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underrepresentation in commercial aviation**

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# **Women slowly taking off: An investigation into female underrepresentation in commercial aviation**

## **Abstract**

The purpose of this research is to explore the lack of female representation in commercial aviation, one of the most male-dominated fields in which women still do not benefit from the same professional opportunities as men. This issue constitutes a crucial challenge for the sector, as the inability to attract, recruit and retain women inhibits their professional development, limits growth and profitability, and results in a waste of female talent and skills. This is particularly significant and relevant with regards to the shortage of workforce that the industry will need to face in the next few decades due to the continuous growth of air travel demand and retiring aviation population. Qualitative interviews to female members of the sectors have been employed to distinguish and understand the main challenges and issues concerning women's participation in commercial aviation and to identify and analyse the causes behind the lack of female representation in the industry. Through the interviews and a qualitative content review of the CSR agenda of different airlines, the research also offers some recommendations to the industry to actively promote the representation of women across different departments and to achieve gender equality and diversity in its workforce.

**Key words:** Women, commercial aviation, gender, discrimination, CSR.

## **Highlights:**

- Discrimination and sexism endure as main challenges for women in the industry
- Lacking support and role models mostly cause female underrepresentation
- Family and education establishments also contribute to scarce female participation
- Efforts from airlines towards gender diversity and equality are underway

## **1. Introduction**

Commercial aviation has become one of the fastest growing industries within the transport sector. In the last few decades, it has undergone a series of changes and a rapid growth, which does not show signs of stopping and presupposes an increase in the use of resources. In order to keep up with the growing demand and deal with the shortage of a labour force as well as an aging and retiring population, the industry needs to draw upon all the available resources and talent, starting with women in particular as commercial aviation is one of the occupational sectors that is lacking in female representation.

Despite the fact that women have contributed in a significant way to aviation since its very beginning and have proved to possess the same technical skill and knowledge to fly an aircraft as men, the industry continues to be a male-dominated and male-oriented occupational sectors (Hansen and Oster, 1997; Hoppe, 2011): it is estimated the roughly 3% of pilots worldwide are

women, according to McCarthy *et al.* (2015) – in the UK the figure is estimated at 6% (Department for Transport, 2018)– whereas only less than 5% of world airlines are led by women (Skift, 2014).

It is for this reason that the commercial aviation industry is also under pressure due to the lack of gender diversity and equality from social and ethical points of view, especially in a period of increased awareness of women’s rights. Despite a few improvements and advancements, the industry seems slow to address the lack of female participation and the need for gender and equality as a fundamental issue to tackle in the immediate future, as it still tends to lack concrete efforts and actions to guarantee equal access and career development opportunities.

Therefore, it is the aim of this research to investigate the underrepresentation of women in the modern commercial aviation industry by focusing on the following two specific objectives:

1. To identify and understand the causes underlying female underrepresentation in the industry;
2. To identify strategies that can be pursued in order to achieve the recruitment and retention of women in commercial aviation and gender equality and diversity.

The research uses in-depth industry interviews, supplemented by a review of industry reports. The next section presents a literature review of the research area. This is followed by a description of the methodology. The next two sections following present the analysis and discussion of the findings. This leads to some conclusions being drawn in the final section where recommendations and ideas for future research are also presented.

## **2. Literature review**

Aviation plays a fundamental part of the global transport system and has a significant impact on national and global economies, particularly in relation to both direct and indirect employment (Mills *et al.*, 2014; Wensveen, 2015). However, its workforce does not mirror the diversity of the global workforce and society, as it is frequently identified that aviation is a historically male-dominated industry. It is argued that this is the result of the influence of military culture (Davey and Davidson, 2000), and of “both explicit discrimination in hiring and an internal culture that from the beginning of commercial aviation gave heavy emphasis to the masculine nature of flying” (Hansen and Oster, 1997: 114).

Indeed, the first flight operated by Orville and Wilbur Wright in North Carolina in 1903, spread the enthusiasm for aviation and inspired both men and women to acquire new skills (Bix, 2010). However, the latter were already unable to gain access to the industry in that period and were marginalised due to reservations about their training and flying abilities (expressed also by the Wright Brothers themselves), economic possibilities, pressures, doubts and open hostilities. Nevertheless, despite such prejudices and misconceptions, women made a significant contribution to the history of aviation with some very notable female aviators such as Winifred Drinkwater (first woman to hold a commercial pilot’s licence); Bessie Coleman (first black woman to hold a pilot’s license); Harriet Quimby (first woman to fly across the English Channel; Amelia Earhard (first

woman to fly solo across the Atlantic); and Amy Johnson (first woman to fly solo from England to Australia) (Neal-Smith and Cockburn, 2009). Moreover, Hansen and Oster (1997) recognised that aviation, like other highly specialised industries, has provided limited opportunities for women, especially after the end of the Second World War. Despite taking part in aviation-related activities during the conflict, as men were mostly involved in combat roles, women encountered difficulties in getting hired by commercial airlines right up until the 1960s and 1970s, even though there was the presence of organisations whose aim was to enhance diversity in the industry (such as The Ninety-Nines, the Women's Army Service Pilots and the British Women Pilots' Association) (*ibid*).

Aviation has long been considered a “white man's game” (Hoppe, 2011: 137), because of the overt discrimination towards minorities and women. In particular, despite a few changes in the last decades, its workforce is predominantly constituted by white men, leaving women – except flight attendants and ground-based support personnel – and ethnic groups in the minority. It is for this reason that it has been stated that “the aviation culture should represent the nation's culture and not continue to represent the twentieth century male (white) dominated culture (*ibid*: 155). Furthermore, Hansen and Oster (1997) also noted that, regardless of airline efforts to create more diverse communities, pilots and senior managers continue to be predominantly white and male, and that the aviation maintenance workforce still consists of men, even though they are less likely to be exclusively white (*ibid*).

