

Advancing Aviation Safety: Bridging Risk Management and Gender Inclusivity with Human Performance Training

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Executive Summary

This proposal advocates for the formation of an industry Human Performance & Pilot Development (HPPD) Working Group as a safety-centric solution to address the negative culture experienced by women and minorities in the aviation industry and improve the gender gap in aviation contributing to a stronger workforce development plan.

This goal will be operationalized by establishing advanced interpersonal skills training for pilots, such as psychological safety, bias literacy, and interpersonal communication. This group will expand on existing research on culture, human error, and demographic bias impacting interpersonal dynamics. The Working Group's product will be the next generation of CRM/TEM training to address workplace bias and reduce the interpersonal conflicts that result in self-silencing and ultimately human error.

Metrics for success include a reduction in Aviation Safety Action Program (ASAP) reports and interpersonal conflicts (as measured from union-based Professional Standards calls) in partnership with increased Standard Operating Procedure (SOP) compliance and data collection from the following sources: Advanced Qualification Program (AQP) training, Flight Operations Quality Assurance (FOQA), and Line Operations Safety Audit (LOSA). To create an easily implementable product across airlines, this group will consist of pilots from multiple airlines, human factors specialists, and training facilitators. The team will meet regularly, sharing information and data analysis to ensure alignment, collaboration, and improvement. Resources (time for pilot commitment) for this group shall be provided by airlines and unions to support a transparent working group that spans multiple airlines and organizations.

This proposal aims to reduce human error and improve safety by fostering a supportive and inclusive culture. It aligns with workforce development initiatives and leverages key safety metrics to assess the impact of advanced interpersonal skills on overall safety enhancement. By linking Diversity, Equity, and Inclusion (DEI) initiatives with safety objectives, this approach seeks to create a positive cultural shift in aviation, benefiting both safety and diversity.

1.0 PURPOSE

The purpose of this white paper is to offer the industry a safety-centric solution to the barriers for women in aviation, as identified in the Women in Aviation Advisory Board Report of March 2022.

This white paper highlights the opportunity to enhance aviation safety by optimizing risk management strategies through human performance training that also aligns with workforce development initiatives to address the gender imbalance in flight decks. This dual-focused strategy aims to bolster the efficacy of safety models while addressing the cultural challenges women pilots face, as identified in the FAA Women in Aviation Advisory Board report.¹

2.0 PROPOSAL

We propose the establishment of a high-level interdisciplinary Human Performance & Pilot Development working group dedicated to the design, implementation, and evaluation of pilot training programs. These programs will emphasize advanced interpersonal skills, including psychological safety, bias literacy, and effective communication, to reduce human error and address the negative culture highlighted in the WIAAB Report. This working group will be composed of human factors specialists, experienced pilots, and industry experts who will collaborate to share best practices, analyze successes and areas for improvement, and create the next generation of professional multi-crew pilot training aimed at enhancing human performance.

The effectiveness of these training programs will be evaluated using key safety metrics, including ASAP data, LOSA data, FOQA data, Advanced Qualification Program (AQP) data, and Professional Standards (ProStans) calls. By closely monitoring these metrics before and after the training implementation, the working group will assess the impact of advanced interpersonal skills on overall safety enhancement. This approach leverages existing data to determine the success of new human performance training initiatives.

3.0 AUDIENCE

The main audience for this white paper includes members of Congress, the Federal Aviation Administration, the International Civil Aviation Organization, and personnel from air carriers, unions, operators, and program managers who are involved in pilot training,

¹ Federal Aviation Administration. (2022). *Breaking Barriers for Women in Aviation: Flight Plan for the Future*. Retrieved from https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/WIAAB_Recommendations_Report_March_2022.pdf

professional development, leadership and command training, safety departments, and human resources.

4.0 RELATED LITERATURE

- AC 120-51E, Crew Resource Management Training
- AC 121-42, Leadership and Command Training for Pilots in Command
- Women in Aviation Advisory Board Report, Breaking Barriers for Women in Aviation: Flight Plan for the Future
- AC 120-82, Flight Operational Quality Assurance
- Federal Aviation Administration. (2006). Human error and commercial aviation accidents: a comprehensive, fine-grained analysis using HFCAS. Federal Aviation Administration.
- AC 120-54A, Advanced Qualification Program.

