

Analysis of the development of women's status in F1

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Abstract: This article analyzes the development and current status of women in Formula One from both historical and contemporary perspectives, focusing on the participation of women as drivers, technical experts, staff, and fans. It examines the remarkable achievements of early female drivers such as Maria Theresa de Filippa and Lella Lombardi, the latest developments in the F1 Academy's developmental platform for female drivers, and the trajectory of women's advancement in Formula One. This article examines the rapid growth of female fans in F1, analyzing data and case studies. This analysis demonstrates F1's efforts to promote female participation, including a significant increase in the proportion of women in teams and management. It also explores the future direction and challenges of gender equality in F1, highlighting the importance of continuously promoting female participation in racing and spectating.

1. Introduction: International racing culture and gender balance

Formula One (F1) is the world's top single-seater racing event and is known as the "crown of motorsports". According to global fan survey data jointly released by Nielsen and the FIA, F1 has over 750 million fans and enjoys extremely high popularity among annual sports events worldwide. Documentaries such as "The Drive" have become popular on the Netflix platform, and F1's popularity has risen sharply among emerging and young people. Since 2023, the growth of female fans has been particularly significant. The proportion of female F1 fans has reached 41%, and the rapid growth of the female fan group aged 16 to 24 is remarkable^[1]. With the help of multiple channels of media and social platforms, female audiences have significantly increased their exposure to the competition. Among British audiences, "The Drive" has a female audience share of up to 43%^[2].

The gender structure of F1 has been significantly unbalanced for a long time. Since the 1950 World Championship, the number of participating drivers has reached 772. The F1 Grand Prix qualifying round is open to only five women, and only two have entered the competition. The proportion of women in key positions such as engineering teams, track staff and team managers is significantly lower than that of men. In 2018, women accounted for only 28% of F1 industry practitioners. Gender differences are clearly exposed in the racing world and are also related to structural factors such as training structure, technical training and sponsorship culture. The global sports field is paying more and more attention to diversity and inclusion. Assessing the changes in women's roles in F1, the difficulties they encounter and their success stories has far-reaching application significance for the strategic planning process^[3].

This article will comprehensively examine core issues such as historical evolution, career structure, fan culture, policy initiatives and future trends, and comprehensively analyze the evolving status of women in Formula One events. This work is divided into five chapters: Chapter 2 sorts out the historical footprints of five female racing drivers and the historical background; Chapter 3 explores the proportion and position distribution of female practitioners in the fields of team and event management; Chapter 4 explores the mechanism of the rise of female fan groups and the effect of the "F1 Academy" women's event; Chapter 5 outlines the current challenges and opportunities and recommends the adoption of a gender balance promotion plan. The data involved are all derived from official information, media surveys and academic analysis, and strive to provide research materials for promoting gender equality in motorsport.

2. Female drivers in F1 history

2.1 The emergence of female drivers and initial challenges

The mid-20th century witnessed the birth of Formula One. In the early days, the track was full of dangers and men almost exclusively occupied the qualifying spots. Maria Teresa de Filippis was the first person to cross the gender barrier. In 1958, she drove a Maserati 250F in the qualifying round of the Monaco Grand Prix, but failed to advance to the next round. She officially started the competition on the Belgian track and finally secured tenth place. At the 1959 French racing meeting, the race officials once said to her: The helmets that women should choose are the style of hair dryers in beauty salons. This gender discrimination reveals the reality of prejudice faced by female participants. In the two seasons of the competition, de Filippis registered five times and actually completed three starts. She did not receive any sponsorship support and was forced to bid farewell to her racing career in 1960. ^[4]

Since the oil crisis in the 1970s, motorsport has entered a new stage of commercialization, and the participation of female racers has increased. From 1974 to 1976, Lombardi participated in 17 races with the March team and became a unique female F1 scorer. In 1975, the Spanish race was shortened to half due to an accident, and the race points were halved. Lombardi finished sixth and scored 0.5 points. Her success ignited the enthusiasm of the female group to pursue their dreams. The media at that time reported more on her appearance and gender identity rather than her driving skills. ^[5]