The lack of female participation in commercial aviation can also be considered a consequence of the exclusion of women from military training programmes. Military aviation has been a historical source of trained specialists – particularly pilots – for commercial airlines, for reasons of costs, selection and adaptability to aircraft technology (Hansen and Oster, 1997; Harris, 2011). In addition to discrimination during training, lack of promotional opportunities and access, and stereotypes on their abilities, women in military aviation services also have had to confront legislative and policy barriers, despite their active participation in military occupations during the Second World War. As a consequence of the low gender diversity, the military has not had any particular effect on the supply of female trained pilots to commercial airlines (Hansen and Oster, 1997).

Female underrepresentation in commercial aviation has also received a considerable amount of attention from media across the world in recent years (The Guardian, 2014; BBC News, 2015; Forbes, 2016; El Mundo, 2017; Corriere della Sera, 2018; El País, 2018; The Guardian, 2018; The Telegraph, 2018). In essence, the lack of female representation and participation in commercial aviation not only threatens women's power, status and authority, but is also a severe concern for women's rights and gender equality in the workplace (Mills *et al.*, 2014). Women are an important resource from which the commercial aviation industry and community can draw and benefit. Therefore, recruitment and retention of women, removal of barriers and gender diversity could play a fundamental role in the growing demand for air travel, especially considering the aging and retiring aviation population (Kau and Kleiner, 2001; Germain *et al.*, 2012; Mills *et al.*, 2014; BBC News, 2019). Gender diversity, in particular, “has become a necessity for companies to survive and thrive” (Kau and Kleiner, 2001: 170).

Most studies on women in commercial aviation have been dedicated to female pilots, as it is the category in both civilian and military aviation which most lacks female participation (Cox, 1977; Hansen and Oster, 1997; Davey and Davidson, 2000; Depperschmidt and Bliss, 2009; Neal-Smith and Cockburn, 2009; Germain *et al.*, 2012; McCarthy *et al.*, 2015). Attention has also been drawn to female underrepresentation in non-pilot occupations: female flight instructors (Hansen and Oster, 1997; Vermeulen, 2009; Hoppe, 2011; Germain *et al.*, 2012), female flight students (Depperschmidt and Bliss, 2009), female pilots-in-training (Germain *et al.*, 2012), female technicians and engineers (Hansen and Oster, 1997; Hoppe, 2011), female airline managers (Rutherford, 2001; Skift, 2014; CAPA, 2015; Flight Airline Business, 2017; Bloomberg, 2018; Flight Airline Business, 2018) and female aviation experts (Hoffman, 2014). Female flight attendants (Lessor, 1984; Tyler and Abbott, 1998; Whitelegg, 2002; Baum, 2012) are well represented, as 75% of cabin crew workers are women (Boston Globe, 2017) and they generally enjoy acceptance within the industry. This, however, does not exclude them from discrimination and other issues.

Indeed, it is frequently argued that, in general, women in commercial aviation face recurring issues and challenges, mostly generated by the persisting masculine and misogynistic culture (Mills *et al.*, 2014). These can be summarised as gender discrimination, the “unequal treatment of individuals or groups compared to other like individuals or groups” (Flanders, 1994: 99) on the basis of someone’s gender. It considers the “differential ways in which women suffer [...] from employment discrimination, from a gendered division of labour within a global frame, and from violence, sexual and otherwise” (Butler, 2004: 8-9). Most forms of gender discrimination within commercial aviation include the gender wage gap (Kau and Kleiner, 2001), sexism including sexist jokes and stereotypical and patronising comments (Davey and Davidson, 2000; Neal-Smith and Cockburn, 2009; Winter *et al.*, 2014), sexual harassment (Davey and Davidson, 2000; Kau and Kleiner, 2001), social stigmas, patriarchal and occupational stereotypes and prejudices concerning women’s skills and flying abilities (Cox, 1977; Hansen and Oster, 1997; Davey and Davidson, 2000; Neal-Smith and Cockburn, 2009; Germain *et al.*, 2012; Winter *et al.*, 2014), discriminatory recruitment practices in terms of gender (Hoppe, 2011; Baum, 2012), lack of efforts to attract and to support women in education and aviation contexts (Cox, 1977; Hoppe, 2011; Germain *et al.*, 2012), lack of role models for young girls and women in aviation context (Cox, 1977; Hoppe, 2011), lack of acceptance from male peers and passengers (Davey and Davidson, 2000; Bazargan and Guzhua, 2011; Winter *et al.*, 2014 McCarthy *et al.*, 2015) despite claims of acceptance from aviation managers (Cox, 1977; Davey and Davidson, 2000; Hoppe, 2011), and work-family conflicts and assumptions about pregnancy and motherhood (Cox, 1977; Davey and Davidson, 2000; Neal-Smith and Cockburn, 2009).

In particular, one of the abovementioned issues, namely sexism, has received considerable attention in recent times. It has been defined as an invisible problem, as it manifests in situations where victim and perpetrator are present as the only witnesses (Bates, 2014). Women in non-traditional industries, such as commercial aviation and aviation in general, have to face what has been defined as “cultural sexism”, the “notion that sexism is an everyday, ordinary, occurrence, which takes place within masculinised hegemonic structures which interact with and create cultural norms and values” (Savigny, 2014: 797). According to this concept, women have to change their behaviour in order to fit in the aviation industry, because their gender is “acknowledged as different” (Neal-

Smith and Cockburn, 2009: 33). In this sense, “cultural sexism exposes women’s differences but likewise makes no allowance for them” (*ibid*: 36).

The commercial aviation industry is still often acknowledged as sexist. For example, the “Everyday Sexism Project”, a website in which women can provide examples of sexism experienced on a daily basis (Bates, 2014; Savigny, 2014), states that “We are encouraged to celebrate the advance of women into the cockpit, yet Ryanair still releases an all-female nude calendar and Virgin flight attendants go to work every day on a plane emblazoned with a cleavage baring, swimsuit clad caricature” (The Everyday Sexism Project, 2012: no page). It is worth mentioning, though, that some progress has been made. Ryanair has stopped releasing the charity calendar in 2014 after claims of discrimination and offence (The Telegraph, 2014), whereas in 2019 Virgin has announced that new aircraft will not feature the “Flying Lady” anymore, in favour of “Flying Icons” aiming to increase diversity and inclusion (FlightGlobal, 2019).

