



**CAE**

# Aviation Talent Forecast

10-year outlook of demand for pilots, aircraft maintenance technicians,  
and cabin crew in civil aviation

2023

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# Introduction

Aviation is a constantly evolving industry. In the hundred-plus years since the Wright Brothers first took to the skies, aircraft have changed, and the air transport system has grown, but one thing has remained constant – the people who give life to the aviation industry. The ebbs and flows we have seen in the industry, especially post-pandemic, have reinforced that people will always need to travel for business, want to fly away for leisure, and millions will be attracted to the excitement generated by a career in aviation.

The average person will never see all the people and effort it takes to get an aircraft off the ground, fly passengers to their destinations safely and efficiently while providing a positive customer experience.

As insiders, we know what it takes, and we must be proactive in recruiting the talent who will move the industry forward more successfully than ever.

The pandemic was the most disruptive event ever faced by the aviation industry, and, nearly three years later, it is still early to say that it is completely behind us. Nevertheless, there is a lot to celebrate

since we are witnessing steady growth in civil aircraft fleets, which will continue to drive an increase in air travel.

With that in mind, we are happy to present the Aviation Talent Forecast, in which we analyze the upcoming talent demand for pilots, cabin crew and maintenance technicians worldwide. This forecast will not only focus on how many people will be needed over the next ten years, but also the reasons for the high demand, what the industry can do to attract talent, and what CAE is doing to help meet the needs of airlines and operators for highly skilled pilots, cabin crew and aircraft maintenance technicians.

Before we go any further, here is a look at the demand.

**1.3M** Civil aviation professionals needed over the next 10 years

New pilots **284K**

New technicians **402K**

New cabin crew **599K**

At a glance

# 1.3 million new civil aviation professionals needed by 2032

Let's break this down...



Commercial aviation

# 1,180,000

**new commercial aviation professionals needed over the next 10 years**



Business aviation

# 106,000

**new business aviation professionals needed over the next 10 years**



Pilots

**284,000**

**new pilots needed over the next 10 years**

Aircraft maintenance technicians

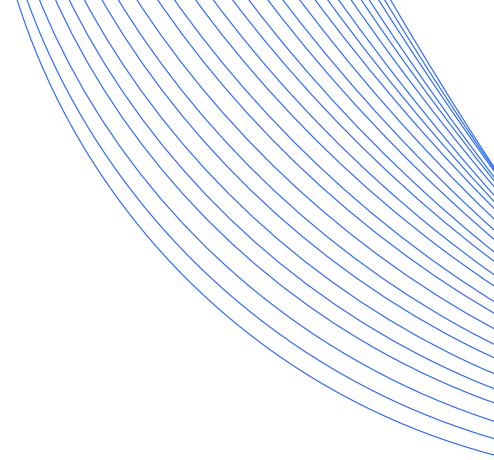
**402,000**

**new aircraft maintenance technicians  
needed over the next 10 years**

Cabin crew

**599,000**

**new cabin crew needed over  
the next 10 years**



# Growth and demand

## Talent forecast

The Aviation Talent Forecast will help us shape the future of aviation by enabling us to prepare for the expected wave of retirements and attrition in the coming years.

As many people in the workforce near retirement age, we must recruit and train the next generation of aviation professionals because we know that better preparation results in better performance and overall safety.

## Aviation is an evolving industry

The pandemic taught us one thing: people will always need and want to travel. Even though the pandemic hit the aviation industry hard, since then, steady growth and continuous investments in the industry give us plenty of momentum for the future.

It may be too early to say that it is back to normal, but the industry had over two years to learn how to operate in a worst-case scenario and we are all better prepared to deal with similar challenges in the future.

## Growth across the board

Despite inflation, the conflict in Ukraine, and other economic and socio-political issues, the aviation industry has sustained growth. Encouraged by the increased demand, operators and airlines continue to invest in new aircraft and technology to bolster their operations and enhance the customer experience.



## **39%** Commercial aviation fleet growth over the next 10 years

Commercial aircraft in service

**31K**

**43K**



2023

2032

Source: Aviation Week Forecast



## **18%** Business aviation fleet growth over the next 10 years

Business jets in service

**22K**

**26K**



2023

2032

### More on fleet growth

There are 31,000 commercial aircraft in service today, and that number is expected to grow to 43,000 by 2032 – a 39% growth over the next ten years. The primary driver of this growth is the increase in narrowbody aircraft, which will make up 64% of the fleet by 2032 as opposed to 58% in 2022.

There are currently 22,000 business jets in service and by 2032, we expect that number to jump to 26,000 aircraft, an 18% increase in the total aircraft fleet over the next ten years. The primary driver of this growth is the increase in large cabin business jets.

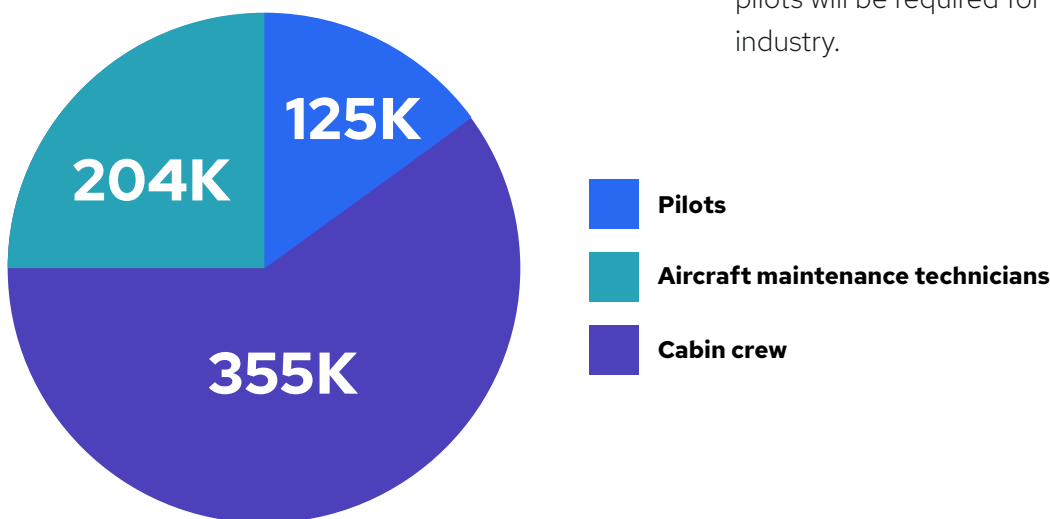
## Retirement, attrition, and employee turnover

By 2030, all members of the U.S. workforce born between 1946 and 1964 (representing 30% of the workforce) will be of retirement age<sup>1</sup>. Mandatory retirement ages for pilots will force many retirements, creating a growing demand for airlines and operators to fill. The rising cost of living may cause many in the industry to delay retirement, leaving a significant gap when they eventually retire. Retirement and attrition need to be addressed early on to avoid any future disruptions to the current flow of operations.

