Evaluation of the Potential of AI to Foster Gender Diversity in Leadership Positions in Germany

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Women remain underrepresented in leadership positions in Germany. This article explores whether AI could support gender diversity in leadership. After analyzing current diversity data, we identified hurdles for women in leadership from literature. We evaluated AI's potential to promote gender diversity through examples of AI tools from professional and private life. Four potential areas for AI assistance were identified: i) recruitment, ii) personalized time-management, iii) career development, and iv) networking and mentoring. These AI tools could particularly benefit women by addressing identified obstacles. The literature on this specific topic is limited, making this article a valuable foundation for further research.

Keywords: diversity, gender, leadership, AI, Germany

INTRODUCTION

Gender diversity in leadership positions in Germany remains a pertinent subject warranting further enhancement, as shown by current statistics and publications. According to the Federal Office of Statistics, the proportion of women in leadership roles has remained relatively stagnant at approximately 29% since 2012 (Federal Statistical Office, 2023). Consequently, women remain significantly underrepresented in leadership positions, with access to top-tier positions notably elusive (Ernst & Young GmbH, 2022; Federal Statistical Office, 2024a; Pietralla & Tomkos, 2023). Various factors contribute to this disparity, including entrenched gender stereotypes and a substantial care gap, which will be expounded upon in this paper. In recent years, politics and the economy have endeavored to address this issue by implementing binding regulations such as the Second Leadership Positions Act (Bmfsfj, 2021).

The increasing awareness and the implementation of binding guidelines concerning gender diversity in leadership roles are exerting pressure on organizations and businesses to strive for further improvement. The representation of women in leadership positions varies across industries, with the pharmaceutical sector falling in the middle range (Statista, 2024a). According to the Association of Research-Based Pharmaceutical Companies Germany (vfa), the representation of women among full-time employees in the pharmaceutical industry is quite significant, standing at almost 40%. Depending on the reference, one in three or one in four managers within this sector across all levels is female (PwC, 2020; vfa, 2023). A 2020 study conducted by PricewaterhouseCoopers International (PwC) found that the proportion of women at middle management levels in the pharmaceutical industry is 55%. Even if only one in five individuals in top management positions was female in 2020, a clearly positive trend was reported compared to five years ago (PwC, 2020).

The trend indicated by these figures is, in a way, encouraging, yet it also underscores the need for further improvement. Consequently, several pharmaceutical companies have set ambitious goals for the coming years concerning gender diversity in leadership positions, substantiating the authors deep commitment to this topic (Bayer AG, 2023; Pfizer, 2024; Sanofi-Aventis, 2023).

Given the increasing awareness of the gender gap in leadership positions and the numerous hurdles women face in attaining or advancing to such positions, there is a growing need for opportunities to mitigate these obstacles. The release of Chat-GPT from OpenAI in November 2022 at the latest, showcasing the vast supportive potential of AI in both private and professional spheres, has raised the question whether AI could aid in promoting gender diversity in leadership roles. To our knowledge, the existing literature on this specific question is scarce.

The aim of this paper is to explore whether and to what extent the integration of AI into everyday professional and private life could support gender diversity in leadership positions in Germany. To achieve this, we have identified arguments for gender diversity and delineated the hurdles faced by women in leadership roles based on current literature. Subsequently, we have evaluated the potential of AI to reduce these challenges, examining specific examples of potentially beneficial AI tools in both private and professional spheres.

CURRENT GENDER DIVERSITY LANDSCAPE IN GERMANY

In the scientific context, diversity encompasses the variety within a specific population or group, spanning biological, social, cultural, and economic dimensions. This term encompasses a wide array of differences, including visible traits such as ethnicity, gender, and physical abilities and invisible aspects like sexual orientation, religion, educational background, and socioeconomic status (Atruvia AG, 2021; Krell, 2008) (See Figure 1).

Gender diversity refers to the presence and appreciation of different genders within a group or organization. It goes beyond mere representation, aiming to recognize and value the unique perspectives, experiences, and skills of each gender (Moreno-Gómez, Laufente, & Vaillant, 2018).

FIGURE 1
DIVERSITY DIMENSIONS

Diversity is a multi-dimensional construct composed of inner (core) dimensions, which include the well-known basic diversity dimensions, e.g. age, gender, or ethnicity, as well as external dimensions, which describe the diversity in relation to one´s own environment, e.g. education, parenthood or income. All equity dimensions are equally important and can interact with each other (figure modified from ref. (Atruvia AG, 2021)).

