Breaking Barriers for Women in Aviation:

FLIGHT PLAN FOR THE FUTURE

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WIAAB VISION STATEMENT

The Women in Aviation Advisory Board seeks to leave to future generations an industry that has attracted and retained the best possible talent. The result will be an industry on the leading edge of safety, innovation, and profitability. Purposeful attention to workplace culture, recruitment, retention, and advancement of women will improve access to all those seeking opportunity for satisfying careers.

STATEMENT FROM THE CHAIR

While participation of women in the workforce has increased dramatically over the past four decades, despite all efforts, the percentage of women in the aviation industry hasn't appreciably changed. Fewer than 10% of licensed pilots are women and the percentage of women in maintenance fields is in the single digits.

Especially in a tight post-pandemic labor market, the aviation industry desperately needs women to choose aviation careers. Attracting and retaining women is critical to the future of the industry.

The Women in Aviation Advisory Board was created to take a deep look at the industry, identify barriers to recruiting and retaining women, and make recommendations for change.

In nearly two years of joint work, the Board reviewed research on the barriers facing women in aviation, identified strategies to address those barriers, and reached consensus on recommendations for change.

The biggest barrier that discourages women from entering and staying in aviation careers is culture – and it is the hardest to change. Women don't feel like they belong. Changing culture requires consistent leadership commitment over time in thousands of large and small actions across government and industry.

It's hard work. It's time to get started.

We submit this report to the Secretary of Transportation, the Administrator of the FAA and the Congress and look forward to working with you to implement it.

Dr. Heather Wilson
Chair
Women in Aviation Advisory Board

BOARD MEMBERSHIP

The members of the Women in Aviation Advisory Board, appointed in May 2020, come from diverse backgrounds and have particular expertise that combine to create a balanced approach to meet the strategies and objectives set forth by the Secretary of Transportation. The Board includes representatives from major airlines and aerospace companies, non-profit organizations within the aviation industry, aviation business associations, engineering business associations, United States Air Force Auxiliary Civil Air Patrol, and institutions of higher education and aviation trade schools.

Rene Banglesdorf
Founder and CEO,
The Aviation Collective

Crystal L. Barrois
First Officer & Manager-Fleet Transactions,
Delta Air Lines

Kandy Bernskoetter
National Membership Committee Chair,
Air Line Pilots Association, International,
Captain, FedEx Express

Maryanne DeMarco
Executive Director,
Coalition of Airline Pilots Associations

Karrie Dixon, EdD
Chancellor and Chief Executive Officer,
Elizabeth City State University

Dana Donati
CEO,
United Aviate Academy

Lindsey Dreiling
Executive Director of Aviation Strategy, Kansas State University

Elise Eberwein
Executive Vice President of People & Communications, American Airlines

Kathryn P. Fraser
Director, Safety Assurance, NetJets

Kate Gebo
Executive Vice President, Human Resources and Labor Relations, United Airlines

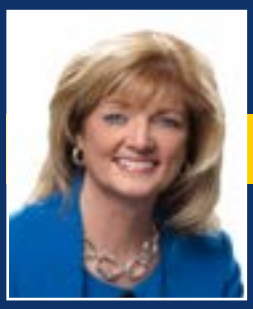
Patricia Gilbert
Executive Vice President Americas Region of IFATCA and Former Executive Vice President, NATCA

Lauren Lacey Haertlein
Aviation Regulatory Counsel, Zipline International

Laura Benson Jones ATP, M.Ed
Founder and Board Chair, Flight Club 502

Kelly Jost, PE
Managing Engineer, Aviation, C&S Companies

Rebecca Lutte, PhD
Associate Professor, The University of Nebraska at Omaha Aviation Institute and Texans for General Aviation



Jean Lydon-Rodgers
President & CEO,
GE Aviation Services (retired)

Suzanne Markle
President and Chief Executive Officer, Pittsburgh Institute of Aeronautics

Candace McGraw
Chief Executive Officer,
Cincinnati/Northern Kentucky International Airport

Allison McKay
CEO and President,
Women in Aviation International

Tracy Miller
President,
Mid-Atlantic Aerospace Complex

Martha Morris
Colonel,
Civil Air Patrol

Constance von Muehlen
Executive Vice President & Chief Operating Officer,
Alaska Airlines

Stacey Rudser
National Board of Directors,
Association for Women in Aviation Maintenance

Kriya Shortt
Senior Vice President,
Global Parts Distribution,
Textron Aviation

Tammie Jo Shults
Navy Pilot, Southwest Airlines Captain (retired), Author

Amy Spowart
President and CEO, National Aviation Hall of Fame

Bobbi Wells
Vice President, Safety, Environmental & Regulatory Compliance, American Airlines

Pamela D. Williams
Director Academy Services, United Aviate Academy; Board of Advisors, Organization of Black Aerospace Professionals

Beth Wilson
Education Specialist, Smithsonian Institution, National Air and Space Museum

Heather Wilson, PhD
President, The University of Texas at El Paso and former Secretary of the U.S. Air Force

EXECUTIVE SUMMARY

The Women in Aviation Advisory Board was established by Congress in the Federal Aviation Administration (FAA) Reauthorization Act of 2018 (Public Law 115-254, SEC.602). The Board was charged with developing and providing independent recommendations and strategies to the FAA Administrator to explore opportunities for encouraging and supporting female students and aviators to pursue a career in aviation, with the objective of promoting organizations and programs that are providing education, training, mentorship, outreach, and recruitment of women for positions in the aviation industry.

Culture change starts with leadership.

Leaders in aviation have the responsibility to ensure an effective culture change strategy is implemented inside their organizations.

Congress established the Women in Aviation Advisory Board ("the Board") to address the significant underrepresentation of women in aviation. Although women in aviation have broken through barriers and made remarkable contributions, the industry has been largely unsuccessful in meaningfully attracting, retaining, and advancing women. In plotting the course of a flight, without corrections for real-time wind and weather, we will not succeed in navigating to our destination. The same is true for charting the course for the future of our industry. This Board is tasked with checking aviation's course and making recommendations to navigate toward a stronger future.

Attracting, retaining, and advancing women in aviation is critical to the U.S. aviation industry's safety, sustainability, profitability, and ability to innovate.

A Call to Action

In most aviation occupations, women make up less than 20% of the workforce—and for the last sixty years, the introduction of women into the industry has been largely stagnant. Much of the aviation workforce also lacks ethnic and racial diversity. Women who belong to additional underrepresented groups are part of a very small minority, facing unique barriers and often even greater challenges.

The aviation industry needs more women to pursue aviation careers to access the breadth of talent needed to meet current—and growing—workforce challenges. Attracting, retaining, and advancing women in aviation is critical to the U.S. aviation industry's safety, sustainability, profitability, and ability to innovate.

To understand the range of factors that attract women to aviation careers—as well as those that discourage women from pursuing and continuing in aviation—the Board drew upon original and existing research, interviews, literature reviews, and personal experiences. Fundamentally, the Board's work confirmed that "[w]omen and men experience their careers in aviation differently—from their earliest days in the industry to the most senior levels."[1]

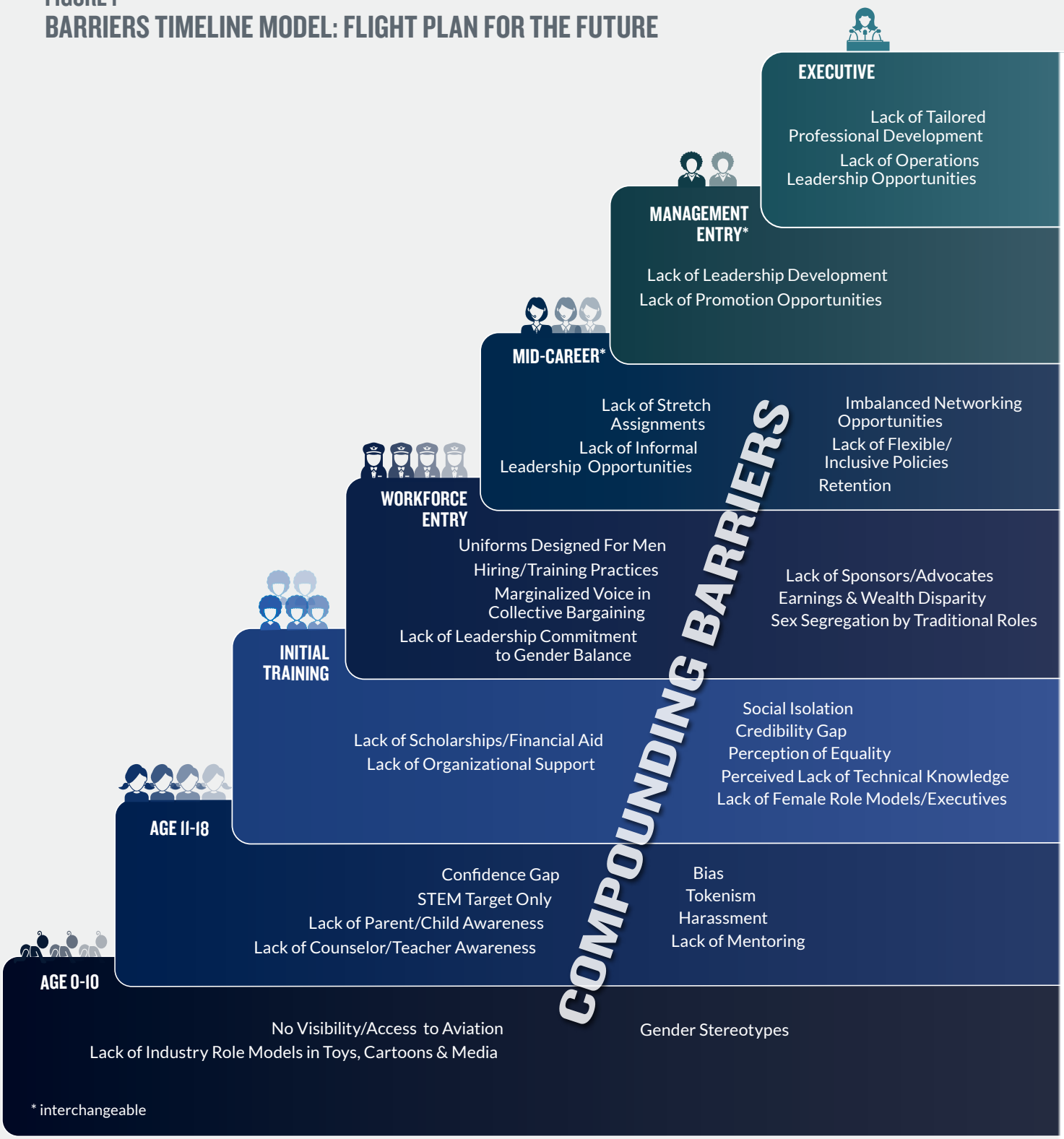
Recommendations to Improve the Recruitment, Retention, and Advancement of Women

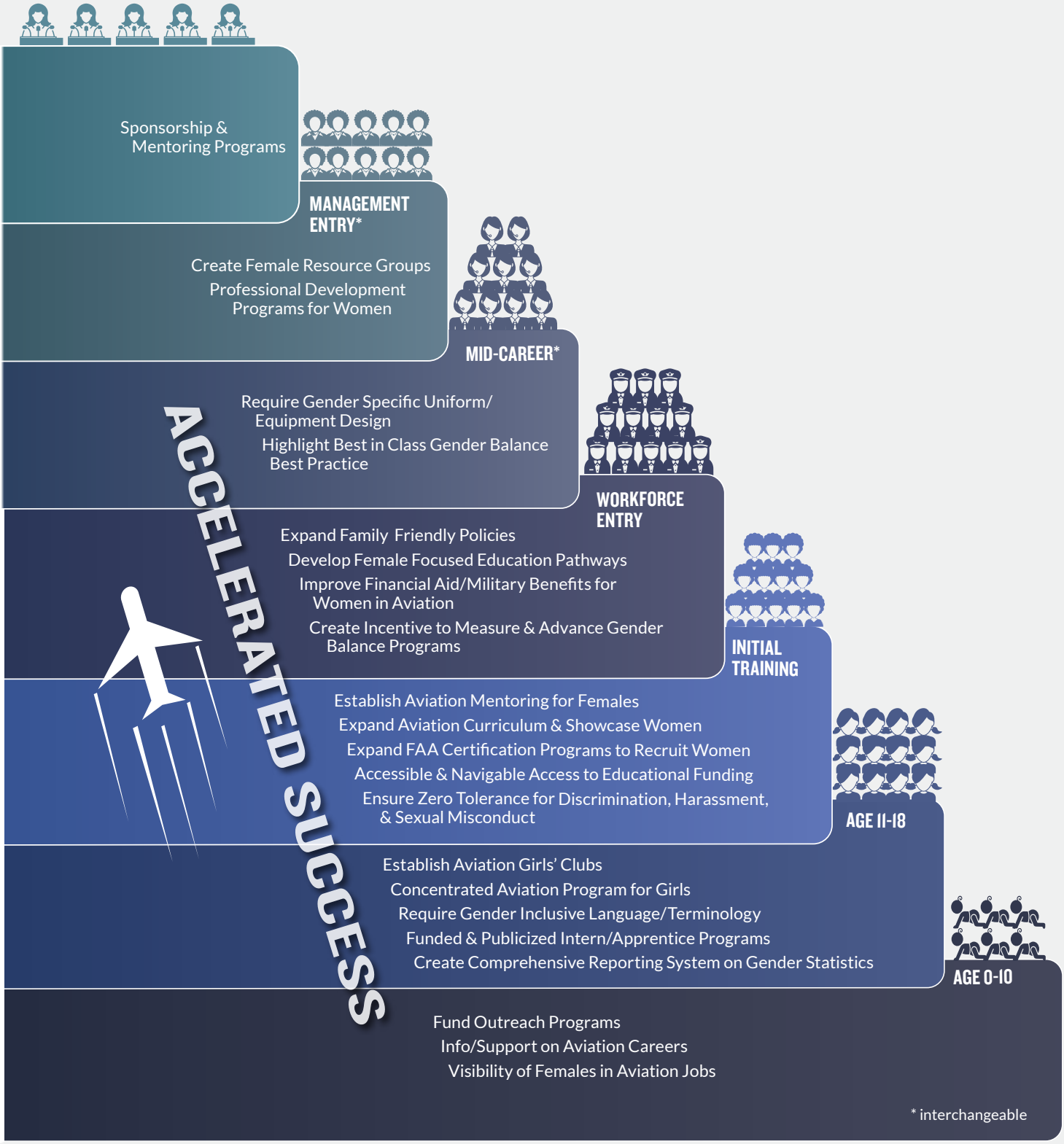
A complex system of barriers impedes the recruitment, retention, and advancement for women in aviation. The Board's Barriers Timeline Model captures those barriers and depicts how they compound over time without intervention. The Barriers Timeline Model also shows opportunities for strategic interventions—leverage points. These points are the basis of the Board's recommendations.

[1]Oliver Wyman & the International Aviation Womens Association (IAWA), "Lift Off to Leadership," 2021, https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2021/IAWA_OW_Women%20in%20Aviation_FINAL_Copy.pdf, pg. 10.

FIGURE 1

BARRIERS TIMELINE MODEL: FLIGHT PLAN FOR THE FUTURE




ACCELERATED SUCCESS
Sponsorship & Mentoring Programs
MANAGEMENT ENTRY*
Create Female Resource Groups
Professional Development Programs for Women
MID-CAREER*
Require Gender Specific Uniform/ Equipment Design
Highlight Best in Class Gender Balance Best Practice
WORKFORCE ENTRY
Expand Family Friendly Policies
Develop Female Focused Education Pathways
Improve Financial Aid/Military Benefits for Women in Aviation
Create Incentive to Measure & Advance Gender Balance Programs
INITIAL TRAINING
Establish Aviation Mentoring for Females
Expand Aviation Curriculum & Showcase Women
Expand FAA Certification Programs to Recruit Women
Accessible & Navigable Access to Educational Funding
Ensure Zero Tolerance for Discrimination, Harassment, & Sexual Misconduct
AGE 11-18
Establish Aviation Girls' Clubs
Concentrated Aviation Program for Girls
Require Gender Inclusive Language/Terminology
Funded & Publicized Intern/Apprentice Programs
Create Comprehensive Reporting System on Gender Statistics
AGE 0-10
Fund Outreach Programs
Info/Support on Aviation Careers
Visibility of Females in Aviation Jobs
* interchangeable

The Board's recommendations are grouped into five general areas:

In addition to recommendations specific to culture change, culture underlies most, if not all, of the Board's recommendations on recruitment, retention, advancement, and data. Further, just as the impact of many of the barriers extends beyond when women first experience them, many of the recommendations positively impact more than one phase of a woman's journey. The scope and benefits of some of the recommendations also are not limited to women; these recommendations improve the representation of women in aviation by improving the recruitment, retention, and advancement of all talent.

CULTURE: Aviation was built around prescribed gender roles that can impact women at every stage of their careers. Aviation's culture must become more inclusive; this fundamental point runs through the Board's recommendations.

Culture change starts with leadership. Leaders in aviation have the responsibility to ensure effective culture change strategies are implemented inside their organizations. Entities driving meaningful change in the advancement of women should be recognized and be provided opportunities to connect and share best practices. For women to have an indisputable sense of belonging, the FAA and industry must increase the visibility of women in aviation careers. The FAA and industry must also address language and professional appearance standards. Language and professional appearance standards are two of the most powerful external manifestations of a culture's values. The Board applauds the FAA's efforts to identify and remedy the use of terminology that excludes members from the aviation community; such work must continue. The FAA must also encourage organizations to implement inclusive aviation uniform and professional appearance standards policies.

Culture change requires effectively addressing gender biases, discrimination, and sexual harassment. These pressures can be amplified in male-dominated occupations like aviation. Congress and the FAA should establish an industry-wide independent reporting program for incidents of gender bias, discrimination, and sexual harassment. The FAA must provide better education and awareness to applicants about the scope of FAA medical examinations and how to report abuses. The industry must also acknowledge the importance of mental health and provide every employee with access to mental health care resources.

In addition to combating bullying, harassment, and discrimination, it is imperative leaders in government and industry take steps to proactively foster environments of respect and professionalism. To support leadership commitment and organizational change, the FAA should incorporate bias, harassment, and discrimination awareness education, and allyship training in Safety Management Systems (SMS).[2]

Finally, to promote long-term accountability and provide continued advice to the FAA and the Department of Transportation, the Board recommends that Congress establish a Women in Aviation Advisory Committee. The recommendations in this Report require sustained focus, across current and future administrations, and coordination among many organizations—efforts that this advisory committee will be critical in facilitating and supporting.

RECRUITMENT: Early exposure to aviation and ongoing engagement are essential to the recruitment of women into the industry. The FAA, in collaboration with industry, should develop, maintain, and promote a "one-stop-shop" Virtual Resource Center (VRC) to help inform students, parents, teachers, and volunteers about career pathways, educational and scholarship resources, and engagement opportunities for girls and women who want to pursue careers in aviation. Additionally, resources are needed to develop and maintain partnerships for educational programs leading to aviation-related certificates. Government and industry should support the development and implementation of aviation-focused curricula and career education for in-school and out-of-school programs, and internship opportunities at local aviation facilities. The FAA's website should be updated and regularly reviewed for curriculum resources, internships, scholarships, and pathway programs. The Board recommends creating programs like training for career workforce development professionals and immersive confidence

[2] "Safety Management System - SMS Explained," FAA, last accessed February 8, 2022, https://www.faa.gov/about/initiatives/sms/explained.

camps so that young girls and women can connect, engage, and learn about careers and opportunities in aviation. The FAA and the Department of Transportation also should establish recruitment offices and career readiness partnerships with other federal entities, and coordinate with state governments on nationwide workforce needs and connecting students interested in aviation careers with educational resources.

Economic factors also create significant barriers that discourage women from entering aviation. Increasing federal financial aid for aviation careers will help attract more talent into aviation, including women. Enhancing competitive grant programs, such as Workforce Development Grants, will also provide greater access to funding. Further, clear pathways to funding for schools serving women, minorities, and veterans are essential to recruiting new talent, including women. A Scholarship Program Toolkit, developed by the FAA, will allow organizations to easily implement scholarship programs. In addition to scholarships, industry, in partnership with the FAA, the Department of Transportation, and the U.S. Military, can create awareness of aviation career opportunities by offering students the ability to complete an aviation program or earn an FAA certificate in high school.

Finally, mentoring programs for students are critical to encouraging and inspiring young women to consider aviation careers. A mentoring app designed specifically for the aviation industry will allow young women to easily access and connect with mentors.

RETENTION: Retention is critical to ensure that women remain in the talent pipeline and are set up for long-term career success. To retain women in aviation, organizations must create environments in which women are seen, heard, and valued.

This cannot be achieved unless work-life balance is addressed. Industry organizations must examine, update, and create policies and workplace cultures that allow women to balance work and life—particularly caregiving responsibilities. At a minimum, this includes paid parental and paid family leave, scheduling flexibility, access to childcare, and accommodating nursing mothers. Further, employees must be aware of and understand these benefits and be able to use them without fear of retribution, reprisal, or impact on career progression.

Mentoring is also critical to the retention of women in the aviation industry. Mentors can provide essential "navigational support" to women throughout their career journeys. Accordingly, to improve the retention of women in aviation, the Board recommends that the aviation industry provide mentoring opportunities for employees.

ADVANCEMENT: The advancement of women into leadership roles in aviation is essential to driving cultural change. Women in leadership roles must be visible and women must be included in decision making. To help elevate women into key roles, industry stakeholders should create professional development programs purposefully designed for women, and the FAA should provide resources and best practices for implementing such programs.

Industry also should develop and promote affinity groups, communities of support, and employee resource groups that provide critical skills development and facilitate relationships necessary for career advancement. Affinity groups can improve employee engagement and retention, prompt innovation and problem-solving through an exchange of ideas, and create environments for recognition and advancement.

Finally, industry leaders must lean into the critical role that advocacy plays in the success of women by adopting personal sponsorship plans. These personal sponsorship plans should include strategies to increase access and visibility for women and other underrepresented groups to stretch assignments[3] and development opportunities.