Today, 38% of pilots<sup>2</sup> and 34%<sup>3</sup> of cabin crew in the United States (U.S.) are over the age of 50. Over 50% of aircraft maintenance technicians are over the age of 40<sup>4</sup>.

A higher rate of turnover amongst cabin crew

### Professionals needed to replace retirement/attrition



when compared to pilots and aircraft maintenance technicians is driving the increased demand for people to join the profession.

The general aging of the workforce presents a challenge for airlines and operators. With massive retirement numbers projected over the next 10 years, the percentage of aviation personnel over the age of 50 will keep increasing in comparison to the total civil aviation industry pool. The retirement of experienced pilots will need to be countered with an even larger wave of new hires.

In commercial aviation, new hires will be required to backfill for age-based retirement, early retirement, and pilot attrition. FAA statistics show that over 45,000 commercial airline pilots will be required to retire in the next 10 years. This represents almost 27% of the commercial airline pilot population in the U.S. The situation is similar in other parts of the world creating a need for 99,000 new commercial aviation pilots over the next 10 years to replace those retiring. In addition to the 99,000 replacements, an additional 153,000 pilots will be required for the projected growth of the industry.

## Demand already exceeding supply

The significant need for pilots throughout the industry is being driven by a variety of factors, including demographics, mandatory retirement ages, early retirements due to COVID, and the projected growth of the aviation industry. Industry experts project that the demand for pilots will exceed supply on a global scale in the next year or two and continue for the next decade. This need for pilots can already be seen in the U.S. where several regional airlines are cutting service and parking airplanes due to lack of qualified crew members. Regional airlines were the first to see the effects of a lack of qualified pilots as larger airlines hired pilots from regionals to fill their own needs. The Regional Airline Association trade group reports that 414 regional jets (22% of their member-operated aircraft) have already been parked due to lack of crew<sup>5</sup>. (RAA, 2023)

Several factors threaten the current and future pilot supply and the rapid rebound in air travel demand following the pandemic exacerbated them. Several thousand pilots took early retirement at the height of the pandemic and, in the next few years, thousands more will face mandatory retirement at age 65. Simultaneously, traditional pilot entry points, including the military and self-funded training, produce fewer pilots.

Both airlines and training organizations like CAE are taking steps to address the demand helping pilots to make their way back to the flight deck. Several regional airlines have begun offering significantly increased compensation packages to attract new pilots, aircraft maintenance technicians and cabin crew. Airlines and business aviation operators also partner with training organizations (and in some cases acquired or started their own) to provide post-graduation job opportunities offering incentives like guaranteed placement and sponsorships to reduce the financial risk of flight training programs. Airlines have also started outreach programs to show that aviation is an attractive career choice, encourage interest in flying as a career, and bolster Science, Technology, Engineering and Mathematics (STEM) education efforts.

While pilot and cabin crew demand received significant attention in the last year or so, the aircraft maintenance technician talent pool is likewise constrained. The overall aircraft maintenance technician workforce is older than the broader workforce and many technicians are reaching retirement age. While newer aircraft require less maintenance than older generation aircraft, the growth of the fleet puts increasing demand on aircraft maintenance technicians.

Organizations like CAE are finding new and innovative ways to inform and encourage people to consider a career in aviation. CAE has partnered with several airlines around the world to provide training and job opportunities. We champion initiatives like the CAE Women in Flight program to encourage more women to reach for the sky and follow their dreams of becoming a pilot.

In addition, CAE continually invests in the development of high tech solutions to make training more efficient while enhancing safety. We have deployed online learning tools, improved scheduling, and curriculums, and built a worldwide network of training centres to allow pilots to spend less time traveling to and from training and more time on the flight deck.

Before we get to recruiting and training, let us take a closer look at the numbers.

## Aviation Talent Forecast by the numbers

### New aviation talent needed worldwide over the next 10 years



# Our methodology

The number of flights and active fleet are the primary drivers of the overall demand for civil aviation professionals. Properly staffing these flights and replacing pilots, cabin crew, and aircraft maintenance technicians leaving the workforce due to retirement and attrition represent the underlying causes of the demand.

To forecast the demand over the next ten years, we first looked at the current commercial and business aviation aircraft fleets, and calculated the personnel required to fly and maintain them.

Then, we looked at forecast fleet changes (both new deliveries and retirements of older models), and calculated the additional personnel required for the anticipated fleet growth.

Finally, we used estimated retirement and turnover rates to calculate the personnel required to replace those retiring or leaving the industry.

# Supplying the demand

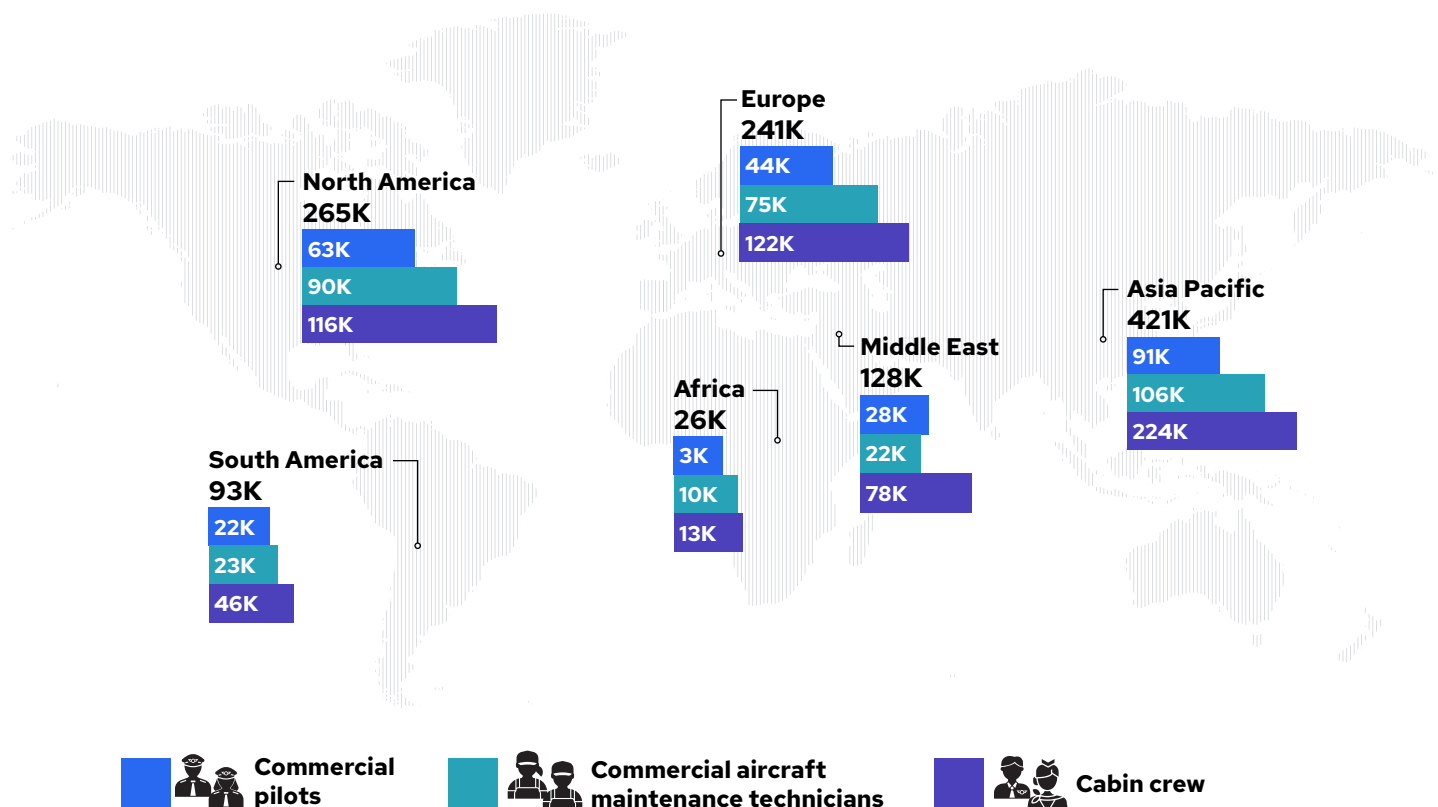
## Finding the next generation of aviation professionals