5.0 BACKGROUND

5.1 A NEGATIVE CULTURE INCREASES RISK

The flight deck operates as a sociotechnical system, integrating both social interactions (pilot-to-pilot) and technological elements (aircraft systems and technology). These two subsystems are interdependent. Academic research has revealed that pilots are hesitant to share safety-relevant information or may withhold it entirely when the flight deck lacks psychological safety.² Self-silencing, poor communication, and inadequate collaboration undermine our ability to effectively identify errors and jointly address threats, thereby increasing the likelihood of an undesired aircraft state.

A detrimental microculture within the flight deck has been linked to instances of Standard Operating Procedure (SOP) non-compliance³, calls to union Professional Standards, and may be potentially correlated with Flight Operations Quality Assurance (FOQA) events and Aviation Safety Action Program (ASAP) reports. Safety concepts such as culture, setting the tone, understanding barriers to creating an appropriate tone, and how to build psychological safety are critically important for mitigating the risk associated with poor interpersonal skills.

Risk increases when a negative culture exists in the flight deck. Effective Crew Resource Management (CRM) requires a better understanding of how to build

² Perkins, K., Ghosh, S., Vera, J., Aragon, C., & Hyland, A. (2022). The Persistence of Safety Silence: How Flight Deck Microcultures Influence the Efficacy of Crew Resource Management. *International Journal of Aviation, Aeronautics, and Aerospace*, 9(3).

³ Perkins, K. (2024). Optimizing Risk Mitigation with Advanced Interpersonal Skills Training.

psychological safety to ensure crewmembers engage in safety voice (clear and unambiguous communication).⁴

Maintaining situational awareness and effective flight path management are dependent on appropriately utilizing CRM skills. By applying these skills, crews can identify and manage threats thereby mitigating threats and reducing or preventing errors. The efficacy of the Threat and Error Management (TEM) model diminishes in the presence of a negative flight deck microculture. There is a direct link between culture and risk. We advocate for providing pilots with the tools to establish a safety voice culture thereby reducing risk.

5.2 GENDER IMBALANCE & THE NEGATIVE CULTURE

Women pilots have reported feeling that they must hide their femininity⁵ and avoid emotion.⁶ They are often exposed to stereotype threat⁷ making them feel as though they must work twice as hard for half the credit⁸.

Women pilots often find themselves as the lone woman in ground school, simulator training, new-hire classes, conferences, etc. Academic studies have spotlighted the cognitive burden associated with being the "lone woman," either feeling invisible or overly visible (under the microscope).⁹ The negative culture is particularly pronounced for Black female pilots, who experience intersecting racism and sexism, leading to increased instances of code-switching.¹⁰

Over half (59%) of women working in aviation leadership positions have considered leaving the industry because of a negative culture. An industry survey found "that women are more likely to be pushed out because of negative experiences, while men who leave the industry are more often pulled away by the lure of better opportunities."¹¹

⁴ Noort, M., Reader, T., & Gillespie, A. (2021, July). Safety voice and safety listening during aviation accidents: Cockpit voice recordings reveal that speaking-up to power is not enough. *Safety Science*, 139.

⁵ Yanıkoğlu, Ö., Kılıç, S., & Küçükönel, H. (2020). Gender in the cockpit: Challenges faced by female airline pilots. *Journal of Air Transport Management*, 86.

⁶ Mitchell, J., Kristovics, A., & Vermeulen, L. (2005). Gender issues in aviation: Pilot perceptions and employment relations. *International Journal of Employment Studies*, 14(1), 35-59.

⁷ Siy, J. O., & Cheryan, S. (2016). Prejudice Masquerading as Praise: The Negative Echo of Positive Stereotypes. *Personality & Social Psychology Bulletin*, 42(7), 941-954. Retrieved from Personality & Social Psychology Bulletin.

⁸ Zirulnik, M. L., & Orbe, M. (2019). Black Female Pilot Communicative Experiences: Applications and Extensions of Co-Cultural Theory. *Howard Journal of Communications*, 30(1), 76-91.

⁹ Engel, Alissa Christine, "I JUST WANT TO DO MY JOB: THE EXPERIENCE OF FEMALE FIGHTER PILOTS IN THE UNITED STATES AIR FORCE" (2021). Graduate Student Theses, Dissertations, & Professional Papers. 11725. <https://scholarworks.umt.edu/etd/11725>

¹⁰ Zirulnik, M. L., & Orbe, M. (2019). Black Female Pilot Communicative Experiences: Applications and Extensions of Co-Cultural Theory. *Howard Journal of Communications*, 30(1), 76-91.