DATA: Further data collection and research is needed because significant data gaps impact the ability of the aviation industry to make and track progress. The Board's data recommendations address a lack of gender statistics in workforce data and lack of pay parity information, a lack of data on women in aviation occupations and leadership positions, and a lack of gender data disaggregated by race/ethnicity. The Board calls for continuing research into the recruitment, retention, and advancement of women in aviation and the evaluation of recommendations implemented from this Report.

Scope and Limitations of This Report:

The Board is comprised of professionals from various sectors of the aviation industry, including but not limited to public and private entities, non-profit organizations, education providers, and employers specializing in commercial aviation, engineering, manufacturing, and maintenance. For the purposes of this Report, "industry" is a broad term encompassing companies, non-profit organizations, trade associations, and labor unions. This Report is the product of professional and personal experience, industry research, aviation association research, surveys, interviews, scholarly publications, and government data. The Board is confident that its recommendations will serve as a valuable resource to address the underrepresentation of women in the aviation industry. The Board recognizes, however, that additional efforts must be made—beyond what was possible during the term and scope of the Board's charter. These efforts include (1) securing research sufficient to further substantiate the data upon which these recommendations have been made; (2) creating a framework for the cooperation of the appropriate entities that must work in collaboration on these initiatives; and (3) engaging the appropriate professionals to prioritize and implement the recommendations in this Report.

No Endorsements Implied:

The Board identifies several initiatives implemented by organizations as useful case studies in, and/or best practices for, the recruitment, retention, and advancement of girls and women. This information is offered only to illustrate different types of initiatives; it does not constitute an endorsement of any entity or program named within the Report.

[3] A stretch assignment is a project or task that is currently beyond your level of knowledge or skill. Such assignments serve to "stretch" you developmentally by placing you in a challenging position in order to learn and grow.

"We've got to work much harder to do a better job when it comes to making sure that inclusion is a reality . . . And this is an opportunity to live those values. They lead to conversations that are tough, they can be a risk, but it needs to happen, because this conversation nationally is tough. And we need to be practicing in our own organizations what we're proposing needs to happen across the United States."

Peter Buttigieg, 1/28/20
United States Secretary of Transportation

I. INTRODUCTION

As we focus on meeting the needs of the aviation industry, now and in the future, our history provides essential context for both the call to action and the course forward. By the 1990s, the participation rate of working-age women (25–54) in the U.S. labor force had reached over 74% [4]—it is 72% as of 2021.[5]

Although the United States notably benefits from the role that women play in the economy, in certain industries and occupations the representation of women has been limited by barriers to equal opportunity. Aviation is one of them.

The COVID-19 pandemic has spotlighted some of these barriers to women, and created alarming unemployment among women. In particular, the pandemic's impact on the childcare sector has further reduced work–life balance options for women, who continue to shoulder the majority of caregiving responsibilities.

Crucially, aviation cannot afford to under recruit, retain, and advance women. No other industry connects humanity like aviation; it expands to all corners of the globe and all aspects of our lives. For the U.S. aviation industry's continued success and leadership, a massive talent pipeline is required. To meet the challenges of today and tomorrow, aviation must increase its outreach and deepen the talent pool of its workforce.

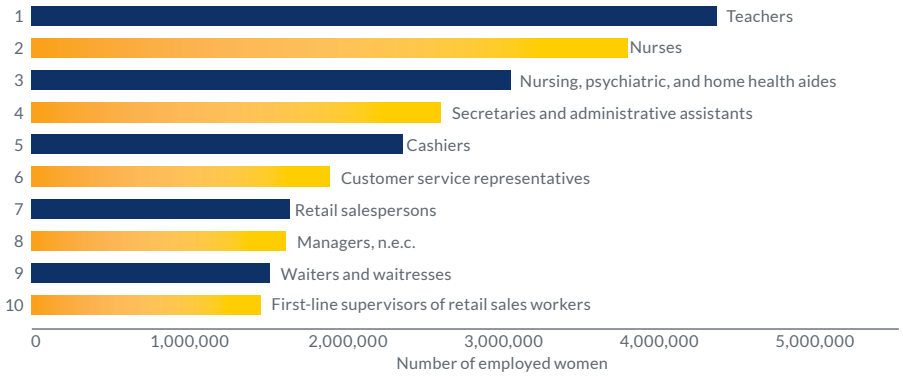
As Secretary Buttigieg said, conversations concerning inclusion are difficult. The Board recognizes that change is difficult, yet imperative. The path to change begins with strong, well-defined goals, and accountability for results. With these principles in mind, this Report provides the flight plan to aviation's future.

[4] Janet L. Yellen, "The history of women's work and wages and how it has created success for us all," Brookings, May 2020, https://www.brookings.edu/essay/the-history-of-womens-work-and-wages-and-how-it-has-created-success-for-us-all/.

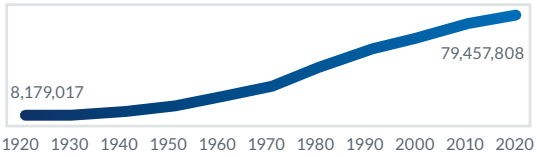
[5] "Employment status of the civilian noninstitutional population by age, sex, and race," U.S. Bureau of Labor Statistics, https://www.bls.gov/cps/cpsaat03.pdf.

FIGURE 2[6]
WOMEN IN THE LABOR FORCE SINCE 1920

Top 10 occupations employing the largest number of women:2019

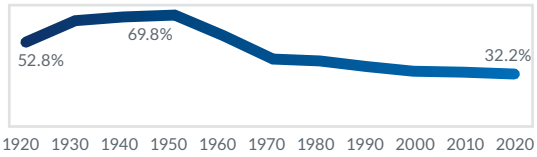


NUMBER OF WOMEN IN THE LABOR FORCE



1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020

SHARE OF WOMEN EMPLOYED IN TOP 10 OCCUPATIONS



1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020

Notes: Occupation estimates include women ages 16 and over in the labor force (1920) and civilian employed women ages 16 and over (1930-2019). The classification of occupations changes every 10 years. Occupation categories are not strictly comparable over time. Operatives were primarily employed in manufacturing n.e.c. = not elsewhere classified Data: 1920-2000 Decennial Census and 2010 and 2019 American Community Survey public use microdata Graphic: U.S. Department of Labor, Women's Bureau

[6]U.S. Department of Labor, Women' Bureau.

II. WHAT IS A CAREER IN AVIATION?

FIGURE 3[7]
AVIATION CAREERS

PILOT CAREERS
Major/National Airline Pilot
Regional Airline Pilot
Flight Instructor
Military Pilot
Corporate Pilot
Astronaut
Air Traffic Reporting Pilot
Helicopter Pilot
Agricultural Pilot

SCIENCE AND TECHNICAL SERVICES
Cartographer
Technician
Meteorologist
Architect
Engineer

FOOD SERVICES
Food Preparer

AIRLINES AND AIRPORT OPERATORS
Airport Manager
Station Manager
Ramp Planner
Flight Dispatcher
Lineperson
Ground Attendant
Ramp Service Personnel
Fixed Base Operator
Cabin Maintenance Mechanic
Safety Inspector
Scheduling Coordinator
Air Traffic Controller
Concession Worker
Fire & Crash Rescue

LAW-RELATED SERVICES
Aviation Attorney
Inspector
Accident Investigator
Security Specialist

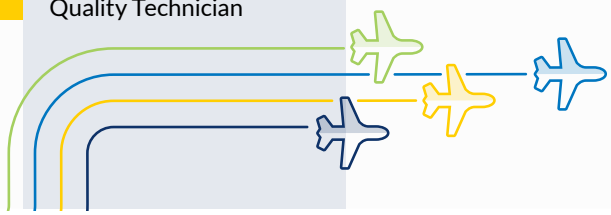
AIRCRAFT AND SYSTEMS MAINTENANCE
Airframe and Powerplant Mechanic
Avionics Specialist

HEALTH SERVICES
Flight Physician
Aviation Medical Examiner

AIRCRAFT MANUFACTURING OCCUPATIONS
Manufacturing Engineer
Electrical Installers & Technicians
Tool, Jig & Fixture Maker
Machine Tool Operator
Sheet Metal Fabrication
Assemblers & Installer
Quality Technician

AIRLINES AND AIRPORT SERVICES
Ticket Agent
Flight Attendant
Sky Cap
Cargo Handler
Passenger Service Agent
Operations Supervisor
Baggage Handler
Air Freight/Cargo Agent
Reservations Sales Agent

OTHER PROFESSIONALS
Travel Agent
Secretary/Admin. Asst.
Information Systems Specialist



Aviation and aerospace are global and highly technical industries with broad career opportunities. Although they are distinct but often overlapping, for the purposes of this Report and the underrepresentation of women, aviation and aerospace are generally discussed collectively.

Aviation encompasses the design, development, production, operation, and use of aircraft. These operations include but are not limited to, military aviation; commercial aviation including passenger and cargo airlines; government contractors; and general aviation such as flight training, business travel, aerial firefighting, crop dusting, pipeline patrol, air ambulance services, search and rescue, and recreational flying. Aviation also includes space, uncrewed aircraft systems (UAS) or "drones," and emerging technologies including electric vertical take-off and landing aircraft (eVTOLs), often discussed in the context of "air taxis."

[7] "Careers in Aviation and Space," FAA, https://www.faa.gov/education/students/resources/media/Careers_in_Aviation_and_Space.pdf.

Commercial airline pilots and military aviators have some of the most visible careers in aviation. Most aviation professionals, however, are not professional pilots. Careers in aviation include engineers, scientists, maintenance technicians, air traffic controllers, flight dispatchers, flight attendants, and air safety investigators—as well as individuals working in customer service, manufacturing, business and operations management, law, finance, information technology, data analytics, communications, sourcing, sales, marketing, government affairs, non-profits, and human resources. Essentially any skill or area of interest can find a home in the aviation industry.

In addition to offering a wide variety of opportunities, aviation also offers highly compelling careers. In aviation, the sky isn't the limit; aviation connects people and places around the world in ways that no other industry can. The U.S. aviation industry is the safest, largest, most varied, and most technologically innovative transportation industry in the world. In the United States alone, the Federal Aviation Administration's (FAA's) air traffic organization handles an average of 45,000 flights and 2.9 million passengers fly in and out of U.S. airports every day.[8] Each year, aviation moves 44.5 billion pounds of freight.[9] Aircraft are used to treat 127 million acres of crops annually.[10] In some remote parts of the United States—like Alaska, where 82% of the state's communities are not connected to a highway or road system—aviation is a lifeline, providing the only means of transportation and critical access to products, supplies, and emergency and health-care services.[11]

Aviation is not only critical to the U.S. military and transportation infrastructure, it is also a key economic engine for the country. Aviation makes up 5.2% of the U.S. gross domestic product and generates almost eleven million jobs.[12] The civil aviation manufacturing industry also plays an important role in international trade. In 2018, commercial and general aviation exports reached $131 billion.[13]

[8] "Air Traffic By The Numbers," FAA, accessed January 13, 2022, https://www.faa.gov/air_traffic/by_the_numbers/.

[9] Id.

[10] "Industry Facts: Facts About the Aerial Application Industry," NAAA, accessed January 13, 2022, https://www.agaviation.org/industryfacts.

[11] "Welcome to the Division of Statewide Aviation," Alaska Department of Transportation and Public Facilities, accessed January 13, 2022, https://dot.alaska.gov/stwdav/#:~:text=Approximately%2082%25%20of%20Alaskan%20communities,to%20the%20contiguous%20road%20system.&text=The%20remaining%20402%20sites%2C%20or,aviation%20for%20year%2Daround%20access.

[12] "Contributions of General Aviation to the US Economy in 2018," PWC, February 19, 2020, https://nbaa.org/wp-content/uploads/advocacy/legislative-and-regulatory-issues/business-aviation-essential/General-Aviation-Contribution-to-the-US-Economy-20200219.pdf.

[13] Id.

"There have been lots of other women who had the talent and ability before me. And I hope it means that I'm just the first in a long line."

Mae Jemison
Retired NASA astronaut, engineer, and physician

III. OUR HISTORY

When the Wright Brothers first took flight in 1903, their intention was not to make history. Rather, it was to prove that humans can fly. Pivotal to the success of the Wright Brothers was their sister, Katharine. This leading heroine of aviation, whose skillful management of her brother's business affairs enabled them to perfect their aircraft, was one of the first in a long list of women who shaped our aviation heritage and elevated the course of humanity.

The Board recognizes some of the pioneers of aviation who inspire this Report and underscore the importance of this work. The women below offer only a glimpse into the legacy of trailblazers who cleared the path for all who follow.

Although motivating, this brief history underscores the lack of progress that has been made: Not every woman should have to be a trailblazer to pursue a career in aviation. Fundamentally, the history of women in aviation accentuates both the need, and a promise, for aviation's future.


Raymonde de Laroche


Katherine Stinson


Beryl Markham

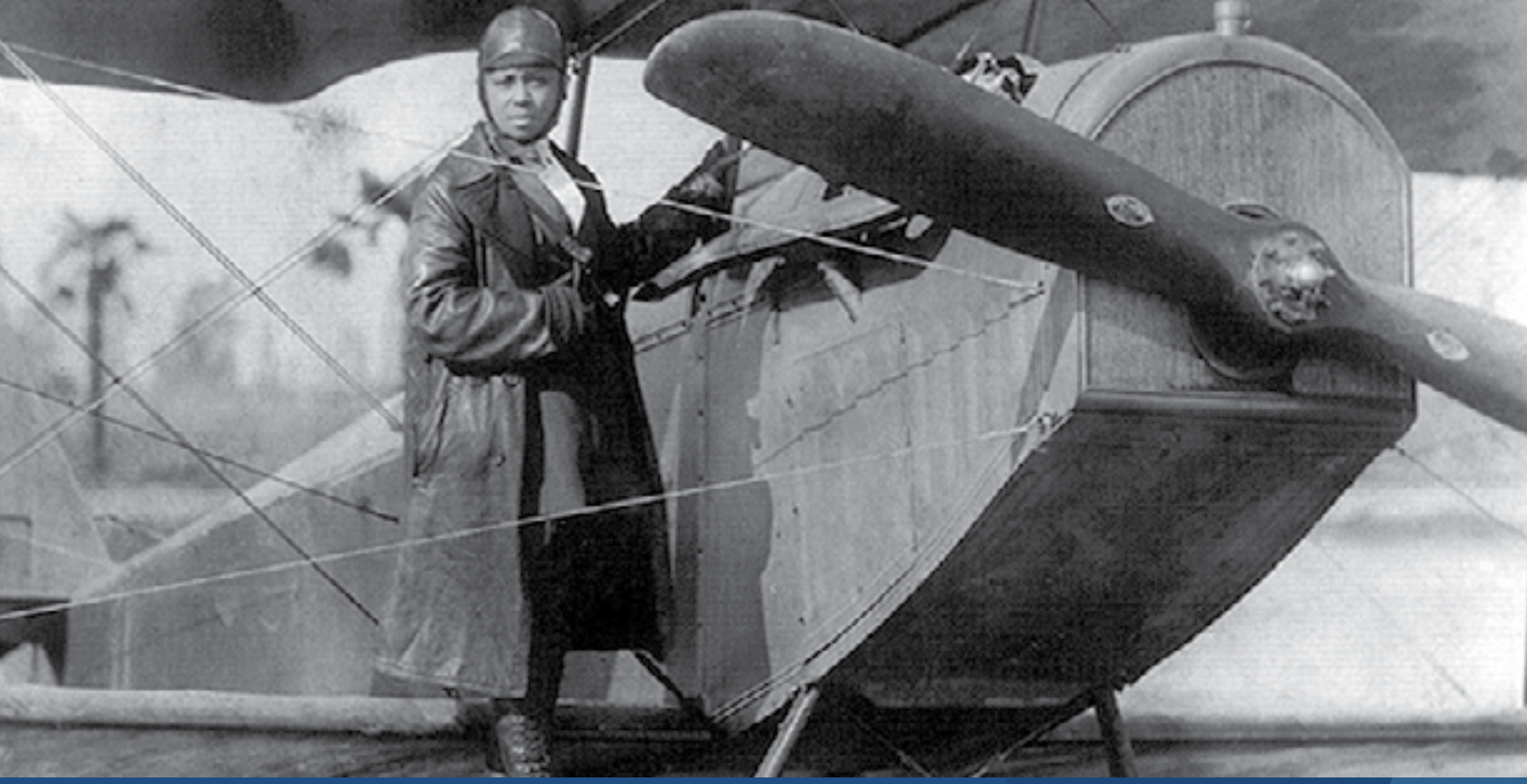

Phoebe Fairgrave Omlie

Women in Early Aviation

- In 1909, Raymonde de Laroche became the first woman to fly solo. A year later, she became the first woman to earn a pilot's license.
- In 1911, Harriot Quimby became the first American woman to earn her pilot's certificate. She was also the first woman to fly across the English Channel.

Women in Business Aviation

- Katherine Stinson became the first woman in the world to finance a flight school. In 1915, she created Stinson Aviation; her sister Marjorie was the Chief Instructor.
- Olive Ann Beech co-founded Beech Aircraft Company in 1932. In 1950, as President and CEO, she made Beech Aircraft a multi-million dollar and international corporation.



Bessie Coleman

Women Breaking Barriers

- In 1921, Bessie Coleman became the first African American woman and first Native American to earn a pilot's license.
- In 1927, Phoebe Fairgrave Omlie was the first woman to receive an airplane mechanic's license. She was also the first woman to be appointed to a federal position in aviation.
- Beryl Markham was an early bush pilot in Africa and the first person to fly into the wind across the Atlantic in 1936.
- In 1928, Amelia Earhart became the first woman to fly solo across the Atlantic. She set many records and co-founded the International Ninety-Nines.[14]
- Pilot Patty Wagstaff, six-time member of the U.S. Aerobatic Team,[15] is the first woman to win the title of U.S. National Aerobatic champion (1991) and one of the few people to win it three times.

Women in Service

- In 1942, fighter ace Lily Litvak was the first female to shoot down an enemy aircraft and holds the record for the greatest number of kills by a female fighter pilot.
- The WASP (Women Airforce Service Pilots), founded in 1942 by Jacqueline Cochran and Nancy Love, were a civilian women pilots' organization, whose members became trained pilots that tested aircraft, ferried aircraft, and trained other pilots in WWII.

[14] "Our History," Ninety-Nines, accessed February 9, 2022, https://www.ninety-nines.org/our-history.htm.
[15] "USA Teams," International Aerobatic Club, accessed February 9, 2022, https://www.iac.org/gallery/usa-teams.

> “My daughter just thinks that all moms fly the space shuttle.”

Eileen Collins
Former NASA astronaut and retired Colonel, USAF

- Rosemary Bryant Mariner was one of the first six women to earn their wings in the U.S. Navy in 1974 and the first to achieve command of an operational aviation squadron in 1991.
- In 1993, Jeannie Leavitt became the first U.S. Air Force female fighter pilot and was the first woman to command a U.S. Air Force combat fighter wing.


Amelia Earhart


Lily Litvak


Rosemary Bryant Mariner


Katherine Johnson

Women in Aerospace

- Selected in 1959, the Mercury 13 were thirteen American women who successfully underwent the same physiological screening tests as the astronauts selected by NASA for Project Mercury, the first human U.S. spaceflight program.
- “Hidden Figures,” Katherine Johnson, Mary Jackson, and Dorothy Vaughan are African American mathematicians whose skills were crucial at NASA during the 20th Century “Space Race.”
- Sally Ride became the first American woman in space in 1983 and was the only woman and shuttle astronaut on the Rogers Commission, which investigated the Space Shuttle Challenger disaster.
- Mae Jemison was the first black woman to travel into space when, in 1992, she served as a mission specialist aboard the Space Shuttle Endeavour.
- Eileen Collins was the first female to pilot the space shuttle and the first woman to command the space shuttle; in 2005, she served as Commander of the “Return to Flight” mission.

Sally Ride

Women in Commercial Aviation

- In 1930, Anne Morrow Lindbergh was the first American woman to earn a glider pilot's license and was essential in navigating and recording routes for the future airline industry.
- In 2001, Colleen Barrett was the first woman president of a major airline and a leading pioneer in Workplace Theology.

Colleen Barrett

Jeannie Leavitt

Eileen Collins

Mae Jemison

"In the early days they said I was trying to make a statement, but I was just trying to make a living."

