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Achieving an Organizational Culture to Increase Female Leadership in Technology Organizations

kikelomo Lina Awodogan
Walden University

Walden University

College of Management and Human Potential

This is to certify that the doctoral study by

Kikelomo Lina Awodogan

has been found to be complete and satisfactory in all respects,
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the review committee have been made.

Review Committee
Dr. Meridith Wentz, Committee Chairperson, Doctor of Business Administration Faculty

Dr. Christopher Beehner, Committee Member, Doctor of Business Administration Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
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Abstract

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Kikelomo Lina Awodogan

MS, University of Houston Victoria, 2019

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

The nonexistence of organizational culture to increase female leadership in technology organizations impacts organizations' performance. Leaders of technology organizations who do not create an organizational culture to increase female leadership may experience innovation gaps reducing their competitive advantage. Grounded in the gendered organization theory, the purpose of this multiple case study was to explore strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance. The participants were three technology leaders located in the United States. Data were collected via semistructured interviews and publicly available information on the company's website. Yin's five-step approach was used to analyze the data. The key emergent themes were developing female skill sets, promoting development programs and continuous training, work-life balance amongst female employees, and networking programs to support female employees to undertake leadership positions. A key recommendation for technology leaders is to connect with associations and resource groups to encourage mentorship and sponsorship within and outside the organization and direct feedback channels to management. The implications for positive social change include the potential to promote and encourage the number of women in leadership, potentially encouraging education among young girls, thereby reducing illiteracy and poverty in society.

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Dedication

I dedicate this project to the Almighty God who has helped me and to my family for the support and sacrifice towards achieving this goal. To everyone who has contributed to the success directly and indirectly, thank you.

Acknowledgments

I would like to give all thanks and praise to my heavenly father, Jesus Christ, for always helping me. I want to give a special thank you to my chair, Dr. Meridith Wentz, who supported and was the driving force for me during this journey. Thank you for your extra push and for going above and beyond to ensure I finish my doctoral study. I could not have made it to the finish line without your expertise and motivation. My gratitude also goes to my second committee member, Dr. Christopher Beehner, for their helpful guidance. Your expertise was crucial to the success of this doctoral degree.

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Section 1: Foundation of the Study

The technology industry experiences advancement through continued innovation and development. Gender diversity enhances innovation and improves organizational performance. According to Jorge et al. (2018), increases in female leadership resulted in better organizational performance. Despite the benefit of gender diversity, women are still not represented in significant numbers in top leadership position in the technology industry. Female leadership in technology is considerably low because there is an existence of barriers limiting women from attaining the top of their careers (McCullough, 2020). Due to underrepresentation of women in leadership positions, it is necessary for business leaders to implement organizational cultures that promote more women to leadership positions to improve organizational performance. The purpose of this multiple case study was to identify the strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance.

Background of the Problem

Researchers have shown that diversity promotes productivity and business results may be negatively impacted if organizations do have diverse leaders. Jorge et al. (2018) indicated that the shortage of women in leadership positions negatively impacts business performance. Gender diversity helped catalyze and sustain innovation while increasing the collective intelligence of an organization (Denend et al., 2020). The failure to have diverse leadership may inhibit the innovation needed to promote the growth of organizations.

Schmitt and Wilkesmann (2020) explained that the underrepresentation of female leadership in the science, technology, engineering, and mathematics (STEM) industry is a global phenomenon. Stephens and Wilson-Kennedy (2019) argued that despite women making up 56% of the students enrolled in colleges and universities, few women are making it to leadership positions. These authors validated McCullough's (2020) findings that indicated the existence of barriers limiting women from attaining the top of their careers in the STEM industry. Women experience the potential for discrimination in STEM settings (Ruan, 2020). Mascia (2015) explained that early research had shown a "glass ceiling' that limits women's leadership level in the corporate world.

Sobieraj and Krämer (2019) explained that there is a stereotype that the STEM field is associated with males rather than females. Eagly (2021) suggested that there is inconsistency in the number of female leaders in STEM; however, McCullough (2020) concluded that several factors, such as general gender bias and family and cultural expectations, contribute to the barriers to women's career paths to leadership positions in the STEM industry. In a study the work-life balance for women in STEM leadership, Brue (2019) identified significant issues hindering women in STEM from attaining leadership positions in STEM.

Problem and Purpose

The shortage of women in leadership positions negatively impacts business performance (Gaston et al., 2020). Of the top 20% of best performing companies, 27% had women in key leadership roles across the entire organizational structure, while out of the bottom 20% of companies, 19% had women in leadership roles (Denend et al., 2020).

The general business problem was that the U.S. technology industry has failed to provide an environment that is supportive of having women in leadership positions, negatively impacting business growth. The specific business problem was that the leaders of technology organizations lack strategies for achieving a culture-friendly environment and adequate support that allow women to occupy leadership positions for improving business performance.

The purpose of this qualitative multiple case study was to explore strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance. The targeted population comprised three U.S. technology leaders. The study findings may contribute to positive social change by increasing the number of women in leadership, potentially encouraging education among young girls, thereby reducing illiteracy and poverty in society.

Population and Sampling

The targeted population comprised three technology leaders located in the United States who have successfully increased female leadership in their organization. The technology leaders included senior executives in an organization responsible for leading information technology. The leaders were required to have worked in the technology industry for more than seven years to be included in the study. I used purposive sampling to recruit participants through my professional networks like LinkedIn. Data were collected through semistructured interviews with the participants and review of related organizational documents for relevant information.

Nature of the Study

Researchers can use qualitative, quantitative, or mixed methodologies (Saunders et al., 2018). Researchers use the qualitative method to employ an interpretive methodology to gain an in-depth knowledge of research phenomena, which enables the exploration of phenomena by interacting with the research participants (Frost & Bailey-Rodriguez, 2020). I employed the qualitative method for this study because I explored a phenomenon in multiple cases. Quantitative researchers use hypotheses to establish a relationship between independent and dependent variables (Saunders et al., 2018). The quantitative method was not appropriate for this study because I was not examining relationships among variables. A mixed-method study includes the combination of qualitative and quantitative elements (Yin, 2018). I did not use the mixed-method approach because there was no quantitative component to the study.

Using a case study design allows researchers to explore "how" and "what" questions to understand the features of the case under study (Yin, 2018). Using a multiple case study design enables researchers to collect, interpret, and compare data collected from numerous participants across multiple sites who observed phenomena in a real-life environment (Saunders et al., 2018). I employed a multiple case study design for the current study because I sought to understand phenomena from numerous participants across multiple sites in a real-life situation.

Other research design options considered were miniethnography and phenomenology. Researchers use miniethnography to assess a culture or social world (Saunders et al., 2018). Since I did not immerse myself in the culture of the participants

to study their behaviors, beliefs, and languages, the miniethnographic design was not appropriate for this study. Researchers employ a phenomenological design to explore the lived experiences of research participants (Alfakhri et al., 2018). The phenomenological design was not appropriate for this study because my focus was on strategies technology leaders use to provide a cultural-friendly environment and not the lived experiences of individuals.

Research Question

What strategies do technology leaders use to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance?

Interview Questions

1. What strategies are you using to provide a culture-friendly environment for female leaders?
2. What strategies are you using to hire females in technology at your organization?
3. What support do you provide to allow women to occupy leadership positions?
4. What strategies are you using to encourage lower and midlevel female employees to take on higher level positions?
5. What barriers do women face moving through technology leadership roles at your organization?
6. What assistance is available to ensure the inclusiveness of female leaders in technology?

7. What programs are in place to encourage more females to pursue technology careers?
8. What else would you like to add about strategies to provide a culture-friendly environment and support to allow women to occupy leadership positions to improve organizations' performance?

Conceptual Framework

Joan Acker developed the gendered approach theory in 1990, and it was designed to provide an understanding of gender as a socially produced distinction between females and males during participation in work organizations (Ruan, 2020). The core concepts of the gendered approach are that the organizational structures are inherently dominant. In gendered organizations, major differences exist between men and women, and their career outcomes become significantly different, where preferences are given to men rather than their female counterparts (Adams & Greer, 2021).

The logical connection between the gendered approach theory and my focus in the current study provided me with a perspective through which to identify and explore the strategies that technology leaders used to develop and implement a culture-friendly environment and adequate support that enables women to occupy leadership positions in technology for improving organizations' performance. Researchers have utilized the gendered organization approach to determine the impact of potential gender biases within different industries and institutions. For example, Ruan (2020) used the gendered organization approach to evaluate the nature of knowledge and sociocultural gender bias preventing career advancement amongst female professors in higher education. An

organization's diversity programs must consider the racialized and gendered nature of institutions, interactions, and experiences that reproduce inequality in the workplace (Cundiff et al., 2018). Gendered organizations persist because of everyday practices and are transformed when they are challenged.

Operational Definitions

Effective leadership: A measurement of how leaders' motivational strategy to encourage their employees to develop themselves towards achieving the organizational goals (Conchie, 2013).

Glass ceiling: An imaginary limit to professional advancement that is imposed upon women to attaining upper management positions (Rachmawati & Lantu, 2014).

Organizational culture: A set of shared values intended to guide employees toward acceptable and rewarding behavior that are effective desires of an organization (Cook & Glass, 2014).

Organizational performance: A measure established by leaders to provide the desired outcome that advances an organization financially and operationally (Alagaraja & Shuck, 2015).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions in a research study are ideas that are not tested or supported by empirical data (Osborne, 2017). My first assumption was the technology leaders interviewed would respond to the questions honestly and free of bias. I also assumed that the organizations included in the study would have diverse employee populations, with

qualified women to advance to leadership positions. Finally, it was assumed that interviewees were knowledgeable about the strategies that technology leaders use to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance.

Limitations

Limitations refer to the components of a study that the researcher cannot control and create potential weaknesses (Eriksson & Kovalainen, 2016). One of the potential limitations in the current study was the presence of individual bias, resulting from interviewees' background, work ethics, and experiences. Another limitation was geographical in that the study was limited to the United States; therefore, the results may not be a full representation of the industry globally. Finally, the data were valid only if the participants were completely honest; however, my presence as the researcher during the interview sessions may have influenced the willingness of participants to respond sincerely.

Delimitations

Delimitations are the scope of the study that set prescribed boundaries and parameters (Ellis & Levy, 2009). A delimitation of the current study was the participants' geographic location in the United States. Another delimitation was that the leaders in the technology industry may have limited breadth. The number of research participants was limited to three leaders.

Significance of the Study

This study is significant in that the results may provide new insights regarding the identification and contribution of gender-specific diversity strategies for catalyzing innovation and technology breakthroughs that may further reduce the gender gap in technology leadership and improve firms' performance. Organizational leaders should evolve their business strategy to remain competitive in the marketplace. Multiple researchers have shown the contribution of diverse perspectives to overall organizational results. According to Jorge et al. (2018), research has shown the significant contribution of gender diversity to business growth and economic development; therefore, for STEM companies to remain competitive and foster innovations, leaders should empower more women to take on leadership positions. Jorge et al. argued that women's leadership enhances business results.

Gender-specific diversity has provided organizations and institutions with innovative ideas that created a technology breakthrough through diverse views (Nica, 2016). Eliminating the gender gap in STEM, specifically in the technology industry, will increase the diversity needed for the organization to be innovative and remain competitive in the global market (McCullough, 2020). Additionally, the results from the current study may contribute to positive social change by promoting and encouraging the number of women in leadership, potentially encouraging education among young girls, thereby reducing illiteracy and poverty in society. Women gaining greater representation in leadership may contribute to girl children's growth because they will be encouraged to get educated and aim to succeed. This will help increase the academic community

overall, reducing illiteracy and poverty in the community. The generation of younger women entering the workforce may also see that leadership opportunities are attainable.

According to Jorge et al. (2018), studies confirmed that the lack of representation of women in leadership positions may negatively impact business performance. When women take on leadership roles, the organization experiences high-level performance (Jorge et al., 2018). The current study's implications for potential positive social change include that increased female representation in STEM will foster high business performance and productivity, promoting global economic growth, creating employment, and reducing poverty. Understanding the contribution of gender diversity to business growth, technology companies must create an environment void of the female career glass ceiling, which inhibits the number of women in today's leadership positions to promote innovation in the industry.

A Review of the Professional and Academic Literature

Introduction

Researchers conduct literature reviews to understand and identify potential future research related to the topic (Fink, 2013). In this literature review, I synthesized the extant research on the study topic and gendered organization theory to address the research question: What strategies do technology leaders use to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance? Historically, the shortage of women in leadership positions negatively impacts business performance (Gaston et al., 2020). The top 20% of best performing companies had women in 27% of key leadership roles across the entire

organizational structure, while the bottom 20% performing companies had women in 19% of leadership roles (Denend et al., 2020).

There was extensive research on the barriers to women's leadership, but more research is needed on STEM specifically (McCullough, 2020). According to Jorge et al. (2018), increased female leadership results in better organizational performance. Findings from the current study provided new insights regarding the identification and contribution of gender-specific diversity strategies for catalyzing innovation and technology breakthroughs that reduces the gender gap in technology leadership and improve firms' performance. Acker (1990) developed the theory of gendered organizations and indicated that organizational structures are inherently dominant.