Recent feminist movements and new forms of activism addressing gender discrimination, sexism and harassment, such as #MeToo and Time’s-Up, have also had significant repercussions in commercial aviation. The former, founded in 2006 by Tarana Burke, aims to help all survivors of sexual violence and to create awareness around the issue (Me Too., 2018). It became viral in social media in late 2017 thanks to celebrity endorsement, hence the hashtag #MeToo, has encouraged women to share their own experience of sexual harassment or assault and rape, particularly in the workplace (Bischof, 2018; Rodino-Colocino, 2018). The latter, founded by 300 women working in the US entertainment industry in 2018, is a movement and organisation addressing inequality and injustice in the workplace (Time’s Up, 2018).

Despite their initial intention of addressing sexual harassment in the entertainment industry, both movements have crossed Hollywood’s boundaries, revealing a substantial number of cases of sexual harassment and assault in other industries as well (Lee, 2018). They have also allowed women to come forward and address the issue in commercial aviation, which has been unspoken for a number of decades due to “the dynamics of the airline industry, which are inherently gendered with origins in the sexualisation of women” (Huffington Post UK, 2017: no page).

The public press has also started to cover cases of sexual harassment both towards flight attendants (CNN World, 2018; Huffington Post UK, 2017; Korea Herald, 2018) and pilots (The Independent, 2018), perpetrated by passengers, flight crews and even CEOs. The whole industry can be partly held accountable, as it is responsible for the over-sexualisation and objectification of its employees in company marketing and advertising, annual reports or in-house magazines (Mills, 1998; Baum, 2012; AFA, 2018b; The Economist, 2018), for the industry-wide lack of clear-cut protocols on how to handle sexual harassment and assault (Salon, 2018), especially on-board, and therefore for poorly or not at all addressing the issue.

Nevertheless, the industry is working towards equality and diversity by considering these in their Corporate Social Responsibility (CSR) programmes. CSR can be defined as the “responsibility of enterprises for their impacts in society” (European Commission, 2011: 3), which aims to implement social, environmental and ethical concerns into a company’s operations and strategies and to

conjugate these and economic interests (*ibid*). CSR expects the involvement of four main concepts – sustainability, transparency, quality and integration – into organisational and operational activities (Coles *et al.*, 2014) in order to support corporate sustainable development, which is based on economic prosperity, environmental integrity and social equity (Brundtland, 1987).

Despite providing a major support to airlines, airports and aviation-related services (such as manufacturers, air traffic control and suppliers) are not often covered in the literature in relation to female representation or underrepresentation. However, as well as airlines, they have started to implement CSR initiatives into their business strategies not only to mitigate the negative environmental impacts and social effects of their daily operations, but also to develop a responsible and sustainable industry, especially in relation to their stakeholders – employees, passengers, government and regulating bodies (Emmott and Worman, 2008; Ancell, 2017). As regards social equity in the industry, CSR may be a significant resource in the attempt to reduce or even remove gendered occupational segregation and close the gender gap (also in economic terms), and has the potential to contribute to the integration of gender equality and diversity in the workplace (Grosser and Moon, 2005; Vilkè *et al.*, 2014). In particular, gender diversity is highly valued by companies in CSR initiatives as it creates “an environment in which people [...] can work together harmoniously by combating prejudice, stereotyping, harassment and undignified and disrespectful behaviour” (Emmott and Worman, 2008: 31).

Following this discussion, it seems important to reflect on a key point that has emerged during the review of the current literature. The academic community generally acknowledges gender equality and diversity issues in commercial aviation, but the quantity of research on the subject does not appear to be enough to create awareness and looks perhaps too focused only on certain categories of employment. The current academic literature concentrates mostly on gender-based issues – specifically general discriminations and sexism – among female pilots and flight attendants, often neglecting other professions within the sector (such as female technicians and engineers, flight instructors, pilots-in-training, and air traffic controllers), and does not adequately assess the potential main causes of underrepresentation (e.g. cultural assumptions and prejudices, supports and role models, family and education and aviation policies) in favour of debating more general discrimination. In addition, the trade literature usually tends to focus on management and boardroom diversity within companies and the current literature does not provide concrete strategies to be pursued in order to achieve diversity at industry-wide level.

Such gaps highlight the scarcity of perceptions from the industry and the public on female underrepresentation, which could provide more ground to the research and raise awareness on the issue. Hence, attempting to fill the gaps in the relevant academic literature constitutes the main rationale for the present research (which has been presented in the introduction) and reinforces the necessity of further investigation and research. The methodologies used in the literature have rarely involved in-depth parallel discussions with woman in different aviation roles, nor have they related attitudes and perceptions about gender issues directly with comparisons of management CSR policies. By adopting such approaches with this research, unique insights have been gained.

### **3. Methodology**



The research has been conducted with an interpretivist approach, which aims to understand the social world through people, empathy, shared experience and culture (Collins, 2010; Hammersley, 2013). Such an approach is associated with qualitative research methods, adopted here as they concern social phenomena or contexts requiring an assessment, rather than a measurement, and explore social world, processes, institutions, relationships and participants' experiences (Dey, 1993; Ograjenšek, 2016). This is in common with many feminists and gender studies, which are recent disciplines of research that have interdisciplinary bias and, therefore, tend to rely on such methods (Mason, 2002). Feminist research, in particular, aims to be beneficial for women, rather than just be about them: qualitative research may represent the means through which women's voices become a legitimate source of knowledge in a "more caring research environment that is non-hierarchical" (Liamputtong and Ezzy, 2009: 10). Such methods also provide the possibility to treat women as the subject and focus of research, rather than objects controlled by technical procedures.

Qualitative semi-structured interviews have been used because of their high level of detail, nuance and depth in terms of content. Each interview consisted mainly of four topics – personal experiences, female representation, discrimination and prejudice, and diversity and industry, all topics that are not extensively covered in current literature – that were explored through both fixed and flexible, opinion-value and experience-behaviour questions, depending on the position held by the participants within the commercial aviation sector (Table 1). As we were aiming to gather a high level of personalised data and to explore general views and personal experiences about a specific topic and issue, some questions were the same or similar, but many were asked simply to follow up on what the interviewees were saying. Only interviews with woman were considered in order to give more prominence to female voices and to gain their personal and subjective point of view and experience of women in the industry.