Three women have attempted to enter the F1 race: Divina Gallica, an outstanding representative of the British skiing community, competed for the Sottes team in the 1976 and 1978 seasons but unfortunately failed to qualify; in 1980, South African Desiré Wilson registered for the British Grand Prix but failed to compete; in 1992, Italian driver Amati failed to successfully advance to the next round in three qualifying races for the Brabham team. Since 1992, there have been no women in the F1 qualifying field. Since half a century ago, women have been excluded from the world's top racing stage. ^[6]

2.2 Statistics and analysis of female drivers

Table 1 records the key data sets of all female drivers who participated in the F1 qualifying race, including the number of participations, registration frequency, start frequency and points accumulation results during the season. Lombardi dominated the race and won all the points, while other contestants were unable to compete officially due to elimination from the qualifying round or equipment failure.

Table 1. Key data of female drivers who have participated in F1 qualifying

Driver	Country of Citizenship	Season	Number of registrations	Number of departures	integral
Maria Theresa de Philippis	Italy	1958 - 1959	5	3	0
Leila Lombardi	Italy	1974 - 1976	17	12	0.5
Divina Galika	U.K.	1976, 1978	3	0	0
Desiree Wilson	South Africa	1980	1	0	0
Giovanna Amati	Italy	1992	3	0	0

In order to clearly reveal the distribution of female racing drivers by era, this study sorted out the data on the number of female drivers who participated in F1 qualifying races over the years. Figure 1 records the columnar distribution of the number of female racing drivers in each era. In the 1950s, there was only one female driver, and in the 1970s, there was only one female driver. Since then, the number of drivers in each era has been either one or no new cases. Since the 1990s, the number of female drivers has dropped sharply ^[7].

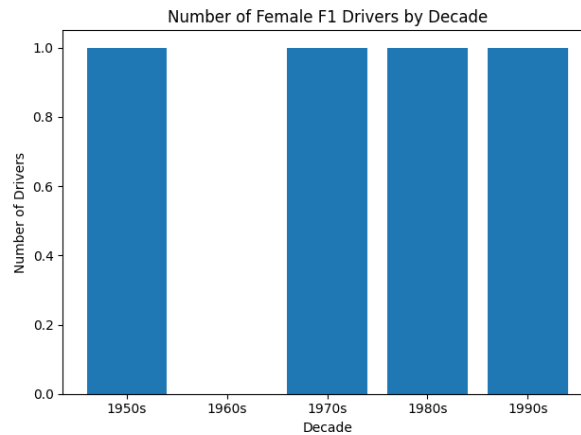


Figure 1. Bar chart of the number of female drivers in different eras

This scarcity is not simply due to a lack of opportunities, but is also subject to multiple restrictions such as training structure, financial investment and social prejudice. In the mid-20th century, the risks of racing were significantly magnified, and female families were more cautious due to the high mortality rate. It is generally believed that male drivers are better in publicity value, and female drivers face great challenges in obtaining funds. The growth path of racing talents mostly adopts a step-by-step promotion system of karting and Formula 3 and 2. The proportion of women involved in the karting field in the early days was quite limited, and the formation of talent reserves was hindered. Research data shows that women account for only 10% of all levels in racing, showing a systematic uneven distribution of gender composition in racing ^[8].

2.3 Legendary significance and influence

Despite their sparse numbers, female racers have had a profound impact on the racing world. De Filippis broke the male monopoly on racing. De Filippis inspired discussion and enthusiasm among women in Italy and France about participating in motorsports. Lombardi added half a point to the World Championship standings. The International Automobile Federation (FIA) Museum houses her trophy, a symbol of female talent. Although the race stage failed to showcase the competitive style of Gallica and Wilson, they stood out in many competitions, proving that women have equal rights to participate in competitions. ^[9]