¹¹ Oliver Wyman & International Aviation Women's Association. (2021). *Lift off to Leadership*. Retrieved from Advancing women in aviation: <https://www.oliverwyman.com/our-expertise/insights/2021/sep/lift-off-to-leadership.html>

The Women in Aviation Advisory Board (WIAAB), established by Congressional mandate, was formed with the objective of devising and offering independent recommendations and strategies to the Federal Aviation Administration (FAA) to resolve the gender imbalance issue. Its purpose was to investigate and enhance opportunities for female students and aviators to embark on careers within the aviation sector. After years of data collection and research, their opening statement summarized the stark reality of our industry:

“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.”¹²

Despite dozens of organizations designed to create an inclusive culture, the negative culture persists.

This proposal argues for a new approach to tackling the cultural issues at hand. We need to examine systemic barriers, such as the absence of allyship and instances of institutional betrayal, which hinder progress. Furthermore, it is crucial to implement system-level solutions to eliminate the negative culture that simultaneously compromises safety and threatens diversity initiatives.

5.2.1 A Lack of Allyship

Recent aviation research aimed to measure male allyship toward women aviators in the United States. One study revealed that a staggering 83% of pilots admitted they were not taking action to address the gender imbalance. The reasons? 7% felt uncomfortable with the topic, 12% were unsure how to help, and a notable 64% didn’t consider it their problem to solve.¹³

This overwhelming indifference signals a deeper issue within the aviation industry's culture, where the responsibility for change is not universally acknowledged or embraced. The prevailing apathy among the majority highlights a deep-rooted cultural and systemic issue within the industry, where the responsibility for initiating change disproportionately falls on women, despite the fact that they are not the primary contributors to the negative culture.

¹² Federal Aviation Administration. (2022). *Breaking Barriers for Women in Aviation: Flight Plan for the Future*. Retrieved from https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/WIAAB_Recommendations_Report_March_2022.pdf, pg 3.

¹³ Perkins, K., Merola, R. H., Ghosh, S., & Aragon, C. (2024). 'I'm a Pilot First, Female Second': Why Flight Deck Gender Imbalance Persists and the Case for Allyship. *Journal of Aviation/Aerospace Education & Research*, 33(2). DOI: <https://doi.org/10.58940/2329-258X.2025>

5.2.2 Institutional Betrayal

When organizations claim to support women through their social media campaigns or by celebrating Women's History Month, but fail to address the discriminatory masculine defaults that predominantly benefit men within their organization, they are engaging in institutional betrayal. Masculine defaults—assumptions, norms, or standards based on male perspectives—occur when organizations value and reward behaviors typically associated with men.¹⁴ Examples of masculine defaults include organizational cultures that expect assertive interjection to be heard or systems where employees are expected to self-nominate for promotions¹⁵ or in workplace cultures that reward those who assimilate or mirror male behavior to fit in, essentially encouraging individuals to "be one of the guys." Another manifestation of masculine defaults is the belief in meritocracy. This notion often disproportionately benefits men, masking privilege and perpetuating the status quo.¹⁶ A simple example of a masculine default is the use of masculine pronouns. When a company claims to support women but still refers to pilots as "he/him" in manuals, emails, and notifications, it perpetuates the status quo by positioning men as the default and women as *other* status. This practice perpetuates a culture where women are viewed as outsiders or anomalies. Such linguistic practices undermine the organization's commitment to inclusivity, signaling that certain genders are valued more than others and ultimately hindering efforts to create a more diverse and equitable culture.

5.2.3 Women and Minorities are Advocating for More Advanced Interpersonal Skills Training

Women and non-White males showed stronger advocacy for training pilots on interpersonal skills to enhance safety compared to their White male counterparts. This may suggest that the negative culture problem persists, as those outside the demographic majority have firsthand experiences of a negative workplace culture. It also may suggest that those with social power (demographic majority) don't experience the negative culture problem leading to them not realizing the value of changing said culture. Both of these findings justify the need to address this issue from a systems-level approach rather than relying on the status quo of seeking individual allyship.¹⁷

5.3 INEFFECTIVE BIAS TRAINING

Currently, corporate entities and aviation organizations predominantly utilize unconscious bias training to transform organizational culture. The prevalence of such

¹⁴ Cheryan, S., & Markus, H. R. (2020). Masculine defaults: Identifying and mitigating hidden cultural biases. *Psychological Review*, 127(6), 1022-1052.

¹⁵ Ibid.

¹⁶ Lombard, E. J., Azpeitia, J., & Cheryan, S. (2021). Built on Uneven Ground: How Masculine Defaults Disadvantage Women in Political Leadership. *Psychological Inquiry*, 32(2), 107-116.

