with both moderators.

Given the data's violations of traditional multilevel modeling assumptions, I employed a fixed effects with cluster-robust standard errors analysis strategy. This approach included organizational membership as a series of dummy variables (k-1 = 12 dummy variables) to account for all stable between-organization differences, while using cluster-robust standard

errors (CR2 type) to address within-organization error correlation. The approach evaluated within-organization relationships while taking into account the organizational context.

Following, I conducted Monte Carlo simulations to determine the statistical power for the multilevel mediation (H1-H3) and moderated mediation (RQ1) for all networks using such organizational fixed effects and cluster-robust standard errors analytic approach. I conducted the simulation (1,000 iterations) to assess statistical power to detect effects for the hypothesized and exploratory relationships. I used standardized path coefficients of .15 for the power analyses, which is aligned with effect sizes found in previous gender and organizational network research—small to moderate sized effects (Brands & Mehra, 2019; Kleinbaum et al., 2013). The simulations incorporated the observed data structure of 673 employees nested within 13 organizations (average cluster size = 52) and the ICC values previously calculated. The results showed high statistical power (≥ .85) for simple mediation across all hypotheses and strategy network. For H1, power was .94 for formulation, .93 for implementation, and .93 for combined strategy networks. For H2, power was .87 for formulation, .87 for implementation, and .90 for combined strategy networks. Lastly, for H3, power was .87 for formulation, .85 for implementation, and .85 for combined strategy networks.

For moderated mediation analyses (RQ1), results were more variable. For H1, joint power was moderate (.67-.71), with first-stage moderation power ranging from .80-.91 and second-stage moderation power from .78-.85. H2 showed lower joint power (.55-.56) with first-stage power from .63-.66 and higher second-stage power (.85-.87). H3 had the lowest moderated mediation joint power (.46-.49), with first-stage power at (.48-.50), yet high second-stage moderation power (.98-.99).

The power analyses indicated sufficient statistical power to detect the hypothesized mediation effects, with varying but generally adequate power for detecting moderated mediation effects, particularly in second stage moderated mediation.

Overall, preliminary analyses suggest a strong grouping effect by organizations combined with a data structure supporting the analytic approach of organizational fixed effects and need for robust estimation methods with the cluster-robust standard errors. Yet, caution is warranted given the lower power to detect first stage and joint moderated mediation effects for some hypotheses and strategy networks.

Descriptives & Correlations

The final sample of participants consisted of 673 middle managers and TMT members (42.1% were women) nested within 13 organizations with an average organization size of 52 leaders. See Table 2 for organizational sample sizes, role, and gender demographics.

Due to non-normality across variables (Shapiro-Wilk tests) and heteroscedasticity (Breusch-Pagan tests) in many of the models, I used Spearman's rank correlations, which provide more robust estimates for non-normal data (Bishara & Hittner, 2012; de Winter et al., 2016). To examine the correlation between gender, participants' network composition characteristics (mediators), and strategy network positional characteristics (outcome variables), I conducted Spearman's rank correlations at the individual and organization levels of analysis. See Tables 4-6 for individual level correlations; See Tables 7-9 for organizational level correlations.

At the individual level, all continuous variables—all variables besides gender and leadership status—were group mean centered to the organization. Generally, the same variables across strategy formulation, implementation, and combined networks (denoted as SF, SI, and SC, respectively in the correlation tables) were strongly correlated with each other. For instance, the

correlation between formulation and implementation multiplexity is ρ = .80, $p < .001$; the correlation between implementation and combined multiplexity is ρ = .94, $p < .001$; and the correlation between formulation and combined multiplexity is ρ = .89, $p < .001$.

For H1, results demonstrate that women had a significantly lower proportion of men contacts than their men counterparts across all strategic conversation networks (formulation ρ = -.25, $p <.001$; implementation ρ = -.17, $p <.001$; combined ρ = -.19, $p <.001$). The proportion of men contacts, however, was not significantly related to degree centrality for strategy formulation (ρ = -.04, $p = .327$) or combined conversations (ρ = -.06, $p =.097$), but was significant for implementation conversations (ρ = -.08, $p = .037$). The direction of the correlations suggests that having fewer men contacts is related to higher degree centrality, albeit such interpretation should be taken with caution since the correlations are low and most are nonsignificant.

For H2, gender was not significantly associated with work group range for any of the strategy networks (formulation ρ = -.01, $p = .744$; implementation ρ = -.02, $p = .602$; combined ρ = -.01, $p = .722$). Work group range was significantly and negatively related to contact density for all strategy conversations (formulation ρ = -.26, $p < .001$; implementation ρ =-.26, $p < .001$; combined ρ = -.24, $p < .001$). The work group range correlation with contact density is in the expected direction—increased work group range is related to lower contact density.

For H3, results showed that gender was significantly and positively related to the proportion of cross-gender contacts for all strategy conversations (formulation ρ = .30, $p < .001$; implementation ρ = .26, $p <.001$; combined ρ = .27, $p <.001$. Women tend to have more cross-gender contacts than men as expected. Yet, the proportion of cross-gender contacts was not significantly related to multiplexity. The correlations would suggest no or a negligible

relationship (formulation ρ = .00, p = .989; implementation ρ = .00, p = .929; combined ρ = -.02, p = .612).

Additionally, correlation results suggest that while gender was not significantly related to leadership status (ρ = -.05, p = .178), leadership status was positively and significantly related to degree centrality for all strategy conversations (formulation ρ = .34, p < .001; implementation ρ = .30, p < .001; combined ρ = .28, p < .001). Leaders tend to have higher degree centrality than non-leaders. Leaders also tended to have multiplex relationships (formulation ρ = -.14, p < .001; implementation ρ = .13, p < .001; combined ρ = .14, p < . 001). However, leaders contrarily have lower work group range (formulation ρ = -.19, p < .001; implementation, ρ = -.20, p < .001; combined ρ = -.21, p < .001) and lower contact density (formulation ρ = -.13, p < .001; implementation ρ = -.16, p < .001; combined ρ = -.15, p < .001). Leadership status was not significantly related to the proportion of men contacts or proportion of cross-gender contacts for any strategy network.

Team size showed similar pattern of correlation results as leadership status. While not related to the proportion of men contacts or cross-gender contacts (all p > .05), it was positively and significantly related to degree centrality (formulation ρ = .32, p < . 001; implementation ρ = .31, p < .001; combined ρ = .31, p < .001) and multiplexity (formulation ρ = .16, p < .001; implementation ρ = .13, p < .001; combined ρ = .12, p < .001). Team size was also negatively and significantly related to work group range, but with stronger correlations than leadership status (formulation ρ = -.59, p < .001; implementation ρ = -.65, p < .001; combined ρ = -.68, p < .001). Team size was also significantly related to contact density for strategy implementation (ρ = -.11, p < .01) and combined networks (ρ = -.10, p < .01), but not for formulation conversations (ρ = -.05, p = .200).

At the organization level, I used the proportion of women in each (1) organization and (2) TMT rather than raw counts to account for varying organizational sizes (ranging from 13 to 159 members), to facilitate comparability across organizations, and to show relationships among my moderators (RQ1). Besides the proportion of women in each organization and TMT, variables depict organizational averages of raw scores. Because the present study's sample is of organizational leaders, gender aggregated to the organizational level is the proportion of women in organizational leadership.

Results demonstrate a strong, significant, and negative relationship between the proportion of women in organizational leadership and the proportion of men contacts across all strategy conversation networks (formulation $\rho = -.98$, $p < .001$; implementation $\rho = -.99$, $p < .001$; combined $\rho = -1.00$, $p < .001$). While I found a perfect spearman rank correlation coefficient between the proportion of women in organizational leadership and proportion of men contacts in the combined strategy network, such finding is a result of the two variables maintaining an identical rank ordering across the 13 organizations, despite not having the exact same relationship. However, even the Pearson correlation was also very strong ($r = -.99$, $p < .001$). Such correlation patterns suggest that leaders' strategy network activity is highly influenced by the existing gender population of the organization. The proportion of women in the TMT was also negatively related to the proportion of men across all strategic conversation networks (formulation $\rho = -.83$, $p < .001$; implementation $\rho = -.87$, $p < .001$, combined $\rho = -.84$, $p < .001$).

Conceptually, the proportion of women in organizational leadership and on the TMT with the proportion of men contacts are inversely related and suggest that the organizational gender composition creates powerful constraints on strategy networks with the gender composition of

participants' networks closely mirroring the available pool of potential contacts within their organizations. The proportion of women in organizational leadership and on the TMT were not significantly related to other hypothesized variables: degree centrality (H1), work group range or contact density (H2), proportion of cross-gender contacts or multiplexity (H3) across all strategy networks.

Table 4
Individual-level means, standard deviations, and Spearman's rank correlations for strategy formulation networks

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Gender	.10	.37								
2. Leadership status	.18	.37	-.28							
3. Team size %	.15	.43	-.12	.67*						
4. SF % men	.08	.38	-.59	.03	.02					
5. SF degree centrality	.14	.42	-.28	.52	.37	-.17				
6. SF range	-.01	.43	-.01	-.42	-.81**	-.18	.17			
7. SF contact density	.01	.42	-.05	-.33	-.12	.32	-.86**	-.39		
8. SF % x-gender	.11	.37	.53	-.14	-.05	-.67*	-.03	.03	-.24	
9. SF multiplexity	.16	.33	-.01	.15	.26	.07	.00	-.37	.03	-.15

Note. $N = 673$ participants across 13 organizations. SF indicates combined strategic conversation network. % signals depict proportions. Team size % is team size. % men is proportion of men contacts. % x-gender is the proportion of cross-gender contacts. *M* and *SD* are used to represent raw means and raw standard deviations, respectively. For the correlations, all variables besides gender were group mean centered with each organization. Gender was coded such that 0 is men, 1 is women. * indicates $p < .05$. ** indicates $p < .01$

Table 5
Individual-level means, standard deviations, and Spearman's rank correlations for strategy implementation networks

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Gender	.11	.35								
2. Leadership status	.17	.37	-.27							
3. Team size %	.12	.44	-.09	.68*						
4. SI % men	.09	.36	-.47	-.02	-.07					
5. SI degree centrality	.12	.44	-.18	.47	.35	-.27				
6. SI range	-.02	.45	-.03	-.42	-.81**	-.14	.22			
7. SI contact density	-.00	.44	-.00	-.37	-.20	.30	-.94**	-.36		
8. SI % x-gender	.12	.35	.44	-.14	-.03	-.52	-.00	.01	-.17	
9. SI multiplexity	.15	.33	-.04	.10	.20	.08	-.16	-.36	.20	-.18

Note. $N = 673$ participants across 13 organizations. SI indicates combined strategic conversation network. % signals depict proportions. Team size % is team size. % men is proportion of men contacts. % x-gender is the proportion of cross-gender contacts. *M* and *SD* are used to represent raw means and raw standard deviations, respectively. For the correlations, all variables besides gender were group mean centered with each organization. Gender was coded such that 0 is men, 1 is women. * indicates $p < .05$. ** indicates $p < .01$

Table 6
Individual-level means, standard deviations, and Spearman's rank correlations for combined strategy networks

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Gender	.11	.35								
2. Leadership Status	.17	.37	-.27							
3. Team size %	.13	.45	-.10	.67*						
4. SC % men	.08	.37	-.50	.02	.00					
5. SC degree centrality	.12	.43	-.20	.44	.35	-.23				
6. SC range	-.02	.45	-.00	-.45	-.84**	-.19	.18			
7. SC contact density	.00	.44	-.01	-.35	-.18	.31	-.93**	-.33		
8. SC % x-gender	.11	.36	.46	-.12	-.01	-.62	.02	.00	-.20	
9. SI Multiplexity	.16	.32	-.04	.12	.18	.09	-.06	-.29	.13	-.21

Note. $N = 673$ participants across 13 organizations. SC indicates combined strategic conversation network. % signals depict proportions. Team size % is team size. % men is proportion of men contacts. % x-gender is the proportion of cross-gender contacts. *M* and *SD* are used to represent raw means and raw standard deviations, respectively. For the correlations, all variables besides gender were group mean centered with each organization. Gender was coded such that 0 is men, 1 is women. * indicates $p < .05$. ** indicates $p < .01$

Table 7
Organization-level means, standard deviations, and Spearman's rank correlations for strategic formulation networks

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. % women leaders	.21	.58									
2. % women TMT	.17	.54	.97**								
3. Leadership status	.31	.46	.31	.17							
4. Team size %	.35	.56	.73*	.66*	.80**						
5. SF % of men	-.18	.56	-.99**	-.98**	-.22	-.67*					
6. SF degree centrality	.38	.42	.63*	.49	.68*	.80**	-.60				
7. SF range	-.24	.53	-.62	-.56	-.83**	-.98**	.55	-.69*			
8. SF contact density	.39	.42	.39	.24	.83**	.75*	-.34	.92**	-.69*		
9. SF % of x-gender	.32	.41	.51	.35	.83**	.72*	-.45	.78**	-.66*	.83**	
10. SF multiplexity	.27	.44	.27	.18	.71*	.77**	-.20	.73*	-.80**	.79**	.47

Note. $N = 673$ participants across 13 organizations. SF indicates combined strategy conversation network. % signals depict proportions. Team size % is team size. % men is proportion of men contacts. % x-gender is the proportion of cross-gender contacts. All variables depict organizational averages of raw scores besides the proportion of women in each organization and TMT, which are grand mean centered. *M* and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Table 8
Organization-level means, standard deviations, and Spearman's rank correlations for strategic implementation networks

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. % women leaders	.22	.59									
2. % women TMT	.17	.56	.98**								
3. Leadership status	.29	.43	.36	.24							
4. Team size %	.34	.57	.78**	.73*	.81**						
5. SI % of men	-.18	.58	-1.0**	-.99**	-.28	-.73*					
6. SI degree centrality	.42	.46	.70*	.58	.75*	.86**	-.64*				
7. SI range	-.20	.56	-.76*	-.73*	-.76*	-.98**	.72*	-.78**			
8. SI contact density	.40	.44	.56	.42	.76*	.79**	-.49	.97**	-.71*		
9. SI % of x-gender	.27	.31	.08	-.02	.46	.26	-.04	.43	-.06	.42	
10. SI multiplexity	.31	.46	.60	.51	.65*	.81**	-.54	.90**	-.80**	.92**	.09

Note. $N = 673$ participants across 13 organizations. SI indicates combined strategy conversation network. % signals depict proportions. Team size % is team size. % men is proportion of men contacts. % x-gender is the proportion of cross-gender contacts. All variables depict organizational averages of raw scores besides the proportion of women in each organization and TMT, which are grand mean centered. *M* and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Table 9
Organization-level means, standard deviations, and Spearman's rank correlations for combined strategic networks

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. % women leaders	.22	.60									
2. % women TMT	.17	.56	.98**								
3. Leadership status	.30	.45	.43	.31							
4. Team size %	.34	.58	.80**	.75*	.83**						
5. SC % of men	-.22	.60	-1.0**	-.98**	-.43	-.80**					
6. SC degree centrality	.41	.46	.70*	.56	.75*	.81**	-.70				
7. SC range	-.20	.57	-.80**	-.77**	-.76*	-.98**	.80*	-.69*			
8. SC contact density	.43	.49	.73*	.61	.82**	.88**	-.73	.98**	-.79**		
9. SC % of x-gender	.31	.34	.39	.25	.63	.53	-.39	.76*	-.35	.67*	
10. SC multiplexity	.30	.43	.44	.35	.76*	.79**	-.44	.80**	-.74*	.84**	.43

Note. $N = 673$ participants across 13 organizations. SC indicates combined strategy conversation network. % signals depict proportions. Team size % is team size. % men is proportion of men contacts. % x-gender is the proportion of cross-gender contacts. All variables depict organizational averages of raw scores besides the proportion of women in each organization and TMT, which are grand mean centered. *M* and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Hypothesis Testing

To test my hypotheses, I conducted a series of mediation analyses for each strategy network using fixed effects models, whereby I created a set of organization dummy variables to account for the nested nature of the data, along with cluster-robust standard errors (CR2 type). For each hypothesis I used bootstrap resampling procedures with 5,000 resamples to test the significance of indirect effects. All mediators and dependent variables were group mean-centered. To run the analyses, I used Rstudio sandwich and clubSandwich packages for cluster-robust standard errors, the boot package for bootstrapping and to test indirect effects, and the lmtest package for coefficient testing with fixed effects models. See Table 10 for the raw means and standard deviations for variables used in the hypothesis testing separated for each gender. See Table 11, 12, and 13 for the hypothesis testing results with and without controls. Figure 2 shows the hypothesized results on my theoretical model.

