

RESEARCH PAPER

# An in-depth analysis of the career paths, challenges, and strategies of women in leadership positions in the Brazilian field of Information Technology

Safyre Ayumy Farão  [ Federal University of Santa Catarina | safyreaf@gmail.com ]

Luiza Carolina Miranda Garcia  [ Federal University of Santa Catarina | luizacmg@gmail.com ]

Andréa Sabedra Bordin  [ Federal University of Santa Catarina | andrea.bordin@ufsc.br ]

 Department of Computing, Federal University of Santa Catarina, Rod. Gov. Jorge Lacerda, 3201, Jardim das Avenidas, Araranguá, SC, 88906-072, Brazil.

**Abstract.** Gender inequality remains pronounced in management and leadership positions within the field of Information Technology. This study aims to understand the phenomenon of women's leadership in IT by examining the career trajectories, challenges, strategies for overcoming barriers, and motivations of women who occupy management and leadership roles. Adopting a qualitative phenomenological approach, the study draws on in-depth interviews with five women leaders to explore the essence of their lived experiences. The findings reveal common experiential patterns related to pathways to leadership, challenges encountered both along the career trajectory and while occupying leadership positions, and the strategies employed to navigate these contexts. By providing an experience-centered understanding of women's leadership in IT, this study contributes to the literature on gender and leadership while also offering insights into the organizational and human factors that shape technology organizations and their socio-technical environments. These findings may inform organizational practices aimed at fostering more inclusive and sustainable leadership in the IT sector.

**Keywords:** Female Leadership, IT Organizations, Phenomenological Analysis

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## 1 Introduction

Gender inequality in leadership positions remains a persistent global phenomenon across economic sectors and organizational contexts. Although women's participation in the workforce and access to higher education have increased over recent decades, leadership and senior management positions continue to be disproportionately occupied by men [Eagly and Carli, 2007]. This imbalance remains evident in contemporary corporate leadership. In Fortune's 2025 ranking of Europe's 500 largest companies, only 38 (7.6%) were led by women CEOs [Hinchliffe, 2025].

The reasons for gender inequality in leadership are complex and multifactorial. Prior studies point to structural and cultural barriers such as gender stereotypes, unconscious bias, unequal access to informal networks, and limited mentoring and sponsorship opportunities [Evans and Maley, 2021]. Conceptual metaphors such as the glass ceiling describe the invisible barriers that prevent women from advancing to top leadership positions despite comparable qualifications [Federal Glass Ceiling Commission, 1995]. Related concepts, including the glass cliff and the leaky pipeline, further illustrate how women are often promoted under precarious conditions or progressively excluded throughout career trajectories, reinforcing cumulative disadvantage over time [Eagly and Carli, 2007].

Greater gender diversity in leadership has been associated with organizational performance. A global survey of 21,980 firms from 91 countries found a positive association between profitability and the proportion of women in corporate leadership at the director and board levels [Evans and Maley, 2021; Noland *et al.*, 2016].

Gender inequality in leadership is particularly pronounced in the Information Technology (IT) industry. Historically shaped as a male-dominated field, the IT sector exhibits persistent gender gaps not only in technical roles but also in management and executive positions [Naseviciute and Juceviciene, 2024]. Research indicates that masculine organizational cultures, gendered assumptions about technical competence, and the scarcity of female role models contribute to reduced leadership opportunities for women in IT [Naseviciute and Juceviciene, 2024].

In the Brazilian context, women have higher rates of completed higher education than men, with 20.7% of women having completed higher education compared with 15.8% of men in the same age group [IBGE, 2025]. Nevertheless, their participation in IT, and particularly in leadership positions, remains limited. According to Granato [2021], only 35% of women working in the technology sector occupy higher-level positions, including leadership roles. In addition, the average salary of female Chief Technology Officers (CTOs) is 48% lower than that of their male counterparts, and women receive 17% fewer benefits, even when holding comparable qualifications and professional experience [Plongê, 2024].

A systematic literature review on female leadership in the IT field in Brazil identified 10 studies that investigated the barriers and coping strategies of women who achieved leadership positions in this area. Among the challenges most frequently reported were gender prejudice, the double work-day, the male-dominated work environment, and harassment. Regarding strategies to overcome these challenges, the studies highlight investment in professional development through training and courses, resilience, and interpersonal skills such

as listening and humility, among others [Farao and Bordin, 2024].

An in-depth analysis of these studies revealed that other aspects related to the leadership experience—such as the career trajectories followed by women to reach leadership positions, the differences between the challenges encountered along the career path and those faced once in leadership roles, as well as the motivations for pursuing leadership positions—were addressed only superficially. These gaps motivated the study to investigate the lived experiences of women holding leadership positions in Information Technology using a qualitative phenomenological approach Farao and Bordin [2025].

This study builds upon the work of Farao and Bordin [2025] by expanding the theoretical foundation, extending the empirical analysis, and deepening the interpretation of the findings. While the original study focused on developing an essential description of the phenomenon of being a woman in an IT leadership position, the present work provides a more detailed and individualized examination of career trajectories, experiences before and during leadership, strategies for navigating professional barriers, and motivational factors.

The study provides detailed accounts that highlight both shared and individual aspects of these leadership experiences. These findings contribute to ongoing academic discussions on gender and leadership in Information Technology while providing evidence that may inform organizational practices, leadership development programs, mentoring initiatives, and diversity and inclusion policies aimed at fostering more equitable leadership in IT organizations.

While this study investigates women's leadership in the Information Technology industry rather than interactive systems themselves, its findings are relevant to research on interactive systems because such systems are conceived, developed, deployed, and sustained within organizational and socio-technical contexts shaped by human, managerial, and organizational factors [Baxter and Sommerville, 2011]. Leadership influences organizational practices, team coordination, communication, mentoring, and the conditions under which technology teams operate. By examining the barriers and experiences of women in IT leadership positions, this study contributes to understanding some of the organizational and social conditions surrounding the teams and institutions in which interactive systems are developed.

This paper is organized as follows: Section 2 presents the conceptual and theoretical foundations needed to understand this study; Section 3 presents findings from a systematic literature review focusing on career trajectories, barriers, coping strategies, and motivational factors; Section 4 describes the methodology adopted in this study; Sections 5 and 6 present the results and discussion, respectively; Section 7 discusses the limitations of the study; and finally, Section 8 provides the concluding remarks.

## 2 Background

This section contextualizes the phenomenon of women's underrepresentation in technological fields, moving from the broader landscape of STEM to the specific challenges faced by women in leadership positions within the Information Tech-

nology sector. The objective is to establish the theoretical framework that underpins the understanding of the lived experiences of the participants in this study, addressing the structural, cultural, and organizational barriers that characterize their professional trajectories.

### 2.1 Women in STEM

Female participation in science, technology, engineering, and mathematics (STEM) fields remains limited throughout the entire educational and professional trajectory. In Brazil, only 30.3% of graduates from STEM programs are women [INEP, 2021], and just 26.3% of formal employment positions in STEM are held by women [MTE, 2025]. Underrepresentation is even more pronounced in Information Technology, where women account for only 23.2% of graduates, in contrast to fields such as Health and Education, in which women represent more than 70% [INEP, 2021]. This progressive reduction in female participation characterizes the leaky pipeline phenomenon, a concept that describes the systematic loss of women at each stage of the academic and professional trajectory [Blickenstaff, 2005].

The Brazilian Computer Society (SBC) reports a substantial disparity between female enrollment and completion in technology-related programs, with approximately 240,000 annual enrollments compared with about 5,000 completions [SBC, 2021]. This “leakage” intensifies during the transition to the labor market; according to data from the Annual Social Information Report (RAIS), women tend to leave STEM occupations earlier and more frequently migrate to administrative roles [MTE, 2025].

The literature has associated this leakage primarily with structural and cultural barriers that shape educational and professional trajectories, rather than with differences in aptitude. Structural barriers are produced and maintained by rules, norms, policies, and power arrangements that shape how careers unfold. Gender stereotypes shape trajectories from early childhood, constructing cultural associations between masculinity and technical ability [Nogueira *et al.*, 2013]. These biases become embedded in academic and professional environments that reproduce the questioning of women's technical competence [Margolis and Fisher, 2002; Cohoon and Aspray, 2006]. According to Master and Meltzoff [2020], cultural stereotypes about technical ability directly affect women's interest in and persistence in STEM-related programs.

STEM fields with greater gender balance tend to exhibit characteristics such as more inclusive organizational cultures, the presence of female role models, and a weaker symbolic association with stereotypically masculine attributes [Cheryan *et al.*, 2017]. Conversely, gender-imbalanced environments produce what Amon [2017] identifies as hypervisibility, in which women become representatives of their gender in male-dominated spaces, generating additional pressure to prove competence and experiencing a lower sense of belonging. Economic inequality is also evident, as STEM constitutes the occupational group with the greatest gender wage gap in Brazil [MTE, 2025]. This indicates that women not only enter and remain in this labor market in smaller proportions, but also receive lower average compensation.

## 2.2 Women in the IT industry

The inequalities that characterize women's underrepresentation in STEM are even more pronounced in Information Technology (IT). IT is among the STEM fields with the lowest levels of female participation and substantial gender wage disparities. In the technology sector, women represent 39% of the workforce, a proportion lower than women's participation in the Brazilian labor market as a whole (44.1%). Regarding compensation, women in IT earn on average 29.8% less than men, a disparity that reaches 48% in positions such as Chief Technology Officer (CTO), even when seniority and educational background are equivalent [Brasscom, 2023; Plongê, 2024].