In this literature review, I explored the gendered organization theory in the context of this study. I begin the literature review by discussing the conceptual framework as well as supporting and contrasting theories of gendered organization theory. Then, I present the benefits of women in leadership; barriers women face in leadership positions; the glass ceiling; gendered diversity management; and how culture, policies, and practices contribute to organizational gender diversity. Finally, literature regarding the role of motivation, female leadership in STEM, and the leadership differences between men and women is reviewed.

I used the following four themes to guide the preparation of the literature review section: (a) women in leadership, (b) the glass ceiling, (c) gendered organization theory, and (d) gender diversity. The following databases and search engines were accessed through the Walden University Library to find the sources used in this literature review:

(a) ProQuest, (b) EBSCO, (c) Thoreau, (d) Google Scholar, and (e) EBSCO host. The keyword terms searched included *female leadership in STEM, organizational performance, work-life balance, innovation in STEM, gender inequality, gender diversity, information technology, female leaders, gender organization theory, work motivation,* and *glass ceilings.* The types of literature obtained via the search terms and the publication dates of the collected works are listed in Table 1.

Table 1

Summary of the Literature Review

References	Counts	Percentages
References published within 5 years of 2023	83	87%
References published more than 5 years of 2023	13	13%
Peer-reviewed published within 5 years of 2023	83	87%
Total peer-reviewed published more than 5 years of 2023	13	13%
Total references used	96	

Gendered Organization Theory

I used gendered organization theory as the conceptual framework for this research study. Gendered organization theory is an approach that researchers use to analyze how organizations create and reproduce gender inequalities (Rodriguez & Guenther, 2022). Acker (1990) developed gendered organization theory and analyzed how complex bureaucratic organizations reflect specific gendered expectations and relations. The theory was designed to provide researchers with an understanding of gender as a socially

produced distinction between females and males during participation in work organizations (Ruan, 2020). In gendered organizations, significant differences existed between men and women, and their career outcomes became significantly different, where preferences were given to men more than their female counterparts (Adams & Greer, 2021). Gender diversity within organizations enhances innovation and improves performance. According to Cook and Glass (2015), female employees demonstrated a higher degree of innovation and drove organizational profitability. Women in leadership promoted better organizational performance (Jorge et al., 2018). Despite the benefit of gender diversity, women are still not represented in significant numbers in top leadership positions in the technology industry (Deloitte, 2021). Gendered organization theory is an approach that views organizations as sites that generate and maintain gender dynamics and gender order.

Acker (1990) argued that jobs, work rules, contracts, evaluation systems, and organizational cultures are not gender neutral but rather embody masculine norms and values that privilege men over women. Acker identified five dimensions of organizational processes that produce and reproduce gender inequality: (a) the construction of divisions along the lines of gender, (b) the construction of symbols and images that reinforce gender distinctions, (c) the interactions between individuals within organizational structures, (d) the creation of individual identities through organizational practices, and (e) the reproduction of gendered substructures within organizations. Researchers have utilized the gendered organization approach to determine the impact of potential gender biases within different industries and institutions. Ruan (2020) employed the gendered

organization approach to evaluate the nature of knowledge and sociocultural gender bias preventing career advancement amongst females. Using a gendered perspective, researchers analyze the prejudice, segregation, oppression, discrimination, and inequality created by patriarchy and male dominance in the workplace.

With gendered organization theory, researchers analyze gaps within different occupations, jobs, and industries resulting from gender-based differences in authority, income, power, status, and autonomy (Alobaid et al., 2020). Applying a gender lens to organization theory helped to capture how relational processes in organizations were filtered by gender and how they shaped the psychological, social, and cultural dimensions that constitute the organization as a dynamic, interdependent, and relational structure (Adkins, 2019). Key concepts associated with gendered organization theory focus on gender as a social category that continues to be a source of inequality in work life. Through use of gendered organization theory, researchers have studied how gender interacted with various aspects of social, political, economic, and technological life; how this is manifested in organizations; and how organizations addressed and created new and reconfigured gender(ed) inequalities (Rodriguez & Guenther, 2022).

Gendered organizations have persisted because of everyday practices and are transformed when challenged. Adopting a gendered analytical perspective was critical in the current study for understanding the organization's role in propagating gender inequalities and formulating policies that helped address the problem. An organization's diversity programs must consider the racialized and gendered nature of institutions, interactions, and experiences that reproduce inequality in the workplace (Cundiff et al.,

2018). In conclusion, gendered organization theory was a valuable approach for understanding how organizations are shaped by and shape gender dynamics and inequalities. With gendered organization theory, researchers draw attention to the multiple and complex ways gender interacts with other aspects of social life and how this affects individuals and groups within organizations. Use of the theory also offers insights into how organizations are transformed to foster more diversity, inclusion, and justice.

Supporting and Contrasting Theories

Many theories support and contrast gendered organization theory. According to McCullough (2020), extensive research on the barriers to women's leadership exists, but limited research exists on STEM specifically. Schmitt and Wilkesmann (2020) explained that the underrepresentation of leadership in the STEM industry is a global phenomenon. Researchers using the gendered organization theory have corroborated other research on the lack of women in leadership positions. Gendered organization theory is an approach that is used to analyze how organizations create and reproduce gender inequalities and stereotypes (Rodriguez & Guenther, 2022). The theory can be used to explore how gender affects social, political, economic, and technological life in organizations and how organizations deal with new and changing gender issues (Rodriguez & Guenther). The gendered organization theory has been supported by other theories and criticized by others as they offer different insights into the role of gender in organizations. In the following subsections, I discuss supporting and contrasting theories, including social theory, feminist theory, the radical feminist approach, the postmodern approach, the social feminist approach, and the transnational feminist approach.

Social Theory

The social role theory is a supporting theory to gendered organization theory that encompasses a broad and interdisciplinary field that examines how social categorization and perceptions lead to stereotyping, discrimination, and prejudice. Henri Tajfel (1982) established this theory in the 1970s in Great Britain. Turner and Oakes (1986) argued that the theory could help researchers analyze the psychological behaviors of group members. Using social theory, researchers can also investigate how social structures, processes, and interactions affect various aspects of human life, including science and technology. Bijker (2012) stated that social theorists have claimed that science and technology are neither independent nor neutral but embedded in and influenced by social contexts, values, and interests. This social construction of science and technology suggests the need for more female leadership in technology fields.

According to researchers who have conducted social theory studies, women face underrepresentation and marginalization in technology fields for several reasons. First, women face historical and cultural barriers that have portrayed science and technology as masculine domains, where women are viewed as outsiders, intruders, or anomalies (Dasgupta & Stout, 2019). Second, women encounter organizational and institutional barriers that create a hostile or unwelcoming climate for women in technology fields, such as lack of diversity, inclusion, and belonging; gender stereotypes and biases; harassment and discrimination; and glass ceilings and cliffs (Young et al., 2019). Third, women experience cognitive and psychological barriers that affect their self-confidence,

self-efficacy, and identity as technologists, such as impostor syndrome, stereotype threat, and tokenism (Kim, 2020).

Feminist Theory

The feminist theory offers an overview of strategies to address the lack of female leadership in technology fields. Feminist theory is a vast and diverse field of inquiry investigating how gender influences various aspects of human life, including science and technology (Wajcman, 2010). Feminist scholars have claimed that science and technology are not neutral or objective but reflect and reproduce patriarchal values and interests (Atenas et al., 2022). One of the outcomes of this gendered construction of science and technology is the lack of female leadership in technology fields, such as engineering, computer science, and biotechnology. Both feminist theory and gendered organization theory offer researchers valuable insights into how organizations are influenced by gender relations and how they contribute to the reproduction or transformation of gender inequality. Scholars have revealed the hidden assumptions and practices that maintain male dominance and privilege in organizations by applying a critical and intersectional perspective to organizational phenomena (Frontiers, 2020). Feminist scholars have also suggested ways to challenge and change these assumptions and practices to create more inclusive, equitable, and democratic organizations.

According to feminist technoscience researchers, women face underrepresentation and marginalization in technology fields for several reasons, including the gendered assumptions and norms that underlie science and technology, the lack of diversity and inclusion in education and workplaces, insufficient networks for women's empowerment

and collaboration, and the absence of feminist ethics for fostering innovation (Pullen & Vachhani, 2021). Moreover, women face social and cultural barriers that deter them from pursuing education and careers in science and technology, such as stereotypes, biases, harassment, and discrimination (Diehl et al., 2021). Women have also encountered structural and institutional barriers restricting their opportunities and technological advancement, such as a lack of mentors, sponsors, networks, resources, recognition, and support (Bell & Sinclair, 2016). Additionally, women have experienced epistemological and ontological barriers that question their authority and legitimacy as producers and users of knowledge and technology, such as exclusion from decision-making processes, invisibility in history and innovation narratives, and devaluation of their contributions and perspectives (Pullen & Vachhani, 2021).

Radical Feminist Approach

The radical feminist approach has criticized gendered organization and argued that gender inequality is rooted in the male-controlled system that restrains women and privileges men (Rodriguez & Guenther, 2022). From this perspective, gender is a social structure that influences all aspects of society and culture. Researchers who use the radical feminist approach have suggested that gender inequality cannot be solved by reforming organizations but by overthrowing the male-controlled system and creating alternative forms of social organization that empower women and challenge male domination (Ferguson, 2020). Radical feminists have also suggested that organizations are sites of male violence against women, both physical and symbolic. Physical violence refers to the direct harm or threat of harm inflicted on women workers by men, such as

sexual harassment, assault, or rape. Symbolic violence refers to the indirect harm or threat of harm inflicted on women workers by men through language, images, metaphors, rituals, and stories that convey meanings and messages about the organization. Radical feminists have argued that the culture and symbolism of organizations tend to be masculine in nature and reinforce prevalent conceptions of masculinity that result in undervaluing and debasing the work and contributions of women (Mavin et al., 2021). One of the main contributions of radical feminists to gendered organization theory is to offer a critique of the patriarchal nature of organizations and to propose alternative forms of organizational structure and practice that are more democratic, egalitarian, and women centered. Researchers using radical feminist theory have revealed the hidden assumptions and practices that maintain male dominance and violence by applying a critical and intersectional perspective to organizational phenomena (Grosser & Tyler, 2022).

Postmodern Approach

The postmodern feminist approach has been used to question the gendered organization with the perspective that gender is a fluid and unstable category that cannot be reduced to a binary opposition of male or female (Rodriguez & Guenther, 2022). From this perspective, gender is a discursive construct that varies across time, space, and context. Researchers using this approach doubt the validity and universality of gendered organization theory, which assumes a fixed and essentialist notion of gender (Rodriguez & Guenther). The postmodern feminist approach also challenges the possibility of a single feminist voice or perspective on organizational issues (Ely & Meyerson, 2000). Researchers using the postmodern approach emphasize the importance of recognizing

and valuing the diversity and complexity of organizational realities and experiences, especially those of women and other marginalized groups.

The postmodern approach also advocates for a more reflexive and critical approach to organizational research and practice that acknowledges and challenges the power relations and biases that shape knowledge production and dissemination. One of the main contributions of the postmodern approach to gendered organization theory is the critique of the modernist assumptions that shape organizational theory and practice from a feminist perspective. The postmodern approach exposes how these assumptions are based on a patriarchal view of reality that privileges male norms and values over female or other alternative norms and values. The postmodern approach also shows how these assumptions create a false sense of objectivity and universality that obscures the power relations and inequalities that operate in organizations. The postmodern approach also challenges the notion of a universal or disembodied worker that underpins most organizational thinking.

Social Feminist Approach

The socialist feminist approach investigates how gender intersects with other social categories of difference, such as race, class, sexuality, and disability, to create complex and diverse experiences of inequality and oppression for different groups of women and men in organizations (Lykke, 2020). Researchers using the approach support gendered organization theory, which acknowledges that gender inequality is interlinked with inequality and capitalist exploitation. From this perspective, gender is a social relation that influences the division of labor and resources in society and organizations.

Researchers using this approach argue that gender inequality can be addressed by transforming the economic system and creating more democratic and egalitarian forms of work organization that value women's contributions and needs (Acker, 1990). The socialist feminist approach also recognizes that gendered organizations are not static or homogeneous but dynamic and heterogeneous. Gendered organizations are subject to change and contestation by various actors and factors within and outside the organization.

Moreover, the socialist feminist approach considers how external forces such as globalization, technology, social movements, or legal regulations may affect organizations' gendered dynamics and structures differently (Ferguson, 2020). The socialist feminist approach is a valuable lens to understand how gender is constructed and performed in organizations. It highlights the complexity and diversity of gendered experiences and inequalities in organizational settings. It also encourages critical reflection and action to challenge and transform the gendered status quo in organizations.

