



**WORKING PAPER**

**SEVENTH WORLDWIDE AIR TRANSPORT CONFERENCE  
(ATCONF/7)**

**Montréal, HQ, 16 to 20 November 2026**

**Agenda Item 2: Fostering aviation growth and air connectivity through investments in infrastructure, human capital and partnerships**

**2.2 Investment for the development and modernization of civil aviation infrastructure**

**ENSURING A RESILIENT AND FUTURE READY WORKFORCE**

(Presented by the International Coordinating Council of Aerospace Industries Associations (ICCAIA), Brazil, United Arab Emirates (UAE), Aviation Services Association (ASA World), Civil Air Navigation Services Organisation (CANSO), International Air Transport Association (IATA), International Business Aviation Council (IBAC), International Federation of Air Line Pilots' Associations (IFALPA), International Federation of Air Traffic Controllers' Associations (IFATCA), and The International Air Cargo Association (TIACA))

**EXECUTIVE SUMMARY**

This paper addresses key challenges facing the current and future workforce in the aviation sector across the globe, and underscores the risk that workforce shortages pose to the safety, security, and resilience of the global aviation system. It calls for strengthened collaboration between States, educational institutions, and industry to enable the aviation and aerospace workforce to grow and adapt to meet increasing resource demands, evolving technologies, and enable innovation.

**Action:** The conference is invited to

- a) call upon Members States to recognize the impact of workforce shortages on the economic development of aviation as well as the risks workforce challenges/shortages across the aviation and aerospace manufacturing and service sectors pose to safety, security, and system resilience;
- b) encourage States and industry to increase collaboration with ICAO programmes, including Next Generation of Aviation Professionals (NGAP), *No Country Left Behind* Strategic Goal and capacity-building programmes, to build partnerships, develop practical tools and implement programmes to address the key issues such as attraction, retention and training;
- c) urge ICAO to support the NGAP Programme to accelerate implementation through partnerships and with initiatives such as Global Aviation & Aerospace Skills Taskforce (GAAST);
- d) urge ICAO, in collaboration with States and industry to develop mechanisms to perform and collate global workforce demand forecasting and skills gap measurement to ensure performance monitoring of initiatives and measures of success; and
- e) request that ICAO's Air Transport (AT) Bureau, in its ongoing economic analyses and future AT Conference agendas, include workforce availability as a standing indicator when assessing States' and regions' capacity to realize the economic and connectivity benefits of air transport.

*Strategic Goal:*

This working paper relates to Strategic Goal: *The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All.*

<sup>1</sup> English, Arabic, Chinese, French, Russian and Spanish versions provided by ICCAIA.

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| <i>Financial implications:</i> | Activities proposed can be undertaken through partnerships, sponsorships and voluntary contribution.                                                                                                                                                                     |
| <i>References:</i>             | A42-WP/153: The Importance of Collaboration to Ensure a Resilient and Future Ready Workforce.<br>A42-WP/278: Global Aviation & Aerospace Skills Taskforce (GAAST).<br>Resolution A42-24: Next Generation of Aviation Professionals - Global Aviation Talent Development. |

## 1. INTRODUCTION

1.1 The aviation industry is a key driver of economic growth and innovation around the globe. In this era of growth, the aviation and aerospace workforce must also grow and adapt to meet increasing resource demands and evolving technologies, as well as enable innovation.

1.2 While the aviation industry predicts remarkable growth, development and innovation in the coming decades, the sector also faces unprecedented workforce-related challenges. According to the Air Transport Action Group (ATAG), the aviation workforce contracted by 43 per cent, equating to 4.8 million jobs globally, during the pandemic. In the ground handling sector, although staffing has gradually recovered—reaching 88 per cent of 2019 levels—it remains insufficient to meet the rising demand for ground and cargo handling services.

1.3 By 2030, 44 per cent of the aerospace workforce in Europe is expected to retire. By 2030, demand for data analysts, software engineers and systems architects is expected to grow by 35 percent, and by 2043, aircraft manufacturers have forecasted a need for around 70,000 new maintenance technicians. This aging workforce issue is not exclusive to aviation and aerospace; with fewer people entering all job markets, the pool for potential entrants to civil aviation reduces.

1.4 Current workforce challenges threaten the resilience of the aviation and aerospace system, both in the present and in the long term. Resources are needed to ensure that all sectors continue to grow sustainably, and reach their economic potential while maintaining safety, security, and operational resilience.

1.5 Skills shortages are predicted across a wide range of occupations within aerospace and aviation, including but not limited to maintenance personnel, airport operations, airline crew and ground staff, ground handlers and cargo personnel, energy transition experts, security staff, in government, regulators and oversight bodies. ICAO forecasts indicate a sharp increase in demand for skilled aviation professionals to maintain safe and efficient operations.