Ten women were initially contacted via email or through their social media channels, using non-probability sampling. Three methods have been employed: convenient sampling (sample available thanks to its accessibility), strategic sampling (producing a range of contexts), and representative sampling (attempting to recreate a microcosm of the industry) (Mason, 2002; Bryman, 2012). Participants were selected according to their background (from European countries but mostly working in the UK) and profession. For these reasons and time constraints, a small number of participants were involved, as also required by qualitative research methods. However, the final number of participants was unfortunately reduced due to negative response, as only five women were willing to partake in the research. The reasons for this were not clear. It could have been practical reasons due to lack of time, or perhaps reluctance to speak out or get involved with 'unofficial' research (the interviews were initially for an academic dissertation). Nevertheless the willing participants had familiarity of a number of roles (pilot, pilot/engineer, flight attendant, former pilot now flight instructor, private pilot now aviation expert) and so they could relate to different experiences.

The participants were asked to be interviewed either by phone or, when possible, with a face-to-face meeting. Only in one case the interview was carried out face-to-face in London and in Italian, due to the common native language of the participant and the researcher. In all the other cases, the

interviews were conducted in English and on the phone, as it was not possible for both parties to travel. All interviews were carried out between June and August 2018. Afterwards, manual transcription and thematic analysis was undertaken in order to identify and interpret patterns of recurring themes and sub-themes.

**Table 1: Research participants**

<b>Name and acronym</b>	<b>Job</b>	<b>Mode of interview</b>
Participant 1 (P1)	Cabin crew	Face-to-face interview
Participant 2 (P2)	Former private pilot and risk analyst, currently retired, but still attending aviation panels and committees	Phone interview
Participant 3 (P3)	Former pilot – First Officer, currently flight instructor	Phone interview
Participant 4 (P4)	Pilot – First Officer	Phone interview
Participant 5 (P5)	Pilot and engineer	Phone interview

In addition, this primary research was supplemented with a review of airline CSR webpages and reports. This was undertaken as it provides extra and useful details about the current strategies adopted by the industry in addition to the interviews. The CSR programmes of 17 airlines or airline groups were chosen among the world’s 60 largest airlines by traffic (FlightGlobal, 2018), through a selective process based on the level of depth and detail available, and the presence of recent developments specifically with regards to gender in CSR policies and reports. Airports, manufacturers and aviation-related services have been left out from the review, due to an apparent lack of detailed consideration of CSR policies on gender – as they tend to focus more on environmental issues – and to the limited relevance with the interviews.

## **4. Analysis**

### **4.1 The causes underlying female underrepresentation**

Based on the experiences of the five women participating in the research (Table 1), this section discusses the first objective of the paper, which aims to identify and understand the causes underlying female underrepresentation in commercial aviation. All five women interviewed affirmed that they had a positive experience in the industry, without having been personally involved in major issues based on their gender during their training and career. Most of them declared that their jobs were tough, mentally and physically demanding and challenging, but overall very rewarding. Nevertheless, the interviews confirmed that there are some obstacles to women’s

participation and representation in commercial aviation, which have been summarised in the three main themes discussed below.

### *Challenges and gender issues*

Despite their positive experiences, all participants mentioned different challenges and gender issues as part of their daily jobs and reported the presence of sexism, discrimination, prejudices and stereotypes. The interviewees provided some evidence of such discrimination, especially against female pilots but not exclusively, which mostly came from passengers, rather than instructors, male colleagues or management. For instance, P3 claimed that in her previous piloting job a male passenger felt uncomfortable with one or two female pilots in the cockpit. According to P5, instead, the biggest challenge of being a female pilot in a male-dominated environment is gaining respect from peers and people (mainly passengers) who do not think of a woman in such roles, in order to be considered and treated as equal.

P2 spoke out on the presence of “reverse prejudice” towards female pilots:

*I think that there is some sort of reverse prejudice, in which people think “oh, women make very good pilots, they are much better” or “I have flown on a plane with a female captain and the landing was very good”. That is reverse prejudice, and it is patronising. Women pilots are the same as male pilots, they are always pilots. It is a kind of prejudice and I find it annoying as well.*

As emerged from the interviews, part of the prejudice towards women in the industry also extends to the categories better represented and derives from cultural difference. For example, P1 pointed out that some international routes are particularly complicated to operate for cabin crew because of the culture of the passengers, who often prefer and require to be assisted by a man – possibly heterosexual – rather than a woman.

The tendency to assume that a female pilot is one of the cabin crew members has been noted by P3 and P4. This occurs due to the prejudice whereby flight attendant jobs are considered traditionally feminine for their service and caretaking features. Moreover, P1 stated that gender issues on her job tend to get usually ignored, even though she remarked that she usually got to work with more women than men and that, therefore, her category is well represented by women. However, she did admittedly explain that the airline she works for, as well as many other companies nowadays, is not as discriminatory as it used to be in terms of image, age and private life: it is fairly open towards physical appearance even though there are still some safety standards to respect.

Finally, P2 criticised policies in aviation and organisations at national and international levels for the scarce presence of women in the industry. She also noted a lack of female aviation experts: she has chaired and still chairs many aviation panels and committees and often finds herself to be the only woman speaking:

*I still very often am the only woman in these committees. It is quite amazing and it should change. It has to change and it will change, I hope. I am on one education committee and there are quite a few women there, but I mean, where are all the other women? Why are they not coming forward?*

### *Support and role models*

In general terms, the research participants suggested that what is stopping girls and women from pursuing a career in commercial aviation is not the fear of a hostile and discriminatory environment (P2) or prejudices and stereotypes (P4), but rather the lack of support towards those both wishing to start a career in aviation and already working in the field (P3 and P4). This issue may result in a serious lack of role models and mentors for women working in the industry.