Knowing that retirement and attrition will increase over time, there is a tremendous opportunity for the industry to forge a path for fresh, innovative minds to join the ranks and re-evaluate the way they do things by using technology that will improve current workflows. As members of a new generation start their careers in aviation, they will bring a new perspective and will no doubt find ways to improve and optimize the way the industry operates.

# Commercial aviation

Commercial aviation is making significant progress and showing signs of air traffic returning to pre-COVID levels and beyond. Fleet growth and recent changes in operating models - "Point-to-Point" versus "Hub and Spoke" - will drive demand for the foreseeable future. The domestic U.S. market is leading the way to a successful recovery with leisure travel spurring demand, especially with low-cost carriers.

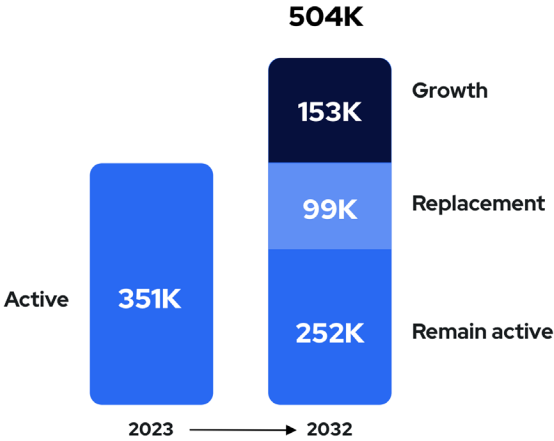
## Commercial aviation talent demand by region



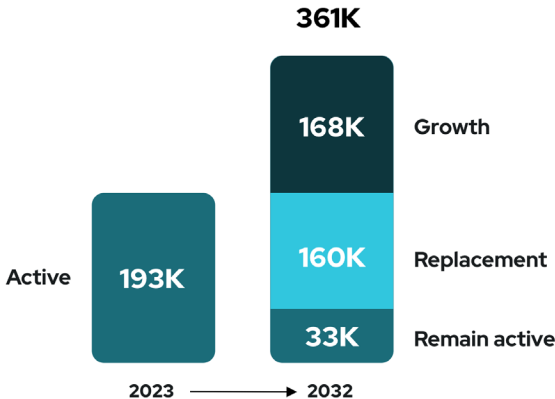


# Commercial aviation by the numbers

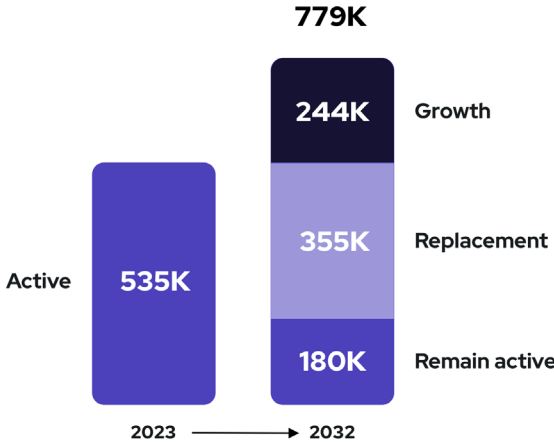
New commercial pilots needed: 252K



New commercial aircraft maintenance technicians needed: 328K



New cabin crew members needed: 599K



## Air travel recovering and on track to be at pre-COVID levels soon

Air travel has recovered steadily despite the current conflict in Ukraine and inflation issues.

“While the industry’s recovery from the global pandemic has been slowed down by various factors such as the conflict in Ukraine and continued zero-COVID policy in China P.R., IATA Economics expect the industry to recover to the 2019 traffic level in 2024, with North America leading the pack in 2023, followed by Europe, Latin America, and the Middle East in 2024, and Africa and Asia Pacific in 2025.” (IATA, 2022)<sup>6</sup>

There certainly are challenges that could impact future passenger and corporate plans, but there is optimism surrounding the continued growth of the industry.

“Should that forecast prove to be accurate, the industry will have recovered from its worst crisis in history within four years, with a rate of recovery five times faster than the growth observed in the past 20 years – a phenomenal achievement compared to past recoveries and given the severity of the contraction.” (IATA, 2022)<sup>6</sup>

## Airlines adjusted after the pandemic

Despite measures taken in airports and on board aircraft to allow for social distancing, people largely stopped flying as the entire travel journey became compromised by the fear of infection.

The pandemic forced airlines to reassess their business and operating models, reducing international operations due to border closures, and pivoting their focus to domestic networks. This shift led to a sharp decline in widebody aircraft use in favor of newer long-range narrowbody aircraft with the flexibility to be used on long and short-haul flights.

Airlines also simplified their fleets by parking or retiring less efficient aircraft ahead of schedule or reducing the number of aircraft types they operate. In addition, some airlines re-invested in their IT and network systems, while others opted for better air filtration or ionization systems and routine cleaning to help passengers feel safe on board.

## Increased demand of air cargo

Protective personal equipment (PPE) and medicine initially powered the healthy demand for air cargo in 2020. Challenges in the supply chain, coupled with shift in consumer behavior to e-commerce resulted in further growth of air cargo, which caused several airlines to start cargo operations with dedicated aircraft. Operators saw increased yields and flight activity. As commercial air travel recovers, we can expect the air cargo market to normalize.

