The glass ceiling and its impact on women in Technology aspiring towards leadership positions: A Systematic Literature Review

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Abstract

Purpose

The purpose of this dissertation is to investigate the persistent gender disparity in leadership, commonly referred to as the glass ceiling, with a particular focus on women in technology industry who aspire to leadership roles.

Design and Methodology

A systematic literature review was conducted using the Scopus database, identifying 79 research articles published between 2015 and 2026 on women in technology aspiring to leadership roles. The review examined publication trends, contributing countries, key journals, theoretical frameworks, and the focus of the studies.

Findings

The findings were grouped into three interrelated themes: (1) gendered norms, bias and leadership legitimacy; (2) structural and organisational barriers to leadership advancement; and (3) leadership development, progression and advancement pathways. These themes emerged through thematic analysis and reflected the interconnected factors influencing women's leadership advancement.

Keywords

Glass ceiling, Women in technology, Gender inequality, Leadership barriers, Women in leadership

Contributions/Implications

This research examines how the glass ceiling influences the leadership aspirations of women. Although the topic has been widely discussed, limited work explores how organisational structures and practices shape women's progression in technology roles. Existing knowledge is largely drawn from international contexts, leaving little understanding of the experiences of women in New Zealand's technology industry.

The research concludes by providing a conceptual framework based on Glass Ceiling theory and Gendered organisations theory that reflects the themes identified in the study.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor used artificial intelligence tools or generative artificial intelligence tools (unless it is clearly stated, and referenced, along with the purpose of use), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Authors Signature:

Author: Vandhana Vikash Date: 30 July 2026

Artificial Intelligence Declaration

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Clearly state the AI tools used.	
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A summary or description of the AI-generated output. (Optional: attach output in an appendix.)	
Output Received:	
Describe how the AI output was used, edited, or transformed.	
Post-AI Processing Methods:	AI suggestions were reviewed before use and were only incorporated where they improved clarity or readability. Any changes were checked against the original journal articles to ensure accuracy. The literature review structure, analysis, interpretation of findings, development of themes and final written content were completed by the student.

You may use this free text box to explain the intent for the use of the AI generated content. *For example, rather than stating what prompt(s) were used, you may articulate the purpose for which the prompt was used (supported by examples) here:*

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Example:
Check whether this in-text citation is placed correctly: "Rajha and Ruiters (2025) also identified male-dominated networks and informal systems of influence as mechanisms that continue to shape access to leadership opportunities." Should the citation remain at the beginning of the sentence or be moved to the end?

STUDENT DECLARATION

By signing you are confirming that the AI use stated in the table(s) above are accurate and follow AUT's recommended guidelines detailed in the AI Hub and Postgraduate Handbook.

Student Name: **Vandhana Vikash** **Signature:** **Date:** **31/07/2026**

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Chapter 1

Introduction

1.1 Background of the study

Science, technology, engineering, and mathematics (STEM) are widely recognised as important for economic growth, innovation, and global competitiveness (Akahome & Igwe, 2026). However, gender disparities continue to exist across STEM fields despite efforts to increase participation (Akahome & Igwe, 2026). Although women's participation in education and the workforce has increased over time, they remain underrepresented across many STEM disciplines and career pathways (Dugan et al., 2013; Kossek & Buzzanell, 2018). This underrepresentation is not explained by differences in ability, but by institutional and structural factors that influence participation, retention, and progression (Dugan et al., 2013).

The disparity becomes more visible at higher organisational levels. While women's participation in professional and managerial roles has increased, this has not translated into equal representation in senior leadership positions (Murray & Syed, 2010; de Klerk & Verreynne, 2017). Representation declines further up organisational hierarchies, indicating a persistent gap between workforce participation and leadership attainment (Davies et al., 2019). These inequalities therefore become more evident as careers progress rather than at entry into the workforce.

Women encounter a range of barriers that affect career progression. These include limited access to professional networks, restricted opportunities for advancement, and organisational practices that shape how progression occurs within hierarchies (de Klerk & Verreynne, 2017; Davies et al., 2019). Gender stereotypes also influence how leadership is defined and how women are evaluated. Leadership is often associated with masculine characteristics, which can affect promotion decisions and limit recognition of women's leadership potential (Bishop-Kinlyside et al., 2025; Irshad & Khan, 2026).

These challenges are particularly evident in the technology sector. Women in technology experience unequal opportunities, limited career development pathways and low representation in leadership roles (Siddamsetti & Pallavi, 2023).
Limited access to guidance, networks, and role models further constrains progression, particularly in male-dominated environments (Prieto-Rodriguez et al., 2022).

The concept of the glass ceiling provides a useful framework for understanding these patterns. It refers to invisible barriers within organisations that restrict women's progression into senior leadership positions despite comparable qualifications and experience (Devi et al., 2024; Taparia & Lenka, 2025). These barriers include lower promotion rates, exclusion from decision-making roles, and limited representation at higher levels. Because they are embedded within organisational structures and practices, they are not always easily recognised or addressed (Taparia & Lenka, 2025).

Research shows that these barriers are interconnected and operate across different stages of a woman's career (Taparia & Lenka, 2025). Organisational systems, workplace structures, and gender stereotypes jointly shape progression opportunities (Davies et al., 2019; Irshad & Khan, 2026). Several factors contribute to this pattern, including recruitment and promotion systems, leadership pathways, and organisational culture (Martín-Peña et al., 2023; Cingillioglu et al., 2026). Access to mentoring, informal networks, and sponsorship also plays a critical role, yet women may have reduced access to these resources (de Klerk & Verreynne, 2017).

Workplace environments further influence progression. Women in STEM may experience isolation and exclusion in male-dominated environments, affecting access to leadership pathways (Prieto-Rodriguez et al., 2022). In addition, work arrangements such as part-time roles or flexible work may be associated with fewer development opportunities when they are perceived as indicating lower commitment (Cingillioglu et al., 2026). Family responsibilities and work–family pressures can also shape career trajectories, particularly where organisational systems do not support flexible and equitable progression (Martín-Peña et al., 2023; Prieto-Rodriguez et al., 2022).
Organisational policies and practices attempt to address these challenges. Many organisations have introduced equality initiatives, including recruitment policies,

promotion frameworks, and work–life programs, to improve representation (Ali et al., 2025). However, formal policies do not always lead to equal outcomes if underlying organisational systems remain unchanged (Davies et al., 2019). Organisational culture also plays a key role, as workplace norms and expectations continue to shape how leadership is recognised and supported (Murray & Syed, 2010; Irshad & Khan, 2026).

A range of interventions has been introduced to improve progression. Work–life initiatives, mentoring, and organisational support systems have been associated with improved participation and representation (Ali et al., 2025; Martín-Peña et al., 2023). Organisational justice, including fair procedures and transparent decision-making, has also been identified as important for improving advancement outcomes (Watanabe et al., 2026). At a broader level, policy approaches such as targets, reporting frameworks, and diversity initiatives aim to influence leadership representation across sectors (European Commission, 2025; Deloitte, 2024; Gander & Sharafizad, 2024).

These issues are evident across national contexts. In New Zealand, women held 50.2% of public-sector board and committee roles and 43.8% of public-sector board-chair roles as at December 2025. By comparison, women held 31.0% of director positions across NZX-listed companies, including 36.4% of director positions in S&P/NZX 50 companies, as at 31 December 2023 (Ministry for Women, n.d.). Women also represented 29% of New Zealand's digital IT workforce in 2025, indicating that underrepresentation remains evident within the technology workforce (Tech New Zealand, 2025). These figures demonstrate that women's representation varies across sectors and organisational levels, with stronger representation in public-sector governance than in listed-company directorships and the digital IT workforce. Similar patterns are observed internationally, where women remain underrepresented in senior leadership roles despite increased workforce participation (World Economic Forum, 2025). Reports identify a "drop-to-the-top" pattern, where progression slows at higher organisational levels, particularly in STEM fields (World Economic Forum, 2025). These trends extend beyond technology and are evident across industries and organisational contexts (Davies et al., 2019; Taparia & Lenka, 2025)

Although progress has been made, leadership equality remains uneven. Existing research shows that women's progression is shaped by structural, organisational, and social factors, yet these are often examined separately rather than as interacting influences (Taparia & Lenka, 2025; Davies et al., 2019). Research also highlights the role of recruitment practices, informal networks, and leadership expectations in shaping access to senior roles (Sterling, 2026). At the same time, organisational interventions aim to improve equality, but their impact on persistent barriers remains uncertain (Ali et al., 2025; Watanabe et al., 2026).

This study examines the factors contributing to the glass ceiling for women pursuing and progressing into leadership roles in technology-related fields. In this study, the glass ceiling refers to invisible structural, organisational and cultural barriers that restrict women's advancement into and within senior leadership despite relevant qualifications, experience and performance. Technology-related fields are considered within the broader science, technology, engineering and mathematics (STEM) context represented in the reviewed literature. The term STEMM, meaning science, technology, engineering, mathematics and medicine, is used where it reflects the terminology or scope of the source literature. Leadership progression refers to women's movement through career and promotion pathways towards, into and within leadership roles. Women's leadership aspirations refers to women's intention and motivation to pursue leadership opportunities; however, the review extends beyond aspiration alone to examine the organisational conditions that enable or constrain actual leadership progression. Although the review draws on evidence from STEM, STEMM and comparable organisational settings, its primary application remains women's leadership progression in technology-related fields.

1.2 Study Rationale

Although many studies have explored gender inequality in STEM fields, fewer studies have examined how these barriers affect women's progression into leadership roles within the technology sector. Research shows that women in male-dominated industries continue to face challenges such as exclusion from networks, limited access to mentoring, and organisational practices that restrict advancement (Ashcraft et al., 2016; UNESCO, 2021). However, most of this research is based on broad international contexts, with limited attention given to how these barriers operate within specific national settings.

While several theories have been used to explain gender inequality in organisations, this study focuses on Glass Ceiling Theory and Gendered Organisations Theory. These frameworks provide a clearer understanding of how organisational systems and structures influence leadership progression. Although the glass ceiling has been widely discussed, less is known about how organisational practices shape leadership pathways specifically within the technology sector.

Existing research has also examined interventions such as mentoring and diversity initiatives designed to support women's advancement. However, the effectiveness of these strategies remains unclear, particularly in addressing structural barriers that limit progression (Diehl & Dzubinski, 2016; Carter & Silva, 2010).

In addition, the wider literature often examines structural, organisational, social and individual barriers separately, providing limited understanding of how these factors interact to shape women's leadership progression across STEM and technology-related contexts. Organisational barriers and the strategies intended to address them are also not consistently brought together within a single explanatory framework. Although the available evidence is largely international, with limited research focused specifically on New Zealand's technology sector (Ministry for Women, 2022; NZTech, 2021), New Zealand provides an important contextual example rather than the principal research gap addressed by this review. This study addresses the broader gap by systematically synthesising evidence on the interconnected factors affecting women's leadership progression and the organisational strategies identified as supporting advancement.

Therefore, this study aims to examine the factors contributing to the glass ceiling for women pursuing and progressing into leadership roles across STEM and technology related fields. It also investigates how organisational systems, practices and cultures influence women's leadership progression and explores strategies that support leadership development and advancement.

1.3 Theoretical Framework

This study is based on Glass Ceiling Theory and Gendered Organisations Theory as the theoretical foundation. These theories are used to explain how structural and organisational factors influence women's progression into leadership roles within the technology sector.

Glass Ceiling Theory explains the invisible barriers that prevent women from advancing into senior leadership positions, even when they have the required qualifications and experience. The concept was introduced by Hymowitz and Schellhardt (1986) and reflects a form of structural inequality within organisations. These barriers are linked to organisational systems such as promotion pathways, leadership pipelines, and decision-making structures (Martín-Peña et al., 2023; Cingillioglu et al., 2026). Research also shows that these barriers are often embedded in organisational practices, making them difficult to identify (Taparia & Lenka, 2025). As a result, women remain underrepresented in senior roles despite increased workforce participation.

Gendered Organisations Theory provides a complementary perspective by explaining how organisational systems reproduce inequality. Developed by Acker (1990), the theory argues that organisations are shaped by gendered assumptions, practices, and power relations. These influence how leadership roles are defined, how performance is evaluated, and how opportunities are distributed (Britton & Logan, 2008; Huaman Morillo et al., 2024). Organisational structures, workplace norms, and informal practices therefore play a key role in shaping career outcomes.

These two theories are closely related but focus on different aspects of inequality. Glass Ceiling Theory focuses on the outcome, where progression into leadership is restricted. In contrast, Gendered Organisations Theory focuses on how organisational systems and processes create and maintain these barriers. Together, they provide a broader understanding of how inequality operates within organisations.

In the context of the technology sector, these theories help explain how women's leadership progression is influenced by organisational structures, workplace culture, and access to opportunities such as networks and sponsorship (de Klerk & Verreynne, 2017; Prieto-Rodriguez et al., 2022). They also support the examination of how policies, practices, and interventions may either reinforce or reduce these barriers.

1.4 Research Objective & Questions

The main research objective is to understand the impact of the glass ceiling on women who aspire to leadership positions, focusing on the barriers they face and the factors that shape their experiences.

The following research questions are designed to help achieve the research objective.

Q1. What factors does existing literature identify as contributing to the glass ceiling for women pursuing leadership roles in technology related fields?
Q2. How do organisational policies, practices, and cultures influence women's leadership progression in the technology sector?
Q3. What strategies and interventions have been identified as effective in reducing glass ceiling barriers and supporting women's leadership development?

Building on the study rationale and theoretical underpinnings, this research utilises a systematic literature review to investigate the research questions identified above.

1.5 Research Methodology

Carrera-Rivera et al. (2022) describe a Systematic Literature Review (SLR) as a structured method for identifying, selecting, and evaluating existing research through a transparent and repeatable process that provides an up-to-date understanding of a topic. Systematic reviews rely on explicit inclusion criteria and synthesise evidence in ways that minimise bias and error, distinguishing them from less structured approaches such as narrative or scoping reviews (Kraus, Breier, Lim, Ferreira, and Ferreira, 2022).

Given the research questions, this study adopts a systematic literature review to examine current knowledge in the selected area and to synthesise available evidence relevant to the research aims. A systematic review requires a clear and comprehensive explanation of its purpose, the methods used to identify and select studies, and the findings, including characteristics of included studies and any meta-analytic outcomes (Page et al., 2021). To support this process, the study employs the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, which provides a structured approach to study selection and reporting (Moher et al., 2009; Page et al., 2021). Through its emphasis on clarity, consistency, and completeness, PRISMA strengthens the methodological robustness of reviews and supports transparent and reproducible reporting (Mishra & Mishra, 2023).

The literature search for this study is conducted using Scopus, one of the world's most extensive and reputable abstract and citation databases for peer-reviewed research (Guz & Rushchitsky, 2009; Burnham, 2006). Scopus's comprehensive coverage and strong quality controls make it a suitable platform for identifying eligible studies for the review.

This study seeks to systematically synthesise the eligible literature, using descriptive and thematic analyses to provide a comprehensive understanding of the current state of knowledge on the topic.

1.6 Research Structure

Chapter One introduces the study by outlining the research background, study rationale, theoretical foundations, research questions, and the contribution of the research.

Chapter Two describes the methodological approach adopted for the study, including the research design, article selection process, review procedures, and methods of analysis. A Systematic Literature Review (SLR) was undertaken using the Scopus database to identify and select the articles included in the review.

Chapter Three presents an overview of the selected studies in relation to the research questions. The chapter examines publication trends, geographical distribution, research approaches, levels of analysis, theoretical perspectives, and authorship patterns across the literature.