¹⁷ Perkins, K. (2024). Optimizing Risk Mitigation with Advanced Interpersonal Skills Training.

training programs is notable, with a majority of Fortune 500 companies implementing some form of diversity or unconscious bias education.¹⁸ Despite these efforts, empirical studies indicate a general lack of efficacy in these programs¹⁹, with any observable positive changes tending to be ephemeral at best²⁰. In fact, the negative repercussions of the training may overshadow any temporary positive gains. A noted side effect of bias training is the elicitation of defensive attitudes among participants, which can impede the willingness to adapt or modify ingrained behaviors²¹. A further complication arises from the characterization of bias as 'implicit' rather than 'explicit,' which may inadvertently diminish perceived personal responsibility, thereby counteracting the intended outcomes of such educational interventions²².

In essence, unconscious bias training implores individuals to cultivate self-awareness and emotional intelligence and to cease behaviors and attitudes that marginalize women. The ambition is commendable, yet the efficacy of the existing approach leaves much to be desired. It is time we reallocate our resources towards more effective strategies, which include a safety-centered approach to improving culture.

5.4 LEADERSHIP & COMMAND TRAINING

Following a series of accidents linked to inadequate crew collaboration, the FAA mandated that Part 121 operators train some pilots in leadership skills.²³ We assert that our proposal will enhance leadership training by providing captains with the interpersonal skills necessary to effectively foster psychological safety, and self-awareness, and appropriately address and assess the behavior of crewmembers to measure whether a safety voice tone has been established. These tools will maximize the utilization of all available human performance resources.

6.0 PROPOSAL DETAILS

We propose forming a Human Performance & Pilot Development working group to offer updated content and methodology for a redesign of pilot training programs. This group will integrate bias literacy (cognitive, affective, behavioral), psychological safety, interpersonal communication, and other advanced skills into the training. The committee

¹⁸ Dobbin, F., & Kalev, A. (2022). *Getting to diversity: What works and what doesn't*. Harvard University Press.

¹⁹ Lai, C. K., Skinner, A. L., Cooley, E., Murrar, S., Brauer, M., Devos, T., & Simon, S. (2016). Reducing implicit racial preferences: II. Intervention effectiveness across time. *Journal of Experimental Psychology: General*, 145(8), 1001-1016.

²⁰ Forscher, P. S., Mitamura, C., Dix, E. L., Cox, W. T., & Devine, P. G. (2017). Breaking the prejudice habit: Mechanisms, timecourse, and longevity. *Journal of Experimental Social Psychology*, 72, 133-146.

²¹ Howell, J. L. (2013). Managing the threat of impending implicit attitude feedback. *Social Psychological and Personality Science*, 4(6), 714-720; Knowles, E. D. (2014). Deny, distance, or dismantle? How White Americans manage a privileged identity. *Perspectives on Psychological Science*, 9(6), 594-609.

²² Onyeador, I. N., Hudson, S. T. J., & Lewis, N. A. (2021). Moving Beyond Implicit Bias Training: Policy Insights for Increasing Organizational Diversity. *Policy Insights from the Behavioral and Brain Sciences*, 8(1), 19-26.

²³ Federal Aviation Administration. (2020). *Leadership and Command Training for Pilots in Command*. AFS-200.

will collect and analyze data throughout the process and share findings and best practices with all members.

We request that airlines, unions, and other stakeholders allocate resources, including participation time, for all committee members.

Recognizing the limitations of one-time training, we emphasize the necessity of integrating these initiatives into recurrent training sessions through the Advanced Qualification Program (AQP) or Competency-Based Training and Assessment (CBTA) process. Doctoral research has highlighted a decline in cognitive recognition and affective endorsement of interpersonal skills following a 6-9 month gap in training. Therefore, we advocate for the integration of these training modules into the AQP or CBTA framework, ensuring their regular implementation and addressing the recurrent nature of skill degradation over time.

Our proposal is directly aligned with the protocols of ICAO, IATA, FAA, and SMS, as detailed below.

6.1 RECOMMENDED REFERENCE PROTOCOLS

6.1.1 Aligning with ICAO/IATA Competencies

The ICAO/IATA Observable Behaviors for Communication, like "uses and interprets non-verbal communication appropriately" (OB2.8), and for Leadership and Teamwork, such as "encourages team participation and open communication" (OB5.1)²⁴, are designed to mitigate negative cultures that increase risk and inhibit diversity initiatives. However, a key question remains: what tools and resources are we providing pilots to operationalize these behaviors and demonstrate competency? Our proposal fills this gap by equipping pilots with practical tools, such as leveraging interpersonal communication to build psychological safety and dismantling barriers to create a flight deck microculture that fosters safety voice. These strategies are designed to deeply embed the required observable behaviors into daily operations, thus enhancing overall safety.