# Cascade effect caused by fleet shuffle and early pilot retirements

In the wake of the pandemic, which shuffled fleets and crew, airlines with fewer aircraft types were in a better position to recover faster, requiring fewer training events than operators with more complex fleets.

Early pilot retirements during the pandemic exacerbated the challenges the industry faced with pilot demand. When a seasoned pilot retires from an airline, it triggers a series of events across the pilot supply chain:



This movement within the ranks creates a strain on the pilot pipeline that impacts the regional airlines. This is why we saw a reduction in regional flight activity when compared to that of mainline carriers. Regional airlines countered the issue by boosting pay to attract new pilots.

## Mature markets leading recovery

Mature aviation markets such as North America and Europe are leading the recovery<sup>7</sup>. These markets historically have seen high GDP per capita, which are correlated with the penetration of air travel. As individuals and families hung tight during the pandemic, their “cabin fever” and desire to travel grew, which created a sharp rise in air travel demand coming out of the pandemic.

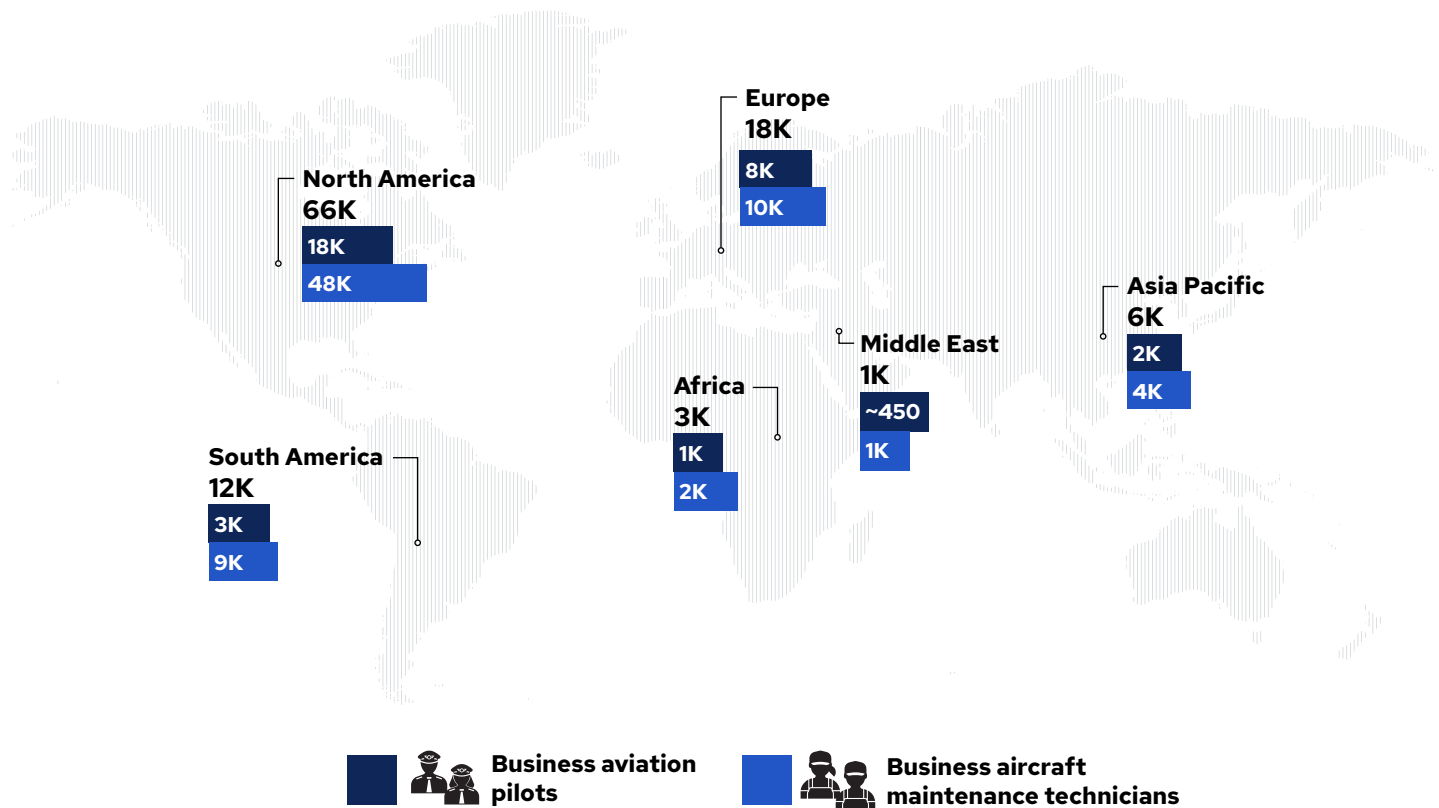
The U.S. domestic market was not unique in this respect as many governments provided aid to airlines to help maintain operations. However, the industry could not handle the demand. It took time for airlines to restore their operations.

Low-cost carriers with fewer fleet types and a focus on domestic leisure travel were the first to recover. Nevertheless, mainline airlines will benefit from international traffic once it restores to pre-pandemic levels.

# Business aviation

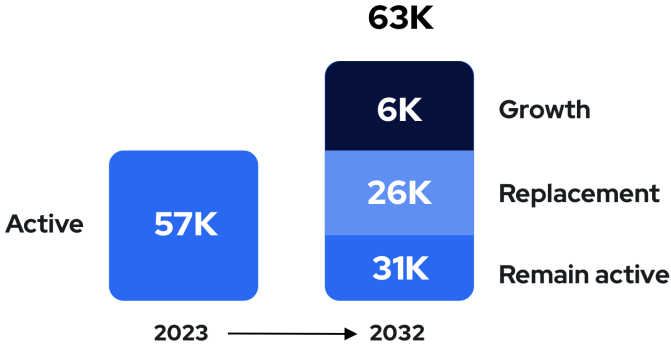
Business aviation has seen sustained growth and success during the pandemic when travel was more restrictive. To avoid large crowds in airports and aboard commercial flights, more people turned to business aviation, which has increased usage and stimulated growth for the sector.

## Business aviation talent demand per region

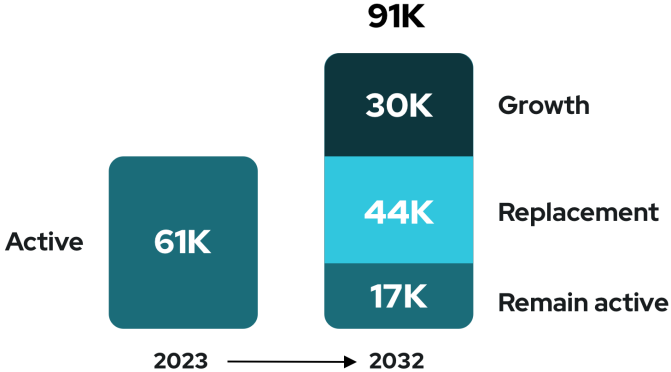


# Business aviation by the numbers

New business aviation pilots needed: 32K



New business aircraft maintenance technicians needed: 74K



## Business aviation surpasses pre-pandemic levels

Business aviation has blossomed as new customers experience the safety, convenience and comfort of flying private.