The efforts of this group of pioneers gave rise to the birth of women's formula racing and promotion programs at the end of the 20th century. The "Geoff Gray Women's Racing Driver Award" of the British Racing School has trained several racing drivers who have shown their talents in the fields of touring car racing and rally racing. The "Beyond Equality" project launched in recent years has revealed that female drivers account for 5% of the F1 driver group, with a total number of more than 772. Focusing on selecting and shaping world champions in the field of female racing, the interaction enthusiasm of female fans far exceeds that of male fans, and the interaction activity has increased by 70%. The purchase intention of supporting women's sports brands accounts for 56% of female consumers. From a business perspective, the women's racing participation plan reveals development potential and stimulates the potential of cultivating female racing drivers. ^[10]

3. Women in the F1 industry

3.1 Overall trend: Transition from management to technical positions

F1 events are not only about sports competitions, but also bring together cutting-edge industries and global media. Behind its operation, it relies on a huge engineering, operations and business team. Since the end of the 20th century, the proportion of women in related positions has steadily increased. In 2018, the proportion of female practitioners in the F1 field was about 28%; in 2023, the watershed, the proportion climbed to 37%. Figure 2 outlines the evolution. In recent years, F1 management has continued to advocate a diversified strategy. By 2024, the number of employees of Formula One

Management Company (Formula One Management) was 569, of which 216 were female employees. The survey results show that in the past five years, the gender ratio in recruitment, training and publicity of F1 has gradually tended to be balanced.

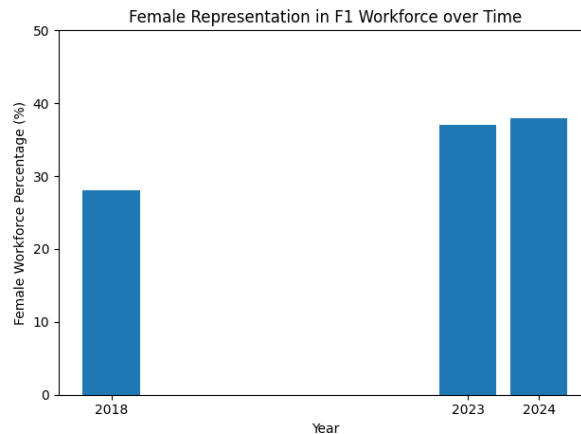


Figure 2. Changes in female representation in F1

Apart from the fluctuation in numbers, new role characteristics have emerged in the distribution of women's jobs. The F1 engineering field has long been dominated by male engineers, and women are gradually occupying the proportion of core positions such as dynamics, data analysis, body aerodynamics and mechanics. Mercedes team power engineer Alice Powell plays a core role in the field of electric formula and simulator testing; former Indy car champion Patricia Ward was hired by the McLaren team as operations director, event organization category 1. The proportion of women in the FIA continues to rise. The FIA Women's Committee will implement the "Girls on Track" program in 2021 to spread racing skills globally and implement engineering and management education for young women.

3.2 Data analysis of female team members

Even though the overall proportion has increased, the gender distribution of teams has shown differences. Table 2 provides an overview of the overall size and proportion of female employees of several F1 teams. The data is collected from public media information sources in 2023.

Table 2. Composition of female employees in some F1 teams

Fleet/Organization	Total number of employees	female employees	Proportion of women (%)
F1 Management Company	569	About 216	38
Mercedes	About 1,000	117	11.7
Haas	167	15	9.0
McLaren (race team)	66	5	7.6
Alfa Romeo (track team)	51	5	9.8

This table reflects two trends: the proportion of women in the commercial and administrative departments of the headquarters is relatively high, such as the F1 Management Group and the International Automobile Sports Federation; the gender difference at the track operation level is significantly exposed. There are only 4 female members in the core team of Mercedes, accounting for a negligible proportion, and the female members of the support team are 4%. The attractiveness of women to join is hindered by frequent business trips and irregular working hours. Some teams conceal data or provide limited data accuracy in the disclosure, and the lack of transparency in the industry is also exposed. Figure 3 shows a bar chart of the proportion of female employees in each team. In the non-management enterprise category, the proportion of female employees in each team

is generally less than 12%.