1.6 There is a growing need for information technology (IT), Artificial Intelligence (AI), digital transformation and cybersecurity skills in a highly competitive global employment market. Original equipment manufacturers (OEMs) and their multi-tier global supply chains report growing difficulty recruiting certified engineers, avionics specialists, additive-manufacturing technicians, and quality/certification personnel — skill sets essential not only to production ramp-up (needed to meet record order backlogs exceeding 15,000 aircraft) but also to the introduction of new propulsion technologies (sustainable aviation fuels (SAF)-compatible, hybrid-electric, hydrogen) central to the industry's Net Zero 2050 commitment. Shortages at the manufacturing and supply-chain tier directly translate into aircraft delivery delays, which in turn constrain airline capacity growth, route development, and broader economic and connectivity benefits.

1.7 The aviation sector remains fraught with regulatory complexities, economic uncertainties and potential job instability, barriers to entry for prospective employees, high training costs, and limited educational opportunities. An age-inclusive, profession-diverse approach is essential. Encouraging mid-career recruitment, fostering re-skilling and up-skilling programmes, investing in training, identifying what would make aviation/aerospace more attractive to new entrants, and reducing systemic entry barriers can help address workforce gaps and improve resilience. Partnerships between academia and industry to support a pipeline of students allows for social mobility and assurance of entrants.

1.8 Workforce has usually mostly been considered at a local level and often with competing interests between States, companies and other sectors to try and attract highly skilled candidates. With a sharp increase in demand for skilled aviation professionals, and with estimates of 2.5 million new personnel required by 2043 to maintain safe and efficient operations<sup>2</sup>, governments and industry need to look at how to address this issue more globally; and how to remove barriers such as transferability of certification and training, cost of entry to students and barriers to immigration (increased over recent years).

## 2. DISCUSSION

2.1 The ICAO 42nd Assembly reinforced the importance of the Next Generation of Aviation Professionals (NGAP) Programme while calling for the scope of the NGAP Programme be expanded to attract, develop, and retain aviation talent from all generations, backgrounds, and experience levels. However, greater collaboration with ICAO programmes and further exploring how to collectively work together and build on industry/State partnerships is needed.

2.2 With an aging workforce and a growing demand, the key elements that need to be urgently addressed across the whole aviation and aerospace sector - including scheduled and non-scheduled operations, business aviation, airports, maintenance, ground services and other aviation-related activities - include:

- a) Attracting young people and those employed outside of the industry by:
  - i. Consistently promoting opportunities, jobs and benefits of aviation to a wide, global audience
  - ii. Providing accessible paths through education into aviation roles
  - iii. Providing attractive working conditions such as adequate compensation and flexible working arrangements
- b) Retaining existing staff through adequate recognition, training and career paths;
- c) Developing and expanding training facilities and programmes; and
- d) Enabling mobility of trained and/or certified personnel and recognition of credentials in collaboration with appropriate/affected stakeholders.

2.3 Addressing these complex challenges requires coordinated efforts between governments, industry, training institutions, academia, aviation and aerospace professionals, and international organizations such as encouraging apprenticeship and sponsorships, developing specialised aviation

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<sup>2</sup> <https://www.boeing.com/commercial/market/pilot-technician-outlook>

programs, expanding hands-on training opportunities (i.e. apprenticeships), and establishing mentorship programs to bridge the gap between education and industry requirements.

2.4 As highlighted in A42-WP/278, the Global Aviation & Aerospace Skills Taskforce (GAAST) is an international initiative focused on addressing the workforce challenges facing the aviation and aerospace sectors, bringing together over 100 members from states, regulators, international organizations, educational institutions, and industry. The goal of GAAST is to ensure workforce resilience through collaborative efforts, knowledge-sharing, and inclusive initiatives that address skills shortages and promote long-term sustainability.

2.5 In its first phase, GAAST gathered case studies from governments and industry that address many of the issues above. Through its surveys, webinars and discussions it verified the key issues and some of the solutions being implemented globally. In its second phase, GAAST will continue its global advocacy and its sharing of best practices, but also aims to collaborate further with ICAO, States and industry to move towards practical implementation through the provision of tools to assist organizations to build their own programs, support pilot projects and to provide practical guides on addressing the key issues.

2.6 Through collaboration between ICAO, States, Industry, and initiatives such as GAAST, as well as addressing economic and regulatory barriers that contribute to workforce shortages, there is an opportunity to make measurable progress towards the growth and resilience of the workforce.

### 3. CONCLUSION

3.1 Current forecasts show that the aviation sector can expect significant loss of experience and expertise in the near future, with an insufficient pipeline of new talent to support the industry and take on new challenges and opportunities. If not addressed, this issue has the potential to lead to a degradation of the entire aviation and aerospace sector and reduce the potential for commerce, growth, travel and tourism and all the other things the sector contributes to the economy of the State.

3.2 A sustainable, competent aviation workforce is essential to supporting ICAO's strategic goals, including safety, security, environmental responsibility, and global connectivity.

3.3 Collaborative initiatives such as the GAAST partnership can facilitate sharing of information and development of tools and programmes but also need buy in and commitment from States and Industry. While they can bring good practices, case studies and valuable feedback on the programs they are involved in, filling the gaps and broadening investment in the different programs will be needed to build a future skilled resilient workforce.

3.4 ICAO has a key role to play in demonstrating that the demand is urgent, in promoting the added value and attractiveness of our sector and by bringing together partners to progress implementation.

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