The exclusion of women in IT has historical and cultural roots. During the 1970s and 1980s, the marketing of personal computers was targeted primarily at young males, reinforcing the cultural association between computing and masculinity [Visentini *et al.*, 2021]. Women played central roles in the early stages of computing, working as programmers and analysts, but their participation progressively declined as the field gained social prestige and economic value [Abbate, 2012]. Margolis and Fisher [2002] describe how this symbolic construction contributed to a male clubhouse environment that persists decades later, reflected in the ongoing female underrepresentation illustrated by the leaky pipeline.

Organizational culture in the sector intensifies these inequalities because many technology environments are perceived as hostile or exclusionary. Santos *et al.* [2024] identifies structuring barriers, such as preconceived ideas that differentiate the skills and aptitudes of men and women; motivational barriers, such as wage disparities and lack of recognition; and cultural barriers related to work–life balance. According to Amon [2017], women face a regime of conditional credibility in which they must prove their competence, while men benefit from an initial presumption of capability.

Recent Brazilian research on the software industry reinforces this structural perspective, identifying gender inequalities associated with occupational segregation, technical biases, limited professional recognition, professional isolation, and barriers to women's career progression [Araújo *et al.*, 2026]. These findings indicate that gender inequalities in the software industry are manifested not only through individual episodes of discrimination but also through organizational practices and professional structures that affect women's visibility, retention, and advancement.

## 2.3 Career progression in IT

Horizontal segregation refers to the unequal distribution of women and men across occupational areas within the same field. Women tend to be disproportionately concentrated in roles such as QA, technical support, documentation, UX, and project management, whereas men predominate in areas such as software development, data science, artificial intelligence, and cybersecurity [Nguyen-Duc *et al.*, 2017].

Vertical segregation refers to the barriers that hinder advancement to positions of power and decision-making. Howe-Walsh and Turnbull [2016] argue that women in science and technology face a lack of professional sponsorship, exclusion from informal decision-making networks, and evaluations based on non-transparent criteria—factors that reduce

women's presence in strategic roles. Early-career women also report a lack of mentoring and a disproportionate allocation to operational tasks [Cohoon and Aspray, 2006]. This unequal distribution of opportunities constrains access to professional visibility and limits subsequent career progression [Cheryan *et al.*, 2017].

Organizational diversity initiatives may coexist with promotion practices that reproduce gender inequalities. For example, promotion processes may evaluate men based on their future potential while requiring women to demonstrate previous performance before being considered ready for advancement [Grant Thornton, 2022]. Such practices can prolong the time required for women to be considered eligible for higher-level positions and reinforce occupational segregation by limiting access to professional development opportunities.

## 2.4 Women's leadership in IT

Women's professional trajectories in IT are marked by progressive losses as they advance within organizational hierarchies. According to World Economic Forum [2022], women hold only 10% of executive positions in STEM fields. Underrepresentation in leadership is also observed in non-STEM fields, where women represent 47% of professionals at operational levels but only 25% in leadership roles. Data from RAIS confirm that, in Brazil, women exhibit lower retention in STEM occupations and face higher turnover, more frequently migrating to administrative or educational roles [Almeida, 2025].

The concept of the glass ceiling describes invisible yet persistent barriers that limit women's advancement to positions of power [Krueger, 2020]. In IT, these challenges manifest in multiple ways, such as exclusion from informal networks where decisions are made, the absence of senior leaders who act as career mentors, and evaluation processes that require proven performance records. These factors are compounded by organizational expectations of constant availability, which are often incompatible with the double burden faced by women [Santos *et al.*, 2024; Howe-Walsh and Turnbull, 2016].

Women who manage to break through the glass ceiling may also encounter the *double bind*. Women leaders may face conflicting expectations in which assertive behaviors can violate gendered expectations, while more communal or collaborative behaviors may be perceived as inconsistent with conventional leadership stereotypes. This is a behavioral paradox identified in several studies, which imposes constant self-monitoring and makes leadership trajectories emotionally taxing [McCullough, 2020].

There is also the phenomenon of the glass cliff, in which women may be promoted to leadership positions precisely during periods of organizational crisis, instability, or when projects already have a high probability of failure [McCullough, 2020]. When outcomes are negative, this reinforces stereotypes that women are less competent, even when context—rather than performance—explains the adverse results.

Conditional credibility, a concept discussed earlier, may operate with particular intensity in leadership positions. In environments where authority derives from technical expertise, women leaders may be required to repeatedly demonstrate their legitimacy across projects, teams, and organizational contexts, whereas men in equivalent positions may be more

readily granted initial credibility [Amon, 2017].

Research has also examined both organizational outcomes associated with women in technology leadership and average gender differences in leadership styles. According to Wu *et al.* [2021], companies with female CTOs showed higher levels of innovation output, including 1.83 times more patent filings and 1.74 times more patent citations. In addition, a meta-analysis by Eagly *et al.* [2003] identified average gender differences in leadership styles, with women scoring somewhat higher than men on transformational leadership dimensions.

Despite these findings, women leaders in IT report that challenges persist in their day-to-day leadership experiences. These include frequent interruptions during meetings, the dismissal of technical contributions, constant questioning of decisions, and difficulties in delegating due to excessive scrutiny of their choices. Professional isolation in predominantly male environments is compounded by the absence of female role models in senior positions, which hinders the construction of career references [Howe-Walsh and Turnbull, 2016].

### 3 Related Works

The systematic literature review conducted by Farao and Bordin [2024] investigated the challenges encountered throughout the career trajectories of women in leadership positions in the Information Technology field in Brazil, as well as the strategies adopted to cope with these challenges. Across the ten studies identified, the main challenges reported included gender discrimination and prejudice, the double workday, male-dominated work environments, harassment, motherhood, lack of encouragement, impostor syndrome, wage inequality, female rivalry, the glass ceiling, additional effort required for recognition, and age-related barriers.

Regarding the strategies or actions employed to cope with these challenges, the studies reported investment in education and professional development, resilience, active listening and humility, what some participants described as avoiding a victimization stance, maintaining professional networks, adopting a firmer or more assertive posture, setting clear goals, and seeking mentorship.

We further analyzed the studies identified in this review to address additional questions aligned with the objectives of the present study. Specifically, we sought to identify the career trajectories followed by women to reach leadership positions, the challenges encountered after assuming leadership roles and whether these differed from those experienced throughout their career trajectories, and the factors that motivated them to pursue or accept leadership positions. We also examined the methodological characteristics of the studies. The following subsections present the main findings of this extended analysis.

#### 3.1 Methodological Aspects

The analyzed studies adopted diverse methodological approaches, with a predominance of qualitative research (seven studies), followed by mixed-methods research (two studies) and one quantitative study. Most qualitative studies relied on interviews, predominantly semi-structured, conducted with women holding leadership positions or with women studying or working in the technology field. Iata [2020] interviewed

seven women and analyzed the data using thematic analysis; Guimarães [2011] interviewed ten women and employed content analysis; Oliveira [2022] conducted 14 interviews and also used content analysis; Botelho *et al.* [2008] classified the research as a case study and interviewed three women; and Silva *et al.* [2023] interviewed 52 students to investigate perceived challenges associated with reaching leadership positions, analyzing the data through thematic analysis.

The mixed-methods studies combined questionnaires with in-depth interviews, enabling the integration of quantitative and qualitative data. Teixeira *et al.* [2022] collected responses from 74 students enrolled in a technology program and interviewed three women holding management positions in the field; however, the study did not report a specific method for analyzing the qualitative data. Borges and Fernandes [2021] collected questionnaire responses from 80 women working in IT and interviewed four women in leadership positions. In this study, quantitative data were analyzed using descriptive and inferential statistics, while qualitative data were analyzed through content analysis.

#### 3.2 Career Trajectory to Becoming a Leader

Career trajectories toward leadership were explicitly addressed in only two studies. In the study by Iata [2020], the seven interviewees described their paths to leadership as resulting from a combination of interrelated factors, including their desire to make things happen, willingness to contribute to organizational growth, passion for the business, and understanding of the “corporate game,” understood as knowing how to behave and position oneself within the organizational environment. In the study by Guimarães [2011], among the ten women interviewed, only four mentioned aspects related to their career trajectories, which they described as “a smooth and natural process.” One participant reported that she had not initially aspired to a leadership position; another stated that her appointment occurred through the recommendation of another woman; and another described being a woman as having contributed to her appointment to a management position because of her perceived calmness in dealing with problems and people.

Overall, the studies addressed women’s trajectories toward leadership only indirectly and provided limited detail about the processes through which these positions were reached. Information such as the specific positions previously held, transitions between roles, education or professional training undertaken, and other formative experiences was generally absent.

#### 3.3 Challenges Encountered in Leadership

In the studies analyzed in the systematic literature review, it was not always possible to determine whether the challenges identified throughout women’s career trajectories also persisted after they assumed leadership positions. Although several of the reported barriers may extend into leadership, only a small number of studies explicitly distinguished challenges experienced while occupying leadership roles.

Challenges specifically associated with leadership functions were identified in two studies. Teixeira *et al.* [2022] reported challenges related to behavioral self-monitoring,

whereby women needed to continually assess when to express disagreement and how to participate in workplace interactions and jokes. Motherhood and the double workday were also identified as challenges experienced while occupying leadership positions. In contrast, Guimarães [2011] identified lack of respect from individuals occupying higher hierarchical positions as a challenge experienced by women leaders.