Role models during education, training and career are believed to be crucial not only in case of female pilots, but also with female air traffic controllers and female engineers, as they have the potential to prove that women can actually work in aviation and that, despite being under- or unrepresented, they are not alone (P2 and P5). As agreed by P3 and P4, it is fundamental to set the example for others, as it is the most important step towards gender diversity and equality in the industry as well as “showing [women] that they can be and do whatever they want [...] regardless of their gender” (P3).

P4, moreover, emphasised the importance that role models can have according to her own experience of being used to think that “girls do not grow up to become pilots” until she heard a female voice saying “ladies and gentlemen, this is your captain speaking” on her first flight ever. Furthermore, P3, P4 and P5 felt that they were putting themselves in the front line in trying to inspire, engage and be role models for girls and women, encouraging them to consider a career in aviation. In particular, P3 and P4 share both the perks and the less glamorous sides of their jobs and experiences on social media platforms, which can arguably be considered nowadays the most effective tools to reach out to people, especially the younger generations, to create a community and inspire others (P4).

Finally, P2 pointed out in the interview that role models and mentors are specifically important and relevant in the work-life balance:

*The only real way to attract more women is to show them role models, that there are other women who do these jobs and still have a family, if they wish to have one, and still manage to have a private life as well, as a sort of work-life balance. Again, role models are everything in this context.*

### *Family and education*

The lack of support highlighted above may not be caused only by the industry, but also by family and educational establishments. Both often advise young women against pursuing non-traditional female careers. Firstly, families do not encourage a girl’s pilot career mostly because of financial reasons: training as a commercial pilot and getting an Airline Transport Pilot Licence may cost more than £100,000 and “if families are willing to pay all or part of that, they would prefer to do it

for a boy's career, rather than spending all that money on a girl's career", as claimed by P2. As she remarked continuously during the interview, there are other ways to avoid paying such large costs, but girls often do not know them.

However, financial concerns are not the only family issue that discourages girls and women to engage in aviation careers, there are also the long, unsociable working hours. The interviewees were more than aware than most that their jobs within commercial aviation involve spending a lot of time away from family and home due to variable shifts (P1 and P4). P1 also added that her job can be considered as a choice of life, and particularly demanding in case of an intense private life.

In addition, female students are rarely actively encouraged by educational institutions to choose sectors traditionally and historically dominated by men, such as Science, Technology, Engineering and Mathematics (STEM) subjects or aviation, for employment. This is most noticeable by the fact that often educators and teachers do not have knowledge about such fields, for instance on how to become pilots, what the job is like or whether scholarships, bursaries or training schemes are available (P2 and P3). Advising young girls and women against a career in non-traditional sectors only based on the fact that they are generally believed more of a man's field is itself a form of discrimination (P2): it reinforces gender bias in both higher education and professional development and contributes to girls not even considering a career in commercial aviation (P2 and P4).

#### **4.2 Role of industry strategies**

Having identified some of the causes underlying female underrepresentation, this section now considers the second objective of the research, namely to identify strategies and solutions that can be pursued in order to achieve the recruitment and retention of women in commercial aviation and gender equality and diversity.

First of all, the interviewees urged the whole industry to support gender equality (P2, P4 and P5), as women have demonstrated to be as capable and to possess the same flying skills and qualities as men, also since they all have to undergo and pass the same tests, take the same exams and follow the same standards and regulations regardless of gender (P4).

Secondly, the women interviewed provided some suggestions to the industry. Apart from hiring more women at all levels, which is an obvious prerequisite for diversity (P4), the industry should provide more role models to engage more girls and women through company websites, media reports and social media (P2, P4 and P5); support women through scholarships and bursaries (P2); introduce formal mentoring schemes managed by women (P4); and ensure the same rights for all employees, concerning salaries, opportunities for promotion and licence insurances (P3, P4 and P5). Also, P3 believed that education institutions and social organisations should support the industry by encouraging female students to engage in STEM subjects in order to consequently pursue a career in aviation or STEM fields.

Furthermore, it was felt that the industry should focus more on women’s needs, particularly regarding logistical and operational aspects, such as designing lighter trays for in-flight service that would make service and assistance to passengers easier and have less consequences on flight attendants’ physical health (P1); introducing trousers in the uniform for a question of comfort, necessity and safety on the job (P1); or designing aircraft cockpits to fit all pilots (P2). An example of the latter was provided by P2, who asked for more attention towards the flexibility of aircraft in fitting the average person, instead of the average man:

*Once upon a time, cars were designed to fit the average man. Over the last forty years, most cars have been designed to fit the average person, which means there is more flexibility in the features of cars. I think aircraft are still designed to fit the average man, not the average person. So, there are quite a lot of women that find more difficult than the average man to actually comfortably fly a plane. Most manufacturers and designers have not thought about it.*

Moreover, P5 suggested that the industry should make a shift in the workforce with more young women and men due to the aging population of certified pilots and mechanics. She claimed that the aging workforce of commercial aviation could have negative consequences in the future, especially in terms of growing demand and new technologies. However, the research participants (P2, P3, P4 and P5) did recognise that, despite still being male-dominated, the industry is making some efforts to diversify and equalise the workforce, as companies are getting more conscious that the lack of female representation is no longer tolerable (P5). In particular, airlines are becoming more proactive in their messages of diversity, and attempting to increase female participation in their workforce through a series of programmes and strategies. These can be illustrated with the comparison of CSR programmes of airlines or airline groups with specific regards to gender as summarised in Table 2.