Chapter Four presents the findings of the thematic analysis and discusses the key themes identified from the reviewed studies.

Chapter Five discusses the findings through the lens of Glass Ceiling Theory and Gendered Organisations Theory. These theoretical perspectives are used to interpret the findings and inform the development of a conceptual framework.

Chapter Six concludes the study by summarising the key findings, outlining the limitations of the research, discussing implications for theory and practice, and identifying opportunities for future research.

Chapter 2

Methodology

2.0 Overview

A systematic review is the most suitable approach for this study because it allows for a structured and comprehensive analysis of existing empirical literature. This method supports the investigation into the glass ceiling and its impact on women in technology who aspire to leadership roles, by identifying key barriers, patterns, and gaps in current research.

2.1 Research Design

A systematic literature review was selected as the research method for this study. The method involves the systematic identification, screening, and evaluation of published research relevant to a defined research question. By applying explicit inclusion and exclusion criteria throughout the review process, the approach promotes transparency and consistency in the selection and assessment of evidence (Snyder, 2019).

As this study adopts a qualitative orientation, the review draws on principles of qualitative evidence synthesis. This approach examines findings across individual studies to identify common themes, concepts, and patterns within the literature. The emphasis is placed on the interpretation of evidence to provide a broader understanding of the topic under investigation (Grant & Booth, 2009).

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) model, as described by Page et al. (2021), provides comprehensive guidelines to enhance the transparency and reporting quality of systematic reviews. This study applies the PRISMA framework to minimise bias and support a robust examination of the complex glass ceiling phenomenon. By establishing clear inclusion criteria, documenting a transparent search strategy, and offering structured guidance for assessing study quality, PRISMA strengthens the reliability and validity of the review process. It also promotes standardised data extraction, the involvement of independent reviewers, and the disclosure of conflicts of interest.

The systematic review process used in this study follows these steps:

1. Defining a clear research question
2. Conducting a comprehensive literature search
3. Screening studies based on predefined criteria
4. Extracting data from selected studies
5. Synthesising findings and reporting results
6. Completing the dissertation write-up and submission

These steps form a clear and well-structured review process that aligns with best practice for developing search strategies, applying inclusion and exclusion criteria, and undertaking structured analysis (Moher et al., 2009; Pubrica, 2024; Mannarath, 2025). This methodological approach strengthens the credibility of the findings and provides a solid basis for examining the glass ceiling experienced by women pursuing leadership careers.

2.2 Search Strategy

2.2.1 Identifying Keywords and organising search criteria

Before collecting articles, it was essential to identify appropriate keywords to capture the breadth of research on women in technology aspiring toward leadership roles. This step forms the foundation of a systematic literature review (Moher et al., 2009; Pubrica, 2024; Mannarath, 2025). Various synonyms and related concepts were considered to ensure comprehensive coverage.

Specifically, the search included terms related to the glass ceiling and gender bias (“glass ceiling” OR “gender bias” OR “career barriers” OR “underrepresentation of women”), combined with concepts of leadership and career progression (“leadership” OR “career advancement” OR “career development” OR “promotion”), and filtered for women or female representation (women OR female). To focus on the technology domain, additional keywords were applied (“tech*” OR IT OR “information tech*” OR “information sys*” OR STEM OR computing OR engineer*).

Boolean operators AND and OR were used to link these terms strategically, ensuring broad yet relevant coverage. This search resulted in 72 articles published between 2015 and 2025, forming the basis of the systematic literature review.

2.2.2 What database is appropriate?

After determining the search keywords, the next step was to select an appropriate database for retrieving relevant literature. Scopus was chosen because it is one of the largest and most trusted abstract and citation databases, offering extensive coverage of peer-reviewed journals, conference proceedings, and scholarly books across multiple disciplines. Its rigorous content selection process, overseen by an independent Content Selection and Advisory Board, ensures that only high-quality sources are indexed (Baas et al., 2020).
Additionally, Scopus provides advanced search functionalities, including Boolean operators and keyword combinations, which are essential for conducting a systematic literature review.

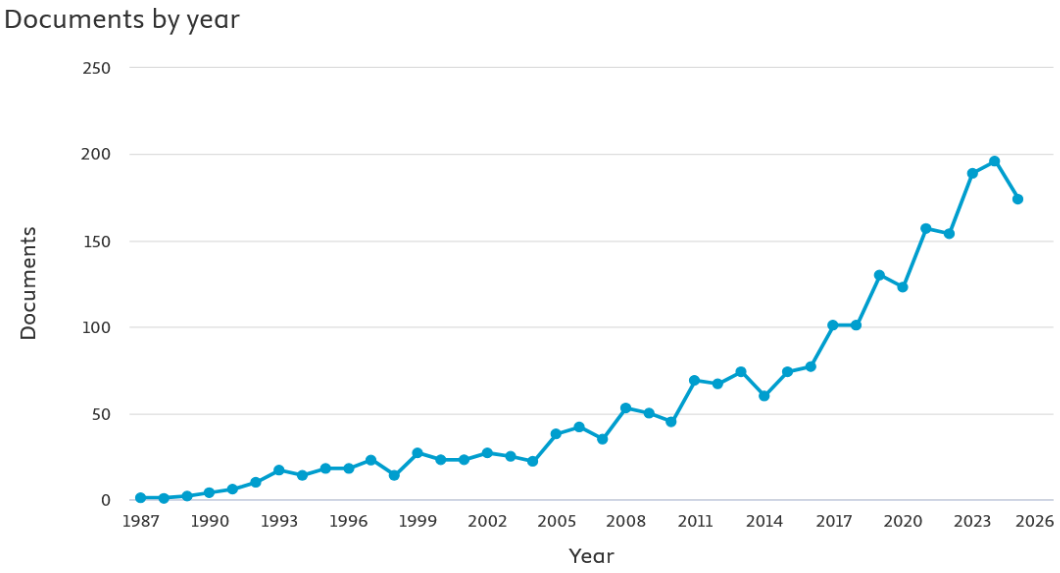
Scopus research compiled 1476 articles on the glass ceiling phenomenon between the years of 2015-2025 whereas 886 results were produced prior to 2015, showing that the research field has grown and matured, with “women”, “female”, and “gender” among the top keywords.

This review limits included studies to 2015 onwards because scholarship on the glass ceiling, gender and leadership has expanded substantially over the last decade, as evidenced by large-scale bibliometric and systematic syntheses (Taparia & Lenka, 2025; Ciappei et al., 2023; Chen et al., 2025). In parallel, rapid digital transformation has reshaped organisational structures, work design and leadership expectations within technology-enabled environments, meaning earlier studies may not fully capture contemporary digital and gender dynamics (Brunner et al., 2023; Omol, 2024; Gorbacheva et al., 2019).

Scopus was the only database used for the literature search. The search results were exported to Microsoft Excel, where article details were recorded, organised and checked for duplicates before titles and abstracts were screened. The spreadsheet was also used to track the screening and selection of articles. No separate searches

were conducted in other academic databases, and reference lists and citation trails were not used as formal search methods.

Figure 2.1 Graph representation of Scopus search on "Glass Ceiling"



Source: Author

2.3 Screening the search results

2.3.1. Eligibility and Inclusion Criteria

Following the database search, an initial screening of titles and abstracts was undertaken to determine the relevance of each record to the core focus areas of this study: women in technology, leadership aspirations, and organisational barriers such as the glass ceiling.

The preliminary search produced 971 records, including journal articles, book chapters, books, conference papers, reviews, notes, editorials, letters, short surveys and conference reviews. To ensure the quality and relevance of the dataset, only peer reviewed journal articles and review papers were retained, and all other document types were excluded at this stage.

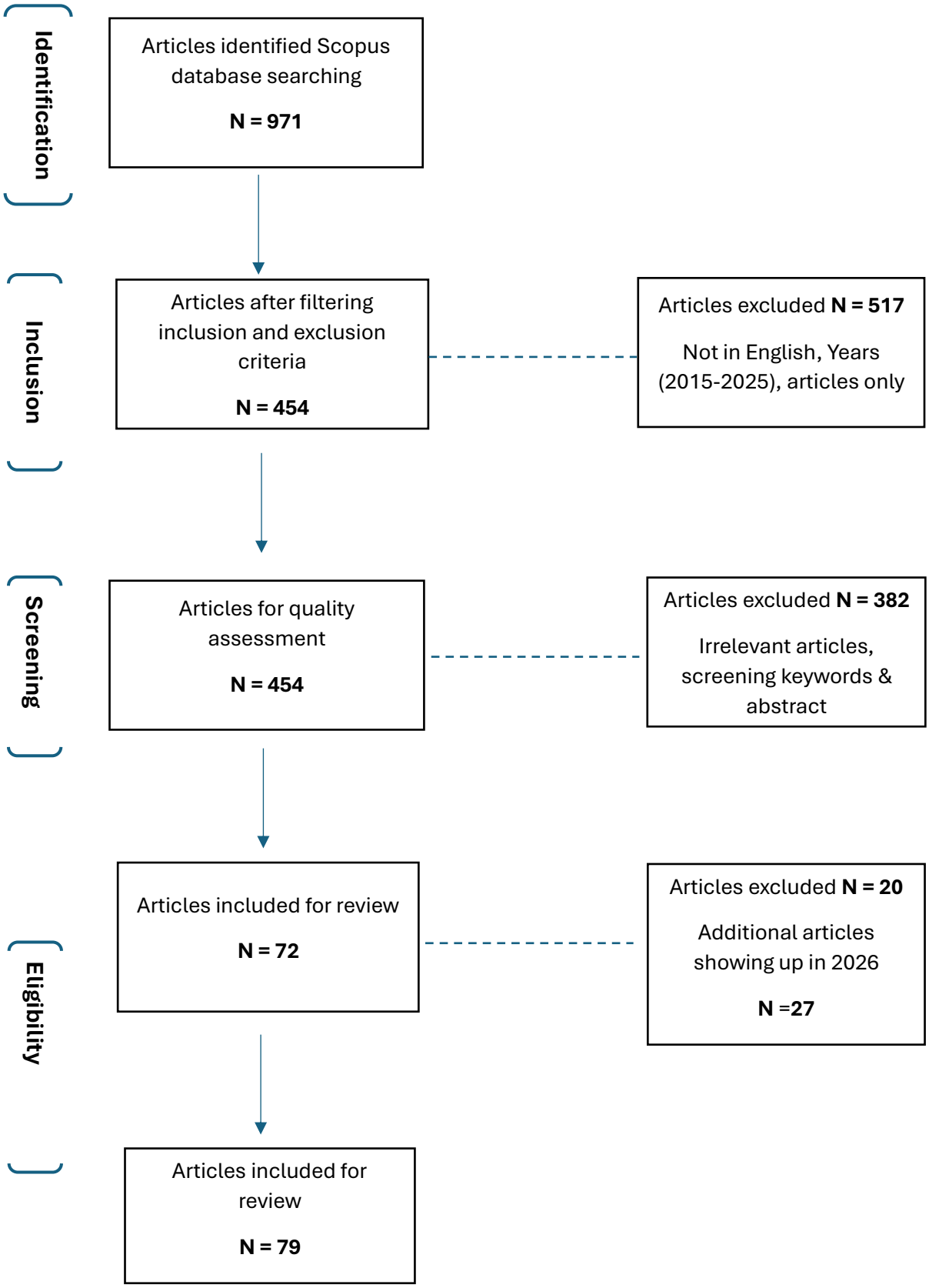
The search focused on articles published between 2015 and 2025 and used a structured set of keywords. These included terms related to organisational barriers such as “glass ceiling”, “gender bias”, “career barriers” and “underrepresentation of women”, combined with leadership related terms including “leadership”, “career advancement”, “career development” and “promotion”. To ensure the dataset centred on women, the terms “women” and “female” were applied. A further set of domain specific keywords such as “tech*”, IT, “information tech*”, “information sys*”, STEM, computing and “engineer*” was used to limit the results to the technology sector.
Based on these criteria, the number of documents was reduced substantially. After applying filters for language, publication year and document type, 517 records were excluded. During the next stage of screening titles, abstracts and keywords, articles were assessed for their relevance to the research questions. Articles were retained where they contributed evidence relevant to at least one of the three research questions, including factors contributing to the glass ceiling and women’s leadership progression (Q1); organisational policies, practices, cultures, gender bias, promotion processes or other workplace factors influencing women’s leadership progression (Q2); or strategies and interventions aimed at reducing barriers and supporting women’s leadership development (Q3). Articles were excluded where they did not substantively address women’s leadership or career progression, organisational factors or barriers relevant to the glass ceiling, or strategies and interventions relevant to women’s leadership development. This screening process resulted in a further 382 exclusions.

After all screening stages were completed, 72 articles met the final eligibility criteria and were included for full review and analysis as at end of December 2025.
Information from each article, including the title, abstract, keywords, author names and affiliations, journal details, year of publication, study location and research method, was entered into an Excel spreadsheet.

An updated Scopus search conducted in March 2026 identified a further 27 records. Following screening against the same eligibility criteria, seven articles were included, bringing the final dataset to 79 articles.

The final dataset included studies from a range of international contexts; however, no studies focused specifically on New Zealand, and only two studies were conducted in an Australian context (Martin et al., 2021; Newstead et al., 2023).

Figure 2.2 Flowchart of article selection



Source: Author

2.4 Data Analysis

2.4.1 Thematic Analysis

A thematic analysis was conducted to identify the key research themes emerging from the qualitative studies in this systematic review. This method enables researchers to examine patterns of meaning across datasets and interpret recurring ideas within the evidence (Braun & Clarke, 2012). Although often described in stepwise terms, thematic analysis is inherently iterative and reflexive, requiring ongoing engagement with the data (Fereday & Muir-Cochrane, 2006). It may be applied inductively, allowing themes to emerge from the data, or deductively, guided by predefined concepts or theoretical frameworks (Fereday & Muir-Cochrane, 2006; Braun & Clarke, 2006).

In this study, thematic analysis synthesised findings across multiple qualitative studies to identify the dominant themes relevant to the research questions. These themes were then interpreted through the study's theoretical framework to ensure coherence between empirical evidence and conceptual foundations.

The thematic analysis was completed manually using Microsoft Excel. Relevant findings from each article were recorded and grouped under initial codes relating to barriers, organisational influences and strategies supporting women's leadership progression. Similar codes were combined into broader categories and compared across the included studies. These categories were reviewed against the research questions and refined into the final themes and subthemes presented in Chapter 4. Where studies reported different findings, these differences were retained and considered when interpreting the results. The Excel spreadsheet was used to keep a record of the codes, categories, themes and supporting articles. No qualitative analysis software was used.

Descriptive analysis was also used to outline key characteristics, trends, and variations within the included studies, addressing fundamental questions such as "who, what, where, when, and to what extent" (Loeb et al., 2017).

The following chapters present the descriptive analysis first, followed by the thematic analysis, which interprets the major patterns identified in literature.

Chapter 3

Descriptive Analysis

3.0 Overview

Chapter Three critically analyses the 79 articles identified through the systematic literature review, focusing on the glass ceiling experienced by women aspiring to leadership roles in the technology sector. The initial assessment outlines the characteristics of the articles by presenting a descriptive analysis across key dimensions, including year of publication, geographical context, type of study, research method, level of analysis, theoretical frameworks, and future research directions.