### 3.4 Motivations for Pursuing a Leadership Position

Only three studies addressed the factors that motivated women to pursue or accept leadership positions. In the study by Iata [2020], participants reported that confidence in their competencies, regardless of gender, contributed to their pursuit of senior leadership roles. Family upbringing, particularly being raised to perceive themselves as capable and encouraged to succeed, was also identified as a relevant factor, together with the participants' own desire to lead.

In the study by Borges and Fernandes [2021], interviewees reported that their leadership positions emerged primarily from convenience and/or opportunities that arose during their professional trajectories. In Cardoso [2017], one participant reported that having a successful mother served as an inspiration for pursuing a leadership position.

### 3.5 Analysis of Related Works

Among the ten studies included in the review, most addressed challenges encountered throughout women's career trajectories, and seven discussed strategies adopted to cope with these challenges. In contrast, only three studies examined the factors that motivated women to pursue or accept leadership positions, while only two explicitly addressed women's trajectories toward leadership and the challenges experienced after assuming leadership roles.

Regarding methodological approaches, although most studies collected qualitative data through interviews, only five explicitly reported the use of established qualitative data analysis methods, namely content analysis or thematic analysis. These approaches enabled the identification of categories, patterns, and meanings in the participants' accounts. However, the studies did not adopt an explicitly phenomenological analytical orientation focused on describing lived experience. Consequently, the previous studies provide important evidence about the barriers and strategies associated with women's leadership in IT, while offering more limited insight into how career trajectories, challenges, coping strategies, and motivations are experienced and interconnected from the perspective of women leaders themselves.

The gaps identified therefore concern both the aspects of the phenomenon examined and the analytical perspective adopted. Career trajectories toward leadership, experiences after assuming leadership roles, and motivations for pursuing or accepting such positions remain comparatively underexplored. Moreover, the limited use of approaches explicitly oriented toward lived experience leaves room for a more integrated examination of how these dimensions are experienced by women leaders. For this reason, the present study adopts a phenomenological approach, which is more closely aligned with the objective of examining and describing the lived experience of being a woman in an IT leadership position.

## 4 Methodology

The methodological approach adopted in this study is qualitative and follows the transcendental phenomenological perspective proposed by Moustakas [1994]. Phenomenological research seeks to describe the common meaning of individuals' lived experiences in relation to a phenomenon, giving central attention to the participants' perspectives. In transcendental phenomenology, emphasis is placed on description and on identifying the shared essence of experience. Within this approach, the researcher seeks to bracket prior assumptions as much as possible, in order to approach the phenomenon from a renewed perspective [Creswell, 2014].

According to Moustakas [1994], transcendental phenomenological analysis involves identifying significant statements about the phenomenon, examining them through horizontalization and clustering, developing descriptions of the participants' experiences, and synthesizing the meanings and essence of the phenomenon. In the present study, these procedures were adapted as shown in Figure 1. The analysis was organized according to the research questions (RQs), with textual descriptions developed for each question and subsequently integrated into an essential description of the phenomenon.

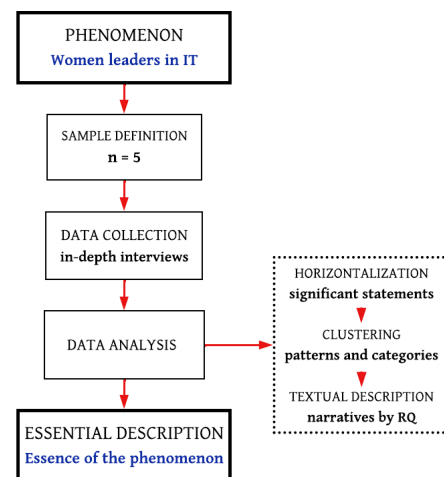


Figure 1. Procedures of transcendental phenomenological analysis

The phenomenon investigated in this study is the lived experience of women occupying leadership positions in Information Technology (IT) in Brazil. The following subsections detail the stages of the research: sample definition, data collection, and data analysis.

#### 4.1 Sample Definition

The literature recommends that phenomenological studies work with small groups of individuals who have directly experienced the phenomenon [Moustakas, 1994]. The participants were selected through purposive criterion sampling based on their direct experience with leadership in IT.

The selected participants were required to have held a formal leadership position in IT within the past five years and to have led, or currently lead, teams of at least four people. The participants were identified through professional networks and referrals from colleagues in the field. Of the eight women contacted who met the criteria, five agreed to participate in this research.

## 4.2 Data Collection

Data collection was carried out through in-depth interviews, a method recommended by the phenomenological approach. The semi-structured interviews were conducted remotely using the Google Meet platform between August and October 2024, with an average duration of 60 minutes. The interviews were recorded and transcribed, resulting in 38 pages of text.

Before the interviews, the participants received and signed the Informed Consent Form, which provided information about the interview method, duration, and the risks and benefits involved. The study was submitted to the Research Ethics Committee of the Federal University of Santa Catarina (UFSC) and approved under protocol number 77513324.4.0000.0121.

To protect participants' confidentiality, each woman was assigned a pseudonym agreed upon before the interviews. The pseudonyms were inspired by prominent women in technology (**Megan Smith**, **Grace Hopper**, **Hedy Lamarr**, **Susan Wojcicki**, and **Marissa Mayer**), replacing all personally identifiable information throughout the transcripts and the presentation of the results. The avatars used to accompany selected participant quotations in the Results section are purely illustrative and do not depict the participants' real appearance or identity. The illustrations were created by the authors using graphic elements licensed for use through Canva. Additional organizational details that could indirectly identify the participants or their employers were omitted or generalized whenever necessary.

The interview guide consisted of sociodemographic questions concerning personal characteristics (e.g., age and marital status), professional characteristics (e.g., leadership positions held and sectors in which participants had worked), and research-specific questions, presented in Table 1. These questions focused on understanding what participants experienced in relation to the phenomenon and the contexts or situations that influenced those experiences.

**Table 1.** Research Questions

| Number | Research question                                              |
|--------|----------------------------------------------------------------|
| RQ1    | What was the trajectory followed to become a leader?           |
| RQ2    | What are the main challenges faced throughout this trajectory? |
| RQ3    | How were these challenges overcome?                            |
| RQ4    | In a leadership position, are these challenges the same?       |
| RQ5    | What motivated you to pursue a leadership position?            |

## 4.3 Data Analysis

The data analysis procedures employed in phenomenological research include: horizontalization, in which significant statements that provide insight into how participants experienced the phenomenon are identified; clustering, in which these statements are grouped into categories; and textual description, which synthesizes the main points identified through horizontalization and clustering in order to understand the different perspectives and the implicit connections among them, thereby achieving a broader understanding of the phenomenon Moustakas [1994].

In the **horizontalization** stage, statements that helped to

understand how the participants experienced the phenomenon of leadership in IT were identified. Each interview transcript was read repeatedly to identify significant statements related to the phenomenon under investigation. Each significant statement was synthesized into a descriptive coding following an inductive approach. The codes emerged directly from the participants' narratives rather than from predefined categories. This process was done within each research question (RQ1–RQ5), allowing statements addressing the same aspect of the phenomenon to be analyzed together. As new interviews were analyzed, previously assigned codes were continuously reviewed and refined to ensure consistency across participants while remaining faithful to the original meanings expressed in the transcripts. Table 2 presents an example of the horizontalization procedure applied to an excerpt from one participant's response to RQ1, with the coding indicated in brackets.

**Table 2.** Example of horizontalization: highlighted excerpt responding to RQ1

...I said, "Well, I would like to make a proposal." "Oh, you would?" And I said, "**I would like to make a proposal to absorb this team, with a different methodological approach and a team structure more independent from the other IT areas**" [IDENTIFIED AN OPPORTUNITY]. Until then, **I did not have the mindset of becoming the official manager of that area [DID NOT INTEND TO BECOME A LEADER]**. I was going to put together a proposal with some ideas that I thought made sense and so on, but I believed that my manager at the time would be the one responsible, right?....

In the **clustering** stage, conceptually similar codes were iteratively compared and grouped into broader categories representing shared aspects of the participants' experiences. To facilitate the presentation of results, categories mentioned by at least three participants were considered recurrent patterns of experience and are emphasized in the Results section. This criterion was adopted to distinguish experiences shared across participants from those that reflected individual trajectories. Experiences reported by fewer participants were not discarded; instead, they were incorporated into the textual descriptions whenever they contributed to understanding the phenomenon. The coding and clustering procedures were initially conducted by the first author and subsequently discussed with the other authors until agreement was reached regarding the resulting categories.

Table 3 presents an example of clustering applied to statements related to the trajectory (RQ1), illustrating the category "Lack of desire to become a leader". The complete results are available in the document Response Clustering [Bordin, 2025].

**Table 3.** Examples of clustering within the category "Lack of desire to become a leader"

| Participant   | Statement extracted during horizontalization                            |
|---------------|-------------------------------------------------------------------------|
| Participant 1 | Did not want a leadership role, even after being invited more than once |
| Participant 2 | Had no intention of becoming a leader when proposing the solution       |
| Participant 3 | Never had the intention of leading                                      |
| Participant 4 | Lacked the desire to be a leader                                        |

Based on the patterns identified during clustering, the **textual description** was conducted, organizing the findings into narratives according to each research question (RQ1 to RQ5). This procedure made it possible to synthesize the main points identified in the clustering stage while preserving the connection between the findings and the guiding research questions. Finally, the **essential description** was developed, presenting the essence of the investigated phenomenon by integrating the common experiences shared by the participants.