6.1.2 Aligning with Safety Management Systems

The Safety Management International Collaboration Group has identified the importance of SMS programs in providing all employees with "non-technical skills with the intent of reducing human error."²⁵ The rationale for expanding Human Factors

²⁴ International Air Transport Association. (2023). *Competency Assessment and Evaluation for Pilots, Instructors and Evaluators*. Guidance Material; International Civil Aviation Organization. (n.d.). Competency-Based Training and Assessment. 2022.

²⁵ Safety Management International Collaboration Group. (2019). *Safety Management System (SMS) Evaluation Tool*. 4.1.3 (pg 22).

training is embedded within the very structure of these systems. The Safety Promotion pillar necessitates training, communication, and actionable progress to enhance a positive safety culture, while the Safety Policy pillar mandates senior management's commitment to continuous safety improvement. The Accountable Executive and Safety Officer / Safety Manager bear the responsibility for advancing safety through initiatives that promote a positive safety culture.

Our proposal addresses this by aligning with the requirement to provide non-technical training that reduces errors and fosters a positive safety culture. By incorporating emotional intelligence concepts, such as self-awareness, and team concepts, like psychological safety, our approach can significantly advance the goals of an organization's SMS.

6.1.3 Aligning with FAA Behavioral Markers

Appendix 1 of the Federal Aviation Administration's Crew Resource Management Advisory Circular (FAA, 2004) provides a comprehensive suite of behavioral markers to aid organizations in program development and feedback frameworks. The FAA marks successful CRM as being able to “show sensitivity and ability to adapt to the personalities of others” and to create a microculture where “questions are encouraged and are answered openly and nondefensively.”

We must ask once more: what tools are we providing pilots to achieve these behavioral markers? Our proposal aims to address this critical gap.

6.2 WORKING GROUP COMPOSITION

We propose that the composition of the Human Performance & Pilot Development (HPPD) Working Group includes airline pilots, human factors specialists, and training personnel whose participation should be supported by their individual airlines and/or unions as a special assignment or part-time project.

6.3 WORKING GROUP SCOPE

This high-level group will be funded through industry partnerships. It will be composed of human factors specialists, experienced pilots, and industry experts who will collaborate to share best practices, analyze the factors contributing to negative culture in aviation, and develop the next generation of professional multi-crew pilot training aimed at enhancing human performance. By leveraging existing data to determine the impact of new human performance training initiatives, this approach will create a more inclusive and effective training environment. Our proposal aligns with the protocols of ICAO, IATA, FAA, and SMS, ensuring comprehensive integration with global aviation standards and practices.

We recommend establishing a regular meeting series, preferably quarterly, between the global working group and individual airline groups to ensure alignment, collaboration, and synergy. And, we request that training and safety-related data sources be interfaced and shared both internally within organizations and externally across the industry to enhance transparency and promote partnerships and safety improvements.

7.0 THE CULTURE LINK - SAFETY & DEI.

In a doctoral research project, 1,600 airline pilots received training designed to enhance psychological safety and improve Crew Resource Management (CRM) and the Threat and Error Management (TEM) model. The study assessed pilots' views on the importance of psychological safety as a key interpersonal skill for safety. After an 80-minute lecture-based intervention, the number of pilots rating this skill as "extremely important" for safety increased by 260%, a statistically significant change²⁶. This finding underscores the impact of targeted educational efforts on changing perceptions and attitudes toward psychological safety in training.

Female pilots are strong advocates for change because they experience the negative culture firsthand. Even before the intervention, female and non-White male pilots were more supportive of incorporating advanced interpersonal skills, such as psychological safety, into their training. Their openness likely stems from the unique social barriers and professional challenges they face, making them more attuned to the benefits of these skills in the workplace and their potential to address systemic challenges.

7.1 ATTACK THE SYSTEM, NOT THE INDIVIDUAL: A MULTI-FACETED SYSTEMIC APPROACH TO CULTURE

Behavioral scientists typically implement interventions categorized as either individual-framed solutions (i-frame) or system-framed interventions (s-frame). It is imperative to shift resources away from individual-focused i-frame interventions and instead support industry-wide s-frame solutions.²⁷

I-frame strategies often fall short for several reasons: 1) they place the burden of change on individuals without addressing the broader, systemic factors that shape behavior; 2) they may inadvertently reinforce the very issues they aim to solve by isolating problems as individual failings rather than manifestations of wider systemic flaws and 3) interventions typically lack the scale and scope required to effect meaningful change across an entire system.