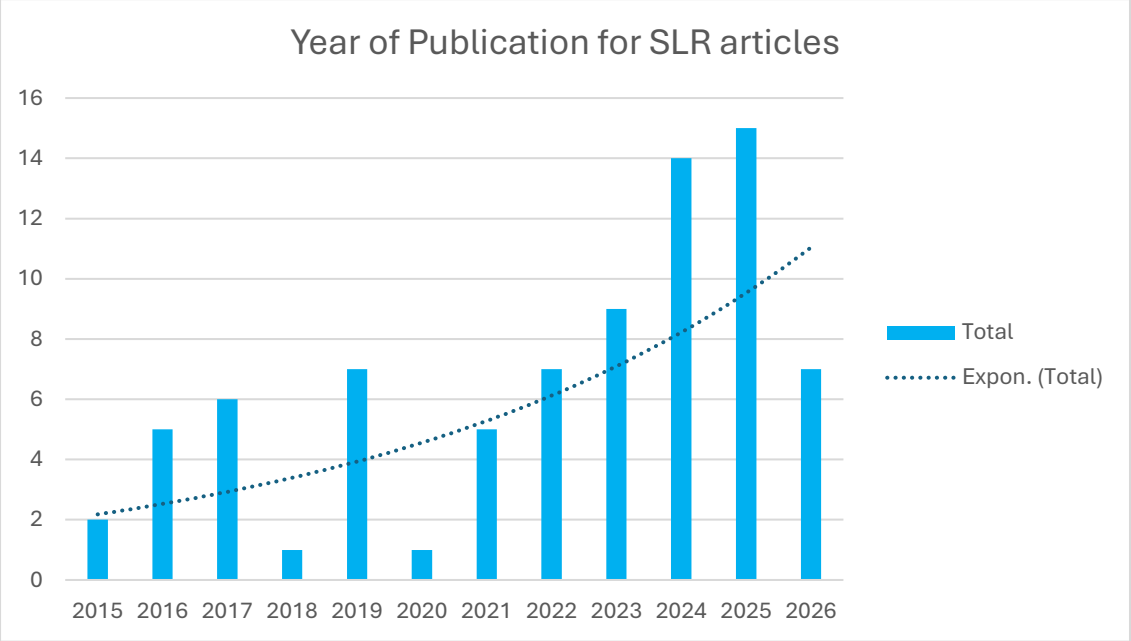
This analysis is used to identify recurring themes within the literature, which are synthesised in relation to the research questions. These insights frame and enable the thematic analysis presented in Chapter Four.

3.1. Year of Publication

Figure 3.1. Shows the distribution of articles included in the systematic literature review on the glass ceiling and women's leadership by year of publication (2015 - 2026). According to the data, relatively few articles addressed the glass ceiling and women's leadership in the earlier years of the selected timeframe, with limited publications prior to 2018. The number of studies increased gradually between 2019 and 2022, with the most notable growth occurring in the post-pandemic period. The highest number of articles was published in 2024 (14 articles) and 2025 (15 articles), followed by six articles in 2026. It is important to note at the time of this research, 2026 is still an active year.

Studies published from 2023 onwards make up the majority of the reviewed literature. This publication trend indicates a growing academic focus on the glass ceiling and women's leadership advancement.

Figure 3.1: Year of Publication



Source: Author

3.2. Industry types

The reviewed literature spans multiple industry contexts, with the greatest concentration of studies situated in corporate and private-sector settings (e.g., Amakye et al., 2021; Domínguez-Soto et al., 2023), followed by cross-industry analyses of the glass ceiling effect that are not confined to a specific sector (e.g., Auster & Prasad, 2016; Taparia & Lenka, 2024). Academic and STEM-related fields also feature prominently in the literature (e.g., van Veelen & Derks, 2022; Kaya & Tamer, 2023), while governance, technology, public sector, healthcare, and finance are less frequently examined, though still represented as relevant contexts (e.g., Pascual-Fuster et al., 2023; Rehman & Alorifi, 2022; Al-Doghmi et al., 2023; Xiao et al., 2023).

Table 3.1: Industry classification of Articles

Industry Classification	Number of Articles
Overall glass ceiling effect (cross-industry)	15
Corporate / Management / Private sector	17
Academia / Higher education	10
STEM / Science / Engineering	10
Corporate governance / Boards / Executive leadership	8
ICT / Technology / Digital transformation	4
Public sector / Policy / Governance	4
Healthcare / Medicine / Pharmacy	3
Finance / Banking / Accounting	3
Other	5

Source: Author

3.3. Geographical Context

Table 3.2 presents the geographical settings in which the selected studies were conducted. The findings show that a substantial number of articles adopted a global perspective, with 12 of the 79 studies examining the glass ceiling and women's leadership at an international level. Among the country specific studies, the United States was the most frequently examined context, represented by 11 articles, followed by Spain with five studies. Italy, China, and India were each the focus of four studies.

Several countries, including Malaysia, the United Kingdom, and Pakistan, appeared in three studies, while Bangladesh, Germany, Ghana, Saudi Arabia, South Africa, and Australia were each represented by two studies. In contrast, a number of countries, such as Iceland, Kazakhstan, Zimbabwe, Nepal, Canada, Croatia, Jordan, and Turkey, were examined in only one study each. The distribution reflects a wide geographical spread, incorporating both global analyses and diverse national contexts. This breadth highlights the international relevance of the glass ceiling phenomenon, while also illustrating how women's leadership experiences are shaped by distinct social, cultural, and institutional environments.

Table 3.2: Number of Articles by Countries

Countries	Number of Article
Global	12
United States	11
Spain	5
India	4
China	4
Gulf Cooperation Council (GCC) countries: Bahrain, Kuwait, Saudi Arabia, Oman, Qatar, United Arab Emirates	4
Italy	4
Pakistan	3
United Kingdom	3
Malaysia	3
Australia	2
South Africa	2
Ghana	2
Bangladesh	2
Indonesia	2
Germany	2
Jordan, Czech Republic, Turkey, Lithuania, Iceland, Zimbabwe, Croatia, Africa, Belgium, Nepal, Kazakhstan, Netherlands, Canada, Mauritius	1

Source: Author

Earlier research on the glass ceiling and barriers woman face in their leadership careers was largely concentrated in Western and developed country contexts. However, the findings of this review indicate a growing scholarly focus on developing and emerging economies. A substantial number of the reviewed studies were conducted in countries such as India, China, Malaysia, Saudi Arabia, and South Africa, reflecting increased academic attention to women's leadership barriers in non-Western contexts. This shift is evident in the results of the review, which show that India featured prominently among the country specific studies, alongside a wide range of Asian, African, and Middle Eastern settings.

This expanding geographical focus indicates a growing recognition that the glass ceiling is a global phenomenon shaped by diverse cultural, institutional, and socio-

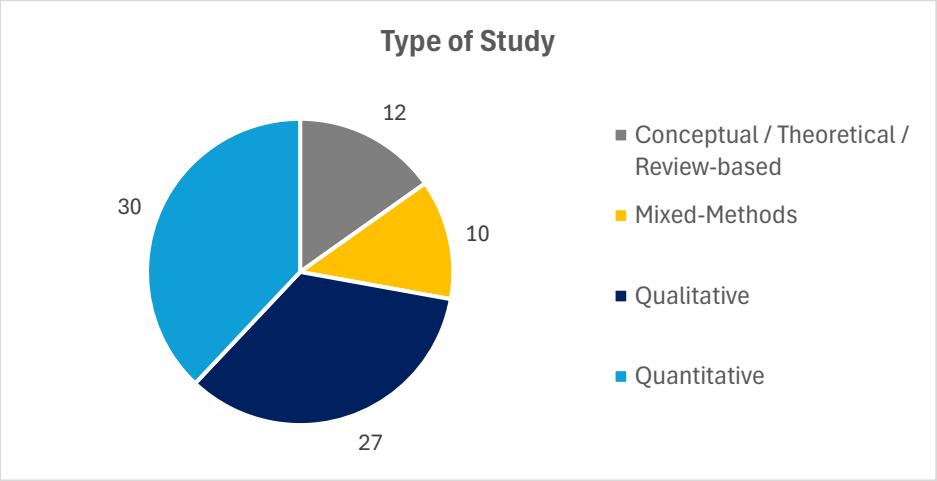
economic contexts, rather than being confined to developed Western nations (Altamimi et al., 2022; Xiao et al., 2023; Taparia & Lenka, 2025).

3.3. Type of study

Among the 79 studies included in the review, quantitative research constituted the largest proportion, comprising 30 studies (38.0%), followed closely by qualitative research with 27 studies (34.2%). This distribution reflects a strong empirical orientation within the literature, with quantitative studies primarily used to examine patterns and relationships related to women's leadership and career progression through surveys, archival data, and statistical modelling (Xiao et al., 2023; Poma & Pistoresi, 2024).

In contrast, qualitative studies focus on exploring and understanding women's lived experiences of leadership, gender bias, and organisational barriers, drawing on interviews and narrative approaches to capture contextual insights (Soklaridis et al., 2017; Cannito et al., 2023). Conceptual, theoretical, and review-based studies account for 12 studies (15.2%), contributing to theory development and the synthesis of existing knowledge without primary data collection (Auster & Prasad, 2016; Gupta, 2019; Taparia & Lenka, 2024). Mixed-methods research represents 10 studies (12.7%), combining quantitative and qualitative approaches to provide a more comprehensive understanding of the glass ceiling.

Figure 3.2. Type of Studies



Source: Author

The data collection methods used across the reviewed articles are presented in Table 3.3. The table illustrates that while many studies rely on a single data collection method, 6 articles (7%) employ two or more methods to develop a more comprehensive understanding of the research area.

Table 3.3: Data collection method

Data collection method	Number of articles
Survey / questionnaire	22
Semi-structured interviews	11
Secondary / archival data (organisational records, databases, admin data)	11
In-depth interviews (often semi-structured)	10
Literature review / bibliometric review (secondary literature)	5
Conceptual / theoretical (no primary data collection)	6
Multiple data collection methods (mixed)	6
Focus group discussions	2
AI-generated text / computational text data	2
Document-based legal research	1
Simulation / modelling	1
Interviews (unspecified type)	1
Photovoice + group discussion	1

Source: Author

Overall, the reviewed studies predominantly rely on surveys, literature reviews, and interview-based qualitative methods. This reflects a broader trend in glass ceiling research that combines quantitative measurement of gender inequality with qualitative exploration of women's lived experiences (Creswell & Plano Clark, 2018; Ryan & Haslam, 2005).

Six articles used more than one data collection method, demonstrating the value of mixed methodological approaches are particularly suited to examining complex organisational phenomena such as leadership barriers, where structural patterns intersect with social and psychological processes (Denzin, 2012).

3.4. Level of Analysis

Appendix A provides a detailed summary of the unit of analysis, that is, the participants or observations examined, across the reviewed studies, alongside the scale of each sample and the data-analysis techniques used. Sample sizes vary substantially, ranging from 10 participants in smaller qualitative studies (e.g., Amakye et al., 2022; Kaya & Tamer, 2024; Rana & Raju, 2019) to 48,959 employees in large organisational datasets (Santero-Sánchez & Castro Núñez, 2025). In several studies, the unit of analysis extends beyond individuals to include firms, boards and longitudinal workforce or audit observation records (e.g., Cheng & Wang, 2023; Pascual-Fuster et al., 2025; Tian et al., 2025), while a smaller number of papers are conceptual or report no sample information, recorded as N/A (e.g., Auster & Prasad, 2016; Hirsty, 2024; Rao, 2019).

Across the studies, the main unit of analysis is women in professional and leadership roles, including female academics, women leaders in STEM/STEMM and women in managerial positions (Al-Doghmi et al., 2023; Babalola et al., 2021; van Veelen & Derks, 2022). Some studies use mixed-gender samples or compare women and men to examine gendered barriers and workplace outcomes (Bonesso & Bressan, 2026; Irshad & Khan, 2026). Several review-based papers analyse published articles as the unit of analysis, indicating that evidence is also assessed at the literature level (Garcia-Pineda et al., 2025; Taparia & Lenka, 2024). Overall, the literature primarily focuses on women's experiences while also drawing on broader organisational and archival data to examine the glass ceiling across different contexts. Further details for each article are provided in Appendix A.

3.5. Theories

Table 3.5 summarises the key theories used in the studies included in the SLR. 41 theoretical constructs were identified across the reviewed studies; however, four studies did not report any explicit theoretical approach.
Further, Glass Ceiling Theory is the most predominant theoretical lens, reported in 19 studies out of 79.

Table 3.4: Theories identified by Article count

Theories Used	No of Articles	Citation of Articles
Glass Ceiling Theory	19	(van Veelen & Derks, 2022); (Rana & Raju, 2019); (Srivastava & Nalawade, 2023); (Taparia & Lenka, 2024); (Cachón, 2018); (Ramachandran et al., 2016); (Al-Doghmi et al., 2023); (Altamimi et al., 2022); (Martín-Peña et al., 2023); (Poma & Pistoresi, 2024); (Cheng & Wang, 2023); (Iskindirova et al., 2026); (Miholić et al., 2022); (Chigudu, 2021); (Babic & Hansez, 2021); (Subramaniam et al., 2016); (Kaya & Tamer, 2024); (Makaula et al., 2015); (Shrestha et al., 2023)
Gender Stereotype Theory	9	(Festing et al., 2015); (Cachón, 2018); (Hoffmann & Musch, 2019); (Lefley et al., 2024); (Gutermuth & Hamstra, 2024); (Martín-Peña et al., 2023); (Gunnarsdóttir et al., 2025); (Garcia-Pineda et al., 2025); (Irshad & Khan, 2026)
Gender Role Theory	7	(Ansari, 2016); (Opoku & Williams, 2019); (Gandhi & Sen, 2021); (Chigudu, 2021); (Shrestha et al., 2023); (Gutermuth & Hamstra, 2024); (Ramseook-Munhurrun et al., 2025)
Social Role Theory	5	(Saleem et al., 2017); (Ramseook-Munhurrun et al., 2025); (Syaebani et al., 2024); (Irshad & Khan, 2026); (Watanabe et al., 2026)
No explicit theory stated	4	(Gupta, 2019); (Cavaletto et al., 2019); (Martin et al., 2021); (Rao, 2019)
Feminist Theory	3	(Dickson & Alharthi, 2025); (Kulkarni & Mishra, 2022); (James et al., 2023)
Gender Bias Theory	3	(Rajha & Ruiters, 2025); (Newstead et al., 2023); (Soklaridis et al., 2017)
Gendered Organisation Theory	3	(Festing et al., 2015); (Cannito et al., 2023); (Islam et al., 2025)
Upper Echelons Theory	2	(Biggerstaff et al., 2024); (Merter et al., 2025)
Post-feminist Theory	2	(Nash & Moore, 2019); (Steenblock & Sundermeier, 2025)

3.6. Journals

Table 3.6 shows that the 79 articles were published across 70 journals, reflecting the multidisciplinary nature of research on the glass ceiling and women's leadership progression. The journals cover business, management, psychology, gender studies, STEM and related fields. The classifications were taken from the 2025 Australian Business Deans Council Journal Quality List. They are included only to describe the publication outlets represented in the review and were not used to assess the quality, relevance or strength of evidence of individual articles. Journal rankings also have limitations, as their coverage and classifications vary across disciplines and ranking systems, and some journals included in this review do not appear on the ABDC list (Jaafar et al., 2021). For this reason, the analysis and conclusions were based on the content and relevance of each study rather than its journal classification.