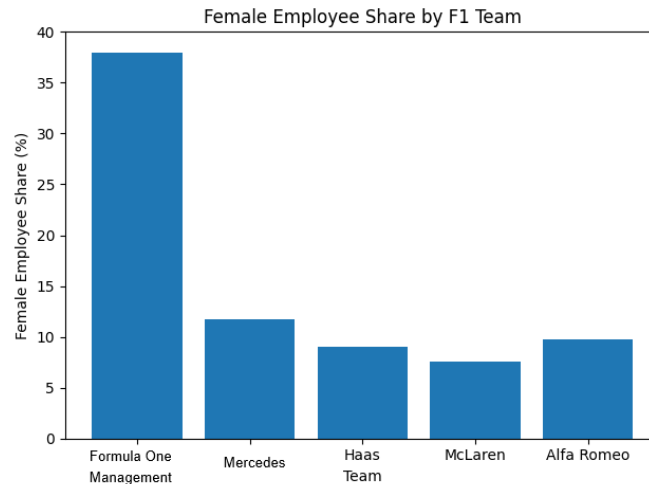


Figure 3. Bar chart of the proportion of female employees in different fleets

3.3 Measures to promote gender balance

F1 has promoted this through multiple channels, and the number of female practitioners has increased. The recruitment side has taken the initiative first. Each team has held promotional activities in colleges and engineering schools to encourage female students to participate in engineering internships and positions. Mercedes has adopted the "Accelerate 25" diversity initiative. By 2025, 25% of new employees will be from minority groups, including women and ethnic minorities. An orderly training system has been established. McLaren's female engineer mentoring program designates senior engineers as mentors for female interns to guide them in understanding racing technology and team operation models. Parent-child interaction and campus experience activity days have been added to the event schedule to allow them to experience the style of racing up close. A special scholarship mechanism has been set up to help them enter the karting and formula racing training fields.

The progress of the industry is driven by policies. Starting from 2021, the Extreme E electric off-road event has mandatory regulations that each team must have one male and one female driver. This regulation has not yet been adopted in the F1 event and is of decisive significance to the improvement of female racing drivers' skills. Several high-tech companies have joined hands with F1 to jointly launch a female science and technology talent training program. The "Racing For All" project team jointly created by Microsoft and the Alpine team provides female engineers with simulator design and data analysis training methods, and builds a systematic training method for the entire industry chain, so as to deliver incremental female technical talents to the F1 team.

4. Female fans and f1 academy: Driving forces of innovation in the racing ecosystem and consumer groups

4.1 The rise of female fan groups

Before 2019, female spectators accounted for about 20% of the F1 event. Faced with the diversification of media communication, the number of female spectators has risen rapidly. In 2023, data from 2023 showed that the proportion of female spectators at the Grand Prix was close to 30%; the proportion of women in the fan group was about 40%, and some studies estimated it to be 41%. The analysis of the composition of the global fan group showed that among the new fans, women accounted for as high as 75%. Figure 4 shows the evolution of the proportion of female fans from 2019 to 2025. The analysis results show that the proportion has increased significantly, jumping from 20% to more than 40%.

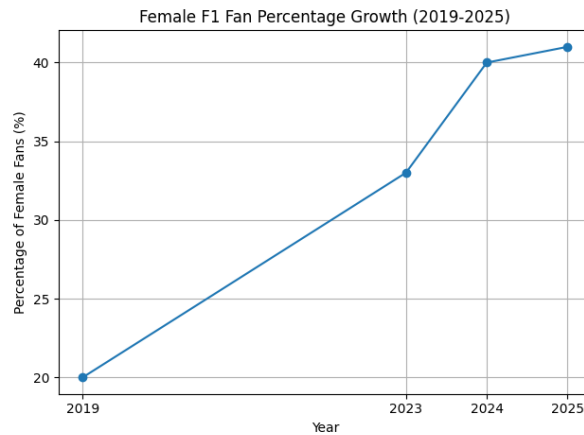


Figure 4. Trends in the proportion of female fans from 2019 to 2025

This growth is closely tied to cultural communication methods. Documentaries reveal the private experiences and behind-the-scenes details of racing drivers, weakening technological barriers and promoting emotional identification among female audiences. Many women have become loyal fans of social platforms such as TikTok. Among British users, female users account for 43%. Female audiences are active in watching events and are keen on interaction and content creation on social platforms. The interactive participation of female fans on social media is 70 percentage points higher than that of men. 56% of respondents prefer to buy brand products that support female athletes. Sponsors and teams are re-evaluating the potential of the female market.

