Paper ID: 97649
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IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Enabling the Future: Developing the Space Workforce (5)

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A ROADMAP TO WORKFORCE INCLUSIVITY IN SPACE: CHALLENGES, SOLUTIONS, AND A FRAMEWORK FOR ACTION

Abstract

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A Roadmap to Workforce Inclusivity in Space: Challenges, Solutions, and a Framework for Action

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Abstract

The global space industry is undergoing rapid expansion, yet gender disparity remains a persistent challenge, limiting the full potential of workforce diversity and innovation. Despite numerous initiatives promoting inclusion, there is a critical lack of standardized, data-driven methodologies to assess and track diversity metrics across space organizations. This study introduces the Inclusion Index for Space (IIS), a comprehensive benchmarking tool designed to quantify workforce inclusivity in government space agencies, private aerospace firms, and academic institutions. The IIS is developed using a multi-dimensional framework, integrating quantitative workforce demographics, career progression analytics, leadership representation metrics, and qualitative surveys assessing workplace culture and accessibility. The framework is informed by and builds upon existing models such as Belonging, Accessibility, Diversity, Equity, Justice, and Inclusion (BADEJI), Equity, Diversity, and Inclusion (EDI), and Diversity, Equity, Inclusion, and Accessibility (DEIA), ensuring that it aligns with internationally recognized best practices.

The research methodology employs longitudinal data analysis and cross-sector case studies to identify systemic barriers and trends in space workforce participation. The IIS framework is structured around five core indicators: (1)Recruitment Equity, measuring entry-level gender representation; (2)Retention and Career Advancement, tracking mid-career progressions; (3)Leadership and Decision-Making Representation, evaluating executive roles; (4)Workplace Accessibility and Inclusivity, assessing institutional policies; and (5)STEM Pipeline Sustainability, analyzing the long-term impact of educational outreach programs. By applying this standardized assessment, IIS provides real-time insights for organizations to identify gaps, implement strategic interventions, and benchmark progress against global best practices.

By establishing IIS as a global benchmarking standard, this research offers a scalable and replicable model to drive workforce equity in the space sector. The findings provide practical recommendations for policymakers, industry leaders, and educators, demonstrating how structured data analytics can transform diversity initiatives from aspirational goals into measurable outcomes. This study presents a demonstrated, data-driven methodology that bridges the gap between workforce inclusion theory and real-world implementation.