Transnational Feminist Approach

This approach explored the connections between postmodernity and postcolonialism (Çalkıvik, 2020). The transnational feminist supports the gendered organization and acknowledges that gender inequality is influenced by global forces and processes that affect different groups of women and men differently. It also involves working across borders and building alliances with women and other marginalized groups to challenge oppression and foster social change (Enns et al., 2021). In the transnational feminist approach, researchers view gender as a contextual category that intersects with other aspects of difference, such as race, ethnicity, nationality, religion,

and sexuality. It highlights the diversity and complexity of women's views and experiences of organizational structures and processes in different regions and cultures (Rodriguez & Guenther, 2022). A transnational feminist perspective on the gendered organization can reveal how organizations are influenced by broader geopolitical and economic factors that affect their policies, practices, and outcomes (Enns et al., 2021). It can also provide a critical lens to understand the intricate and dynamic interplay between globalization, capitalism, gender, and organizations. Moreover, it can offer a transformative vision and strategy to challenge organizational inequalities and injustices and to create more inclusive, democratic, and sustainable ways of organizing.

Benefit of Women in Leadership

Women in leadership roles can have various positive effects on organizations. According to Jorge et al. (2018), increased female leadership results in better organizational performance, improved innovation, and job satisfaction. Women in executive positions have proven beneficial to companies; it is crucial to empower more women to leadership (Jorge et al., 2018). Nekhili et al. (2018) evaluated the relationship between the appointment of women to CEO or chair positions and the impact on the performance of firms, demonstrating that women are more talented and devoted than their male counterparts. The top 20% of best performing companies had 27% of women in key leadership roles across the entire organizational structure, while the bottom 20% had 19% in leadership roles (Denend et al., 2020). Cook and Glass (2015) noted that female employees might demonstrate a higher degree of innovation and can drive

organizational profitability. Women focus on putting structure within the organization, promoting increased engagement and productivity.

Researchers have found that women leaders have a positive impact on diversity, motivation, innovation and promote better organizational performance. Women leaders tend to create more diverse and inclusive teams, which foster higher creativity, innovation, and financial outcomes (Jorge et al., 2018). Women leaders also tend to motivate and inspire their employees, who report higher job satisfaction, motivation, and loyalty (Zenger & Folkman, 2019). Secondly, women leaders are better at management. According to Zenger and Folkman (2019), women leaders tend to display more wisdom and compassion, which enable them to handle difficult situations with courage and care. Women leaders also tend to adopt more effective coping strategies, such as taking decisive action, communicating clearly, and showing empathy (Hougaard et al., 2022).

Women in leadership exhibit more significant social influence. Women leaders tend to have a more robust social commitment and a more participatory leadership style, which foster greater collaboration, empowerment, and social justice (García-Gutiérrez et al., 2018). Therefore, for companies to remain competitive and foster innovations, organizational leaders need to empower more women to take on leadership positions. Jorge et al. (2018) argued that women's leadership enhances business results.

Challenges for Women in Leadership

Though researchers have found significant benefits to female leadership, there remain challenges for women to attain leadership positions. Women in leadership promote better organizational performance (Jorge et al., 2018). Despite the benefit of

gender diversity, women are still not represented in significant numbers in a top leadership position. Ammerman and Groysberg (2021) indicated that only 8% of the CEOs of Fortune 500 companies were women. Many women who pursue careers in STEM encounter various obstacles and barriers due to their gender.

Women in STEM encounter challenges that limit their involvement and advancement in these fields. Some of these challenges include confidence and intimidation, lack of transparency, fighting societal assumptions over gender roles, lack of mentorship, and lack of a community or support network (McKinnon & O'Connell, 2020). For instance, women may suffer from imposter syndrome or feel they do not fit or deserve to be in STEM careers due to stereotypes and biases. Women may also face discrimination and harassment in the workplace, such as being mistaken for administrative or custodial staff, being paid less than their male counterparts, or being excluded from decision-making roles (Pololi et al., 2018).

Moreover, women may struggle to balance their work and personal lives, especially when they face pressures to conform to traditional gender norms or take on more domestic and caregiving responsibilities (Brue, 2019). These challenges can affect women's motivation, performance, and retention in STEM careers. Women in leadership positions also face various challenges and opportunities in their careers, including obstacles limiting women from attaining top positions (McCullough, 2020). These barriers may consist of gender stereotypes, discrimination, lack of mentoring and networking opportunities, work-family conflicts, and organizational cultures and practices that favor men (Northouse, 2019).

Stereotypes, Biases, and Unequal Treatment Between Men and Women

Stereotypes, biases, and unequal treatment between men and women are pervasive issues that affect various aspects of society, including the technology industry. Women leaders experience double standards and conflicting expectations, where they must balance being confident and friendly, skilled and humble, and self-reliant and collaborative (Zenger & Folkman, 2019). According to Reicher et al. (2019), women faced challenges in advancing to leadership positions, as they were subject to stereotypes and biases that undermined their abilities and suitability for leadership roles. Men were more likely than women to be seen as "brilliant," which can affect women's chances of being hired or promoted in STEM. Implicit and explicit stereotype exists about brilliance and gender where men are perceived to be brilliant compared to their female counterpart, limiting their women leadership opportunities (Storage et al., 2020). Such bias and unequal treatment undermine women's performance and confidence, discouraging women from pursuing leadership.

Workplace Harassment, Bullying, and Discrimination

Professional women face a higher rate of sexual harassment, verbal abuse, physical assault, and career barriers than men (Dworkin et al., 2021). Women often face gender discrimination and sexual harassment at work, affecting their career progression, personal well-being, and retention. Reicher et al. (2019) indicated that women leaders also encounter harassment and discrimination from various sources, which can affect their well-being, productivity, and career prospects. Women leaders are more likely to face backlash for raising ethical concerns or objections to immoral practices or actions in

their organizations (Reicher et al., 2019). Workplace harassment and discrimination against women in leadership is a serious problem that affects not only individual women but also the STEM fields. Organizations can enjoy the benefit of women in leadership, including their talents, contributions, and innovations, by creating a more inclusive, supportive, and equitable environment for women in STEM. The organization's diversity programs must consider the racialized and gendered nature of institutions, interactions, and experiences that reproduce inequality in the workplace (Cundiff et al., 2018).

Balancing Work and Life

Women leaders with multiple roles and responsibilities face challenges in managing their professional and personal lives. They often must manage multiple tasks and roles at home and work, which can be hard to balance (Frear et al., 2019). Brue (2019) stated that work-life balance was a significant issue preventing women from achieving STEM leadership. The idea of work-life balance suggests that women should divide their time and energy equally between their work and home spheres, which is not feasible or beneficial for many women leaders (Loeffen & Kalysh, 2020). Instead of seeking a difficult balance, women leaders in technology may benefit from finding harmony and help in their work-life integration.

Harmony means having a sense of alignment and satisfaction across one's different life roles while helping means asking for and receiving support from others in one's work and life contexts. For example, motherhood creates barriers for women who aspire to leadership positions, while fatherhood does not have the same effect (Dworkin et al., 2021). This double standard shows gender inequality and its impact on the

workplace. The concept of work-life balance, which suggests that women should split their time and energy equally between their work and home spheres, is not feasible or beneficial for many women leaders. By adopting a more flexible and holistic approach to work-life integration, women leaders can overcome hurdles and barriers due to stereotypes and biases that doubt their capabilities and fit for leadership roles (Kossek et al., 2021).

Networking and Mentoring

Connecting and learning are often more challenging among women leaders than men in accessing opportunities to network and learn from others, which can affect their recognition, influence, and support in their careers (Showunmi, 2021). Women leaders encountered obstacles to finding sponsors to help them advance their careers (Young et al., 2019). Due to rivalry, scarcity mindset, or internalized sexism, women may not receive enough support and guidance from other women. Hebl and King (2019) suggested that the social support amongst women in STEM may address various aspects of gender inequities, bias, concerns about sexism, and challenges STEM women face at the top and bottom of organizations. Networking and mentoring opportunities and similar behaviors help women overcome the challenges and barriers they face in accessing informal networks and advancing their careers as successful female networkers enjoys efficiency, expansiveness, engagement, and empowerment (Bower, 2019). Therefore, networking and mentoring are crucial strategies for women leaders to overcome these challenges and enhance their professional development.

Self-Confidence and Self-Efficacy

Women leaders often face lower self-confidence and self-efficacy than men, which can influence their leadership goals, actions, and outcomes (Kim, 2020). Self confidence is trust in one's capabilities and values, while self-efficacy is trust in one's ability to perform specific tasks or achieve certain outcomes (Schmitt & Wilkesmann, 2020). Women may have self-doubt and fear of failure that can limit their leadership potential and performance and may stop them from taking risks and pursuing opportunities. Researchers have shown that women tend to have lower self-confidence and self-efficacy than men in various domains, especially those traditionally dominated by men or perceived as requiring masculine traits (Cherry, 2023). This may be due to socialization, stereotypes, feedback, role models, and attribution styles. For instance, women may be socialized to be more modest, cooperative, and caring than men, which may reduce their confidence in expressing their opinions, asserting their power, and negotiating for resources. Women may also encounter stereotypes that question their competence and fit for leadership roles, creating self doubt and lowering their expectations of success (Hernandez et al., 2017). Women may get less positive feedback and recognition than men for their accomplishments, affecting their self-esteem and sense of efficacy. By enhancing the self-confidence and self-efficacy of women leaders in technology, women can overcome the challenges they face and achieve their full potential as effective leaders eliminating the glass ceiling.

Glass Ceiling

According to Manzi and Heilman (2019), previous studies have shown that women face a "glass ceiling" that limits their leadership roles in the business world. Several different definitions exist for the term glass ceiling. Glass ceiling was probably first used by Marilyn Loden, an American writer and management consultant who mentioned it at a 1978 women's exposition (Kulik & Rae, 2019). Kulik and Rae defined the glass ceiling as a metaphor that describes the invisible obstacles that prevent women from reaching the top leadership positions in organizations. Espinosa and Ferreira (2022) defined glass ceiling inequality as a difference based on gender or race, which cannot be explained by other factors related to the employee's job, and which becomes more noticeable as one rises in the hierarchy. The glass ceiling concept refers to invisible barriers based on gender, prejudice, and significant difficulties in the workplace due to male dominance in the workplace, especially in influential and powerful positions (Alobaid et al., 2020). The glass ceiling is like a solid roof that stops women from breaking into the top positions in management, even when they have the necessary qualifications and education for their jobs.

Glass Ceiling Limiting Women Joining the Top Executives

Women face various challenges in advancing to higher levels of leadership, such as a lack of mentors, exposure, and recognition. Some women may not be aware of or acknowledge the existence or impact of the glass ceiling. However, others believe that the limitation affects them at different levels of the organizational structure (Cook & Glass, 2015). Women encounter resistance or discrimination when climbing the career

ladder. Alobaid et al. (2020) described this invisible obstacle that hinders women's progress. Some women in leadership positions believe that gender bias prevents some qualified women from getting hired for more lucrative areas such as public relations in the business world.

CohenMiller et al. (2022) suggested that the glass ceiling phenomenon exists in STEM from external recruitment and hiring processes that prevent some women from achieving the same success as their male peers. In the United States, women hold only 28% of STEM jobs and 15% of engineering jobs (Kennedy et al., 2021). Eagly (2021) suggested that there is inconsistency in the number of female leaders in STEM. Women at the corporate level think that men who work at the same levels in organizations do not consider the glass ceiling a problem, making it more challenging to address the issue of promoting women to leadership positions. The glass ceiling effect on women's leadership has negative consequences not only for women themselves but also for organizations and society at large. Women's underrepresentation in leadership positions limits their access to power, influence, resources, and opportunities that can enhance their personal and professional growth. Cook and Glass (2015) observed that female employees might show higher innovation and can increase organizational profitability.

Therefore, organizational leaders can benefit financially from having women in senior leadership positions. It also deprives organizations of diverse perspectives, skills, talents, and experiences that can improve their performance, innovation, creativity, and problem-solving abilities. Moreover, it hinders the progress of gender equality and social justice in society by reinforcing the status quo of male dominance and privilege. It is

imperative to address the glass ceiling effect on women's leadership and to create more opportunities and support for women to advance their careers and reach their full potential as leaders. Solving the problem of the lack of women in leadership requires organizations to recognize the problem. This requires a collective effort from various stakeholders, such as individuals, organizations, educational institutions, media outlets, policymakers, and society at large. Leaders must adopt an organizational culture that supports women's ascent to top executive positions (McCullough, 2020). On the other hand, while obstacles such as glass ceilings are diminishing, women must stay educated and technically skilled while competing for challenging leadership positions. By breaking the glass ceiling effect on women's leadership, women can achieve greater personal satisfaction, organizational success, and social change.

The Link Between the Glass Ceiling and Gendered Organizations Theory

The term "glass ceiling" implies that women can see the top positions in their organizations but cannot attain them because of hidden and subtle barriers that hinder their career advancement. Gendered organizations theory is a framework that explains how organizations are structured and operate in ways that create and sustain gender inequalities. Gendered organizations theory is a perspective that explains how organizations are structured and operate in ways that give advantages to men and masculinity over women and femininity (Molina, 2021). According to researchers who apply this theory, organizations are not neutral or objective entities but reflect and reproduce dominant gender ideologies and norms. Organizations are gendered in terms of their division of labor, allocation of resources, distribution of power and authority,

communication patterns, reward systems, and organizational culture and climate (Acker, 1990). Researchers using gendered organizations theory suggested that the glass ceiling is not a separate phenomenon that affects individual women but rather a systemic and widespread feature of organizational life that maintains male dominance and privilege. The link between the glass ceiling and gendered organizations theory has been explored by different researchers using different methods and perspectives.