Throughout the analysis, the researchers adopted a reflexive stance consistent with transcendental phenomenology. Prior assumptions regarding women's leadership in IT were explicitly discussed before the coding process, and particular attention was given to bracketing (*epoché*) by repeatedly revisiting the original interview transcripts whenever categories were refined. This process sought to ensure that the resulting descriptions remained grounded in the participants' accounts rather than in researchers' prior expectations.

## 5 Results

The data obtained from the five interviews were analyzed according to the analysis procedures described previously. This section first presents the sociodemographic profile of the participants to contextualize the findings. It then presents the textual descriptions derived from the interviewees' responses, organized by research question and informed by the processes of horizontalization and clustering described in the methodology. Finally, a description of the essence of the phenomenon is provided.

### 5.1 Sociodemographic profile of the interviewees

According to the data presented in Table 4, the five participants in the study are between 41 and 53 years old, four of whom are married and one single. All participants have at least one child. Four participants live with family members (husband, children, and, in one case, also with their mother), while one lives alone. Geographically, the interviewees represent three regions of Brazil: the Southeast (São Paulo, SP, and Santa Isabel, SP), the South (Porto Alegre, RS, and Blumenau, SC), and the North (Manaus, AM). All participants self-identified as white.

Regarding academic background, all participants hold undergraduate degrees in technology-related fields (Information Systems, Web Development, Systems Analysis, Computer Science, and Electrical Engineering). In addition to their undergraduate education, all completed postgraduate studies: two hold MBAs, one holds a specialization degree, one completed a sequential program, and one holds a doctorate.

The participants have accumulated between 8 and 20 years of experience in management positions, having worked in the financial, technology, healthcare, retail, education, and government sectors. They have held or currently hold positions such as coordinators, managers, heads, directors, vice provost, and managers in governmental agencies. The teams they managed vary in size from 4 to 700 people, demonstrating experience across small, medium, and large organizations.



SUSAN

I built my career in that position until the moment I realized that I had exhausted all possibilities, was giving everything I could, and felt the need for new challenges.

Figure 2. Illustrative avatar accompanying a quotation from an anonymous study participant.

### 5.2 RQ1. What was the trajectory followed to become a leader?

The grouping of patterns identified in the responses, shown in Table 5, revealed that the interviewees did not have an explicit desire to become leaders. Their trajectories were built through opportunities that emerged as a result of accumulated experience, knowledge, and observed behaviors.

Among the five interviewees, four did not initially intend to become leaders. Grace exemplifies this pattern, having declined two invitations to coordination roles and accepting only the third due to financial motivation. She reported: *"I was never pursuing the position; it was always through the recognition of my work, my role, and how I approach projects that opportunities opened up"*. Lamarr stated: *"The trajectory was very natural; I never had the ambition to become a leader"*. When she received her first invitation to a management role, she reacted with surprise: *"I was scared, and I said: Is there a course for managers? Because I need one"*.

Marissa also mentioned that she never intended to lead and that she would have no problem stepping aside if there were someone more qualified. Megan volunteered to solve a complex problem that no one else was willing to take on and was subsequently offered an opportunity, but she did not imagine becoming a leader: *"I did not have the mindset of being the official manager of that area"*.

Susan (Figure 2) was the only participant who presented a different trajectory in this regard, explicitly expressing a desire for career progression from the outset. The interviewee used a growth metaphor to describe her pursuit: *"oh, my little pot is here, I have already filled it with my roots, now I want bigger things"*. She actively sought progression, evaluating when she had exhausted her possibilities for development. Susan took part in the structuring of the company where she worked, a context that created growth opportunities, which she described as *"a matter of building things, of the opportunity of the moment aligned with what I was seeking"*. However, her progression also depended on opportunities offered by the organization, as she participated in internal selection processes.

Four of the five participants reported having received opportunities throughout their careers. Grace described that invitations emerged at different moments, such as when she was hired as a permanent employee, when she took over a new account, and when the company was acquired. Lamarr was invited to apply for a management position after being recognized for her interpersonal skills and accumulated experience. Susan, although actively seeking career progres-

**Table 4.** Sociodemographic profile of the interviewees

| ID      | Age | Marital status | Children | Education          | Leadership positions                                                | Team size | Years in management |
|---------|-----|----------------|----------|--------------------|---------------------------------------------------------------------|-----------|---------------------|
| Megan   | 46  | Married        | 2        | MBA                | Manager; Executive Manager; Director of IT                          | 7–185     | 11                  |
| Grace   | 53  | Married        | 2        | Sequential program | Technical Leader; Project Manager; Head of Delivery; Director of IT | 30–440    | 20                  |
| Lamarr  | 50  | Married        | 2        | MBA                | Team Leader; Junior Manager; Mid-level Manager; Senior Manager      | 6–25      | 12                  |
| Susan   | 41  | Married        | 1        | Specialization     | Project Coordinator; Support Manager                                | 4–60      | 14                  |
| Marissa | 49  | Single         | 1        | PhD                | Coordinator; Director; Vice Provost; Manager                        | 4–700     | 8                   |

**Table 5.** Categories identified in RQ1

| Categories                   | M | G | L | S | Ma | n |
|------------------------------|---|---|---|---|----|---|
| No desire to become a leader | ✓ | ✓ | ✓ |   | ✓  | 4 |
| Opportunity offered          |   | ✓ | ✓ | ✓ | ✓  | 4 |
| Ability to work with people  |   |   | ✓ | ✓ | ✓  | 3 |
| Experience and knowledge     |   | ✓ | ✓ | ✓ |    | 3 |

M=Megan; G=Grace; L=Lamarr; S=Susan; Ma=Marissa.

sion, also depended on opportunities offered by the organization during the structuring of the area in which she worked. Marissa received invitations to several positions, such as institute director, vice provost, national project coordinator, and a government role—recognition that she attributes to a natural management ability perceived by others.

The ability to work with people was mentioned by three participants as one of the characteristics that led them to leadership positions. Lamarr reported: *“what led me to the path of leadership was my experience and the fact that I enjoy working with people; my leaders observed this in me”*. Susan mentioned that although her management involves technology and innovation, she consistently maintains a focus on the human dimension, indicating that her interpersonal skills were essential to her career progression. Marissa recognized in herself a natural ability for management, for dealing with people, and for building connections—characteristics that were also perceived by managers who invited her to different positions.

Three participants attributed the opportunities they received to the experience and knowledge accumulated throughout their careers. Grace described: *“I have always been very interested in looking at the solution as a whole, and not only at a specific functional feature”*, a broad perspective that emerged from her desire to learn more and a behavior that drew the attention of managers. Lamarr highlighted that the experience accumulated in the field was fundamental to her transition into management positions, allowing her to develop competencies recognized by her leaders. Susan mentioned that her participation in building the area in which she worked, combined with technical knowledge and structuring capabilities, contributed to the opportunities she received. The synthesized textual description of each participant’s response is available in the document Textual Descriptions of Interview Responses (RQ1 – RQ5) [Bordin, 2025].

### 5.3 RQ2. What are the main challenges faced throughout the trajectory?

The interviewees reported several challenges faced throughout their trajectories until reaching leadership positions. Table 6

presents the categories identified from the responses, with motherhood, double workload, gender prejudice, and the need to prove competence being the most recurrent.

**Table 6.** Categories identified in RQ2

| Categories               | M | G | L | S | Ma | n |
|--------------------------|---|---|---|---|----|---|
| Motherhood               | ✓ | ✓ | ✓ | ✓ | ✓  | 5 |
| Gender prejudice         | ✓ | ✓ | ✓ |   | ✓  | 4 |
| Double workload          | ✓ | ✓ | ✓ | ✓ |    | 4 |
| Need to prove competence |   | ✓ |   | ✓ | ✓  | 3 |

M=Megan; G=Grace; L=Lamarr; S=Susan; Ma=Marissa.

Motherhood was mentioned by all five participants as a challenge in their trajectories. Megan cited the unequal distribution of parental responsibilities, stating: *“it is not easy; even if we want to think differently, the burden on women is still greater at home”*, and further affirmed that mothers tend to be more concerned about their children than fathers. Grace described that her pregnancy occurred during a period of career transition, which made it more difficult to reconcile tasks, and mentioned situations in which she was unable to attend her children’s school events due to work commitments.

Lamarr observed that mothers tend to be much more detail-oriented regarding their children, which adds to their responsibilities. She commented on the impact of maternity leave on her professional development: *“maybe I would have developed more quickly if I hadn’t taken the leave, yes, but those are life choices”*. The five-month pause generated a feeling of falling behind compared to colleagues who remained active. Susan experienced pregnancy during the pandemic and reported fear of leaving people without support when going on leave; according to her, *“I had to learn how to deal with it”*. The participant, who had always placed work as a priority, needed to learn how to manage the before and after of motherhood, including not blaming herself for personal events that could affect her work. Marissa described that, with motherhood, work possibilities became quite limited, making it necessary to give up certain professional aspects in order to spend time with her daughter.

As a consequence of motherhood and domestic responsibilities, four participants mentioned the challenge of the double workload. Megan stated: *“if I take on all the responsibilities of the household, the children, studies, and work, we simply cannot manage; the double, triple, quadruple workload really does exist”*. Grace shared that *“even when I got home and on weekends, I had to dedicate myself to the house, to my daughters, and to my husband”*, although she emphasized that she never perceived this as a pejorative burden, but



**Figure 3.** Illustrative avatar accompanying a quotation from an anonymous study participant.

rather as something she chose to do.