In recent years, Germany has made some progress, at least in terms of raising awareness of gender diversity. This progress has been facilitated through legislative initiatives and organizational efforts aimed at promoting gender equality across various sectors of society. Since 2006, the Diversity Charter business initiative has been actively promoting diversity and inclusion in the workplace in Germany. As of 2024, this initiative has garnered the support of 5,000 companies and institutions nationwide. The goal is to recognize, value, and integrate diversity into organizational culture to foster innovation and economic success (Charta der Vielfalt, 2006).

Additionally, legislative efforts in Germany have underscored the significance of gender equality in leadership roles. The Act for the Equal Participation of Women and Men in Leadership Positions in the Private Sector and the Public Service (First Leadership Positions Act or FüPoG I), implemented on May 1, 2015, aimed to significantly increase the representation of women in leadership positions across both the private and public sectors. Based on this, FüPoG II came into force in 2021, which is intended to improve gender equality particularly in executive boards and other top committees. For example, in the private sector, in listed companies with equal co-determination and boards of more than three members, at least one woman and one man must be included (Bmfsfj, 2021).

Despite increasing awareness and legislative efforts, gender inequality persists in leadership positions in Germany. In 2021, the Atruvia AG in collaboration with the Handelsblatt Research Institute Media Group compiled various data and facts regarding diversity in Germany (Atruvia AG, 2021). It emerged that while women and men achieve equal school qualifications, gender disparities become evident when climbing the career ladder. For instance, while 23,0% of women and 25,1% of men have the general university entrance qualification (Abitur), women only occupy 29,4% of the leadership positions in Germany. This is despite women comprising 46,5% of the total workforce compared to men´s 53,4% (Atruvia AG, 2021).

With this proportion of around 29% of women in leadership positions, Germany falls below the EU average for female representation in management roles. It lags behind countries such as Latvia, Sweden,

and Poland, where women hold more than 40% of all management positions (Eurostat, 2021). The Mixed Leadership Barometer 2022 has shown that the proportion of women on the German boards of DAX, MDAX, SDAX and TecDAX is even significantly lower. While 49% of the companies had at least one woman on the board, women only made up 14.1% of board members and only 6% of the companies had a female CEO (Ernst & Young GmbH, 2022). Since 2020, the DAX in particular showed a continuous, significant increase in the average proportion of women on executive boards, which reached 22.7% in January 2023, while the MDAX, despite also noticeable improvements, ranks well below the average of the European stock indices at 13.7% (Pietralla & Tomkos, 2023).

One important factor contributing to this imbalance in leadership positions in Germany is the so-called "child penalty." According to the Child Penalty Atlas, women face significant challenges reintegrating into the labor market after childbirth. Even 10 years after the birth of their first child, the employment rate of women remains clearly lower compared to men, especially in Germany (Kleven, Landais, & Leite-Mariante, 2023). This has implications for career advancement and long-term income equality, as women often struggle to regain their male counterparts' career trajectory and income levels (Zweimüller, Steinhauer, Landais, Posch, & Kleven, 2019). Data indicate that while a certain child penalty exists to some extent in all EU countries, it is notably more pronounced in Germany compared to other countries such as France and Denmark (Kleven et al., 2023).

DISCOVERING THE VARIETY OF ARGUMENTS FOR GENDER DIVERSITY

Based on current literature and our own analysis, we have identified five primary arguments supporting the necessity of gender diversity in leadership positions:

Legal Argument

Equality is enshrined in the German Basic Law. Article 3(2) states: "Men and women have equal rights. The state promotes the actual implementation of equal rights for women and men and works towards eliminating existing disadvantages." Therefore, equality between men and women is mandated by law and extends beyond specific areas of life, such as leadership positions (Grundgesetz der Bundesrepublik Deutschland, 1949).

Statistical Argument

Women constitute half of humanity, thus gender parity in leadership positions is statistically justified.

Moral Argument

Gender diversity is a moral imperative frequently underscored by various organizations and individuals involved in diversity and development, such as the United Nations Development Program (UNDP) and UN Secretary-General Guterres on International Women's Day 2024 (Sobhani & Vali, 2019; United Nations, 2024).