The low number of women in senior executive leadership positions may stem from organizational descriptive or perspective perceptions (McCullough, 2020). A gendered organizations theory suggests that the glass ceiling is not a result of individual differences or preferences but systemic and cultural factors that shape organizational policies, practices, norms, and values. However, some industries may have different rates than others. McCullough argued that several factors, such as general gender bias and family and cultural expectations, contribute to the barriers to women's career path to leadership positions in the STEM industry. Gendered organizations theory implies that breaking the glass ceiling requires more than individual efforts or interventions. The theory indicated that to eliminate glass ceiling, it requires changing the organizational structures and cultures that create and sustain gender inequalities. This may involve challenging and transforming the masculine norms and values that underlie organizational policies and practices; promoting diversity and inclusion in leadership selection and development; creating supportive networks and mentors for women leaders; and fostering organizational climates that value different styles and perspectives of leadership.

Gendered Diversity Management

Denend et al. (2020) asserted that having different genders in an organization boosts outcomes. The main reason leaders support diverse management is to help the organization thrive by employing diverse staff with a broader cultural awareness that can meet the global demand for products and services. The contribution of gender diversity in leadership helps businesses attain a competitive advantage through innovative ideas. Pisano and Shih (2019) explained that for the organization to succeed, a synergy must exist between related resources to coordinate strategies to achieve shared goals. Gender diversity refers to the fair and equal representation of people with different gender identities and expressions in an organization.

Gender diversity is a topic of interest and discussion in various fields and sectors, especially those traditionally dominated by men, such as science, engineering, medicine, and technology. Gender diversity has many benefits for organizations and society but faces many challenges and barriers. Gender diversity can bring various benefits to an organization, such as increased creativity, innovation, productivity, performance, customer satisfaction, and social responsibility (Denend et al., 2020). According to Jorge et al. (2018), having more gender diversity among executive teams increases the chances of having higher profitability than having less gender diversity. Moreover, gender diversity can improve the customer reach and market knowledge of organizations, as well as their ethical values and social impact. Gender diversity stimulates innovation and creativity, bringing different viewpoints and solutions.

Historically, firms with more women in senior-level positions in management teams have, on average, a lower risk of organizational failure and better overall performance (Perryman et al., 2016). However, gender diversity faces many challenges and barriers, such as stereotypes, biases, discrimination, harassment, and lack of support. These factors can create a negative or hostile environment for people of different genders, especially women and non binary people, who may face a glass ceiling that hinders their career progression. Additionally, gender diversity may face resistance or resentment from some groups or individuals who see it as a risk or a loss of power. To create a more inclusive and fair workplace for all genders, where everyone can thrive and add value to the organizational goals, organizations need to adopt systematic and strategic approaches that involve leadership support, policy changes, culture shifts, education and training, mentoring and sponsorship, accountability and transparency, and stakeholder engagement. In efforts to justify the significance removing the glass ceiling and promoting gender diversity in the workplace and leadership, it is necessary to provide a valid explanation that links the study to innovation, organization performance and other relevant topics such works and organizational culture.

Business Innovation and Gender Diversity

Business innovation is a powerful tool that helps firms build a robust business model that enhances competitive advantage and business continuity (Bereznoi, 2014). Business innovation involves creating and implementing new ideas, products, services, or processes that add value for customers, stakeholders, and society. Business innovation can give organizations a competitive edge, growth, and profitability. Business innovation

also demands that leaders consider diverse perspectives, skills, and experiences that can question the existing situation, discover unmet needs, and produce original solutions (Dyer et al., 2020). Business innovation involves organizational leaders finding ways to do things better to achieve their business goals (García-Morales et al., 2020). Innovation helps organizations to remain competitive in the marketplace, staying ahead of the competition and increasing revenue in return. Continuing innovation can create market competition, creating value for consumers and impacting social change.

Innovation focuses on value creation, resource management, and customer needs (Benitti et al., 2020). The shortage of women in leadership positions negatively impacts business performance (Jorge et al., 2018). Gender diversity in an organization can help create and maintain innovation and boost the group's problem-solving ability (Denend et al., 2020). Gender diversity, which refers to the representation and inclusion of women and men across different levels and functions of an organization, can be a crucial driver of business innovation. There is a relationship as the contribution of gender diversity in leadership helps businesses gain a competitive advantage through innovative ideas. Kulik and Rae (2019) discussed how gendered organizations theory could explain the glass ceiling phenomenon that limits women's access to senior management roles and hinders their contribution to business innovation. Kong et al. (2020) explained that for the organization to succeed, a synergy must exist between related resources to align strategies to achieve shared goals. Organizations are not neutral or objective entities but reflect and enact dominant gender ideologies and norms that create and sustain gender inequalities (Kulik & Rae, 2019).

Several researchers have shown that the limited diversity in the development of the STEM workforce has negative implications for scientific innovation, creativity, and social relevance (Pisano & Shih, 2019). According to Lorenzo et al. (2018), more diverse management teams had higher innovation revenue than less diverse ones—45% versus 26% of total revenue. Diversity in leadership teams enhances innovation and financial outcomes. Hunt et al. (2020) found that companies with more gender diversity among executive teams had a 25% higher chance of outperforming their peers in profitability, compared to 21% in 2017 and 15% in 2014. According to Wu et al. (2021), the effect of women's leadership is more pronounced for firms with a more robust innovation supportive culture, firms with female CEOs, and when the female is more powerful and concluded that female leadership has a positive impact on innovation. Having many women in top roles could give companies an edge over their competitors. Cook and Glass (2015) noted that female employees might demonstrate a higher degree of innovation and can drive organizational profitability.

Innovation in the Technology Industry

Innovation in the technology industry can be influenced by various factors, such as market demand, industry dynamics, technological progress, regulatory shifts, and social challenges. Innovation in the technology industry can also have various outcomes, such as enhancing efficiency, quality, customer loyalty, profitability, growth, and social well-being. Day (2019) reports that 94% of executives are unhappy with the innovation performance of their firms. Many organizations struggle to innovate because they do not

nurture effective behaviors and cultures that encourage creativity and experimentation (Sullivan & Harper, 2020).

Gender diversity is a relevant topic related to innovation in the technology industry. Gender gaps can limit the potential for creativity, productivity, and social impact of technological innovations. Gender diversity can benefit innovation in the technology industry by bringing different viewpoints, experiences, skills, and ideas. Gender diversity stimulates creativity, cooperation, problem-solving, and decision-making among teams and individuals. However, gender diversity faces various difficulties and obstacles in the technology industry. Cook and Glass (2015) suggested that female employees may show a higher degree of innovation and can drive organizational profitability.

Despite this organizational benefit, Ammerman and Groysberg (2021) indicated that only 8% of the CEOs of Fortune 500 companies are women, and less than 1% are people of color. They recommend using data analysis and behavioral science to identify and address the roles and skills that attract more women to STEM. In general, the technology organization and STEM must adopt a systematic approach to identify and address the patterns that prevent organizations from fully utilizing women's talents and contributions in leadership. It is essential to foster a culture of diversity and inclusion in the technology industry that values and respects different genders and supports their involvement and contribution to innovation.

Role of Organizational Culture, Policies and Practices

Organizational policies and practices are the formal and informal rules, procedures, systems, and processes that determine how work is organized and done in an organization. Organizational culture is the shared values, beliefs, norms, and assumptions that influence how people act and interact in an organization (Burke, 2017). Organizational culture, policies and practices can affect how gender diversity is seen, appreciated, supported, and rewarded in an organization and can have a critical role in fostering or impeding gender diversity in the workplace. Organizations have traditionally been male dominated, especially at senior levels, and organizational leaders have created the perception of leadership as synonymous with males and masculinity (Campuzano, 2019). Many competent women could not advance their careers (Cundiff et al., 2018). Women are also generally underrepresented in leadership roles (Hideg & Shen, 2019).

If an organization's male dominated culture consists of a male majority, shared values and underlying assumptions will likely be traditional and masculine, with less cultural change happening (Campuzano, 2019). Eagly and Heilman (2019) discovered that a gendered organization generally affects women's career progress. Leaders need to develop and implement career development programs and policies that support the advancement of women to leadership positions as more women continue to join the workforce (Turban et al., 2019). Denend et al. (2020) claimed that the removal of barriers and obstacles from a workforce environment contributes to an increase in an employee's productivity. Understanding barriers and obstacles can help organizations create

successful strategies for identifying and implementing change. The lack of updated organizational policies and practices also affects gender disparities in technology.

Villafane-Delgado et al. (2020) suggested that the constraints on access to career networks, the unbalanced distribution of labor, and fewer opportunities for promotions and leadership. The masculine and gendered culture also has many women in STEM programs viewing STEM careers as incompatible with childcare and lacking support for family leave and flexible work hours; they start doubting their future in STEM (Cabay et al., 2018). By adopting these strategies, organizations can leverage the potential of their diverse talent pool and create a more equitable, inclusive, and productive work environment. Without the removal of the stereotypical and gendered culture in STEM can affect the advancement of women in STEM leadership roles.

Gender diversity is an essential aspect of organizational life that can bring various benefits and challenges to individuals and organizations. Organizational culture, policies, and practices can have a critical role in fostering or impeding gender diversity in the workplace. By adopting effective strategies to foster an inclusive culture, fair policies and practices, and supportive relationships, organizations can enhance employees' engagement, performance, and well-being with diverse gender identities and expressions. Gender diversity is not only a matter of social justice but also a source of competitive advantage and organizational excellence. Organizational culture is vital to the success of an organization as it shapes employee interactions and relationships. By adding diverse perspectives to a team, cultural diversity can give organizations an edge over their competitors (Wajcman & Lobb, 2019).

Role of Work Motivation

Work motivation is the degree of interest and effort one displays in work. Individuals are motivated by different things. Individuals are motivated by factors such as pay and rewards, recognition and status, achievement and growth, relationships and co-workers, and purpose and value in one's work. Self-motivation is peculiar to situations and an individual's personality, such as doing meaningful work, working autonomously, or helping others (Dwyer et al., 2013). Work motivation can affect how employees create and apply new and valuable ideas at work, called employee-level innovation (Pappas, 2021).

Women who are leaders encounter both opportunities and challenges in their work environment, which reduces their motivation depending on the work environment. Schmitt and Wilkesmann (2020) explored how work motivation, and perceived career autonomy affect women's subjective career success in STEM professions and found that the minority status of women in the STEM professions hinders their successful career development. The gender-specific challenges and career dissatisfaction lead to women leaving STEM. Often, leaders experience gender stereotypes that may influence how they are judged and rated. Leadership is crucial to the organization's success (Northouse, 2019). The need to ensure that the leaders remain motivated to enable them to influence the employees is essential. Based on role congruity theory women are expected to show behaviors that fit their gender role, such as being supportive, cooperative, and caring. However, these behaviors may not align with those expected from leaders, who are expected to be authoritative, assertive, and confident.

This inconsistency may cause bias and discrimination against women leaders, especially in fields such as technology, where men are more dominant (Paustian-Underdahl et al., 2014). Some scholars have suggested that women may have an advantage over men in leadership because they are more likely to use leadership styles that are collaborative and empowering. Bass and Riggio (2019) explained that a transformational leader influences and motivates followers to achieve business results. These styles match the demands of modern organizations that require teamwork, creativity, and flexibility. Moreover, these styles may improve work motivation among employees by fulfilling their autonomy, competence, and relatedness. These are the three basic psychological needs that drive intrinsic motivation and integrated extrinsic motivation according to self-determination theory. Intrinsic motivation is the motivation to do an activity for its own pleasure, while integrated extrinsic motivation is the motivation to do an activity because it matches one's goals and values (Schmitt et al., 2021).

Work motivation and women in leadership are related issues that significantly affect organizational innovation and performance (Grabowski et al., 2021). The self-determination framework is based on the idea that intrinsic and extrinsic motivation is essential for personal growth and social development and considers the other cultural factors that affect personal motivation (Deci & Ryan, 2000). A clear link between intrinsic motivation and career satisfaction among female leaders indicates that motivation and self-determination influence their career satisfaction.

Leadership Behavior Differences Between Men and Women

Leadership is vital for the organization to succeed (Northouse, 2019). Leaders use various actions and interactions to influence others and achieve organizational goals. These are called leadership behaviors, and they can change depending on the leader's and followers' personalities, situations, and contexts. Leaders can motivate people, create a vision, and facilitate change. When employees trust their leader, they want to emulate them. Ethical leadership means showing exemplary character in personal and interpersonal relationships to encourage followers to act similarly (Brown & Treviño, 2020). Leaders can hinder progress, limit growth, and make employees quit. The kind of leadership style one has is crucial for an institution's survival (Eagly, 2021).