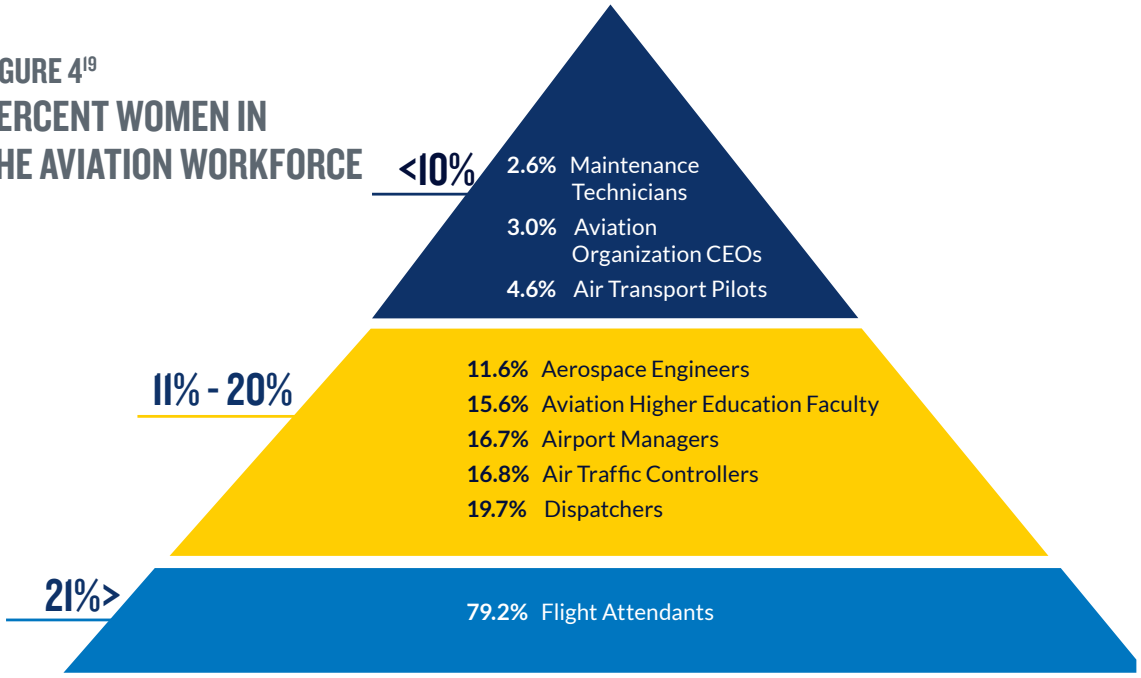
Bonnie Tiburzi Caputo
Commercial Aviation Pioneer

IV. OUR REALITY

A. GENDER GAP DATA

One can look around any airport; flight deck; air traffic control tower; maintenance, repair, and overhaul facility; or office in an aviation company and the absence of women is obvious. A close look at the data reveals the striking underrepresentation of women in aviation. In most aviation occupations, women make up less than 20% of the workforce. See Figure 4. The largest gender gaps are in senior leadership positions, professional pilots, and maintenance technicians. Roughly 5% of airline pilots are women, and only 3.6% of airline captains are women.[16] By comparison, women represent 47% of the total[17] U.S. workforce and 26% of people working in STEM fields globally.[18]

FIGURE 4[19]
PERCENT WOMEN IN THE AVIATION WORKFORCE



[16] Captain data represents US Air Line Pilots Association, International (ALPA) member-pilots, obtained from ALPA.

[17] "Household data annual averages: Employment status of the civilian noninstitutional population by age, sex, and race: 2021," U.S. Bureau of Labor Statistics, https://www.bls.gov/cps/cpsaat11.pdf.

[18] Korn Ferry, "IAWA Soaring Through The Glass Ceiling: Taking the global aviation and aerospace industry to new heights through diversity and inclusion," 2020, https://www.kornferry.com/content/dam/kornferry/docs/pdfs/aviation-glass-ceiling.pdf. According to the Pew Research Institute, as of 2019, women make up half of those employed in STEM jobs, although representation across occupations varies heavily. Cary Funk & Kim Parker, "Diversity in the STEM Workforce Varies Widely Across Jobs," Pew Research Center, January 9, 2018, https://www.pewresearch.org/social-trends/2018/01/09/diversity-in-the-stem-workforce-varies-widely-across-jobs/.

[19] Rebecca Lutte, "Women in Aviation: A Workforce Report 2021 Edition," December 2021, https://www.researchgate.net/publication/357032586_Women_in_Aviation_A_Workforce_Report_2021_Edition.

For the last sixty years, the introduction of women into the aviation industry—in nearly every functional specialty—has been stagnant. See Table 1 and Figure 5. For example, although the total number of women holding commercial pilot certificates has increased, the representation of women as a percentage of the total has changed only at a rate of about 1% a decade. For women in aviation maintenance, the rate of change is even slower. In sixty years, the percent of women in aviation maintenance has reached only 2.6%—marking one of the greatest gender gaps in the entire industry.

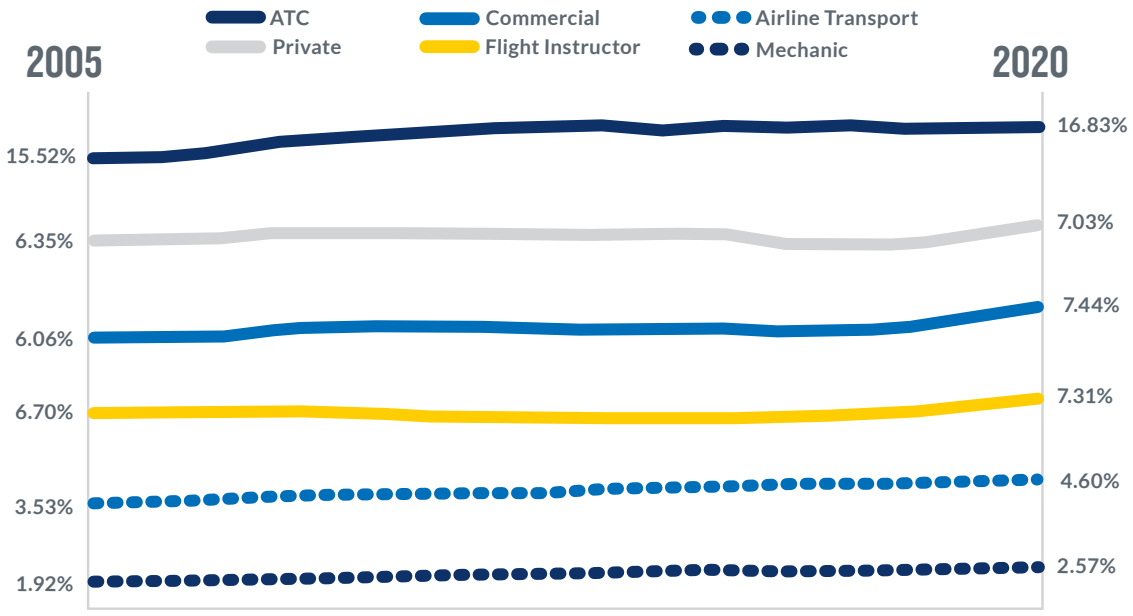
TABLE 1[20]
WOMEN IN AVIATION: HISTORICAL DATA 1960-2020

Historical Data Women FAA Certificate Holders

Total number of women certificate holders | % of total certificate holders who are women

	Private		Commercial		ATP		Flight Instructor		Mechanic	
1960	3,425	2.5%	738	0.8%	25	0.1%	425	1.4%	110	0.1%
1970	11,409	3.8%	1,897	1.0%	79	0.2%	589	1.6%	302	0.2%
1980	21,554	6.0%	3,993	2.2%	480	0.7%	2,079	3.4%	890	0.4%
1990	17,301	5.8%	5,210	3.5%	2,082	1.9%	3,239	5.1%	3,333	1.0%
2000	14,544	5.8%	5,807	4.8%	4,411	3.1%	5,193	6.4%	5,047	1.5%
2010	13,566	6.7%	8,175	6.6%	5,580	3.9%	6,359	6.6%	7,215	2.2%
2020	11,316	7.0%	7,724	7.4%	7,549	4.6%	8,592	7.3%	7,860	2.6%

FIGURE 5[21]
WOMEN IN THE AVIATION WORKFORCE TIMELINE



[20] Rebecca Lutte, "Women in Aviation: A Workforce Report 2021 Edition," December 2021, https://www.researchgate.net/publication/357032586_Women_in_Aviation_A_Workforce_Report_2021_Edition.

[21] Id.

A more detailed look at the historical data of the percentage of certain FAA certificate holders that are women shows virtually no change over time. In the last fifteen years, the percentage of women private pilots and women aviation maintenance technicians has increased only 0.7%. See Figure 5.

Another key observation is the lack of women converting from student pilot to private pilot. In 2020, the percentage of women student pilots was 14%. The percentage of women private pilots in 2020 was 7%. This has been a consistent trend. Compared to 2011, the number of women student pilots has continued to increase although the number of women holding private pilot certificates has remained relatively stagnant. Women also do not remain active pilots at the same rates as men.[22] Women active pilots decline after the twenty-five to twenty-nine age group; men tend to remain active pilots more consistently as they increase in age. See Figures 6 and 7.

[22] "U.S. Civil Airman Statistics," FAA, last accessed February 8, 2022, https://www.faa.gov/data_research/aviation_data_statistics/civil_airmen_statistics/. Note that many of the studies, research, and data that the Board reviewed compared women and men. The Board's use of this data is not intended to endorse any particular view(s) of gender.

FIGURE 6[23]
WOMEN PILOTS AGE DEMOGRAPHICS

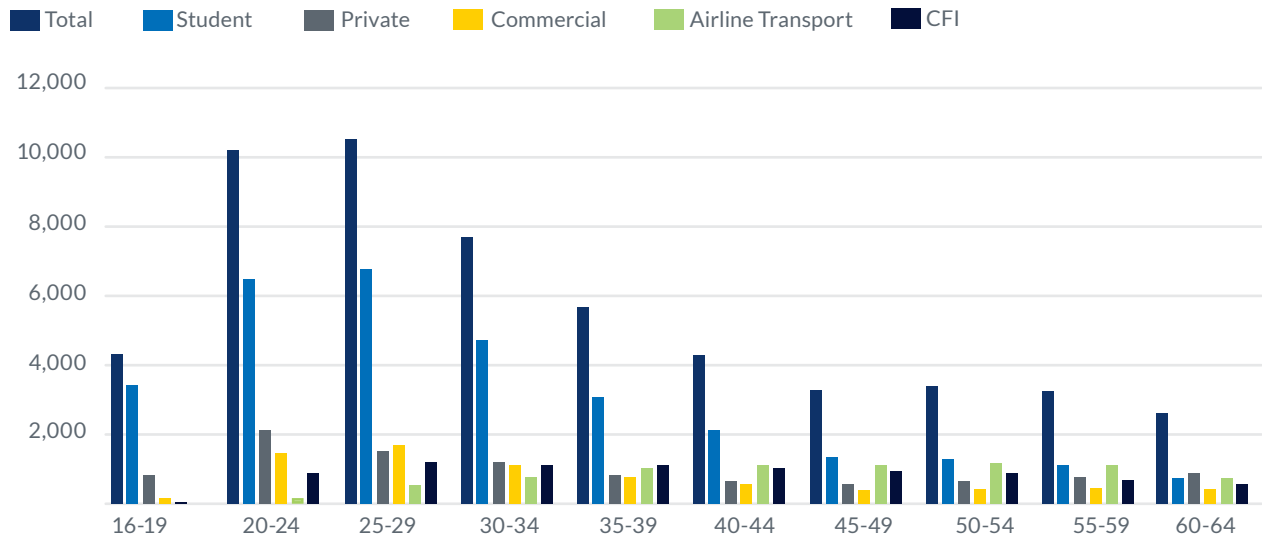
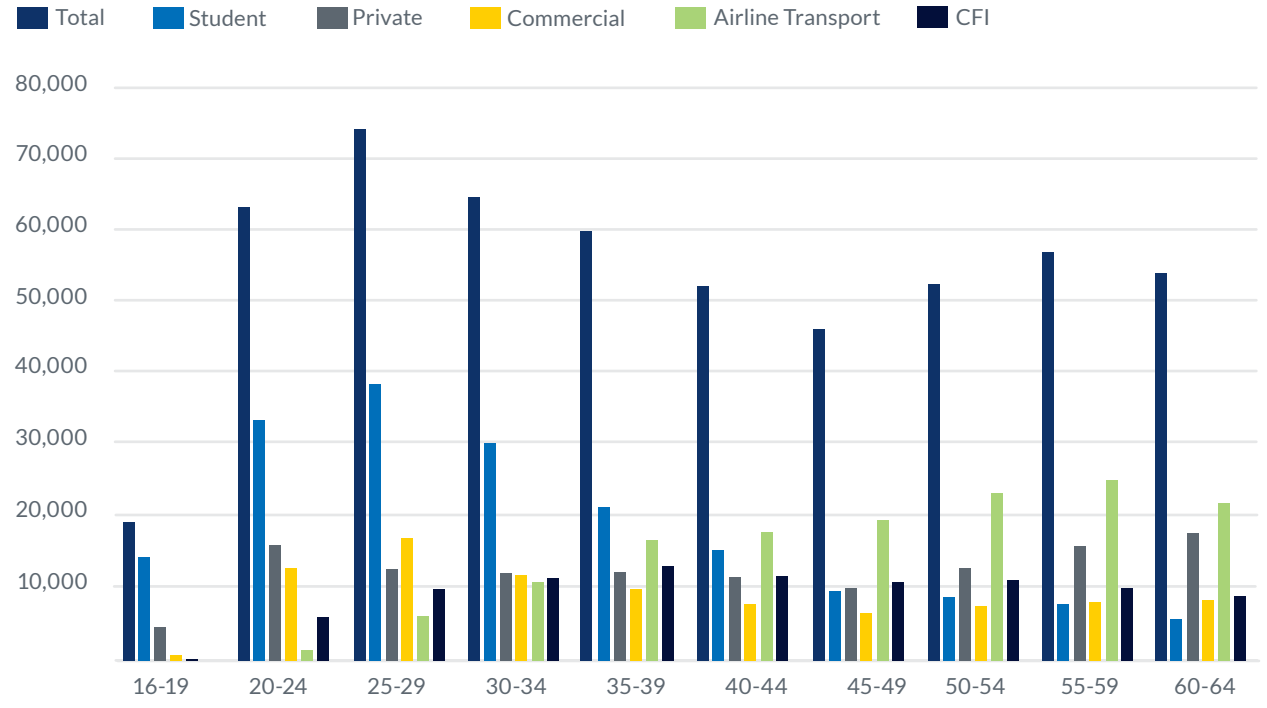


FIGURE 7[24]
MEN PILOTS AGE DEMOGRAPHICS



[23]Rebecca Lutte, "Women in Aviation: A Workforce Report 2021 Edition," supra note 19.
[24]Id.

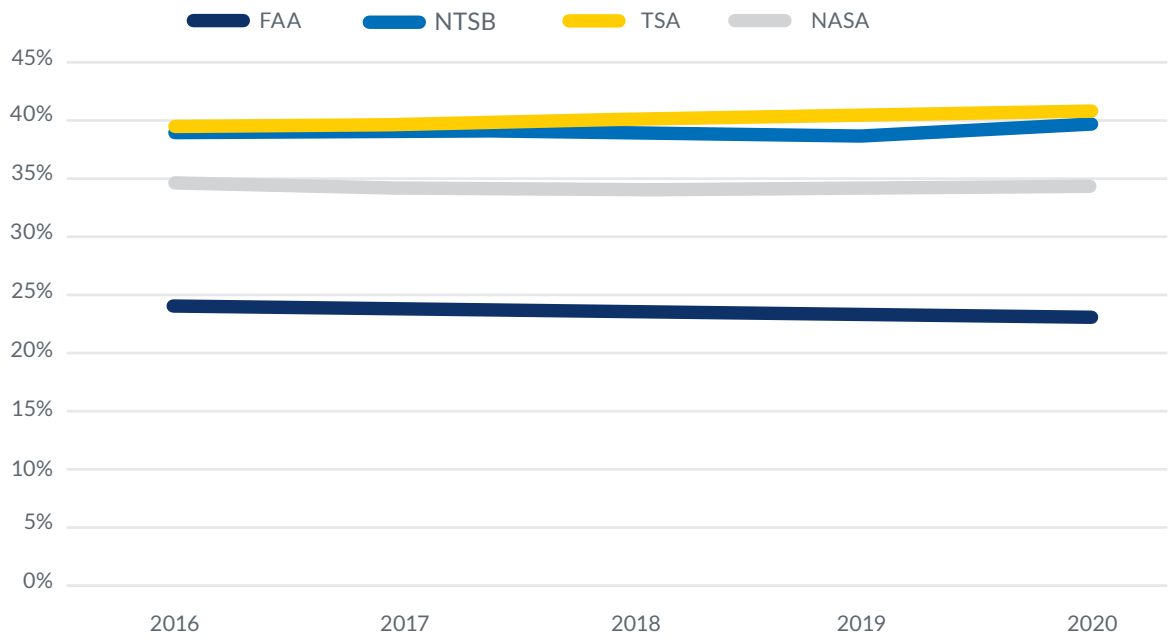
> "We're told that it's not what girls do — become a nurse or teacher; pursue a more [suitable] woman's defined role in the workplace. We [women of color] oftentimes don't have the representation to see the things we wish to be."

Ernanda White
Founder, CEO, UAV Pilot, Black Girls Drone, Inc.

At the top 100 airline groups worldwide, women currently hold only 10% of the C-suite roles and make up only 3% of airline CEOs.[25] Even in the U.S. government's own aviation workforce, women remain woefully underrepresented, and there has been relatively little change over time. See Figure 8. Notably, the organization in Figure 8 with the lowest percentage of women employees is the FAA.

The underrepresentation of women in aviation also results in a lack of diversity in union and trade association leadership—particularly those representing historically male-dominated professions, such as pilots and aviation maintenance technicians. With fewer women from which to draw, unions and trade associations can lack women in leadership, which can result in overlooking policies that might encourage more women to enter and remain in those professions.

FIGURE 8[26]
2016-2020 PERCENT WOMEN AVIATION GOVERNMENT ORGANIZATIONS EMPLOYEES



[25] Oliver Wyman & IAWA, "Lift Off to Leadership," supra note 1, pg. 4.
[26] Rebecca Lutte, "Women in Aviation: A Workforce Report 2021 Edition," supra note 19.

Further, much of the aviation workforce also lacks ethnic and racial diversity. See, e.g., Table 2. Sisters of the Skies, an organization working to develop pathways and partnerships to increase the number of black women in the professional pilot career field, reports that the number of black women who are professional pilots is fewer than 0.5% of the total number of professional pilots.[27] Women who belong to additional underrepresented groups are part of a very small minority, facing unique barriers and often even greater challenges.

TABLE 2[28]
2020 AVIATION WORKFORCE: UNDERREPRESENTED GROUPS

Occupation	Total Employed	% White	% Black or African American	% Asian	% Hispanic or Latino
Pilots	155,000	94%	3.4%	2.2%	5%
Aircraft Mechanics & Service Technicians	153,000	84.3%	10.8%	3.2%	23%
Aerospace Engineers	129,000	83.3%	6.8%	9.1%	10.5%
Flight Attendants	81,000	65%	19.3%	10.6%	10.3%
Air Traffic Controllers	18,082	77.9%	7.2%	3.6%	9.2%

Notes: Pilots, aircraft mechanics, aerospace engineers, and flight attendant data obtained from BLS (2020). For BLS data, estimates for the above race groups (White, Black or African American, and Asian) do not sum to totals because data are not presented for all races. Persons whose ethnicity is identified as Hispanic or Latino may be of any race. ATC data obtained from DOT (2021).

Finally, although the data on women in aviation clearly indicates significant inclusivity gaps, it also reveals important data gaps. These data gaps impact the aviation industry's ability to make and track progress. If aviation is serious about expanding opportunity for all qualified talent, then more and deeper data is crucial. Accordingly, in Section V.(F) of this Report, the Board makes several recommendations related specifically to data collection and future research.

B. COSTS OF THE STATUS QUO: COMPROMISING EXCELLENCE

i. Impact on Sustainability, Profitability, and Innovation

The data demonstrates that representation of women in aviation remains low and stagnant. As a result, aviation is failing to access the full range of skills and talent that the industry needs. The continued strength and success of the U.S. aviation industry must not be taken for granted. Aviation faces significant workforce challenges that threaten the industry's sustainability, profitability, and ability to innovate. Identifying and recruiting talent from underrepresented groups is an obvious and necessary strategy to address workforce needs throughout the industry.

[27]More information about Sisters of the Skies is available at https://www.sistersoftheskies.org/.
[28]Rebecca Lutte, "Women in Aviation: A Workforce Report 2021 Edition," supra note 19.

For example, Boeing forecasts[29] that over the next twenty years, 612,000 new civilian pilots, 626,000 new maintenance technicians, and 886,000 new cabin crew members will be needed worldwide. In North America, 130,000 new civilian pilots, 132,000 new maintenance technicians, and 170,000 new cabin crew members will be needed from 2021 through 2040.[30]

Significantly, the fundamental factors that were impacting workforce demand prior to the COVID-19 pandemic have not changed. These factors include an aging workforce and anticipated fleet growth, with the addition of 11,000 new corporate and business aircraft worldwide in the next ten years.[31] Airbus projects a need for over 39,000 new passenger and freighter aircraft to be delivered over the next twenty years.[32] "[O]verall employment of airline and commercial pilots is projected to grow 13% from 2020 to 2030, faster than the average for all other occupations. About 14,500 openings for airline and commercial pilots are projected each year, on average, over the next decade. Many of those openings are expected to result from the need to replace workers who transfer to different occupations or exit the labor force, such as to retire."[33]

An aging workforce is also a key factor impacting maintenance technicians. According to the Aviation Technician Education Council (ATEC) 2020 Pipeline Report, aviation maintenance technicians are retiring at a rate that is outpacing the pipeline.[34] Thirty-three percent of mechanics are at or near retirement age.[35] And although the number of new mechanic certifications in 2019 was the highest since 2002, the representation of women as a percentage of the total number of aviation maintenance technicians has changed at a rate lower than 1% a decade.[36]

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[29] "Commercial Market Outline 2021-2040," Boeing, 2021, https://www.boeing.com/resources/boeingdotcom/market/assets/downloads/CMO%20 2021%20Report_13Sept21.pdf, pg. 18.

[30] Id.

[31] "At a glance: Civil Aviation Pilot Demand," CAE, last accessed January 14, 2022, https://www.cae.com/cae-pilot-demand-outlook-2020/.

[32] "Global Market Forecast: 2021-2040," Airbus, last accessed January 14, 2022, https://www.airbus.com/en/products-services/commercial-aircraft/market/global-market-forecast.

[33] "Occupational Outlook Handbook: Airline and Commercial Pilots," U.S. Bureau of Labor Statistics, last accessed November 1, 2021, https://www.bls.gov/ooh/transportation-and-material-moving/airline-and-commercial-pilots.htm.

[34] "Pipeline Report & Aviation Maintenance School Directory," ATEC, April 2020, https://www.atec-amt.org/uploads/1/0/7/5/10756256/atec-pipelinereport-truncated-20200416.pdf.