Hypothesis 1a proposed that women would have a lower proportion of men contacts compared to men. H1b proposed that proportion of men contacts would mediate the relationship between gender and degree centrality such that a higher proportion of men contacts would be associated with higher degree centrality. Results demonstrated that women had a significantly lower proportion of men contacts than men across the strategy formulation (b = -.205, SE = .038, p <.001), implementation (b = -.187, SE = .038, p <.001), and combined conversation networks (b = -.188, SE = 0.37, p < .001). Hypothesis 1a was supported. As shown in the total effect of gender on degree centrality, women had significantly lower degree centrality across all strategy networks without controls (formulation b = -.044, SE = .014, p = .002; implementation b = -.026, SE = .012, p = .027; combined b = -.031, SE = .011, p = .005) and with controls (formulation b =

-.035, *SE* = .011, *p* = .002; implementation *b* = -.017, *SE* = .008, *p* = .046; combined *b* = -.021, *SE* = .009, *p* = .012).

However, contrary to my expectations, the proportion of men contacts was significantly and *negatively* related to degree centrality for all strategy networks (formulation *b* = -.242, *SE* = .073, *p* <.001; implementation *b* = -.272, *SE* = .095, *p* = .004; combined *b* = -.329, *SE* = .101, *p* = .001). The indirect effect was significant (formulation *b* = .050, 95% CI [.035, .066]; implementation *b* = .051, 95% CI [.036, .067]; combined *b* = .062, 95% CI [.046, .080]). The H1a and H1b results also held when considering leadership status as a control variable. Thus, while H1a was supported, H1b was not supported. Rather, the opposite of H1b was found in that women might have a higher degree centrality than men due to their lower proportion of men contacts.

In addition to the simple mediation analyses for H1a-b, I also conducted a simple moderation to test H1c, which proposed that the proportion of men contacts is more strongly positively associated with degree centrality for women leaders than for men leaders. For strategy formulation conversations, gender moderated the relationship between proportion of men contacts and degree centrality (*b* = .143, *SE* = .059, *t*(769) = 2.40, *p* = .017). The main effect of proportion men contacts was marginally significant for men (*b* = -.115, *SE* = .069, *t*(769) = -1.66, *p* = .098). With controls added, the interaction remained significant (*b* = .095, *SE* = .045, *t*(768) = 2.10, *p* = .036), and the model fit improved substantially (from R^2 = .031 to .187, adjusted R^2 = .009 to .167). For Strategy implementation networks, the interaction effect was marginally significant (*b* = .172, *SE* = .088, *t*(769) = 1.95, *p* = .051), with the main effect for men being marginally significant (*b* = -.168, *SE* = .098, *t*(769) = -1.71, *p* = .088). With controls, the interaction remained marginally significant (*b* = .141, *SE* = .083, *t*(768) = 1.70, *p* = .090) and R^2

values increased (R^2 = .018 to .141, adjusted R^2 = -.004 to .120). For the combined network, the interaction was significant (b = .213, SE = .090, t(769) = 2.37, p = .018), and remained significant with controls (b = .157, SE = .066, t(768) = 2.37, p = .018), again with an improvement in R^2 = .020 to .141, adjusted R^2 = -.002 to .120).

Simple slope analyses using control variables showed that the relationship between proportion of men contacts and degree centrality was significantly negative for men (formulation b = -.105, SE = .042, t(656) = -2.51, p = .012; implementation b = -.159, SE = .056, t(656) = -2.84, p = .005; combined b = -.163, SE = .060, t(656) = -2.71, p = .007). However, the relationship was non-significant with much smaller, but less negative effects for women (formulation b = -.010, SE = .048, t(656) = -0.21, p = .831; implementation b = -.018, SE = .057, t(656) = -0.31, p = .754; combined b= -.006, SE = .068, t(656) = -0.09, p = .927). Therefore, H1c was partially supported in that proportion of men contacts was relatively more 'beneficial' (i.e., less negative) for women as compared to men. In other words, for men, having *more* men contacts was associated with *lower* network centrality, whereas for women, the proportion of men contacts was not significantly associated with degree centrality.

Hypothesis 2a proposed that women would have a higher work group range than their men counterparts. H2b then proposed that women would have lower contact density due to their increased work group range. While no significant total effects were found between gender and contact density for any strategy network with or without controls, contrary to expectations, women had *lower* work group range (i.e., less 'boundary spanning') than men for all strategic conversation networks (formulation b = -.068, SE = .033, p = .039; implementation b = -.072, SE = .030, p = .015; combined b = -.063, SE = .029, p = .030). H2a was significant in models

without control variables. However, when including both leadership status and team size, the relationships became non-significant.

Further, the indirect effect results showed that the relationship between gender and contact density was significantly mediated by work group range—albeit only for models without controls. H2b was significant for the strategic formulation (b = .013, 95% CI [.005, .022]), implementation (b = .018, 95% CI [.009, .029]), and combined networks (b = .014, 95% CI [.007, .023]) sans controls. Results suggest that women have higher contact density because of a lower work group range, specifically in models without controls. Thus, H2b was not supported.

Hypothesis 3a proposed that women would have a higher proportion of cross-gender contacts compared to men. H3b then proposed that women would have lower multiplexity because of the higher proportion of cross-gender contacts. Results do not support H3a—women do not significantly have more cross-gender contacts in the strategy formulation (b = .192, SE = .103, p = .062), implementation (b = .162, SE = .104, p = .118), or combined networks (b = .166, SE = .107, p = .120). Results also hold when including leadership status as a control. The proportion of cross-gender contacts was also not significantly related to multiplexity in any network with or without controls.

The indirect effect of gender on multiplexity through the proportion of cross-gender contacts was not significant for any of the strategy networks with or without controls. Notably, the total effect of gender on multiplexity suggests that women have slightly higher multiplexity than men in almost all strategy networks without controls (formulation b = .038, SE = .016, p = .018; combined b = .032, SE = .015, p = .030) except for the implementation network (b = .026, SE = .016, p = .095), which is only marginally significant. When including controls, I found similar results with all networks (formulation b = .046, SE = .019, p = .018; combined b = .040,

SE = .017, *p* = .020) except for the implementation network being marginally significant (*b* = .034, *SE* = .018, *p* = .063). The total effects suggest that women may have *more* multiplex relationships in some strategy networks independent of their proportion of cross-gender contacts. H3b was not supported.

All hypotheses were conducted via separate regression analyses. However, I also tried to run a path analysis to simultaneously test all three hypotheses within each strategy network. Specifically, for each strategy network (formulation, implementation, and combined), I specified a model using the lavaan package in Rstudio with paths from gender to all three mediators (proportion of men contacts, work group range, and proportion of cross-gender contacts) which each had paths to all three outcomes (network degree, contact density, and multiplexity). The model also allowed the mediators to correlate with each other. All mediators and dependent variables were group mean centered. To account for the nested data structure (673 individuals within 13 organizations), I used robust maximum likelihood estimation (MLR) with cluster-robust standard errors, and the organization as the clustering variable. I also tested two versions of each model, one without the controls and one with the controls (i.e., leadership status for H1-H3, and including team size for only H2).

However, all path analyses for all strategy networks failed to converge. I received errors stating that the matrix was not positive definite. I ran the models again using different estimators: maximum likelihood (ML) and maximum likelihood with mean-adjusted chi-square (MLM), yet all models continued to fail to converge. Only the diagonally weighted least squares (DWLS) estimator converged; however, the model only converged for the strategy implementation and combined networks and fit statistics showed very poor fit (implementation χ^2 (13) = 8045.69, p <

.001, CFI = 0.00, TLI = -34.95, RMSEA = .96, SRMR = .51; combined χ^2 (13) = 8037.07, p < .001, CFI = 0.00, TLI = -31.30, RMSEA = .96, SRMR = .51).

Following, I tried running a more parsimonious path analysis model with just H1 and H2 variables and relationships (excluding H3). Because the proportion of men contacts is mathematically the same as the proportion of cross-gender contacts for women, I wanted to see if the variables used in H3 were hindering convergence. However, the models continued to not converge under multiple estimators (MLR, ML, MLM), indicating that the issues were not solely related to particular variables or relationships in H3. Results using DWLS converged, but again, showed very poor model fit (formulation $\chi^2(8) = 7321.24$, p < .001, CFI = 0.00, TLI = -44.15, RMSEA = 1.17, SRMR = 0.59; implementation $\chi^2(8) = 7293.07$, p < .001, CFI = 0.00, TLI = -35.2, RMSEA = 1.16, SRMR = 0.584; combined $\chi^2(8) = 7306.99$, p < .001, CFI = 0.00, TLI = -32.1, RMSEA = 1.165, SRMR = 0.58).

The lack of path analysis convergence is likely due to several reasons. For one, the persistent non-convergence across various estimation approaches suggests issues with model identification, not just estimation difficulties. Additionally, the data structure likely impeded convergence. All variables are significantly non-normal (Shapiro-Wilk tests), and ICC values showed substantial between organization differences for all mediators and dependent variables used to test H1- H3 (See Table 2). Breusch-Pagan tests also showed significant heteroscedasticity for some mediator models and outcome models. The combination of non-normality, heteroscedasticity, and strong clustering effects likely destabilized estimation for the complex path models. Plus, with only 13 organizational clusters and highly variable cluster sizes (ranging from 13 to 159 leaders, *M* = 52), the between-organization variance components were likely estimated with insufficient precision.

Diagnostic analyses also revealed several problematic patterns suggestive of non-convergence. The covariance matrices across all three strategy networks showed condition numbers ranging from 22.80 to 36.38, exceeding recommended thresholds for stable estimation (Belsley et al., 1980). While these matrices were positive definite, the high condition numbers indicated numerical instability that likely contributed to model non-convergence. Given these convergence failures, I focused on results of the H1-H3 utilizing separate regression analyses for each strategy network. The separate analyses approach provided more stable and reliable estimates that still accounted for the nested data structure.

Table 10
Means and standard deviations grouped for women and men

	Strategy Network					
	SF		SI		SC	
	Women	Men	Women	Men	Women	Men
H1: Gender → Proportion of Men Contacts → Degree Centrality						
Proportion of men contacts	.49 (.24)	.70 (.21)	.49 (.24)	.67 (.19)	.49 (.23)	.68 (.19)
Degree centrality	.28 (.17)	.27 (.19)	.33 (.20)	.30 (.21)	.38 (.21)	.35 (.23)
H2: Gender → Work Group Range → Contact Density						
Work group range	.65 (.27)	.72 (.24)	.67 (.24)	.75 (.21)	.71 (.23)	.77 (.19)
Contact density	.56 (.18)	.54 (.17)	.59 (.17)	.57 (.17)	.62 (.15)	.60 (.15)
H3: Gender → Proportion of Cross-Gender Contacts → Multiplexity						
Proportion of cross-gender contacts	.49 (.24)	.30 (.21)	.49 (.24)	.33 (.19)	.49 (.23)	.32 (.19)
Multiplexity	.55 (.27)	.50 (.27)	.53 (.27)	.48 (.26)	.50 (.25)	.45 (.25)

Note. Raw means and standard deviations grouped by gender are presented for all mediators and dependent variables used in hypothesis testing. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy networks.

Table 11
Mediation analysis of H1a and H1b results comparing models with and without controls

	SF		SI		SC	
	Without	Controls	Without	Controls	Without	Controls
H1: Gender → Proportion of Men Contacts → Degree Centrality						
Path a (Gender → Mediator)	-.205 (.038)***	-.206 (.038)***	-.187 (.038)***	-.188 (.038)***	-.188 (.037)***	-.189 (.037)***
Path b (Mediator → Outcome)	-.242 (.073)***	-.233 (.071)**	-.272 (.095)**	-.256 (.095)**	-.329 (.101)**	-.310 (.101)**
Direct Effect (Gender → Outcome, control for Mediator)	-.034 (.017)*	-.025 (.013)	-.015 (.015)	-.006 (.011)	-.025 (.014)	-.014 (.011)
Total Effect (Gender → Outcome)	-.044 (.014)**	-.035 (.011)**	-.026 (.012)*	-.017 (.008)*	-.031 (.011)**	-.021 (.009)*
Indirect Effect	.050 [.035, .066]*	.048 [.034, .063]*	.051 [.036, .067]*	.048 [.034, .063]*	.062 [.046, .080]*	.059 [.043, .076]*
Mediator Model R^2 (Adj. R^2)	.172 (.170)	.172 (.170)	.160 (.159)	.162 (.160)	.168 (.167)	.170 (.168)
Outcome Model R^2 (Adj. R^2)	.087 (.084)	.235 (.231)	.084 (.081)	.202 (.198)	.102 (.100)	.219 (.215)

Note. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy networks. Values are unstandardized coefficients with cluster-robust standard errors (CR2 type) in parentheses. For indirect effects, 95% confidence intervals from

bootstrapping (5,000 resamples) are shown in brackets. Gender is coded 0 = men, 1 = women. $N = 673$ individuals across 13 organizations. All mediators, dependent variables, and team size were group-mean centered within organizations for analysis. Control variables include leadership status (H1, H2, H3) and team member proportion (H2 only). * indicates 95% confidence interval did not include 0 for indirect effects or $p < .05$. ** indicates $p < .01$. *** indicates $p < .001$.

Table 12
Mediation analysis of H2a and H2b results comparing models with and without controls

	SF		SI		SC	
	Without	Controls	Without	Controls	Without	Controls
H2: Gender → Work Group Range → Contact Density						
Path a (Gender → Mediator)	-.068 (.033)*	-.015 (.018)	-.072 (.030)*	-.021 (.012)	-.063 (.029)*	-.014 (.011)
Path b (Mediator → Outcome)	-.190 (.073)**	-.189 (.094)*	-.248 (.078)**	-.281 (.090)**	-.223 (.093)*	-.235 (.111)*
Direct Effect (Gender → Outcome, control for Mediator)	.000 (.022)	-.006 (.023)	.005 (.021)	-.001 (.021)	.008 (.024)	.003 (.024)
Total Effect (Gender → Outcome)	-.015 (.021)	-.019 (.021)	-.010 (.020)	-.014 (.019)	-.009 (.023)	-.013 (.022)
Indirect Effect	.013 [.005, .022]*	.003 [-.003, .009]	.018 [.009, .029]*	.006 [-.001, .014]	.014 [.007, .023]*	.003 [-.002, .009]
Mediator Model R^2 (Adj. R^2)	.018 (.016)	.426 (.424)	.025 (.024)	.511 (.509)	.022 (.021)	.552 (.549)
Outcome Model R^2 (Adj. R^2)	.074 (.071)	.096 (.091)	.105 (.102)	.131 (.126)	.096 (.093)	.119 (.113)

Note. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy networks. Values are unstandardized coefficients with cluster-robust standard errors (CR2 type) in parentheses. For indirect effects, 95% confidence intervals from

bootstrapping (5,000 resamples) are shown in brackets. Gender is coded 0 = men, 1 = women. $N = 673$ individuals across 13 organizations. All mediators, dependent variables, and team size were group-mean centered within organizations for analysis. Control variables include leadership status (H1, H2, H3) and team member proportion (H2 only). * indicates 95% confidence interval did not include 0 for indirect effects or $p < .05$. ** indicates $p < .01$. *** indicates $p < .001$.