4.2 F1 academy: A professional platform for training female drivers

In response to the current shortage of female racing drivers and the needs of fans, in 2022, the F1 management body announced the establishment of a women's racing series - "F1 Academy". This series of events brought together fifteen drivers, and after seven rounds of competition, a total of 21 competitions. The F1 management provided each driver with 150,000 euros in financial support, additional funding and dispatched a technical support team. From the beginning of the 2024 season, one of the supporting events, the F1 Academy event, each F1 team independently assumed the sponsorship responsibility of an academy driver, covered the car with the exclusive colors of the main team, and provided technical support to the female racers simultaneously, allowing F1 spectators to personally visit the women's racing scene during the race weekend, thereby expanding the reputation of the event.

According to the results of the 2025 global fan survey, 42% of female fans focus on the F1 Academy, followed by the F1 race. Among the overall fan group, the F1 Academy attracted 23% of attention, and the proportion of Generation Z fans paying attention to the academy was as high as 37%, and the proportion of new fans was as high as 36%. The data reveals this fact. Inspiring the potential of racing drivers can also attract young fan groups. Many campus racing drivers frequently appear on social platforms and interact with fan groups, creating a positive interactive loop.

4.3 Commercial value and community culture of female fans

The surge in female fans has significantly promoted the expansion of commercial benefits. According to CultureBanx, with the influx of female viewers, F1 subscribers have increased by 40% in one year, and F1 revenue will achieve an annual growth of 15% in 2024. This growth comes from the live broadcast of events, involving multiple sources of income such as licensed products, fashion collaborations, e-sports events and theme parks. Women prefer to purchase cultural derivative products, and peripheral products such as clothing and co-branded cosmetics have given birth to a new chapter in the trend of integrating brands with racing.

Female fan groups are building an interactive platform that accommodates diversity. Women-only community activities are emerging in various racing teams. Mercedes has launched the "Speed Sisters" online community to popularize racing knowledge and analyze career development paths;

Ferrari's female fan racing interactive group leads fans to the garage to engage in dialogue with engineers, help each other share culture, weaken the barriers of gender bias, and build the prototype of a diverse racing culture ecosystem.

5. Challenges and prospects: A future picture of gender equality

5.1 Remaining obstacles

Women in Formula One and related industries face numerous challenges, with financial constraints being the primary concern. Racing costs are staggering, with vast sums required at every level, from karting to Formula One. Families and sponsors are more likely to invest in male drivers, making financial hardship a major factor in female competitors' withdrawal from competition. Early development systems are underdeveloped, and compared to sports like football and track and field, there are fewer racing programs at the university and community level, making it difficult for women to acquire knowledge in driving and mechanics. Societal biases and stereotypes remain deeply ingrained. While De Filippis's past may have come to an end, such criticism continues to flourish on social media. Many female engineers have experienced gender bias and questions about their professional competence. Reports often focus on female drivers' appearance, rather than their driving skills, exacerbating these perceived biases.

The workplace is also crucial. The tight work pace that permeates team operations presents a significant challenge for women balancing family and career responsibilities. In the male-dominated engineering world, support from female mentors and peers is insufficient, and newcomers can easily feel isolated and helpless. ESPN's employee surveys of team members revealed that women comprise only 6% of core track teams at teams like Mercedes. Without a work-life balance policy or a system that understands women's needs, talent recruitment and retention face significant obstacles.

5.2 Existing initiatives and policy effects

In response to these challenges, F1 and its partners have adopted a number of objectives:

1) F1 and its partners have implemented karting, simulator, and formula racing training programs worldwide, opened youth racing experience and technical education classes, and built structured career development trajectories. Women's karting competitions have flourished in many European countries, paving the way for players to enter Formula 4 and Formula 3.