For Lamarr, balancing personal and professional life was another challenge, as she believed that her professional development could have been greater if she had had more time to focus on work or on additional studies. Susan, shortly after pregnancy, was already expressing concern about the progress of work and the team, making it necessary to better organize and manage her time in order to balance professional life with family responsibilities.

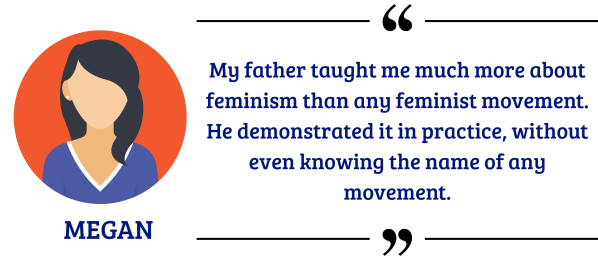
Four participants reported having faced gender prejudice. Megan mentioned behavioral changes within the team as a result of being the only woman present and commented on the need to avoid feelings of inferiority: *“when we take a step back and think, ‘Oh, he won’t listen to me’ [...] you already start owing something; so as women, we have to start one step ahead”*. Grace also described experiencing prejudice in a team where she was the only woman among 180 people; later, she became the only woman among five male leaders and added that other leaders attempted to mislead her regarding the progress of the project: *“they treated me as if I were a baby”*.

Lamarr experienced prejudice coming from other women, perceiving a higher level of criticism from them, as did Marissa (Figure 3), who also reported having experienced female rivalry throughout her trajectory. When narrating several situations of prejudice, she emphasized: *“even when women are invited to take on a management position, they need to show why they were invited. When it is a man, no one questions it”*.

As a consequence of the prejudices experienced, three participants indicated a constant need to prove their competence. Grace stated that she needed to demonstrate competence on a daily basis, especially in light of the multiple forms of prejudice she faced related to gender, background, and age. For Susan, there is always a need for extra effort in order not to think that, if an opportunity does not arise, it was because she failed to do something. Marissa emphasized the need for additional effort to gain recognition and to earn space on a daily basis so that others acknowledge her work, reinforcing that women must constantly demonstrate why they were invited to leadership positions, whereas men do not face such questioning.

#### 5.4 RQ3. How were these challenges overcome?

The participants described different strategies used to overcome the challenges faced throughout their trajectories. Table 7 presents the recurrent categories identified in the re-



**Figure 4.** Illustrative avatar accompanying a quotation from an anonymous study participant.

sponses, highlighting strategies related to family support, outsourcing domestic tasks, and the pursuit of internal balance.

**Table 7.** Categories identified in RQ3

| Categories               | M | G | L | S | Ma | n |
|--------------------------|---|---|---|---|----|---|
| Family support network   | ✓ | ✓ | ✓ | ✓ |    | 4 |
| Hiring domestic support  | ✓ | ✓ | ✓ |   | ✓  | 4 |
| Seeking internal balance |   | ✓ |   | ✓ | ✓  | 3 |

M=Megan; G=Grace; L=Lamarr; S=Susan; Ma=Marissa.

Four interviewees indicated that they used a family support network to cope with challenges related to motherhood and the double workload. Grace described this support as fundamental to reaching management positions, including family members in her support network: *“I had this unconditional support from my family and my husband”*, which, for her, was essential in providing balance between private and professional life. Lamarr also shared that she relies on support mechanisms to maintain focus at work, as do Megan (Figure 4) and Susan, who mentioned the family support network that assists them with patience and emotional support, recognizing the importance of this support throughout their trajectories.

Hiring people to assist with domestic tasks was cited by four leaders as a strategy to deal with household responsibilities. Grace, for example, emphasized that she felt the need to hire someone to clean the house and that this proved to be a practical solution. Lamarr, in addition to outsourcing domestic services, also needed to hire a van to take her children to school. The interviewee stated that even though she has the opportunity to work from home, she prefers going to the office: *“I have the opportunity to work from home, but I go straight to the office, because there I am more focused and more productive”*.

Marissa reported having the means to hire a nanny and enroll her child in daycare to assist with motherhood, relying primarily on external support that enabled her to reconcile her responsibilities. Megan described using the strategy of always having someone hired to help with household tasks, acknowledging that without this support it would be impossible to manage all responsibilities.

Three participants stated that they seek internal balance between personal and professional life as a strategy. Grace described having conversations within the family environment and keeping work separate, avoiding bringing its burden into the home. Susan observed that balancing personal and professional life helped her understand that she has other priorities: *“today I realize that I do not stop considering the*

company, but I also understand that I have other priorities". She also commented: "I allow myself to learn a lot; I do not underestimate anyone, but every day I wonder whether I have done everything and what might still be missing".

Marissa learned not to be overly self-demanding in situations in which she hesitated to speak up due to her more assertive posture: "situations in which you have to hold back in the moment and later you think you should have responded, should have spoken [...] nowadays I do not blame myself as much".

## 5.5 RQ4. In a leadership position, are these challenges the same?

The participants were asked about the challenges present in their leadership positions, considering that the challenges faced throughout their trajectories may have persisted or changed. One category emerged from the responses, indicating that the double workload continues to be a challenge for the participants while occupying leadership positions. In addition, specific challenges related to team management, delivering results, and organizational expectations also emerged.

The double workload, a challenge already identified in the participants' trajectories, remains present for three participants in their leadership positions. Megan stated that this is the greatest challenge for women in the labor market and that it intensifies in leadership roles due to the multiple responsibilities involved. Lamarr, although not explicitly identifying the double workload, indicated through her statements that it remains a present challenge. Susan noted that the double workload continues to be a challenge in leadership, but currently a positive one. She mentioned that because she always feels the need to make herself available to both the team and external clients, an "overextended network" was formed, affecting her time and limiting what she allowed herself to do. Susan understands that without adequate support structures—whether hired support or a family support network—the burden becomes heavier.

In addition to the persistence of the double workload, the participants reported specific challenges that emerged or intensified in leadership positions. **Grace** (Figure 5) stated that her challenges as a leader are primarily technical, such as delivering projects within budget and deadlines, and orchestrating projects together with other managers. For Megan, for example, one of the challenges of leadership is the need to balance team development while meeting organizational demands and, consequently, keeping people believing in what they have committed to do, since, in her view, a job title grants authority, but recognition comes from influence and guidance.

Susan understands that a management position always entails challenges because people expect leadership to deliver something exceptional, creating high expectations for leaders. In addition, there is a need to demonstrate results to the organization; in her view, when everything is going well, it is considered acceptable, but any deviation within the team becomes a major problem. After structuring the area for which she is responsible, the participant mentioned being under pressure regarding deliverables.



In addition to my work at the company, when I got home I still had to monitor my daughters' behavior to make sure everything was fine. It is another double shift.

Figure 5. Illustrative avatar accompanying a quotation from an anonymous study participant.



I would go up to his desk and say, "Do you have a minute?" He would look at me and say, 'Of course.' [...] That was truly an impressive form of support. A simple phrase, in a simple moment, that inspired me and shaped my career.

Figure 6. Illustrative avatar accompanying a quotation from an anonymous study participant.

## 5.6 RQ5. What motivated you to pursue a leadership position?

For this research question, no recurrent patterns met the adopted reporting criterion. The motivations generally reflected individual trajectories and values. Therefore, motivations reported by individual participants are presented to preserve the diversity of their experiences.

Megan was motivated by the recognition she received when she temporarily replaced her manager, an experience that revealed an affinity with management: "I think it was at that moment that I was able to experience it and receive recognition that I did it well". The opportunity to gain a deeper understanding of the field also weighed positively in her decision. Grace identified financial aspects as her initial motivation, accepting the third invitation to a coordination role for this reason. Subsequently, she continued to receive opportunities as a consequence of her ongoing desire to learn more.

Lamarr (Figure 6) was motivated by the possibility of working with people, naturally identifying more with people than with technical work. She was also inspired by a former manager who left a strong impression on her due to his availability and support. Susan likewise emphasized that people were her greatest motivation: "not just people, but when I say people it is because I really enjoy getting to know them and understanding them, because what we receive in terms of information and experience is very enriching". Marissa identified two main motivations: the belief that she could do things differently when she disagreed with how something was being done ("I can do better than the person who is doing it there [...] I would do it differently") and the desire to see greater participation of women: "every time I see a table with no women, it irritates me; we are very far from achieving equality". For Marissa, occupying leadership positions is also a form of activism.

## 5.7 Essential description of the phenomenon

The trajectories of these women who occupy leadership positions in IT were generally shaped by opportunities that emerged as a result of their skills, knowledge, and experience. Leadership was experienced predominantly as a path that emerged progressively through professional recognition and opportunities encountered throughout their careers, rather than as an explicit career goal from the outset, while also encompassing trajectories characterized by an intentional pursuit of career progression.

Along these trajectories, several challenges emerged, with motherhood occupying a central place in the experience of reconciling professional and family responsibilities. Gender prejudice and the double workload also shaped these trajectories, particularly within predominantly male professional environments and through the overlap of professional and domestic responsibilities. The need to continually demonstrate professional competence further characterized the experience of navigating these environments.