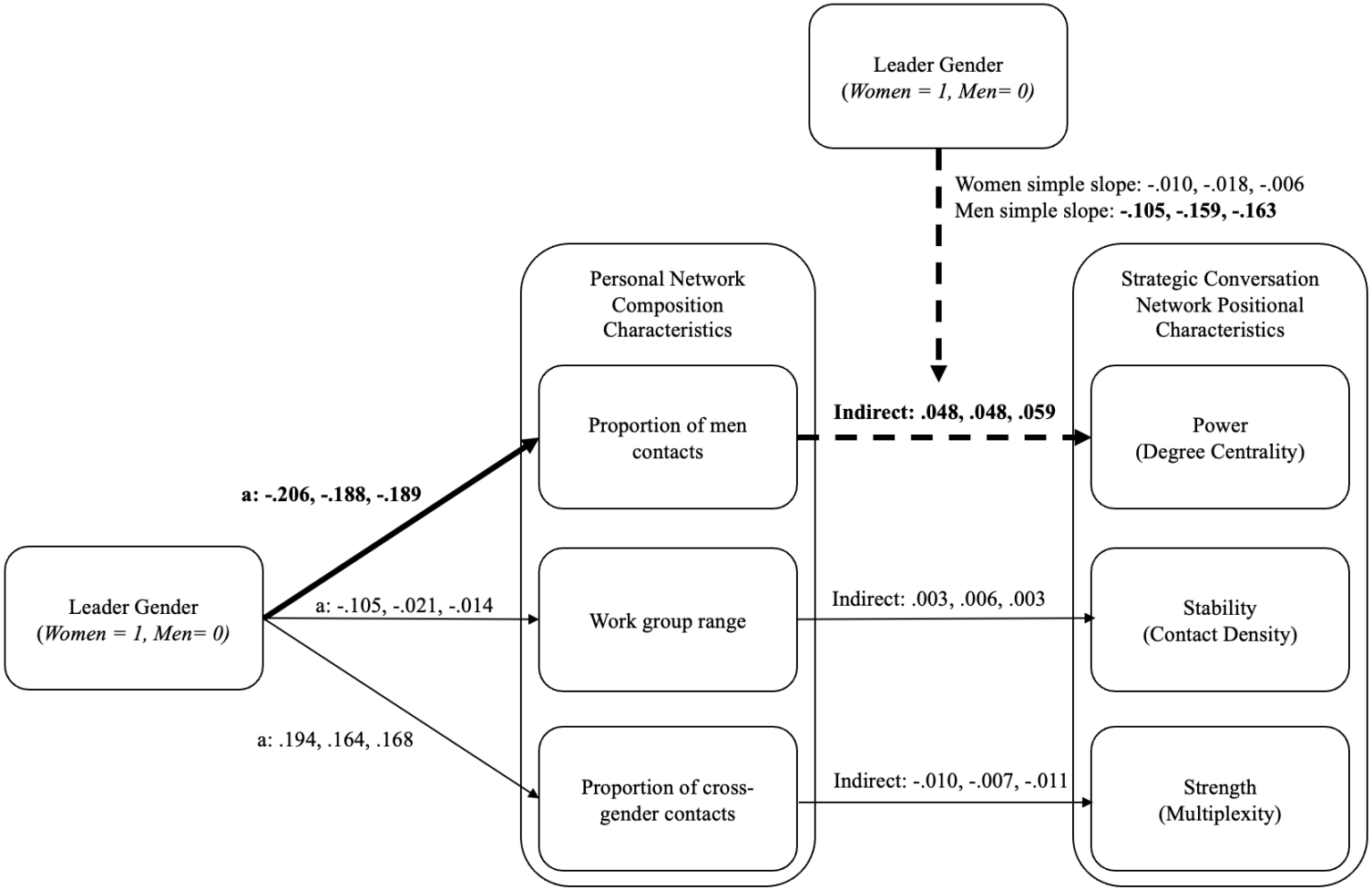
Table 13
Mediation analysis of H3a and H3b results comparing models with and without controls

	SF		SI		SC	
	Without	Controls	Without	Controls	Without	Controls
H3: Gender → Proportion of Cross-Gender Contacts → Multiplexity						
Path a (Gender → Mediator)	.192 (.103)	.194 (.101)	.162 (.104)	.164 (.103)	.166 (.107)	.168 (.106)
Path b (Mediator → Outcome)	-.025 (.065)	-.053 (.056)	-.022 (.109)	-.046 (.100)	-.036 (.081)	-.065 (.072)
Direct Effect (Gender → Outcome, control for Mediator)	.055 (.026)*	.067 (.028)*	.052 (.036)	.062 (.036)	.056 (.030)	.067 (.030)*
Total Effect (Gender → Outcome)	.038 (.016)*	.046 (.019)*	.026 (.016)	.034 (.018)	.032 (.015)*	.040 (.017)*
Indirect Effect	-.005 [-.023, .013]	-.010 [-.028, .008]	-.003 [-.020, .014]	-.007 [-.024, .009]	-.006 [-.022, .010]	-.011 [-.028, .004]
Mediator Model R^2 (Adj. R^2)	.153 (.152)	.161 (.158)	.126 (.124)	.131 (.129)	.136 (.135)	.144 (.141)
Outcome Model R^2 (Adj. R^2)	.009 (.006)	.066 (.062)	.008 (.005)	.064 (.060)	.011 (.008)	.071 (.067)

Note. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy networks. Values are unstandardized coefficients with cluster-robust standard errors (CR2 type) in parentheses. For indirect effects, 95% confidence intervals from

bootstrapping (5,000 resamples) are shown in brackets. Gender is coded 0 = men, 1 = women. $N = 673$ individuals across 13 organizations. All mediators, dependent variables, and team size were group-mean centered within organizations for analysis. Control variables include leadership status (H1, H2, H3) and team member proportion (H2 only). * indicates 95% confidence interval did not include 0 for indirect effects or $p < .05$. ** indicates $p < .01$. *** indicates $p < .001$.

Figure 2
Results of hypothesis testing on theoretical model



Note. The figure shows the unstandardized coefficients for the "a" path, indirect effects, and simple slope analyses for men and women—all with controls. The numbers are listed in the following order: formulation, implementation, then combined strategy

networks. Bolded coefficients indicate statistical significance at $p < .05$ or 95% confidence intervals for indirect effect exclude 0. Bold lines show statistical significance in expected direction; bold dashed lines show statistical significance contrary to hypothesis.

Research Question Testing

My research question explored whether organizational level network factors, specifically the gender composition of the organization and the TMT moderate my hypothesized relationships. To test my research question, I conducted a series of moderated mediation analyses for each hypothesized relationship with (1) the proportion of women in the organization and (2) on the TMT as moderators. As shown in my hypothesis testing, leadership status impacted strategy network positional characteristics for all three networks, and models including team size were similarly impacted. Therefore, for continuity, all my research question models included controls: leadership status for all models and team size just for models involving H2 variables (i.e., models with work group range and contact density).

Similar to my hypothesis testing, I used fixed effects models with a set of organization dummy variables to account for the nested nature of the data along with cluster-robust standard errors (CR2 type). For each research question test, I used bootstrapping resampling procedures with 5,000 resamples to test the significance of indirect effects. Following Hayes (2017), conditional indirect effects were analyzed at the 16th ('low'), 50th ('medium'), and 84th ('high') percentiles of the moderators. All mediators and dependent variables were group mean-centered; the level 2 moderators were grand mean centered. See Tables 14-16 and Figures 3 and 4 for all moderated mediation results.

Results when assessing the impact of the proportion of women in organizational leadership on the relationship between gender and degree centrality through the proportion of men contacts (H1) showed complex effects at different levels and stages across all three strategy networks. Specifically, results demonstrated significant first stage moderation effects when there are fewer women in organizational leadership (16th percentile) for strategy formulation (b = .007,

SE = .004, 95% CI [.001, .015]), implementation (*b* = .007, *SE* = .003, 95% CI [.001, .013], and combined networks (*b* = .007, *SE* = .003, 95% CI [.002, .015]). Results for the proportion of women in organizational leadership at the 50th percentile were also significant in the first stage moderated mediation for strategy formulation (*b* = .006, *SE* = .003, 95% CI [.001, .013]), implementation (*b* = .006, *SE* = .003, 95% CI [.001, .012]), and combined networks (*b* = .007, *SE* = .003, 95% CI [.001, .013]). Such results suggest that even when constrained with fewer women in an organization, women still tend to form more connections with women, fewer with men, while men continue to form more connections with other men.

Notably, the "a" path coefficients remained negative across all levels of women's representation in organizational leadership for all strategy networks. Moderator level specific "a" path coefficients ranged from -.099 (16th percentile) to -0.048 (84th percentile), decreasing as the level increased, suggesting that women have fewer men contacts than men regardless of organizational gender composition, but, the magnitude of such negative coefficients decreases as the proportion of women in leadership increases.

On the other hand, results of the second stage moderated mediation portray a different piece of the puzzle. A high proportion of women in organizational leadership (84th percentile) significantly moderated the second stage path from the proportion of men contacts to degree centrality for the strategy formulation (*b* = .015, *SE* = .006, 95% CI [.004, .026]), implementation (*b* = .013, *SE* = .005*,* 95% CI [.003, .024]), and combined networks (*b* = .015, *SE* = .006, 95% CI [.004, .029]). The significant second stage indirect effects suggest that when there are more women in organizational leadership positions, the relationship between proportion of men contacts and degree centrality weakens the "b" path negative effects ("b" path coefficients are -.173, -.198, and -.241 across the three strategy networks when the proportion of women leaders

is at the 84th percentile). In other words, when there are more women positioned in organizational leadership, women's degree centrality is higher because women have even fewer men contacts.

Following, I tested dual stage moderated mediation. Similar to the second stage moderated mediation, results showed that a high proportion of women in organizational leadership (84th percentile) significantly moderated the dual stage paths both from gender to the proportion of men contacts and the proportion of men contacts to degree centrality in the strategy formulation (b = .012, SE = .005, 95% CI [.003, .024]), implementation (b = .010, SE = .005, 95% CI [.002, .020]), and combined networks (b = .012, SE = .006, 95% CI [.002, .024]). Thus, the significant and positive indirect effects of the dual stage moderation indicated that the relationship between gender on degree centrality through the proportion of men contacts is stronger and more negative for women (compared to men) when organizations have more women leaders ("b" path coefficients again for the dual moderated mediation path are -.173, -.198, and -.241 across the three strategy networks when the proportion of women leaders is at the 84th percentile). That is, when there are more women in organizational leadership, women have a higher degree centrality because they have fewer men contacts.

Overall, the results of the moderated mediation for the proportion of women in organizational leadership suggest complex effects on the relationship between gender and degree centrality through participants' proportion of men contacts in their strategic conversation networks. The significant first stage moderated mediation effects suggest that even when the proportion of women in leadership positions is lower or at moderate levels, women tend to form fewer connections with men contacts than men do with men. However, these effects did not

carry over in the dual stage moderation. As shown in the power analysis results, I also generally did not have a lot of power to be able to reliably detect first stage moderated mediation results.

Results from the significant second stage moderated mediation effects suggest that a higher proportion of women in organizational leadership positions strengthens the negative relationship between proportion of men contacts and degree centrality. The dual stage findings further confirmed that in organizations with many women leaders, because women have fewer connections with men, they are more likely to have higher degree centrality than if they had more men contacts. Therefore, in considering the organizational context, particularly in the higher representation of women leaders, H1b was not supported, but rather the opposite. See Figure 3 for strategy network specific visuals on the effect of the proportion of women in organizational leadership for H1 (dual stage moderation).

Similar to the findings when considering the proportion of women in organizational leadership, the proportion of women on the TMT significantly moderated the relationship between gender and the proportion of men contacts (first stage) when there were an equal number of men and women (50th percentile) on the TMT for all strategy networks (formulation b = .005, SE = .003, 95% CI [.001, .011]; implementation b = .005, SE = .002, 95% CI [.001, .010]; and combined b = .006, SE = .003, 95% CI [.001, .011]). A significant indirect effect was also found when the proportion of women on the TMT was lower (16th percentile, first stage) for the implementation (b = .004, SE = .002, 95% CI [.001, .008] and combined networks (b = .005, SE = .002, 95% CI [.001, .010]), but only approaching significance for the formulation network as the confidence interval is very close to 0 (b = .005, SE = .002, 95% CI [.000, .010]). A significant indirect effect was also found when the proportion of women on the TMT was at 84th percentile for all strategy networks (formulation b =.007, SE = .004, 95% CI [.001, .015];

implementation b = .007, SE = .003, 95% CI [.002, .015], and combined networks (b = .008, SE = .004, 95% CI [.001, .016]). Such results align with the prior moderated mediation findings with positive indirect effects at the first stage, yet negative path coefficients between gender and proportion of men contacts (path a). The "a" path coefficients at different levels of the proportion of women on the TMT across all strategy networks were negative and increased as the levels increased, ranging from .049 (at 16th percentile) to .103 (at 84th percentile). Therefore, results suggest that even when there are more women, the relationship between gender and men contacts remains negative providing more evidence of gender homophily tendencies.

Further, there were some inconsistencies between the strategy formulation and implementation networks such that at higher levels of representation of women in the TMT (84th percentile) significantly moderated strategy formulation networks for the second (b = .008, SE = .004, 95% CI [.001, .015]) and dual stages (b = .010, SE = .005, 95% CI [.002, .020]), but not for the strategy implementation or combined networks. In looking at the different unstandardized coefficients for the "b" paths at different moderator levels, in formulation networks the b-path becomes increasingly negative as women's representation on the TMT increases (-.044 at 16th percentile to -.096 at 84th percentile). Thus, having men contacts more strongly reduced centrality when there were more women on the TMT. In contrast, for implementation networks, the "b" path became less negative, but not significant, with increasing women's representation on the TMT (-.095 at 16th percentile to -.079 at 84th percentile). Thus, for strategy formulation, higher proportions of women on the TMT strengthened the positive mediated effect; having fewer men contacts more strongly increased centrality when there were more women on the TMT.

Additionally, when women had around equal representation on the TMT (50th percentile), it dually moderated the mediated relationship for strategy implementation (b = .005, SE = .002, 95% CI [.001, .010]) and combined networks (b = .006, SE = .003, 95% CI [.001, .011]), but not for the strategy formulation one. Such findings suggest that reaching a moderate level of TMT representation is enough to significantly strengthen the mediated path for implementation and combined networks, but for formulation, women may need even higher representation to experience the same benefit—likely at higher levels, around 84th percentile as shown in the second stage moderated mediation results. In sum, for the implementation and combined networks, women had higher degree centrality from having fewer men contacts when women's TMT representation was moderate. The formulation network appears to be more sensitive to higher women representation before positive effects on degree centrality fully emerge. See Figure 4 for strategy network specific visuals on the effect of the proportion of women on TMT for H1.

Integrating the findings across the first, second, and dual stage moderated mediation models for the proportion of women on the TMT suggest that just like the proportion of women in organizational leadership, the proportion of women on the TMT impacts the relationship between gender and degree centrality through participants' proportion of men contacts in their strategic conversation networks. The significant first stage moderated mediation effects showed the influence of gender on the proportion of men contacts was present, albeit with small effects across all levels of women's representation on the TMT and becomes slightly stronger as their representation increases. These effects, however, in combination with limited power to detect first stage moderated mediation, the results should be interpreted with high caution.

Results from the significant second stage moderated mediation effects further suggest that the relationship between the proportion of men contacts and degree centrality is stronger at moderate to higher levels of women's representation on the TMT; having fewer men contacts led to higher degree centrality in such organizational gender composition contexts. Lastly, results of the dual stage moderated mediation further showed that when there are more women on the TMT, women tend to have fewer men contacts, and that such reduction led to increased degree centrality.

In addition to testing the impact of the proportion of women in organizational leadership and on the TMT for H1, I also tested the moderated mediation for H2 and H3. Results demonstrated the neither the proportion of women in organizational leadership nor the proportion of women on the TMT significantly moderated—in any stage: first, second, or dual—the hypothesized paths. All confidence intervals included 0 and all $p > .05$.

Table 14

Moderated mediation results for the relationship between gender and degree centrality through proportion of men contacts (H1) with controls

Strategy Network	Moderation Stage	Effect	Moderators	
			% women leaders	% women TMT
SF	First	Path a	-.083 (.013)***	-.083 (.013)***
		Path b	-.067 (.031)*	-.067 (.031)*
		Direct	-.040 (.011)***	-.040 (.011)***
		Indirect (16th)	.007 [.001, .015]	.005 [.000, .010]
		Indirect (50th)	.006 [.001, .013]*	.005 [.001, .011]*
		Indirect (84th)	.005 [.000, .010]	.007 [.001, .015]*
		Model R^2 (Adj. R^2)	Med: .060 (.037), Out: .216 (.197)	Med: .062 (.039), Out: .216 (.197)
	Second	Path a	-.083 (.013)***	-.083 (.013)***
		Path b	-.079 (.031)*	-.067 (.031)*
		Direct	-.040 (.011)***	-.041 (.011)***
		Indirect (16th)	-.002 [-.008, .006]	.004 [-.001, .011]
		Indirect (50th)	.003 [-.002, .008]	.005 [.000, .011]
		Indirect (84th)	.015 [.004, .026]**	.008 [.001, .015]*
		Model R^2 (Adj. R^2)	Med: .058 (.037) Out: .223 (.203)	Med: .058 (.037) Out: .217 (.197)
	Dual	Path a	-.083 (.013)***	-.083 (.013)***
		Path b	-.079 (.031)*	-.067 (.031)*
		Direct	-.040 (.011)***	-.041 (.011)***
		Indirect (16th)	-.002 [-.010, .007]	.003 [-.001, .009]
		Indirect (50th)	.003 [-.002, .009]	.005 [.000, .011]
		Indirect (84th)	.012 [.003, .024]*	.010 [.002, .020]*
		Model R^2 (Adj. R^2)	Med: .060 (.037), Out: .223 (.203)	Med: .062 (.039), Out: .217 (.197)

Table 14 (cont'd)
Moderated mediation results for the relationship between gender and degree centrality through proportion of men contacts (H1) with controls