Some researchers have suggested general differences in leadership behaviors between men and women based on gender stereotypes, social expectations, and biological factors. Hyde et al. (2019) argued that men and women are very different the specific behaviors that leaders exhibit and leadership styles. Kiser (2015) explored how men and women differ in their work environment and leadership styles. Men may think they have more rights to jobs than women when jobs are scarce (Babiak & Bajcar, 2019). Men may also think men are better than women as political leaders and business executives (Stringfellow, 2017). Some perceived common differences in leadership behaviors between men, and women are that men tend to have a more controlling and task-oriented leadership style.

It is important to understand the gender differences in leadership styles and behaviors have important implications for organizational outcomes. Khan and Waheed

(2019) suggested that women tended to have a more relational and people-oriented leadership style Secondly, men were more likely to be assertive, confident, and competitive, while women were more likely to be compassionate, empathetic, and cooperative (Zenger & Folkman, 2019). Thirdly, men were more likely to concentrate on the organization's vision, strategy, and results, while women were more likely to concentrate on the organization's process, communication, and relationships (Zenger & Folkman). Finally, men were more likely to take more risks, make more decisions, and delegate more tasks, while women were more likely to be more cautious, seek more feedback, and collaborate more with others (Khan & Waheed).

Gender perception in leadership has a significant impact on the workplace. It is essential to understand that there is no best way of leading and that both men and women can benefit from adopting various leadership behaviors that suit their context and goals. Kiser (2015) stated that leaders' attitudes could affect employees' behavior in how and why they do things. Leaders influence others by showing values, ethics, emotions, and standards (Northouse, 2019). Therefore, it is essential to challenge the gender stereotypes and biases that may restrict the potential and contribution of both male and female leaders. Maximizing women's contribution and promotion within most institutions is essential for an organization's survival. Organizations can improve their creativity, innovation, and performance by embracing diversity and inclusion in leadership styles and behaviors.

Female Leadership in STEM

Female leadership in STEM is a vital issue that impacts not only the progress of science and technology but also the economic and social well-being of the world. Despite the growing demand for STEM skills and the potential benefits of having more diverse and inclusive teams, women and other underrepresented groups still encounter significant barriers and challenges in pursuing and succeeding in STEM careers. More women than ever opt for education or careers in STEM but remain underrepresented in leadership (Blackburn & Jarman, 2019).

Female leadership in STEM is a vital topic that has implications for the future of science, technology, innovation, and society. Northouse (2019) stated that women pursue education in STEM but are still underrepresented in the leadership of government and most professional sectors. According to Blumberg et al. (2020), only about 22% of the tech workforce in Europe is female, and this share drops to 16% for senior roles. Similarly, in the United States, women hold only 28% of STEM jobs and 15% of engineering jobs (Kennedy et al., 2021). Empowering more women and girls to pursue and excel in STEM careers can boost economic growth and competitiveness and foster more creativity, collaboration, and problem solving for the global challenges we face. Baker and Cangemi (2016) explored the reasons for the scarcity of women in senior leadership positions. At all STEM levels, there is a need for systemic and cultural changes that create a more supportive and inclusive environment for women. This includes providing more access to education and training opportunities, addressing

unconscious bias and harassment in the workplace, ensuring fair pay and recognition, and facilitating work life balance and flexibility.

One of the ways to address this gap and foster more gender equity in STEM is to promote and support female role models who inspire and mentor the next generation of women leaders. There is a need for more collaboration and networking among women in STEM and allies from other groups to advocate for policy reforms and social norms that value diversity, equity, and inclusion. Hebl and King (2019) suggested that the social support amongst women in STEM may address various aspects of gender inequities, bias, concerns about sexism, and challenges STEM women face at the top and bottom of organizations. These role models can show the possibilities and opportunities that STEM fields offer and share their experiences and challenges in overcoming stereotypes, biases, and discrimination.

Therefore, it is essential to celebrate and support female role models in STEM who inspire others to follow in their footsteps and create a more conducive and equitable culture that enables women in STEM to thrive. Having female role models is essential but not enough to ensure equal involvement and leadership of women and girls in STEM. Organizations must bridge the gap of a lack of senior women leaders in the workplace, more multicultural and diversity training must occur for women and men to embrace their differences and understand that it is the diversity that makes the workplace stronger.

Transition

In Section 1, I addressed the background of the problem, problem statement, the purpose statement, nature of the study, research questions, conceptual framework, and

significance of the study. The intent of exploring strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions is to promote diverse leadership and innovation needed to improve business performance. Also, I stated the rationale for choosing a qualitative single case study design and included assumptions, limitations, delimitations, and operational definitions. The literature review included a comprehensive and critical analysis and synthesis of literature related to the conceptual framework, gendered theory, along with supporting and contrasting theories.

In Section 2, I will provide justification for selecting the qualitative research method and restate the purpose statement. Also, I will address the role of the researcher in the data collection process, participants in the study, population sampling, and ethical research procedures. Section 3 will include the presentation of findings and how they apply to professional practice. It will also include implications for social change, recommendations for further research and reflection on the doctoral study process is provided.

Section 2: The Project

In this section, I discuss the purpose statement, role of the researcher, participants, research method and design, population and sampling, ethical research, and data collection processes. Analysis of the data and the strategies used to ensure the study's reliability and validity are also presented.

Purpose Statement

The purpose of this qualitative multiple case study was to explore strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance. The targeted population comprised three technology leaders located in the United States. The study findings might contribute to positive social change by increasing the number of women in leadership, potentially encouraging education among young girls, thereby reducing illiteracy and poverty in society.

Role of the Researcher

Researchers use the qualitative method to employ an interpretive methodology to gain an in-depth knowledge of research phenomena and evaluate the thoughts and responses of study participants (Frost & Bailey-Rodriguez, 2020). It is challenging for researchers to comply with data collection requirements while obtaining extensive information from participants; however, the success of the current study relied on the accurate collection of data, which was achieved with my careful attention to detail and adherence to the guidelines.

As a professional who has held various midlevel and leadership roles in the technology industry for several years, I have become well acquainted with women's leadership in this field and had an existing relationship with some of the participants in the study. My experience has given me a unique perspective that allowed me to communicate effectively with participants using industry-specific terms and acronyms. I approached the participants with courtesy and cultural sensitivity to facilitate open and concise interview responses.

I followed ethical principles to avoid bias, the exploitation of participants, and viewing data through a personal lens. According to Sandeep et al. (2021), obtaining data through participant engagement can be challenging because participants may not feel comfortable sharing personal issues openly. Researchers can overcome this challenge by following ethical guidelines and conducting research in an inclusive and respectful manner while protecting the rights and well-being of study participants (O'Neill et al., 2022). In this study, my open and honest communication and collaboration encouraged the participants to feel comfortable responding confidently. According to Wiles et al. (2021), researchers must uphold ethical principles, such as transparency, honesty, and respect for participants' rights, to ensure that the study is unbiased. While I may have had professional relationships with some of the participants, I acknowledged potential bias and addressed it by implementing and following the principles of the *Belmont Report.* The *Belmont Report* outlines the three fundamental ethical principles of respect for persons, beneficence, and justice as well as research-based protective measures for informed consent, risk/benefit assessment, and participant selection (Barrow et al., 2022).

To ensure consistency and mitigate bias, I used the same interview protocol for each interview and asked each participant the same questions in the same order. I also used member checking by sharing the interview summary with each participant and reached data saturation to further ensure the credibility and validity of the study findings. Data saturation was reached when no new themes emerged from the collected data or during the analysis.

A key aspect of this study involved collecting data through participant interviews that were conducted via teleconferencing to minimize disruption and maximize participant comfort. According to Mackenzie and Knipe (2021), by using semistructured interviews, researchers can ask targeted questions to create meaningful and purposeful dialogues while allowing participants to share their experiences in their own words. The interview procedures and questions used during the study are described in the interview protocol (see Appendix). The use of semistructured interviews generated more responses from the participants. During the interviews, I recorded participants' responses and feedback and then used NVivo to identify themes within the data. Braun and Clarke (2021b) explained that during qualitative research, Nvivo is used to efficiently perform thematic analysis through data organization and theme identification. Finally, I concluded interviews by summarizing critical points mentioned by the participants and asking the participants afterwards if they have any specific questions.

Participants

The targeted population comprised three technology leaders located in the United States who had successfully increased female leadership in their organization. The

technology leaders included senior executives in an organization responsible for leading information technology. To enhance the quality of research data, it is vital to have knowledgeable participants that can provide valuable insights and information that can improve the quality of research findings (Chowdhury et al., 2021). To be included in this study, the leaders were required to have worked in the technology industry for more than 7 years.

I used purposive sampling to recruit participants through my professional network, LinkedIn, to ensure that they met the requirements for participation. LinkedIn is useful for identifying potential research participants and exploring professional connections (Czekierda-Löwenstein et al., 2021). As someone who currently holds a leadership position in technology, I have established professional working relationships over the past 15 years.

I used multiple strategies to establish a working relationship with the participants. Liu and Atkinson (2021) suggested that building strong relationships with participants can promote a sense of openness in sharing their experiences and perspectives, which can enhance the quality of the data collected. Each potential participant was contacted via LinkedIn, and the initial communication included an introduction to the study and a consent form asking the individual to participate in the study by responding to the email with an affirmative response. Next, participants who agreed to participate received a calendar invite for scheduled meetings to conduct the study, with a copy of the consent form and the participant's confirmation email attached to the calendar invite. Then, I conducted semistructured interviews with the participants and reviewed related

organizational documents for relevant information to address the research question: What strategies do technology leaders use to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance?

Research Method and Design

For this study, I used a qualitative multiple case study design. Researchers use the qualitative approach to employ an interpretive methodology to gain an in-depth knowledge of research phenomena, which enables researchers to explore phenomena by interacting with the research participants (Frost & Bailey-Rodriguez, 2020). I employed the qualitative method for this study because I explored a phenomenon in multiple cases. Using a multiple case study design enables researchers to collect, interpret, and compare data collected from numerous participants across multiple sites who observed phenomena in a real-life environment (Saunders et al., 2018).

Research Method

Researchers can use qualitative, quantitative, or mixed methods (Saunders et al., 2018). I chose the qualitative research method for this study. According to Kelle (2021), using the quantitative method, researchers can draw from diverse data sources, including organizational records and interviews, to comprehend the rationale behind the existence of a conceptual framework in a particular business problem. Researchers use qualitative research to gain valuable insights into business problems as perceived from the participants' perspectives (Williams & Van Ryzin, 2021). I used the qualitative method for this study because I interacted with participants to obtain their perspectives.

Quantitative researchers use hypotheses to establish a relationship between independent and dependent variables (Saunders et al., 2018). The quantitative method was not appropriate for this study because I was not examining relationships among variables. A mixed-method study includes the combination of qualitative and quantitative elements (Yin, 2018). I did not use the mixed-method approach because there was not a quantitative component to the current study.

Research Design

I selected a multiple case study design for this research. Other research design options considered in this qualitative study were miniethnography and phenomenology. Using a case study design allows researchers to explore "how" and "what" questions to understand the features of the case under study (Yin, 2018). Using a multiple case study design enables researchers to collect, interpret, and compare data collected from numerous participants across multiple sites who observed phenomena in a real-life environment (Saunders et al., 2018). I chose a multiple case study design for this study because I sought to understand phenomena from numerous participants across multiple sites in a real-life situation.

According to Yin (2018), researchers use case studies to encompass four main strategies, including a holistic single case study, a single case study with embedded units, a holistic multiple case study, and a multiple case study with embedded units. Single case designs are used when examining unique scenarios that have taken place in a specific area (Saunders et al., 2018). Yin (2018) stated that single case studies are often chosen when testing a well-developed theory and when the case is unique or longitudinal, with

the same group of individuals reviewed at multiple points in time. In contrast, researchers employ multiple case studies to investigate phenomena across multiple replicated instances (Yin, 2018). Yin suggested that multiple case studies aim to find both literal and theoretical replications. Literal replications occur when comparable results are predicted across multiple case studies, while theoretical replications occur when opposing results are expected for predictable reasons.

Researchers use a miniethnography to assess a culture or social world (Saunders et al., 2018). Since I did not immerse myself in the culture of the participants to study their behaviors, beliefs, and languages, the miniethnographic design was not appropriate for this study. Researchers employ a phenomenological design to explore the lived experiences of research participants (Alfakhri et al., 2018). The phenomenological design was not appropriate for this study because my focus was on strategies technology leaders use to provide a cultural-friendly environment and not the lived experiences of individuals.

Understanding the real-life experiences of strategies technology leaders use to provide a culture-friendly environment for women to attain leadership positions may create awareness of the topic in the technology industry. The study may also provide information that can contribute to the educational growth of girl children because they will be encouraged to get educated and aim to succeed.

When conducting research, data collection has a stopping point. Data saturation occurs when the data collected does not reveal any new themes (Guest et al., 2020). This means that data saturation is the point of data collection when no new information

appears. To ensure data saturation, I continued collecting data through interviews, member checking, and review of organizational documentation until no new themes surfaced.