Overcoming these challenges involved reliance on support networks, including family support and domestic assistance, which facilitated the reconciliation of personal and professional responsibilities, as well as the pursuit of internal balance and the reduction of self-imposed pressure. Once in leadership positions, challenges persisted, particularly the double workload, now intensified by managerial responsibilities, pressure for results, and organizational expectations of constant availability. Motivations for assuming leadership were diverse and individual, including professional recognition, financial considerations, an interest in working with people, and a desire for learning.

## 6 Discussion

To understand the phenomenon of being a woman in leadership positions in Information Technology, it is necessary to situate it within the historical and professional context of the women who participated in this study. Aged between 41 and 53 years, these women likely received their initial education in technology during the 1990s, a period in which female participation was relatively higher, but debates on gender and STEM were still limited [Abbate, 2012]. This generational perspective is particularly relevant because the participants subsequently entered a professional field historically characterized by male dominance and organizational cultures in which women's technical competence has frequently been questioned [Abbate, 2012; Margolis and Fisher, 2002; Amon, 2017].

Moreover, the participants had already established long-term careers and occupied leadership positions, meaning that the findings primarily reflect the experiences of women who remained in the IT field across multiple career stages and attained leadership roles. The interpretation of these findings should also consider that all participants were mothers and combined, at different stages of their trajectories, professional responsibilities with motherhood and family demands. Rather than representing women's experiences in IT leadership broadly, the findings therefore reflect the lived experiences of a particular generation of experienced women

leaders.

These experiences should also be interpreted in light of the participants' social positions. Although gender constitutes a central dimension of the phenomenon investigated, all participants in this study self-identified as White. An intersectional perspective emphasizes that gender does not operate independently from race and social class and that these dimensions may combine to produce distinct barriers to access, retention, and professional advancement in technology [Rodrigues *et al.*, 2025]. Therefore, the experiences discussed in this study should not be assumed to encompass the trajectories of women occupying different racial and socioeconomic positions.

Regarding the **aspects of professional trajectory**, the fact that most participants did not explicitly express a desire to lead and reported that leadership emerged in a natural way aligns with the few related studies that have addressed these aspects [Iata, 2020; Guimarães, 2011]. Although these women did not express a desire to assume leadership positions, they remained in the field despite the cumulative attrition patterns described by the leaky pipeline literature [Blickenstaff, 2005], accumulating experience and professional visibility that contributed to the emergence of opportunities to assume leadership positions.

However, the absence of an explicit initial intention to pursue leadership should not necessarily be interpreted as a lack of ambition. Leadership aspirations may be shaped by perceptions of career costs, gendered expectations, organizational opportunities, and the perceived feasibility of leadership as a professional trajectory. In the Brazilian context, Hryniewicz and Vianna [2018] describe how women may refrain from verbalizing aspirations for higher positions, associate leadership with a loss of quality of life, or avoid positioning themselves as candidates even when they possess compatible competencies. Research on power motivation provides another possible explanatory perspective: Schuh *et al.* [2014] identified gender differences in power motivation associated with leadership role occupancy and proposed development initiatives aimed at strengthening women's motivation for power. In the context of the present study, however, this perspective should not be treated as a direct explanation for the participants' trajectories. Their initial lack of intention to pursue leadership may also be understood in relation to the structural and organizational challenges that shape women's careers in IT.

The **challenges faced along the path toward a leadership position in IT** emerge prominently in the interviewees' accounts, as well as in the set of challenges identified in the review by Farao and Bordin [2024]. Motherhood, the double workload, gender bias, and the need to constantly prove competence are obstacles that accumulate over time. These findings are consistent with recent evidence from the software industry showing that gender inequalities are also expressed through vertical and horizontal segregation, technical biases, reduced professional recognition, professional isolation, and barriers to career progression [Araújo *et al.*, 2026]. These challenges contribute to the leaky pipeline, as they lead to the progressive loss of women in STEM, resulting in a scarcity of female role models in higher positions [Cheryan *et al.*, 2017]. The costs associated with balancing personal and professional

life further contribute to many women not perceiving leadership as a viable or desirable career path [Master and Meltzoff, 2020].

Regarding the **challenges encountered once in a leadership position**, the “double workload” remains a persistent issue both throughout these women’s professional trajectories and after their advancement to leadership roles. Few related studies have specifically addressed the challenges faced by women already in leadership positions [Teixeira *et al.*, 2022; Guimarães, 2011], and those that have done so reported challenges different from those identified in this research. The “double workload” is not exclusive to the technology field; it accompanies women from their entry into the labor market and tends to be intensified by expectations of constant availability and high performance, resulting in physical and mental consequences. This challenge highlights the need for changes toward a more equitable redistribution of domestic responsibilities between men and women.

When analyzing the **strategies for overcoming challenges**, the recurrent strategies identified in this study were primarily situated at the individual and family levels. Participants relied on family support networks, hired domestic support, and sought an internal balance between professional and personal demands. These strategies partly differ in emphasis from those identified in the review by Farao and Bordin [2024], which included professional development, resilience, interpersonal skills, professional networks, and mentoring. In the present study, family and individual resources enabled participants to manage competing demands and continue their professional trajectories; however, these strategies did not modify the structural conditions that produced many of the challenges they faced. This distinction is consistent with recent evidence from the software industry indicating that isolated actions have limited capacity to reduce gender inequalities when they are not accompanied by broader organizational and cultural changes [Araújo *et al.*, 2026].

Structural challenges, therefore, should not be transferred to women as problems to be solved primarily through individual adaptation. Organizations have a central role in creating more equitable conditions for career progression and leadership. Recent evidence from the software industry highlights measures such as institutional Equity, Diversity, and Inclusion (EDI) policies, greater transparency in promotion and professional recognition processes, mentoring initiatives, and actions aimed at reducing gender bias [Araújo *et al.*, 2026]. Increasing the representation of women in technical and leadership positions is important, but representation alone does not necessarily ensure participation or influence. Beyond organizational initiatives, women-in-technology communities constitute another relevant component of the Brazilian technology ecosystem, providing collective spaces oriented toward inclusion, education, empowerment, networking, and the strengthening of women’s participation in technology [Frade, 2022]. These collective forms of support, however, should be understood as complementary to, rather than substitutes for, structural changes within technology organizations.

Finally, with regard to the **motivations of women who pursued leadership positions**, the results indicate that these motivations were highly singular and closely related to individual trajectories, since most of the women did not initially

intend to lead. In the three related studies [Iata, 2020; Borges and Fernandes, 2021; Cardoso, 2017], the motivations reported were also specific and individualized. Consistent with this pattern, no recurrent motivational category met the reporting criterion adopted in the present study.

The motivations identified should therefore be interpreted as expressions of individual trajectories rather than as a common motivational profile of women leaders in IT. Moreover, the present study did not systematically investigate the presence or absence of organizational incentives for pursuing leadership. Future research could examine more directly how individual motivations interact with organizational opportunities, leadership development practices, mentoring, sponsorship, and other conditions that may facilitate or constrain women’s decisions to pursue leadership positions.

Overall, the findings reveal that women leaders continue to experience persistent structural barriers throughout both their professional trajectories and their leadership roles, suggesting that technology organizations still face challenges in creating equitable conditions for leadership development. These organizational conditions are relevant to the Interactive Systems community because they shape the socio-technical environments in which technology teams collaborate, make decisions, and create digital technologies [Baxter and Sommerville, 2011].

## 7 Limitations

As a qualitative phenomenological study, this research seeks to provide an in-depth understanding of the lived experiences of women in leadership positions in Information Technology rather than statistical generalization. Consequently, the findings should be interpreted in light of the study’s methodological scope and contextual boundaries.

One limitation inherent to phenomenological research concerns the interpretive role of the researchers. Although phenomenological analysis seeks to understand participants’ lived experiences as faithfully as possible, interpretation inevitably involves researchers’ perspectives. To enhance the credibility of the findings, interpretations were repeatedly checked against the original interview transcripts during the refinement of codes and categories and were discussed among the authors to assess whether they remained grounded in the participants’ accounts. These procedures sought to reduce the influence of prior assumptions on the analytical process.

Another limitation relates to the purposive and relatively small sample. While this is consistent with phenomenological research, the experiences reported by five women cannot encompass the full diversity of leadership trajectories within the IT sector. Nevertheless, participants were intentionally selected based on their extensive experience in leadership positions, enabling an in-depth exploration of the phenomenon under investigation.

The sample was relatively homogeneous in terms of racial background, parental status, age range, and career stage. All participants self-identified as White, all were mothers, and all had established professional trajectories with substantial experience in management positions. Therefore, the findings primarily reflect the experiences of White women who were mothers and had established careers in IT leadership and

should not be assumed to represent women in other social and professional positions. The present study also did not specifically examine differences related to other dimensions, such as sexual orientation, disability, or other forms of social identity, which should be explored in future research.

A further limitation concerns the contextual nature of the findings. The participants' experiences were shaped by their organizational, cultural, and professional contexts within the Brazilian IT sector. Although they represented different organizational sectors and three Brazilian regions, these contexts do not encompass the diversity of workplaces, regions, organizational cultures, and leadership arrangements found across the Brazilian IT sector. Consequently, the findings are not intended to be statistically generalized but rather to provide transferable insights, supported by sufficiently detailed descriptions that enable readers to assess the applicability of the results to other organizational settings and cultural contexts.