Strategy Network	Moderation Stage	Effect	Moderators	
			% women leaders	% women TMT
SI	First	Path a	-.063 (.012)***	-.064 (.012)***
		Path b	-.088 (.038)*	-.088 (.038)*
		Direct	-.022 (.012)	-.022 (.012)
		Indirect (16th)	.007 [.001, .013]*	.004 [.001, .008]*
		Indirect (50th)	.006 [.001, .012]*	.005 [.001, .010]*
		Indirect (84th)	.004 [.001, .009]	.007 [.002, .015]*
		Model R^2	Med: .045 (.022)	Med: .048 (.024)
		(Adj. R^2)	Out: .165 (.144)	Out: .165 (.144)
	Second	Path a	-.063 (.012)***	-.063 (.012)***
		Path b	-.101 (.039)**	-.088 (.039)*
		Direct	-.022 (.012)	-.022 (.012)
		Indirect (16th)	-.000 [-.007, .006]	.006 [.000, .013]
		Indirect (50th)	.003 [-.001, .008]	.006 [.001, .011]*
		Indirect (84th)	.013 [.003, .024]*	.005 [-.001, .012]
		Model R^2	Med: .043 (.021)	Med: .043 (.021)
		(Adj. R^2)	Out: .169 (.148)	Out: .165 (.143)
	Dual	Path a	-.063 (.012)***	-.064 (.012)***
		Path b	-.101 (.039)**	-.088 (.039)*
		Direct	-.022 (.012)	-.022 (.012)
		Indirect (16th)	-.000 [-.009, .008]	.004 [.000, .010]
		Indirect (50th)	.004 [-.001, .009]	.005 [.001, .010]*
		Indirect (84th)	.010 [.002, .020]*	.007 [-.002, .015]
		Model R^2	Med: .045 (.022)	Med: .048 (.024)
		(Adj. R^2)	Out: .169 (.148)	Out: .165 (.143)

Table 14 (cont'd)
Moderated mediation results for the relationship between gender and degree centrality through proportion of men contacts (H1) with controls

Strategy Network	Moderation Stage	Effect	Moderators: % women leaders	Moderators: % women TMT
SC	First	Path a	-.061 (.011)***	-.062 (.011)***
		Path b	-.099 (.044)*	-.099 (.044)*
		Direct	-.028 (.012)*	-.028 (.012)*
		Indirect (16th)	.007 [.002, .015]*	.005 [.001, .010]*
		Indirect (50th)	.007 [.001, .013]*	.006 [.001, .011]*
		Indirect (84th)	.005 [.001, .010]	.008 [.001, .016]*
		Model R^2	Med: .050 (.026)	Med: .051 (.028)
		(Adj. R^2)	Out: .167 (.147)	Out: .167 (.147)
	Second	Path a	-.061 (.011)***	-.061 (.011)***
		Path b	-.124 (.045)**	-.099 (.044)*
		Direct	-.028 (.012)*	-.028 (.013)*
		Indirect (16th)	-.000 [-.007, .007]	.006 [.000, .013]
		Indirect (50th)	.004 [-.001, .009]	.006 [.001, .012]*
		Indirect (84th)	.015 [.004, .029]*	.006 [-.000, .014]
		Model R^2	Med: .048 (.026)	Med: .048 (.026)
		(Adj. R^2)	Out: .172 (.151)	Out: .167 (.146)
	Dual	Path a	-.061 (.011)***	-.062 (.011)***
		Path b	-.124 (.045)**	-.099 (.044)*
		Direct	-.028 (.012)*	-.028 (.013)*
		Indirect (16th)	-.000 [-.009, .009]	.005 [-.000, .011]
		Indirect (50th)	.004 [-.001, .010]	.006 [.001, .011]*
		Indirect (84th)	.012 [.002, .024]*	.007 [-.001, .017]
		Model R^2	Med: .050 (.026)	Med: .051 (.028)
		(Adj. R^2)	Out: .172 (.151)	Out: .167 (.146)

Note: N = 673 observations from 13 organizations. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy networks. % women leaders is the proportion of women in organizational leadership. % women TMT is the proportion of women on the TMT. Both moderators are grand-mean centered, while all other variables (except gender and leadership status) are group-mean centered. Path a refers to the path from gender to mediator, path b refers to path from mediator to dependent variable. Unstandardized coefficients are shown with standard errors in parentheses. Bootstrapped indirect effects based on 5,000 samples, calculated at 16th, 50th, and 84th percentiles of moderators. For indirect effects, bootstrapped 95% confidence intervals are shown in brackets. * $p < .05$, ** $p < .01$.

Table 15
Moderated mediation results for the relationship between gender and contact density through work group range (H2) with controls

Strategy Network	Moderation Stage	Effect	Moderators	
			% women leaders	% women TMT
SF	First	Path a	-.017 (.015)	-.017 (.015)
		Path b	-.288 (.034)***	-.288 (.034)***
		Direct	-.023 (.013)	-.023 (.013)
		Indirect (16th)	.013 [-.000, .029]	.007 [-.006, .020]
		Indirect (50th)	.009 [-.001, .020]	.005 [-.005, .016]
		Indirect (84th)	-.003 [-.019, .010]	.002 [-.013, .015]
		Model R^2 (Adj. R^2)	Med: .264 (.246), Out: .121 (.099)	Med: .261 (.243), Out: .121 (.099)
	Second	Path a	-.017 (.015)	-.017 (.015)
		Path b	-.288 (.034)***	-.288 (.034)***
		Direct	-.023 (.013)	-.023 (.013)
		Indirect (16th)	.005 [-.005, .015]	.005 [-.005, .014]
		Indirect (50th)	.005 [-.005, .014]	.005 [-.005, .014]
		Indirect (84th)	.005 [-.005, .015]	.005 [-.005, .014]
		Model R^2 (Adj. R^2)	Med: .261 (.244), Out: .121 (.098)	Med: .261 (.244), Out: .121 (.098)
	Dual	Path a	-.017 (.015)	-.017 (.015)
		Path b	-.288 (.034)***	-.288 (.034)***
		Direct	-.023 (.013)	-.023 (.013)
		Indirect (16th)	.013 [-.001, .030]	.006 [-.006, .020]
		Indirect (50th)	.008 [-.002, .021]	.005 [-.004, .016]
		Indirect (84th)	-.004 [-.020, .009]	.002 [-.014, .015]
		Model R^2 (Adj. R^2)	Med: .264 (.246), Out: .121 (.098)	Med: .261 (.243), Out: .121 (.098)

Table 15 (cont'd)
Moderated mediation results for the relationship between gender and contact density through work group range (H2) with controls

Strategy Network	Moderation Stage	Effect	Moderators	
			% women leaders	% women TMT
SI	First	Path a	-.018 (.012)	-.018 (.012)
		Path b	-.400 (.036)***	-.400 (.036)***
		Direct	-.022 (.011)	-.022 (.011)
		Indirect (16th)	.013 [-.003, .030]	.007 [-.006, .021]
		Indirect (50th)	.010 [-.002, .022]	.007 [-.003, .018]
		Indirect (84th)	.002 [-.015, .018]	.008 [-.008, .022]
		Model R^2	Med: .354 (.338)	Med: .353 (.337)
		(Adj. R^2)	Out: .182 (.162)	Out: .182 (.162)
	Second	Path a	-.018 (.012)	-.018 (.012)
		Path b	-.399 (.036)***	-.403 (.036)***
		Direct	-.022 (.012)	-.021 (.012)
		Indirect (16th)	.007 [-.003, .017]	.007 [-.003, .018]
		Indirect (50th)	.007 [-.003, .017]	.007 [-.003, .018]
		Indirect (84th)	.007 [-.003, .018]	.007 [-.003, .017]
		Model R^2	Med: .353 (.338)	Med: .353 (.338)
		(Adj. R^2)	Out: .183 (.161)	Out: .184 (.162)
	Dual	Path a	-.018 (.012)	-.018 (.012)
		Path b	-.399 (.036)***	-.403 (.036)***
		Direct	-.022 (.012)	-.021 (.012)
		Indirect (16th)	.012 [-.003, .031]	.007 [-.007, .022]
		Indirect (50th)	.010 [-.002, .022]	.007 [-.004, .018]
		Indirect (84th)	.002 [-.015, .018]	.007 [-.008, .022]
		Model R^2	Med: .354 (.338)	Med: .353 (.337)
		(Adj. R^2)	Out: .183 (.161)	Out: .184 (.162)

Table 15 (cont'd)
Moderated mediation results for the relationship between gender and contact density through work group range (H2) with controls

Strategy Network	Moderation Stage	Effect	Moderators	
			% women leaders	% women TMT
SC	First	Path a	-.013 (.011)	-.013 (.011)
		Path b	-.379 (.035)***	-.379 (.035)***
		Direct	-.018 (.010)	-.018 (.010)
		Indirect (16th)	.008 [-.005, .024]	.003 [-.007, .015]
		Indirect (50th)	.006 [-.004, .018]	.004 [-.005, .013]
		Indirect (84th)	.001 [-.013, .014]	.006 [-.007, .018]
		Model R^2	Med: .392 (.377)	Med: .391 (.377)
		(Adj. R^2)	Out: .183 (.164)	Out: .183 (.164)
	Second	Path a	-.013 (.011)	-.013 (.011)
		Path b	-.384 (.035)***	-.390 (.035)***
		Direct	-.018 (.010)	-.016 (.010)
		Indirect (16th)	.005 [-.004, .015]	.005 [-.005, .015]
		Indirect (50th)	.005 [-.004, .014]	.005 [-.004, .014]
		Indirect (84th)	.004 [-.003, .012]	.004 [-.004, .012]
		Model R^2	Med: .391 (.377)	Med: .391 (.377)
		(Adj. R^2)	Out: .186 (.165)	Out: .193 (.172)
	Dual	Path a	-.013 (.011)	-.013 (.011)
		Path b	-.384 (.035)***	-.390 (.035)***
		Direct	-.018 (.010)	-.016 (.010)
		Indirect (16th)	.009 [-.006, .026]	.004 [-.008, .017]
		Indirect (50th)	.007 [-.004, .018]	.005 [-.005, .015]
		Indirect (84th)	.001 [-.012, .013]	.006 [-.006, .016]
		Model R^2	Med: .392 (.377)	Med: .391 (.377)
		(Adj. R^2)	Out: .186 (.165)	Out: .193 (.172)

Note: $N = 673$ observations from 13 organizations. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy networks. % women leaders is the proportion of women in organizational leadership. % women TMT is the proportion of women on the TMT. Both moderators are grand-mean centered, while all other variables (except gender and leadership status) are group-mean centered. Path a refers to the path from gender to mediator, path b refers to path from mediator to dependent variable. Unstandardized coefficients are shown with standard errors in parentheses. Bootstrapped indirect effects based on 5,000 samples, calculated at 16th, 50th, and 84th percentiles of moderators. For indirect effects, bootstrapped 95% confidence intervals are shown in brackets. * $p < .05$, ** $p < .01$.

Table 16
Moderated mediation results for the relationship between gender and multiplexity through proportion of cross-gender contacts (H3) with controls

Strategy Network	Moderation Stage	Effect	Moderators	
			% women leaders	% women TMT
SF	First	Path a	.210 (.013)***	.204 (.015)***
		Path b	-.058 (.038)	-.058 (.038)
		Direct	.058 (.019)**	.058 (.019)**
		Indirect (16th)	-.033 [-.079, .014]	-.023 [-.055, .009]
		Indirect (50th)	-.022 [-.053, .009]	-.016 [-.040, .006]
		Indirect (84th)	.007 [-.003, .019]	.002 [-.001, .007]
		Model R^2	Med: .539 (.528)	Med: .434 (.420)
		(Adj. R^2)	Out: .065 (.042)	Out: .065 (.042)
	Second	Path a	.210 (.018)***	.210 (.018)***
		Path b	-.056 (.038)	-.058 (.038)
		Direct	.064 (.022)**	.058 (.020)**
		Indirect (16th)	-.017 [-.043, .008]	-.012 [-.033, .007]
		Indirect (50th)	-.014 [-.034, .005]	-.013 [-.031, .005]
		Indirect (84th)	-.007 [-.035, .018]	-.013 [-.040, .008]
		Model R^2	Med: .178 (.159)	Med: .178 (.159)
		(Adj. R^2)	Out: .065 (.041)	Out: .065 (.040)
	Dual	Path a	.210 (.013)***	.204 (.015)***
		Path b	-.056 (.038)	-.058 (.038)
		Direct	.064 (.022)**	.058 (.020)**
		Indirect (16th)	-.045 [-.111, .022]	-.022 [-.060, .016]
		Indirect (50th)	-.026 [-.060, .009]	-.016 [-.040, .007]
		Indirect (84th)	.004 [-.011, .021]	.002 [-.002, .009]
		Model R^2	Med: .539 (.528)	Med: .434 (.420)
		(Adj. R^2)	Out: .065 (.041)	Out: .065 (.040)

Table 16 (cont'd)
Moderated mediation results for the relationship between gender and multiplexity through proportion of cross-gender contacts (H3) with controls

Strategy Network	Moderation Stage	Effect	Moderators	
			% women leaders	% women TMT
SI	First	Path a	.180 (.012)***	.173 (.013)***
		Path b	-.040 (.040)	-.040 (.040)
		Direct	.041 (.019)*	.041 (.019)*
		Indirect (16th)	-.021 [-.068, .024]	-.015 [-.046, .017]
		Indirect (50th)	-.014 [-.045, .016]	-.010 [-.032, .011]
		Indirect (84th)	.007 [-.007, .022]	.003 [-.003, .010]
		Model R^2	Med: .594 (.584)	Med: .459 (.445)
		(Adj. R^2)	Out: .054 (.031)	Out: .054 (.031)
	Second	Path a	.180 (.017)***	.180 (.017)***
		Path b	-.040 (.040)	-.039 (.040)
		Direct	.028 (.022)	.035 (.020)
		Indirect (16th)	.002 [-.022, .025]	-.004 [-.022, .014]
		Indirect (50th)	-.003 [-.020, .014]	-.006 [-.022, .009]
		Indirect (84th)	-.016 [-.045, .012]	-.011 [-.036, .012]
		Model R^2	Med: .151 (.131)	Med: .151 (.131)
		(Adj. R^2)	Out: .056 (.031)	Out: .055 (.030)
	Dual	Path a	.180 (.012)***	.173 (.013)***
		Path b	-.040 (.040)	-.039 (.040)
		Direct	.028 (.022)	.035 (.020)
		Indirect (16th)	.005 [-.063, .073]	-.009 [-.045, .026]
		Indirect (50th)	-.006 [-.038, .025]	-.008 [-.030, .012]
		Indirect (84th)	.015 [-.009, .044]	.004 [-.004, .015]
		Model R^2	Med: .594 (.584)	Med: .459 (.445)
		(Adj. R^2)	Out: .056 (.031)	Out: .055 (.030)

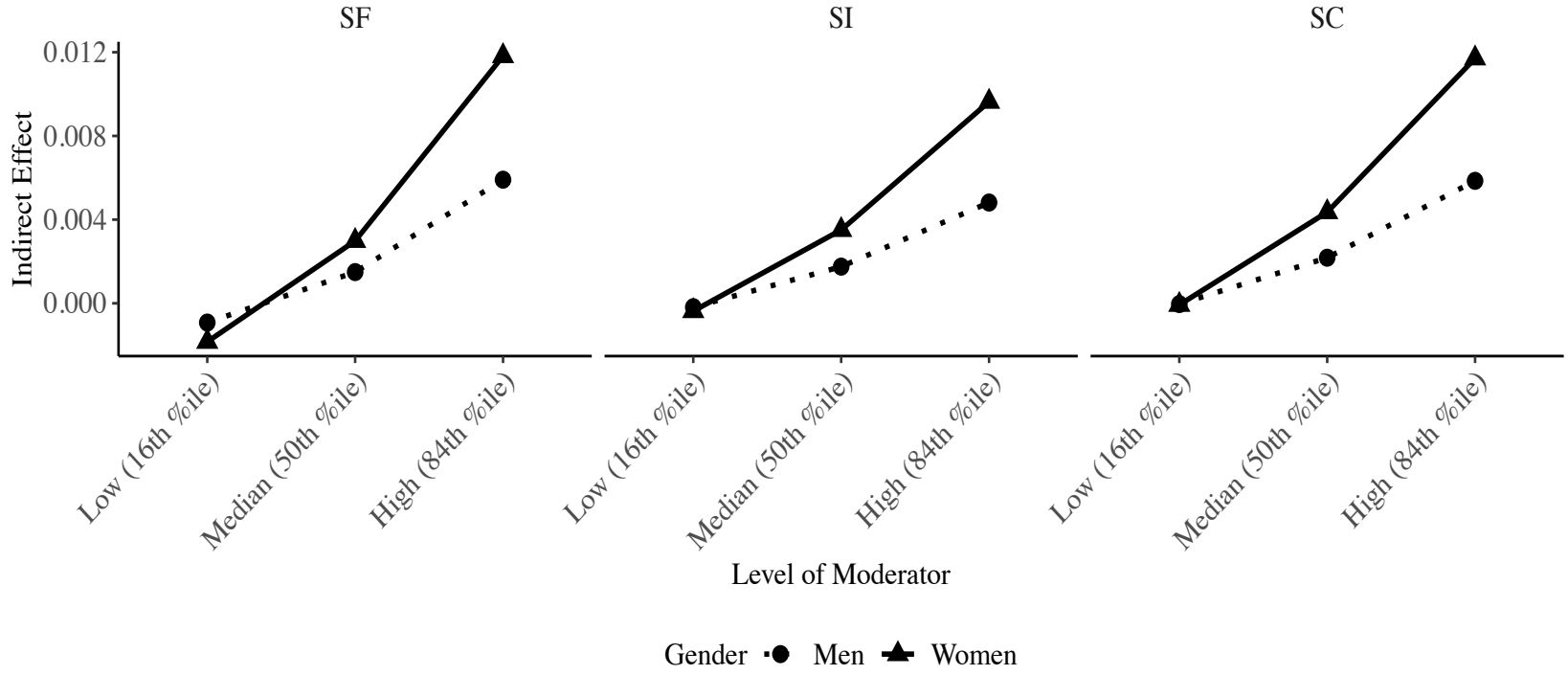
Table 16 (cont'd)
Moderated mediation results for the relationship between gender and multiplexity through proportion of cross-gender contacts (H3) with controls