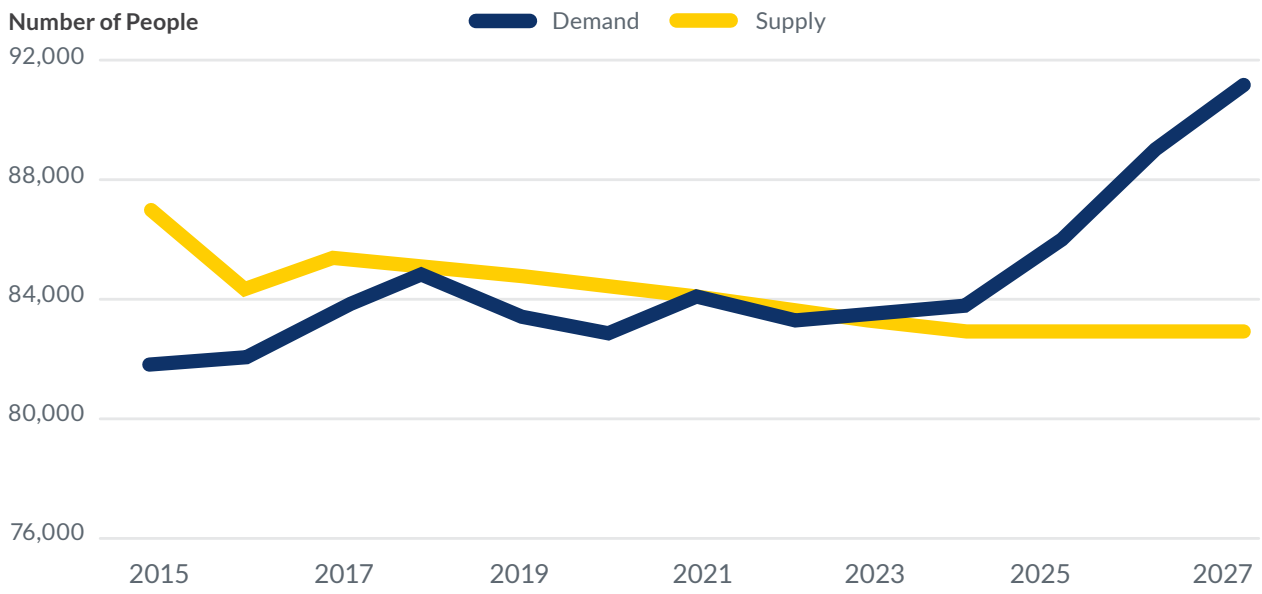
[35] Id.

[36] Id.

The workforce shortages in aviation maintenance have been described as a "talent crisis."[37] Aviation Maintenance Technician programs are struggling to hire and retain qualified faculty to train new talent. ATEC estimates that 30% of those who finish aviation maintenance training accept employment in another industry.[38] The lack of mechanisms to facilitate military personnel with maintenance experience to transition to civilian careers is also impacting the pipeline.[39] An Oliver Wyman report projects that "[a] shortage of aviation mechanics within the next decade threatens the projected expansion and modernization of the global airline fleet."[40] The report projects that demand will start outpacing supply in 2022 and peak in 2027.

FIGURE 9[41]

FORECASTED U.S. COMMERCIAL MRO MAINTENANCE TECHNICIAN DEMAND AND SUPPLY BY YEAR



Source: Oliver Wyman Commercial MRO Maintenance Technician Labor Model

Labor shortages are also cited in other aviation professions, including but not limited to "engineers, technicians, air traffic controllers, and safety inspectors."[42] "As [aircraft] fleets continue to grow across the world, so too does the demand for these professionals who help to ensure safety in the aviation industry."[43]

[37] "EAGLE Pathways: Bridging the Middle Skills Gap to Careers in Aviation," AAR Corp, 2019, https://www.aarcorp.com/assets/3/7/AAR_EAGLE_1.31.19_vFIN4%5B1%5D.pdf.

[38] Derek Costanza & Brian Prentice, "Aviation Growth is Outpacing Labor Capacity," *Velocity* 2017, https://www oliverwyman.com/content/dam/oliver-wyman/v2/publications/2017/sep/Aviation_Growth.pdf, pg. 2.

[39] Jorge A. Gonzalez & Joseph Simpson, "The workplace integration of veterans: Applying diversity and fit perspectives," *Human Resources Management Review* Jul 8 (2020), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7342076.

[40] Derek Costanza & Brian Prentice, "Aviation Growth is Outpacing Labor Capacity," supra note 38, pg. 2.

[41] Brian Prentice, Derek Constanza, and John Smiley, "When Growth Outpaces Capacity: A Labor Shortage and Out-of-Date Technology May Raise MRO Costs for an Expanding Global Fleet," Oliver Wyman, 2017, https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2017/apr/MRO_Survey_2017.pdf.

[42] "Addressing the Shortage of Pilots and Aviation Professionals – A Global Approach to a Global Problem," ICAO Working Paper Presented by Canada, Assembly – 40th Session, Agenda Item 25, https://www.icao.int/Meetings/a40/Documents/WP/wp_239_en.pdf.

[43] Id.

> "A lesson I learned in my service to our country in the Air Force, and will bring to my leadership of the FAA, is that safety is a journey, and not a destination. It's a journey that we must embark upon with renewed vigor each and every day."
>
> **FAA Administrator Stephen Dickson, Swearing-In Remarks, Monday, August 12, 2019**

The recent growth of commercial space and UAS highlights how the aviation workforce needs extend to new career opportunities too—some not yet created or envisaged. 2020 was a record year for commercial space activity: The number of FAA-licensed commercial space launches has dramatically accelerated from only one in 2011 to a record 39 in 2020—a 3800% increase in just ten years.[44] "And [a] few decades ago, drones were confined to science fiction or notions of the future. Today, [UAS], or drones, are rapidly becoming a part of our everyday lives."[45] As of January 2022, there were over 860,000 UAS registered in the United States alone.[46]

To reach the breadth and depth of talent that the aviation industry needs, aviation must build a workforce as diverse as the communities it serves. "Attracting, retaining, and promoting the most diverse workforce possible is vital to the industry's future sustainability, performance, growth, and safety."[47]

ii. Impact on Safety

In aviation, safety is paramount—built on a foundation of trust, learning, and accountability. Over the decades, the aviation industry has made incredible advances in safety. Today, aviation enjoys a level of safety unmatched by other modes of transportation. But as a 2018 article by the Royal Aeronautical Society explains, "[w]ithout an inclusive environment, there can be no guarantee of safety."[48] Explicit and implicit gender discrimination, exclusive cultural norms, sexual harassment, and gender bias can all directly and negatively impact aviation safety.

Bias can impact behaviors and decisions and undermine organizational culture. For example, there is a call for research to further explore how perceived bias may impact our decision-making and prevent us from seeing the full frame of human error. [49]

Conversely, belonging and inclusion build trust, which is fundamental to establishing and enhancing system safety. Psychological safety is "the amount of relational trust one feels in [their] environment."[50] It includes being able to speak up, to address an error without fear of retribution,

[44] "Record Year for FAA Commercial Space Activity," FAA, December 31, 2020, last accessed February 8, 2022, https://www.faa.gov/newsroom/record-year-faa-commercial-space-activity.

[45] "UAS by the Numbers," FAA, last accessed February 8, 2022, https://www.faa.gov/uas/resources/by_the_numbers/.

[46] Id.

[47] Oliver Wyman & IAWA, "Lift Off to Leadership," supra note 1, pg. 4.

[48] "Creating Inclusion," *Aerospace* (May 2018), available at https://www.iawa.org/docs/Creating_inclusion_RAeS.pdf.

[49] Kimberly Perkins, "The New Era of Aviation Safety: Cognitive Science," *AINonline*, July 1, 2021, https://www.ainonline.com/aviation-news/business-aviation/2021-07-01/new-era-aviation-safety-cognitive-science.

[50] Id.

and to be one's authentic self. A study on team performance found that "the highest-performing teams have one thing in common: psychological safety. [P]sychological safety allows for moderate risk-taking, speaking your mind, creativity, and sticking your neck out without fear of having it cut off—just the types of behavior that lead to market breakthroughs."[51]

Well-established aviation safety systems, such as Crew Resource Management/Team Resource Management (team management focused on communication and interactions) and Safety Management Systems (an organizational approach to managing safety and ensuring proper risk controls), are built on assumptions of inclusivity; a safe environment for free and open communication. See Figure 10.

Sarah Rhoads
Vice President, Amazon Global Air

"SMS is the cornerstone of aviation safety and champions proactive safety risk reporting for everyone, which makes it a most critical operational function."

[51] Laura Delizonna, "High-Performing Teams Need Psychological Safety. Here's How to Create It," *Harvard Business Review*, August 24, 2017, https://hbr.org/2017/08/high-performing-teams-need-psychological-safety-heres-how-to-create-it.

FIGURE 10[52]
SAFETY MANAGEMENT SYSTEM (SMS) EXPLAINED

The recommendations from National Aeronautics and Space Association's (NASA's) research and investigations following the tragedies of Apollo 1 and Space Shuttles Challenger and Columbia reflect the importance of open communication for safety. Today, NASA applies the five-factor principles to each employee's decision-making: Decision-making is contingent on an engaged workforce that is included and treated fairly.

FIGURE 11[53]
NASA'S SAFETY CULTURE FIVE FACTOR MODEL

After the 1986 Space Shuttle Challenger disaster President Reagan established the Rogers Commission to investigate the accident and prepare a list of recommendations for NASA to ensure safety of future human spaceflight. One of the nine recommendations was for NASA to create an Office of Safety, Reliability, and Quality Assurance and ensure that anyone, at any level, had the ability to report problems.

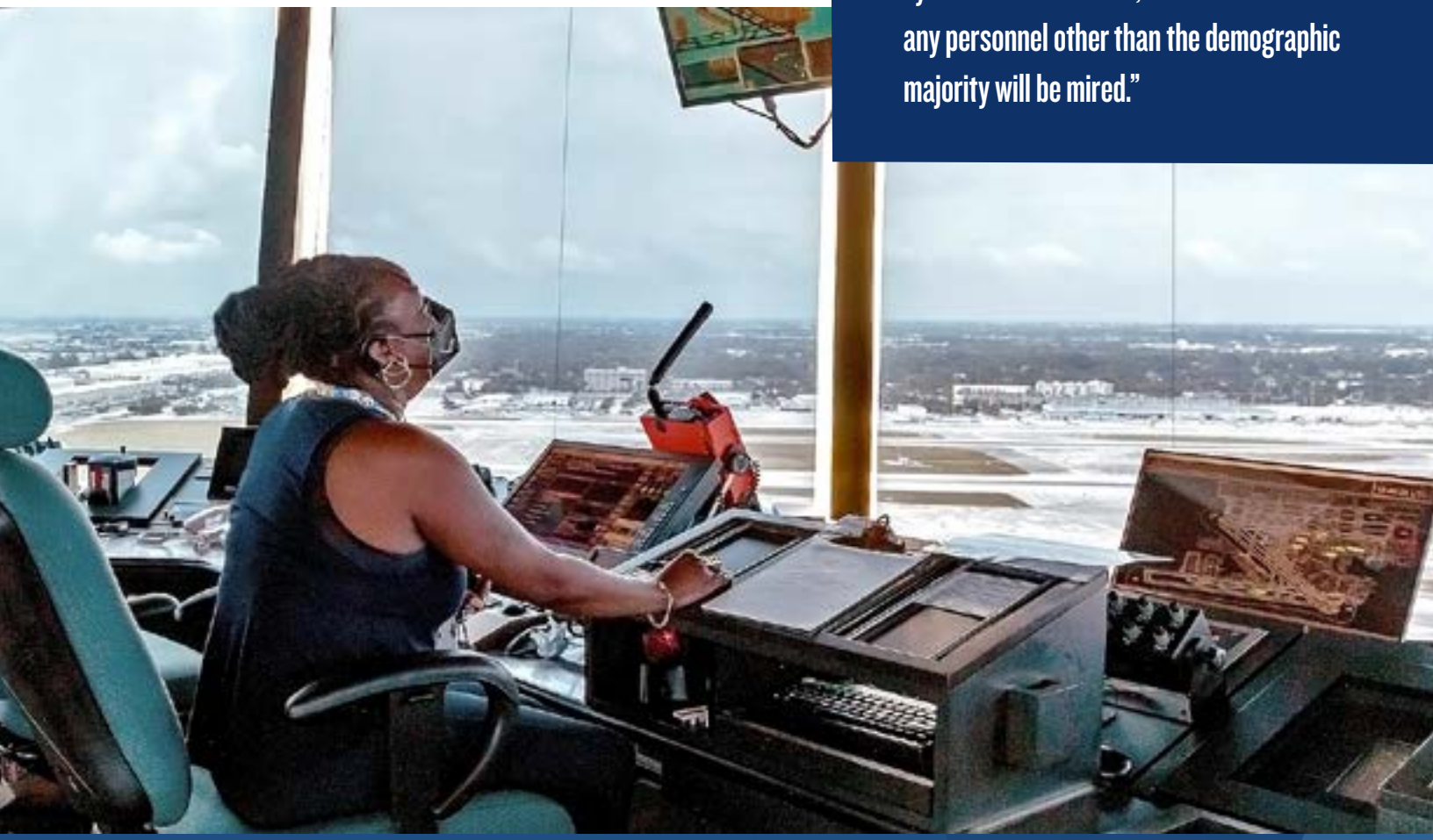
[52] "Safety Management System - SMS Explained," supra note 2.

[53] "Through a New Lens: Apollo, Challenger, and Columbia through the Lens of NASA's Safety Culture Five-Factor Model," NASA, *NASA Safety Center System Failure Case Study* 7(3) (April 2013), https://sma.nasa.gov/docs/default-source/safety-messages/safetymessage-2013-04-01-safetyculturefivefactormodel.pdf?sfvrsn=28af1ef8_6.

Kimberly Perkins
Founder, Aviation for Humanity

> "Culture negatively impacts recruitment and retention of women in aviation, however, there is a larger issue at stake: safety. We have an opportunity to enhance safety while simultaneously improving the industry's workforce development strategies. Without addressing this systemic culture issue, the recruitment of any personnel other than the demographic majority will be mired."

Furthermore, valuing and respecting individual uniqueness drives diversity of thought, and diversity of thinking improves the abilities of teams to spot risks, reducing them by up to 30%.[54] Diversity of thinking also "smooths the implementation of decisions by creating buy-in and trust."[55]



[54] Juliet Bourke, "The Diversity and Inclusion Revolution: Eight Powerful Truths," Deloitte Review, issue 22 (January 22, 2018), https://www2.deloitte.com/us/ en/insights/deloitte-review/issue-22/diversity-and-inclusion-at-work-eight-powerful-truths.html.

[55] Id.

"When I started applying for commercial airline jobs, I often skipped the male/female box and would write my name as "Julian." It took 30 applications to finally get hired. Once I got the job, I had to get a pageboy cut and find a restroom to use - they didn't have one for me."

Julie Clark
Retired Commercial Airline Captain and airshow legend

C. FACTORS THAT ATTRACT WOMEN TO, AND FACTORS THAT DETER WOMEN FROM, AVIATION CAREERS

To analyze factors that attract women to and deter women from aviation, the Board examined how and when women learn about aviation career opportunities. According to a survey of women in aviation,[56] parents were strong positive influencers on the respondents' decisions to pursue aviation careers. High school counselors were not rated highly (84% responded no influence/NA), underscoring an opportunity to provide more support to and through counselors on aviation opportunities.[57]

Respondents also identified mentors as having a stronger influence on retention than recruitment.[58] The relatively low perception of the influence of mentors on recruitment, however, may be related to lack of access rather than a lack of impact, as discussed further below.

Early exposure to aviation is highly influential; accordingly, youth outreach has an important positive impact on recruitment into aviation. The survey of women in aviation found that 54% of respondents reported that exposure to aviation as a child positively influenced their decisions to pursue aviation careers.[59] Another survey by the Experimental Aircraft Association (EAA) found that women in aviation were first introduced to the industry most often in the "younger than 10" age group, and 64% were introduced to aviation at the age of 20 or younger. See Figure 12.

[56] Rebecca Lutte, "WAI Conference 2020 Lutte Presentation of Women in Aviation Survey Results," March 2020, https://www.researchgate.net/publication/342397027_WAI_Conference_2020_Lutte_Presentation_of_Women_in_Aviation_Survey_Results.

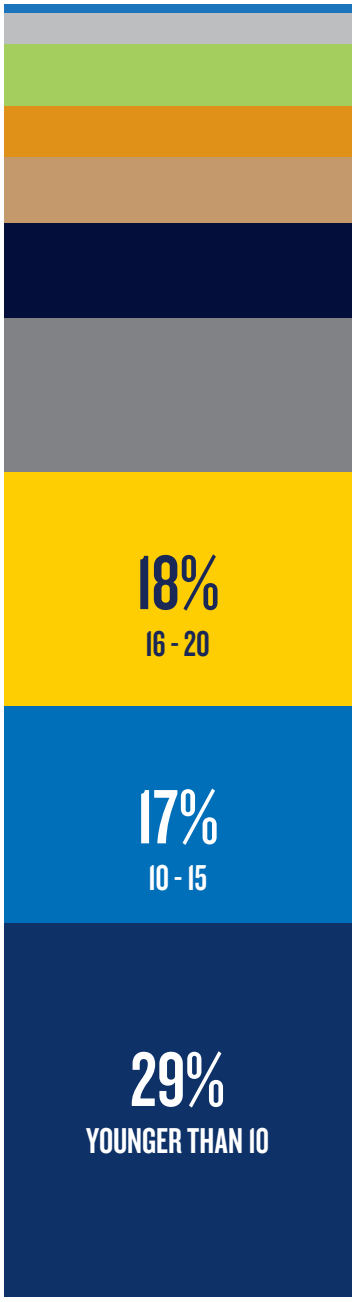
[57] Id.

[58] Id.

[59] Id.

FIGURE 12[60]

SURVEY OF WOMEN IN AVIATION: AGE FIRST BECAME INTERESTED IN AVIATION

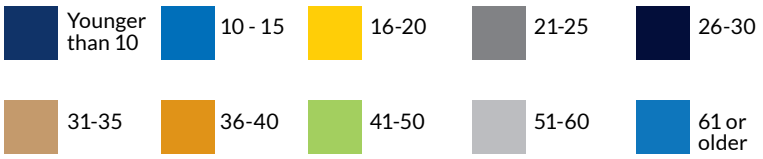


A Board-initiated survey, conducted through the University of Nebraska at Omaha, of professional women not currently working in aviation found that only about 15% reported being exposed to aviation in school; 10% reported that they had never been exposed to aviation. Almost 20% of respondents reported no familiarity with any segment of the aviation industry.[61]

This survey of professional women not working in aviation also found that 70% of respondents had ***never considered working in aviation***. Of those who had, most had never applied for a job in aviation. The most common reason for not considering an aviation career was a lack of familiarity with the options available to them. The second most common reason was that working in aviation did not appeal to them. The survey reinforced that there are common misconceptions about aviation that may impact recruitment, such as believing (incorrectly) that aviation careers require science, technology, engineering, or math. The third most common reason was not knowing where to start.

What qualities attract women to aviation careers? In a survey of women in aviation, the top-ranked factors that positively influenced decisions to pursue careers in aviation included:[62]

- Passion for aviation
- Perception that aviation is a fun and adventurous profession
- Opportunity to prove personal abilities
- Desire for a challenging career



[60]Rebecca Lutte, Testimony to the House Committee on Transportation & Infrastructure: Aviation Subcommittee Hearing: Bridging the Gap: Improving Diversity and Inclusion in the U.S. Aviation Workforce, July 2021, https://www.researchgate.net/publication/353886971_Lutte_Congressional_testimony_includes_data_on_underrepresented_groups_in_aviation_House_Commitee_on_Transportation_Infrastructure_Aviation_Subcommittee_Hearing_Bridging_the_Gap_Improving_Diversity_an (discussing EAA Women Soar Survey).

[61]Participants specifically were asked what segments of aviation they were most familiar with—airports, commercial airlines, aerospace, air traffic control, general aviation, manufacturing, military, maintenance, drones, none, unsure, or other.

[62]Rebecca Lutte, "WAI Conference 2020 Lutte Presentation of Women in Aviation Survey Results," supra note 56.

Conversely, research shows that factors that negatively impact the recruitment and retention of women in aviation include:[63]

- Economic factors, including cost of entry—particularly for flight training
- Family and work balance challenges
- The need for additional outreach about career options and pathways
- Lack of women in leadership positions
- Need for leadership commitment to diversity and inclusion
- Navigating the workplace culture including gender bias and sexual harassment

Cost of entry ranked highest for negative influence on women against pursuing an aviation career.[64] The additional flight training costs for an individual pursuing a professional flight degree at a university, for example, can be between $50,000 to $80,000—in addition to the cost of the four-year degree. Current financial aid often does not meet these needs; the maximum amount for Pell grant award for 2021–2022 is $6,495.[65]

A top threat to retention is poor family and work balance. In a survey of women in aviation, 38% reported that they considered leaving the aviation industry and identified the top reason as poor family and work-life balance, followed by negative workplace culture.[66] Family and work-life balance challenges disproportionately affect women because of the "double shift" of waged work and caregiving and maintaining the home. Mothers are "1.5 times more likely than fathers to be spending an extra three or more hours a day on housework and childcare—equivalent to 20 hours a week, or half a full-time job."[67]

A lack of family-friendly policies contributing to the challenges women face is not unique to aviation: According to data compiled by the Organization for Economic Cooperation and Development (OECD) in 2020, the United States was the only OECD country without a national paid parental leave policy and one of the few without a national family caregiver or medical leave policy.[68] In October 2020, the Federal Employee Paid Leave Act began providing paid parental leave to most Federal civilian employees,[69] but did not address the private sector. As Figure 13 makes clear, the lack of government-supported paid leave keeps the United States woefully behind.