Population and Sampling

The targeted population comprised three technology leaders located in the United States who had successfully increased female leadership in their organization. According to Yin (2018), the number of participants should be sufficient to provide detailed and in-depth information that addresses the research question and goals of the study. The technology leaders included senior executives in an organization responsible for leading information technology. To be included in the study, the leaders were required to have worked in the technology field for more than 7 years.

I used purposive sampling to recruit participants. According to Ames et al. (2019), researchers use purposive sampling to gather data from individuals who have experienced a phenomenon, with the assumption that their experiences can be representative of the larger population. By utilizing purposive sampling in research, researchers can obtain in-depth and comprehensive data from participants who can offer valuable perspectives on the phenomenon being studied (Braun & Clarke, 2021a).
I used my professional network, LinkedIn, to identify participants who met the study's inclusion requirements. Recruitment involved reaching out to each potential participant through LinkedIn, providing them with an introduction to the study and a consent form. Participants provided their consent through replying with an affirmative response via email.

Data saturation occurs when the data collected does not reveal any new themes (Guest et al., 2020). In this study, I used three data collection techniques to enable themes to emerge and achieve data saturation: interviews conducted through Microsoft Teams, member checking, and reviewing organizational documentation. I continued to use these techniques until I attained data saturation.

Some interviewees may experience discomfort due to the interview setting (Smith & Lee, 2022). I conducted interviews through Microsoft Teams to enable all the participants to take part in an interview in an environment that is comfortable for them, providing them with a sense of comfort and control. I shared the interview questions with participants and clarified any details that may not be understood. I audio recorded the interviews through the meeting recording option on Microsoft Teams to allow me to transcribe the meetings following the interview.

Ethical Research

For researchers to conduct ethical research, it is necessary to obtain participants' consent by outlining the researcher's methods and ethical guidelines (Facca et al., 2020). I used a consent form that was distributed to each prospective participant. The informed consent form is a full disclosure document that participants must agree to before participating in a research study. Researchers use an informed consent form to detail the purpose of the study, the interview process, the nature of the study, the risk and benefits of the study, and the confidentiality of the study.

Before any interviews were conducted, I sent potential participants an email invitation to participate in the study. The email introduced me as the researcher, provided

details on the purpose of the study and the criteria for eligibility to participate in the study, and contained the informed consent form as an attachment. I asked each participant to read and provide an electronic acknowledgment that they either accepted or declined participation. Participants were permitted to withdraw from the study at any time for any reason through written or verbal communication to me. There were no incentives offered to the participants of this study. I made participants aware of the research data collection method to ensure they were comfortable with the methodology before proceeding with the interviews.

It is the responsibility of researchers to safeguard the anonymity of their study participants (O'Donnell & Ryan, 2021). To ensure confidentiality, I assigned pseudonyms to the participants in the current study. As the researcher, I established professional relationships with a network of technology leaders who were involved in the study. Before conducting research, I obtained the Collaborative Institutional Training Initiative certificate where I learned about maintaining the confidentiality of participants, as is made mandatory by Walden University's research guidelines.

To safeguard the participants' rights, I will store the data in a secure location at my home for 5 years. The data are kept on a password-protected, external hard drive and locked in a cabinet. After 5 years, I will destroy any written or recorded data. The Walden University Institutional Review Board (IRB) requires the ensured protection of the participants throughout the study process. Walden University IRB granted me approval to conduct this study (IRB Approval Number: 06-21-23-1117674). I followed the *Belmont Report*'s requirements to ensure the protection of the participants' rights

throughout the study process. To protect the confidentiality of the participants, the names of the participants and any other identifiable information about the participants and their respective organizations was not included in the study.

Data Collection Instruments

In this study, I served as the primary data collection instrument. I used semistructured interviews, member checking, and reviewed organizational documentation. Researchers utilize diverse sources, such as interviews, direct observation, and documentation, to collect data collection needed for qualitative multiple case studies (Fisher, 2021). According to Kelle (2021), using the quantitative method, researchers can draw diverse data sources, including organizational records and interviews, to comprehend the rationale behind the existence of a conceptual framework in a particular business problem. For this study, the primary research data consisted of semistructured interviews, and the secondary data source was the publicly available information. Semistructured interviews are beneficial in qualitative research because they allow researchers to explore participants and their responses more deeply through member checking, leading to more accurate and comprehensive data (Creswell & Creswell, 2021). I used semistructured interviews to explore strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions to improve organizations' performance.

I used open-ended interview questions and captured the participants' responses through handwritten notes, audio recording of interviews and member checking. The

interview protocol (Appendix) consisted of the interview questions and the procedures utilized for conducting the interviews. Researchers utilize interview protocols to achieve high quality and consistent data gathering and to improve interview efficacy (Safdar & Chua, 2021). The interview protocol guide functioned as the process of implementing the open-ended interviews as well as an interview guide. I adhered to the interview protocol to maintain consistency in the interview flow, participants' rights, interviewer guidelines, and the interview timeline.

Additionally, the study's secondary data collection method included publicly available organizational documentation on organizational websites. The secondary data collection method provided additional insights on my research question through organizational documentation and supporting evidence for the research themes. To ensure data saturation, I continued collecting data until no new themes emerged.

According to Yin (2018), factors like generalizations, bias, and poor recollection can all have an impact on the validity and reliability of research findings, compromising the accuracy and robustness of the data obtained. The interview protocols and research questions should be evaluated by qualified professionals in the related field to ensure their reliability and validity. (Minichiello et al., 2021). Walden's committee members reviewed the interview questions to ensure it is in alignment with research questions to ensure validity and reliability. Also, I performed member checking by sending a follow up email with a summary of their interview questions to allow the participants to confirm their responses are captured completely and accurately. Lietz and Zayas (2021) suggested that member checking is considered an effective method for enhancing the reliability and

validity of qualitative research as it enables participants to verify and confirm their responses.

Data Collection Technique

Researchers utilize diverse sources, such as interviews, direct observation, and documentation, to collect data collection needed for qualitative multiple case studies (Fisher, 2021). Researchers combine numerous sources of data to corroborate study conclusions may provide a more credible perspective than relying on a single viewpoint (Alberti-Alhtaybat et al., 2019). I used the data collection technique to gather data to address the research question. The sources of data consisted of open-ended interviews, followed up with an email to perform member checking, and the review of publicly available documentation.

The interview protocol (Appendix) ensured that I maintained consistency across all participants. The interviews involved the introduction to the study, the research question, and eight open-ended questions. I sent a follow up email to perform member checking to allow the participants the opportunity to review a summary of their responses to the interview questions and provide additional commentary on their answers if needed. To ensure the validity of the data collected, I interviewed three participants from two organizations. According to Safdar and Chua (2021), researchers utilize interview protocols to achieve high quality and consistent data gathering and to improve interview efficacy. In this study, the interview protocol (Appendix) specified the questions and procedures used for conducting the interviews. I conducted the interviews using multiple platforms, such as Microsoft Teams and recorded using the recording technology of each

of the platforms. The participants' responses were transcribed into a word document. Following the semistructured interviews, I performed member checking, reviewed publicly available organizational documentation on organizational websites and conducted methodological triangulation to ensure the validity and reliability of the participants' answers.

Lietz and Zayas (2021) suggested that member checking is considered an effective method for enhancing the credibility of qualitative research as it enables participants to reflect and clarify their experiences. I sent a follow up email with a summary of the responses to perform member checking to ensure participants responses are captured completely and accurately. Member checking provided the participants with the opportunity to evaluate and edit their responses to ensure that they were accurate and reflected their concepts about the interview questions.

Mackenzie and Knipe (2020) suggested that data collection techniques that combine many data sources enhance triangulation, which improves the accuracy and reliability of the results. Pinnock et al. (2021) also pointed out that using multiple data sources in data collection techniques increases the validity and dependability of a study. There are numerous advantages associated with the various data collection techniques. The semistructured interviews and member checking enabled the participants to provide more details on their responses during and after the interview. Semistructured interviews are beneficial in qualitative research because they allowed researchers to explore participants and their responses more deeply through member checking, leading to more accurate and comprehensive data (Creswell & Creswell, 2021). Member checking

allowed the participants to evaluate and edit their responses to ensure that they are accurate and reflects their concepts about the interview questions. By conducting member checking. I shared and confirmed the interpretation of the transcript to verify the accuracy and consistency of information provided by each participant. Also, reviewing publicly available documentation was beneficial as it allowed more data to be collected without taking up the participants' time. The secondary data collection method provided additional insights into my research question through organizational documentation and supporting evidence for the research themes.

As there are advantages to every technique, there are also disadvantages. Interviews have some drawbacks, such as the possibility of losing the participants' trust, which could affect their responses, and the risk of misinterpreting their responses, which could lead to incorrect theme analysis. Zhao et al. (2021) identified some limitations of interviews, such as the risk of respondents being influenced by social expectations or interviewers trust or bias, which could affect the quality and accuracy of the data. Also, the interview process takes participants time and member checking requires additional time from the participants to review and respond. Finally, reviewing publicly available information also has some limitations, such as the potential outdatedness of the data and the incompleteness of the information.

Data Organization Technique

Researcher's thorough planning and data management strategies are necessary to achieve well-organized and well-structured data for effective coding (Chen & Boore, 2021). Data reliability can be enhanced and sharing of data across various studies can be

facilitated by implementing standardized labeling and cataloging systems (Gallagher et al., 2021). Each participant's information will be properly labelled. According to Facca et al. (2020), it is the responsibility of researchers to ensure the protection of their participants' identity. To ensure confidentiality, each participant was assigned a unique character and/or number, which is referenced in the study. All notes and recordings had the participants identified by their unique identifiers. Walden University's research guidelines require each researcher to obtain a Collaborative Institutional Training Initiative certificate before conducting research. It mandates the researcher to maintain the confidentiality of their participants.

The electronic and hard copies of the data will be kept in a secure place for 5 years to protect the information of the participants. After 5 years, any written or recorded data will be destroyed using a shredder and the external hard drive wiped where applicable. The IRB requires ensuring the protection of participants throughout the study process. The final doctoral manuscript will include the Walden IRB approval number and the use of the *Belmont Report*'s requirements are ensuring the protection of participants' rights throughout the study process.

Data Analysis

Researchers utilize triangulation as a vital tool to explore the validity and reliability of data (Fusch et al., 2018). Researchers can employ methodological, investigator, theory, or data source triangulation to verify the reliability and validity. I used methodological triangulation to analyze the research data for a better understanding. To explore the phenomena from different perspectives, researchers use methodological

triangulation to gather and analyze data, such as organizational documents and interviews (Fusch et al., 2018). Having multiple sources of evidence through data triangulation fosters obtaining multiple views from several sources establishing the validity and reliability of doctoral research. Hancock et al. (2021) described case study research as richly descriptive and well-grounded in deep and varied data sources.

Obtaining data from multiple sources validated data sources and establish data reliability, unlike a single source that shows the overall credibility of doctoral research. I collected data through interviews, member checking, and organizational documentation for efficiency and productivity to conduct and provide methodological triangulation for this study. To guide the interview process, I utilized open ended interview questions (Appendix) to explore strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions to improve organizations' performance. Following the interview, I performed member checking to confirm the validity and reliability of participants' responses by enabling participants to add detail or address points not covered in the interview summary (Saunders et al., 2018). To corroborate the interview, I obtained secondary data including publicly available organizational documentation on organizational websites to support the identified themes. To ensure data saturation, I continued collecting data until no new themes emerged.

Yin's (2018) approach to data analysis involves the use of software to organize, review, code, interpret, and draw conclusions from the data. My research questions and interview questions will be utilized to organize the coding of the data collected.

According to Dalkin et al. (2021), researchers arrange data using their research questions and then categorize and organize the codes and concepts identified based on each interview question and other sources of data obtained, leading to the identification of patterns and themes. For this research, I used NVivo 12 to evaluate the coded data. NVivo12 is a qualitative data analysis software program used by researchers to discover and code concepts (Dalkin et al., 2021).

To analyze the gathered data and address the research question, I applied Yin's (2018) methodology comprising of five sequential analysis steps. These steps involve (a) compiling the data, (b) data disassembling, (c) data reassembling, (d) interpreting the meaning of the data, and (e) drawing conclusions.

Data Compilation

I performed the task of compiling the data with the aim of data grouping and organizing effectively. This process involved saving the interview transcripts and member checking documents separately. To ensure confidentiality, each participant was assigned a unique character and/or number, which is referenced in the study. Next, I uploaded the compiled data into the NVIVO software.

Disassembling the Data

Data disassembling involved elimination of invariant themes and elements related to the phenomenon. I reviewed each transcript, member checked document, and organizational document to identify recurring patterns or ideas within the data and themes that emerge consistently across multiple documents. I consolidated and compared the

identified themes and eliminated invariant themes to ensure that the focus remains on the most meaningful and informative themes.