Strategy Network	Moderation Stage	Effect	Moderators: % women leaders	Moderators: % women TMT
SC	First	Path a	.185 (.011)***	.178 (.013)***
		Path b	-.069 (.038)	-.069 (.038)
		Direct	.052 (.017)**	.052 (.017)**
		Indirect (16th)	-.038 [-.082, .006]	-.026 [-.056, .003]
		Indirect (50th)	-.025 [-.054, .004]	-.018 [-.039, .002]
		Indirect (84th)	.012 [-.002, .027]	.004 [-.000, .011]
		Model R^2	Med: .647 (.638)	Med: .475 (.462)
		(Adj. R^2)	Out: .064 (.041)	Out: .064 (.041)
	Second	Path a	.185 (.016)***	.185 (.016)***
		Path b	-.069 (.038)	-.068 (.038)
		Direct	.047 (.021)*	.048 (.019)*
		Indirect (16th)	-.010 [-.032, .013]	-.011 [-.029, .007]
		Indirect (50th)	-.012 [-.028, .005]	-.012 [-.028, .003]
		Indirect (84th)	-.017 [-.046, .008]	-.016 [-.040, .005]
		Model R^2	Med: .165 (.146)	Med: .165 (.146)
		(Adj. R^2)	Out: .064 (.040)	Out: .064 (.040)
	Dual	Path a	.185 (.011)***	.178 (.013)***
		Path b	-.069 (.038)	-.068 (.038)
		Direct	.047 (.021)*	.048 (.019)*
		Indirect (16th)	-.028 [-.092, .034]	-.021 [-.057, .013]
		Indirect (50th)	-.022 [-.053, .008]	-.016 [-.037, .004]
		Indirect (84th)	.015 [-.007, .042]	.005 [-.001, .015]
		Model R^2	Med: .647 (.638)	Med: .475 (.462)
		(Adj. R^2)	Out: .064 (.040)	Out: .064 (.040)

Note: $N = 673$ observations from 13 organizations. % women leaders is the proportion of women in organizational leadership. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy networks. % women TMT is the proportion of women on the TMT. Both moderators are grand-mean centered, while all other variables (except gender and leadership status) are group-mean centered. Path a refers to the path from gender to mediator, path b refers to path from mediator to dependent variable. Unstandardized coefficients are shown with standard errors in parentheses. Bootstrapped indirect effects based on 5,000 samples, calculated at 16th, 50th, and 84th percentiles of moderators. For indirect effects, bootstrapped 95% confidence intervals are shown in brackets. * $p < .05$, ** $p < .01$.

Figure 3

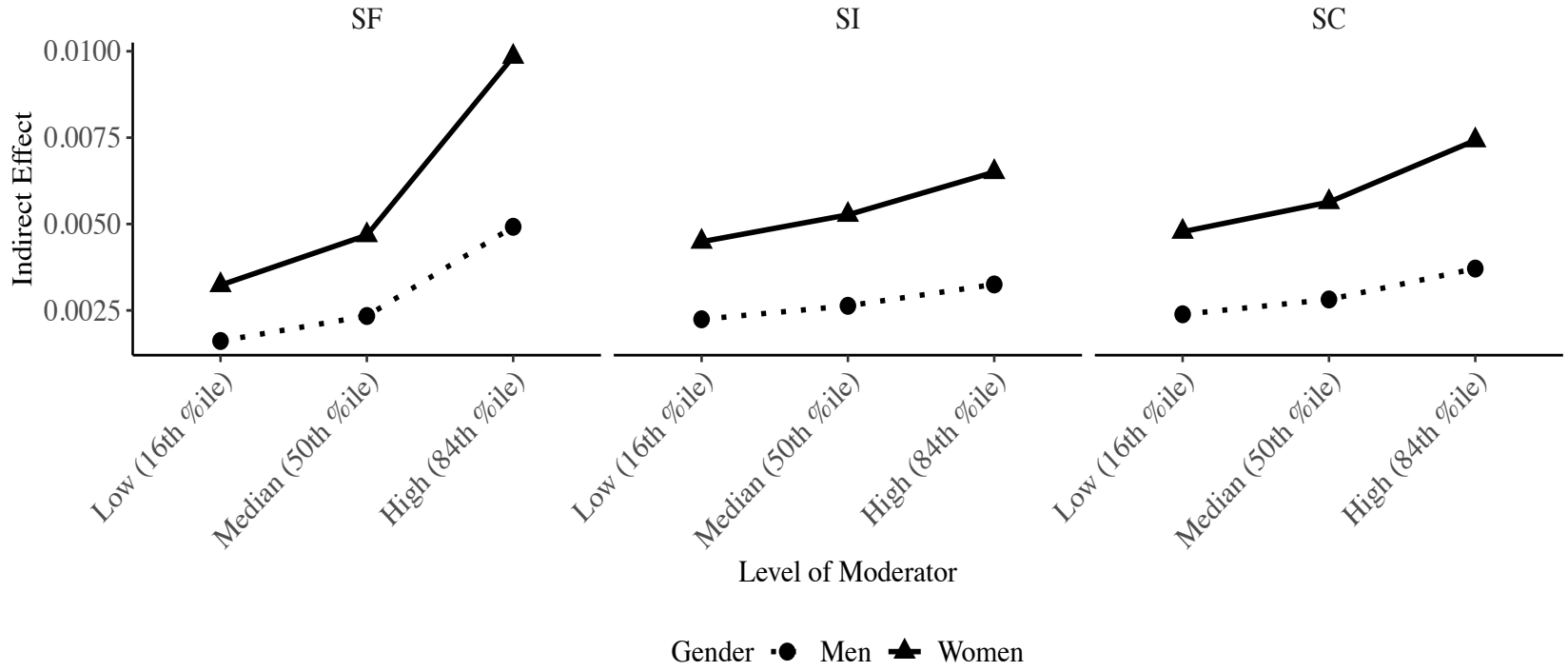
Dual stage moderated mediation effect of gender on degree centrality through the proportion of men contacts at different levels of women's representation in organizational leadership



Note. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy network. Significant indirect effects at: SF: High (84th %ile); SI: Median (50th %ile); SC: Median (50th %ile)

Figure 4

Dual stage moderated mediation effect of gender on degree centrality through the proportion of men contacts at different levels of women's representation on the TMT



Note. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy network. Significant indirect effects at: SF: High (84th %ile); SI: Median (50th %ile); SC: Median (50th %ile)

In the spirit of conducting the moderated mediation exploratory analyses to see whether the organizational gender composition impacts my hypothesized relationships, I also tested the moderated mediation results using a continuous moderator approach and the Johnson-Neyman technique to identify regions of significance (compared to Hayes' 16th, 50th, and 84th percentiles shown above).

Results when assessing the impact of the proportion of women in organizational leadership on the relationship between gender and degree centrality through the proportion of men contacts (H1) showed complex findings. First, the relationship between gender and proportion of men contacts remained negative (negative "a" path) as well as the relationship between the proportion of men contacts and degree centrality (negative "b" path) for all strategy networks. Second, results of the first stage moderated mediation models showed non-significant findings. Results of the second stage moderated mediation for the strategy formulation networks showed a positive and significant indirect effect with an index of moderated mediation equals .044, 95% CI [.006, .083]). For the strategy implementation and combined networks, the second stage significant indirect effects were not significant (all $p > .05$). I also did not find evidence of statistically significant indirect effects for the proportion of women on the TMT across all strategy networks.

I did not find any statistically significant moderated mediation indirect effects for either moderator on any strategy network across H2 (work group range and contact density) relationships. Although, in the combined strategy network, there was a significant interaction between the proportion of women in the top management team and work group range in predicting contact density ($b = .425$, $SE = .126$, $p < .001$), but the indirect effect was not statistically significant in the second (index of moderated mediation = .007, 95% CI [-.068,

.076]) or dual stages (index of moderated mediation = .005, 95% CI [-.020, .004]. Similarly, across H3 relationships (proportion of cross-gender contacts and multiplexity), both the proportion of women in organizational leadership and on the TMT significantly interacted with gender in predicting the proportion of cross-gender contacts such that when there are more women represented in the organization, women are more likely to form fewer cross-gender connections ("a" path x moderator unstandardized coefficients ranged from -1.840 to -1.948, *SE* values ranged from .101 to .453). However, the significant interaction did not lead to significant first stage indirect effects. Thus, the indirect effects did not significantly change under different organizational gender composition contexts.

Nevertheless, the Johnson-Neyman analyses revealed significant regions of the indirect effect for all moderation stages of the indirect effect of gender on degree centrality through the proportion of men contacts. See Figures 5 and 6. Specifically, for the proportion of women in organizational leadership moderator, the dual stage moderation showed significant indirect effects when values exceed -.06 (averaged; ranging from -.075 to -.047) and fall below roughly .31 (ranging from .278 to .328). The first-stage moderation consistently demonstrated significance when women's representation was below approximately .30 (ranging from .289 to .311); the second-stage moderation was significant when representation exceed roughly -.06 (ranging from -.069 to -.047). The regions of significance for representation of women in the organization suggest that women have higher degree centrality from having fewer men contacts in organizations with more balanced gender composition. However, at lower levels of women's representation (below approximately .30), gender's effect on proportion of men contacts is more pronounced in more men-dominated organizations suggesting women may form even fewer men contacts in such contexts.

For the proportion of women on the TMT, the dual-stage moderation showed significance when values exceed approximately -.09 (ranging from -.116 to -.040) and fall below roughly .13 (ranging from .089 to .211). The first-stage moderation consistently demonstrated significance when values exceed approximately -.18 (ranging from -.181 to -.163); the second-stage moderation was significant when values exceed roughly -.09 (ranging from -.122 to -.046) and fall below approximately .13 (ranging from .083 to .217). The regions of significance for the representation of women on the TMT suggest the indirect effects are strongest in organizations with moderate representation.

Figure 5

Conditional indirect effects with Johnson-Neyman regions of significance testing the moderated mediation of proportion of women in organizational leadership on the relationship between gender and degree centrality through the proportion of men contacts

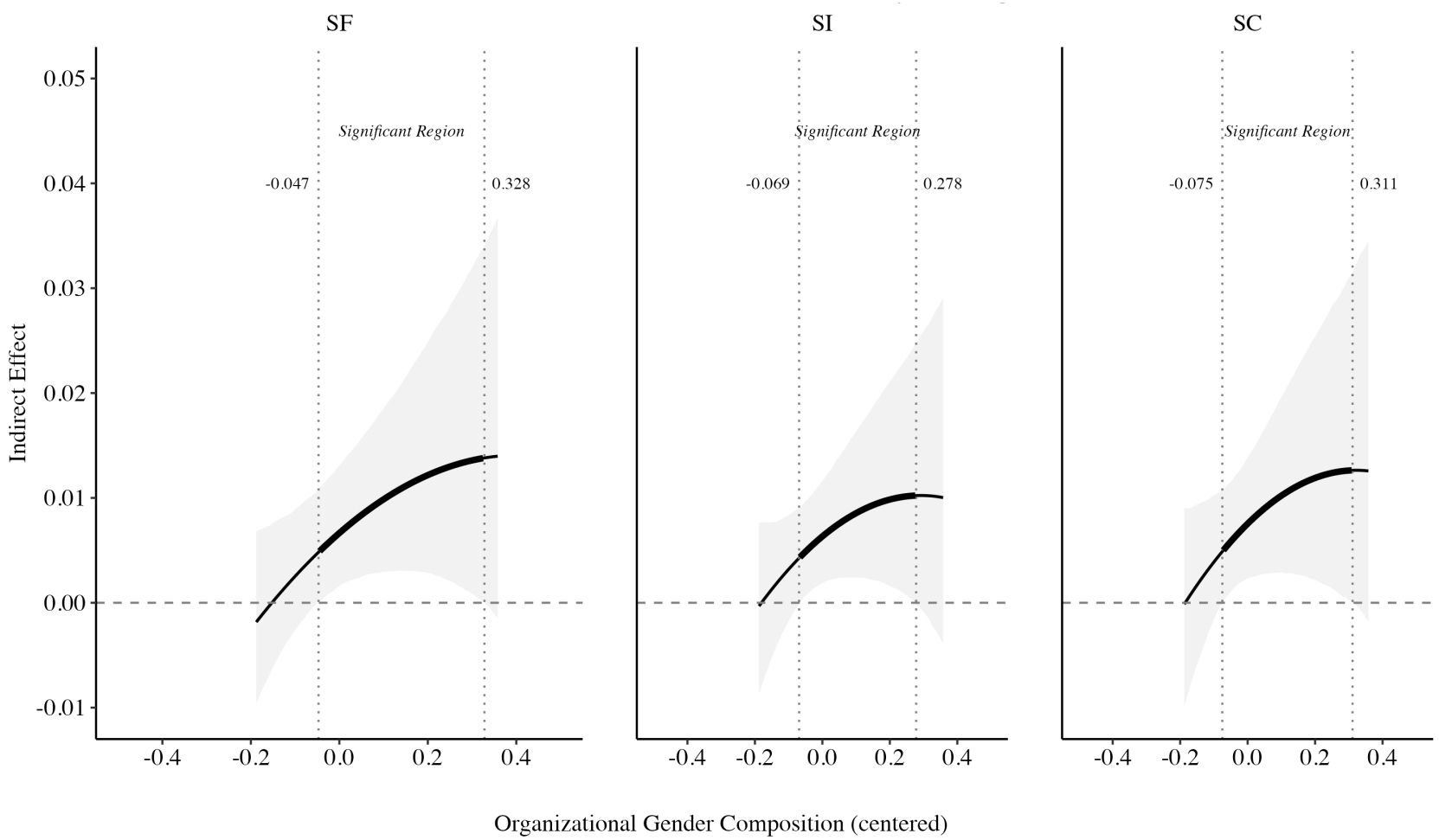
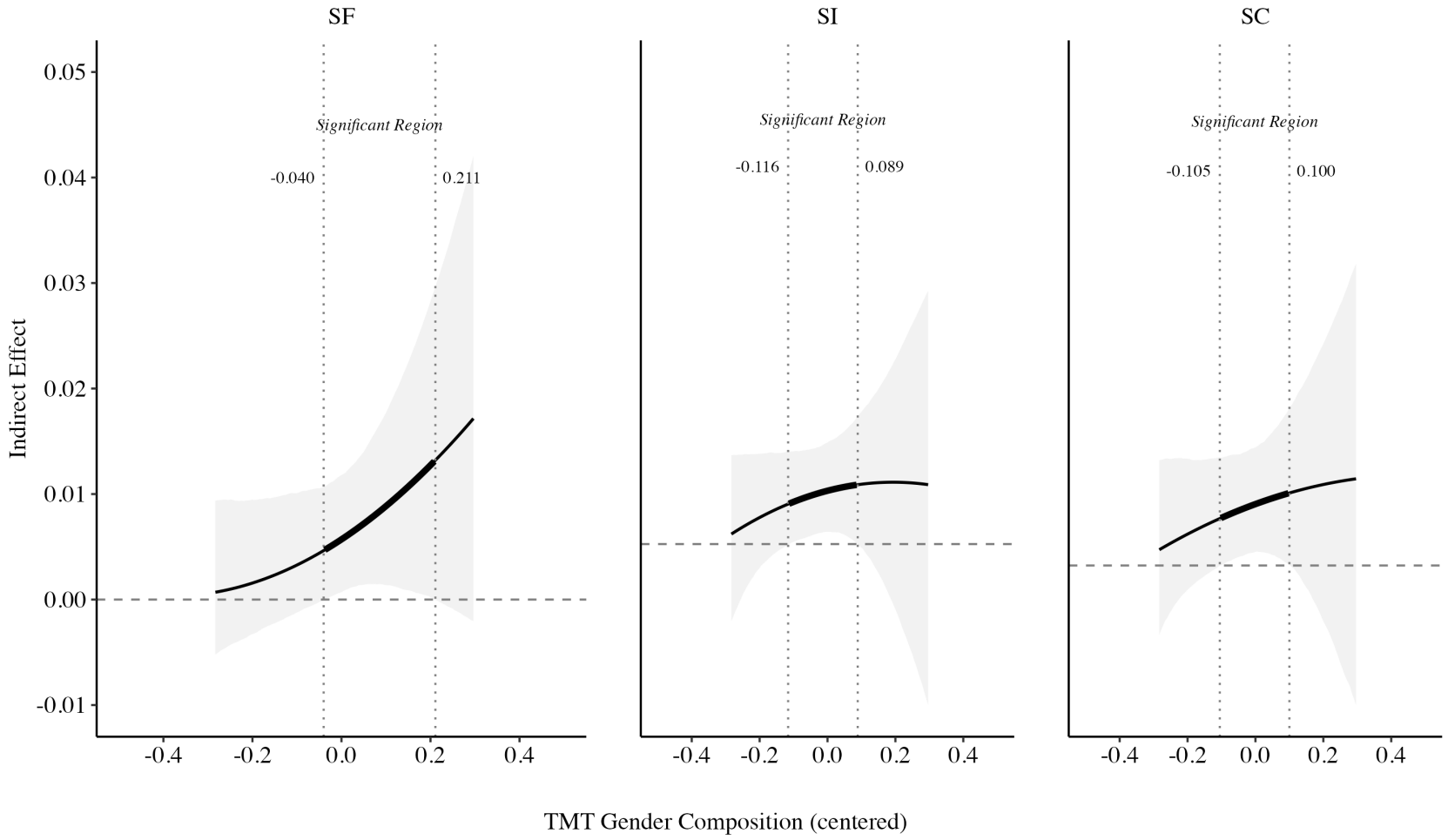


Figure 6

Conditional indirect effects with Johnson-Neyman regions of significance testing the moderated mediation of proportion of women on the TMT on the relationship between gender and degree centrality through the proportion of men contact



Research Question Summary

The analyses of gender effects on network degree through proportion of men contacts (H1) revealed some consistent patterns across both continuous and leveled approaches. Results for H2 and H3 showed no significant moderation effects. For H1, the negative a-path coefficients consistently indicated that women have fewer men contacts than men relative to organizational averages regardless of organizational gender composition. However, the moderation effects manifest differently across moderator levels. At lower to moderate levels of women's representation (16th-50th percentiles), first-stage moderation shows small but significant positive indirect effects, suggesting gender homophily tendencies persist even in men-dominated environments. The most substantive findings emerged at moderate and higher proportions of women's representation where second and dual stage moderation yield significant positive indirect effects for all strategy networks. Thus, having fewer men contacts more strongly increased women's centrality when more women hold leadership positions. The Johnson-Neyman analyses from the continuous approach provide complementary insights, revealing specific regions of significance where the indirect effect is statistically significant. Results generally showed a slight inverted U-shaped pattern in the regions of significance suggesting that the moderation effect is strongest at moderate to moderately high levels of women's representation, rather than at extreme values.