Finally, this study investigates the lived experiences of women in Information Technology leadership rather than interactive systems themselves. Therefore, the implications discussed for research on interactive systems should be understood as contributions to understanding the organizational and socio-technical environments in which interactive systems are conceived, developed, and sustained, rather than as direct evidence regarding the design, implementation, or quality of those systems.

## 8 Final Remarks

We sought to understand the phenomenon of being a woman and holding a leadership position in the field of Information Technology based on the experiences of women who currently hold or have previously held leadership roles in this area. Through a qualitative phenomenological approach, we investigated common aspects of the experiences shared by the five interviewees, which were presented through rich and thick descriptions.

Our review of the literature focusing on studies with similar objectives revealed that, although there are works addressing the experiences of women who have held leadership roles in IT, most emphasize the challenges faced and the strategies adopted to overcome these challenges. Aspects related to career trajectories toward leadership, challenges encountered while already in leadership positions, and motivations for pursuing leadership roles have not been explored in depth. In this study, we sought to address this gap by examining relevant aspects of the experience of being a woman and occupying leadership positions in IT.

Understanding the common aspects of women's career trajectories allows us to better comprehend the factors that may impact the development of women's careers in technology. Moreover, recognizing the particularities of these trajectories may inspire and support the development of women's future career development in technology.

Identifying the common challenges faced by these women can—and should—inform the development of public and private policies aimed at paving a smoother path toward women's leadership. We argue that providing better working conditions to promote work–life balance, enabling continuous training for women, adopting selection and promotion

criteria that ensure greater gender equality, implementing awareness-raising initiatives, structuring more equitable career plans, and developing retention policies for women in leadership positions all contribute to the creation of more inclusive organizational environments.

Despite these efforts, organizational environments and career conditions in the sector are still not sufficiently diverse, inclusive, or equitable in terms of gender. In this sense, we believe that the identification and analysis of the aspects discussed in this study may support the development of good practices and policies that encourage and promote women's participation in leadership positions in IT.

In a possible replication of this study, we identify opportunities to explore additional issues, such as when women initiated their careers in technology, which could help estimate the average time required to reach the first management position in IT. Furthermore, we suggest that future studies work with more diverse purposive samples across different age groups, social classes, and racial backgrounds in order to broaden perspectives on lived experiences, since barriers and facilitating factors may vary across different age groups and racial backgrounds.

As future work, we also see an opportunity to explore the expectations of female students in technology-related programs regarding leadership. We believe that investigating whether they aspire to leadership positions, how they perceive these possibilities, and whether they are aware of the realities of occupying leadership roles can provide valuable insights into women's career expectations in technology, further contributing to strategies that promote gender equality and inclusion in the field.

## Declarations

### Authors' Contributions

SF contributed to the conceptualization and methodology of the study, conducted the investigation, curated and analyzed the data, and drafted the original version of the manuscript. LG contributed to the conceptualization of the study and was responsible for reviewing and editing the manuscript, as well as for the extended analysis and writing of the results, the development of visualizations, and the deepening of the discussion. AB contributed to the conceptualization and methodology, participated in the formal data analysis, reviewed and edited all versions of the manuscript, and provided supervision throughout the research process. All authors read and approved the final manuscript.

### Competing interests

The authors declare that they have no competing interests.

### Availability of data and materials

The following research artifacts are publicly available on Zenodo [Bordin, 2025] (<https://doi.org/10.5281/zenodo.18004542>): the informed consent form, the spreadsheet containing the codes and categories used in the analysis, and the document containing descriptions of each participants' responses. Complete interview recordings and transcripts are not publicly available because their disclosure could compromise participant confidentiality through direct or indirect identification.

### Further relevant information

The study was submitted to the Research Ethics Committee of the Federal University of Santa Catarina (UFSC) and approved under

protocol number 77513324.4.0000.0121.

Generative artificial intelligence tools were used during the preparation and revision of this manuscript to support English-language editing, improve grammatical correctness and readability, and assist in refining the clarity and organization of selected passages. AI-generated suggestions were critically reviewed and revised by the authors before being incorporated into the manuscript. The research design, data collection, qualitative analysis, interpretation of the findings, and scientific conclusions were conducted by the authors. The authors take full responsibility for the content and accuracy of the final manuscript.

## References

- Abbate, J. (2012). *Recoding Gender: Women's Changing Participation in Computing*. The MIT Press, Cambridge, MA.
- Almeida, M. E. (2025). *Percursos singulares: trajetórias ocupacionais de mulheres nas áreas de Ciências, Tecnologia, Engenharia e Matemática (STEM) no Brasil*. PhD thesis, Universidade Federal de Minas Gerais. <https://repositorio.ufmg.br/items/0bdf68a4-1a67-4a5f-8bff-2e32bbe14b35>, Accessed on 3 August 2026.
- Amon, M. J. (2017). Looking through the glass ceiling: A qualitative study of stem women's career narratives. *Frontiers in Psychology*, 8:236. DOI: <https://doi.org/10.3389/fpsyg.2017.00236>.
- Araújo, F., Coutinho, J., and Castro, A. (2026). Desigualdades de gênero na indústria de software: Barreiras e estratégias de equidade. In *Anais do XX Women in Information Technology*, pages 88–101, Porto Alegre, RS, Brasil. Sociedade Brasileira de Computação. DOI: <https://doi.org/10.5753/wit.2026.22454>.
- Baxter, G. and Sommerville, I. (2011). Socio-technical systems: From design methods to systems engineering. *Interacting with Computers*, 23(1):4–17. DOI: <https://doi.org/10.1016/j.intcom.2010.07.003>.
- Blickenstaff, J. C. (2005). Women and science careers: Leaky pipeline or gender filter? *Gender and Education*, 17(4):369–386. DOI: <https://doi.org/10.1080/09540250500145072>.
- Bordin, A. S. (2025). Research artifacts: Women in technology leadership positions: An analysis of lived experiences. <https://doi.org/10.5281/zenodo.18004542>.
- Borges, M. d. S. and Fernandes, T. T. (2021). Liderança feminina e as dificuldades de ascensão na carreira em empresas de base tecnológica. Undergraduate thesis, Universidade Federal de Santa Catarina. <https://repositorio.ufsc.br/handle/123456789/228400>, Accessed on 1 August 2026.
- Botelho, L. d. L. R., Schons, C., Vieira, B., and Cunha, C. J. C. d. A. (2008). Um olhar através do teto de vidro: relatos das mulheres empreendedoras de empresas baseadas no conhecimento sobre os primeiros anos de seus negócios. In *XIX Congreso Latinoamericano y del Caribe sobre el Espíritu Empresarial: Nuevas Empresas en un Nuevo Mundo*, Florianópolis, SC. <http://hdl.handle.net/10906/1912>, Accessed on 3 August 2026.
- Brasscom (2023). Relatório de diversidade no setor tic: Ano 2023. Technical report, Associação das Empresas de Tecnologia da Informação e Comunicação e de Tecnologias Digitais, São Paulo, SP. <https://brasscom.org.br/wp-content/uploads/2025/12/BR12-2023-013-Diversidade-v10.pdf>, Accessed on 3 August 2026.
- Cardoso, A. (2017). Atitudes de mulheres com relação ao teto de vidro: um estudo em empresas do setor de tic. Master's thesis, Universidade Presbiteriana Mackenzie. <http://dspace.mackenzie.br/handle/10899/23647>, Accessed on 23 August 2026.
- Cheryan, S., Ziegler, S. A., Montoya, A. K., and Jiang, L. (2017). Why are some stem fields more gender balanced than others? *Psychological Bulletin*, 143(1):1–35. DOI: <https://doi.org/10.1037/bul0000052>.
- Cohoon, J. M. and Aspray, W., editors (2006). *Women and Information Technology: Research on Underrepresentation*. The MIT Press, Cambridge, MA.
- Creswell, J. W. (2014). *Investigação Qualitativa e Projeto de Pesquisa: Escolhendo entre Cinco Abordagens*. Penso, Porto Alegre, RS, 3 edition.
- Eagly, A. H. and Carli, L. L. (2007). *Through the Labyrinth: The Truth About How Women Become Leaders*. Harvard Business School Press, Boston, MA.
- Eagly, A. H., Johannesen-Schmidt, M. C., and Van Engen, M. L. (2003). Transformational, transactional, and laissez-faire leadership styles: a meta-analysis comparing women and men. *Psychological bulletin*, 129(4):569. DOI: <https://doi.org/10.1037/0033-2909.129.4.569>.
- Evans, K. J. and Maley, J. F. (2021). Barriers to women in senior leadership: how unconscious bias is holding back australia's economy. *Asia Pacific Journal of Human Resources*, 59(2):204–226. DOI: <https://doi.org/10.1111/1744-7941.12262>.
- Farao, S. and Bordin, A. (2024). Mulheres em cargos de liderança em tecnologia: Uma revisão sistemática. In *Anais do XVIII Women in Information Technology*, pages 439–444, Porto Alegre, RS, Brasil. SBC. DOI: <https://doi.org/10.5753/wit.2024.2673>.
- Farao, S. A. and Bordin, A. S. (2025). Mulheres em cargo de liderança em tecnologia: Uma análise fenomenológica. In *Anais do XIX Women in Information Technology*, pages 118–128, Porto Alegre, RS, Brasil. Sociedade Brasileira de Computação. DOI: <https://doi.org/10.5753/wit.2025.8396>.
- Federal Glass Ceiling Commission (1995). Good for business: Making full use of the nation's human capital. the environmental scan. a fact-finding report of the federal glass ceiling commission. Technical report, U.S. Department of Labor, Washington, DC. <https://eric.ed.gov/?id=ED407540>, Accessed on 23 August 2026.
- Frade, R. (2022). Women in tech communities: Challenges and risks. *Journal on Interactive Systems*, 13(1):375–385. DOI: <https://doi.org/10.5753/jis.2022.2806>.
- Granato, L. (2021). Dia da mulher: por que grandes empresas querem mais mulheres liderando na tecnologia. Exame. <https://exame.com/carreira/dia-da-mulher-o-lugar-delas-e-liderando-empresas-de-tecnologia/>, Accessed on 23 August 2026.