Once travel restrictions were lifted in 2020 and 2021, business aviation activity took off. Business aircraft allowed companies and individuals to control who they flew with, avoid crowds at airports, and fly directly to their destinations. Flight activity in the two largest markets, the U.S. and Europe, surpassed pre-pandemic levels, making business aviation a true success story coming out of the pandemic. Business aviation activity reached 2019 levels by mid-2021 and continued to climb. Flights in Europe reached 25% above 2019 levels in late 2021, and, in the U.S., reached these levels in early 2022. This demand for flights caused charter and fractional operators to scramble to find sufficient pilots, aircraft maintenance technicians, and staff.

Demand for business jets also increased and caused a rush to purchase used aircraft. At one point in early 2022, only 2% of the business aircraft fleet was available for sale, the lowest it has been in over 15 years.

While demand has eased somewhat, the business aviation market has seen sustained high demand and will continue to grow.

The U.S. remains the largest out of all business aviation markets, but it is rapidly growing in other global markets, most notably India, China, and Brazil.





# Where to find talent

If we do not take action to attract new people to our industry, air travel will take a hit. Therefore, we need to do everything we can before it negatively affects operations.

The entire industry should be committed to using available resources to recruit, train, and shape the future of aviation. CAE Parc Aviation's resourcing services help airlines and operators find the talent they need to allow them to respond to market opportunities quickly. Unscheduled aircraft maintenance, seasonal network adjustments, and aircraft deliveries are examples of inflection points for operators to find trained personnel.

Seeing the number of pilots, cabin crew members, and aircraft maintenance technicians required to meet the demand may be overwhelming, but rest assured, there are ways to recruit people from different backgrounds and attract them to a career in aviation.

- [Digital marketing \(on Facebook, LinkedIn, Instagram, Indeed, etc.\)](#)
- [Job and career fairs](#)
- [Special programs](#)
- [Airline and operator partnerships](#)
- [STEM programs](#)



# 284,000

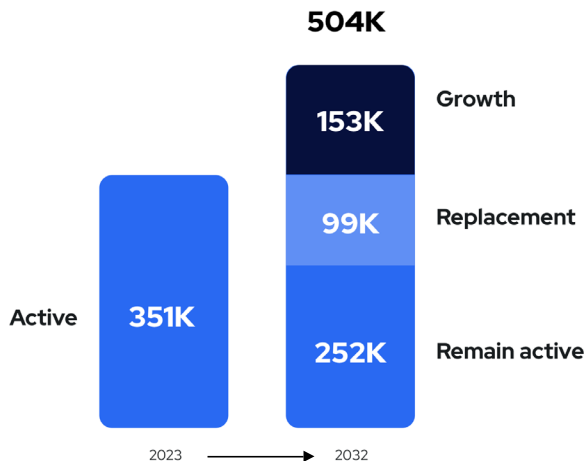
## new pilots needed over the next 10 years

39% growth in pilot demand from 2023 to 2032

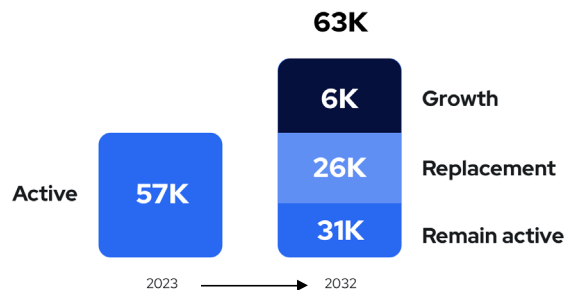
### New pilots needed per region



### 252K new commercial pilots needed over the next 10 years



### 32K new business aviation pilots needed over the next 10 years



# 402,000

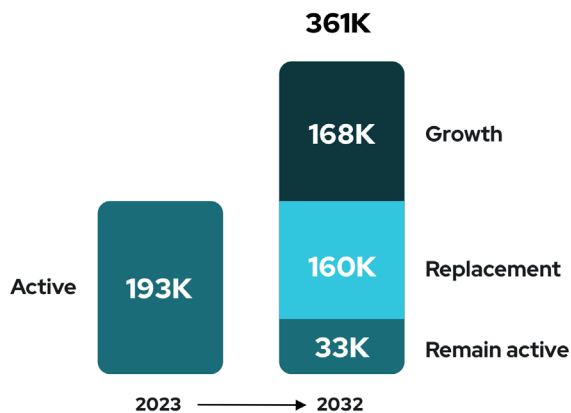
## new aircraft maintenance technicians needed over the next 10 years

78% growth in aircraft maintenance technician demand from 2023 to 2032

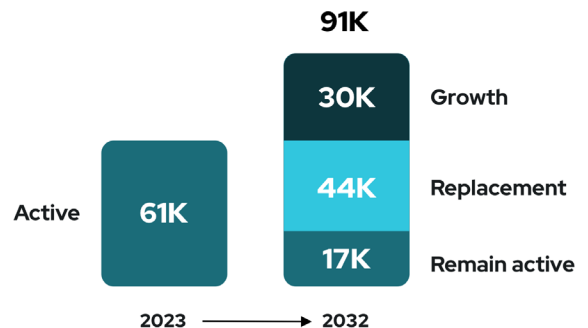
### New aircraft maintenance technicians needed per region



#### 328K new commercial aircraft maintenance technicians needed over the next 10 years



#### 74K new business aircraft maintenance technicians needed over the next 10 years



# 599,000

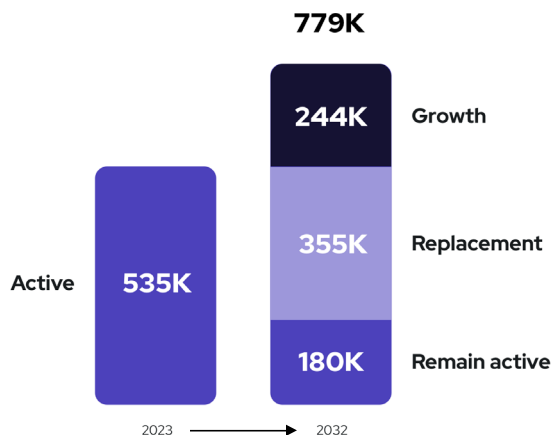
## new cabin crew members needed over the next 10 years

45% growth in cabin crew demand from 2023 to 2032

### New cabin crew members needed per region



599K new cabin crew members needed over the next 10 years



# Hear from those whose careers took flight...



**Pamela Behr**

Training Manager,  
Business Aviation and  
Helicopter Training at CAE

## Pilots

### *Where passion meets success*

*A career as a pilot is both rewarding and satisfying on many levels. In a fast-paced environment like aviation, being a pilot means to successfully overcome challenges daily.*