2) Sponsorship incentive system. As the spending power of female fans steadily grows, brands are joining the ranks of supporting women's racing projects. The F1 Academy uses financial support to alleviate the economic pressure of players. F1 teams must sponsor one driver from the academy. Sponsors are exploring the marketing potential of women's events and are willing to collaborate with racers to launch peripheral products.

3) Support for career advancement: Teams adopt internships, mentoring and diverse recruitment strategies to attract female engineers and management talents. The FIA is working on developing relevant guidelines, and teams are required to disclose gender and diversity data to the public, striving to achieve the goal of fairness in recruitment and promotion.

4) Media publicity and cultural impetus: Reports should focus on the professional capabilities of female drivers and engineers to create a positive impression; documentaries and special programs should demonstrate educational potential and awaken the potential of the new generation of women. Course content can be expanded to include knowledge in the fields of science and technology and racing to expand students' knowledge boundaries.

5.3 Future outlook and suggestions

The role of women in Formula One is expected to grow further, but this must be underpinned by systemic policy and cultural change. The following guidance can be used:

1) Increase grassroots funding. Racing organizations in various countries need to work with educational institutions to establish more racing training bases, popularize economical driving training, increase young girls' early exposure to racing, implement targeted scholarship programs

for women, and provide financial support for women to advance to competitions.

2) F1 and its partners should optimize the promotion ladder and build a structured development system for female racing drivers from karting to Formula One. They should promote the implementation of dual-driver competition rules similar to those in Extreme E within mixed-gender competitions, enabling female drivers to accumulate practical qualifications in high-level events. They should also closely couple the F1 Academy with F2 and F3, increasing the frequency of testing opportunities and the sharing of technical resources.

3) Optimize the supporting structure of the work environment. A flexible work mechanism needs to be established in the team urgently, including travel rotation arrangements, childcare assistance and psychological counseling measures, to create a career space suitable for the development of female engineers and employees, build a female mutual support community and mentor system, and alleviate the pressure of isolation in the workplace.

4) Deepen media coverage and educational investment. Reports should focus on the professional capabilities of female drivers and engineers to create a positive impression. Documentaries and special programs should demonstrate educational potential and awaken the potential of a new generation of women. Course content can be expanded to include knowledge in the fields of science and technology and racing to expand students' knowledge boundaries.

By implementing the comprehensive action plan, F1 is expected to significantly increase the participation and influence of women in the sport and, most importantly, uphold the principle of fairness, significantly increase the innovation and market growth potential of motorsport, creating a positive feedback loop.

6. Conclusion

This article comprehensively examines the evolving role of women in Formula One from four perspectives: historical context, industry background, fan culture, and policy environment. Since the inception of F1 qualifying, the number of female competitors has been extremely limited. To date, only five women have participated in this top-tier event, with Lella Lombardi scoring 0.5 points. Deep-seated barriers to talent, funding, and social awareness are the root causes of the scarcity of motorsport. The proportion of women in the F1 industry has increased year by year, reaching 28% in 2018 and climbing to 38% in 2024. Female members of team technical positions and track teams are unevenly distributed, resulting in a low proportion of women.

The rise of female fans and consumer groups is reshaping the commercial landscape of Formula One. In 2019, female fans accounted for only 20%. In 2025, the proportion of female fans climbed to a new high of 40%-41%. Online social networking has helped spread this trend. Female fans have significantly increased their investment in interaction and consumption. In response to the shortage of female drivers, events such as the F1 Academy have implemented financial investment and media exposure plans for female racers. Among female fans, more than 40% are devoted to this event.

In F1: a transition from marginalization to core status. This change reflects the diversity of social culture and also reflects the internal driving force for the sustainable development of F1. By strengthening talent cultivation, optimizing workplace conditions, and shaping a more inclusive racing culture atmosphere, the number of women participating in F1 is expected to increase significantly, which will also help the racing industry innovate and upgrade and move towards prosperity.

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