- Grant Thornton (2022). Women in business 2022: Opening the door to diverse talent. Technical report, Grant Thornton International Ltd. <https://www.grantthornton.global/globalassets/1.-member-firms/global/insights/women-in-business/2022/women-in-business-2022-opening-the-door-to-diverse-talent.pdf>, Accessed on 5 August 2026.
- Guimarães, K. H. (2011). Gênero e trabalho: um estudo sobre as estratégias utilizadas por mulheres em posições de comando na área de ti. Master's thesis, Universidade Católica de Brasília. <https://bdtd.ucb.br:8443/jspui/handle/123456789/1773>, Accessed on 23 August 2026.
- Hinchliffe, E. (2025). Only 38 female ceos are leading fortune 500 europe companies—and five more are already on the way out. *Fortune*. <https://fortune.com/2025/10/29/fortune-500-europe-female-ceos-2025/>, Accessed on 23 August 2026.
- Howe-Walsh, L. and Turnbull, S. (2016). Barriers to women leaders in academia: Tales from science and technology. *Studies in Higher Education*, 41(3):415–428. DOI: <https://doi.org/10.1080/03075079.2014.929102>.
- Hryniewicz, L. G. C. and Vianna, M. A. (2018). Mulheres em posição de liderança: obstáculos e expectativas de gênero em cargos gerenciais. *Cadernos EBAPE.BR*, 16(3):331–344. DOI: <https://doi.org/10.1590/1679-395174876>.
- Iata, C. M. (2020). *Liderança feminina: a experiência de mulheres que se tornaram líderes em empresas de base tecnológica*. PhD thesis, Universidade Federal de Santa Catarina. <https://repositorio.ufsc.br/handle/123456789/216576>, Accessed on 3 August 2026.
- IBGE (2025). Censo 2022: proporção da população com nível superior completo aumenta de 6,8% em 2000 para 18,4% em 2022. Agência de Notícias IBGE. <https://www.ibge.gov.br/estatisticas/sociais/trabalho/22827-censo-demografico-2022>, Accessed on 3 August 2026.
- INEP (2021). Censo da educação superior 2021: Resultados. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. <https://www.gov.br/inep/pt-br/areas-de-atuacao/pesquisas-estatisticas-e-indicadores/censo-da-educacao-superior/resultados/2021>, Accessed on 23 August 2026.
- Krueger, S. F. (2020). The glass ceiling: Exploring the leadership journey of men and women in high-tech. Master's thesis, University of San Diego, San Diego, CA, USA.
- Margolis, J. and Fisher, A. (2002). *Unlocking the Clubhouse: Women in Computing*. MIT Press.
- Master, A. and Meltzoff, A. N. (2020). Cultural stereotypes and sense of belonging contribute to gender gaps in stem. *International Journal of Gender, Science and Technology*, 12(1):152–198. <https://eric.ed.gov/?id=ED605235>, Accessed on 2 August 2026.
- McCullough, L. (2020). Barriers and assistance for female leaders in academic stem in the us. *Education Sciences*, 10(10):264. DOI: <https://doi.org/10.3390/educsci10100264>.
- Moustakas, C. E. (1994). *Phenomenological Research Methods*. SAGE Publications, Thousand Oaks, CA.
- MTE (2025). Boletim mulheres no mercado de trabalho. Technical report, Ministério do Trabalho e Emprego, Brasília, DF. [https://www.gov.br/trabalho-e-emprego/pt-br/assuntos/estatisticas-trabalho/publicacoes/boletim\\_mulheres\\_8m\\_20250307.pdf](https://www.gov.br/trabalho-e-emprego/pt-br/assuntos/estatisticas-trabalho/publicacoes/boletim_mulheres_8m_20250307.pdf), Accessed on 23 August 2026.
- Naseviciute, L. and Juceviciene, R. (2024). Overcoming the barriers to women's career in information and communication technology business. *Equality, Diversity and Inclusion: An International Journal*, 43(1):23–40. DOI: <https://doi.org/10.1108/EDI-09-2022-0265>.
- Nguyen-Duc, A., Khodambashi, S., Gulla, J. A., Krogstie, J., and Abrahamsson, P. (2017). Female leadership in software projects: A preliminary result on leadership style and project context factors. pages 149–163. Springer. DOI: [https://doi.org/10.1007/978-3-319-65208-5\\_11](https://doi.org/10.1007/978-3-319-65208-5_11).
- Nogueira, C., Vieira, C., Silva, I., Saavedra, L., Silva, M. J. D., Silva, P., Tavares, T.-C., and Prazeres, V. (2013). *Education Guide: Gender and Citizenship: 3rd Cycle*. Commission for Citizenship and Gender Equality, Lisbon. <http://hdl.handle.net/10400.2/6946>, Accessed on 23 August 2026.
- Noland, M., Moran, T., and Kotschwar, B. R. (2016). Is gender diversity profitable? evidence from a global survey. *Peterson Institute for International Economics Working Paper*, (16-3). DOI: <https://doi.org/10.2139/ssrn.2729348>.
- Oliveira, C. M. A. M. (2022). Mulheres nas organizações brasileiras: uma análise dos fatores que impulsionam e desafiam a equidade de gênero na área de tecnologia da informação. Master's thesis, Fundação Getúlio Vargas. <https://bibliotecadigital.fgv.br/dspace/handle/10438/32072>, Accessed on 23 August 2026.
- Plongê (2024). A desigualdade de gênero na área da tecnologia é uma das maiores no brasil. LinkedIn post. <https://www.linkedin.com/posts/plong%C3%AA-gente-gest%C3%A3o-pesquisa-plong%C3%AA-atividade-7160293539124240384-w0jJ>, Accessed on 13 August 2026.
- Rodrigues, K., Duarte, R., Lima, A., Nascimento, F., and César, R. (2025). Interseccionalidade e tecnologia: Um mapeamento sistemático de publicações em português sobre gênero, raça e classe na participação feminina. In *Anais do XIX Women in Information Technology*, pages 24–34, Porto Alegre, RS, Brasil. SBC. DOI: 10.5753/wit.2025.8067.
- Santos, R. K. A. d., Nobre, A. C. d. S., Oliveira, I. D. d., Andrade, A. P. V. d., and Vale, K. M. O. (2024). Barreiras enfrentadas pelas mulheres nas profissões de tecnologia da informação e comunicação. In Bianchessi, C., editor, *Mulheres do Brasil: Empoderamento, Resistência e (Im)Possibilidade – Vol. 6*, pages 9–22. Editora Bagai, Curitiba, PR. DOI: <https://doi.org/10.37008/978-65-5368-504-8.17.11.24>.
- SBC (2021). Educação superior em computação: Estatísticas 2021. Technical report, Sociedade Brasileira de Computação. <https://www.sbc.org.br/wp-content/uploads/2024/07/Educa-o-Superior-em-Computa-o-Estatisticas-2021.pdf>, Accessed on 23 August 2026.

- Schuh, S. C., Hernandez Bark, A. S., Van Quaquebeke, N., Hossiep, R., Frieg, P., and Van Dick, R. (2014). Gender differences in leadership role occupancy: The mediating role of power motivation. *Journal of Business Ethics*, 120(3):363–379. DOI: <https://doi.org/10.1007/s10551-013-1663-9>.
- Silva, D. N., Silva, W. D. O., and Fontana, M. E. (2023). A gendered perspective of challenges women in engineering careers face to reach leadership positions: A innovative theoretical model from brazilian students' perceptions. *Women's Studies International Forum*, 98:102712. DOI: <https://doi.org/10.1016/j.wsif.2023.102712>.
- Teixeira, A. B. R., Teixeira, A. J. R., Silva, D. M. d., Anchão, R. M., and Oliveira, T. Q. C. d. (2022). Liderança feminina: a luta pela igualdade das mulheres em cargos de tecnologia. Undergraduate technical-course final project, Centro Paula Souza, Etec Professor Jadyr Salles. <https://ric.cps.sp.gov.br/handle/123456789/13050>, Accessed on 23 August 2026.
- Visentini, Í. S., Donida, A., and Ferreira, L. S. (2021). Gênero e ti: Qual o lugar das mulheres na área de tecnologia? *CSONLINE-revista eletrônica de ciências sociais*, (34):13–37. DOI: <https://doi.org/10.34019/1981-2140.2021.34594>.
- World Economic Forum (2022). Global gender gap report 2022. Technical report, World Economic Forum, Geneva. <https://www.weforum.org/publications/global-gender-gap-report-2022/>, Accessed on 23 August 2026.
- Wu, Q., Dbouk, W., Hasan, I., Kobeissi, N., and Zheng, L. (2021). Does gender affect innovation? evidence from female chief technology officers. *Research Policy*, 50(9):104327. DOI: <https://doi.org/10.1016/j.respol.2021.104327>.