**Table 2 – Examples of airlines embedding gender equality and diversity in their CSR programmes**

<p style="text-align: center;"><b>Air Canada</b></p>	<p>Support of gender equality and inclusivity by increasing the number of women in management, and by promoting opportunities for women and initiatives and events to engage them into aviation and technical careers (2017).</p>
<p style="text-align: center;"><b>Air France-KLM<sup>1</sup></b></p>	<p>Contribution to gender equality by promoting gender diversity, formalising commitments (such as the work-life balance), increasing the number of women in committees, and supporting initiatives aimed at female students (2017; 2018).</p>

<p style="text-align: center;"><b>Air New Zealand</b></p>	<p>Commitment to achieve diversity by prioritising and accelerating the advancement of women into leadership and creating a network of female pilots, engineers and STEM employees, and to ensure equal representation, remuneration and opportunities and fair and inclusive recruitment processes (2019a; 2019b).</p>
<p style="text-align: center;"><b>American Airlines</b></p>	<p>Promotion of gender inclusivity and diversity through the implementation of non-discrimination policies and the increase of female representation in boards (directors, managing directors and officers) (2018).</p>
<p style="text-align: center;"><b>Asiana Airlines</b></p>	<p>Promotion of gender equality in employment through the expansion of female workforce and the support of work-life balance (2017).</p>
<p style="text-align: center;"><b>British Airways</b></p>	<p>Promotion of a gender diversity and inclusion strategy in order to increase the gender balance, of STEM-related careers in schools, of programmes to engage diverse talent and of female roles models through different events (2019).</p>
<p style="text-align: center;"><b>Delta Air Lines</b></p>	<p>Promotion of gender inclusion, diversity and non-discrimination policies (2017).</p>
<p style="text-align: center;"><b>EasyJet</b></p>	<p>Encouragement of a different workforce and promotion of equal opportunities through several initiatives and campaigns to support gender equality in the workforce – also with regards to recruitment, retention, pay and promotion of women – and to reduce gender gap (2015; 2019).</p>
<p style="text-align: center;"><b>Iberia Group<sup>2</sup></b></p>	<p>Support of gender diversity also through work-life balance policies (2017).</p>

<p style="text-align: center;"><b>Japan Airlines</b></p>	<p>Commitment to gender diversity through the increase of career opportunities for women and initiatives aimed at the improvement of work environments and corporate cultures (2019).</p>
<p style="text-align: center;"><b>KLM</b></p>	<p>Pursuit of a balanced gender diversity, particularly in managements and supervisory boards and executive positions through internal promotion (2017).</p>
<p style="text-align: center;"><b>Lufthansa Group<sup>3</sup></b></p>	<p>Support of gender diversity through programmes aimed at improving women’s career opportunities and work-like balance for both women and men, the introduction of quotas to increase the number of women in management, and the promotion of equal pay (2017; 2018a; 2018b).</p>
<p style="text-align: center;"><b>Norwegian</b></p>	<p>Promotion of the creation of a work environment free from discriminations of gender and harassment (2019).</p>
<p style="text-align: center;"><b>Qantas</b></p>	<p>Commitment to challenge stereotypes and achieve gender balance by setting a target concerning the percentage of women in pilot and senior management positions, by removing bias from hiring and promotion decisions, and by participating to initiatives and partnerships (2016; 2017; 2019).</p>
<p style="text-align: center;"><b>Thomas Cook Airlines</b></p>	<p>Focus on gender diversity and introduction of targets for female representation in executive committees and leadership roles and of schemes aimed at the support of women (2018).</p>
<p style="text-align: center;"><b>Turkish Airlines</b></p>	<p>Advocacy of improved equal opportunities and non-discrimination policies through the increase of the number of women employed (2018).</p>



<b>United Airlines</b>	Promotion of gender diversity and inclusion through events and partnerships (2019).
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<sup>1</sup>: Air France-KLM (Air France, KLM, Hop!, Transavia, JOON): joint CSR.

<sup>2</sup>: Iberia Group (Iberia, Iberia regional (operated by Air Nostrum, franchisee of Iberia), Iberia Express): joint CSR.

<sup>3</sup>: Lufthansa Group (Lufthansa, Brussels Airlines, Austrian Airlines, SWISS, Eurowings): joint CSR.

Source: Compiled by authors from airline CSR reports (years in brackets refer to the CRS report or website).

Many airlines – such as British Airways, Delta, Air Canada, Emirates, Virgin Atlantic, Aer Lingus, Thomas Cook Airlines, Air India, Ethiopian Airlines and airlines belonging to Lufthansa Group – are also raising awareness on lacking diversity in the industry by operating all-female flights on International Girls and Women’s Days (in October and March).

Furthermore, the industry has established a series of initiatives that support women not only in commercial aviation sectors, but also in non-traditional and STEM education and career paths. One of the most proactive companies within the sector in relation to this is EasyJet (2016), which launched the “Amy Johnson Flying Initiative” in 2015 in order to encourage more women to undertake a career as a commercial pilot and, therefore, increase the airline’s proportion of female workforce. Also mentioned as an important example by P2 in her interview, the company is engaged in supporting women’s STEM and aviation education and career by deploying female employees to speak in school, colleges, social groups and organisations and act as role models, in mentoring female pilots and in developing and retaining female pilots to take captaincy and pilot management and training roles (ibid). Finally, EasyJet (2018) has set a target to have one female every five new pilots by 2020.

An example of good practice in the UK, which could be adopted as a model for other countries, is with the Government establishing the “Women in Aviation and Aerospace Charter” in 2018 in order to improve the gender balance of the industry workforce. Many UK airlines (including IAG Group, EasyJet, Thomas Cook, TUI and Virgin Atlantic), airports, aerospace companies, trade organisations and universities have signed the Charter and are committed to provide fair opportunities and promote gender diversity and inclusion (Department for Transport, 2018; HM Government, 2018).

Finally, as a support to the airlines, there are some organisation and associations – such as Women in Aviation International, International Aviation Women Association and British Women Pilots’ Association – whose aims are promoting aviation among women, supporting women entering and working in the industry, ensuring gender equality and diversity, inspiring young women to undertake a career in aviation and STEM subjects, providing scholarships and training, and promoting initiatives to raise awareness.

## **5. Discussion**

### **5.1 Discrimination by employment category**

Despite recognising that issues based on gender have affected their careers to a minor extent, the five women interviewed acknowledged that discrimination and prejudice towards women working in commercial aviation, especially female pilots, are still present. The cause of this has to be found not only in the low percentage of women in the workforce and but also in the associated historic, cultural and popular perception of female aviation roles (Cox ,1977; Mills *et al.*, ,2014; and McCarthy *et al.*, 2015). It has also something to do with the challenges created by psychological, sociological and physical factors, as emerged from the interviews.