Sociological Argument

The sociological argument emphasizes that gender diversity enhances social dynamics and intercultural exchange, fostering creativity and innovation (Hemmert, Cho, & Lee, 2024). A longitudinal study examining organizational responses to environmental changes that prompt members to question their organizations found that women's leadership style tends to be more interactive and participatory. Women leaders often encourage input and information sharing while maintaining open communication channels with their subordinates. This collaborative approach contributes to organizational success and innovation (Rosener, 1998).

When comparing the leadership skills of women with those of men, an analysis of data from 2900 Norwegian managers, including over 900 women, revealed that women possess an advantage over men in terms of clarity, innovation, support, and targeting, all of which represent important leadership skills (Farbrot & Lund Martinsen, 2014).

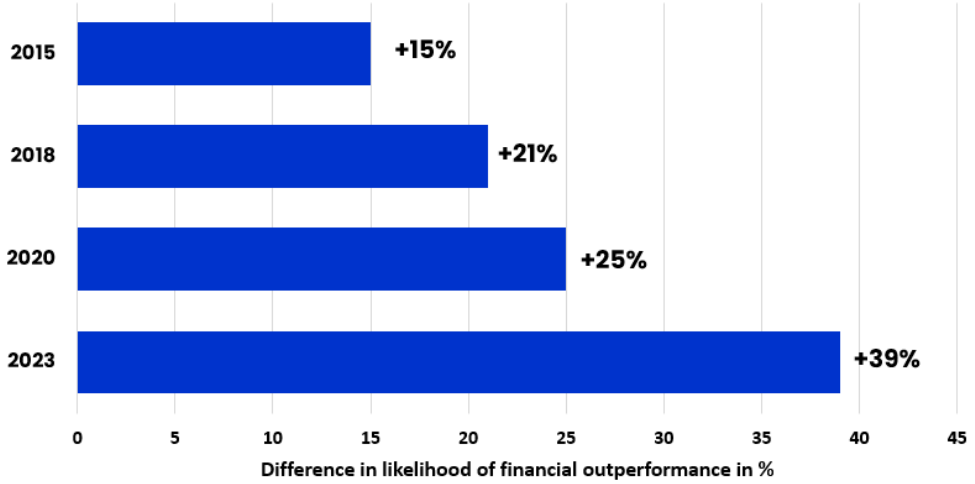
Several independent articles published in renowned journals such as Forbes and Harvard Business, presenting research findings, indicate that women receive better ratings than men in most key leadership capabilities, even during a crisis. These include taking initiatives and building resilience, connecting and relating to others, being authentic, and understanding how they can contribute to the greater good (systems awareness) (Kruse, 2023; Zenger & Folkman, 2019).

Economic Argument

The economic benefits of promoting gender diversity extend to improved business performance. Furthermore, there is ample study evidence to substantiate the argument that fostering gender diversity among employees, management, and boards can not only enhance business outcomes but also contribute to overall economic growth (International Labour Office, 2019).

The influential diversity studies by McKinsey, published between 2010 and 2023, have consistently reported significant positive relationships between relevant business performance indicators of a selection of large public firms and the racial/ethnic diversity of their executives. The widely recognized "Women Matter" study of 2010 already demonstrated that companies in the top quartile for women representation in their executive committees experienced remarkable financial performance (Desvaux, Devillard, & Sancier-Sultan, 2010). They achieved an average return on equity of +41% and an average earnings before interest and tax (EBIT) margin of +51% compared to companies without female representation in their executive committees from 2007-2009. In the follow-up study of 2013, this gap between companies with the highest representation of women in their executive committees and those with none widened even further, with an average return on equity increase of +47% and an EBIT margin increase of +55% (Maller & Kossoff, 2013).The most recent report in this series, the 2023 "Diversity matters even more", which included 1265 companies, reaffirmed once again these findings, demonstrating that companies in the top quartile for gender diversity on executive teams were 39% more likely to achieve above-average profitability than those in the bottom quartile in 2023 (Dixon-Fyle, Huber, del Mar Martinez Marquez, Thomas, & Hunt, 2023). Since this indicator was first measured, there has been an impressive, consistent increase, from 15% in 2015 to 21% in 2018 and 25% in 2020 up to 39% in 2023 (See Figure 2) (Dixon-Fyle, Dolan, Hunt, & Prince, 2020; Dixon-Fyle et al., 2023; Hunt, Layton, & Prince, 2015; Maller & Kossoff, 2013).