[63]Rebecca Lutte, Testimony to the House Committee on Transportation & Infrastructure, supra note 60; Ivana Gorlin & Donna Bridges, "Aviation Culture: a 'Glass Sky' for Women Pilots - Literature Review," Int'l Journal of Aviation, Aeronautics, and Aerospace 8(2), July 3, 2021, https://doi.org/10.15394/ijaaa.2021.1587; Korn Ferry, "IAWA Soaring Through The Glass Ceiling," supra note 18; Rebecca Lutte, "WAI Conference 2020 Lutte Presentation of Women in Aviation Survey Results," supra note 56; Oliver Wyman & IAWA, "Lift Off to Leadership," supra note 1; Stevenson, L., Cuevas, H.M., Rivera, K.K., Kirkpatrick, K.S., Aguiar, M.D., & Albelo, J.L.D. *Women's Perceptions of the Aviation Workplace: An Exploratory Study. Collegiate Aviation Review International*, (2021) 39(1), 42-63. http://ojs.library.okstate.edu/osu/index.php/CARI/article/view/8091/7475; United States Air Force, (2021). *Diversity Report: Report of inquiry (S8918P) disparity review.* Inspector General Department of the Air Force; Węziak-Białowolska, D; Białowolski, P; Mordukhovich, I & McNeely, E. (2020) *Work, Gender, and Sexual Harassment on the Frontlines of Commercial Travel: A Cross-Sectional Study of Flight Crew Well-Being*, *The International Journal of Aerospace Psychology*, 30:3-4, 171-189, DOI: 10.1080/24721840.2020.1796488.

[64]Rebecca Lutte, "WAI Conference 2020 Lutte Presentation of Women in Aviation Survey Results," supra note 54.

[65]"Federal Pell Grants are usually awarded only to undergraduate students," Federal Student Aid, U.S. Department of Education, access January 17, 2022, https://studentaid.gov/understand-aid/types/grants/pell.

[66]Rebecca Lutte, "WAI Conference 2020 Lutte Presentation of Women in Aviation Survey Results," supra note 56.

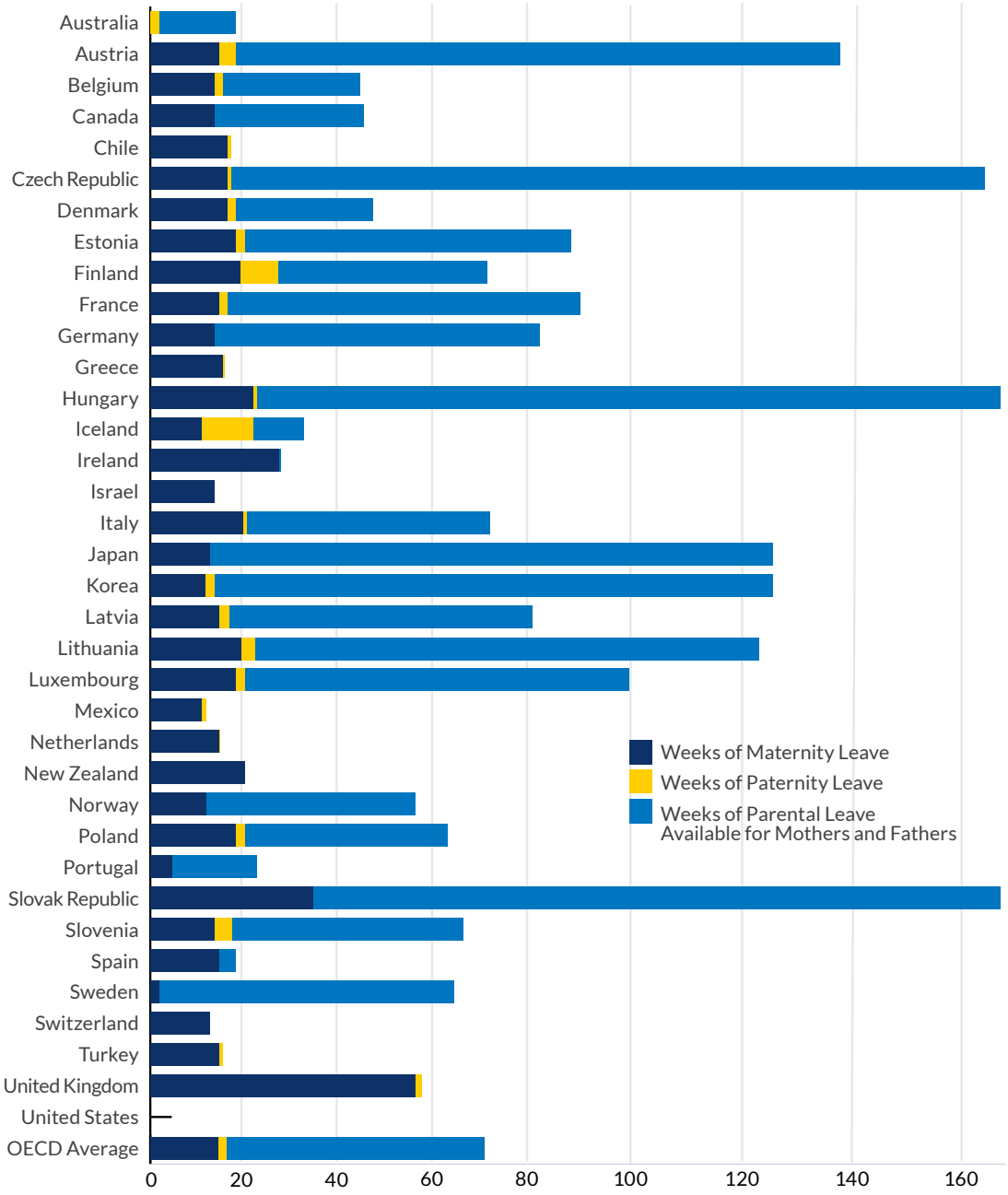
[67]McKinsey & Company. (2020). "Women in the workplace 2020" (2020), https://leanin.org/women-in-the-workplace-report-2020 p.18

[68]Gretchen Livingston & Deja Thomas, "Among 41 countries, only U.S. lacks paid parental leave," Pew Research Center, December 16, 2019, https://www.pewresearch.org/fact-tank/2019/12/16/u-s-lacks-mandated-paid-parental-leave/.

[69] "Paid Parental Leave: Summary of Paid Parental Leave," U.S. Department of Labor, accessed January 17, 2022, https://www.dol.gov/general/jobs/benefits/paid-parental-leave.

FIGURE 13[70]

PAID PARENTAL LEAVE POLICIES IN OECD COUNTRIES



Notes: Canada's parental leave policies exclude the province of Quebec, which provides benefits through Quebec Parental Insurance Plan. In Luxembourg and Norway depending on the selected payment level, each parent can take 4 - 20 months of parental leave. The demonstrated number of weeks available for Norway and Luxembourg represents available leave at 100 percent of earnings.

[70]"Paid Family Leave Across OECD Countries," Bipartisan Policy Center, January 2020, https://bipartisanpolicy.org/download/?file=/wp-content/uploads/2020/01/PFL6-FInal_.pdf.

Another primary deterrent to the recruitment and retention of women, as well as their advancement, is negative workplace culture.[71] When women working in aviation were asked in an open-ended survey question about the greatest challenge/barrier they experienced in their careers, the most common response related to negative workplace culture.[72] Another study found that two-thirds of women surveyed felt that they were treated differently because of their gender and 40% felt that their voices were not heard.[73] Even women not working in aviation perceive the industry as lacking in diversity, and are unsure about whether they would be welcomed into aviation.[74]

Women in aviation are more likely to encounter fewer positive career experiences, have more negative career experiences, and not experience the same results in their career progression, despite taking similar approaches to their careers as men. Negative experiences range from being overlooked for opportunities, to being interrupted and having ideas dismissed or misattributed, to being viewed as overly aggressive and subjected to non-inclusive norms.[75]

Women are also less likely than men to feel support from senior executives to improve the representation of women, and about twice as likely to consider the representation of women in leadership as an essential priority.[76] According to an International Aviation Womens Association (IAWA) study, the two most important enablers of advancing women in aviation were having more women role models in leadership and ensuring a strong and visible commitment to diversity and inclusion from leadership.[77] That study also found that only 32% of women currently agreed that their senior leadership was committed to increasing the number of women in leadership roles.[78]

An IAWA and Oliver Wyman study revealed that men tend to view existing company programs to address discrimination and harassment as more established and more effective compared to women. Men rated well-communicated and consequential processes for reporting discrimination and harassment as the most effective initiatives to improve gender balance. Men also viewed clear processes to report harassment as well-established and without barriers. [79] "These are

FIGURE 14[80]

WOMEN WHO HAVE CONSIDERED LEAVING THE AVIATION INDUSTRY

OVER HALF

OF WOMEN SURVEYED HAVE CONSIDERED LEAVING THE AVIATION INDUSTRY

Top Reasons

1. Implicit Bias Discrimination
2. Lack of Career Opportunities
3. Lack of Flexibility (Work/Life Balance)

[71] Ivana Gorlin & Donna Bridges, "Aviation Culture: a 'Glass Sky' for Women Pilots - Literature Review," Int'l Journal of Aviation, Aeronautics, and Aerospace 8(2), July 3, 2021, https://doi.org/10.15394/ijaaa.2021.1587.

[72] Rebecca Lutte, "WAI Conference 2020 Lutte Presentation of Women in Aviation Survey Results," supra note 54.

[73] Korn Ferry, "IAWA Soaring Through The Glass Ceiling," supra note 18. This also appears to be consistent with the broader field of tech; according to a study by Accenture on women in tech, poor company culture was the number one cause for women leaving their jobs. "Resetting tech culture: 5 strategies to keep women in tech," Accenture 2020, https://www.accenture.com/_acnmedia/PDF-134/Accenture-A4-GWC-Report-Final1.pdf#zoom=50.

[74] Board-initiated survey conducted through the University of Nebraska at Omaha of professional women not currently working in aviation.

[75] Oliver Wyman & IAWA, "Lift Off to Leadership," supra note 1, pg. 12.

[76] Id.

[77] The IAWA study specifically revealed four inhibitors related to women's lack of advancement:1 Lack of opportunity for advancement or upward mobility. 2. Lack of female executives or board members. 3. Systemic policies and practices that close off potential career paths. 4. Organizations that don't prioritize or promote diversity. Korn Ferry, "IAWA Soaring Through The Glass Ceiling," supra note 18.

[78] Id., pg. 19.

[79] Oliver Wyman & IAWA, "Lift Off to Leadership," supra note 1, pg. 18.

[80] Id.

certainly important, but they are viewed by women as 'table stakes' — not as true game-changers that can enable their success. Instead, women want a systemic focus on growth that accounts for the unique barriers they face. These include sponsorship programs explicitly for women and flexible/remote working options that make work more feasible."[81]

Because of a less inclusive culture, women are disproportionately pushed out of aviation.[82] The IAWA and Oliver Wyman study found that 59% of the women surveyed had considered leaving their careers in aviation.[83] The survey found that men often leave aviation for more attractive opportunities, whereas women are pushed out due to untenable working conditions. Notably, the top reason that women consider leaving aviation is implicit gender discrimination and bias.[84]

Research confirms that gender bias, discrimination, and sexual harassment are significant issues in aviation. In a 2018 survey of Women in Aviation International (WAI) members, 62% of respondents indicated that sexual harassment remains a significant problem in the industry.[85] Seventy-one percent of respondents reported that they had experienced sexual harassment in the workplace or another professional aviation setting, and 81% reported having witnessed sexual harassment. Moreover, 51% of the women who had reported, complained about, or would not submit to the harassment experienced retaliation. A survey by the Association of Flight Attendants[86] found that 68% of the responding U.S. flight attendants experienced sexual harassment during their flying careers. Only 7% reported it; with concerns over retaliation and or inaction driving underreporting.[87] See Figure 15 combining the noted surveys above.

A specific concern is underreported sexual abuse during FAA medical examinations. Examples of abuses include unwarranted breast and pelvic examinations, and skin checks requiring the removal of clothing. The impacts of these unacceptable violations of trust can be life-altering, as evidenced by the USA gymnastics team testimony on abuse during medical examinations.[88]

FIGURE 15
SEXUAL HARASSMENT IN AVIATION: SURVEY RESULTS

[81]Oliver Wyman & IAWA, "Lift Off to Leadership," supra note 1, pg. 18.

[82]Id., pg. 10.

[83]Id., pg. 11.

[84]Id.

[85]WAI 2018 Sexual harassment member survey.

[86]"#MeToo in the Air," Association of Flight Attendants, accessed January 17, 2022, https://www.afacwa.org/metoo#a6.

[87]Dorota Węziak-Białowolska et al., "Work, Gender, and Sexual Harassment on the Frontlines of Commercial Travel: A Cross-Sectional Study of Flight Crew Well-Being," The International Journal of Aerospace Psychology 30:3-4, August 17, 2020, https://www.tandfonline.com/doi/full/10.1080/24721840.2020.1796488, pg. 171-189.

[88]Committee on the Judiciary, "Dereliction of duties: Examining the Inspector General's report of the FBI's handling of the Larry Nassar investigation," September 15, 2021, https://www.judiciary.senate.gov/meetings/dereliction-of-duty-examining-the-inspector-generals-report-on-the-fbis-handling-of-the-larry-nassar-investigation.

V. OUR VISION: RECOMMENDATIONS FOR BREAKING DOWN BARRIERS AND RECRUITING, RETAINING, AND ADVANCING WOMEN INTO AVIATION

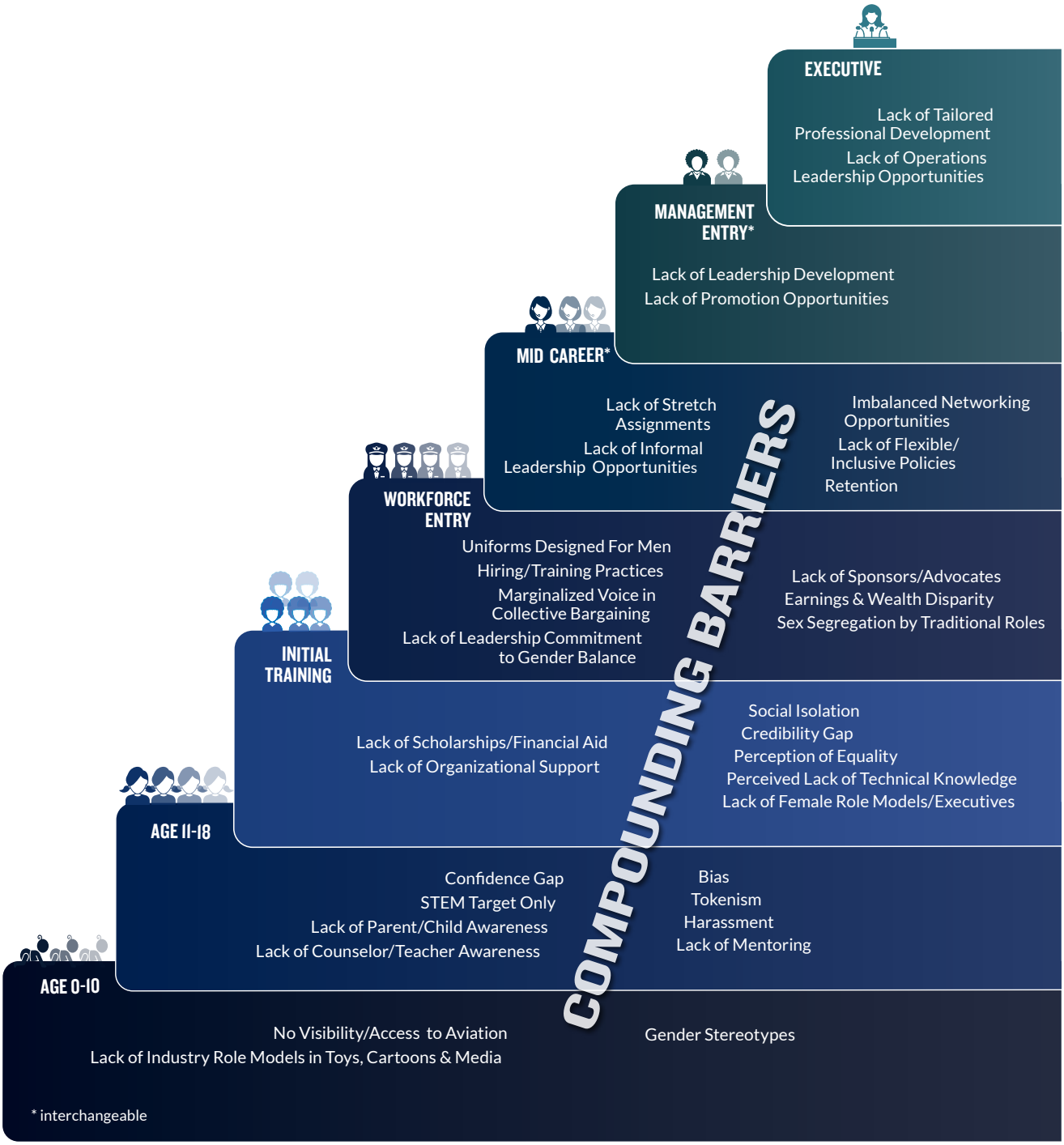
A. BARRIERS TIMELINE MODEL FOR A SYSTEMS REDESIGN APPROACH

There is nothing about aviation that is intrinsically suited to any gender, except that aviation generally was designed with men in mind. The presence of women in aviation is the result of decades of limited progress achieved largely by "riveting holes" in the system. Currently, a complex system of barriers impedes the recruitment, retention, and advancement of women in aviation. Although individual experiences may vary, many of these barriers are commonly experienced by women across the industry—as well as by other underrepresented groups.

The Board's Barriers Timeline Model shows when, where, and how women encounter barriers. It shows the compounding effect of these barriers over a woman's lifetime, starting at a very young age. It also shows potential points along the journey that are opportunities for change. Both understanding the problem and the opportunities for intervention are key to the Board's recommendations.

FIGURE 16

BARRIERS TIMELINE MODEL



These opportunities for intervention are the basis of the Board's recommendations, which are grouped into five general areas:

CULTURE
overarching throughout each stage of the journey

RECRUITMENT
at early phases of a woman's journey

RETENTION
through initial training and workforce entry

ADVANCEMENT
into mid-career and leadership/ executive opportunities

DATA
identifying and addressing gaps in data and publication

In addition to recommendations specific to culture change, the importance of culture underlies most, if not all, of the Board's recommendations on recruitment, retention, advancement, and data. Without broad and deep commitment to culture change, more tactical initiatives are unlikely to be fully effective.

Just as the impact of many of the barriers extends beyond when women first experience them, many of the recommendations positively impact more than one phase of a woman's journey. The benefits of many of the recruitment recommendations also extend to retention and advancement; for this reason, aside from culture, recruitment contains the most significant number of recommendations. Further, some of the recommendations are not specific to women; these recommendations improve the representation of women in aviation by improving the recruitment, retention, and advancement of all talent.

B. CREATING AN INCLUSIVE CULTURE

> **"Today's aviation industry culture does not enable women to thrive in their careers.**
>
> Relative to men in the industry, women report more negative experiences, slower career advancement, and fewer opportunities to take on senior or challenging roles tied to the bottom line. As a result, women are more likely to consider leaving the industry than men and to be pushed out by negative experiences, rather than pulled away by new opportunities."
>
> Lift Off to Leadership

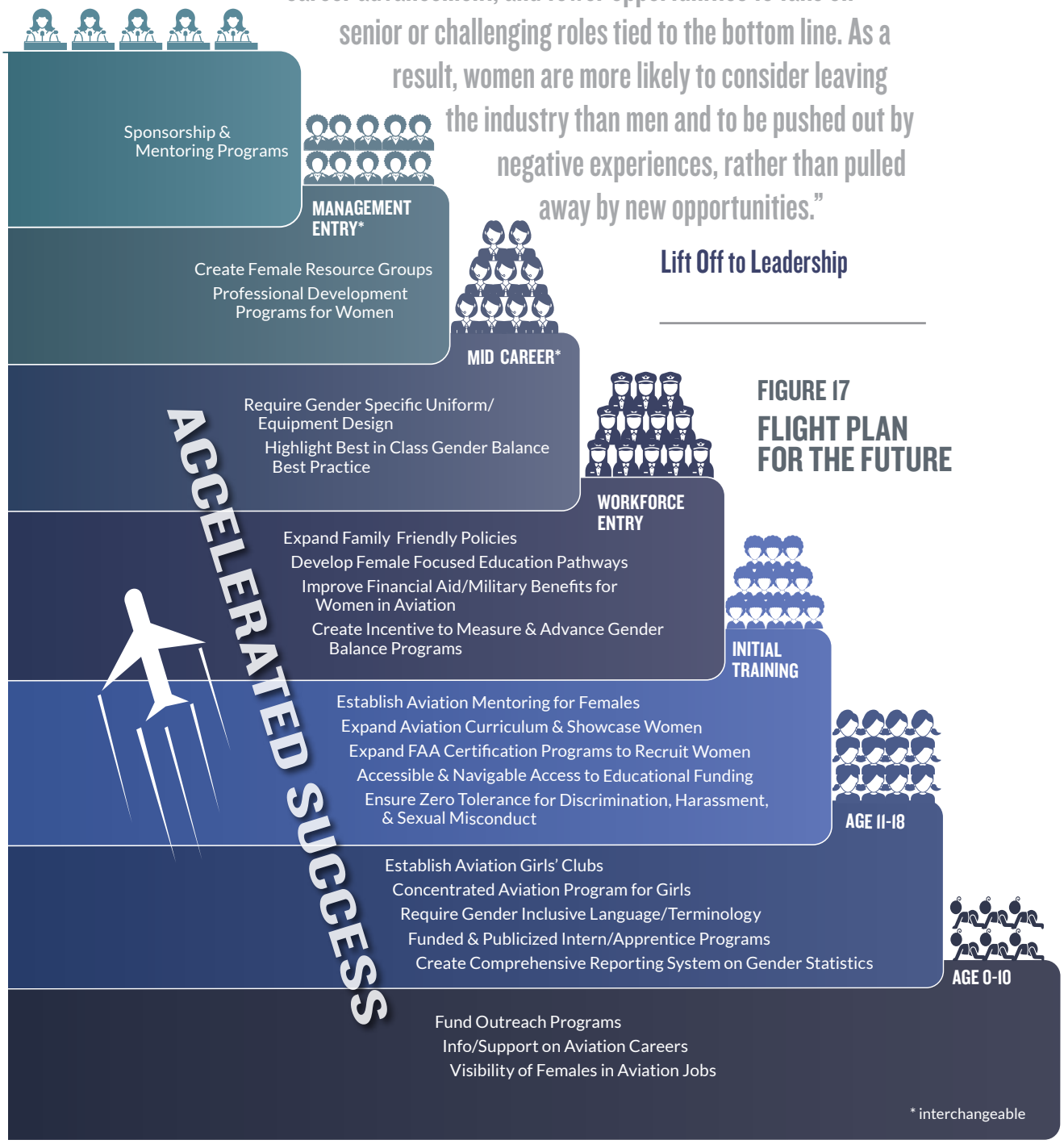


FIGURE 17
FLIGHT PLAN FOR THE FUTURE

FLIGHT PLAN FOR THE FUTURE

The Barriers Timeline Model underscores that aviation was built around prescribed gender roles. Although women are not always actively excluded, aviation's culture works against the recruitment, retention, and advancement of women. From uniforms to flight deck design to images in flight training manuals and terminology in FAA regulations, external representations of aviation's cultural values signal a system designed by men for men. Women are "allowed," but are not always supported throughout the system, and instead challenged to find a way to "fit in" and be successful. However unconscious or unintentional, false perceptions of equality, a credibility gap, gender stereotypes, bias, harassment, and tokenism can impact women at every stage of their careers—and stand as a direct obstacle to aviation's best future.