Psychological factors mostly relate to the perception that certain occupations are off-limits to women, attributable to female role models, early education and patriarchal culture. This attitude contributes to the creation of the assumption according to which, for example, women can become “airline stewardesses, but never pilots” (Cox, 1977: 155). Sociological factors, moreover, consist of two main issues: the high costs of becoming a pilot, which has been mentioned by P2, and the exclusion of women from military programmes (Hansen and Oster, 1997).

In addition, limits to women’s entry to pilot positions are also based on assumptions concerning physiological differences between female and male, particularly in relation to the long-hours of shifts required, possibility of pregnancy and height requirements. Once women overcome these barriers, they have to face prejudices and discriminations that mostly come from male instructors and pilots, airline management and passengers. All the research participants have mentioned several times that most discriminatory and sexist comments towards them come from passengers, as they have still some misconceptions and difficulties in trusting female pilots. It is possible that the passenger lack of trust in women pilots may have contributed to the resistance of the industry in accepting and supporting them (Cox, 1977; Winter et al., 2014; McCarthy et al., 2015).

As confirmed by P1, flight attendants are also significantly affected by gender discrimination. Despite women having been historically well represented in such positions, they have been subjected to sexist discrimination regarding age, height, weight, marriage and pregnancy policies. This is due to the fact that this profession has been considered typically feminine because it is believed to rely on emotional labour, a concept constructed around the appropriation of sexual difference that essentialises women’s virtues into charm, pastoral care and sexuality and turns them into a commodity form as discussed by -Taylor and Tyler (2000). ; In this sense, the role of cabin crew members has been exploited, commercialised and highly sexualised in marketing by airlines from the 1950s onwards as a consequence of the delivery of in-flight services and training focused on the needs of male customers. This may have contributed to overexpose female flight attendants to sexual harassment in the workplace. Especially in the aftermath of the #MeToo and Time’s Up movements, the Association of Flight Attendants (AFA, 2018a), the union representing American flight attendants, is calling the airline industry - including airlines, regulators, legislators, unions and passengers – to step up and take action against sexual harassment and assault, which are undermining the premises for a safe work environment.

Moreover, as regards what P1 referred in relation to passenger culture, flight attendants are expected to be aware of cross-cultural differences that could be encountered during cabin service on international operations. This was also argued by Prideaux and Kim (2006), who claimed that, as

commercial aviation is a global consumer-oriented field, it is normal that flight attendants come into contact and assist passengers from different cultural backgrounds and, therefore, they need to possess a high level of cultural awareness and sensitivity.

Finally, during the interview with P2, the lack of female aviation experts has been highlighted. This issue was also investigated by Tami Hoffman, interviews editor at Sky News, in relation to her experience, as she could not find any during the coverage of the disappearance of Malaysia Airlines' flight MH370 in March 2014. She respects their "reluctance to speculate" (2014: no page) when asking some female pilots to comment on the news, but, at the same time, she questions their reticence and lack of confidence. These may be the product of the constant questioning about technical knowledge and skills women are subjected to, which may lead to women questioning themselves and "doing everything twice as good as men" (i.e. doubling their performance levels) in order to gain the respect they deserve from colleagues or from passengers and be considered and treated as equal, as asserted also by P5.

## **5.2 Lack of support from families and education and lack of role models**

As demonstrated by the interviewees' responses, women wishing to enter the industry and women already working in it consider the lack of support and role models as a limit for their professional development in commercial aviation, rather than fears of a male-dominated and sexist environment, as argued by Germain *et al.* (2012) It is for this reason that the interviewees were urging the industry to provide more role models and introduce formal mentoring schemes in order to connect with other women in commercial aviation and professional associations providing all kinds of support.

Young women, for example, not only are not actively encouraged from their families to start a career as pilots, but also do not find any role model in today's society, This has been repeated several times by the interviewees, therefore the information has been extrapolated by the evidence gathered in the research (R6). Their presence is still considered as extraordinary: unless they are the subjects of gendered discrimination or harassment or of an achievement, it is very rare for a female pilot to appear in the media or in popular culture, as supported by Neal-Smith and Cockburn (2009). In fact, pilots in films or TV-shows are usually portrayed by men – Tom Cruise in "Top Gun", Leonardo di Caprio in "Catch me if you can", Denzel Washington in "Flight", for instance – whereas women are left with sexist roles as cabin crew, such as in TV-show "Pan Am". The lack of visible representation in such contexts is a worrying issue for the British Airline Pilots' Association, as "this could be sending a message to young girls that if they want to work in aviation, it can't be as a pilot" (2018: no page), as also experienced by P4.

Another issue that is considered to be affecting women at work more than men is the work-life balance, defined by Clark (2000: 751) as "the satisfaction and good functioning at work and at home, with a minimum of role conflict". It is in the context of work-life balance that the importance of role models and mentors comes to the forefront, also according to P2: they can help demonstrate that women can work in aviation, as pilots in particular, and still have an intense personal life. Nevertheless, it is possible to conclude that the industry is working to improve the situation: for

instance, P1 in her interview appeared not to be worried about her work-life balance in the future as the company she works for offers subsidies for parents and allows employees to shift to a 75% part-time work schedule in order to dedicate more time to their private life.

Finally, the lack of support and encouragement does not only come from the industry, but also in educational establishments, as this is the main institution where all gender bias starts. In particular, as P2 highlighted and as identified also by Hoppe (2011), it can be said that there is a general lack of information, awareness and promotion of STEM and aviation career fields within education institutions, which discourages female students to engage in careers in male-dominated sectors and, as a consequence, results in a waste of female talents and skills. Also, it reinforces cultural and social barriers which concerns non-traditional professions. Therefore, a more thorough investigation of non-traditional careers, in particular STEM and aviation, to be carried out by educators and institutions is highly recommended, in order to achieve an increase in the number of women in such fields.