Table 3.: Journals by Article count and ABDC ranking

	Journal	Article count	ABDC ranking
1	Frontiers in Psychology	5	N/A
2	Gender, Work & Organization	4	A*
3	Sex Roles (Springer Nature)	2	A
4	Humanities and Social Sciences Communications	2	N/A
5	Academic Medicine (Formerly Journal of Medical Education)	1	N/A
6	Academy of Strategic Management Journal	1	N/A
7	Administrative Sciences	1	C
8	Business Research Quarterly	1	B
9	Corporate Communications: An International Journal	1	B
10	Corporate Governance	1	B
11	Corporate Ownership & Control	1	B
12	Corporate Social Responsibility and Environmental Management	1	C
13	Development and Learning in Organizations	1	N/A
14	Educational Management Administration & Leadership	1	B
15	Emerging Markets Finance and Trade	1	B
16	Equality, Diversity and Inclusion (Emerald)	1	B
17	Equality, Diversity and Inclusion: An International Journal	1	B
18	European Business Review	1	B
19	European Journal of Management Studies	1	C
20	European Journal of Operational Research	1	A*
21	F1000Research	1	N/A
22	Frontiers in Environmental Science	1	N/A

23	Gender in Management: An International Journal (Emerald Publishing)	1	B
24	Human Resource Management	1	A*
25	Humanities, Arts and Social Sciences Studies	1	N/A
26	Indian Journal of Science and Technology	1	N/A
27	Intangible Capital	1	N/A
28	International Journal of Accounting and Economics Studies	1	N/A
29	International Journal of Advanced and Applied Science	1	N/A
30	International Journal of Ethics and Systems (Emerald Publishing)	1	C
31	International Journal of Professional Business Review	1	N/A
32	International Journal of Society, Culture & Language	1	N/A
33	International Journal on Emerging Technologies	1	N/A
34	Journal of Accounting & Organizational Change	1	B
35	Journal of Applied Psychology	1	A*
36	Journal of Business and Socio-economic Development	1	N/A
37	Journal of Chinese Human Resource Management	1	N/A
38	Journal of Current Issues & Research in Advertising	1	N/A
39	Journal of Gender Studies	1	N/A
40	Journal of Health Organization and Management	1	B
41	Journal of Human Rights, Culture and Legal System	1	N/A
42	Journal of Information and Organizational Sciences (JIOS)	1	N/A
43	Journal of Management	1	A*
44	Journal of Management Development	1	C
45	Journal of Organizational Behavior (Wiley)	1	A*
46	Journal of Organizational Culture, Communications and Conflict	1	N/A
47	Journal of Vocational Behavior	1	A*
48	Journal of Women & Aging	1	N/A
49	Journal Pendidikan IPA Indonesia	1	N/A
50	Knowledge and Performance Management	1	N/A
51	Management Review Quarterly	1	B
52	International Journal of Gender and Entrepreneurship	1	B
53	Organizational Dynamics	1	A
54	Personnel Review (Emerald Publishing)	1	A
55	PLOS ONE	1	N/A
56	Problems and Perspectives in Management	1	N/A
57	Quality – Access to Success	1	N/A
58	Research in Social and Administrative Pharmacy	1	N/A
59	Review of International Studies	1	B
60	Sage Open	1	N/A
61	Small Business Economics	1	A
62	Social Sciences & Humanities Open	1	N/A
63	Social Sciences (MDPI)	1	N/A
64	Sociologica	1	N/A
65	Socius: Sociological Research for a Dynamic World	1	N/A
66	Sosyoekonomi	1	N/A
67	South African Journal of Economic and Management Sciences	1	C

68	South Asian Journal of Business Studies	1	N/A
69	South Asian Journal of Human Resources Management	1	N/A
70	Thunderbird International Business Review	1	B

Note. ABDC classifications are from the 2025 ABDC Journal Quality List. N/A indicates that the journal was not listed. The classifications apply to journals, not individual articles.

The reviewed studies are dispersed across a wide range of journals (70 journals for 79 articles), with most journals contributing only one paper, while ABDC-ranked publications account for 46.8% of the dataset and the remaining 54.4 % are recorded as N/A. Of the 79 articles, Emerald Publishing contributed the most (10), followed by Routledge (5), SAGE (4) and Frontiers (4), with Springer Nature (3) also featuring prominently. The remaining studies were spread across a long list of other publishers, most contributing only one to three articles each.

The ABDC Journal Quality List, developed by the Australian Business Deans Council, was initiated in 2007 to provide a discipline relevant journal ranking for business and economics and to reduce perceived bias associated with some international ranking systems. (Jaafar et al., 2021). The ABDC framework assigns journals to four mutually exclusive quality categories (**A***, **A**, **B**, and **C**), where **A*** indicates the highest quality outlets and **C** denotes the lowest. (ABDC, n.d,Jaafar et al., 2021)

Chapter 4

Thematic Analysis

4.0 Overview

Chapter Four presents the themes identified from the systematic literature review of 79 articles on the glass ceiling and women's progression into leadership. The thematic analysis addresses the research questions by identifying the key barriers and factors that influence women's leadership progression.

4.1. Results of the Study

The thematic analysis grouped these into three overarching categories. The first relates to socio-cultural and perceptual barriers, which shape how women are viewed and evaluated in leadership contexts. The second captures structural and organisational barriers, reflecting how workplace systems influence access to opportunities and progression. The third focuses on leadership development and advancement pathways, highlighting how women navigate these conditions and how organisations support or constrain progression.

Table 4.1 presents the themes and sub-themes identified through the systematic literature review

Table 4.1: Identified themes

Theme	Sub-Themes	Studies Supporting
Gendered Norms, Bias and Social Barriers	Gendered Leadership Expectations and Stereotypes	(Babalola et al., 2021); (Taparia & Lenka, 2024); (Hoffmann & Musch, 2019); (Hu et al., 2022); (Gutermuth & Hamstra, 2024); (Ramseook-Munhurrun et al., 2025), (Wulandari & Ahmad, 2025); (Vroman & Danko, 2020); (Amakye et al., 2022); Lefley et al. (2024); Gunnarsdóttir et al. (2025)
	Leadership Legitimacy, Recognition and Visibility	(Amon, 2017); (Auster & Prasad, 2016); (Soklaridis et al., 2017); (Hu et al., 2022); (Ramseook-Munhurrun et al., 2025)
	Gender Bias, discrimination and exclusion	(Hu et al., 2022); (Watanabe et al., 2026); (Gutermuth & Hamstra, 2024); (Jabin, 2025); (Gupta, 2019); (Vroman & Danko, 2020); (van Veelen & Derks, 2022); (Rajha & Ruiters, 2025); Lefley et al. (2024); (**Opoku & Williams, 2019**); Altamimi et al. (2022)
	Hidden Bias and Second-Generation Bias	(Taparia & Lenka, 2024); (Hoffmann & Musch, 2019); (Soklaridis et al., 2017); (Jabin, 2025); (Vroman & Danko, 2020); (van Veelen & Derks, 2022); (Rajha & Ruiters, 2025); (Amakye et al., 2022); (**Opoku & Williams, 2019**)
	Intersectional and Racialised Bias in Leadership	(Corbett et al., 2024); (Babalola et al., 2021); (Shrestha et al., 2023); Xiao et al. (2023)
Structural and Organisational Barriers	Promotion Inequality and Leadership Pipeline Barriers	(Subramaniam et al., 2016); (Saleem et al., 2017); (Shrestha et al., 2023); (Meldgin et al., 2024); (Iskindirova et al., 2026); (Xie & Zhu, 2016); (Corbett et al., 2024), (Wulandari & Ahmad, 2025); (van Veelen & Derks, 2022); (Rana & Raju, 2019)

	Organisational Structures and Male-Dominated Leadership Systems	(Cavaletto et al., 2019); (Auster & Prasad, 2016); (Babalola et al., 2021); (Al-Doghmi et al., 2023); (Ramseook-Munhurrun et al., 2025); (van Veelen & Derks, 2022)
	Performance Management and Evaluation Systems	(Watanabe et al., 2026); (Festing et al., 2015); (Gutermuth & Hamstra, 2024); (Jabin, 2025)
	Work–Life Conflict and Career Structure Constraints	(Subramaniam et al., 2016); (Shrestha et al., 2023); (Ramseook-Munhurrun et al., 2025); (Amon, 2017); (Amakye et al., 2022)
	Organisational Culture, Networking and Access to Social Capital	(Babalola et al., 2021); (Al-Doghmi et al., 2023); (Festing et al., 2015); (Ramseook-Munhurrun et al., 2025); (Rajha & Ruiters, 2025); (Amakye et al., 2022); Nash and Moore (2019); Naseviciute & Juceviciene (2024); **Biggerstaff et al. (2024)**
	Sector-Specific Structural Barriers in STEM /Technology	(Bonesso & Bressan, 2026); (Babalola et al., 2021); (Irshad & Khan, 2026); (Iskindirova et al., 2026); (Corbett et al., 2024); (Garcia-Pineda et al. (2025); Naseviciute & Juceviciene (2024)
Career Development and Advancement Pathways	Leadership Identity, Self-Efficacy and Internal Barriers	(Bonesso & Bressan, 2026); (Irshad & Khan, 2026); (Hu et al., 2022); (Jabin, 2025); (Amon, 2017); (Domínguez-Soto et al., 2025); Garcia-Pineda et al. (2025) ; Naseviciute & Juceviciene (2024)
	Career Adaptability, Resilience and Persistence	(Bonesso & Bressan, 2026); (Iskindirova et al., 2026); (Jabin, 2025); (Ramseook-Munhurrun et al., 2025)

	Mentoring and Leadership Development	(Irshad & Khan, 2026); (Hu et al., 2022); (Ramseook-Munhurrun et al., 2025); (Iskindirova et al., 2026), (Amon, 2017), (Wulandari & Ahmad, 2025)
	Leadership Development, Organisational Support Mechanisms	(Bonesso & Bressan, 2026); (Irshad & Khan, 2026); (Hu et al., 2022); (Jabin, 2025); (Amon, 2017); (Iskindirova et al., 2026); (Ramseook-Munhurrun et al., 2025); (Subramaniam et al., 2016); (Watanabe et al., 2026); (Festing et al., 2015); (Corbett et al., 2024)., (Gupta, 2019); Altamimi et al. (2022)

Sections 4.2 to 4.4 of this chapter will discuss the identified themes and sub themes in more detail. The discussion analyses how women are perceived and evaluated as leaders, the organisational barriers that influence leadership progression, and the factors that support advancement into leadership roles.

This theme was supported by 24 studies listed in Table 4.1, including quantitative, qualitative, mixed-methods, conceptual and review-based research. The studies covered corporate, academic, healthcare, STEM, technology and other organisational settings across a range of countries. Gendered expectations, bias and unequal recognition were recurring findings across different research methods and contexts. Evidence concerning intersectional and racialised bias was drawn from a smaller number of studies and should therefore be understood as a more specific finding within the broader theme.

4.2. Gendered Perceptions, Bias and Social Barriers

4.2.1 Leadership Stereotypes and Gendered Expectations

Leadership continues to be associated with traditionally masculine characteristics, which shapes how women are perceived and evaluated within organisational settings (Hoffmann & Musch, 2019; Hu et al., 2022; Gutermuth & Hamstra, 2024; Vroman & Danko, 2020). Hoffmann and Musch (2019) argued that women are more frequently associated with communal attributes such as being caring, supportive and understanding, whereas men are more commonly associated with agentic traits including confidence, competitiveness and independence. Lefley et al. (2024) indicated that women were more often associated with sensitivity, concern for others and ethical decision-making, while leadership-related qualities were less readily recognised, particularly by male respondents. Gunnarsdóttir et al. (2025) highlighted that women board members perceived CEO selection processes to be influenced by leadership models that continued to privilege traditionally masculine behaviours, while qualities such as humility and collaborative leadership received less recognition.

Rehman and Alorifi (2024) position their study within the male-dominated cultural context of Saudi Arabia, where women are described as being perceived as less competent and assertive than men. Their findings showed that authoritarian leadership was the most practised leadership style among the Saudi women entrepreneurs surveyed, followed by democratic leadership. As leadership roles continue to be linked to these agentic characteristics, women may be perceived as less suited to leadership positions and evaluated less favourably than men in comparable roles. Vroman and Danko (2020) noted that women leaders are often expected to balance communal and agentic behaviours, reflecting ongoing gendered expectations regarding appropriate leadership behaviour. These expectations continue to shape leadership norms and influence how women are positioned in professional contexts.

Gendered expectations also affect how competence and leadership potential are interpreted. Gandhi and Sen (2021) argued that women often needed to demonstrate higher levels of capability than men to be regarded as equally competent for leadership roles. Hu et al. (2022) showed that competence evaluations are shaped by gender,

with women required to provide stronger evidence of ability to receive equivalent recognition. These expectations are reinforced within organisational environments, particularly in male-dominated sectors, where leadership norms are more closely aligned with masculine characteristics (Babalola et al., 2021; Ramseook-Munhurrun et al., 2025). Vroman and Danko (2020) noted that women who displayed confidence, assertiveness or self-promoting behaviours were often judged less favourably than men demonstrating the same behaviours.

Women also encounter conflicting expectations regarding how leadership behaviour should be performed. Hu et al. (2022) describe a double bind in which women are expected to display both agentic and communal traits. Women who show assertiveness may be evaluated negatively for deviating from gender norms, while those who adopt collaborative or modest approaches may be viewed as lacking leadership capability. Jabin (2025) reported that assertive women are often labelled negatively, while collaborative approaches may be interpreted as insufficiently leader-like. Amakye et al. (2022) demonstrated that women leaders were frequently required to negotiate negative assumptions about their authority and leadership capability. These expectations place limits on how leadership behaviours are expressed and evaluated, while women appointed to senior leadership roles may also face heightened scrutiny and increased risk of failure in times of organisational difficulty (Poma & Pistoresi, 2024; Taparia & Lenka, 2024).

Behaviour associated with ambition and career progression is also interpreted differently depending on gender. Gutermuth and Hamstra (2024) showed that behaviours linked to advancement were evaluated more positively when demonstrated by men than by women. This indicates that the same actions are not assessed consistently across genders, which affects how leadership potential is recognised within organisational settings. Bias therefore operates not only through formal criteria but also through assumptions about appropriate behaviour and leadership characteristics (Vroman & Danko, 2020).

4.2.2 Leadership Legitimacy and Recognition

Leadership legitimacy is influenced by how authority, credibility and visibility are recognised within organisational contexts. Women have reported difficulty being viewed as legitimate leaders, even when occupying formal leadership positions (Amon, 2017; Auster & Prasad, 2016; Soklaridis et al., 2017; Ramseook-Munhurrun et al., 2025). Amon (2017) found that women in STEM were highly aware of how they were perceived and frequently engaged in managing these perceptions within their workplaces. Leadership authority was not always automatically recognised, and participants described relying on sustained performance and relationship-building to establish credibility.

Access to legitimacy is also shaped by organisational dynamics beyond formal roles. Soklaridis et al. (2017) showed that women in senior positions were perceived differently from male counterparts despite holding equivalent authority. Recognition was influenced by inclusion in decision-making spaces and access to influential networks, which affected visibility and credibility within organisations. These experiences demonstrate that leadership legitimacy is shaped through both formal structures and informal organisational practices.

Auster and Prasad (2016) argued that promotion decisions are influenced by social categorisation, stereotyping and in-group preferences. Alignment with dominant leadership norms affects how individuals are perceived and evaluated, which shapes access to recognition and advancement.

Recognition is also influenced by evaluation processes that shape how performance is interpreted. Hu et al. (2022) showed that perceptions of competence and leadership potential are influenced by gendered expectations, affecting how women's contributions are assessed. Limited access to both formal and informal recognition affects confidence and progression, particularly where visibility and credibility are linked to leadership opportunities (Amon, 2017; Ramseook-Munhurrun et al., 2025).