FIGURE 2
DIFFERENCE IN LIKELIHOOD OF FINANCIAL OUTPERFORMANCE (%) OF FIRST VERSUS FOURTH QUARTILE FOR GENDER DIVERSITY IN EXECUTIVE TEAMS*



*The likelihood of financial outperformance of companies in the top quartile for gender diversity on executive teams compared to companies on the fourth quartile has continuously increased from 2015-2023. Included companies: 383 in 2015, 985 in 2018, 1039 in 2020, 1265 in 2023. *vs. Regional industry median, p-value for regression analysis <0,01 (figure modified from ref. (Dixon-Fyle et al., 2023)).*

McKinsey's findings are supported by results from other studies, such as the Boston Consulting Group (BCG) Innovation and Diversity Survey from 2017, which included 1,681 participants. This survey suggests that increasing the diversity of leadership teams leads to greater and better innovation and improved financial performance. According to the survey, companies with a below-average diversity score reported an average innovation revenue of 26%, while companies with an above-average diversity score reported an average innovation revenue of 47% (Lorenzo, Voigt, Tsusaka, Krentz, & Abouzah, 2018).

Another study, analyzing a sample of over 2 million companies across 34 European countries in 2013, found a strong correlation between the proportion of women in leadership positions and company Return on Assets (ROAs). Additionally, replacing one male with one female in senior management or on the corporate board was associated with an increase in ROA ranging from 8 to 13 basis points, correlating with a 3-8% in (Christiansen, Lin, Pereira, Topalova, & Turk, 2016).

Regarding the overall economic benefit of gender diversity, a report published by McKinsey in 2015 examined the potential increase in global annual Gross Domestic Product (GDP) by 2025 if women played the same role in labor markets as men. Based on this scenario, the global annual GDP could experience an additional growth of 26%, amounting to $28 trillion. Even when all countries matched the best-in-region country in progress toward gender parity, at least $12 trillion could be added to the global annual GDP (Woetzel *et al.*, 2015). Research published in 2024 by the International Monetary Fund produced similar results, suggesting that closing the gender gap in the labor market could lead to a 23% increase in GDP in emerging and developing markets. Even by narrowing the gender gap, an additional 8% increase in GDP could be obtained (International Monetary Fund, 2024).

Based on their scenarios, McKinsey stated that by eliminating barriers to women's participation in the workforce and promoting their involvement in leadership roles, economies could experience accelerated growth. This underscores the immense economic value of advancing gender equality, not just as a matter of social justice, but also as a catalyst for global prosperity (Madgavkar, Krishnan, White, Mahajan, & Azcue, 2020; Woetzel et al., 2015).

CHALLENGES FOR WOMEN IN OR ON THE WAY TO LEADERSHIP POSITIONS

Despite the overwhelming evidence for the benefits of gender diversity, women in or on their way to leadership positions still face multiple external and internal hurdles in their professional development. The famous term "glass ceiling," coined in 1978 by diversity advocate Marilyn Loden, refers to an invisible barrier that prevents women from rising to the top ranks of corporate leadership, regardless of their qualifications or achievements (Green, 2022).

Eventually, a vicious cycle develops wherein external factors prevent women from securing or retaining leadership roles, which in turn leads to internal factors causing reduced aspiration to pursue such careers (Galsanjigmed & Sekiguchi, 2023; Newstead, Eager, & Wilson, 2023). Based on our research, the following recurring aspects emerge as focal points in the literature:

Non-Neutral Decision-Making Structures

Decision-making structures for applications and job promotions (higher leadership levels) are often dominated by men (Statista, 2024b).

Gender Stereotypes

Persistent stereotypes about gender roles and abilities remain a significant hurdle, continuing to hinder the advancement of women into leadership positions. The most obvious are stereotypical characteristics associated with men and women. Men are typically described as aggressive, ambitious, dominant, forceful, and independent - traits that almost predestine them to be leaders. Conversely, women are portrayed as affectionate, helpful, kind, and interpersonally sensitive—traits that are not directly and intuitively associated with leadership mentality (Tremmel & Wahl, 2023).