### **5.3 Concerns for a more equal and diverse industry**

The research has highlighted the attempts made by the industry, and by the airlines in particular, towards the creation of a more equal and diverse workforce. Nevertheless, it appears that most efforts at the moment have still not been put into practice. With specific regards to CSR programmes and initiatives, airlines have still a long way ahead of them, especially considering that out of the sixty largest airlines in the world by traffic, only seventeen – just a little more than a quarter – are taking into account gender equality and diversity as a fundamental part of their CSR programmes and as the premise to grow and be successful. This is also due to the fact that most policies are dedicated to the increase of female participation and representation in executive positions, management and boards, but there is little to no attention to the increase of number of women in the cockpits or in the highly-specialised jobs within the industry. This is also confirmed by data from the International Society of Women Airline Pilots (2019), which shows companies with specific gender directives in CSR programmes having a lower percentage of female pilots than companies which do not refer to gender equality and diversity in their CSR. Moreover there may be an element of gender washing with the stated CSR policies (i.e. a company presenting itself as being committed to gender equality but not making any substantial effort to achieve this) as some of these are rather vague with no specific numerical targets.

Also, the lack of consistent and constant improvements can be noticed in the suggestions proposed by the research participants to the industry, which appear to be in line with what has been discussed so far and seem to be more practical than CSR initiatives, in particular in regards to hearing women's voices. For instance, the lack of flexibility is a common criticism towards the industry, as reported also by Cox (1977) and Germain *et al.* (2012), who claimed that aircraft equipment – most notably seat and pedals – is usually designed to accommodate the average male physical characteristics.

Therefore, it is fundamental for the industry to start taking into consideration the issue in a more practical way in the next few years as it may lead to bigger problems in the future, in particular due

to the aging population in aviation. The latter is a very critical issue in the industry, as there is a significant need for young talents in all its aspects of aviation, which is why P5 affirmed in the interview that she is hoping to see a shift towards younger women – and men as well – in the future workforce of the industry.

However, the shortage in workforce due to the aging and retiring aviation population does not only affect pilots but also engineers and mechanics, air traffic controllers and managers, and it will have consequences on the expansion and modernisation of the global airline fleet. As P5 mentioned, new technologies will have a significant impact on the workforce, which will need to be composed of technologically aware diagnosticians, and on maintenance, data analytics, avionics and electrical systems. Hence, an increased number of STEM students and professionals in the commercial aviation industry will be needed in the next decade.

Diversity may be the answer to part of the problem and if the industry fails to engage women, it will not be able to accommodate its growth. The low ratio of women pilots is contributing to the general shortfall of pilots in both military and civilian aviation, especially considering the significant growth in demand that commercial aviation will have to face in the next decades: IATA (2017) estimates that air passengers will almost double to 7.8 billion in 2036 (4 billion expected in 2017), whereas Boeing (2017) claims that by 2036 the commercial airline industry will need 637,000 new pilots, 648,000 new aviation technicians and 839,000 flight attendants worldwide to keep up with the demand.

## **6. Conclusions**

The main aim of the present research has been to investigate the underrepresentation of women in commercial aviation. The picture that emerges from the achievement of the first objective through qualitative interviews to five women working in commercial aviation is that female underrepresentation is not only caused by industry-related factors, which influence women's decision to pursue the aviation path, but also by cultural factors, such as the perpetration of gendered division of labour creating male-dominated and female-dominated professions. Commercial aviation is still believed to be a men's field due to the influence of gender roles and bias on the society and culture, which reinforce the presence of gender-based issues in the industry. As a result, women wishing to pursue an aviation career or working in it face male-dominated training and working environment, sexist stereotypes and prejudices, gender discriminations such as wage gap and (sexual) harassment, work-life imbalances and low visibility in media and popular culture, which are among the first causes of female underrepresentation in the industry. Passengers and management mostly cause such issues, but families and education establishments are also to blame, as the underrepresentation of women in aviation is not only the result of discriminatory hiring practices and policies from the industry, but also of the lack of encouragement of young women towards STEM and aviation education and career paths.

The second objective has been achieved through the qualitative interviews and the review of the CSR programmes of 17 airlines or airline groups, as some strategies and solutions that can be pursued to achieve the fair recruitment and retention of women in commercial aviation and gender

equality and diversity have been identified. In particular, the findings and related discussion according to the reviewed literature have demonstrated that commercial aviation needs to be more proactive in its efforts to achieve a more equal and diverse workforce. As shown, the solution towards gender equality and diversity in commercial aviation goes way beyond hiring more women: it is about creating a positive and supportive environment in which women's voices are heard and in which they have the same career opportunities as their male counterparts. More in general, and in a socio-cultural context, it is about making people accustomed to see women in every occupational sector.

Taking into account the suggestions provided by the research participants, which are well supported by the literature, this research makes the following recommendations to the industry:

- Providing more female role models (also through social media) in order to give women already working in the industry more visibility, to attract more young women and engage them into taking into consideration the aviation path;
- Creating and offering formal mentoring schemes managed by women in order to support professionally the female workforce;
- Launching a communication and awareness campaign for education institutions and organisations in order to educate them about the industry, the need to support every student's career choice regardless of their gender, without reinforcing gender roles and bias, and to promote aviation and STEM careers among young female students;
- Establishing financial assistance programmes for aviation education and training to help women from less advantaged backgrounds to pursue a career in the industry;
- Acting proactively against any discriminatory behaviour – may it come from a company's own employee or a passenger – in order to contribute to the eradication of sexist stereotypes and discriminations.

As with all research, there are some limitations. Although it would not be applicable with such qualitative research to represent the microcosm of women in commercial aviation, a bigger-sized and diverse sample could have provided the research with more validity and quality. Likewise undertaking a more comprehensive assessment of the CSR reports, by considering and comparing not only more airlines but also airports or aviation-related services, could have provided more insight. The research could have included an investigation of human resources strategies to attract and retain more women in commercial aviation. In future studies, quantitative research methods could be employed in combination with qualitative research methods in order to investigate and understand the extent to which gender-based issues occur within the industry and to provide concrete numbers on the participation of women in aviation-related sectors, and it could be helpful to extend the research to other fields – such as military aviation or general aviation - to obtain a more complete overview. Additional research on role models and mentors in aviation and the influence of families and educators on women wishing to work in the sector is suggested as they constitute critical barriers towards women's advancement in commercial aviation.

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