²⁶ Perkins, K. (2024). Optimizing Risk Mitigation with Advanced Interpersonal Skills Training.

²⁷ Chater, N., & Loewenstein, G. F. (2022). The i-Frame and the s-Frame: How Focusing on the Individual-Level Solutions Has Led Behavioral Public Policy Astray. *SSRN Electronic Journal*.

7.2 STRETCH GOALS AND EXPANDED POTENTIAL

Understanding intergenerational flight deck dynamics is crucial for ensuring the highest standards of aviation safety. The industry relies heavily on effective communication, collaboration, and strict adherence to safety protocols. Pilots are influenced by generationally relevant societal and cultural factors, which can lead to differing expectations for psychological safety in the flight deck, variations in communication norms, and diverse priorities regarding adherence to Standard Operating Procedures (SOPs).

Intergenerational conflicts, such as a large power distance index wherein senior pilots perceive younger pilots as insubordinate while younger pilots feel undervalued, can lead to communication breakdowns and deviations from SOPs, potentially compromising flight safety. Recognizing how these generational dynamics shape interpersonal interactions provides valuable insights for ensuring effective Crew Resource Management (CRM) and activating the safety voice, both essential for the efficacy of the Threat and Error Management (TEM) model.

To gain a thorough understanding, the working group could gather data on generational expectations for a psychologically safe flight deck. This would help determine how to equip pilots with the tools to adapt their leadership styles to different intergenerational dynamics.

8.0 CONCLUSION

This white paper aims to present a safety-centric solution to the barriers faced by women in aviation. The proposal emphasizes enhancing aviation safety by integrating human performance training to address culture. This dual-focused strategy seeks to improve safety models' efficacy while tackling the cultural challenges women pilots encounter.

The proposal advocates for the creation of a multidisciplinary working group to design, implement, and evaluate human performance and pilot development training programs. These programs will focus on advanced interpersonal skills such as psychological safety, bias literacy, and interpersonal communication. By addressing the negative culture identified in the WIAAB Report, the initiative aims to reduce human error and enhance safety.

By linking Diversity, Equity, and Inclusion (DEI) initiatives with safety objectives, the proposal highlights the importance of creating a supportive and inclusive culture in the flight deck. It argues that equipping pilots with the necessary social, psychological, and

behavioral science tools will help establish a psychologically safe microculture, leading to reduced risk and enhanced safety.

9.0 ALIGNED INDUSTRY EXPERTS

Appendix A contains a list of aviation professionals who have agreed to add their names to this proposal. By doing so, they acknowledge that they have experienced or understand the negative culture problem identified by the Women in Aviation Advisory Board and believe that an interdisciplinary working group addressing culture through a safety framework is an effective approach to resolving this issue. Their names, job titles, relevant information where applicable, and any additional comments can be found in Appendix A.

Authored by:

Kimberly Perkins, PhD, ATP, FRAeS

Kimberly is a Boeing 787 First Officer for United Airlines and a Human Factors specialist. Her doctoral research focused on optimizing risk mitigation strategies through pilot development training programs. Kimberly serves as an academic advisor on the CAE Human Performance Excellence Council (hpX) and is a Fellow of the Royal Aeronautical Society.

Rebecca Wedekemper, ATP

Rebecca is an Airbus 330 Captain Seniority List Instructor at Delta Air Lines. Rebecca has extensive experience in Flight Training and Standards, Flight Operations Safety, Flight Operations Wellness, and has managed many special projects for the company.

Appendix A

SUPPORTERS OF THE PROPOSAL

By adding your name, you confirm that you have read and agree with the ideas presented in this paper. You acknowledge the need to address the barriers hindering women in aviation and recognize the link between culture and safety outcomes.

By implementing a safety-centered, systemic approach, we can foster a more inclusive environment to advance gender initiatives while enhancing safety through more effective risk mitigation, stronger Crew Resource Management (CRM), and improved Threat and Error Management (TEM).