4.2.3 Gender Bias, Discrimination and Exclusion

Gender bias, discrimination and exclusion affect access to leadership roles, promotion opportunities and career development pathways. Across the literature, women described unequal treatment during recruitment, selection and promotion processes, alongside restricted access to leadership positions (Saleem et al., 2017; Ansari, 2016; Chigudu, 2021; Al-Doghmi et al., 2023; Cannito et al., 2023; Rahma et al., 2026; Wulandari & Ahmad, 2025; Gupta, 2019; Vroman & Danko, 2020). Saleem et al. (2017) showed that glass ceiling barriers reduce women's likelihood of being selected and promoted, while Chigudu (2021) highlighted the influence of patriarchal organisational environments on leadership progression. Rehman and Alorifi (2024) note that Saudi women entrepreneurs operate within a male-dominated cultural context where women's leadership capability may be underestimated. Their study contributes evidence on how Saudi women entrepreneurs practise leadership within this context.Gupta (2019) and Miholić et al. (2022) identified gender bias, stereotyping and vertical segregation as continuing barriers to women's representation in leadership positions. Martin et al. (2021) demonstrated that women remained underrepresented in leadership positions within the Australian pharmacy profession despite comprising the majority of the workforce, highlighting a disconnect between workforce participation and leadership representation. Pascual-Fuster et al. (2025) showed that women who reached corporate boards in Spanish firms still faced a second glass ceiling, as they were less likely to move into board leadership and major committee positions despite holding characteristics that should support promotion. Lefley et al. (2024) found evidence of gender bias in perceptions of women's suitability for corporate board positions, particularly in relation to leadership capabilities and strategic contribution. Miholić et al. (2022) reported that women remained substantially underrepresented on management boards and supervisory boards in Croatian companies, despite increasing educational attainment and workforce participation.

Vroman and Danko (2020) and Rehman and Alorifi (2024) showed that women are often evaluated against gendered expectations regarding appropriate leadership behaviour, creating additional barriers to leadership advancement. Poma and Pistoresi (2024) noted that women who attain senior leadership positions may also encounter

“glass cliff” conditions, where appointments are more likely to occur during periods of organisational difficulty and heightened risk.

Organisational systems also contribute to exclusion through expectations and structural constraints. Ansari (2016) found that women were expected to conform to norms that limited interaction and networking, affecting participation in career development opportunities. Al-Doghmi et al. (2023) identified social, cultural, administrative and institutional barriers that restrict access to leadership, particularly in academic environments. Altamimi et al. (2022) reported that administrative and organisational barriers were perceived as the most significant constraints on women’s progression into academic leadership positions, with recruitment, promotion and leadership selection processes continuing to disadvantage women despite policy efforts to improve representation. Cannito et al. (2023) showed that career progression in academia is influenced by structural conditions that shape access to leadership pathways.

Consistent with these findings, Wulandari and Ahmad (2025) argued that deeply embedded social and cultural norms continue to shape leadership expectations, with women often expected to demonstrate traditionally masculine leadership characteristics while simultaneously conforming to prevailing standards of femininity. Such expectations reinforce exclusionary organisational environments and constrain access to leadership positions. Vroman and Danko (2020) found that women who deviated from stereotypical expectations by displaying assertive or highly agentic behaviours were often judged less favourably, despite these behaviours being associated with leadership effectiveness. Amakye et al. (2022) found that women leaders continued to experience prejudice, stereotyping and resistance to their authority after attaining leadership positions.

Exclusion is also evident in access to networks, decision-making spaces and professional opportunities. Ansari (2016) linked limited networking to reduced social capital, while Al-Doghmi et al. (2023) noted reduced participation in research and international projects. Rahma et al. (2026) identified ongoing concerns about promotion, organisational support and inequality in STEM careers. Wulandari and Ahmad (2025) further highlighted how limited access to technology, digital literacy, professional networks and STEM-related opportunities can restrict women's

leadership development and participation in decision-making. Their findings suggest that underrepresentation in technology-oriented fields, combined with restricted access to mentoring and professional networks, contributes to ongoing inequalities in leadership advancement. These restrictions influence how individuals access opportunities and progress through organisational hierarchies (Gutermuth & Hamstra, 2024).

Discrimination operates across individual and organisational levels, affecting both access to opportunities and long-term career outcomes (Saleem et al., 2017; Chigudu, 2021; Rahma et al., 2026; Wulandari & Ahmad, 2025; Vroman & Danko, 2020). Women's progression is shaped by barriers embedded within organisational practices, contributing to underrepresentation in senior leadership roles and influencing how advancement pathways are experienced. These barriers extend beyond promotion processes to include unequal access to technological resources, professional networks and leadership development opportunities, particularly within increasingly digitalised workplaces (Wulandari & Ahmad, 2025). They also include gendered standards through which leadership behaviours are interpreted and evaluated, influencing perceptions of leadership capability and suitability (Vroman & Danko, 2020).

4.2.4 Hidden Bias and second-generation bias

Hidden bias and second-generation bias operate through routine organisational practices and interactions rather than explicit discrimination. Taparia and Lenka (2024) note that gender bias can become normalised within organisational environments, shaping behaviour and influencing outcomes without being directly acknowledged. Hoffmann and Musch (2019) also show that assumptions about gender influence how competence and leadership potential are interpreted, even where formal processes appear neutral. Van Veelen and Derks (2022) found that unequal advancement opportunities can persist despite strong female representation within a field, indicating that barriers may remain embedded within organisational structures even when gender representation appears more balanced.

Soklaridis et al. (2017) described how women experience bias through indirect interactions, including questioning of authority and differential treatment in workplace communication. These experiences are often subtle and may not be immediately recognised as discrimination, which makes them more difficult to address. Bias embedded in everyday practices reinforces inequality through repeated interactions rather than singular events (Taparia & Lenka, 2024). Newstead et al. (2023) argue that second-generation gender bias continues to shape perceptions of leadership through assumptions that leadership is a more natural fit for men than women, influencing authority, promotion, mentoring and networking opportunities. Opoku and Williams (2019) found that second-generation gender bias operated through apparently neutral organisational practices such as performance evaluation, informal networking, promotion processes and gendered leadership expectations, creating barriers that were often difficult to identify explicitly. Rajha and Ruiters (2025) found that women were often excluded from informal decision-making networks and that female contributions were more likely to gain recognition when supported or reinforced by male colleagues, highlighting how bias can operate through everyday organisational interactions rather than formal processes.

Rajha and Ruiters (2025) found that women were often excluded from informal decision-making networks and that female contributions were more likely to gain recognition when supported or reinforced by male colleagues, highlighting how bias can operate through everyday organisational interactions rather than formal processes. Male-dominated networks and informal systems of influence continue to shape access to leadership opportunities, despite organisational efforts to improve diversity and inclusion (Rajha & Ruiters, 2025).

4.2.5 Intersectional and Racialised Bias in Leadership

Intersectional and racialised bias influences how leadership progression is experienced across different groups. Corbett et al. (2024) identified differences in advancement outcomes across gender and race within a technology organisation. Women of colour were more likely to be concentrated in lower-level roles, while senior positions were predominantly occupied by White men, even where performance

ratings and experience were comparable. Xiao et al. (2023) found that although the representation of racial minority women in senior higher education roles increased over time, Black women showed fewer signs of advancement than other racial groups.

Advancement patterns were linked to how opportunities were distributed within organisational systems. Corbett et al. (2024) showed that promotion outcomes varied across job levels, suggesting that progression is shaped by organisational hierarchies rather than individual capability alone. Representation across organisational levels reflected sustained underrepresentation of certain groups in senior leadership roles.

Babalola et al. (2021) showed that organisational environments do not provide equal access to networks, resources and leadership opportunities across groups. Where gender intersects with broader social inequalities, barriers to progression become more pronounced. Shrestha et al. (2023) also linked career progression to the allocation of roles and the operation of advancement processes, showing that opportunities are not distributed evenly. Xiao et al. (2023) reported that progress in senior leadership representation varied across racial groups despite overall improvements in gender and ethnic diversity.

This theme was supported by 28 studies and had the widest evidence base. The studies covered different research methods and settings, including corporate, academic, banking, STEM, engineering and technology. Promotion barriers, limited access to networks and unsupportive organisational cultures were common findings. Performance-management issues appeared in fewer studies and may vary between organisations.

4.3. Structural and Organisational Barriers

4.3.1 Promotion Inequality and Leadership Pipeline Barriers

Leadership progression is shaped by how organisational pipelines structure access to advancement opportunities. Subramaniam et al. (2016) identified that progression into senior roles is influenced by organisational systems that regulate access to opportunities rather than by qualifications or experience alone. Family responsibilities,

organisational culture and limited promotion opportunities were identified as factors affecting progression. Saleem et al. (2017) showed that the glass ceiling influences recruitment and promotion decisions, as assumptions about leadership shape how women's potential is assessed. Women with comparable experience are therefore less likely to be promoted, indicating that advancement is influenced by how leadership suitability is interpreted within organisational contexts. Rana and Raju (2019) and Rua-Gomez et al. (2026) noted that women's participation and achievement in higher education do not necessarily translate into representation in senior leadership positions, with progression becoming increasingly restricted at higher levels of the hierarchy.

Progression becomes increasingly restricted across hierarchical levels. Xie and Zhu (2016) showed that women remain present in lower and mid-level management but are less likely to move into senior roles. Shrestha et al. (2023) linked this to the structure of career pathways, including how roles are allocated and how advancement processes operate. Where these processes lack transparency, progression becomes uneven despite similar qualifications. Cavaletto et al. (2019) further showed that hiring and promotion outcomes continue to favour men across organisational levels, reinforcing imbalance within leadership pipelines. Van Veelen and Derks (2022) and Rua-Gomez et al. (2026) found that women remained underrepresented at the highest academic ranks despite strong representation at lower career levels, highlighting continued barriers to advancement into leadership positions.

Opportunities for advancement accumulate unevenly over time. Meldgin et al. (2024) showed that differences in access to opportunities at earlier career stages influence progression at later stages, reducing representation at senior levels. Iskindirova et al. (2026) linked progression to access to development opportunities and organisational support, showing that readiness for leadership roles is shaped through earlier stages of the pipeline. Corbett et al. (2024) also showed that movement through organisational levels is uneven, with individuals able to enter mid-level positions but not progress further, even where performance and experience are comparable.

4.3.2 Organisational Policies & Practices

Organisational structures and workplace environments influence leadership outcomes by shaping how opportunities and decision-making processes operate. Cavaletto et al. (2019) found that organisational systems can create unequal conditions for advancement, particularly where leadership pathways rely on established structures that favour dominant groups. Auster and Prasad (2016) explained that promotion decisions are influenced by social categorisation and in-group preferences, with decision-makers more likely to select candidates who align with existing norms within leadership roles.

Workplace cultures also reflect patterns that affect access to leadership. Babalola et al. (2021) highlighted that organisational environments can restrict access to networks, resources and opportunities that support progression into leadership positions. These conditions influence who is included in key decision-making spaces and who gains visibility within organisations. Al-Doghmi et al. (2023) identified structural, cultural and institutional barriers that limit women's participation in leadership, particularly where organisational systems do not actively address inequality. Van Veelen and Derks (2022) further showed that women's representation within a field does not necessarily translate into equal access to leadership, as male-dominant norms regarding leadership and success can continue to shape advancement opportunities despite higher representation of women at lower organisational levels.

Leadership environments often rely on informal processes that reinforce existing structures. Ramseook-Munhurrun et al. (2025) found that women working in ICT and engineering contexts reported that gaining recognition and acceptance required additional effort, particularly within male-dominated teams. Participants noted that leadership expectations were shaped by established norms, which influenced how their authority and contributions were perceived. These conditions affect not only access to leadership roles but also how individuals are positioned within organisational systems.

Advancement within organisations is therefore influenced by how leadership systems operate across multiple levels, including access to networks, decision-making

structures and resource allocation. Where these systems rely on informal relationships, established practices and uneven access to opportunities, differences in progression are more likely to occur across groups (Cavaletto et al., 2019; Auster & Prasad, 2016; Babalola et al., 2021; Al-Doghmi et al., 2023; Ramseook-Munhurrun et al., 2025).

4.3.3 Performance Management and Evaluation Systems

Performance management systems shape how employees are assessed, recognised and promoted, and these processes influence progression into leadership roles. Watanabe et al. (2026) show that organisational evaluation systems are often presented as neutral, yet differences arise in how these systems are applied in practice. Where performance assessments rely on subjective judgement, existing expectations about leadership influence how competence is interpreted and how advancement decisions are made (Watanabe et al., 2026). This creates variation in outcomes even when employees meet the same formal criteria.

Differences in evaluation become more visible when employees demonstrate behaviours associated with career progression. Gutermuth and Hamstra (2024) examined how promotion-focused behaviours such as taking initiative and seeking opportunities are assessed within organisational settings. Their study showed that these behaviours were valued more positively when demonstrated by men, while women displaying the same behaviours were assessed less favourably (Gutermuth & Hamstra, 2024). This affects how individuals are recognised during performance reviews and influences who is considered suitable for leadership roles.

Expectations of competence are also shaped through these systems. Hu et al. (2022) found that women were required to demonstrate higher levels of performance to be considered equally capable of leadership. The study showed that perceptions of competence influenced ratings of leader effectiveness, and that evaluation outcomes were affected when competence was not strongly recognised (Hu et al., 2022). This

results in differences in how leadership capability is judged, even where formal evaluation processes are consistent.

Evaluation systems also influence how individuals engage with career progression. Jabin (2025) showed that perceptions of the glass ceiling affect how employees respond to appraisal and promotion processes. Where evaluation systems are viewed as unequal, some individuals adjust their expectations of advancement, while others rely on persistence and resilience to continue progressing (Jabin, 2025). Evaluation processes therefore shape both career outcomes and how individuals position themselves within organisational structures.

The design of performance management systems further shapes how employees are assessed. Festing et al. (2015) found that key elements of performance management, including evaluation methods, feedback processes and the purpose of appraisal systems, are aligned more closely with existing organisational norms. The study showed that female managers' preferences did not align with these systems, and that differences in how performance is assessed contributed to lower satisfaction with evaluation processes (Festing et al., 2015).

4.3.4 Work - Life Conflict and Career Structure Constraints

Work–life conflict is closely shaped by how organisations structure roles and define expectations around career progression, particularly in STEM, technology and professional settings. Existing research shows that leadership pathways are frequently built around long working hours, fixed schedules and expectations of continuous availability, which disadvantage individuals with caregiving and personal responsibilities (Subramaniam et al., 2016). In their study, childcare and family responsibilities were identified as primary barriers to advancement, demonstrating that career progression is influenced not only by organisational systems but also by unequal responsibilities outside the workplace (Subramaniam et al., 2016). Women leaders described balancing leadership responsibilities with ongoing expectations around childcare, household responsibilities and family care (Amakye et al., 2022).

This reflects a broader structural assumption that ideal career trajectories are based on uninterrupted work patterns and the capacity to prioritise work above other commitments. These expectations are reinforced by organisational practices that limit flexibility and prioritise time-based measures of performance.

Shrestha et al. (2023) highlight that roles requiring sustained engagement without adjustment for competing commitments restrict access to leadership opportunities, even among equally qualified individuals. Cavaletto et al. (2019) found that organisational cultures often reward presenteeism, where long working hours, after-hours availability and participation in late meetings are interpreted as indicators of commitment. As a result, women with caregiving responsibilities may experience reduced visibility and fewer promotion opportunities, not due to lack of competence but because of misalignment with organisational norms (Cavaletto et al., 2019; James et al., 2023). Performance is therefore often evaluated in relation to time commitment and physical presence rather than outputs or results.