*As pilots, we are connected by our passion for aviation. For me, this passion has been with me all my life, passed down by my father. When we first start our careers, our flying lessons begin with small aircraft like the C172. From there, the exploration begins, and the passion keeps on growing.*

*I would advise anyone considering a career in aviation to go for it! The sector is rapidly growing and there are many opportunities for success.*



**Alina Olteanu**

Cabin Crew member  
at Wamos Air

## Cabin Crew

### *Spread your wings!*

*I love being a cabin crew member because it is not a typical job: you grow wings in every sense of the term both professionally and personally. In fact, to me, it's not even a job, it's a lifestyle.*

*This passion for aviation came to me when I was a child. I would watch a plane fly by and I would be completely fascinated. I was lucky to start flying on a B747 to incredible destinations at the start of my career. To this day, what makes every journey worth it, is a passenger's sign of appreciation at the end of a flight. A smile, nice words, a kind 'thank you', and even sometimes a hug makes it all worthwhile.*

*If you're thinking of a career as cabin crew, don't think twice and follow your heart. This might just be your calling to spread your wings.*



**Alphious Mclean**

Senior Maintenance Training  
Instructor - Airbus Aircraft  
Fleet at CAE

## Aircraft Maintenance Technicians

### *Watch your craft successfully take off*

*The life of an aircraft technician is very exciting and fulfilling, especially if you are fascinated by airplanes. This is a job where you will never stop learning since the industry is constantly evolving at the pace of technological advancement, so there is never a dull moment.*

*With over 25 years of experience as an aircraft engineer, there is no doubt in my mind that pursuing a career in aviation is an excellent choice. If you are dedicated and committed to your craft, there is no limit to what you can achieve within this field. To me, the icing on the cake comes when you watch this marvelous state-of-the-art airplane taxi out and take off successfully.*

*My advice for anyone interested in pursuing a career as an aircraft technician would be to go for it. The sky's the limit.*

# What can be done to supply the demand

To meet this demand, we will need to be proactive and creative. The following list of items is what **can** be implemented to show that a future in aviation is possible and affordable.

1. Creating programs to support career development paths to make the industry more appealing for new talent while retaining experienced pilots, cabin crew members, and aircraft maintenance technicians.
2. Reaching out to potential candidates earlier in their schooling and educate them about various roles and progressions. As a training provider for pilots, cabin crew and aircraft maintenance technicians of the future, we are taking the lead to educate and guide the market.
3. Attracting the digital natives who spend most of their time browsing and interacting online to reach and appeal to Generation Z and open their minds to the possibilities in aviation. The aviation industry needs to attempt to cater to the younger generations through the use technology by showcasing the latest and interesting innovations like Augmented Reality (AR), Virtual Reality (VR) and Artificial Intelligence (AI) that will lead the way in the future.
4. Employers should also assess any existing unconscious bias to reduce any obstacle certain underrepresented groups may be facing by offering financial aid, work-study programs, and sponsorships. They also need to culturally propel the industry further into the 21st century and alleviate the strain on resources by bringing more diversity to the workforce by proactively recruiting women and all underrepresented groups.
5. We should also survey target audiences to determine the existing stigmas attached to a career in aviation when recruiting. By knowing what people view as obstacles to becoming a pilot or a cabin crew member, we can demystify those misconceptions and prove that their concerns may not hold as much weight as they originally thought. When it comes to legitimate worries like associated costs, we can provide information about funding programs and much more.
6. There is a growing number of Maintenance, Repair, and Overhaul (MRO) scholarships, however, we need more scholarships to entice people to join or apply and we also need additional educational and industry partnerships to supply the upcoming demand.
7. Lowering the cost of entry into the aviation industry, especially for pilots. There are many eager people interested in becoming a pilot, however, it can be costly to earn a certificate. This can discourage many aspiring individuals.
8. Developing an unspecialized and versatile workforce of aircraft maintenance technicians to optimize the workload and efficiently distribute maintenance tasks.
9. Establishing cadet programs and aviation academies across the world will provide accessibility to aspiring individuals who want to have a career behind the flight deck. Upon successful completion from an aviation academy and gaining flying experience, graduates may even have a direct path to become a First Officer at an airline or operator. We encourage the industry to continue developing these direct pathways to help make dreams of becoming a pilot a reality.
10. Embracing partnerships with training organizations can alleviate the stress to recruit, train, and retain aviation professionals, including instructors. Operators could form partnerships with ATOs (Approved Training Organizations), which would enable them to refocus their efforts on their core competencies. By doing so, operators can become more agile and flexible, minimizing operational risk at the same time.