The stereotype construct "Think manager—think male, think crisis—think female" applies to these character stereotypes and refers to the association of effective leadership roles with masculine

characteristics, compared to the association of female traits with handling difficult situations and crises due to their ability to raise children. Another example is the backlash effect, which refers to the negative consequences of violating stereotypes, such as the negative assessment of dominant behavior in women in leadership positions, which is tolerated when exhibited by men (Galsanjigmed & Sekiguchi, 2023).

Lack of Visibility of Role Models

A study commissioned by LinkedIn has shown that 43% of professional women believe that having a relatable role model would result in greater career success (Baker, 2022). In parallel, men also face struggles with a lack of role models, for example, when it comes to reducing working hours for the benefit of the family. A trend study by the fathers' network "conpadres" in 2019 showed that fathers strongly desire more time with their families and reduced working hours (Schaaf, 2021). However, almost half of all women with jobs subject to social insurance contributions worked part-time in Germany in 2023, while only 13 percent of men worked part-time (Die Zeit, 2024).

Lack of Networks and Mentoring

Data collected via interviews from 50 senior female managers listed in Fortune 500 top companies and The Marketing Guide to Ireland examined the crucial role of mentoring and networking for global female leaders (Linehan & Scullion, 2008). Based on the literature, it is stated that mentoring, while important for men, may be particularly crucial for women due to the greater organizational, interpersonal, and individual barriers female managers face in advancing their careers. Despite the essential role mentoring plays in the advancement of women into leadership positions, there continues to be a lack of sufficient mentoring opportunities available and a smaller probability for women to have a mentor. Given the relatively low number of female leaders in senior positions, it is not surprising that one reason resulting in this lack of mentoring opportunities is that there simply may not be a female leader available for a mentoring relationship. Other frequently discussed reasons are aimed at cross-gender problems, including the preference of male mentors to choose male mentees and potential discomfort for women having a male mentor (Linehan & Scullion, 2008).

In addition to the value of mentorship, networks are also widely recognized for their importance in fostering careers (Villesèche & Josserand, 2017). Networking offers a broad range of advantages, including information exchange, obtaining implicit knowledge, collaboration, developing alliances, visibility, and support (Linehan & Scullion, 2008).

An interview study involving 37 high-profile female leaders employed in large German companies has investigated the reasons behind the comparatively lower power and effectiveness of women's networks in comparison to those of men (Greguletz, Diehl, & Kreutzer, 2019). The average age of the female leaders was 46.5 years, with an average of 1.3 children. As external barrier, structural exclusion, comprising work-family conflicts and homophily, was identified as significant hurdle when building powerful and effective networks. Family responsibilities hinder women from participating in important networking events, such as after-work gatherings. Homophily refers to the phenomenon wherein women often lack access to men's informal social circles because peers prefer to remain among equals, with powerful men among men. On the front of intrinsic barriers, personal hesitation in form of relational morality and gendered modesty plays a crucial role. Relational morality refers to the observation that women hesitate to utilize networks for personal advancement, whereas gendered modesty points to women's tendency to underestimate their contributions, resulting in reserved networking (Greguletz *et al.*, 2019).

Gender Pay Gap

In Germany, there continues to be a significant gender pay gap, with women earning less on average than their male counterparts. The gender pay gap describes the hourly wage disparity between women and men. According to statistics from the Federal Statistical Office, the uncorrected gender pay gap stood at 18% in 2023, meaning that women earn 18% less per hour than men (Federal Statistical Office, 2024b). This disparity is evident across various industries and professions. It is attributable to the fact that women are more likely than men to work in industries, professions, and skill levels with lower remuneration and

can also be found within the same level of qualifications compared to male colleagues. A measure of the expanded inequality in earnings is the gender gap labor market, which, in addition to the pure difference in gross hourly wages (gender pay gap), also considers differences in paid monthly working hours, for example due to increased part-time work (gender hours gap) and the lower participation of women in the labor market (gender employment gap). The gender gap labor market was 39% in 2023 and has fallen by 6% since 2014 (Federal Statistical Office, 2024b).

Challenges With Work-Life Balance/Motherhood/Family Responsibilities (Care Gap)

In Germany, combining family and career still remains a challenge. In 2010, a study of the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSJ) revealed that while around 75% of men in management positions are married, this only applies to 53% of female leaders. In contrast, 28% of female leaders living without a partner compared to 15% of male leaders. Additionally, there is a significantly higher percentage of women without children in leadership positions (44%) compared to their male colleagues (23%), who are also significantly more likely than women to have more than just one child (Wippermann, 2010).