Evidence from STEM and technology contexts further illustrates how these expectations are embedded within sector-specific work structures. Amon (2017) found that women in STEM experienced difficulty balancing professional and personal responsibilities in environments where leadership required sustained visibility, long hours and continuous engagement. Participants described challenges maintaining consistent participation alongside competing commitments, which affected both retention and progression (Amon, 2017). Ramseook-Munhurrun et al. (2025) found that ICT and engineering roles frequently involve emergency responsiveness, extended working hours and expectations of constant availability, reinforcing the image of an “ideal worker” who can prioritise work at all times. These expectations create additional pressure within male-dominated environments, where commitment is closely tied to visibility and availability rather than capability (Ramseook-Munhurrun et al., 2025).

Work–life conflict is also shaped by organisational responses, or the absence of them, to these structural demands. Cavaletto et al. (2019) found that many organisations continue to treat work–life balance as a private issue rather than an organisational responsibility, despite acknowledging its impact on career outcomes. This limits the

effectiveness of policies aimed at supporting flexibility, as norms around availability and commitment remain unchanged. Subramaniam et al. (2016) emphasise that without meaningful organisational support, including flexible working arrangements and inclusive career structures, work–life conflict continues to constrain advancement.

Additional evidence from academic and STEM-related contexts reinforces the structural nature of these barriers. Cannito et al. (2023) found that academic career systems often operate on an “uninterrupted career” model, where continuous productivity and availability are expected, leading some women to delay or limit family responsibilities to remain competitive. Burkinshaw and White (2017) further argue that higher education institutions reproduce “ideal worker” norms through long-hours cultures and expectations of continuous engagement, rather than adapting organisational structures to accommodate diverse career paths. This positions work–life conflict as embedded in how organisations define commitment, productivity and leadership readiness.

These structural constraints also influence how individuals engage with leadership opportunities. Amon (2017) found that women often make career decisions based on anticipated work–life conflict, including opting out of leadership pathways where expectations are incompatible with personal responsibilities. Bonesso and Bressan (2026) show that while women develop adaptability to navigate STEM careers, progression remains dependent on organisational support, flexibility and access to enabling conditions. Career structures therefore shape both access to opportunities and the willingness to pursue advancement. Research has also highlighted how family responsibilities and expectations around caregiving can restrict women’s mobility within organisational hierarchies, reinforcing barriers to career progression and leadership advancement (James et al., 2023; Srivastava & Nalawade, 2023).

4.3.5 Organisational Culture, Networking and Access to Social Capital

Organisational culture influences how leadership is understood, how authority is recognised, and who gains access to the relationships that support progression. Babalola et al. (2021) found that women in STEM leadership worked in environments

shaped by male dominance, weak organisational justice and hierarchical structures, all of which affected access to leadership opportunities. In these settings, progression was influenced not only by formal position but also by inclusion in networks, support structures and workplace relationships that support visibility and advancement (Babalola et al., 2021). Al-Doghmi et al. (2023) reported similar barriers in relation to women's participation in internationally funded projects. The study identified social, cultural, administrative and academic barriers that limited women's leadership opportunities and linked progression to access to mentoring, training and networking opportunities (Al-Doghmi et al., 2023). Newstead et al. (2023) also noted that mentoring, sponsorship, networking and promotion processes can be shaped by second-generation gender bias, influencing access to opportunities that support leadership progression. Nash and Moore (2019) found that informal sponsorship, networking and relationship-building opportunities were often shaped by male-dominated research cultures, limiting women's access to the relationships that support advancement into leadership roles. Biggerstaff et al. (2024) showed that male-dominated informal networking environments can reinforce exclusionary social structures, with firms led by golfing CEOs exhibiting lower female representation within executive teams and wider gender pay gaps among senior leaders.

Festing et al. (2015) contribute more directly to organisational culture than to networking. Their study found that female managers' preferences did not align with existing performance management systems, particularly in relation to evaluation methods, feedback processes and the developmental purpose of appraisal systems (Festing et al., 2015). This indicates that organisational norms are reproduced not only through informal relationships but also through formal systems that reflect dominant ways of working and assessing leadership potential (Festing et al., 2015).

Ramseook-Munhurrun et al. (2025) provide evidence on both organisational culture and access to support. Women in ICT and engineering described leadership environments in which acceptance and recognition required additional effort, particularly in male-dominated teams where authority and legitimacy were not assumed (Ramseook-Munhurrun et al., 2025). Participants also highlighted the importance of mentoring and role models, while noting that the absence of visible women in senior positions limited confidence and reduced access to networks that

support progression (Ramseook-Munhurrun et al., 2025). Similar barriers were identified by Muthiah and Arunachalam (2026), who reported unequal access to training, leadership development opportunities, mentoring and participation in decision-making processes, which constrained career progression among female engineers.

Organisational culture, networking and social capital are closely connected in shaping women's leadership progression. Babalola et al. (2021) and Ramseook-Munhurrun et al. (2025) show that workplace environments can limit access to support, legitimacy and opportunity, while Al-Doghmi et al. (2023) highlight the role of mentoring, training and professional networks in advancement. Festing et al. (2015) further show how organisational systems can reflect dominant norms that do not align with women's experiences of leadership and progression.

4.3.6 Sector Specific Structural Barriers in STEM and Technology Fields

Sector-specific barriers affecting women's advancement in STEM and technology leadership are not limited to individual confidence, aspiration, or career choice. The literature shows that progression is shaped by organisational cultures, work structures, promotion systems, access to networks, and control over resources. Across the studies, women often enter STEM, technology, engineering, or academic science with strong qualifications and motivation, but advancement becomes constrained where leadership norms, evaluation systems, and resource allocation practices reflect masculine assumptions about authority, availability, technical competence, and career commitment (Amon, 2017; Babalola et al., 2021; Corbett et al., 2024; Ramseook-Munhurrun et al., 2025). Recent STEM-focused research also highlights that barriers to retention and professional advancement persist despite improvements in women's representation, demonstrating that participation alone does not ensure equitable career progression (Garcia-Pineda et al. 2025).

Babalola et al. (2021) found that women STEM leaders across African institutions experienced limited acceptance within organisational cultures that continued to undervalue women in leadership roles, despite the presence of supportive structures. Amon (2017) also showed that barriers were embedded in everyday organisational

and interpersonal interactions, including limited authority recognition, restricted access to social capital, and the need to manage gendered role expectations.

A key barrier is the persistence of organisational cultures in which technical authority and leadership are implicitly coded as masculine. Babalola et al. (2021) reported that women were often underrated, sidelined in decision-making, and challenged by male subordinates, while also facing stereotypes that questioned their authority. Amon (2017) identified comparable experiences in STEM contexts, where women were not treated as authority figures and had to build legitimacy through relationships rather than positional authority. Leadership roles therefore require additional effort, as women must perform their roles while also managing perceptions of legitimacy (Amon, 2017; Babalola et al., 2021).

These dynamics are reinforced through contradictory expectations placed on women in STEM and technology environments. Amon (2017) found that women navigated narrow behavioural boundaries, where they risked negative evaluation if perceived as either too passive or too assertive. Welten et al. (2022) describe similar dynamics through the “prove-it-again,” “tightrope,” “maternity wall,” and “tug-of-war” frameworks observed in academic surgery, illustrating how women must repeatedly demonstrate competence, regulate behaviour, and manage assumptions about caregiving. Burkinshaw and White (2017) show that such challenges persist because institutions often focus on adapting women to existing systems rather than addressing gendered power structures and leadership norms. Organisational cultures therefore embed implicit standards of credibility, promotion and leadership identity (Amon, 2017; Burkinshaw & White, 2017; Welten et al., 2022).

Sector-specific evidence from ICT and engineering reinforces these issues. Ramseook-Munhurrun et al. (2025) found that women in middle and upper management faced barriers linked to long working hours, work–family conflict, social role stereotypes, and second-generation bias. Participants reported that male characteristics were more strongly associated with effective leadership, while women were more likely to be perceived as less assertive decision makers. Men were also more readily recognised as authoritative and trusted in leadership roles. This indicates that organisational bias in technology and engineering operates not only through

explicit exclusion but also through persistent assumptions about competence, confidence and decision-making authority (Ramseook-Munhurrun et al., 2025).

This theme was supported by 17 studies across a range of settings. Organisational support, mentoring and leadership development were commonly identified as factors that may support women's progression. Career adaptability and resilience appeared in fewer studies.

4.4. Leadership Development and Career Advancement

4.4.1 Leadership Identity, Self-Efficacy and Internal Barriers

Leadership identity, self-efficacy, and internal barriers shape women's progression towards leadership positions within organisational contexts where leadership norms are gendered. Bonesso and Bressan (2026) highlight that women's career pathways in STEM are influenced by how individuals construct and adapt their professional identity, particularly where leadership expectations do not align with lived experience. This misalignment is reinforced by organisational cultures that associate leadership with masculine norms of authority, assertiveness and uninterrupted career commitment (Burkinshaw & White, 2017; Babalola et al., 2021). Women may therefore experience tension between their professional identity and prevailing leadership expectations, which affects confidence and engagement with leadership opportunities (Bonesso & Bressan, 2026).

Irshad and Khan (2026) show that organisational identity and gender self-efficacy influence leadership emergence, with confidence affecting the extent to which individuals pursue and sustain leadership roles. Self-efficacy develops through organisational processes that assess and recognise competence. Hu et al. (2022) found that perceived competence plays a central role in leadership evaluation, with women often needing to demonstrate higher levels of ability to be considered equally capable. This "prove-it-again" dynamic reinforces continuous performance validation and affects self-perception over time (Hu et al., 2022; Welten et al., 2022). Research on gender in STEM has also identified self-efficacy as an important influence on women's participation, retention and progression within STEM pathways (Garcia-

Pineda et al., 2025). Domínguez-Soto et al. (2025) found that impostor feelings persisted among many senior female executives despite substantial professional achievement, indicating that self-doubt can remain present even after reaching leadership positions.

Internal barriers are shaped by how individuals respond to structural constraints. Jabin (2025) shows that perceptions of the glass ceiling influence career behaviour, with some individuals adjusting expectations or limiting aspirations, while others continue to pursue leadership roles. Cachón (2018) and Martín-Peña et al. (2023) identified personal factors including self-esteem, confidence and fear of failure as important influences on women's career development and leadership progression. Naseviciute and Juceviciene (2024) identified lack of self-confidence and perceived glass ceiling barriers as key influences on women's progression into leadership positions within the ICT sector. Amon (2017) found that women in STEM frequently questioned their fit within leadership roles, reflecting a misalignment between individual identity and dominant leadership norms. Nash and Moore (2019) found that women in STEMM environments frequently questioned their sense of belonging and leadership potential while navigating organisational cultures that prioritised masculine leadership norms. Jongen (2024) highlighted the importance of visible women leaders as role models, noting that women were more likely than men to recognise women leaders as inspiring and visionary, reinforcing the role of representation in supporting leadership aspirations and professional identity.

These internal challenges are linked to organisational and structural conditions. Babalola et al. (2021) found that women leaders experienced lower levels of acceptance and support within STEM organisations, which affected confidence in leadership identity. Burkinshaw and White (2017) argue that organisational approaches often focus on adapting women rather than addressing structural inequalities, placing responsibility on individuals and reinforcing perceived lack of fit. Self-doubt, reduced leadership identity, and hesitation to pursue advancement are shaped through ongoing exposure to organisational bias and exclusion.

Internal barriers extend beyond self-efficacy to include perceived lack of fit, reduced confidence in leadership identity, and career decision-making shaped by

organisational expectations (Bonesso & Bressan, 2026; Irshad & Khan, 2026; Jabin, 2025). These barriers are reinforced by gendered organisational cultures, biased competence evaluations and misaligned leadership norms, positioning leadership identity and confidence within structural and organisational contexts rather than individual capability alone (Amon, 2017; Babalola et al., 2021; Burkinshaw & White, 2017).

4.4.2 Career Adaptability, Resilience and Persistence

Career adaptability, resilience and persistence are reflected in how women continue to engage with leadership pathways in organisational contexts where progression is constrained. Bonesso and Bressan (2026) found that women in STEM adjust their career approaches in response to changing work environments and limited opportunities for advancement, including adapting career pathways and maintaining engagement where progression is not consistent. Their study links adaptability to how individuals respond to organisational expectations and navigate environments that do not align with their career progression.

Career progression within these environments is also shaped by how organisational pathways are structured. Subramaniam et al. (2016) showed that progression is influenced by organisational culture, family responsibilities and limited promotion opportunities, which affect how individuals approach leadership pathways. Shrestha et al. (2023) found that access to leadership roles depends on how opportunities are distributed and how career pathways are structured within organisations. Where opportunities are limited, individuals adjust their progression in response to available roles and pathways.Within these organisational conditions, progression is associated with sustained effort beyond formal role expectations.

Amon (2017) found that women in STEM were required to maintain visibility, build relationships and continuously demonstrate competence to be recognised within their organisations. Ramseook-Munhurrun et al. (2025) reported comparable experiences in ICT and engineering contexts, where women described the need to demonstrate their capability more visibly and continue exerting effort to gain recognition in leadership roles. Responses to these barriers vary. Jabin (2025) found that some

individuals continue to pursue leadership roles despite existing barriers, while others adjust their expectations based on perceived limitations.

4.4.3 Mentoring, Support and Leadership Development Support

Mentoring, support and leadership development support shape how women engage with progression pathways across STEM and technology-related contexts. Bonesso and Bressan (2026) show that women's career development occurs within relational and social contexts, where interactions with others form part of decision-making across different career stages. Participants described involving others in key transitions such as education and early career decisions, indicating that career development does not occur independently but is linked to the surrounding social environment (Bonesso & Bressan, 2026). Wulandari and Ahmad (2025) identified mentoring networks, digital communities and leadership development initiatives as important mechanisms supporting women's leadership progression, particularly in technology-focused environments where access to professional support influences participation and advancement opportunities.

More specific forms of support are identified in ICT and engineering contexts. Ramseook-Munhurrun et al. (2025) found that mentoring formed one of the main strategies used by women in leadership roles. Participants also described receiving emotional, moral and professional support from other women in the workplace, particularly when managing work-family responsibilities. Female colleagues supported one another by sharing workload and offering advice, reinforcing the role of peer support in sustaining participation within demanding work environments.

The presence or absence of role models is also identified as relevant to leadership progression. Ramseook-Munhurrun et al. (2025) found that limited representation of women in senior roles reduced opportunities for women to identify with leadership positions. Participants noted that the lack of visible women leaders affected confidence and made it more difficult to see leadership as attainable. In contrast, where organisations promoted the visibility of women leaders and created networks focused

on recognising women's achievements, participants described increased motivation to remain in their roles and pursue advancement.

Formal support structures are addressed in the study by Jabin (2025). The findings show that inclusive organisational initiatives influence career outcomes, with women achieving stronger advancement where such support is present. The study recommended formal mentorship and sponsorship programmes, alongside structured approaches to promotion, mobility and leadership preparation. It also identified the inclusion of training, resilience development and mental health support within organisational processes, rather than treating them as separate initiatives (Jabin, 2025).

Support at the institutional level is also evident in science-focused contexts. Iskindirova et al. (2026) identified continuing disparities in recognition, funding and leadership representation despite increased female participation. The study emphasised the need for mentoring and leadership development as part of institutional support, alongside mechanisms that improve the visibility and recognition of women's contributions. It also highlighted the role of organisational structures such as selection committees and funding systems in shaping access to advancement (Iskindirova et al., 2026). Wulandari and Ahmad (2025) identified the need for institutional support through digital education initiatives, leadership development programmes and policy interventions aimed at improving women's access to technology, digital skills and leadership opportunities. The study also highlighted persistent barriers to participation and advancement within STEM and technology-related fields.