Name	Title (Optional)	Comments (Optional)
1. Kimberly Perkins, PhD	Founder of Empirical Aero	and airline pilot
2. Rebecca Wedekemper	Airbus 330 Captain	
3. Sophia Ghezai	Aviation Consultant	
4. Fiona McKay	Founder & CEO of Leading Ladies of Aerospace, Defense and Space	
5. Reyn� O'Shaughnessy	Author of This Is Your Captain Speaking & Founder of Piloting 2 Wellbeing and Aviation Health and Wellbeing Institute	
6. Michelle Hight, PhD	MPH Human Factors, LLC	
7. Jennifer Pickerel	Vice President of Aviation Personnel International	
8. Dr. Tanvi Prakash	Assistant General Manager (Unmanned Systems), Larsen and Toubro, India	
9. Shaesta Waiz	Founder and CEO of Dreams Soar, Inc.	
10. Jessica Webster	Founder and President of Hera Aviation Group & International Captain on Gulfstream 500/600	
11. Cat Wren	Chief Experience Officer of Business Jet	

12. Laura M. Pennino - Chief Executive Officer of Pennino and Partners
13. Jenny Balzer - Manager, Emergency Response, Republic Airways
14. Virginia "Jennie" T. Mitchell - Flight Test Engineer (Aerospace Engineer) - FAA
15. Evelyn Wong - Director Defence Finance APAC, Jet Aviation Australia
16. Aaron Perkins - Flight Test Pilot, Collins Aerospace
17. Cheryl Pitzer - FedEx MD11 Captain (Former MD11 Chief Pilot)
18. Isaac Shareef - Airline Training Manager and 787 Captain
19. Robin Guillian - Director of Aviation, Professional Pilot Technology and Aviation Maintenance Williston Campus, Vermont State University
20. Kelly Jost - P.E.C&S Engineers, Inc. Service Group Manager, Great Lakes Aviation
21. Wendy Turner - Captain, Exxon Mobil Aircraft Operations
22. Captain Michelle Boeding - Airline Pilot
23. Elizabeth Carll - Pilot
24. Captain Christina Halli - Delta Air Lines, A350
25. Carol DiFeo - 767 Captain
26. Katka Emery - First Officer
27. Elise Marie
28. Patty Wagstaff - 3 Time US National Aerobatic Champion | 6 Time Member US Aerobatic Team | Gold, Silver, Bronze Medal Winner in International Aerobatic Competition | Inductee, National Aviation Hall of Fame
29. Marnie Henderson Alcock - Captain B767

30. Molly Rose Meade - First Officer B777, United Airlines
31. Sarah Arnold - National Gliding Champion - Gold, Silver, Bronze Medal Winner Women's World Gliding Championships - 8x member US Soaring Team - Inductee - Tennessee Aviation Hall of Fame and US Soaring Hall of Fame. Owner/Operator Chilhowee Soaring Association.
32. Odile Murphy - First Officer B737
33. Joanne Rainier-Pope - A320 South African Airways and Retired Senior Captain
34. Mandy Hutchison - Pilot, USAF
35. Lena Moore - Pilot
36. Jessica Slattery - CRJ First Officer, PSA Airlines
37. Natasha Sanders - Pilot, USAF
38. Katie Smith - B-737 Pilot, Delta Air Lines
39. Captain Theresa M Claiborne - B787 United Airlines (retired)
40. Kathryn B. Creedy - veteran aviation journalist, DEI Activist, Editor, Future Aviation/Aerospace Workforce News
41. Claudia Zapata-Cardone - Captain, United Airlines
42. Stephen Cardone - First Officer United Airlines
43. Danielle Wittrock A320 First Officer, American Airlines
44. Julie Ann Venable - Captain A330, Delta Air Lines
45. Jillian Kepich - First Officer, GoJet Airlines
46. Cecilia Ernst, Pilot
47. Kathleen Nazareth A320 First officer, Canada Jetlines

48. Alicia Fleury D'Elia - B787 First Officer, American Airlines
49. Captain Erin Recke - Alaska Airlines
50. Heidi Theile - Captain A320
51. Janet Patton - Captain 777 and MS Technology Studies with focus in transportation and women in technology
52. Elisabeth Hoehn - Base Chief Pilot at Republic Airways
53. Michele Sanvido - A320 simulator instructor (former airline pilot)
54. Anne Greenberg - A320 FO, United Airlines
55. Elizabeth Drazich - Challenger 300/350 First Officer, VistaAmerica
56. Meg Godlewski, Flight Instructor, Aviation Journalist
57. Arpad Szakal - Aviation & Aerospace sector lead
58. Kristi McFadden, Corporate Pilot
59. Freya Shiller - 777 First Officer, United Airlines
60. Jenn Sturgill - Pilot
61. Kate Kallet - Pilot
62. Danielle Stevens - Corporate Pilot
63. Karon Rohan - B787 First Officer
64. Ben le Fleming - Gulfstream Captain
65. Allyson Kay - Human Factors Specialist, Aviate in Calm
66. Lisa Shipman - Program Director, Central Oregon Community College, Aviation Dept
67. Katie Lyn Peck - Pilot