WHAT IS CULTURE?

Culture is the totality of learned and socially transmitted behaviors. Broadly, culture consists of both internal and external aspects.

Internal aspects are not directly observable by others. Examples include: values, beliefs, and attitudes.

External aspects are observable. Examples include: structures, policies, rituals, ceremonies, symbols, dress, and language.

External aspects often mirror internal values and beliefs. While not being directly observable in these external aspects, it is critical to recognize how values and beliefs are reflected and make necessary adjustments for sustained improvements.

Changing culture is a long-term commitment, and no single individual or entity is responsible for it. The absence of broad senior leadership commitment and transparent, public effort to achieve real culture change toward gender inclusivity cements the status quo and actively discourages progress. The time is well past for ensuring a culture that is inclusive, supportive, and welcoming, regardless of gender. This is a fundamental point that runs through the Board's recommendations.

i. Avenues For Engagement

1. **FAA RECOMMENDATION – Coordination of Non-Profit Organizations:** To build a greater knowledge of their missions and work, the FAA should establish an awareness campaign of non-profit organizations that emphasize the introduction to and advancement of women in aviation professions. There are currently many non-profit organizations creating pathways and sharing opportunities for women in aviation. There is no coordinated effort, however, to unite this work. There is also a lack of public and industry awareness about these bodies providing essential exposure and opportunities to women.

2. **INDUSTRY RECOMMENDATION – Annual Summit:** An annual culture summit, hosted by a coalition of industry organizations, should be created. This summit can serve as a venue for the FAA to provide details on the report to Congress discussed in Recommendation 55. The summit also should include awards to recognize individuals and organizations that are driving meaningful

Madeline G. Swegle
Lieutenant, USN, tactical aviator

"I'm excited to have this opportunity to work harder and fly high performance jet aircraft in the fleet. It would've been nice to see someone who looked like me in this role; I never intended to be the first. I hope it's encouraging to other people."

change in the areas of female representation and leadership in aviation. The annual summit and awards should be organized through a coalition and or a partnership with an established group dedicated to advancing women in aviation.

3. **CONGRESSIONAL AND INDUSTRY RECOMMENDATION – Industry Certification Program:** Industry, in partnership with government, should create a certification program to incentivize, recognize, and reward organizations that are implementing practices to improve the representation of women in the industry and reporting positive results. This program should recognize industry organizations with up-to-date documented policies, principles, and practices aligned with applicable recommendations in this Report such as, zero-tolerance for workplace harassment, family-friendly policies, mentoring and sponsorship programs, marketing and outreach efforts, measurable and publicly reported goals which increase diversity, and a reporting structure that prioritizes physical, operational, and individual psychological safety. The certification program should be appropriately tailored to take into consideration the size of the industry organization and should be scalable to suit each situation. The structure should be similar to other successful programs, such as the LEED Certification Program created by the U.S. Green Building Council[89] and the Women's Business Enterprise National Council certification program.[90] The Board suggests that this certification program run as a non-profit organization, similar to those in the aforementioned programs or in partnership with an established aviation non-profit organization. Congress should encourage this effort through various means, possibly including tax or set aside incentives (or grants for non-profit organizations) for entities that are certified through the program.

ii. Showing Women Belong

4. **FAA RECOMMENDATION – Aviation Careers Awareness:** The FAA should launch a marketing campaign featuring women in aviation to help girls envision themselves in aviation careers. To increase the number of women in aviation, more effort must be made to promote various careers in aviation with representation of women of varying ages and ethnicities. This campaign should consider the findings of the Women in Aviation International member survey,[91] which indicate that girls are attracted to aviation for adventure and challenge, not necessarily science technology engineering, and math (STEM)—and that not all careers in aviation require STEM skills. Working with organizations like the Ad Council could help this promotional messaging reach communities nationwide.

[89]"Leed Rating System," last accessed February 12, 2022, https://www.usgbc.org/leed.
[90]Women's Business Enterprise National Council Certification, last accessed February 12, 2022, https://www.wbenc.org/.
[91]Rebecca Lutte, "WAI Conference 2020 Lutte Presentation of Women in Aviation Survey Results," supra note 56.

5. **FAA AND INDUSTRY RECOMMENDATION – Visual Representation of Women:** As the FAA and Industry update documents, manuals, curricula, marketing, social media, and other materials and media that contain any images, photos, or videos of aviation professionals, special attention should be given to the visual representation of women of differing ages, backgrounds, and ethnicities in various aviation careers.

6. **FAA AND INDUSTRY RECOMMENDATION – Words Matter:** The Board encourages the FAA to continue its efforts to identify and remedy the use of terminology that may exclude members of the community.

   Language is an important example of how aviation culture projects an expectation of an exclusively or predominantly male environment. The FAA has already recognized that "language makes a difference"[92] and has initiated efforts to expand inclusive language across the Agency. In 2019, the FAA tasked the Federal Women's Program with developing recommendations for gender-neutral language.[93] Then, in February 2021, the FAA Drone Advisory Committee (DAC) was tasked with developing recommendations for alternatives to the gender-specific terms currently used in the drone and aviation communities. The Drone Advisory Committee developed formal recommendations, including a style guide, identifying the most common gendered terms used by the FAA, and proposed alternatives. The Drone Advisory Committee also developed a plan for the Agency to implement the recommended changes, beginning with new communications and publications, and then reworking existing documents and materials, prioritized by the number of individuals exposed to the material.[94] Most recently in November of 2021, the FAA hosted a virtual Inclusive Language Summit, during which recommendations from the Drone Advisory Committee as well as a variety of other sources were presented and discussed.[95] The Board acknowledges and commends the FAA for these recent efforts. We urge the FAA to inspire and assist the aviation industry in adopting similar terminology reviews and policy changes for internal and external communications, including speech, images, and text. To accomplish these goals both in the near- and long-term, the FAA should continue to employ and/or engage qualified professionals to develop, implement, and sustain these efforts.

7. **FAA AND INDUSTRY RECOMMENDATION – Uniforms That Fit for All:** The FAA should encourage aviation uniforms and professional appearance standards policies that are inclusive of women, including reflecting inclusive uniforms and professional appearance standards in its own images. Focusing on uniforms may seem superficial, but dress and personal appearance standards are one of the strongest external manifestations of culture in any society.

[92] Deputy Administrator Bradley Mims, "Inclusive Language Summit: Prepared Remarks," November 10, 2021, https://www.faa.gov/speeches/inclusive-language-summit.

[93] "National Outreach Program for Diversity and Inclusion: Federal Women's Program," FAA, accessed January 17, 2022, https://www.faa.gov/about/office_org/headquarters_offices/acr/outreach/fwp.

[94] Drone Advisory Committee Public e-Book, https://www.faa.gov/uas/programs_partnerships/advanced_aviation_advisory_committee/previous_dac_meetings_and_materials/media/DAC_Public_eBook_06_23_2021.pdf, pg. 97.

[95] "Virtual Inclusive Language Summit," FAA, accessed January 17, 2022, https://www.faa.gov/newsroom/conferences-events/virtual-inclusive-language-summit.

Angela Gittens
Former Director General,
Airports Council International (ACI) World

> "Women do not only need opportunities for building experience, but also positive mentorship experiences and, most importantly, developing a network of colleagues and potential employers, males and females. I have to tell you that my strongest mentors have actually been men, including my aviation mentor who was certainly no feminist or civil rights activist. We don't necessarily need 'true believers', we need pragmatists that can see that hiring and promoting women is in their organization's best interests."

Women on the flight deck, for example, often are expected to wear uniforms designed for men. To both the aviation community and the broader public, this reinforces that aviation is a man's job and that the few women who are in it must conform to male standards. This exacerbates the perception, both internally and externally, that women literally do not "fit" in aviation.

Lack of access to appropriate uniforms is not only an issue for authentic representation, but also for functionality. The need for properly fitted and functional uniforms is an operational necessity. In many positions, appropriate uniforms are a safety concern, especially with personal protective equipment (PPE). If personal protective equipment is ill-fitting, its protective qualities are compromised. Nonetheless, women often are taught to expect that personal protective equipment will not fit them properly and are given little to no recourse to address this safety hazard. Simple tasks such as bending over or reaching above the head can be inhibited by ill-fitting attire and also pose a safety hazard, for example when using a ladder or maintenance stand. There are likely multiple reasons for the failure to adapt and change, but one contributing factor is that many aviation workplace rules are set in management-labor negotiations. When women are such a small minority of the group represented, issues affecting women often do not get addressed at the contract negotiating table by either side.

iii. Commitment to Lasting Change

8. **FAA AND INDUSTRY RECOMMENDATION – Leadership Commitment to Culture Change:**

Leaders in government and industry must take steps to proactively foster environments of respect and professionalism for all. It is imperative not just to counteract bullying, harassment, and discrimination, but to also proactively create a culture that is welcoming of employees' authentic selves. Aviation's leadership has a responsibility to ensure an effective culture strategy is developed, published, deployed, and measured.

Recommended steps for leadership to demonstrate and foster commitment to change include but are not limited to:

- Prevent gender bias, discrimination, and sexual harassment before it occurs with awareness, education, and training. Strive for the objectives of positive messaging and fair-mindedness. Incorporate these concepts into professional standards, recurrent training, and leadership courses early and often throughout the course of a career.
- Implement proven methods to increase awareness, recognition, and understanding of bias, and educate and train teams to intervene when they witness acts of bias and discrimination. Implement such programs as bystander intervention training and allyship training.
- Expand funded opportunities for strategic mid-career professional development tailored to women and other underrepresented groups, designed by target audience representatives.
- Incorporate diverse voices into decision-making, innovations, and strategy development. Women must be developed and elevated into decision-making roles so that they are present and can weigh in on key policies and practices that will improve gender inclusion.
- Specifically evaluate the impact of policies and practices on women to identify and interrupt unconscious biases. Establish policies and programs that allow for caregiving responsibilities without loss of status and ensure a robust sense of community and support.
- Establish clear avenues for redressing inappropriate/unprofessional conditions and behaviors, and expressing clear leadership support for both reporting and response.
- Identify clear, and measurable diversity goals. Report on progress. Goal setting creates organizational focus. Transparency in the reporting process drives accountability in achieving these goals.

9. **FAA RECOMMENDATION – Safety Management Systems:** To support leadership commitment and organizational change, the FAA should incorporate bias, harassment, and discrimination awareness education and allyship training as components of Safety Management Systems. The FAA also should gather and share best practices on promoting inclusive cultures and allyship as part of its safety support resources and guidance.
10. **CONGRESSIONAL RECOMMENDATION – Industry-Wide Reporting Program to Address Gender Bias, Discrimination, and Sexual Harassment:** Congress should establish an industry-wide independent reporting program for gender bias, gender discrimination, and sexual harassment.

This program should be accessible to anyone in aviation and overseen by a governing entity with individuals in aviation that have expertise in bias, discrimination, and harassment. This could be a confidential reporting system tasked with, but not limited to, collecting, tracking, and analyzing information about bias, discrimination, and harassment; publishing metrics and trends; conducting investigations and studies; and making industry-wide recommendations. Trend information about complaints and resolutions could help organizations and industry understand where to focus attention, and further compel action. The aviation industry already uses data-driven programs to enhance safety, some examples are Aviation Safety Information Analysis and Sharing (ASIAS),[96] Flight Operational Quality Assurance (FOQA),[97] Aviation Safety Action Program (ASAP),[98] and the NASA Aviation Safety Reporting System (ASRS).[99] This program also could include an optional independent, informal, neutral, and confidential complaint resolution arm, akin to an ombuds system. Interested participating organizations could contract to receive third-party support to facilitate more positive and expedient resolution of complaints and mitigate the risk of retaliation.

As the Barriers Timeline Model demonstrates, gender bias, gender discrimination, and sexual harassment are significant barriers that reoccur throughout a woman's journey in aviation. If existing interventions were effective, bias, harassment, and discrimination would not continue to be such a significant problem. Many existing grievance and reporting systems put victims at a disadvantage. In particular, confidentiality rules are difficult to enforce and fear of reprisal for reporting can be substantial. Further, it is important to recognize that the pressures, gender biases, gender discrimination, and sexual harassment that women experience are amplified in male-dominated occupations. Congress must help the aviation industry address these problems more effectively.

11. **FAA RECOMMENDATION – Enhanced FAA Medical Process Information and Reporting Procedures for Inappropriate Medical Examination Actions:** The FAA should amend the MedXPress application, create medical examination resource handouts for applicants, and require public display of FAA medical requirements in Aviation Medical Examiners (AME) offices. These resources must include clear and simple guidelines on what is appropriate for an examination, information on the right for a third-party to be present, actions recommended to stop a medical examination, and guidance on reporting misconduct. To determine what is appropriate for an examination, standard practice for the FAA is to refer applicants to the Guide for Aviation Medical Examiners. This document is 537 pages long.[100] Women also must not be at risk of losing their medical clearance, and potentially their ability to work, when an examinee interrupts a medical examination because of an alleged violation. If inappropriate actions are reported to the FAA, no certificate infraction should be placed on the applicant during the investigation process.

[96]The FAA's Aviation Safety Information Analysis and Sharing (ASIAS) system enables users to perform integrated queries across multiple databases, search an extensive warehouse of safety data, and display pertinent elements in an array of useful formats.

[97]Flight Operational Quality Assurance (FOQA) is a voluntary safety program designed to improve safety through the sharing of de-identified aggregate information for identification of risk issues.

[98]"The goal of the Aviation Safety Action Program (ASAP) is to enhance aviation safety through the prevention of accidents and incidents. Its focus is to encourage voluntary reporting of safety issues and events that come to the attention of employees of certain certificate holders." "Aviation Safety Action Program," FAA, accessed January 17, 2022, https://www.faa.gov/about/initiatives/asap.

[99]"Aviation Safety Reporting System," NASA, accessed January 17, 2022, https://asrs.arc.nasa.gov/.

[100]Guide for AME: https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/media/guide.pdf; Example of FAA referring applicants to AME guide: https://www.youtube.com/watch?v=sC-C4GwFZ9Q&t=11s.

12. **CONGRESSIONAL RECOMMENDATION – Investigation into Inappropriate Medical Examination Actions:** Congress should require the Government Accountability Office to investigate and report on the frequency of inappropriate actions during FAA medical examinations and the process for reporting misconduct, investigating reports, and taking corrective actions. The results of investigations should be made public.

13. **INDUSTRY RECOMMENDATION – Mental Health Services:** Every employee should be able to easily access employer-provided mental health care resources. To understand mental health and promote a psychologically safe space for employees, the Board urges employers to make the following available:

    - Employee resource groups (ERG)
    - A culture that promotes inclusion
    - Benefits that include mental health services
    - Leave for treatment
    - Regular team-building that promotes unity
    - Semiannual, anonymous employee assessments on company performance in people-focused areas
    - Policies that support consequences for harassment, discrimination, and bullying

    Mental health is fundamental to our overall health and well-being at home and in the workplace. Crucially, stigmas associated with seeking support sometimes prevent individuals from accessing help. Mental health affects 19.86% of Americans and 55.90% of those people did not seek help with 11.1% not being insured.[101] As we move through a global pandemic that has only served to further exacerbate mental health concerns, it is imperative that we continue to advocate for workplace mental health policies and strategies that can improve the lives of everyone.

14. **CONGRESSIONAL RECOMMENDATION – Permanent Advisory Committee for Continued Focus on Cultural Change**: To promote accountability for the long term and to provide continued advice to the FAA and the Department of Transportation, the Board recommends that Congress establish an advisory committee on women in aviation. The Board's recommendations will require sustained focus over time, across multiple administrations, and coordination among many organizations. For example, this Committee could advise the FAA on its aviation career awareness efforts. Properly structured, a permanent advisory committee on women in aviation will have the stature to be heard, the staff support to be relevant, and the staying power to have influence. Accordingly, it should be established by statute and consist of volunteers who are appointed from across the country by a range of government leaders.

See Appendix 1 for draft language for this recommendation.

[101] "View All Data 2022," Mental Health America, last accessed February 12, 2022, https://mhanational.org/issues/2022/mental-health-america-all-data.

Kara White
Aviation Documentarian

"For the future of aviation, there needs to be greater promotion of aviation careers to all types of people, including women, people of color, and LGBTQ. Representation matters. When someone sees a pilot/engineer/air traffic control operator that looks like them, then they think that maybe an aviation career is attainable for someone like them. It opens up a world they may have never considered before."

C. BARRIERS TO THE RECRUITMENT OF WOMEN INTO AVIATION

As the Barriers Timeline Model shows, without intervention, women lack awareness of and access to career opportunities in aviation, as well as the educational pathways that lead to those opportunities. Even from early childhood (years 0–10), girls face steep climbs in their journeys into aviation. Stereotypes suggesting that boys are brave, technical, decisive, and strong, push girls away from aviation careers or encourage them into industry segments historically occupied by women. Girls may not realize that careers in aviation are available to them, often due to a lack of visibility and an "awareness gap" present in key influencers including parents and teachers.

During the secondary school years (ages 11–18), girls continue to be subjected to gender-limiting stereotypes and face bias and harassment for behaving outside of societal norms. Gender-science stereotyping has been shown to hinder the self-identification of young women with STEM academic subjects and fields, and also to negatively affect their self-conception and other subject interests.[102] This issue is compounded by the common misconception that STEM skills are required in aviation careers. Girls may also experience tokenism—"the practice of making a perfunctory or symbolic effort to do a particular thing, especially by recruiting a small number of people from underrepresented groups to give the appearance of sexual or racial equality."[103]

To address the barriers to the recruitment of women into aviation, early exposure to aviation and aerospace, ongoing engagement, and financial support are all key. To attract more women, aviation needs to be a visible, accessible, and affordable option, which offers a sense of belonging for women when they join.

[102]Elena Makarova, Belinda Aeschlimann, & Walter Herzog, "The Gender Gap in STEM Fields: The Impact of the Gender Stereotype of Math and Science on Secondary Students' Career Aspirations," Frontiers in Education 4(60), July 10, 2014, https://www.frontiersin.org/articles/10.3389/feduc.2019.00060/full.

[103]"Tokenism," Oxford Reference, https://www.oxfordreference.com/view/10.1093/oi/authority.20110803104818992.

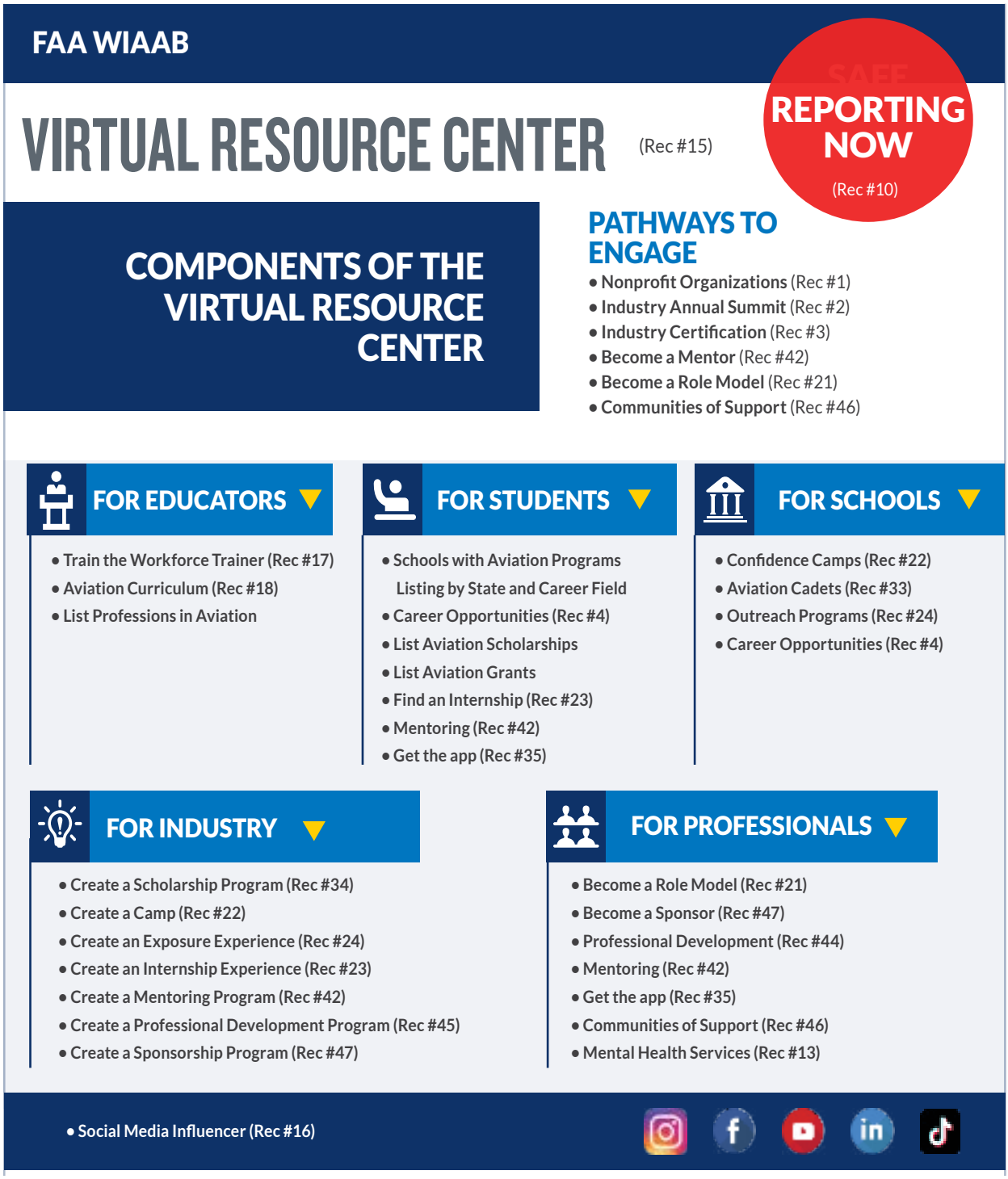
i. Outreach, Awareness, and Education

Exposing young girls to aviation careers and education paths early on will empower and enable them to consider career paths that might otherwise feel unavailable or unachievable.