Another frequently discussed equality indicator between women and men is the gender care gap, which refers to the difference in time spent on unpaid care duties such as raising children, caring for relatives, housework, and volunteering. In Germany, the gender care gap is 44.3%. This means that women spend 44.3% more time per day on unpaid care work than men, resulting in an equivalent of 79 minutes difference per day. Eventually, women perform 30 hours of unpaid care work compared to 21 hours by men (Bmfsfj, 2024).

Overall, these data show that women continue to bear the largest share of work in family organization and that achieving compatibility between career and family is significantly more challenging for women than for men.

AI TOOLS TO FOSTER GENDER EQUALITY LEADERSHIP POSITIONS

As the previous discussion in this paper has shown, awareness of the topic of gender diversity has significantly increased in recent years, but there is still room for improvement in practical implementation, especially in the private sector. The question arises whether there are other factors that could support the reduction of the hurdles discussed above.

Artificial Intelligence (AI) is an important key technology that offers significant opportunities for science, business, and society. A fairly detailed definition focusing on the capabilities and tasks of AI was proposed by the High-Level Expert Group on Artificial Intelligence (AI HLEG) of the European Commission (EC), describing AI as “Systems that display intelligent behavior by analyzing their environment and taking actions—with some degree of autonomy—to achieve specific goals” (Sheikh, Prins, & Schrijvers, 2023).

Applications in everyday life are numerous and already widespread, such as online shopping and advertising, web search, automatic speech recognition and translation, navigation systems, AI-powered security systems, cybersecurity, and combating disinformation on social media. Other possible areas of application, some of which are already supported by AI, include medical diagnoses, transport, food and agriculture, industrial processing, and administration. At least since the advent of Chat-GP in November 2022, the massive supportive potential of AI in private and professional life has become evident. This leads us to the challenging questions if and to what extent AI could support women in leadership positions.

There are hurdles that can hardly be overcome with AI - such as gender stereotypes. However, according to our engagement with this topic, there is potential for some hurdles to be noticeably reduced through AI, provided there is mindful usage, a balanced approach (in the sense of assistance to humans, not replacement), and continuous monitoring (Avery, Leibbrandt, & Vecci, 2023).

We have identified four areas in which AI could support gender diversity in leadership positions: i) decision-making in recruiting, ii) personalized time-management tools to balance career and family life as well as reduce “office” housework, iii) career development platforms, and iv) networking and mentoring.

Decision Making - How Do Women Get Into Leadership Positions?

AI-based tools in human resources can facilitate unbiased recruitment processes and may objectively match colleagues with diverse skills to build cross-functional teams. AI can provide support in neutral application and decision-making processes both on the side of the company and on the side of the applicant, as long as the AI tool is not substantially biased against women, as two field experiments on recruitment in tech have shown (Avery *et al.*, 2023).

Company Side

AI-driven recruitment software can reduce the potential for discrimination during the recruitment process of sourcing, screening, and selection (Jaume-Palasi, Lindinger, & Kloiber, 2020).

- Sourcing: Women frequently refrain from applying for a position if the job description contains stereotypically masculine language (Collier & Zhang, 2016). The utilization of gender-neutral, inclusive language can be verified with the assistance of AI. For instance, when the technology provider Cisco utilized Textio, an AI-driven application aimed at eliminating bias from the hiring and feedback processes, to evaluate its job descriptions, it successfully reduced jargon and enhanced gender neutrality, consistently resulting in a 10% increase in female candidates (Nelson, 2024; Textio, 2024).
- Screening: AI tools scan resumes for keywords, skills, and experiences directly related to the position, helping companies shift toward skills-based hiring. For example: At Amazon, the implementation of AI and machine learning in the screening process has improved the diversity of candidates who are invited to interviews and of diverse hires (Amazon, 2023).
- Selection: AI plays only a subordinate role in this step, as a highly important factor is the selection panel itself, which should consist of a diverse interview panel with diverse interviewers. There are companies such as HireVue offering technologies to analyze video interviews to predict future job performance of the candidate by evaluating facial expressions, eye movements, body movements, details of clothing, and nuances of voice (HireVue, 2024). Unilever, for example, was able to increase its diversity and inclusion hiring goals by 16% by using HireVue Assessments (Vipond, 2024).