The primary takeaway is that organizational gender composition moderates the gender-network relationship in complex ways that reinforce rather than mitigate gender homophily. Degree centrality was higher for women because they had fewer men contacts, especially in more gender-balanced organizations.

Post hoc analyses

In a post-hoc analysis, instead of using the proportion of cross-gender contacts as a mediator (H3) in the relationship between gender and tie multiplexity, I tested whether gender is significantly related to multiplexity through the proportion of men contacts (from H1) or work group range (from H2). In other words, I tested H1 and H2 with a new dependent variable, multiplexity.

Results on the relationship between gender and multiplexity showed mixed patterns (formulation b = -.022, 95% CI [-.042, -.003]; implementation b = -.003, 95% CI [-.022, .017]; combined b = .062, 95% CI [.046, .080]; without controls). The relationship between gender and multiplexity is significantly mediated through proportion of men contact for the strategy formulation and combined networks (the confidence intervals excluded 0), but not the implementation network. Thus, women's tendency to have fewer men contacts than men is related to *lower* multiplexity in strategy formulation networks, but *higher* multiplexity in combined networks.

On the other hand, the relationship between gender and multiplexity similarly is significantly mediated by work group range for all networks (formulation b = .021, 95% CI [.008, .035]; implementation b = .022, 95% CI [.011, .036]; combined b = .020, 95% CI [.009, .033]; without controls). Results showed that women's tendency to have lower work group range than men is conducive for increased multiplexity, suggesting a quality over quantity networking tendency to build multiplex relationship within one's work groups.

However, when including control variables, the patterns change for the proportion of men contacts (formulation b= -.024, 95% CI [-.043, -.005]; implementation b = -.005, 95% CI [-.024, .014]; combined b = .059, 95% CI [.043, .076]) and work group range (formulation b = .003,

95% CI [-.003, .009]; implementation b = .003, 95% CI [-.001, .010]; combined b = .002, 95% CI [-.001, .007]). For women, the control-adjusted results suggest that while their tendency to have fewer men contacts remains a significant factor in shaping network multiplexity (particularly in strategy formulation and combined networks), their narrower network range may be more attributable to structural factors such as leadership status or the extent to which other organizational leaders are on a shared team (i.e., referencing leadership status and team size, which were the control variables).

Overall, the results suggest a complex relationship between gender and multiplexity, with significant indirect effects through both mediators in several analyses without controls, but more varied patterns when control variables are included.

I additionally conducted a post hoc curvilinear analysis for H1 to see if the relationship between gender and degree centrality was nonlinear. Contrary to my initial hypothesis (H1b) that women would have lower degree centrality because they have a lower proportion of men contacts than men, linear results showed that women—not men—had higher degree centrality because they had a lower proportion of men contacts across all strategy networks. Further, results from H1c showed that men with proportionally more men contacts was associated with lower network centrality, while for women, the proportion of men contacts has no significant relationship with their centrality. As such, I wanted to see if the relationship between gender and degree centrality was nonlinear.

I followed a similar statistical approach to my hypothesis and research question tests utilizing fixed effects models with cluster-robust standard errors (CR2 type), bootstrapping (5,000 resamples), and centering mediators and dependent variables within each organization. Squared terms for the proportion of men contacts for each strategy network (created after

centering) were also included. Finally, I evaluated the conditional indirect effects at the 16th, 50th, and 84th percentiles of the proportion of men contacts (consistent with how I conducted the moderated mediation analyses in part; Hayes, 2017). I modeled the relationships between the proportion of men contacts and degree centrality as quadratic equations. Then, at different levels of the proportion of men contacts, I estimated the indirect effects by combining the linear and quadratic components of that relationship.

Results demonstrated a significant and negative quadratic effect across all strategy networks (formulation b = -.857, SE = .139, p <.001, R^2 =.128, adjusted R^2 = .108; implementation b = -1.211, SE = .481, p = .012, R^2 =.102, adjusted R^2 = .082; combined b = -1.487, SE = .504, p = .003, R^2 =.113, adjusted R^2 = .093; without controls). When leadership status is included as a control variable, results similarly held (formulation b = -.751, SE = .119, p <. 001, R^2 =.263, adjusted R^2 = .245; implementation b = -1.062, SE = .402, p = .008, R^2 =.205, adjusted R^2 = .186; combined b = -1.326, SE = .410, p = .001, R^2 =.216, adjusted R^2 = .197).

The conditional indirect effects at the 16th, 50th, and 84th percentiles of the proportion of men contacts showed mixed results. Without controls, at low levels (16th percentile), the indirect effects were mixed—non-significant for formulation (without controls b = -.004, 95% CI [-.011, .002]; with controls b = -.002, 95% CI [-.008, .003]), implementation with controls (b = -.006, 95% CI[-.013, .000]), and combined networks with controls (b = -.006, 95% CI [-.013, .000]). Yet, significant for implementation without controls (b = -.007, 95% CI [-.016, -.001]) and combined networks without controls (b = -.008, 95 % CI [-.016, -.001]). However, at moderate levels (50th percentile), all models showed significant positive indirect effects without controls (formulation b = .014, 95% CI [.007, .023]; implementation b = .010, 95% CI [.004, .017]; combined: b = .010, 95% CI [.004, .018]) and with controls (formulation b = .014, 95% CI [.007,

.022]; implementation *b* = .010, 95% CI [.005, .017]; combined *b* = .010, 95% CI [.004, .017]). Results of the proportion of men contacts at high levels (84th percentile) showed consistently significant and larger in magnitude indirect effects without controls (formulation *b* = .033, 95% CI [.019, .049]; implementation *b* = .029, 95% CI [.017, .043]; combined *b* = .031, 95% CI [.020, .045]) and with (formulation *b* = .030, 95% CI [.018, .045]; implementation *b* = .027, 95% CI [.016, .039]; combined *b* = .029, 95% CI [.017, .042]).

The significant and negative quadratic terms suggest a curvilinear mediation effect—an inverted 'U' shape with vertices: -.091 (formulation), -.066 (implementation), and -.059 (combined) without controls, and with controls, -.103, -.073, and -.066 respectively. Such vertices suggest that women's networks with fewer men than their organizations' average—specifically 9.1% (formulation), 6.6% (implementation), or 5.9% (combined) fewer men than typical in their organization—can lead to high degree centrality. The inverted U-shape relationship suggests that while some gender diversity benefits women's degree centrality in strategic conversations, networks that are heavily men-dominated, but not necessarily very low in the proportion of men contacts (as shown in the mixed indirect effects at the 16th percentile) tend to impede degree centrality.

I then directly tested whether the curvilinear relationship between proportion of men contacts and degree centrality is moderated by gender (curvilinear H1c). I conducted a simple moderation using both the linear and quadratic interaction terms between gender and proportion of men contact in each model with and without controls. Results showed gender significantly moderated the curvilinear relationship across all strategy networks without controls (gender x quadratic interaction terms: formulation *b* = .389, *SE* = .182, *p* = .033; implementation *b* = .710, *SE* = .185, *p* < .001; combined *b* = 1.101, *SE* = .203, *p* < .001). With controls, the results showed

a similar pattern of significance for the implementation (b = .475, SE = .172, p = .006) and combined networks (b = .783, SE = .272, p = .004), but not formulation networks (b = .256, SE = .153, p = .094). Both men and women showed inverted "U" patterns, but such curvilinear patterns significantly different for men and women. Men and women had differing vertices. For women, their vertices were at -.064, -.089, -.082 across strategy networks. Men's vertices were at -.093, -.014, -.010. Interestingly, *both* men and women showed the highest degree centrality when their networks were composed of fewer men contacts than organizational averages. See Figure 7 for a visual representation of the relationship between proportion of men contacts and degree centrality moderated by gender. As shown, men generally had a narrower inverted "U" curve with peaks closer to, but still below organizational averages whereas women showed peaks when their proportion of men contacts was lower than organizational averages.

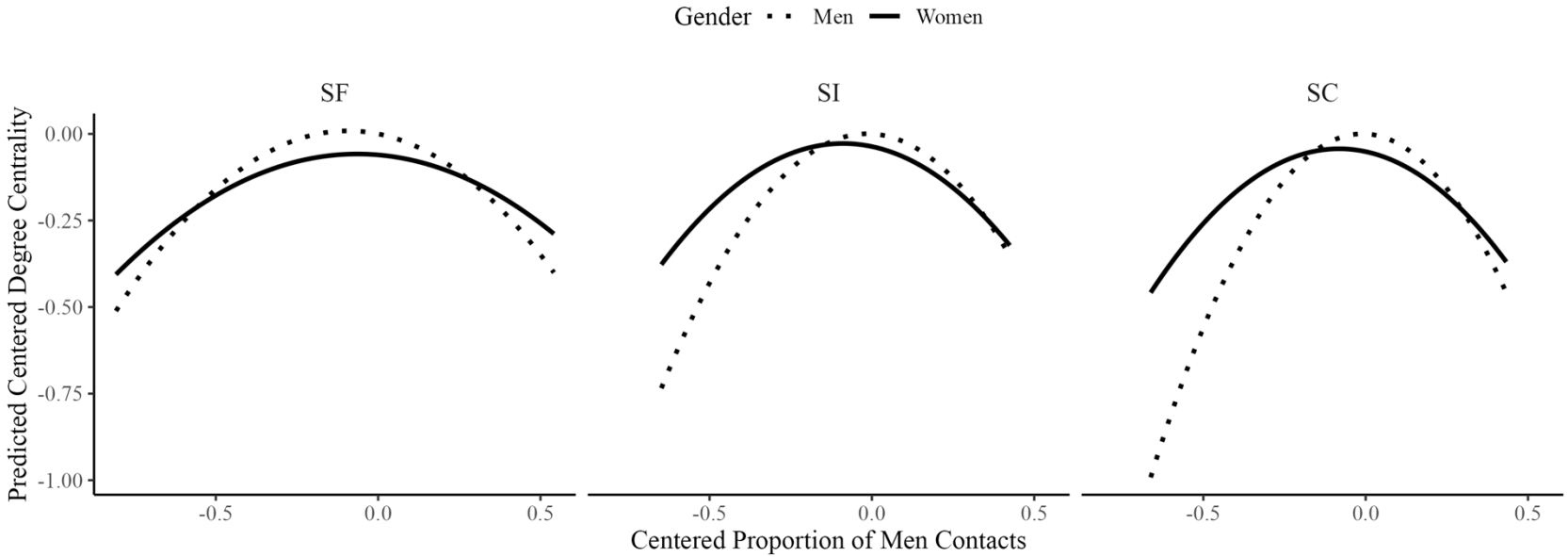
The curvilinear moderations results showed that men typically had a stronger positive relationship between proportion of men contacts and degree centrality, but only when they had a slightly below average number of men contacts, which when exceeded, led to a more negative relationship. Women on the other hand showed flatter curves with generally more negative vertex points than men suggesting an overall weaker relationship between the proportion of men contacts and degree centrality.

To explore whether the organizational gender composition context impacts the mediation curvilinear results, I also tested whether the proportion of women in organizational leadership and on the TMT moderated the curvilinear relationship of gender to degree centrality through the proportion of men contacts (second stage; both moderators were grand mean centered). Results showed that the quadratic effects remained significant across all strategy networks, but neither the proportion of women in organizational leadership nor the proportion of women on the TMT

significantly moderated the curvilinear relationship. Thus, the non-linear relationship between gender and degree centrality through the proportion of men contacts occurred regardless of the organizational gender composition context.

Figure 7

Post hoc curvilinear moderation effect for the relationship between proportion of men contacts and degree centrality by gender for strategy formulation, implementation, and combined networks



Note. SF is strategy formulation, SI is strategy implementation, and SC is combined strategy network. Figure shows the relationship between proportion of men contacts and degree centrality moderated by gender.

Results summary

In sum, through a series of simple mediation, simple moderation, and moderated mediation analyses, I tested the relationships between gender and strategic conversation network positional characteristics indicative of power, stability, and strength (i.e., degree centrality, contact density, and multiplexity, respectively) through personal network composition characteristics (i.e., proportion of men contacts, work group range, and proportion of cross-gender contacts). Results show a complex pattern of relationships as I found both significant expected and unexpected results. See Table 17 for an overview of hypothesis test results.

For the hypotheses tests, results showed that women tend to have fewer men contacts (supporting H1a). However, having fewer men contacts, did not lead to women having lower degree centrality (contradicting H1b). Rather, women were found to have higher degree centrality if they had *fewer* men contacts (but still had lower degree centrality than men overall). The relationship between the proportion of men contacts and degree centrality was also more positively, but non-significantly related to degree centrality for women compared to men (partially supporting H1c). Instead, for men, having more men contacts was negatively related to degree centrality. For women, the effect of men contacts on degree centrality was smaller and non-significant.

Additionally, post-hoc analyses showed that the relationship between gender and degree centrality through the proportion of men contacts is curvilinear such that women who have 'women-tipped' networks (i.e., fewer men contacts than the organizational average) have the highest degree centrality. Post hoc curvilinear moderation results also showed men had steeper inverted "U" shaped curves with negative vertices closer to organizational averages, indicating a stronger relationship between proportion of men contacts and degree centrality, but only when

men had just below average men contacts. Comparatively, women showed flatter curves that peaked at lower proportions of men contacts, suggesting an overall weaker association. Altogether, post hoc results showed having men dominated networks can be disadvantageous for women's degree centrality, regardless of the organizational gender composition.

Nevertheless, in considering the (linear) impact of the organizational gender composition context, both the proportion of women in organizational leadership and on the TMT shaped the mediated relationship between gender and degree centrality via the proportion of men contacts. At low, moderate, and high levels (16^{th}, 50^{th}, and 84^{th} percentiles), the indirect effect generally remained positive for women suggesting that having fewer men contacts led to increased degree centrality for women. Notably, at moderate to higher levels of women's representation, the negative relationship between men contacts and degree centrality became stronger. That is, when there were more women leaders overall, having fewer men contacts was significantly and positively related to higher degree centrality. Although these overall patterns held for both moderators, some nuances emerged when comparing the strategy formulation versus implementation networks (e.g., certain second- or dual-stage effects vary). Ultimately, H1b was not supported at any level of organizational gender composition, but the size of the opposite (unexpected) effect did appear under different levels of women's representation in leadership or on the TMT.