15. **FAA RECOMMENDATION – Virtual Resource Center:** The FAA, in collaboration with industry, should develop, promote, and maintain a high–quality, web-enabled resource center for students, teachers, and aviation volunteers to streamline access to information about opportunities and pathways into aviation professions. This "one-stop-shop" should aim to connect programs and information sources, including pathway programs, development opportunities, career information, industry organizations, and links to scholarship and training opportunities.

    A high-quality information resource center should include a database of institutions that offer aviation and aerospace curricula and activities. This will provide an essential central location for information about educational opportunities and pathways to enter and navigate through an aviation career. Resources also should include best practices to engage girls and young women about careers in aviation.

FIGURE 18
VIRTUAL RESOURCE CENTER ENVISIONED



16. **FAA RECOMMENDATION – Social Media and Influencer Network:** The FAA should continue and expand its work on its social media platforms. The Board recommends that this continued development include a specific focus on expanding the influencer network to ensure that girls and young women have visibility as they progress through their aviation journeys. In particular, the FAA should continue communicating through platforms that youth can relate to, keeping abreast of current trends.

17. **FAA AND DOT RECOMMENDATION – Train the Workforce Trainers:** The FAA and the Department of Transportation should establish a program to provide training and information to career coaches, teachers, guidance counselors, and other workforce development professionals on aviation career opportunities, preparation, and educational paths. Leveraging educators and other professionals is an efficient way for the FAA to help reach young people interested in aviation across the country. "Train the trainer" programs could be offered at local airports and include hands-on immersive orientation experiences to showcase opportunities in the field. The program also should include information on gender-limiting stereotypes and offer training for influencers to counteract negative gender bias.

    By aligning with local educational authorities, such a program could be structured appropriately to qualify for continuing education credit, which would likely result in enthusiastic participation by teachers. The program also should partner with and or learn from organizations that have engaged in successful girls in aviation outreach programs and work to scale these strategies to reach more girls.

18. **FAA RECOMMENDATION – Curriculum Development:** The FAA's education department should upgrade its website content to:
    - Include real time contact information for questions and support;
    - Include regular review of content and materials;
    - Include K-12-appropriate curriculum, materials and related resources;
    - Ensure women/girls in aviation are adequately represented in all materials;
    - Provide guidelines for effective internship programs;
    - Identify materials that meet state learning standards that will best prepare students for college and careers in aviation; and
    - Ensure that content is modernized to include technology and immersive technology such as Augmented and Virtual Reality (AR/VR) when applicable and to incorporate social platforms for learning and communication.

    Teachers in secondary education often look to the FAA website for curriculum guidance. This is an area in which some other federal agencies, like NASA, often excel.

19. **FAA AND INDUSTRY RECOMMENDATION – High School to Post-Secondary Pathways:** The FAA should establish resources for secondary and postsecondary institutions to develop and maintain partnerships between high schools and colleges leading to FAA certification and/or aviation-related certificates and degree programs. These resources specifically need to address current challenges surrounding program design and credit transfer between secondary and postsecondary education. The FAA also should support the development of aviation-related programs at the high school and college levels that offer quality content aligned with industry needs and regulatory requirements. Improving aviation curriculum, expanding flexibility, and removing barriers to permit effective educational partnerships and credit transfer among high schools, secondary vocational schools, postsecondary technical schools, and colleges/universities will create improved pipelines into the aviation industry. Programs like these are particularly important to familiarize girls and young women with aviation-related opportunities, as it has been established that girls do not as often gravitate toward non-traditional fields without learning about them at a young age.

    Educators including universities and schools, in coordination with state entities responsible for overseeing K-12 education, can support awareness and preparatory education by working together to develop and strengthen aviation-focused curricula and career education, in the form of both in-school and out-of-school programs. This should include the development of early exposure to aviation and ongoing engagement, authentic learning activities like hands-on and tool-use activities, adequate teacher preparation, usable aviation-focused content marketed to all genders, and improved alignment of K-12 and higher education/trade curricula. Significantly, these programs must not assume that the path to aviation is through STEM or science, technology, engineering, arts, and math (STEAM), but rather specifically focus on paths into aviation.

20. **FAA AND DOT RECOMMENDATION – Transportation and Logistics Career Cluster:** The FAA and the Department of Transportation should establish career readiness partnerships with other federal entities, including but not limited to the Department of Education, the Department of Workforce Development, and the Department of Labor. Currently, aviation careers are highlighted within the public education K-12 system through the National Career Cluster Framework. Although forty-three states provide Transportation and Logistics education in the form of career clusters in public schools, aviation education is limited. Implementing impactful aviation curriculum within the Transportation and Logistics career cluster educational framework will provide students with the opportunity to learn about aviation careers. As students complete National Career Cluster curricula, school districts should have students complete a career interest survey to facilitate connecting students interested in aviation careers with additional educational and career resources from both the FAA and the Department of Transportation.

21. **INDUSTRY RECOMMENDATION – Volunteer Role Models:** Industry should support experiential learning and outreach efforts by advocating for aviation professionals to present at schools and other organizations, and allowing professionals who participate in outreach to count this work toward continuing education or professional development requirements. Industry must be deliberate about ensuring gender representation in presenters and reaching schools and organizations that serve underrepresented populations.

22. **FAA, DOT, and DoED RECOMMENDATION – Immersive Aviation Confidence Camps:** The FAA, the Department of Transportation, and the Department of Education should establish immersive aviation confidence camps, similar to the National Flight Academy, designed specifically for girls. These camps could include experiences like simulating air traffic control, flying aircraft, maintaining aircraft, and performing various other operational tasks. Targeted aviation outreach opportunities like this will introduce young girls to aviation careers while building interest and enthusiasm in a learning environment that provides psychological safety and grows confidence.

23. **INDUSTRY RECOMMENDATION – Internships and Field Experiences:** Industry and local aviation authorities should create internship opportunities at local aviation facilities. Programs could provide rotations through different industry partners to expose students to different aviation careers. For example, a six-week airport rotational "discovery" internship targeting high school juniors and seniors could consist of the following:

    - Two weeks with an airport authority focused on airport development projects and the role and the culture between an airport authority and a community.
    - Two weeks with an airline focused on operations, including customer service and ramp services, an aircraft or aviation-related manufacturer, or a Maintenance, Repair, and Overhaul (MRO) facility.
    - Two weeks with a federal entity like Transportation Security Administration, Customs and Border Patrol, or the FAA focused on the opportunities in the federal government.

    Programs also could include shorter experiences such as three-week internships during Winter breaks or day-long field trips.

24. **DOT RECOMMENDATION – Airport Recruitment Offices:** The Department of Transportation, either directly or through partnerships and grants, should create recruitment offices at airports across the nation and support airport organizations in carrying out age-appropriate awareness and outreach for local schools, camps, and career organizations. This local outreach will help to provide critical visibility into aviation career options. Significantly, this effort must emphasize the breadth of jobs available in aviation.

Julia Harrington
Corporate and Aerobatic Pilot

"It's tough for girls who are curious in aviation, but don't have a family member in the field or the funds to explore their curiosity. Their dreams fizzle because the investment is too high."

25. **CONGRESSIONAL RECOMMENDATION – High Demand Occupation List:** Congress should require the Department of Labor and the Department of Education to include aviation jobs that require federal certification, such as airline pilot and aviation maintenance, on the High Demand Occupation list. In most states, High Demand Occupation lists for educational access and funding include jobs that demonstrate a need for workers only at the local level, as identified by the local workforce investment areas. Unfortunately, aviation jobs often are not added to the High Demand Occupation lists due to the geographic clusters (airport areas) where these jobs are located and the fact that states generally are not required to report. Recognizing the nationwide need for careers requiring FAA certification by adding them to the High Demand Occupation lists will provide students, including women, with greater access, awareness, and funding toward in-demand aviation careers.

26. **FAA AND DOT RECOMMENDATION – State Industry Recognized Certification List:** The FAA and the Department of Transportation should request that every state add the following certificates, as well as updates with emerging sectors such as UAS, to the State's industry-recognized certification list: Private Pilot, Repair Station Certification, and Airframe Certification and Powerplant Certification. Without each state supporting these certifications, students and Career and Technical Education (CTE) programs are denied funding and are prohibited from participating in career readiness training. Improved Federal coordination with state governments on nationwide workforce needs will allow more students, including girls, to access aviation careers.

27. **FAA RECOMMENDATION – Transition from Military to Aviation Opportunities:** The FAA should actively market opportunities to transition from military roles to the civil aviation industry and remove barriers to enable an easier transition. This will help more military talent join and remain in the industry, including women.

ii. Economic Factors

Economic factors—including cost of entry often followed by lengthy training periods at reduced pay—significantly impede the recruitment of women into aviation. Indeed, next to culture, cost is the biggest barrier for women wanting to enter aviation careers. Although cost is not a gender specific barrier, it is an identified roadblock for women and should be addressed. To date, there is a disconnect between organizations that wish to supply financial support and people seeking support opportunities. Varieties of aid for aviation-related education include grants, foundation scholarship, concurrent enrollment, federal work studies, internships, tuition reimbursement, private loans, institutional aid, state aid, and federal aid. Despite this availability, however, individuals may not have the ability, support, or knowledge to access them. For example, cultural concerns in particular impact the ability of women to access support.

Identifying funding channels that are supported by agencies, government, and industry are crucial to removing barriers to entry and welcoming more talent, including women, to aviation. Although more scholarships and internships for women and better communication of these opportunities is imperative, there is also a shortage and maldistribution of flight schools at state-supported universities where students can take advantage of scholarships, grants, and aid to reduce the out-of-pocket education costs.

28. **CONGRESSIONAL RECOMMENDATION – Federal Financial Aid:** Congress should increase the amount of available federal financial aid for careers in aviation. Extending the student debt repayment program beyond its current date of 2025 could also assist with financial barriers to entry.

29. **CONGRESSIONAL RECOMMENDATION – Federal Grant Program for Minority Serving Institutions:** Congress should establish a competitive federal grant program for state-supported Minority Serving Institutions to expand or establish aviation-related programs. Federal financial support to colleges and universities that serve underrepresented communities will help reach a more diverse population of students, including women, with support for access to aviation training.

30. **FAA RECOMMENDATION – FAA Workforce Development Grant:** The FAA Workforce Development Grant is an existing program open to certain eligible applicants. The current criteria for this grant, however, limit applicant access to federal grant funds. The FAA should expand eligibility to require one or more organizations selected for the grant to have a focus on recruiting women or training women reentering the workforce. The new eligibility criteria should include additional non-profit organizations or other organizations that can provide professional development opportunities. The FAA also should ensure that the selection committee includes members familiar with the challenges facing women in aviation.

    Additionally, the FAA Workforce Development Grant should be expanded to other critical industry roles such as dispatchers, air traffic controllers, and aerospace engineers. The Grant should be able to be used for scholarships for both training and apprenticeships, including Certified Flight Instructor wages. The FAA could work with the Department of Labor's Workforce Innovation and Opportunity Act to reimburse private entities, up to the limit provided for in the program, for wages paid during apprenticeships for women in aviation.

31. **CONGRESSIONAL RECOMMENDATION – Grant Funding for Female Faculty and Staff:** Federal grant funding should be allocated for workforce development to support recruitment and mentoring programs at colleges and universities, and Career-Focused Training Programs. These grants should be available to financially assist with the recruiting and mentoring of female faculty and staff, who can teach, encourage, lead, and mentor young women. Universities and colleges nationwide agree that diversity in their classrooms and departments is crucial for attracting/recruiting female students and other underrepresented groups into degree programs. Although the data shows that there is a better representation of women in aviation higher education faculty than in aviation generally, there is still a shortage of role models. Federally-funded programs that support hiring female faculty or recruiting female aviation professionals for collegiate aviation programs can help redress this issue.

32. **CONGRESSIONAL RECOMMENDATION – GI Bill Benefits:** Congress should restore the ability of American Veterans to use the GI Bill for private pilot certification at Part 141 flight schools. Veterans conducting their flight training at Part 141 flight schools that have been approved by a DoED-recognized accreditor should qualify to receive additional funds to cover flight training toward commercial certificates. Currently, the funds provided by the GI Bill schools barely cover the cost of one training certificate.

33. **FAA AND DOT RECOMMENDATION – High School Cadet Program:** To increase the number of young women earning their private pilot certificates, the FAA and the Department of Transportation should partner with the aviation industry, the U.S. Military, and universities to establish a program for young women to complete their private pilot certificates the summer before their senior years of high school. This program could be modeled after the AF Junior ROTC Flight Academy program, which places high school students on college campuses for the summer for initial flight training at no cost to the student. The program has been effective at reaching minorities and women.

34. **FAA RECOMMENDATION – Scholarship Program Toolkit for Aviation Industry to Create Their Own Programs:** The FAA should provide a free virtual platform for a Scholarship Program Toolkit with a template on creating a scholarship program. The creation of scholarship programs elevates career fields and enhances the profile of organizations.

iii. Mentoring at Early Childhood and School Age

Mentoring programs for elementary and high school students are critical to encourage and inspire young women to consider aviation careers. A mentor is "someone who teaches or gives help and advice to a less experienced and often younger person." Mentoring programs can open doors that women don't know exist, or don't know how to open. And once the doors are opened, mentors serve as advocates to help women chart successful careers.

Mentoring programs have become increasingly popular for K-12 students and may provide models for aviation-specific programs. Mentoring children in their formative years can plant the seeds for sustained interest and future careers in aviation.

Mentoring girls in middle and high school—especially mentoring by women aviation professionals—is also important. These professionals serve as important role models and further the abilities of girls to see similar careers as options. Mentors share insights and provide essential exposure on aviation careers and the industry.

35. **INDUSTRY RECOMMENDATION – Mentoring App Program:** Deploy a mentoring app specifically for the aviation industry. One-time events such as school visits or weekend camps are useful, but the effort is needed to maintain these connections over time. The design of this app should include a repository for customized mentoring strategies and targeted links to relevant information. Participants would benefit from the app's resources to customize mentoring strategies based on demographics, specific roles within the industry, etc. The app should address a full range of target audiences, from girls in early education, to middle/high school students. Parents, educators, guidance counselors, mentors, and mentees all would benefit from aggregated content, dedicated source material, and tools.

    Administration of such a mentoring app will require an administrator to oversee enrolling volunteers, training, receiving feedback, and monitoring and updating source materials. Mentors need to be identified and trained. The app program also needs the ability to adapt to changes as mentees grow and gain experience, which may include re-assigning mentors throughout the process as mentees advance in their understanding and skills.

    To maximize the success of the mentee/mentor relationship, the app should use a matching algorithm. Both mentees and mentors can benefit from a relationship built on, but not limited to, common interests, which can help to improve the bond between the individuals and lead to enhanced outcomes.

D. ADDRESSING BARRIERS TO THE RETENTION OF WOMEN IN AVIATION

Insofar as recruiting efforts must be made to increase the number of women who enter the aviation industry; a focus on retention is critical to ensure that women not only remain in the talent pipeline, but also are set up for long-term career success. If aviation does not retain women, they cannot rise into leadership roles, and there are no role models for the new generations.

As young women begin their initial training in aviation careers, they may experience credibility gaps compared to their male peers. Gender stereotypes may continue to advantage males over females. These stereotypes are harmful because they limit individual capacity to demonstrate personal ability and serve to perpetuate inequalities. The inclusion of even small percentages of females can create false perceptions of equality and obscure continued disparities.

With fewer role models as examples of success, women and minorities may be more likely to see normal adversity as proof that they really do not belong, exacerbated by the shortage of women mentors. "Solutions" can inappropriately focus on "fixing women" to belong, rather than understanding that the problem, and the true solution, is with the system itself.

"Women need better work-life balance options in aviation. We are losing our valuable workforce because women are leaving to have children. It doesn't need to be a choice."

Olga E. Custodio
Retired Lieutenant Colonel, USAFR and Commercial Airline Captain-Latina Aviation Pioneer

After entering the workforce, a woman's experience, education, and talent may be less valued. Women generally are paid less, sometimes significantly less, than their male counterparts for the same work. In a 2021 study conducted by the American Association of University Women (AAUW), women receive $0.83 to every dollar earned by their male counterparts and, in terms of overall retirement income, women have 70% of what men do at the end of their careers.[104] Additionally, women receive fewer opportunities for stretch or advanced assignments and are not always offered training opportunities at the same rates as men. Because of a lack of awareness and a few examples to the contrary, organizational leaders may not establish gender balance as a priority or business necessity. But with few women senior leaders, especially in operating divisions, organizational culture is not readily or easily challenged. The consideration of women to lead profit and loss organizations is rare and because it occurs so infrequently, it can further perpetuate tokenism. This lack of women in organizational leadership positions negatively impacts the development and implementation of policies and practices that recognize or value unique demands on women, such as childbirth and caretaking. Compounding the problem, companies and unions may not expend their limited negotiating power to address the needs of the small minority of women in the workforce. The Board recognizes the partnership that exists between labor unions and management, which is vital in creating a more inclusive culture and improving the recruitment and retention of women into aviation.

Frequently, leadership positions within labor unions can provide as much, if not more, influence on policies that will benefit women and other underrepresented groups. Collective Bargaining Agreements (CBAs) can govern nearly all aspects of the work environment, such as uniforms, maternity/paternity leave, and other quality of life work rules, but these benefits are frequently left off the negotiating list or subordinated as these policies do not impact the majority of the workforce represented. Not including these types of provisions in negotiations is precisely what perpetuates little to no movement in advancing policies that support the recruitment, retention, and advancement of women.

[104] "Workplace & Economic Equity: Women & Retirement," AAUW, last accessed February 12, 2022, https://www.aauw.org/issues/equity/retirement/.

To retain women in aviation, organizations must create environments in which all employees, including women, can thrive. Women must be seen, heard, and valued in the workplace, which includes addressing work-life balance by implementing family-friendly policies and ensuring women are developed and mentored throughout their careers.

i. Factor in Families

Poor work-life balance can impact productivity, cause stress, and affect employee retention and recruitment. To recruit and retain top talent, organizations must examine, update, and create policies that allow women to succeed by balancing work and life outside of work, including family. Additionally, employees must be aware of and understand family benefits that are available, and be able to use these benefits without fear of retribution, reprisal, or negative effects on career progression.

A lack of policies that reflect a true understanding and valuing of women is a significant barrier to the retention of women in aviation. In particular, women face unique challenges when it comes to having families. For example, childcare challenges are a significant barrier, especially for mothers, who disproportionately take on unpaid caregiving responsibilities when childcare is not affordable or available. The COVID-19 pandemic has only exacerbated the challenges women face to care for their families and have successful careers.[105]

[105] "Women @ Work: A global outlook," Deloitte, 2021, last accessed February 8, 2022, https://www2.deloitte.com/global/en/pages/about-deloitte/articles/women-at-work-global-outlook.html.

In the wake of the global pandemic, many industries are evaluating their policies for distance-enabled and flexible work schedules. Institutions and industries that can better meet the competing needs of employees while accomplishing their organizational missions will have access to talent essential for success. The aviation industry was not particularly welcoming to women before the pandemic; reconsideration of policies that enable work-life balance is absolutely vital. The aviation industry must have policies and set goals that allow women to choose to have both families, and successful careers. Those goals must be set, achieved, and publicized to maximize the potential of women leaders by better aligning the industry demographics with the nearly 50% represented in the broader labor workforce. Investing and focusing on retaining and developing female talent is essential to the industry having a competitive advantage resulting from increased access to a larger talent pool. More women will be drawn into the aviation industry only when the industry supports female talent.

36. **INDUSTRY RECOMMENDATION – Paid Parental and Family Leave:** Organizations should provide paid parental leave associated with the birth and/or adoption of a child at 100% of an employee's pay rate, and paid family leave, to care for an ill family member.

    Paid parental and family leave will not only support mothers that have given birth, adopted a child, or have other family caregiving responsibilities, but also normalize partners supporting their families at home. A strong support system at home can make the difference in the careers of women, including support with childcare, household chores, and other responsibilities that come with having a family. Research shows that when men take parental leave, they become greater allies for women in the workforce. "In societies where men take longer parental leave time, more women stay in the workforce, the wage gap is smaller, and more women occupy leadership positions."[106]

    Paid parental leave should, at a minimum, provide:

    - For organizations with 50-250 employees: 6 weeks of paid leave and up to 1 year of unpaid leave following the birth or adoption of a child
    - For organizations with 250+ employees: 12 weeks of paid leave and up to 1 year of unpaid leave following the birth or adoption of a child
    - Paid pregnancy leave should be provided to employees who cannot perform their assigned duties due to pregnancy

    Paid family leave should be useable regardless of illness severity, including infections and illnesses that temporarily prevent a child from attending school or daycare, and one day at a time, all at once, or at any combination thereof. Paid family leave should not count against accrued paid time off (PTO) or towards accrued sick time, nor should use require drawing against accrued time. Paid leave can run concurrently with Family Medical Leave Act (FMLA) if applicable. Recommended annual allotment, at a minimum, is:

    - For organizations with 50-250 employees: 20-40 hours
    - For organizations with 250+ employees: 40-80 hours

[106] D. Smith & W.B Johnson, *Good Guys: How men can be better allies for women in the workplace*, 2020, pg. 62.