A study in the male-dominated tech industry showed that the use of AI in recruiting staff altered the gender distribution of candidates, in some cases even doubling the number of top female applicants (Avery *et al.*, 2023). However, there are also risks that AI could negatively impact gender diversity in leadership positions. If the AI dataset contains gender-biased stereotypes (partly due to the underrepresentation of women in the AI industry), this could have the opposite effect, further disadvantaging women (Chiarello, Fareri, & Crudelini, 2021).

Applicant Side

There are differences in self-presentation techniques between men and women in job applications, with women generally placing less emphasis on high self-esteem and appreciation through contacts compared to men (Stempkowski & Ponocny-Seliger, 2017). Large Language Models (LLMs), such as ChatGPT, can be used to support the preparation of application documents, thereby minimizing gender-specific wording or presentation techniques (OpenAI, 2024). However, caution should be exercised when using AI for job applications due to a lack of personality and a limited understanding of context, so a careful human review is necessary.

Examples for specific AI-powered tools to create a curriculum vitae (CV) or a cover letter are:

- resume.io: offers pre-generated text and visual designs (resume.io, 2024)
- Jobscan: provides the opportunity to optimize a CV according to proven recruiter preferences and hidden requirements (Jobscan, 2024; resume.io, 2024).

Personalized Time-Management Tools

Balancing Career and Family Life

According to the Fathers' Report 2023, every second father in Germany wants to take on half of the family's childcare responsibilities. Although there is still a significant gap between this ideal and reality, a comparison with 2008 shows a substantial increase in mothers' employment, a decrease in men being the sole earners, and a rise in women working part-time for more than 20 hours per week (Juncke, Samtleben, & Stoll, 2023). The trend towards a more equal distribution of childcare responsibilities fosters hope that this trend, and thus the compatibility of women in leadership positions, could be further enhanced by appropriate support measures. In addition to various external factors that can only be partially influenced, such as nursery and after-school care, it also depends on the couple's willingness to adopt a working model that allows both parents to balance career and family according to their individual needs (full-time, part-time).

Although AI cannot make this personal decision, numerous diverse personalized tools in professional and private areas can offer support to help all genders reconcile family and career. AI-driven tools can analyze workloads, prioritize tasks, and suggest efficient time management strategies, allowing leaders to balance their work commitments with personal and family responsibilities. Optimal time management, both professionally and privately, is a prerequisite for successfully balancing family and work, especially in higher positions. Examples for practically relevant tools supporting this approach are:

- Trello: The task management online tool, developed by a subsidiary of the software company Atlassian, allows the organization and management of team tasks through the creation of task boards that monitor project progress and include additional details. This tool can also be used in the private sphere, for example, to organize and track weekly household chores. Trello also integrates generative AI capabilities for generating and transforming content (Atlassian, 2024; Trello.com, 2024).
- Asana: This project management platform is designed for team collaboration and to streamline work management and includes several AI features (Asana, 2024).
- Microsoft ToDo: The cloud-based task management application by Microsoft helps individuals organize and prioritize tasks, set deadlines, and collaborate with others. Its AI-powered features provide personalized task suggestions, reminders, and productivity insights based on user behavior and preferences, helping users manage their time more effectively. This tool is particularly suitable for daily planning of activities across various areas, such as work and private obligations (Microsoft, 2024).

Reducing "Office" Housework

"Office housework," such as scheduling events and meetings, ordering food, taking notes, and organizing leaving presents, comprises tasks that are essential to the smooth operation of a workplace but often go unnoticed when it comes to pay raises or promotions. Women are estimated to do 29% more "office housework" than white men (Babcock, Recalde, Vesterlund, & Weingart, 2017). AI can automate administrative tasks, such as finding a meeting time that fits all participants, enabling women to focus on more meaningful work highlighting their capabilities and enhancing their development opportunities (Beard, 2023).

Career Development Platforms

AI-driven platforms can provide personalized career development recommendations based on individual strengths, skills, and career goals. These platforms can help women identify and pursue career development opportunities, including leadership positions. There are several AI-powered career platforms available, such as:

- Career Copilot: The configurable AI career assistant, currently in the beta phase for testing and development in 2024, promises to offer a comprehensive career support system. This includes career guidance, job search assistance, and assistance with application documents through the use of various AI tools (Career-Copilot, 2024).