Contrary to expectations, women were also not found to have higher work group range than men (contradicting H2a). Women had lower work group range than men, but only in models without controls (i.e., leadership status or team size). Results also showed the relationship between gender and contact density was significantly mediated by work group range, but in the opposite direction than hypothesized—women had higher contact density because of lower work

group range (not lower contact density due to higher work group range), but only in models without controls. Neither the proportion of women in organizational leadership nor the proportion of women on the TMT significantly impacted the relationship between gender and contact density through work group range.

Results assessing the relationship between gender and proportion of cross-gender ties showed no significant findings; women did not have significantly more cross-gender contacts than men (not supporting H3a). Women also did not have weaker relationships because they had more cross-gender contacts than men (not supporting H3b). The organizational gender composition context also did not impact these relationships. In post-hoc analyses which substituted the proportion of cross-gender contacts for the proportion of men contacts and work group range to separately see their indirect effect on multiplexity showed additional nuance. Specifically, women's tendency to have fewer men contacts significantly reduced their multiplexity in strategy formulation networks while increasing it in combined networks, suggesting men may follow homophily tendencies more strongly when deciding the organizational strategic direction, but less so when also talking about how to enact it. Women's narrower work group range consistently led to higher multiplexity across all network types, but when controlling for leadership status and team size, the work group range mediation became non-significant.

Table 17
Summary table of whether hypotheses were supported or not

Hypotheses	Strategy network		
	SF	SI	SC
H1a: Women's strategic conversation networks contain a lower proportion of men contacts than men's	Yes	Yes	Yes
H1b: Women's positions in strategic conversation networks are less powerful (lower degree centrality) than men's due to the lower proportion of men alters in their networks	No* §	No* §	No*§
H1c: The proportion of men contacts is more strongly and positively associated with network power (degree centrality) for women than men	Partial	Partial	Partial
H2a: Women's strategic conversation networks have higher network range than men's	No*†	No*†	No*†
H2b: Women's positions in strategic conversation networks are less stable (lower density) than men's due to greater workgroup network range.	No*†	No†	No*†
H3a: Women's strategic conversation networks contain a higher proportion of cross-gender contacts than men's	No	No	No
H3b: Women's positions in strategic conversation networks are weaker (lower multiplexity) than men's because their personal networks have a higher proportion of cross-gender contacts	No	No	No

Note. SF is strategy formulation, SI is strategy implementation, SC is combined strategy networks. Yes means hypothesis is supported, no means hypothesis is not supported, partial means hypothesis is partially supported. *s denotes significant, but in opposite of hypothesized direction. † denotes significant without controls, but not with controls. § means that support for the hypothesis in part depends on the proportion of women in organizational leadership positions or on the TMT.

CHAPTER 5: DISCUSSION

A limitation of Upper Echelons Theory (Hambrick & Mason, 1984) and Resource Based View (Barney, 1991) is that they assume diverse representation translates to minority groups' equitable involvement. Both theories fall short in explaining the relational dynamics that can influence strategy network involvement. Upper Echelons Theory emphasizes demographic representation without addressing relationship tendencies such as homophily that may enable or constrain women's actual participation. Similarly, Resource Based View recognizes gender diversity as a potentially valuable, rare, inimitable, and non-substitutable resource. However, it again does not specify how human tendencies toward homophily may contribute to an organization's competitive advantage.

A social network approach, on the other hand, provides a more nuanced theoretical and methodological lens for examining strategy network involvement. By mapping the relationship dynamics of who talks to whom for strategy formulation and implementation conversations, such an approach captures patterns of interaction and influence rather than assuming involvement based on representation. Furthermore, examining specific network metrics—power (degree centrality), stability (contact density), and strength (multiplexity)—emphasizes the distinct ways leaders can leverage their networks to become more involved in strategy networks.

As shown in the present study, the mere presence of women in leadership positions may not necessarily ensure their involvement in strategic conversation networks. However, findings reveal more complex patterns of involvement than expected. Contrary to expectations from gender homophily networking tendencies (McPherson et al., 2001), my results *suggested limited evidence for broad structural disadvantages in women's networks.* Although women did have significantly fewer men contacts than men, they did not have significantly more cross-gender

contacts nor wider work group range compared to men. Yet, the effects of such personal network gender composition characteristics had interesting and complex effects on strategic network involvement. Women having fewer men contacts unexpectedly led to higher network power as shown in the hypothesis and post hoc curvilinear analyses. The relationship between proportion of men contacts and network power was also more positive, but not significant for women. In fact, for men, having more men contacts negatively influenced degree centrality, yet for women, the effect was non-significant. The traditionally assumed structural disadvantages of women's gender homophilous networking patterns were not supported.

Additional complexity was found when considering the organizational gender composition context. When taking the proportion of women leaders into account, results showed that when there was moderate to higher representation of women leaders—largely across the organization and on the TMT—women had higher network power because of their fewer men contacts. Thus, the organizational gender context is an important factor when considering involvement in strategic conversations, particularly for network power.

The relationship between gender and network stability through work group range also showed an unanticipated pattern of results. That is, women's lower work group range unexpectedly led to higher contact density in models without controls. Women appeared to have more stable strategy networks because they maintained connections within a narrower range of their work groups. The organizational gender composition context also did not significantly influence these relationships. Such "narrow" over "broad" networking approach appeared to benefit women's involvement in strategic conversations as they were able to form more dense, interconnected networks. However, given that the addition of controls, specifically controlling

for leadership status and team size, led to non-significant findings, results should be taken with caution.

Lastly, women did not have significantly more cross-gender contacts, nor did this lead to weaker networks regardless of the organizational gender composition context. However, when considering the proportion of men contacts as a mediator on network strength, post hoc results indicated more complex findings. In strategy formulation networks, women's lower proportion of men contacts was associated with slightly reduced network strength, whereas in combined networks it was linked to increased strength. Such findings indicate that men may still prefer gender homophilous connections especially when engaged in riskier or more 'selective' strategic direction setting conversations versus when discussing the enactment of such decisions. When dealing with the uncertainty inherent in strategic planning, men appear to retreat to the 'familiar territory' of their men contacts—a risk-mitigation strategy rooted in homophily. Although, in considering the broader combined strategy network, women's lower proportion of men contacts led to increased network strength.

Overall, the present study's findings both affirm and challenge some traditional assumptions and research on gender and networks emphasizing that the personal networks of men and women in organizations not only exhibit different structural characteristics, but that those structural characteristics can have different effects on men and women's involvement in strategic conversations and their career success (Woehler et al., 2021). It should be noted though that the effect sizes across all analyses were generally very small, suggesting there are likely other factors at play impacting men's and women's strategy networks. Gender differences in personal network composition and subsequent involvement in strategy conversations appears to only be a piece of a larger puzzle. Nevertheless, in social network research, even small effects

can represent meaningful differences in access to information and resources, including when accumulated across multiple network connections (McPherson et al., 2001; Barabási & Albert, 1999; Burt, 1992; Burt, 2004; Granovetter, 1973). Furthermore, some of the effects emerged despite controlling leadership status as well as accounting for organizational differences through centering techniques, indicating that gender-based network patterns persist but likely operate subtly within the constraints of existing organizational structures.

Despite the unexpected nature, the present findings offer unique insight into modern gender and organizational network dynamics. Findings emphasize how homophily tendencies can shape strategic conversation involvement in part through the proportion of men contacts, which can subsequently impact network power and strength (Ibarra, 1992, 1993; McPherson et al., 2001), but in unexpected ways. Following one of the most supported findings in the gender and networks literature (Woehler et al., 2021)—both men and women tended to follow gender homophily tendencies, but men showed stronger homophily tendencies. Yet, contrary to my hypothesis, women had higher degree centrality because they had fewer men contacts. Such findings challenge traditional assumptions that (1) women need to be connected to men in order to 'get ahead' and that (2) access to more men's networks enhances centrality (Ibarra, 1993). Historically, women needed connections to men because organizational power structures were often men-dominated. Resources, information, and strategic opportunities flowed largely through men's informal networks (Kanter, 1977). Women without access to such men-dominated networks tended to face significant structural barriers to advancement and influence regardless of their competence or qualifications (Brass, 1985). I am not suggesting that the workplace is now devoid of all sexism, gender biases, or women's exclusion from informal networks—such factors have still been shown to obstruct women's networking and career progression (See Table 1).

Rather, with more women in the workplace and changing organizational norms, women may not *need* connections to men as much as they did about forty years ago, which could be driving the present study's findings.

Additionally, changing organizational landscapes may in part have led to the present study's findings that women's degree centrality was higher because they had fewer men contacts. That is, many organizational landscapes are becoming increasingly flatter, although the rate of change varies by industries. Some industries are readily adopting flatter, more collaborative organizational structures, while other more traditional industries show hierarchical resilience. Industries in my study represent this divide: Healthcare, Education, and Non-profit sectors have generally embraced more distributed authority and team-based approaches, while Energy and Facilities Management often maintain more rigid, hierarchical structures. Training & Development and Cleaning services likely fall somewhere between, adapting organizational forms based on client demands and market pressures. With such varied organizational landscapes, particularly in having more industries that are generally becoming flatter, the present sample may be skewed towards such collaborative tendencies leading women to not need men contacts as much to be highly connected to other organizational leaders. For instance, in flatter organizations like those in Education where women often comprise the majority workforce, having fewer connections to men becomes less problematic and may actually allow for more strategic relationship building.

Prior research also suggests that women may excel as network "connectors" due to socialized tendencies toward relationship-building and collaborative approaches to work (Eagly & Carli, 2003; 2007). Following gender homophily tendencies, women leaders may not only just connect with other women, but also work with them, and introduce them to other network

members—all of which could increase women's degree centrality without men contacts. Women are often expected to behave more communally (Eagly et al., 2000), and such behaviors may lead to increased degree centrality. With fewer men in their networks, women also likely develop stronger relationships with their women contacts.

The (post hoc) results from testing the relationship between gender and network strength through the proportion of men contacts also show evidence of a "quality" over "quantity" tendency whereby women may form deeper, stronger connections because they're connected to fewer men. Thus, in combination with women's tendencies to be more collaborative and having more women in organizational leadership positions, likely led women to form fewer men contacts yet strengthen the relationships they do have with women, leading to higher network power and strength.

Lastly, I may have found evidence counter to my hypothesis because of how network power was measured. I measured network power as participants' degree centrality across all the strategy networks—dividing the number of total contacts by all possible within their organization. However, as I discuss in the limitations section, I was unable to capture the relationship valence, perceived or actual value of the contact, duration in how long connections have existed, or the frequency of communication contacts had with each other. The study treated all connections as equally beneficial. Such measurement limitations may have led results to overemphasized contact quantities, not fully taking into account the strategic value of certain connections. For instance, women may have higher degree centrality not because they have fewer men contacts per se, but because they develop more strategic or influential connections that were not captured.

In sum, there are likely many reasons why I found counter to hypothesized findings, including: changing workplace culture, organizational landscapes, gender differences in relationship tendencies, and inherent measurement limitations. Such factors suggest a 'give' and 'take' pattern whereby changing organizational cultures and landscape may butt up again socialized relational gender differences to create complex network dynamics. Women are likely both adapting to and shaping formal and informal organizational structures.

As for my other findings that countered my hypotheses, the significant relationship between gender and network stability through work group range, likely stems from methodological considerations rather than substantive gender differences. I only found significant relationships when leadership status and team size were not included as control variables. Both controls are conceptually and theoretically likely to impact work group range. Effective leaders typically maintain broader organizational connections across work groups, not just their own (Balkundi & Kilduff, 2006). Team size can also influence work group range in terms of the number of leaders with whom a participant had more immediate, formal contact. That is, if a participant was on a work group that comprised very few other leaders, then the individual likely has a higher chance of having larger work group range when engaging in strategy networks. Thus, participants' leadership roles and their work group contexts likely drove differences in network stability, with gender differences becoming non-significant once implementing such controls.

Additionally, the counter to hypothesized findings for the relationship between gender and networks stability through work group range appear to align more with Burt's (1992; 1998) perspective of networks, rather than Ibarra (1993). Burt suggests that men are more likely to occupy strategic network positions that bridge otherwise unconnected individuals (i.e., positions

bridging structural holes) than women. He attributes such gender differences in part to women's tendencies to form more cohesive connections within a network—women may be more likely to connect disparate groups of people, rather than maintain the more powerful 'broker' role. Such differences also align with the traditional view of brokers as gatekeepers, representatives, or liaisons rather than collaborative facilitators (Kwon et al., 2020). Consequently, *men* may be more likely to have contacts outside of their immediate work group and thus have less stable networks than women. Nevertheless, the results from the hypothesis test were only significant without controls. There appear to be other factors beyond work group range (i.e., leadership status and team size) that may impact the relationship between gender and network stability through work group range.

Regarding my non-significance finding for the relationship between gender and network strength through the proportion of cross-gender contacts, the results show how network research can be nuanced. Results showed the men and women did not significantly differ in their number of cross-gender contacts, although they did differ in the number of men contacts for the hypothesis tests. For the research question moderated mediation analyses, women consistently demonstrated significantly more cross-gender contacts across all strategy networks (See Table 16). Such results on the surface may appear contradictory, especially since for women, cross-gender and men contacts are conceptually and mathematically the same. However, gender similarities found in the hypothesis testing for cross-gender contacts likely stem from organizational or job functions and responsibilities requiring cross-gender collaboration. For men, the results suggest a dual networking pattern: they maintain the cross-gender connections necessary for work functions (comparable to women) while also developing same-gender ties. Such additional networking activity likely contributes to men's observed higher degree

centrality. Women, conversely, appear to form networks more aligned with professional necessities rather than gender preferences. Therefore, the similar cross-gender proportions despite differences in men contact proportions indicates that work-related networking needs create a baseline of cross-gender interaction that likely operates more independently from personal networking preferences. Consequently, I did not find gender differences in multiplexity through the proportion of cross-gender contacts. This is likely where having additional information regarding the network's valence, perceived value, and other interpersonal factors could provide additional insight.

Theoretical & Practical Contributions

The present dissertation has several theoretical and practical implications. Specifically, I make three primary contributions to organizational theory and research on gender, networks, and management. First, I address important critiques of research on Upper Echelons Theory (Hambrick & Mason, 1984) and Resource Based View (Barney, 1991) about how representation may not be a proxy for involvement (Sirmon et al., 2007; Neely et al., 2020). Both theories assume diverse representation implicitly translates to minority group members' involvement. However, in taking a social network approach, I empirically assessed whether women leaders are involved in strategic conversations at the same rate as their men counterparts. The social network approach provides a more nuanced understanding of women's involvement in high-level organizational decision-making.

Second, I advance theory at the intersection of network dynamics, career advancement, and organizational effectiveness by showing how positional network characteristics within the organizational strategy conversations shape women's involvement. Women have long been excluded from informal organizational networks, which is a critical barrier to women's influence

and career advancement (Brass, 1985; McGuire, 2002; Catalyst, 2006; Greguletz et al., 2019). My dissertation articulates mechanisms by which such career progress may be hindered—the gender composition and range of one's network impacting network power, stability, and strength. When women are not involved in strategic conversation networks, they are unlikely to gain access to other influential organizational leaders, resources, knowledge, and opportunities, which further limits their organizational visibility and professional reputations (Podolny, 2001). Visibility in general is related to career advancement (Smith & Cheng-Cimini, 2023; Burt, 1992), but more specifically, increased influence (Pfeffer, 1992), access to higher impact projects (Dutton & Ashford, 1993), salary increases (Leahey, 2007), and general job security (Cantor, 1988). The importance of visibility from participating in strategy conversations may also be exacerbated in today's hybrid or fully remote workplace where women, who have been found to prefer and more often need to work remotely due to caregiving responsibilities (LeanIn & McKinsey & Co., 2024), may experience a proximity bias from not working in person (e.g., Villamor et al., 2023).

Additionally, women's lack of equitable involvement in strategic conversation networks is likely to limit an organization's strategic effectiveness. Substantial research suggests that when multiple viewpoints are taken into account, including those of women, it can lead to improved problem-solving, strategic thinking, and more generally increased performance and financial returns (Herring, 2009; Dezsö & Ross, 2012; Díaz-García et al., 2013; Ferrary & Déo, 2022; Richard et al., 2013). However, the benefits of diversity are only realized when team members engage with each other, and diverse perspectives and unique information are explained and heard. Thus, women's lowered involvement in strategic conversations is likely to create less effective strategy and hinder organizational growth (Cox & Blake, 1991; Richard, 2000). As

Mantere (2008) suggests, “Organizations do not create, implement, or renew strategies. People do” (p. 312). Thus, no matter how ‘good’ an organizational strategy is, the people involved are critical to its success. Therefore, my dissertation advances understanding of one reason why women’s careers may not advance as the same rate as their men counterparts, but also why organizations may suffer because of it. Indeed, when women develop *more* men contacts than women contacts or develop *fewer* strong connections ties in strategic conversation networks, they have limited access to influential organizational leaders, resources, and knowledge (Podolny, 2001), constraining both their career advancement (Lin, 1982; 1999; Siebert et al., 2001) and organizations’ ability to leverage diverse perspectives for strategic effectiveness (Herring, 2009; Dezsö & Ross, 2012).