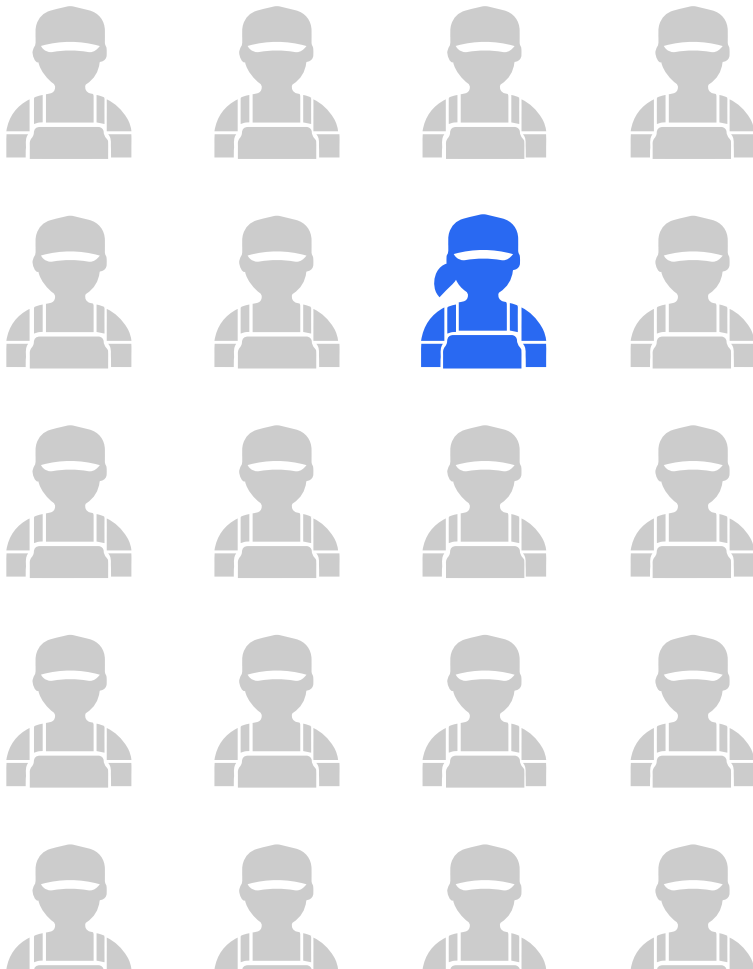
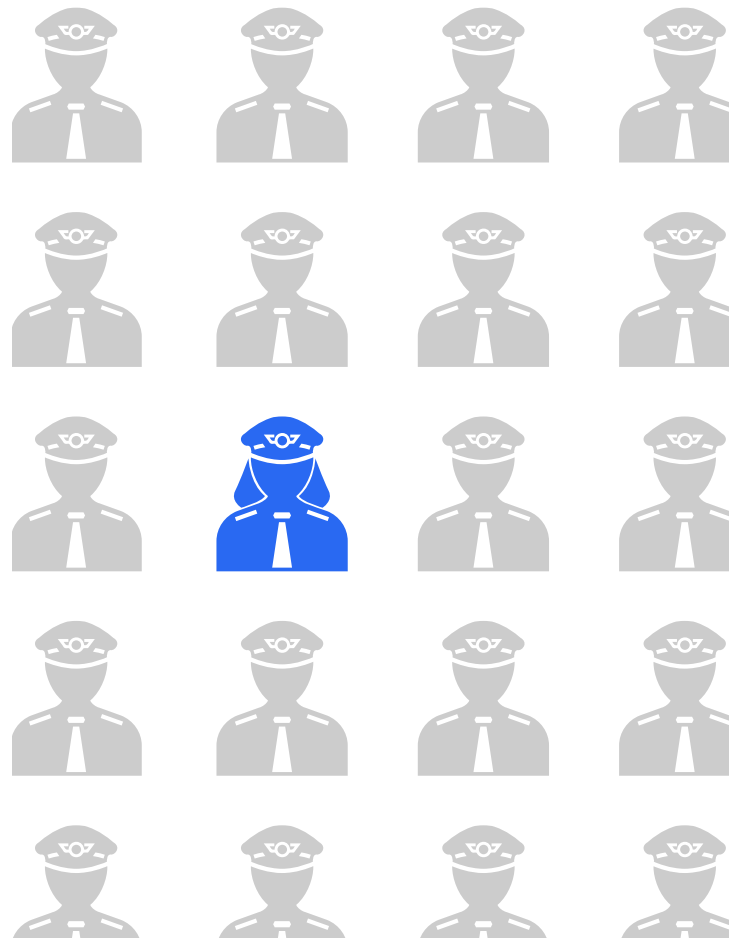
# Tapping into the full talent pool

## Embracing diversity

We cannot limit ourselves in the search for talent. Talent takes on all forms and we need to approach this search for new recruits with an open mind. We need to rid ourselves of our unconscious bias and open the possibilities for all underrepresented groups (including people of colour, Indigenous people, members of the LGBTQ2+ communities, people who are or neurodiverse or who have disabilities) to pursue a fruitful career in aviation. We should let talent dictate how far a person goes with their career by removing all stigmas and perceived limitations.

Currently, only **10%** of the  
757,000 FAA registered pilots  
of all categories are **women**

For Airline Transport Pilots (ATP), the rate is only 5%,  
with just over 8,200 women on commercial flight  
decks nationwide.



Currently, only **3%** of  
the 337,000 FAA registered  
mechanics and repair  
personnel in the US  
are **women**

# Shaping the future of aviation

## Building the right resources for the future

The future of aviation hinges on welcoming change. This change will come by selecting candidates from an increasingly diverse talent pool and showing them they have a place in the industry. We can do this by implementing various programs that highlight and benefit underrepresented groups.

## More diversity to help welcome a new generation of aviation professionals

Bringing diversity to aviation is important to the industry. We need to create a culture and ecosystem where all people feel included and that they belong, without regard to race, colour, religion, sex, gender identity or expression, sexual orientation, national origin, disability, age or veteran status because none of these characteristics or traits should be the deciding factor when reaching your dreams.

## Sustainability is key to our future

This change will also come about by embracing sustainable practices that will increase the efficiency of future aircraft and lower the industry's carbon footprint.

To achieve sustainability, we need to ensure a cleaner world for next generations by making aircraft more fuel efficient and achieving net zero by 2050. Sustainable aviation fuel (SAF), a lower-carbon alternative, is meant to replace standard kerosene-based jet fuel with a fraction of its carbon footprint, which would reduce carbon emissions without the need to develop new ways to propel aircraft. SAF is typically a mix of waste products, residual materials from fuel manufacturing, non-food crops and other sustainable sources, combined into aviation fuel.

Another fuel source is hydrogen. Aircraft manufacturers are assessing aircraft platforms that will run on hydrogen instead of fossil fuels. Thereby helping reduce carbon emissions resulting from flight operations. Hydrogen makes a promising candidate to help achieve climate goals.

The development of a rechargeable electric aircraft battery for training purposes could help lower the aviation industry's carbon footprint. CAE's partnership with Piper expects to convert part of its Piper Archer training fleet to an electric variant. A new training curriculum will be developed for electric training aircraft that aims to reduce carbon emissions and noise levels at flight schools while training new pilots to operate this cutting-edge technology.



## High tech is leading the way

This is an exciting time to be in aviation as we're witnessing its future take shape right before our eyes.

We are on the cusp of a new era of aviation – one of Advanced Air Mobility (AAM). While CAE has not included workforce projections surrounding AAM in this forecast, there is a growing industry realization that the launch of AAM operations will further increase demand for professional pilots and technicians commencing by the middle of the decade.

When considering a career in AAM, there are many factors that may incentivize an individual to this sector. Firstly, it is an opportunity to pioneer a new era of flight, leveraging the most advanced and innovative technologies aviation has experienced in the last 70 years. Lifestyle changes and work-life balance will be enhanced with pilots returning home daily and avoiding long overnight travels, limiting distance away from home and loved ones. We may see more women, who disproportionately tend to be the primary caregivers, enter aviation due to the increased flexibility of working conditions. When building an entirely new workforce, the industry can build a culture of inclusion for underrepresented groups, redefining who can participate in aviation, free from any preconceptions of what a pilot or technician should look like.

Amidst an already existing pilot demand, through strong coordination and collaboration across industry stakeholders, there is potential for AAM operations to serve as a pathway program for pilots to build their flight hours on these aircraft and eventually transition into traditional commercial, business aviation or helicopter operations. However, this is dependent on regulatory approvals to recognize these hours, which may not be anticipated in the early years of operations.

It would be beneficial if regulators and the industry work together to ensure pilots of AAM aircraft have a clear and defined pathway into other sectors such as airline, business aviation or helicopter operations. This collaboration between stakeholders will not only accelerate the development of AAM, but also promote holistic aviation careers and aid supplying the pilot demand.