68. Tamara Karena - Pilot
69. Chris Boccella - Pilot
70. Alexis Tuel - Pilot
71. Elizabeth Drazich, First Officer, Vista America
72. Shelly Gibran - Pilot - Mountain Air Cargo
73. Inaia Lator - Pilot
74. Kellye Evans - Pilot
75. Janet Davidson - Pilot
76. Colleen Grace - military helicopter pilot
77. Chelsie Williams - Adjunct Professor & Flight Systems Analyst
78. Damiene Nelson - Part 121 Cargo Pilot
79. Karina Simonis - Corporate Lear 75 Pilot
80. Jeanne Le Roux - Part 121 Cargo Pilot
81. Heather Ford - Check pilot, RFDS
82. Kimberly Wood - Pilot
83. Rebecca Bonney - Commercial Pilot & Scheduling and Publications Analyst,
American Airlines
84. María E Toral - Airline Pilot
85. Mishelle Mason - Captain, ExxonMobil Aviation Services, Aviation Safety Officer,
and retired US Naval Aviator
86. Gabby Segovia - Pilot

87. Meghan Fridley - Pilot
88. Taylor Boyd - Pilot
89. Rebecca Gibbs - United Airlines & Air National Guard
90. Michelle Marie Miller - Pilot
91. Juliet Lindrooth - A321 Captain, American Airlines
92. Carolyn Weiss Becton - Pilot
93. Kelli Weed - Pilot
94. Chelsie Williams - Adjunct Professor & Flight Systems Analyst
95. Monica Alvarez - First Officer, Part 121 Airline
96. Kelly Baker
97. Cheryl Beineke - ATP, Colonel, USAF (retired)
98. Dr. Pam Nichols - Pilot
99. Jamaica Bergstrom - CFII, Rotorcraft
100. Dr. Shannon Marie Moon - Part 135 Citation Pilot
101. Chris Boccella - Captain, Coca-Cola Consolidated
102. Mary Lynn Koenig - B777 Captain, United Airlines
103. Pam Catlin - Major Airline Captain
104. Lisa Cooper Kemp - Pilot
105. Rebecca Schutzenhofer - Pilot
106. Tara Traynor - President. International Society of Women Airline Pilots & Captain, United

107. Sarah Cappelletti - Pilot
108. Laura Einsetler - Captain
109. Jenny Beatty - Airline Captain, Analyst, Advisor, Author
110. Captain Deb Ings - Airline Pilot
111. Cecilia Aragon - ATP, Aerobatic Champion (First Latina on the US Aerobatic Team), University Professor
112. Captain Pamela Perdue - Airline Captain
113. Heidi L Theile - Pilot
114. Olga C Gause, American Airlines First Officer
115. Rebecca Brown DeBrocke - Pilot
116. Melissa Timberlake - United Airlines pilot
117. Kathleen Meilahn - pilot, USAF and USG safety and security expert (retired)
118. McKenzie Krutsinger - Delta Air Lines FO, Secretary, International Society of Women Airline Pilots
119. Daphne Mark, US Navy, Student Naval Aviator
120. Mary Latimer - Pilot- ATP, CFII, MEI, A&P IA, Retired ATC, Former DPE, Founder of GIFT Academy
121. Louise Vickerman - Pilot, Board Member Flying Musicians Association.
122. Marie Ramos - Pilot
123. Louise Mateos - Pilot
124. Jenn Sturgill - Pilot

- 125. Laura Ortega - Pilot
- 126. Catherine Beirne, Captain American Airlines, Veteran- Naval Aviator
- 127. Pam Freese - Pilot
- 128. Larae Stotts - Aviation Assoc. Talent Acquisition Manager, private pilot
- 129. Aimee Henson - Pilot
- 130. Michele LaVigna - FedEx MD11 Captain
- 131. Wendi Sparks - UAL 787FO
- 132. Eilgar Elly Mansourian - A330 pilot, Air Canada & ALPA volunteer
- 133. Dr. Heidi Kim - Human Factors, Aircraft Evaluation Division, AFS-110
- 134. Captain Laura Einsetler
- 135. Melanie Allen - Certified Flight Instructor
- 136. Julie Jetzer - Private Pilot
- 137. Michael Lindskog - CA B756, United Airlines
- 138. <your name here>