Third, I contribute to theory by revealing how an organizational context shapes the relationship between gendered network characteristics and strategic conversation involvement in unexpected ways. Findings provide some nuance to critical mass assumptions (e.g., Kanter, 1977; Konrad et al., 2008). When there were more women in organizational leadership overall, women with fewer men contacts had higher network power. Findings are complementary with critical mass assumptions (e.g., Kanter, 1977; Konrad et al., 2008). Increased representation of women in across leadership positions facilitated network power and strength through fewer men contacts.

The study also offers several practical implications. The results highlight that career advancement is not simply about building extensive networks, but rather about developing meaningful, deliberate relationships that facilitate strategic involvement. In the present study, men and women were found to differ in network power and strength through the proportion of men contacts. Therefore, effective networking strategies may need to be tailored by gender, with

selective contacts (especially with how many men contacts one had) and leveraging their strengths in building multiplex relationships.

Rather than trying to 'cast the broadest net,', women can benefit from more targeted approaches to relationship development (Dunn et al., 2019). Women's higher power in networks with lower proportions of men contacts suggests that strategic selectivity, rather than maximizing connections with men, may yield greater influence. Such selective approach allows women to invest in relationships where gender dynamics are less likely to undermine their power and where deeper trust can be established. Findings (unexpectedly) align with Yang et al. (2019), who demonstrated that while network centrality predicted post-graduation job placement for both men and women, women specifically benefited from having a 'women-dominated inner circle' along with their more central network position. While Yang and colleagues suggests that women's centrality and a women-dominated inner circle worked *together* to lead to women's improved job placement, the present study suggests that women's 'women-tipped' networks also *lead* to higher centrality. Thus, a critical networking strategy for women is to grow networks with slightly more women than men, fostering increased network power and likely improved career outcomes.

Building stronger, multifaceted connections, particularly with influential organizational leaders is another networking strategy that likely increases career advancement. Stronger, trust-based relationships can lead to greater advocacy and support (Methot et al., 2016; Dutton & Heaphy, 2003), optimally positioning network members for involvement in strategic conversations and potentially boost career outcomes. That is, when relationships combine instrumental benefits (e.g., strategic information, job-related knowledge) with expressive elements (e.g., friendship, social support), individuals gain deeper integration into organizational

networks and increased access to strategic discussions (Granovetter, 1973). The resulting enhanced visibility, influence, and access to job-related resources likely drive career progression (Cotton et al., 2011; Shah et al., 2017).

For instance, Methot and Cole (2023) showed that building social relationships early in one's career is more conducive to developing long-lasting multiplex relationships with prosocial and career-related support. In a study of emerging leaders participating in a structured leadership development program, Methot and Cole found that individuals who built social relationships early in their careers were more likely to develop enduring, multiplex relationships that integrated both prosocial (such as friendship and emotional backing) and career-related support (like strategic advice and access to key opportunities). Further, such early investment in relational capital facilitated deeper integration into organizational networks, ultimately enhancing visibility, influence, and long-term career advancement. Therefore, women leaders—especially those who want to advance their careers—would do well to develop multiplex relationships early on.

Additionally, as Kulkarni (2012) suggested, multiplex relationships may be especially important for minority group members' career progression because of social norms "constraining unethical behavior" (p. 143). That is, because multiplex partners are bound by a broader range of shared goals and social expectations, they are less likely to engage in questionable activities that compromise reputational capital within those deeper relationships. Therefore, career advancement is more likely to be perceived as merit-based, rather than driven by favoritism or hidden deals.

It should be noted, however, that the strategy of developing strong, multiplex ties for strategic conversations contrasts traditional network theory emphasizing the benefits of 'weak'

ties (Granovetter, 1973) and brokerage positions (Burt, 1992). Weak ties are more casual connections among acquaintances (Granovetter, 1973), and brokerage is the extent to which an individual acts as an intermediary linking other actors within a social network (Kwon et al., 2020). Brokers can serve as a network 'bridge' covering potential structural holes, which are gaps between clusters of unconnected network members (Burt, 1992). Because brokers often rely on weak ties, their network positioning facilitates information flow and connects distributed people and resources, providing access to novel opportunities such as job searches, promotions, and skill development that enhance career mobility and professional success (Halevy et al., 2019; Stovel & Shaw, 2012; Burt, 1992; Granovetter, 1973). Weak ties and brokerage positions can help individuals 'get ahead,' but prior research suggests that women are less likely to occupy brokerage positions or face more barriers translating their brokerage position into career advancement (Fang et al., 2021; Nicolaou & Kilduff, 2023; Carboni, 2023). Thus, different relationship types may serve distinct purposes in career advancement. Strategic conversation involvement is more aligned with deeper trust and mutual understanding developed through stronger, multiplex relationships. Both weak and strong ties can facilitate career progression but in distinct ways.

Taken together, the present study's findings provide insights into networking strategies conducive for strategic conversation involvement and future career success. For mid-level women leaders, the emphasis should be on translating functional expertise into strategic insights that can contribute to high-level conversations (Raes et al., 2011), combined with developing selective, strong relationships. As the results suggest, women don't necessarily need to be connected to men to advance, but rather can benefit from multiplex relationships with influential organizational members who can provide access to strategic conversations and

resources. Women leaders should strategically cultivate relationships that provide both social support and career-advancing opportunities, prioritizing quality over quantity. By developing a core, women-dominated network of trusted connections and selectively forming multiplex relationships with influential leaders across the organization, women can establish pathways to strategic involvement that align with their natural networking tendencies.

Indeed, such networking approaches likely allow women leaders, such as middle managers to gain better insight into strategy processes and the business context—all providing valuable future job-relevant training. For instance, through deeper relationships with a TMT member, they could potentially learn more about broader organizational operation challenges, the organizations' long-term goals and direction, general industry trends, and more (Dunn et al., 2019). The exposure and informal learning from strategic conversation involvement can not only optimally position middle managers as knowledgeable in not only their content domain, but also the broader business landscape and thus be especially relevant to future organizational decision-making. The broader business and strategy acumen gained from multiplex relationships could set up the middle manager for more senior leadership positions; today's leaders are increasingly needing a range of skills and perspectives to effectively manage business 'ecosystems' rather than business unit silos.

For senior-level women leaders, the results suggest they should work to be mindful of how their presence might influence relationship development patterns in the organization. Senior women might consider taking active roles in facilitating strategic connections across organizational levels. They can intentionally foster deeper, multifaceted relationships with junior women while simultaneously facilitate additional connections—introducing the junior leader to their contacts. By acting as both mentors and network 'builders,' senior women can help expand

junior women's and their own degree centrality. This strategic sponsorship approach allows senior women to leverage their positions to create networking opportunities. They can help junior women navigate organizational politics and access strategic conversations enhancing visibility and career prospects.

The present study additionally has practical implications for organizations. When women are meaningfully involved in strategic conversations, organizations benefit in ways consistent with both Resource-Based View theory and Upper Echelons Theory. From the Resource-Based View perspective, networks that incorporate women's voices can be valuable, rare, inimitable, and non-substitutable, creating sustainable competitive advantages that competitors cannot easily replicate (Barney, 1991). Similarly, Upper Echelons Theory posits that organizational outcomes reflect and are improved by diverse characteristics of those participating in strategic decision-making (Hambrick & Mason, 1984). When women actively contribute to strategic networks, their perspectives can enhance decision quality, reduce groupthink, and increase innovation potential. Therefore, organizations that involve women in strategy networks not only advance gender equity, but also strengthen their competitive advantage.

As such, organizations can take steps to promote women's involvement—creating opportunities and space for intra-organizational networking. For instance, organizations can enhance their formal mentoring programs by integrating networking strategies and opportunities to help protégés, especially women, intentionally build valuable professional networks (Day, 2000; Bierema, 2005; Ibarra & Hunter, 2007; Cullen-Lester et al., 2016). Mentoring programs could include networking events where mentees interact with high-ranking leaders across genders, expanding their access to influential contacts. Such interactions should be designed to facilitate multiple touchpoints over time as research shows that repeated interactions are crucial

for developing trust and mutual understanding (Levin & Cross, 2004) and because women often face structural or cultural challenges in connecting with more senior leaders to begin with (Ely et al., 2011; O'Neil et al., 2011). Such interventions align with research on leadership succession, which suggests that a favorable diversity climate and intentional mentoring efforts increase the likelihood of women being nominated for leadership positions (Virick & Greer, 2012). The integration of mentoring with strategic networking opportunities is likely to reinforce the documented benefits of mentoring programs (Debebe et al., 2016; Ragins & Kram, 2007), including more promotions, increased job satisfaction, and overall improved subjective and objective career success (Allen et al., 2004; 2017). Ensuring women have access to mentors or sponsors is important for facilitating their career mobility and access to strategic resources (Hopkins et al., 2008; Son Hing et al., 2023). Therefore, in embedding networking opportunities within formal mentoring structures, organizations can help mitigate the systemic barriers that limit women's leadership prospects and at the same time, improve overall performance and competitive advantage.

Limitations & Future Directions

The present study is not without its limitations, however. First, even though I used a whole network approach, there were still some members of each organization who did not complete the survey and thus were not included in the analyses. Across all 13 organizations, I had an 85.6% response rate. Those participants who completed the survey were the 'whole (intraorganizational) network.' Individuals who did not take the survey were excluded from all analyses and corresponding organizational networks. Missing leaders from these networks may have impacted results. However, in social network analysis, a response rate exceeding 80% is

generally required to accurately capture the network structure (Brass & Borgatti, 2020). Therefore, the chances of results changing significantly due to the missing data are minimal.

A second limitation is that the cross-sectional design provides only a snapshot of organizational strategy networks. I am unable to conclusively make causal claims related to women's network power and strength through the proportion of men contacts. However, research shows that tendencies towards homophily are not only present in adolescence (McPherson et al., 2001), but are likely to present and drive relationship formation, subsequently leading to different network structures. That is, the temporal sequence suggests that homophilous preferences influence who individuals initially connect with, and these connection patterns then shape subsequent network characteristics such as degree centrality (power) and multiplexity (strength; Ibarra, 1993). Gender homophily is an important mechanism and antecedent through which organizational networks form, impacting network positioning (Ibarra, 1992). Thus, because homophily theoretically drives the formation of network contacts, my hypotheses follow the theoretically established temporal sequence where the gender composition of one's network can precede and influence strategy network positioning.

Furthermore, the cross-sectional design is a limitation because research on network decay reveals gender differences in relationship longevity and maintenance (Roberts & Dunbar, 2015). For instance, men leaders tend to have longer lasting strategic relationships compared to women leaders, whose ties are more likely to decay even after just 3 years because they are generally less embedded in the network (Burt, 2000). Professional relationships may deteriorate quicker without shared social circles or mutual contacts (Krackhardt, 1998). Leaders may also specifically choose relationships to 'keep' versus 'drop' in order to invest more time and effort in ones they feel offer the most value (Tasseli & Kilduff, 2021). Those network decay differences

also do not include any job, organizational, hierarchical, or life changes, which also likely impact professional network decay. As such, women leaders may have different intra-organizational strategic networks depending on when they are sampled.

Future longitudinal research could explore how organizational changes alongside individual career trajectories, impact network composition and decay patterns differently for men and women. Women may encounter unique challenges in preserving their networks during specific organizational transitions. For instance, established strategic relationships may falter during mergers or acquisitions as reporting structures change and informal power dynamics shift. In the current study, women showed higher network power due to having fewer male contacts, particularly in organizations with more women leaders. However, if both the organizational gender context and influence dynamics are disrupted, what implications does this have for women's networks? Women may find their networks disproportionately affected if such organizational restructuring alters the gender composition that previously supported their strategic involvement.

Additionally, during times of significant leadership turnover, women might face the dual challenge of rebuilding strategic relationships with new leaders while also maintaining existing networks. Such changes could create a "relationship maintenance burden" whereby women expend substantial time and effort to simultaneously grow existing relationships while starting to develop strong connections with new leaders. Indeed, longitudinal studies could further investigate whether women's "quality over quantity" approach to strategic relationships provides sustained network involvement benefits across organizational changes like leadership turnover. Findings would extend understanding of whether the contemporary patterns observed—where women may benefit more from fewer men connections—represent a fundamental shift in

organizational dynamics or a more context-specific adaptation. Overall, researchers can examine how network power and strength evolve, particularly as relationships mature or during times of organizational change. Given that network power and strength are important for strategy network involvement, knowledge of how these relationships develop, strengthen, or deteriorate across organizational transitions would provide valuable insights into gender-differentiated career trajectories.

A third limitation is that each network connection was assumed to be equal to one another. The present study's results did not change when controlling for formal roles (i.e., team leadership or TMT membership). However, I could not quantify the valence, perceived or actual value of connections duration in how long connections have existed, or the frequency of communication contacts had with each other. This is a limitation because organizations are political environments where some connections may be genuine, yet others may be performative or even purposefully disruptive (Brass & Krackhardt, 2012). For instance, certain network ties can provide 'negative relationships,' which function as sources for misinformation, strategic deception, or deliberate obstruction of knowledge flows (Labianca & Brass, 2006). As Merluzzi (2017) shows, negative ties can also follow gendered patterns, with women more likely than men to cite other women as negative ties, particularly when they have fewer women in their social support networks. Further, Grosser et al. (2010) found that negative gossip is more likely to circulate in dense and expressive networks, such as multiplex connections with deeper trust. Such hindrance connections, therefore, may actively reduce or obstruct involvement in strategy networks.

Future research can thus assess not only the organization's competitive or political culture, but also the extent to which connections are beneficial, 'just for show,' passively or

actively negative, and whether such differences lead to meaningful gender differences in strategy networks. For instance, building on Labianca and Brass' (2006) concept of negative asymmetry, where negative relationships can have stronger effects than positive ones, future research can examine whether women experience stronger or more negative consequences from difficult strategic relationships than their men counterparts. In highly political organizations, women may experience increased burdens where managing challenging strategic relationships consumes disproportionate cognitive and emotional resources. The current study found that women had higher network power because they had fewer men contacts. However, in environments where negative relationships proliferate, women's network power or strength advantages may be lessened. Furthermore, researchers could examine whether women and men employ different strategies to mitigate negative relationships in their strategic networks and whether such strategies yield different outcomes for network positioning over time. Understanding the types of relationships within strategy networks would enhance knowledge of how gender shapes not just the development of strategic networks, but also their resilience and adaptation in light of interpersonal challenges.

Further, not being able to study such interpersonal dynamics is a limitation because prior research suggests that women's contributions may not always be acknowledged or valued at the same rate as their men counterparts. For instance, Hofstra et al. (2020) explored the impact of the diversity-innovation paradox. The researchers found that while minorities tend to be more prolific academics and scientists, their contributions were generally undervalued compared to majority group members. Similarly, Ross et al. (2022) found that women scientists are significantly less likely to be given authorship credit for their contributions compared to men. The gender gap held across multiple fields and career stages. Therefore, even when women may

be included in strategy conversations, men's perspectives may be more recognized and valued beyond those provided by women. The present study takes a more nuanced view into women's involvement by utilizing a social network perspective; however, future research can employ mixed method to assess the perceived quantity and quality of strategic involvement as well as test whether gender-diverse strategic conversation involvement leads to improved organizational strategy and performance.

Lastly, a fourth limitation concerns my focus on intra-organizational strategy networks. Strategic networks were particularly relevant to study network involvement as they're directly related to business growth and management dynamics. However, such focus may overlook other important network connections that could impact strategic conversation participation. Various types of networks—including other intra- or interorganizational networks likely influence strategic involvement through multiple pathways. For instance, competency networks containing people's perceptions of who is particularly good at their job may similarly shape involvement patterns, with perceived expertise likely serving as a catalyst to strategic discussions (Ahearne et al., 2014).

Additionally, other informal social aspects can significantly shape network involvement. Consider how shared interests in sports, including activities like golf that have historically served as "members only" venues for business decisions, can create informal pathways to involvement (Gray et al., 2020). When senior leaders discover shared interests with colleagues, it can lead to increased interaction and involvement in both social and work-related conversations, potentially affecting strategic network positioning. The interplay between formal and informal networks becomes especially relevant when examining gender dynamics, as women often need to leverage different networking strategies than men to achieve similar outcomes (Brass, 1998). Future

research that provides a comprehensive examination of such varied network types would provide valuable insights but remains beyond the scope of the dissertation.

CHAPTER 6: CONCLUSION

The present study emphasizes complex dynamics between gender, network composition, and organizational strategic conversation involvement. Contrary to expected, women had higher network power and strength because they had fewer men contacts. The results both challenge and refine traditional assumptions about women's networking patterns. Rather than being excluded from strategic conversations as previous literature might suggest, women appear to develop alternative networking approaches that can effectively increase their involvement in strategy networks. By moving beyond demographic representation to analyze how men and women leaders participate in strategic networks, these findings offer important insights into the mechanisms that shape organizational strategy formulation and implementation, and women's career advancement.

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