Data Reassembling

After disassembling the data and eliminating invariant themes, I reassembled the data by grouping together the central themes. I approached this process by defining themes and subthemes and coding them. I conducted analysis of the data using NVivo software to identify themes. For principal themes identification, I used thematic analysis. During the data organization process, I created an audit trail to identify and record unique and interesting topics during the data collection process. The audit trail guided my thoughts on coding and rationale. Afshar and Ahmadvand (2022) suggested thematic analysis permits a systematic and comprehensive assessment of the data, as well as the segmentation of narrative materials into discrete groups of content with descriptive treatments to uncover connections to the study's setting. Once coded, I determined the frequency of each theme and subtheme.

Interpreting the Meaning of the Data

I compared the patterns identified in the thematic analysis with the interview transcripts, member checked documents and documents. Through this process, I uncovered deeper understanding and gained insights that addressed the research question effectively. This interpretive analysis strengthened the validity and relevance of the analysis and forms the basis for drawing conclusions from the collected data.

Drawing Conclusions

Once the thematic analysis was completed, I drew conclusions. The themes that emerged from the data analysis were explored and correlated with the study's conceptual framework, gendered organization theory, and existing literature to identify strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance. Finally, for the validation of transcription and triangulation, I used member checking to ensure the accuracy of data analysis and used the publicly available organizational documentation obtained to corroborate the data analyzed and identify potential new themes.

Reliability and Validity

The quality of doctoral research is based on reliability and validity, indicating that quality and reliability are vital for doctoral research to be well-conducted and credible. According to Yin (2018), data collection, methodology, strategy, and credible philosophy are vital aspects of well-conducted research. Reliability and validity help preserve the integrity of the doctoral research study and improve the work's credibility. Numerous data quality issues could negatively impact a doctoral research study. Saunders et al. (2018) explained that the inappropriate use of the research methods and tools could hinder the validity and reliability of data relevant to your research objectives. According to Scott et al. (2019), the research methodology significantly impacts the findings and conclusions. Ultimately, data quality is a crucial aspect of conducting credible doctoral research. To establish reliability and validity, proper collection of data is essential. I

mitigated participant and researcher error and bias by transcribing and documenting responses and findings accurately, member checking, and ensuring the probability of the replication of the study, which increased the reliability and validity of the study.

Reliability

Data quality is a crucial aspect of conducting credible doctoral research. According to Saunders et al. (2018), reliability and dependability is achieved through member checking, transcript review and triangulation. Lietz and Zayas (2021) suggested that member checking is considered an effective method for enhancing credibility. Dependability can be established through audit trails and triangulation. Following the interview, I conducted member checking by sending the summary to the participants to confirm that their responses are captured accurately and completely to verify the interpretive accuracy. Pinnock et al. (2021) also pointed out that using multiple data sources in data collection techniques improves the reliability and dependability of a study. To explore the phenomena from different perspectives, researchers use methodological triangulation to gather and analyze data, such as organizational documents and interviews (Fusch et al., 2018). To increase the reliability and dependability of the interview process, Walden's committee members reviewed the interview questions to ensure they aligned with research questions. For this study, I employed various strategies to ensure reliability and achieve data saturation including checking with the participants, validating the interview questions with experts, following participant interview protocols (Appendix), and using methodological triangulation.

Validity

Validity is an important aspect of qualitative research ensuring that the results are considered credible or believable by the research participants themselves. To ensure data validity, researchers employ member checking and multiple methods to collect and analyze data. The validity of qualitative research depends on the following principles of data collection including credibility, confirmability, and transferability of the findings (Abbas, 2021). For this study, I achieved validity by reaching data saturation through interviews, documents, member checking, and multiple methods. Also, I collected data from interviews, publicly available records, and member checking for validity and use methodology triangulation multiple to analyze and present the data until no new themes emerged from the interview. Data saturation ensures the credibility, confirmability, and transferability of the findings.

Credibility in qualitative research must be centered on the participant's perspective. Bias is a common source of credibility issues. Individuals performing doctoral research must carefully avoid personal bias in their work. It is vital to manage biases by maintaining interview protocols, member checking, and collecting data from multiple sources and thorough documentation (Saunders et al., 2018). Understanding the importance of data quality to a doctoral study eliminating biases will foster credible doctoral research. Since from this perspective, the purpose of qualitative research is to describe or understand the phenomena of interest from the participant's eyes, the participants are the only ones who can legitimately judge the credibility of the results. To

assure credibility of this study, I utilized interview protocols, triangulation, member checking, and data saturation.

Transferability is another important aspect of qualitative research, and researchers can enhance transferability by adhering to the research design, interview, and interview protocols. Elmusharaf et al. (2021) described transferability as the degree to which study findings have applicability in general contexts and future research. Additionally, Saunders et al. (2018) recommended that researchers should employ multiple sources of data to obtain data saturation, which can increase the transferability of the findings. I used the multiple case method for my research design, followed the interview protocols (Appendix), and obtained data from numerous sources to achieve data saturation to enhance the transferability of my findings.

Finally, confirmability refers to the extent to which the findings could be confirmed or corroborated by others. Yin (2018) suggested researchers can improve confirmability through member checking by appropriately expressing the participants' responses through the researcher's interpretations and minimizing the researcher's personal biases and poor recall. Also, to develop interpretations from the results, researchers apply methodological triangulation to substantiate different sources of data (Fusch et al., 2018). To maintain conformability of this study, I used member checking and methodological triangulation to the degree to which the results could be confirmed or corroborated by others.

Data Saturation

In qualitative study, researchers consider that data saturation is critical for collecting adequate and high-quality data to support the study and demonstrate content validity. Data saturation occurs when the data collected does not reveal any new themes (Guest et al., 2020). According to Yin (2018), researchers are unaware of reaching saturation until they analyze the obtained data. I ensured that I achieved data saturation by analyzing the data collected to ensure the absence of new data and topics. In addition, I obtained sufficient data to address the research question through interviews, documentation, member checking, and methodological triangulation until no new information emerges.

Transition and Summary

In Section 2 of this qualitative proposal, I outlined the role of the researcher, the participants, the research method, the research design, the population and sampling, foundations of ethical research, data collection instruments, data collection technique, data organization technique, data analysis, and reliability and validity. Additionally, Section 2 includes particulars on the process for data collection, the qualitative data analysis software used in the data analysis process, and the data validation for the study, which explores strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance. Section 3 contains the presentation of findings, the application to professional practice, implications for social change,

recommendations for actions, suggestions for further research, reflections, and a conclusion.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative multiple case study was to explore strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance. Data were collected from semistructured interviews with technology leaders located in the United States and publicly available information on the companies' websites. Each participant received a consent form via email, which they reviewed and confirmed by replying with the words, "I consent." The consent form contained a thorough explanation of the purpose of the study and how participants could withdraw from the study at any time. Three themes emerged from data analysis: (a) developing female skillset, promoting development programs, and continuous training; (b) work-life balance amongst female employees; and c) networking programs to support female employees to undertake leadership position. The gendered organization theory grounded this study.

Presentation of the Findings

Three technology leaders with 7 years or more of experience in technology leadership from three major organizations participated in this study. One overarching research question guided this study: What strategies do technology leaders use to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance?

Participants responded to eight open-ended interview questions (see Appendix) to provide detailed information regarding the strategies used to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions. Each technology leader who participated in interviews discussed their experiences with implementing these strategies.

Data saturation became evident during the second interview, but the third interview confirmed saturation. Member checking follow-up interviews allowed for review and interpretation of the collected data. No new data emerged from member checks that would have changed the study results. Upon obtaining approval from the Walden University IRB, I began the study with a recruitment inquiry to find willing participants through LinkedIn. Several recruits agreed to participate but changed their minds or suddenly stopped responding. I continued the recruiting process and successfully located three willing participants. I emailed each participant a consent form containing instructions to respond with the words, "I consent," to verify and confirm their participation as well as allowed each of them to schedule interview times conducive to their schedules.

I used Yin's (2018) five-step approach to qualitative data analysis to analyze the textual data collected from the participant interviews and review of publicly available information from the organizations' websites. The process consisted of compiling, disassembling, and reassembling data; interpreting data meanings; and concluding results. I began by compiling data for grouping purposes before disassembling the data to reduce and eliminate invariant themes involving the phenomenon and then reassembling

the data and clustered core themes. Last, I checked patterns against interview transcripts. Upon completing thematic analysis, I carefully examined emergent themes and cross-compared them to the literature review, conceptual framework, organizational documents, transcripts, and NVivo results. Participant confidentiality was maintained by use of pseudonyms. For example, I labeled the first participant as H1, and other participants were labeled similarly. Transcripts were also coded in the same manner.

Data collection consisted of audio recording participant interviews on Teams, automated transcription, and reviewing publicly available information on organizational websites against participant responses. I began by transcribing the interviews in Microsoft Word, reviewing and editing the transcriptions, and highlighting relevant information that supported or addressed the guiding research question. Next, I imported transcripts into NVivo to organize, analyze, and code the data. I also created an audit trail during the data organization process, which helped organize my thoughts regarding coded data. The data organization process was completed by conducting a word search query in NVivo to confirm emergent themes compared to themes from participant transcripts and grouping coded data according to emergent themes. Three themes emerged: (a) developing female skillset, promoting development programs, and continuous training; (b) work-life balance amongst female employees; and (c) networking and mentoring programs to support female employees to undertake leadership position (see Table 2).

Table 2

Emergent Themes in Data Analysis

	Developing female skillset, promoting development programs and continuous training	Work-life balance amongst female employees	Networking and mentoring programs to support female employees to undertake leadership position
Number of times the participant mentioned this theme	10	7	6

Theme 1: Developing Female Skillset, Promoting Development Programs and Continuous Training.

Theme 1 emerged in the greatest number of participant comments, with 10 mentions from participant interviews. Participants consistently provided information about the importance of developing female skillset, promoting development, and continuous training. Information included training related to low-and midlevel female employees with leadership and technology training associated with the necessary skillset to achieve technology leadership. The participants indicated that developing female skillset, promoting development programs, and continuous training increases female leadership in technology organizations towards improving business performance. It is essential that leadership training is in place and that it contains an orientation that reinforces the importance of achieving the organization's results (Morrison et al., 2019).

H1 reinforced the importance of making sure that female employees have the right skillset and the right deep technical background to speak on a subject. H2 said that

> leaders actively engage in that level of effort to ensure that we have women that are prepared for occupying those roles and make certain that even in a lower level

> that they are able to gain some management leadership role and so that they can begin to get comfortable with leading and with leading groups.

H3 stressed the importance of "training and improving the skillset and the all-around ability of women that are in technology that are in some level of management." Castelli (2015) suggested that leaders should help employees to develop their skills, especially if they are supervising those that work for them. H3 shared that "the leadership panel is the support that we need to provide women to get those leadership positions and proper developmental training." H3 further explained that "I'll be honest with you, I don't know that we have that every company does a great job at that. So, I actually say that start those developmental programs as soon as people come into the workplace." Organization leaders must develop a leadership training mindset if they want to be useful to employees and the organization (Rosch, 2018). Although great leaders are described differently amongst genders and cultures, few leaders exhibit qualities to maximize their employee's capabilities. H3 indicated that

> the importance of identifying female talents to grow and develop them by putting them in certain roles or different types of roles so they become well rounded but develop a program that actually teaches them how to become a leader and allows them to grow within the company to become a leader.

For example, knowing how to manage one's team is crucial for any management role (Willis, 2019). When leaders develop new skills, they can assist employees in reaching their full potential towards achieving their organization goals.

A review of the literature related to strategies for providing a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance included similar findings to what I learned from the participant interviews in the current study. Additionally, reviewing publicly available organization information supported the emerging theme of leadership training in the organization. For example, one of the participant's organization websites indicated diverse, growing firms that welcome bold ideas and invest in training its people to accelerate career growth and leadership potential. Another company website highlighted the importance of helping employee to accelerate growth and leadership potential as they move into new positions. Participants HI and H2 agreed that leaders should attend women empowerment seminars with their qualified female employee leaders to ensure that women employees within the organization can hear how other females have excelled in other organizations. The study findings will assist technology leaders with different strategies to use to enhance organizational performance. Chisholm-Burns et al. (2017) suggested proper leadership training must focus on how to improve organizations' performance. For an organization to reach its goal, a strong foundation of leadership training must be the driving force.

The comparison of the participants' responses resulted in factors, such as a gender perception of female skillset limits women to leadership positions. Other significant elements from the literature review were consistent with the participants' responses, such as the role of organizational policies and practices and the benefits of women in leadership positions are crucial for enhancing organizational performance. Denend et al.

(2020) claimed that the removal of barriers and obstacles from a workforce environment contributes to an increase in an employee's productivity and organization's result.

The conceptual framework of this study was the gendered organization theory, which supported Theme 1 regarding developing female skillset, promoting development programs, and continuous training. The emergent theme of leadership training aligns with this approach that is exemplified by executive training programs, leadership development courses, networking workshops, and assertiveness training programs designed to empower women in developing the skills and styles deemed essential for achieving success (see Ely & Meyerson, 2000). Researchers using the gendered organization theory have highlighted the necessity of providing female employees with the training, skillsets, and development to achieve increased female leadership to improve organizations' performance (Rodriguez & Guenther, 2022). Technology leaders should implement appropriate training programs to promote female leadership.