Across these studies, mentoring, support and leadership development support are linked to relational interactions, workplace practices and institutional structures that shape access to progression. These include mentoring relationships, support from colleagues, visibility of women leaders, structured development opportunities and organisational initiatives that influence how women engage with leadership pathways (Ramseook-Munhurrun et al., 2025; Jabin, 2025; Iskindirova et al., 2026; Bonesso & Bressan, 2026; Wulandari & Ahmad, 2025). These factors shape access to leadership preparation, professional development and opportunities for advancement across organisational and technology-related contexts.

4.4.4 Leadership Development, Organisational Support Mechanisms

Leadership development and organisational support mechanisms are reflected in the formal systems through which organisations manage evaluation, promotion, training and access to opportunities. Watanabe et al. (2026) found that organisational barriers had a negative effect on career advancement, while organisational justice moderated these effects through procedural, distributive and interactional mechanisms. Transparent processes relating to promotion, resource allocation and decision-making influenced how individuals engaged with career progression and advancement opportunities (Watanabe et al., 2026). Gupta (2019) and Tian et al. (2025) highlighted the importance of organisational support mechanisms, including gender-neutral promotion and appraisal systems, leadership development programmes and policies designed to support the recruitment, retention and advancement of women leaders. Van Oosten et al. (2017) found that leadership development programmes incorporating coaching, feedback and professional support can strengthen women's leadership capability, confidence and career progression within STEM professions. Muthiah and Arunachalam (2026) identified equal access to training, leadership development opportunities, mentoring and participation in decision-making processes as important organisational mechanisms for supporting career progression among female engineers. Altamimi et al. (2022) emphasised competency-based leadership selection, continuous professional development, leadership training and ongoing evaluation as important organisational strategies for supporting women's progression into senior leadership positions.

Organisational systems governing evaluation and development also shape access to leadership pathways. Festing et al. (2015) found that performance management systems play a central role in determining promotion outcomes, salary allocation and access to training opportunities. The study showed that female managers' preferences did not align with existing performance management systems, particularly in relation to evaluation methods, feedback processes and the purposes of performance management. Existing systems were more closely aligned with male preferences, influencing how performance was assessed and how development opportunities were made available (Festing et al., 2015).

Leadership development is influenced by how organisational practices are structured. Festing et al. (2015) identified that performance management systems reflect prevailing organisational cultures, including male-oriented approaches to leadership evaluation and development. Organisational practices such as assessment processes and the allocation of assignments are shaped by these cultural norms, which affects how women access advancement opportunities and leadership pathways (Festing et al., 2015). Gupta (2019) further identified leadership development programmes and organisational cultures that actively support women leaders as important mechanisms for increasing women's participation in leadership positions.

Promotion processes further illustrate how organisational systems structure advancement. Corbett et al. (2024) found that promotion outcomes varied across organisational levels when examined by gender, race and job position, despite similar performance ratings and tenure. White men were concentrated at higher levels, while women of colour were more likely to remain at lower levels of the organisational hierarchy. The study also showed that different groups experienced varied progression patterns, including limited advancement into senior roles and concentration within specific levels of the organisation (Corbett et al., 2024).

Monitoring and evaluation of promotion systems are also identified as organisational mechanisms. Corbett et al. (2024) found that examining promotion outcomes at an aggregate level could obscure differences across job levels and emphasised the importance of analysing progression by position, gender and race. This approach highlights where individuals experience restricted movement within the organisation and where advancement opportunities are unevenly distributed across different levels (Corbett et al., 2024). Gupta (2019) also highlighted the value of monitoring gender diversity indicators, including representation across organisational levels, to inform organisational policies and support leadership advancement.

Organisational environments also influence engagement with leadership pathways. Watanabe et al. (2026) identified that workplace conditions characterised by limited recognition, poor communication and imbalance between work and personal responsibilities reduced motivation to pursue advancement. Environments that provided equitable opportunities and transparent processes were associated with

greater participation in career development and leadership progression (Watanabe et al., 2026). Gupta (2019) and Tian et al. (2025) identified organisational mechanisms that support women's participation in leadership pathways and advancement opportunities, including leadership development initiatives, inclusive organisational cultures, governance practices and systems that promote merit-based advancement. Organisational culture, organisational support and access to professional networks have also been identified as factors influencing women's management careers (Cachón, 2018).

Overall, the findings showed common patterns across different studies and settings. Structural and organisational barriers were the most widely reported, followed by gender bias and unequal recognition. Leadership development and support were also identified as factors that may help women's progression. These findings show patterns and links across the literature rather than direct cause and effect.

Chapter 5

Conceptual Framework

5.1 Theoretical Framework for Glass Ceiling Theory & Gendered Organisations Theory

Glass ceiling theory explains how invisible organisational barriers limit women's progression into senior leadership positions, even when qualifications, performance and experience are similar (Saleem et al., 2017; Zhang & Basha). These barriers operate across organisational, personal and societal contexts and affect access to opportunities, leadership roles and career development pathways (Zhang & Basha). Women are more likely to remain in lower and mid-level roles, while fewer move into senior leadership positions (Xie & Zhu, 2016; Rahma et al., 2026). This shows that movement through organisational levels can be restricted even when systems appear formally equal.

Gendered organisations theory explains how these barriers develop within organisations. According to Joan Acker, organisations are not gender neutral, as their structures and processes are shaped in ways that advantage men and disadvantage women (Acker, 1990, as discussed in Islam et al., 2025; Benschop & van den Brink, 2019). Organisational systems such as promotion processes, training opportunities and workplace policies can create barriers that limit women's access to leadership roles (Islam et al., 2025). These barriers include biased promotion practices, lack of support and unequal access to resources, which influence how women progress through organisations (Islam et al., 2025).

These theories explain different aspects of leadership inequality. Glass ceiling theory focuses on how progression is limited at higher levels, while gendered organisations theory explains how organisational systems and practices create these limitations. Leadership progression is therefore influenced not only by individual capability but also by how organisations structure opportunities and evaluate leadership.

5.2 Themes identified in literature review on Glass Ceiling Theory

The identified themes have been categorised into three main dimensions: social (perception-based), organisational (structural constraints) and development (progression and support mechanisms). The themes were organised into these dimensions to reflect the different ways barriers and support mechanisms identified in the literature influence leadership progression. This categorisation is informed by Glass Ceiling Theory and Gendered Organisations Theory, which explain how leadership inequality is shaped across multiple levels of organisational and social processes (Saleem et al., 2017; Zhang & Basha; Islam et al., 2025).

Glass ceiling theory supports the categorisation by showing how barriers to leadership progression occur across organisational, personal and societal contexts, limiting women's movement into senior roles. Gendered organisations theory explains how these barriers are embedded within organisational structures and practices, shaping how leadership opportunities are distributed and experienced within workplaces (Islam et al., 2025; Benschop & van den Brink, 2019). These factors interact across levels, creating challenges in progression such as limited access to leadership roles, reduced recognition and restricted career advancement.

Table 5.1: Identified themes for conceptual framework

Literature review themes	Conceptual levels for themes	Themes
Gendered norms, bias and leadership legitimacy	Social (Perception-Based)	Leadership stereotypes Gender bias and discrimination Leadership acceptance Gendered leadership expectations
Structural and organisational barriers	Organisational (Structural Constraints)	Promotion barriers Work-life balance Networking barriers Unequal opportunities
Leadership development, progression and advancement pathways	Development (Progression & Support mechanisms)	Mentoring and support Leadership development Women role models

5.3 Conceptual Framework

Based on Glass Ceiling Theory and Gendered Organisations Theory, this study proposes the conceptual framework shown in Figure 5.1. The framework suggests that women's leadership progression is shaped by the interaction between social barriers, organisational barriers, and leadership development opportunities. The themes identified in the literature demonstrate how these factors operate across social, organisational and developmental dimensions.

Social barriers include leadership stereotypes, gender bias, leadership legitimacy and racialised bias. Organisational barriers include promotion inequality, work life conflict, organisational culture, limited access to networks and sector specific barriers. Glass Ceiling Theory explains how these barriers restrict women's progression into senior leadership positions, while Gendered Organisations Theory explains how organisational structures, processes and practices create and reinforce these barriers. Together, these barriers influence women's access to leadership development opportunities and may continue to affect progression even after women attain leadership positions, reflecting what has been described as a second glass ceiling (Pascual-Fuster et al., 2025).

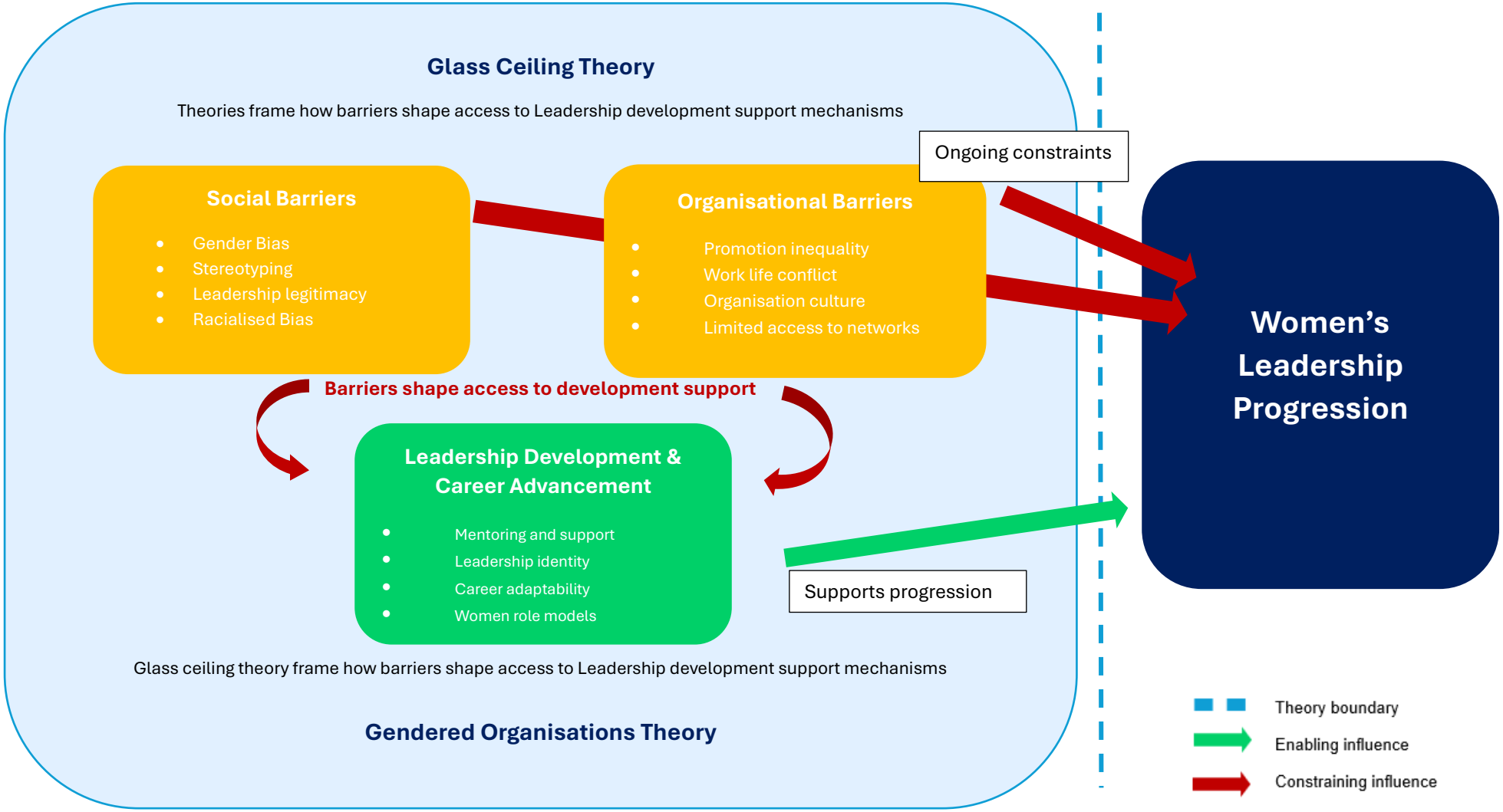
Leadership development and career advancement factors include mentoring and support, leadership identity, self efficacy, career adaptability and organisational development mechanisms. The literature suggests that access to these opportunities is often shaped by existing social and organisational barriers. While leadership development can support progression into leadership roles, it may not fully overcome barriers embedded within organisational systems and practices.

The framework proposes that social and organisational barriers influence women's leadership progression both directly and indirectly through their impact on leadership development and career advancement opportunities. Socio cultural perceptions can shape organisational decisions and workplace practices, which in turn affect access to mentoring, visibility, networks and development opportunities. Reduced access to these opportunities may limit progression and reinforce existing leadership

inequalities. Consequently, when social and organisational barriers outweigh the benefits of leadership development support, women's progression into leadership roles is more likely to be constrained, increasing the likelihood of glass ceiling outcomes (Saleem et al., 2017; Corbett et al., 2024).

5.4 Illustration of Conceptual Framework

Figure 5.1 Proposed Conceptual Framework



Chapter 6

Conclusion

6.1 Conclusion

This study explored the barriers and enablers influencing women's progression into leadership positions through a systematic literature review of 79 peer-reviewed articles. The findings showed that women's advancement into leadership remains influenced by a combination of organisational, structural and social factors. Despite increasing participation of women across professional and STEM-related fields, representation within senior leadership positions continues to lag behind (Van Veelen & Derks, 2022; Corbett et al., 2024). The literature suggests that leadership progression is not determined solely by individual ability or career ambition, but by the interaction of workplace cultures, organisational practices and wider gendered expectations.

The findings highlighted that women continue to encounter barriers associated with leadership stereotypes, bias, discrimination and unequal access to advancement opportunities. Leadership was frequently associated with traditionally masculine characteristics, influencing how women’s competence, authority and leadership potential were perceived (Hoffmann & Musch, 2019; Hu et al., 2022). The review also identified persistent barriers linked to promotion systems, leadership pipelines, workplace cultures, informal networks and work-life conflict. While many organisations have increased their focus on gender diversity, barriers continue to exist within both formal organisational processes and informal workplace practices.

The findings further showed that these barriers are often intensified within STEM and technology environments. Women in these fields continue to report challenges associated with male-dominated organisational cultures, assumptions regarding technical competence and authority, limited access to influential networks and expectations relating to continuous availability and career commitment (Amon, 2017; Babalola et al., 2021). Although participation rates have improved across many STEM

disciplines, progression into senior leadership positions remains uneven. Increasing women's participation within STEM does not automatically result in equal representation within leadership roles.

Despite these challenges, the review identified several factors that support leadership progression. Mentoring, sponsorship, leadership development programmes, professional networks, organisational support and visible role models were consistently associated with positive leadership outcomes (Van Oosten et al., 2017; Wulandari & Ahmad, 2025). The findings suggest that organisations can improve women's progression by increasing access to development opportunities, implementing transparent promotion processes and fostering cultures that support inclusion and participation.

Overall, the review found that women's progression into leadership positions continues to be influenced by barriers embedded within organisational systems, workplace cultures and leadership structures. While progress has been made in increasing women's representation across professional and STEM-related fields, significant challenges remain. Addressing these challenges requires organisational commitment to equitable advancement opportunities, inclusive workplace environments and leadership development practices that support women throughout their career progression.

6.2 Limitations and Implications

Despite the contribution of this study, several limitations should be considered. First, the study adopted a systematic literature review approach and therefore did not involve the collection of primary empirical data. The findings are based on previously published research and cannot be generalised beyond the contexts examined within the reviewed studies.