Sylvia Ann Hewlett,
founding president and CEO of CTI

"Mentors shine as you start to define your dream. They can see and put into words for you what you may not see about yourself or be able to articulate. They can help you determine your strengths: what you do exceptionally well and what sets you apart."

Further, no employee should be penalized for

participating in parental or family leave programs; participation must not result in loss of seniority, opportunity, pay, or bidding "rank" position.

37. **INDUSTRY RECOMMENDATION – Joint Responsibility for Change:** Obtaining paid parental and family leave benefits should be a priority for industry. In the case in which labor unions represent the employees, all parties involved should equally be responsible for supporting and leveraging negotiating capital to implement such enhancements.

38. **INDUSTRY RECOMMENDATION – Schedule Flexibility and Accommodations:** Industry organizations should provide flexible scheduling options that maximize efficiency and time for work-life balance, including family commitments and school. Options include but are not limited to job sharing, part-time or Quality of Life versus Maximum Pay scheduling, flexible scheduling, and shift choices.

39. **INDUSTRY RECOMMENDATION – Childcare:** Addressing access to childcare is imperative to the success of women in aviation. Adequate childcare can be expensive, difficult to find and, in some cases, inaccessible. Offering childcare resources such as daycare placement, facilities, or childcare reimbursement will alleviate a large burden on parents and lift a significant retention barrier for women by providing them peace of mind to perform their duties while having trustworthy care for their children.

40. **FAA RECOMMENDATION – Nursing Mother's Accommodations:** To accommodate nursing mothers who do not qualify for provisions in the Affordable Care Act (ACA) the FAA must fund research on human factors, safety, and physical health on expressing while on flying duty, and subsequently develop best practices and/or regulation(s) for operators. The Board also recommends forming an advisory group to oversee this research, review findings, and make recommendations to the FAA regarding nursing accommodations while flying.

    Nursing, for the purpose of this recommendation, is defined as providing reasonable break time and an appropriate environment to express breast milk. Nursing mothers should be given ample time to express in a clean, private environment. The onus should not fall on the employee to ask for this important accommodation. In fact, the Affordable Care Act mandates companies with 50+ employees provide such accommodation for nursing mothers.[107] Some professions in aviation, however, do not qualify for these provisions due to the nature of these jobs, such as pilots and flight attendants. Again, companies and labor unions must work together to identify meaningful solutions for employees whose duties impede them from expressing while on duty.

[107] "Patient Protection and Affordable Care Act," Public Law 111-148, Section 4207, March 23, 2010, https://www.congress.gov/111/plaws/publ148/PLAW-111publ148.pdf.

41. **CONGRESSIONAL AND DOT RECOMMENDATION – Aviation in Federal Benefit Enhancements:** Congress should ensure legislation that is intended to support women or other underrepresented groups applies to aviation workforces, whether covered under the Railway Labor Act or not, as necessary to achieve intended effects. The Executive Branch (Administration) should ensure that federal regulations, orders, and guidelines also cover all aviation and aerospace workforces. In addition, workforces that operate under collective bargaining agreements should be included if federal legislation is enacted that mandates enhancements to compensation or time-off benefits related to parental and family leave.

ii. Mentoring in the Workplace for Retention

Mentoring is critical to the retention of women in the aviation industry. Mentors can provide essential "navigational support" to women as they face a complex system of barriers throughout their career journeys.[108] Mentorship also can play a significant role in building and sustaining an inclusive culture within an organization: Mentorship is one of the ways in which knowledge is shared and individuals are developed, supported, and encouraged. Effective use and integration of mentors can be a highly beneficial means to drive organizational culture change, including developing and retaining talent, strengthening gender diversity and inclusion, reducing turnover, and improving employee engagement and productivity. Culture, in turn, is important to creating an environment in which mentorship is valued and fostered.

42. **INDUSTRY RECOMMENDATION - Mentoring Programs for Women:** Industry organizations should implement mentoring programs that include targeted mentoring opportunities for women. Mentors should be trained on effective mentoring skills and professional development, and strategically matched with mentees. Special emphasis on mentor/mentee partnerships should include groups where the gender gap is greatest, including flight operations and aviation maintenance.

43. **FAA RECOMMENDATION – Enhanced Airline Pilot Mentoring Programs:** FAA Advisory Circulars Leadership and Command Training for PIC (AC 121-42) and Mentoring for PIC (AC 121-43) provide guidelines to air carriers operating under 14 C.F.R. Part 121 in developing and implementing leadership and command training and mentoring training for pilots, however, there is no mandate to establish a mentoring program. The Board recommends the relevant Advisory Circulars be enhanced to include establishing a mentoring program for new hire and second-in-command airline transport pilots and initial upgrading captains. Mentors should be trained and strategically matched with mentees, and the program should be overseen by a designated professional development leader and/or professional development steering committee at either the company or, when applicable, the pilot labor union.

[108] Research from the Center for Talent Innovation (CTI) found that 85% of women benefit from "navigational support" to help guide them in career decisions and achieve success in their fields. Olutayo Sogunro, "Mentorship and Sponsorship: Both Important, Yet Different," The Due Influence, August 11, 2020, https://www.thedueinfluence.com/post/mentorshipvssponsorship.

E. ADDRESSING BARRIERS TO THE ADVANCEMENT OF WOMEN

The Barriers Timeline Model shows that mid-career, women in aviation experience a dearth of leadership development opportunities to position them for middle management and executive leadership. In addition, women are more often overlooked for stretch leadership assignments and promotions. Men much more often have sponsors who advocate for and speak on their behalf when they are absent, a known advantage for executive success.

Additionally, a lack of policies truly supporting women in caretaking responsibilities that disproportionately fall to them causes many to step away from their careers, either temporarily or permanently. This creates a troubling leaking talent pipeline impacting the retention, and subsequent advancement of female talent.

The representation of women in executive leadership and on boards remains slim. Very few women are given the opportunity to lead Profit & Loss or operational organizations. Often, women are not seen as capable of taking on the mantle of leadership and handling the demands and expectations of these kinds of roles. Women rarely serve as the CEO of airlines or aviation companies.

By the late stages of their careers, some women may have endured years of negative experiences. Having women with directional control not only ensures a different perspective but also additional opportunities and support for other women which is key to creating a positive work environment and changing aviation culture. Female leadership better guarantees “nothing about us without us” in everything from collective bargaining to strategic planning.

i. Professional Development

To develop female leaders that can serve as role models for others in an organization, it is important to have professional development opportunities at all career intervals and mitigate any gaps in that development.

Professional development can be defined in many different ways, including but not limited to ongoing technical training, mentoring, networking, leadership development, presentation skills, attending conferences or virtual events, personal mastery courses, continuing education, and advanced degrees. Professional development in the context of this Report generally is defined as the acquisition of skills and knowledge, and building of relationships, for both career advancement and personal development.

There is a vast amount of career development technical content provided by multiple resources and readily available to those in the aviation industry. Many organizations offer this type of career-specific content. There are different and specific needs for women, however, that are not always acknowledged in a male-dominated industry. This is a significant gap that needs to be addressed for the advancement of women in aviation.

"There were a few times during my training that I questioned whether I was being judged fairly, or whether I was capable of such an important and difficult job. Thankfully, the good days, lots of self-determination, and positive words and talks from colleagues I admired, helped carry me through to success."

Karena Marinas
Air Traffic Controller

Examples of the differences women may face include:

- Navigating a male-dominated culture
- Overcoming gender biases
- Learning to speak up and be heard, voice opinions
- Seeking allies
- Advancing into leadership positions
- Finding support networks
- Taking risks
- Building confidence
- Understanding the importance of self-advocation
- Improving visibility and exposure

The 2020 report "Soaring through the Glass Ceiling" illustrates best practices, taking into account what individuals and organizations can do to specifically facilitate the advancement of women.[109] One of those best practices is to "acknowledge that women face unique headwinds in the aviation and aerospace workplace; listen and relate to their experiences."[110] For example, confidence and risk-taking aptitude improve with training, awareness, and support. Professional development programs need to specifically address these items.

44. **FAA RECOMMENDATION – Support for Established Professional Development:** The FAA should provide resources for industry organizations with documented professional development programs for women and regularly publish a list of these resources on the virtual resource center (Recommendation 15).

45. **INDUSTRY RECOMMENDATION – Create Professional Development Programs:** Industry should create professional development programs with purposeful design for women across various sectors of the industry, including but not limited to airlines, airports, engineering companies, government agencies, maintenance providers, industry organizations, and aviation equipment and service suppliers.

46. **INDUSTRY RECOMMENDATION – Communities of Support:** Industry should develop and support affinity groups, communities of support, and employee resource groups to address critical skills and relationships necessary for career advancement at all stages of a woman's career in aviation. Affinity groups or employee resource groups provide connections and networking, improve employee engagement and retention, prompt innovation and problem-solving through an exchange of ideas across disciplines and backgrounds, and create an additional environment for recognition and advancement.

[109] Korn Ferry, "IAWA Soaring Through The Glass Ceiling," supra note 18.
[110] Id.

ii. Sponsorship for Advancement

47. **INDUSTRY RECOMMENDATION – Sponsorship:** Industry leaders should adopt personal plans for sponsoring one or more individuals, with particular attention to including those with different life experiences such as education, background, and gender.

The value of mentorship already has been discussed in the context of recruitment and retention, and mentoring continues to play a vital role through the advancement stages of a woman's career. Sponsorship is another critical success factor at this stage. Mentors and sponsors play distinct, but important roles, which are important to consider in understanding how and when they can be used during one's career planning and progression to lead to optimal success. According to the Harvard Business Review, "[m]entorship focuses on help that a mentor can provide directly, such as guidance, advice, feedback on skills, and coaching. Sponsorship entails externally facing support, such as advocacy, visibility, promotion, and connections."[111] A sponsor advocates for their proteges—typically junior employees, helping to open doors and providing visibility so that others can recognize their capabilities and potential for advancement.

Sponsors play an important role in a woman's career progression, and promotion is the key objective. The Lift Off to Leadership study found that, "Although women sponsoring and mentoring other women is valuable, the lack of women at the very top rungs of aviation limits women's access to influential backers, meaning that male leaders must be part of the solution. Successful senior industry women we spoke with consistently pointed to powerful male sponsors as critical to their career trajectories. The best sponsors boldly advocate, put aside traditional networking avenues, and are intentional in supporting their sponsees' career advancement."[112]

Sponsorship also serves leadership by providing deeper insights into barriers or obstacles in sponsored employees' career paths. This understanding can foster innovation in problem-solving, especially in the areas of human capital, retention, and advancement.

[111] Rosalind Chow, "Don't Just Mentor Women and People of Color. Sponsor Them." HBR, June 30, 2021, https://hbr.org/2021/06/dont-just-mentor-women-and-people-of-color-sponsor-them.

[112] Oliver Wyman & IAWA, "Lift Off to Leadership," see supra note 1.

F. DATA AND CONTINUING RESEARCH

"What gets measured gets done."

The Board identified gaps in data important to change, including in breadth across occupations and entities, depth in terms of granularity, consistency and comparability, and access. Collecting metrics and statistics to measure and track key data points is critical to establishing baselines, developing strategies, measuring progress, and tracking the impact of investments towards increasing the recruitment, retention, and advancement of women in aviation.

Additionally, the Board recognizes that women who are also members of other underrepresented groups, including but not limited to racial and ethnic minorities, have unique experiences that warrant further specific consideration.[113] Accordingly, it is also necessary to collect data to identify intersectionality. Gender data must be routinely disaggregated by race and ethnicity as a component of workforce data collection.[114]

[113] Adwoa Bagalina, "5 ways intersectionality effects diversity and inclusion at work," World Economic Forum, July 22, 2020; Kimberle Crenshaw, "Demarginalizing the Intersection of Race and Sex: Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics," University of Chicago Legal Forum 1989(1), pg. 139-168.

[114] "Best practices for diversity and inclusion in STEM education and research: A guide by and for federal agencies," National Science and Technology Council, September 2021, https://www.whitehouse.gov/wp-content/uploads/2021/09/091621-Best-Practices-for-Diversity-Inclusion-in-STEM.pdf. https://www.whitehouse.gov/wp-content/uploads/2021/09/091621-Best-Practices-for-Diversity-Inclusion-in-STEM.pdf.

The FAA publishes U.S. civil airmen certificate statistics, which is a good source of information, but is insufficient to meet data needs. Data reporting from additional sources such as the Department of Transportation and Bureau of Labor Statistics also needs to be expanded to occupations beyond the civil airmen certificate database. As an example, engineering data in the Bureau of Labor Statistics database captures aerospace engineers. Aerospace engineers is a single data point and does not capture those in other engineering disciplines, architects, and planners that work on infrastructure projects at airports and additional aviation facilities. Industry is increasingly collecting and publishing workforce data. One recent example is Boeing's decision to publish workforce data on its website and outline additional necessary steps toward improvement.[115]

"You can't fix what you don't see."

Data collection needs to be routine and transparent. Industry data should be publicly available in a centralized location and use common definitions. Industry workforce data should be disaggregated by gender, race/ethnicity, and occupation level for better understanding of the number of women employed and in leadership positions. When appropriate, this data should also include education levels, licenses, and relevant experience.

48. **FAA RECOMMENDATION – Expand FAA U.S. Civil Airmen Statistics:** Expand the publicly-available FAA Active U.S. Civil Airmen Statistics annual study. Include gender data for all civil airmen certificate categories/tables. Provide the ability to disaggregate airmen certification gender data by race/ethnicity. Include historical data to the earliest year of record keeping. Note that this request applies to the FAA U.S. Civil Airmen Statistics annual study and does not include any changes to an individual's airmen inquiry public information. Race/ethnicity and gender should not be disclosed for individuals.

49. **INDUSTRY RECOMMENDATION – Industry Annual Public Reporting/Tracking of Data:** Industry should adopt the best practice of tracking and publicly reporting the number of women in aviation occupations and leadership positions to include race/ethnicity and occupation level to better identify the number of women employed and in leadership positions.

[115] "2021 GLOBAL EQUITY, DIVERSITY & INCLUSION REPORT," Boeing, https://www.boeing.com/principles/diversity-and-inclusion/annual-report/.

50. **DOT RECOMMENDATION – Department of Transportation Annual Report on Workforce Data and Pay Parity:** Require all aviation industry organizations to provide the Department of Transportation with annual workforce data including gender, race/ethnicity, occupation and level, and pay by gender, which would then be provided annually to Congress and the public.

51. **DOT RECOMMENDATION – Department of Transportation Reporting Requirements:** Most American passenger and cargo airlines, whether publicly traded or privately owned, report financial and operating information to the Department of Transportation on a monthly, quarterly, or semi-annual basis. The reporting requirements should include information on workforce, and workforce diversity data to include pay by gender.

52. **CONGRESSIONAL RECOMMENDATION – Transportation Research Board Report:** Congress should require the Transportation Research Board (TRB) to provide an annual report on Women in Transportation across all sectors of aviation including but not limited to airlines, airports, transportation security, manufacturing, and engineering.

53. **CONGRESSIONAL RECOMMENDATION – Department of Labor Data Collection:** Congress should require the Department of Labor to include all sectors of the workforce in reporting for women. This would be obtained through the Census data that is currently collected. Expand data collection on women in aviation occupations to include engineers, architects, and planners that work on aviation and aerospace projects such as infrastructure, airports and aviation facilities, airport managers, airport operations and maintenance personnel, and aviation unions' leadership and member groups.

54. **FAA RECOMMENDATION – Call for Further Research:** The FAA should competitively award grant funding for continued research on the recruitment, retention, and advancement of women in aviation including, but not limited to, the evaluation of implemented recommendations from this Report.

55. **CONGRESSIONAL RECOMMENDATION – FAA Report to Congress:** Congress should require an annual report from the FAA providing relevant data and progress on initiatives undertaken to implement the recommendations of this Report.

VI. CONCLUSION

Talent necessary to meet the current and growing demands of U.S. aviation is falling woefully behind. Further, to a great extent because of its shuttered culture, the U.S. aviation industry has been largely unsuccessful in meaningfully attracting women. Those who do persist in aviation careers often are not granted similar opportunities and leave in more significant numbers. The under representation of women in aviation impacts the industry's advancement, effectiveness, and safety.

With the support and power of the U.S. Congress, the Department of Transportation, the FAA, and industry leadership adopting the comprehensive recommendations in this Report will help to assure the United States' continued front runner stature in aviation. Most of the recommendations involve cultural and system changes. Accordingly, very few can be quickly implemented or immediately measured. Failing to seize this current opportunity, however, will likely erode the pacesetting position the United States has traditionally enjoyed, and may even drive talent to seek more accepting countries, cultures, and industries.

With insight, perseverance, and vision for the future, the U.S. government and aviation industry can execute the objectives that Congress envisioned when chartering the Women in Aviation Advisory Board and make permanent, sustained change to support aviation's future innovation, efficiency, viability, and most importantly, safety.

Appendix 1:

Draft language – Federal Advisory Committee on Women in Aviation

A. A Federal Advisory Committee on Women in Aviation is established within the Department of Transportation.

B. The Committee shall advise the Secretary of Transportation and the Administrator of the Federal Aviation Administration on matters related to women in the aviation industry.

C. There shall be an office within the Department of Transportation to provide logistics and administrative support to the Committee.

D. The Committee shall be composed of members who shall serve for six-year terms. The Committee shall choose a Chair and such subcommittee chairs as the committee may require.

E. Committee members will serve without compensation. Travel expenses shall be reimbursed in accordance with federal travel regulations and the Federal Advisory Committee Act.

F. The Committee will meet at least two times per year and may conduct its work through public hearings, site visits, briefings, and other activities.

G. At a minimum, the Committee shall submit an annual report to the Secretary and the Chairs of the relevant committees of Congress.

H. The Committee shall submit other reports and recommendations as they may determine at their sole discretion.

I. The Committee shall be composed of members selected as follows:

   a. One member appointed by the President of the United States.

   b. One member appointed by the Speaker of the House of Representatives.

   c. One member appointed by the Minority Leader of the House of Representatives.

   d. One member appointed by the Minority Leader of the Senate.

   e. One member appointed by the Chair of the Senate Committee on Commerce, Science and Transportation.

   f. One member appointed by the Ranking Member of the Senate Committee on Commerce, Science and Transportation.

   g. One member appointed by the Chair of the House Committee on Transportation and Infrastructure.

h. One member appointed by the Ranking Member of the House Committee on Transportation and Infrastructure.

i. One member appointed by the Secretary of Transportation.

j. One member appointed by the Administrator of the Federal Aviation Administration.

k. One member appointed by the Administrator of the Transportation Security Administration.

l. One member appointed by the Chair of the National Transportation Safety Board.

m. The Chairperson of the Federal Advisory Committee on Women in Aviation may appoint up to six additional Board members to ensure balanced representation from industry, to be approved by the Board, who shall each serve two-year terms.

J. If a member of the Board dies or resigns, a successor shall be designated for the unexpired term by the official who designated the member. Any member whose term of office has expired shall continue to serve until their successor is appointed.

Appendix 2:

CONGRESSIONAL RECOMMENDATIONS:

Industry-Wide Reporting Program to Address Gender Bias, Discrimination, and Sexual Harassment #10

Investigation into Inappropriate Medical Exam Actions #12

Permanent Advisory Committee for Continued Focus on Cultural Change #14

High Demand Occupation List #25

Federal Financial Aid #28

Federal Grant Program for Minority Serving Institutions #29

Grant Funding for Female Faculty and Staff #31

GI Bill Benefits #32

Transportation Research Board Report #52

Department of Labor Data Collection #53

FAA Report to Congress #55

CONGRESSIONAL AND DOT RECOMMENDATION:

Aviation in Federal Benefit Enhancements #41

CONGRESSIONAL AND INDUSTRY RECOMMENDATION:

Industry Certification Program #3

DOT RECOMMENDATIONS:

Airport Recruitment Offices #24

Department of Transportation Annual Report on Workforce Data and Pay Parity #50

Department of Transportation Reporting Requirements #51

DOT AND FAA RECOMMENDATIONS:

Train the Workforce Trainers #17

Transportation and Logistics Career Cluster #20

Immersive Aviation Confidence Camps #22 (OR Department of Education)

State's Industry Recognized Certification List #26

High School Cadet Program #33

FAA RECOMMENDATIONS:

Coordination of Non-profit Organizations #1

Aviation Careers Awareness #4

Safety Management Systems #9

Enhanced FAA Medical Process Information and Reporting Procedures for Inappropriate Medical Exam Actions #11

Virtual Resource Center #15 (IN collaboration with other entities)

Social Media and Influencer Network #16

Curriculum Development #18

Transition from Military to Aviation Opportunities #27

FAA Workforce Development Grant #30

Scholarship Program Toolkit for Aviation Industry to Create Their Own Programs #34

Nursing Mother's Accommodations #40

Enhanced Airline Pilot Mentoring Programs #43

Support for Established Professional Development #44

Expand FAA U.S. Civil Airmen Statistics #48

Call for Further Research #54

FAA AND INDUSTRY RECOMMENDATIONS:

Visual Representation of Women #5

Words Matter #6

Uniforms That Fit for All #7

Leadership Commitment to Culture Change #8

High School to Post-Secondary Pathways #19

INDUSTRY RECOMMENDATIONS:

Annual Summit #2

Mental Health Services #13

Volunteer Role Models #21

Internships and Field Experiences #23

Mentoring App Program #35

Paid Parental and Family Leave #36

Joint Responsibility for Change #37

Schedule Flexibility and Accommodations #38

Childcare #39

Mentoring Programs for Women #42

Create Professional Development Programs #45

Communities of Support #46

Sponsorship #47

Industry Annual Public Reporting/Tracking of Data #49