- Career Explorer: This platform is facilitated through a career test aimed at determining top career matches based on interests, qualifications, goals, workplace preferences, and personality traits (CareerExplorer, 2024).
- LinkedIn AI career coach: Rolled out in November 2023, the AI job coach is designed to assist job seekers in finding the perfect job by matching them with fitting job openings, providing insights about companies and roles, and suggesting profile improvements and interview preparations (LinkedIn, 2024).
- Career Coach GPT: A platform built upon ChatGPT, designed to ask concise questions in order to give advice on career issues, make suggestions on how to improve the CV, and provide tips for job interviews (Career Coach GPT, 2024).

Network and Mentoring

AI tools and platforms can support one's efforts in building a reliable and extensive network, complementing face-to-face interaction and relationship building. These tools are not gender-specific. However, because of the networking and mentoring challenges women often encounter, as discussed above, AI-based tools can help overcome traditional barriers. They can offer personalized recommendations, save time, increase visibility, and support career development.

Optimizing Networking and Effectively Utilizing Social Networks

AI tools assist users in expanding their professional networks, discovering new opportunities, and engaging more effectively with their contacts. AI-based platforms can identify relevant contacts by analyzing users' behavior, interests, and professional goals, and then suggesting suitable individuals. Behavior and preferences can also be analyzed to optimize content sharing, enhance engagement through personalized interactions, and suggest relevant groups or events to join. Two well-known examples are:

- LinkedIn: The world's largest professional network on the Internet, LinkedIn, uses AI to suggest potential new contacts to users based on shared interests, professional overlaps, and existing contacts. Furthermore, AI analyzes users' profiles and interests to recommend relevant job openings (LinkedIn, 2024). LinkedIn´s Engage AI, powered by ChatGPT, enhances comment quality and relevance, making leaving a comment more efficient and impactful (Engage AI, 2024).
- Xing: In German-speaking countries, the business platform Xing is also very popular. Xing has also introduced AI-powered functions, such as the ability for recruiters to generate messages to candidates based on their open positions (Xing.com, 2024).

Automated Contact Management

AI-powered contact management tools can efficiently manage contacts by organizing, categorizing, and maintaining regular communication with them, e.g.:

- Cloze: This relationship management app creates contact databases based on email, phone calls, meetings and more. It utilizes AI to prioritize contacts based on the frequency and quality of interactions, and also offers insights into relationships, including when contacts were last contacted and the topics discussed (Cloze, 2024).
- Evercontact: This AI-powered tool automatically updates contact information by scanning email signatures and extracting relevant details. It ensures that contact lists remain accurate and up-to-date without manual effort (Evercontact, 2024).

Mentoring-Matching

AI algorithms can connect aspiring female leaders with suitable mentors based on their career goals, interests, and backgrounds. By facilitating meaningful mentoring relationships, these tools can provide valuable guidance and support to help women advance into leadership positions. There are numerous mentoring platforms with a tailored approach available, some of which are already AI-powered, for instance:

- MentorGPT: A mentoring platform creating a personalized "ideal" AI mentor to provide users tailored guidance to achieve their career goals or help with challenges at work (Mentor GPT, 2024).
- MentorCloud: A mentoring software that uses AI powered algorithms for intelligent matching of employees with most suitable mentors based on their skills, expertise, experience, and values (MentorCloud, 2024).
- Guider: Similar to MentorCloud, the mentoring platform Guider uses AI to match mentors with mentees based on their goals, skills, experiences, and more. It offers tools for setting goals, tracking the achievement progress and feedback collection (Guider, 2024).
- Chronus: The Chronus platform also uses AI to connect mentees to the right mentors with a strong focus on Diversity, Equity and Inclusion (Chronus, 2024).

CONCLUSION

In this paper, previously identified hurdles faced by women in on their path to leadership positions were combined with practically relevant AI tools to reduce these challenges, thereby providing a valuable starting point for further exploration of the topic according to one's career goals. Even if there are still numerous hurdles for women and AI is powerless to deal with some of these hurdles, for example gender stereotypes, AI can noticeably reduce certain hurdles, such as the compatibility of career and work or networking/mentoring. Based on our engagement with this topic, we can conclude that AI has the potential to play an important role in promoting gender equality at work, especially as a tool for progressive, gender-balanced leadership.

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