Theme 2: Work-Life Balance Amongst Female Employees

Theme 2 emerged with the second greatest number of participant comments (i.e., seven mentions in the participant interviews). The participants emphasized the importance of providing a working environment that promotes work-life balance amongst female employees. According to H2, "some of the barriers may be flexibility of work for women, we tend to be the caretakers and the CEOs of our homes a lot. And so, we have so many different jobs and just in life in general." H2 further explained, "the barriers that women face is the work-life balance and having the flexibility of work hours and work policies." However, H3 opined that "a lot of technology companies now promote work-

life balance significantly; however, female employees still need to prove themselves twice as hard and sacrificing their personal lives." Participants indicated that organization must provide a work environment and culture that promotes flexibility and workplace equality, ensuring female employees do not sacrifice a lot of their personal life to prove themselves twice as hard in comparison with their male counterpart.

A review of the literature related to strategies for providing a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance included similar findings to what I learned from the interviews. Brue (2019) stated that work-life balance was a significant issue preventing women from achieving STEM leadership. Women often must manage multiple tasks and roles at home and work, which can be hard to balance (Frear et al., 2019). The review of the companies' websites reflected information that also provided supportive evidence for this theme. For example, one website revealed a work from home option for qualified employees to relieve additional time spent on commuting. Another organization's website stated the importance of creating a culture that supports work and life blending together daily and that in-person connections build a strong culture, thereby putting in place a hybrid work philosophy to enable employees to collaborate effectively and invest in their personal lives. This finding was in alignment with the recent research literature.

The conceptual framework of the gendered organization theory also supports the themes identified in this study. Ely and Meyerson (2000) indicated that in the gendered organization theory, from the perspective of work-life balance, gender is still framed as differences between men and women as a result of differential structures of opportunity

and power that block women's access and advancement. Eagly and Heilman (2019) discovered that a gendered organization generally affects women's career progress. Achieving work-life balance is a challenge for women that is influenced by various factors, including organizational culture, policies, and practices. Organizations that offer flexible work arrangements, such as telecommuting or flexible hours, can help improve work-life balance for employees. However, researchers have found that women, especially those with children, are more likely to use flexible work options, potentially contributing to gendered perceptions and career advancement disparities (Perceptyx, 2020).

Kossek et al. (2021) posited that by implementing a more flexible and holistic approach to work-life integration, women leaders can overcome hurdles and barriers due to stereotypes and biases that doubt their capabilities and fit for leadership roles. Implementing more proactive strategies to communicate the availability of all company-provided employee resources aligns with the conceptual framework. A gender-inclusive and supportive organizational culture can foster better work-life balance for all employees, including promoting equal opportunities for men and women to access work-life balance programs, encouraging open communication about work-life needs, and combating stereotypes and biases. This study's findings confirm that identifying appropriate strategies helps to promote work-life balance to achieve increased female leadership to improve organizations' performance.

Theme 3: Networking

Theme 3 emerged with the third greatest number of participant comments, with six mentions during participant interviews. The participants emphasized the importance of networking opportunities to achieve increase female leadership in technology, indicating that networking is a technique that technology leaders can use to create more female leaders in the organization. Networking opportunities and similar behaviors help women overcome the challenges and barriers they face in accessing informal networks and advancing their careers, with successful female networkers enjoying efficiency, expansiveness, engagement, and empowerment (Bower, 2019).

H1 explained that "networking was an opportunity to meet new people, network and for my leadership to see that I'm leaning on another female leader versus a nonfemale leader". H1 also reiterated that networking is very important and there should exist a strategy within the organizations with female technologists leading the effort. Furthermore, H2 suggested that there is a need in the industry for sorts of programs, such as programs for the women in technology within other organizations that basically gives sessions, meetings, and opportunities for open floor conversations with women and female students as well that have interest in technology careers.

My findings remain synonymous with the recent research literature. A review of information on company websites also provided supportive evidence for this theme. For example, the company website revealed implementation of networking program within and outside of the organization geared towards different categories of development programs but not specifically for female employees. Additional examples of networking

programs revealed by company websites are the list of relationships with different governmental and non-governmental parastatals which employees can connect with to receive needed support. Hebl and King (2019) suggested that the social support amongst women in technology may address various aspects of gender inequities, bias, concerns about sexism, and challenges women face at the top and bottom of organizations. Networking is one of the crucial strategies for women leaders to overcome these challenges and enhance their professional development. Organization culture must encourage networking programs as it can be challenging. Connecting and learning are often more challenging among women leaders than men in accessing opportunities to network and learn from others, which can affect their recognition, influence, and support in their careers (Showunmi, 2021). Women leaders encountered obstacles to networking sponsors to help them advance their careers (Young et al., 2019).

These findings also align with the conceptual framework. The emergent theme of networking aligns with the gendered organization theory. Organizations that promote networking models personal and professional development. In summary, gendered organization theory plays a role in shaping networking behaviors among female employees within an organization. Networking is a crucial aspect of professional development and career advancement, as it facilitates opportunities for knowledge-sharing, skill development, and access to potential mentors and sponsors. Power and Wilson (2019) noted that employees who are empowered and provided with the learning opportunities they need to achieve would result in increased proficiencies. However, the

way networking is approached and experienced can be influenced by gendered dynamics within the workplace.

Applications to Professional Practice

Some leaders of technology organizations lack strategies for achieving a culture-friendly environment and adequate support that allow women to occupy leadership positions for improving business performance and may benefit from the findings of this study. Therefore, it is recommended that technology leaders develop, implement, and maintain effective strategies to achieving a culture-friendly environment and adequate support that allow women to occupy leadership. These strategies should include (a) providing continuous training and development programs to improve female employee skillsets, (b) creating a work environment and policies that promotes work life balance, and (c) supporting company networking programs to support female employees to undertake leadership.

Technology leaders who find themselves without strategies should refer to the gendered organization theory, which aligns with my study's findings. The gendered organization theory describes the major differences exist between men and women and their career outcomes become significantly different, where preferences are given to men than their female counterparts (Adams & Greer, 2021). Technology leaders can use the gendered organization approach to determine the impact of potential gender biases within different industries and institutions. Technology leaders should understand the importance of achieving a culture-friendly environment and adequate support that allow women to occupy leadership positions and the impact of business performance. Paying

close attention to the increase in gender diversity in technology leadership helps increase business performance.

Implications for Social Change

The results from the study may contribute to a positive social change by promoting and encouraging the number of women in leadership, potentially encouraging education in young girls thereby reducing illiteracy and poverty in society. According to Jorge et al. (2018), the lack of representation of women in leadership positions may negatively impact business performance. The potential positive social change is that female representation in STEM will foster high business performance and productivity promoting global economic growth, creating employment, and reducing poverty. Also, a girl child will be encouraged to get educated, thereby increasing the academic community. When women take on leadership roles, the organization experiences high-level performance (Jorge et al., 2018). Understanding the contribution of gender diversity to business growth, technology companies must create an environment void of the female career glass ceiling. The glass ceiling inhibits the number of women in leadership positions to promote innovation in the industry.

Recommendations for Action

The study results may benefit organizations that lack strategies to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions. Although this was a multiple case study about the technology industry, the recommendations may also apply to STEM in general. The findings confirm that the technology leaders interviewed in this study have strategies to provide a culture-friendly

environment and adequate support to allow women to occupy leadership positions. I recommend that technology leaders implement the following actions in alignment with the three themes that emerged: (a) provide continuous training and development programs to improve female employee skillsets, (b) create a work environment and policies that promotes work life balance such as work from home policies for qualified employees to relieve additional time spent on commuting, and (c) support networking programs within and outside the organization to encourage female employees to undertake leadership.

My specific goals and objectives for disseminating this research are to bring awareness to targeted workgroups through scholarly journals, social media platforms, publications in the technology bulletins, and share information with participants through phone calls and emails. Technology leaders researching strategies to achieving an organizational culture to increase female leadership may use the study as a catalyst for further awareness on the gender diversity. The research study will be shared in ProQuest for accessibility to future researchers looking to bring additional knowledge and awareness to the technology organization.

Recommendations for Further Research

The recommendations for further research are based on the purpose of this study; to explore strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance. The first limitation of the study was the presence of individual bias, resulting from interviewees' background, work ethics and

experiences. This can be addressed in future research by utilizing other research methodologies to corroborate this study. Also, other researchers with different backgrounds conducting a similar study may address this limitation.

Secondly, the research was limited to the United States. The results may not be a full representation of the industry globally. Further researchers may expand this study to include different geographical locations outside of the United States to determine the existence of culture-friendly environment and adequate support that allows women to occupy leadership positions.

Finally, the third limitation was that data are valid only if the participants are completely honest. The presence of the researcher during the interview session may have influenced the willingness of participants to respond sincerely. This limitation can be addressed for further research to include sampling a larger population of technology leaders and conducting in-person interviews for richer data collection. Additional research to gain insight into the disparity between the number of female universities students pursuing technology careers and women in technology leadership may provide the indepth knowledge of the gender gap and encourage organizations to promote women into technology leadership positions. New researchers can expand the knowledge gained from three technology leader's experiences and strategies to inspire other organizations to create an environment where women can thrive in leadership roles.

Reflections

As a professional who has held various mid level and senior leadership roles in the technology industry for several years, I have become well-acquainted with women's

leadership in this field and often pondered on what can be done differently to address the gender disparity in the industry. As a result, I decided to pursue a doctoral program while relying on my industry knowledge and experience as a female technology leader. Exploring the research material allowed me to reflect on the process that organizational leaders use to advance women to leadership positions to improve organizations' performance. Through this study process, I have gained knowledge from the business leaders about the importance of implementing culture-friendly environment and adequate support to allow women to occupy leadership positions. Also, the study enhanced my understanding of the contribution of gender diversity to improve organizations' performance.

As I reflect on my research doctoral journey, the process was insightful and informative. The information I collected from the participant interviews and peer-reviewed articles provided a broader approach to strategies technology leaders use to implement culture-friendly environment to adequately support and allow women to occupy leadership positions in technology organizations. Each participant shared relevant information that included the organization process and publicly available information that assisted me in attaining data saturation. My potential personal bias as a female technology leadership is a major challenge I had to overcome during this study. During this study, I learned to set aside emotions, increased objectivity and maintained professional ethics to overcome personal bias. Additionally, I was able to manage bias by following the interview protocol and performing methodological triangulation.

The significant hurdle I had to overcome to be successful in Walden University's DBA program was navigating through vast amounts of information to identify what was truly relevant. Also, exploring sources and learning how to use databases to refine search queries to enhance the quality of my research results was a challenge. Through this process, I experienced a significant improvement in my writing skills, particularly in the areas of clear and concise communication with readers.

As I further reflect on my DBA experience, this process has taught me about time management, focus, dedication, and tenacity. By obtaining my DBA, I may bring awareness to technology leaders who can influence gender inequality in leadership positions through their strategies and organizational culture. I appreciate the opportunity to learn from professional faculty members, most especially my chair, Dr. Wentz, and supportive colleagues who provided encouragement during moments when I felt overwhelmed and frustrated. My overall experience with my DBA journey was both gratifying and humbling.

Conclusion

The purpose of this qualitative multiple case study was to explore strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance. The research question was what strategies do technology leaders use to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance? I collected data from three participants using semistructured interviews, open-ended questions, and three

themes emerged: (a) developing female skillset, promoting development programs and continuous training, (b) work life balance amongst female employees, and (c) networking and mentoring programs to support female employees to undertake leadership position. The themes showed that technology leaders have many strategies to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance.

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Appendix: Interview Protocol

Meeting: Interview

Introduction: Thank you for taking the time to be a participant in my study, Achieving an Organizational Culture to Increase Female Leadership in Technology. The general business problem is that the technology industry in the United States has failed to provide an environment that is supportive of women in leadership positions, negatively impacting business growth. The specific business problem is that the leaders of technology organizations lack strategies for achieving a culture-friendly environment and adequate support that allow women to occupy leadership positions for improving business performance. The purpose of this qualitative multiple case study is to explore strategies that leaders of technology organizations use to create a culture-friendly environment and adequate support that allows women to occupy leadership positions for improving business performance.

Research Question

What strategies do technology leaders use to provide a culture-friendly environment and adequate support to allow women to occupy leadership positions to improve organizations' performance?

Interview Questions

1. What strategies are you using to provide a culture-friendly environment for female leaders?
2. What strategies are you using to hire females in technology at your organization?
3. What support do you provide to allow women to occupy leadership positions?

4. What strategies are you using to encourage lower and mid-level female employees to take on higher-level positions?
5. What barriers do women face moving through technology leadership roles at your organization?
6. What assistance is available to ensure the inclusiveness of female leaders in technology?
7. What programs are in place to encourage more females to pursue technology careers?
8. What else would you like to add about strategies to provide a culture-friendly environment and support to allow women to occupy leadership positions to improve organizations' performance?

I will conclude by thanking the participant for volunteering to share his/her personal experiences and let them know I will be conducting member checking to ensure that their responses are captured accurately and completely.