Second, there was limited representation of Australia and no representation of New Zealand within the reviewed literature. Of the 79 articles included in this review, only two studies were conducted in an Australian context (Martin et al., 2021; Newstead et

al., 2023), and neither specifically examined women's progression into leadership positions within STEM or technology sectors. The evidence base was therefore drawn predominantly from North America, Europe and Asia. As a result, the findings may not fully reflect the organisational, cultural and labour market conditions influencing women's leadership progression within the Australia and New Zealand context.

Third, although the review focused primarily on STEM and technology leadership, some included studies examined women's leadership more broadly. While these studies provided valuable insights, experiences and barriers may vary across STEM disciplines, technology sectors and organisational environments.

Fourth, Scopus was the only database used for the literature search. This may have excluded relevant studies available through other databases. Future reviews could use additional databases and review reference lists and citation trails to identify further studies.

6.3 Future Recommendations

Future research should examine women's progression into leadership positions within New Zealand STEM and technology sectors. The systematic literature review identified no studies focused specifically on New Zealand and only two studies conducted in Australia (Martin et al., 2021; Newstead et al., 2023). Importantly, neither study examined women's progression into leadership roles within STEM or technology sectors. Supplementary Scopus searches using New Zealand specific search terms also identified few relevant studies and no research directly examining the influence of the glass ceiling on women's progression into leadership roles within the New Zealand technology sector. This highlights a significant gap in the literature and suggests a need for research that explores how organisational, cultural and structural factors influence women's advancement within STEM and technology sectors in Australia and New Zealand.

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Appendices

Appendix A: Articles by level of Analysis

No	Article	Unit of Analysis	Data Analysis Technique
1	Al-Doghmi, N.; Nashwan, A.; Alkhatib, H. (2023)	Female academics at Yarmouk University (n = 24)	Qualitative thematic analysis of focus-group data
2	Altamimi, N.N.; Alali, R.A.; Eid, H.F.; Alhkbani, F.A.; Al-Haqbani, A.A. (2022)	Academic women leaders in Saudi universities (n = 65 workshop participants; n = 213 survey respondents; n = 35 interview participants)	Descriptive statistics; reliability and validity tests; thematic qualitative analysis
3	Amakye, S.; Chimhutu, V.; Darkwah, E. (2022)	Female corporate organisational leaders in private firms (n = 10)	Phenomenological thematic analysis using meaning condensation and NVivo
4	Amon, M.J. (2017)	n = 46 Forty-six STEM women graduate students and postdoctoral fellows	Grounded theory coding using NVivo 10
5	Ansari, N. (2016)	n = 20	Open, axial and selective coding using NVivo 10
6	Auster, E.R.; Prasad, A. (2016)	N/A	Conceptual framework development; integrative theoretical synthesis
7	Babalola, O.O.; Du Plessis, Y.D.; Babalola, S.S. (2021)	Women in senior leadership positions in STEM (n = 42)	Thematic content analysis
8	Babic, A.; Hansez, I. (2021)	Women in managerial positions (n = 320)	Structural Equation Modelling using LISREL
9	Biggerstaff, L.E.; Campbell, J.T.; Goldie, B.A. (2024)	Firm-year observations from S&P 1500 firms	Random-effects logistic regression and fixed-effects robustness checks
10	Bonesso; Bressan (2026)	Individual engineers, with women as the main focus and comparison to men	Narrative analysis combined with thematic analysis
11	Burkinshaw, P.; White, K. (2017)	18 senior women professors and 85 participants across two case studies	Thematic analysis
12	Cachón, C. (2018)	n = 24	Systematic literature analysis and conceptual typology development
13	Cannito, M.; Naldini, M.; Santero, A. (2023)	n = 46 semi-structured interviews with 31 female associate professors, 15 female members of the departmental governance working in 4 Italian universities	Qualitative content analysis using Atlas.ti
14	Cavaletto, G.M.; Pacelli, L.; Pasqua, S. (2019)	n = 920 firms, supplemented by 10 HR interviews and 2 focus groups	Descriptive statistics; bivariate probit; multivariate regression; qualitative lexical and thematic analysis
15	Cheng, H.; Wang, J. (2023)	Auditor-year observations (n = 14,377) and auditor-company-year observations (n = 31,744)	Multivariate regression analysis; fixed-effects models; robustness and subgroup analyses
16	Chigudu, D. (2021)	Women leaders in the private sector in Zimbabwe	Thematic analysis combined with content analysis

17	Corbett, C.; Wullert, K.E.; Gilmartin, S.K.; Simard, C. (2024)	Person-year observations in software engineering workforce (18,247 person-years; 5,584 employees)	Random-effects logistic regression models
18	Dickson, M.; Alharthi, M. (2025)	Female GCC citizen STEM leaders in academic and corporate or industrial settings (n = 15)	Thematic analysis with inductive coding and pattern development
19	Domínguez-Soto, C.; Labajo, V.; Labrador-Fernández, J. (2025)	Senior female executives (n = 34)	Grounded theory coding using NVivo
20	Festing, M.; Knappert, L.; Kornau, A. (2015)	n = 241 respondents	MANOVA with descriptive statistics and reliability testing
21	Gandhi, M.; Sen, K. (2021)	n = 11	Thematic analysis with coding
22	Garcia-Pineda, V.G.; Gallegos, A.; Valencia, J.; Valencia-Arias, A.; Benitez, A.O.M.; Cifuentes, B.J.O. (2025)	n = 518 articles	Bibliometric analysis; thematic trend analysis; network mapping using VOSviewer; descriptive statistics
23	Gunnarsdóttir, S.; Christiansen, Þ.H.; Óladóttir, Á.D.; Kristjánsdóttir, E.S. (2025)	n = 22	Grounded theory coding
24	Gupta, A. (2019)	Women leaders and organisations	Conceptual analysis and literature-based synthesis
25	Gutermuth, D.; Hamstra, M.R.W. (2024)	Three quantitative studies with samples of n = 127, n = 236 and n = 474	ANOVA; planned contrasts; moderated multiple regression; simple slope analysis
26	Hirsty, G.F. (2024)	Female political leaders and public figures; conceptual focus	Conceptual discussion and literature-based analysis
27	Hoffmann, A.; Musch, J. (2019)	n = 1,529 German university community	Multinomial Processing Tree models; MLE; EM algorithm; chi-square tests
28	Hu, L.; Jiang, N.; Huang, H.; Liu, Y. (2022)	n = 489 from various sectors in different parts of China	SPSS and Hayes PROCESS moderated mediation analysis
29	Irshad, S.; Khan, R.A.A. (2026)	Women employees in software development (n = 193 focal women; approximately 193 mixed-gender peer raters)	SEM testing direct, mediating and moderating effects
30	Iskindirova, Z.; Bekturganova, M.; Tayshanova, S.; Sabitov, Z. (2026)	Research grant proposals and scientific leadership positions (proposals n = 17,002; funding lines n = 3,540)	Descriptive statistics; chi-square tests; logistic regression; content analysis
31	Islam, M.A.; Hack-Polay, D.; Rahman, M.; Fijałkowska, J.; Dal Mas, F. (2025)	n = 16 women professionals	Manual thematic analysis
32	Jabin, S. (2025)	n = 310	Covariance-based SEM using CFA, path analysis and moderation analysis
33	James, R.; Fisher, J.R.B.; Carlos-Grotjahn, C.; Boylan, M.S.; Dembereldash, B.; Demissie, M.Z.; Diaz de Villegas, C.; Gibbs, B.;	n = 904 conservation and science staff	Descriptive statistics; multinomial logistic regression; thematic analysis

	Konia, R.; Lyons, K.; Possingham, H.; Robinson, C.J.; Tang, T.; Butt, N. (2023)		
34	Jongen, H. (2024)	n = 467 Board members: n = 30 Staff members: n = 132 Community participants: n = 305	Content analysis and descriptive statistical analysis
35	Kaya, Y.; Tamer, G. (2024)	Senior female managers (n = 10)	Qualitative content analysis using MAXQDA
36	Kulkarni, A.; Mishra, M. (2022)	n = 92 peer-reviewed articles	Systematic review and thematic synthesis
37	Lefley, F.; Trnková, G.; Vychová, H. (2024)	n = 296 university students	Descriptive and inferential statistics using SPSS and MedCalc
38	Makaula, S.Z.; Bozas, A.; Munapo, E.; Naidoo, V. (2015)	Corporate women working in Durban-based organisations (n = 90 usable responses)	Descriptive and inferential statistics using SPSS
39	Martin, A.; Naunton, M.; Peterson, G.M. (2021)	N/A	Descriptive statistics; trend analysis; least squares regression
40	Martín-Peña, M.L.; Cachón-García, C.R.; de Vicente y Oliva, M.A. (2023)	n = 236 survey respondents and 25 qualitative interviews	MCDA using ELECTRE III and scenario-based ranking analysis
41	Meldgin, D.R.; Mitchell, G.; Oswald, F.L. (2024)	n = 1,425 simulated employees	Simulation analysis and statistical aggregation across runs
42	Merter, A.K.; Balcıoğlu, Y.S.; Karakaya, T. (2025)	Firm-level S&P 500 companies	Multiple regression analysis with industry and year fixed effects
43	Miholić, I.; Čalopa, M.K.; Kokotec, I.Đ. (2022)	483 companies in 2018 and 472 companies in 2019	Descriptive statistical analysis with cross-sectional and longitudinal comparisons
44	Muthiah, P.; Arunachalam, S. (2026)	Female engineers and key organisational stakeholders (n = 28)	Thematic analysis using NVivo
45	Naseviciute, L.; Jucevičienė, R. (2024)	n = 13	Qualitative thematic analysis
46	Nash, M.; Davies, A.; Moore, R. (2017)	n = 61 women	Qualitative content analysis; descriptive statistics; Pearson chi-square tests
47	Nash, M.; Moore, R. (2019)	Women in STEMM seeking leadership development (n = 25)	Thematic analysis following Braun and Clarke
48	Newstead, T.; Eager, B.; Wilson, S. (2023)	AI-generated leadership narratives	Thematic analysis
49	Opoku, A.; Williams, N. (2019)	n = 12	Thematic analysis
50	Pascual-Fuster, B.; Federo, R.; Crespí-Cladera, R.; Gabaldón, P. (2025)	n = 12,144 board seat-year observations and N = 1,105 firm-year observations	Logit regression; firm fixed-effects regression; interaction effects; network analysis
51	Poma, E.; Pistoresi, B. (2024)	Top 116 Italian companies observed in 2010 and 2017	Descriptive statistics; ANOVA tests; fixed-effects panel regression models
52	Rahma, A.T.; Nauman, J.; Albawardi, A.; Alyammahi, H.; Fares, R.; Saikia, P.; Abdullahi, A.S.;	STEM graduates and professionals (n = 165)	Descriptive statistics; reliability analysis; binary logistic regression; thematic analysis

	Suliman, A.; Zou, L.; Almarzooqi, S. (2026)		
53	Rajha, B.L.; Ruiters, M. (2025)	n = 14 participants	Thematic analysis
54	Ramachandran, R.; Cresenta Shakila Motha, L.; Selvabaskar, S.; Alamelu, R.; Surulivel, S. (2016)	n = 220 female employees in IT companies in Chennai, India	Percentage analysis and one-way ANOVA using SPSS
55	Ramseook-Munhurrun, P.; Naidoo, P.; Armoogum, S. (2025)	n = 17	Qualitative thematic analysis
56	Rana, S.U.A.; Raju, V. (2019)	n= 10 purposively selected single-mother lecturers	Thematic analysis using Braun and Clarke's six-step approach
57	Rao, M.S. (2019)	Women leaders and CEOs	Conceptual discussion and practitioner-based framework development
58	Rehman, A.U.; Alorifi, A.M. (2024)	Saudi women entrepreneurs and managers (n = 210)	Descriptive statistics; reliability analysis; Z-tests; K-means cluster analysis using SPSS
59	Rua-Gomez, C.; Urrea, G.; Cruz, M.; Arias-Gaviria, J. (2026)	Academic career stages in STEM; system-level simulation	System dynamics modelling and simulation; sensitivity and scenario analysis
60	Saleem, S.; Rafiq, A.; Janjua, S. (2017)	n = 210	Correlation analysis and multiple linear regression
61	Santero-Sánchez, R.; Castro Núñez, B.C. (2025)	n = 48,959 employees nested within 3,722 firms	Augmented Mincer wage regressions; firm fixed-effects models; quantile regression analysis
62	Shrestha, I.; Dahal, R.K.; Ghimire, B.; Rai, B. (2023)	Female middle-level managers in Nepalese commercial banks (n = 288)	SEM, path analysis, CFA, reliability and validity tests
63	Soklaridis, S.; Kuper, A.; Whitehead, C.R.; Ferguson, G.; Taylor, V.H.; Zahn, C. (2017)	n = 12	Thematic analysis
64	Srivastava, A.; Dixit, S. (2024)	Mid-level managers in the IT sector (n = 198)	Mediation analysis using regression-based techniques
65	Srivastava, N.; Nalawade, R. (2023)	n = 50 Articles	Qualitative narrative synthesis and thematic review
66	Steenblock, C.; Sundermeier, J. (2025)	n = 14	Qualitative interpretive analysis
67	Subramaniam, G.; Khadri, N.A.M.; Maniam, B.; Ali, E. (2016)	Working women across public and private sectors (n = 300 usable responses)	Descriptive statistics and cross-tabulation analysis
68	Syaebani, M.I.; Pitaloka, D.R.C.; Ulpah, M. (2024)	n = 24 female leaders, either in managerial or human resource management positions across various industries	Qualitative phenomenological analysis
69	Tackett, T. (2025)	Women leaders in advertising creative departments (n = 15)	Thematic analysis and interpretive qualitative analysis
70	Taparia, M.; Lenka, U. (2024)	Journal articles on women and the glass ceiling (n = 536 articles)	Bibliometric analysis and content analysis
71	Tian, L.; Shen, Y.; Du, M.; Han, C. (2025)	Firm-year observations of Chinese A-share listed companies (n = 22,937)	Text analysis; panel regression with fixed effects; 2SLS; robustness and heterogeneity analysis

72	Van Oosten, E.B.; Buse, K.; Bilimoria, D. (2017)	n = 50+ women in five cohorts	Qualitative thematic analysis of participant feedback, interviews and outcomes
73	van Veelen, R.; Derks, B. (2022)	n = 2,109 academics from 14 Dutch universities	Descriptive statistics; group comparisons; regression analysis; moderated mediation analysis
74	Vroman, S.R.; Danko, T. (2020)	N/A	Conceptual synthesis and theoretical interpretation
75	Watanabe, K.S.; Kwarteng, A.H.; Frimpong, S.S. (2026)	Women managers in the banking sector (n = 378)	Hierarchical regression analysis with moderation testing; CFA
76	Welten, V.M.; Dabekaussen, K.F.A.A.; Davids, J.S.; Melnitchouk, N. (2022)	n = 20	Qualitative thematic analysis
77	Wulandari, W.R.; Ahmad, N. (2025)	Legal and policy documents, legislation, academic literature and reports	Legislative approach; comparative approach; conceptual approach
78	Xiao, Y.; Pinkney, E.; Li, T.; Yip, P.S.F. (2023)	Senior academic and managerial staff in higher education institutions	Descriptive trend analysis and mixed-effects modelling using Stata
79	Xie, Y.; Zhu, Y. (2016)	Women managers at enterprise level (n = 296)	Descriptive statistics; one-way ANOVA; factor-based survey analysis