Other than AAM, high tech has amplified the way companies train talent. CAE can provide both in-person or remote access to courses and workshops through eLearning and immersive VR experiences that perfectly simulate training for pilots, cabin crew and aircraft maintenance technicians. CAE also leverages data and analytics to provide Evidence-Based and Competency-Based training that will help train talent efficiently, which will reduce turnover.

There is plenty to get excited about and to prepare for because all the new aircraft mentioned in the previous sections will also need pilots and aircraft maintenance technicians to ensure they remain in the air once they're up and running.

# What CAE is doing

## Technology to enable transformation

As we continue to elevate the pilot training standard above and beyond the threshold of equipping pilots to simply be ready to pass a regulatory test, CAE aims to standardize its training efforts across our Civil Aviation business to ensure that pilots are “mission ready”, irrespective of their experience levels, through the adoption of Competency-Based Training and Assessment (CBTA) principles.

To this end, we have partnered with IATA to develop what we believe to be both, the first Competency-Based Training Program Designer Course, as well as the first Competency-Based Training Program for our “Instructor Trainer” cadre, who will in turn train and evaluate other instructors.

To ensure our instructors are upskilled to deliver this type of training, online modules introducing CBTA principles have been progressively rolled out to our 2,000 instructors worldwide, as a prerequisite to them attending a three-day CBTA Instructor transition course. A five-day Standards Instructor course is also being rolled out with the intent that a global initial and recurrent instructors assessment is conducted using the CBTA competency framework for instructors.

Additionally, we have worked with several regulators to encourage the adoption of CBTA and to ensure that their personnel was suitably informed to oversee the implementation of CBTA as intended.

## Training

With so much experience retiring and the growing need to train a new generation of talent, combining technology and training is now more important than ever to ensure the future of aviation with an emphasis on safety and efficiency. We can achieve this goal by providing immersive training to all pilots, cabin crew members, and aircraft maintenance technicians. We can assess their logged time and performance to measure how effective the training has been.

CAE is a dynamic place where clients can use the latest technologies, put theory into practice, and work in innovative teams on stimulating problems while being coached by a mentor and experienced CAE employees. The multidisciplinary work environment allows clients to acquire new knowledge that is transferable to many fields and to learn more about future employment opportunities at CAE. Some of our internships even provide travel opportunities.

Using products like CAE Rise™ and CAE Pelesys will enable any airline, flight department or training organization to ensure that the proper training requirements are met and that they are in line with all regulations.

For instance, CAE Rise™ uses Metrics-Based Insights (MBI) and telemetry data to liberate instructors during the grading process so they can focus on a pilot’s soft skills to better assess their overall performance. Instructors can then use the data during their debrief and show clients how they performed a particular maneuver.

One of the ways to increase learning retention is by

practicing what has been learned, but leveraging live aircraft for maintenance training is often a challenge. Developing VR solutions to reduce costs and risks related to aircraft handling represents, for CAE, an effective solution to providing a safe environment for students to practice their skills. Clients also receive better training with tools like a virtual simulator, emulators or interactive schematics that offer an engaging approach to flight deck familiarization. Hybrid classrooms, which include a mix of physically present clients and others attending virtually, provide the best of both worlds and boost client engagement.

The tools and resources available at CAE are ideal for training cabin crew members to dedicate their time to what matters most: passengers.

Also known as “Safety Professionals”, cabin crew need to ensure that passengers feel safe and comfortable from the moment they step on board, until the moment they leave the aircraft. It may just seem like they offer ice or no ice, cookies or pretzels, chicken or pasta to the average flyer, however, underneath their uniforms, they don the metaphorical jacket of a firefighter, the scrubs of a medical professional, or the notebook of a therapist.

The job of a cabin crew member is a masterful juggling act that requires them to not only keep a multitude of tasks in mind as they simultaneously cater to all the possible whims of weary passengers. To successfully accomplish all of that, they need a top-notch training program that will help prepare them for it all.

At CAE, we offer a complete suite of training programs and solutions to empower clients to build and advance their career as a pilot, cabin crew and/or aircraft maintenance technician. And we help them keep track of their training throughout their entire career from a single platform with our digitally-based training management tools. From cadet to captain, CAE has everything they need for their career to take flight.

For airlines and operators, we strive to meet the training needs of the market. We are opening new training centres around the globe to increase training accessibility in a multitude of aircraft types. We are relocating full flight simulators to cater to operator needs and to better meet demand. We strive to create partnership opportunities with airlines, operators, and Original Equipment Manufacturers to enable better pathways to a successful aviation career.

Our global footprint has more than doubled in the last decade. To meet the pilot training demand, we offer 300+ full flight simulators and 170+ aircraft across nearly 60 training centres catering to the most common aircraft fleet types. CAE is also developing Mixed Reality Training devices like the CAE 700MXR that will complement existing Flight Training Devices of various types. To meet the cabin crew training demand, we have 12 global locations that offer programs meeting international regulatory requirements combined with practical training. To meet the aircraft maintenance technician training demand, we also have 12 global locations that provide a full suite of programs across dozens of aircraft fleet types.

Our pilot training solutions span across all phases of the training journey. From ground school to flight training devices to full flight simulators, we aim to offer a seamless experience. We embrace new technology



in our simulation equipment. One highlight is the advancement in visuals, which is powered by gaming engine technologies. The results are true-to-life visual images that will offer more realism during training.

## Digital products

As far as efficiency is concerned, there are several digital products within our Flight Operations Solutions suite that will help any airline or operator manage their operations on the ground and in the air, linking crew and operators to each other. Applications like CAE's RosterBuster provides an optimal working experience that ensures all cabin crew members remain connected to the operator by receiving live updates on flights and connecting with coworkers and loved ones in a centralized app.

From crew engagement to flight management, the recent milestones that we have reached using the technology at our disposal is helping airlines elevate their operations in several aspects.

Enhancing communication and transparency can translate in better efficiency for any company. For instance, a product like Operations Task Board from the Flight Operations Solutions suite offered by CAE, provides users with a complete and user-friendly view of all operations. Step changes in Graphic User Interface (GUI) mean that traditional Gantt charts are replaced by simple, modular windows and alerts to manage disruptions and find solutions in real-time. All this being powered by Artificial Intelligence and Machine Learning to optimize daily operations effortlessly.

## Diversity

To help people reach their aviation dreams, CAE has developed programs like CAE Women in Flight to encourage women to register for flight training and grow the ranks of female pilots. Beyond CAE Women in Flight, we are exploring other initiatives to inspire the next generation of professionals to choose aviation by sharing Diversity, Equity, and Inclusion (DEI) best practices with airlines and helping instructors and pilots to be more inclusive.

## Sustainability

As the first Canadian Aerospace company to become carbon neutral in 2020, we plan to convert part of

our global Piper Archer training fleet to realize a potential of up to 45% reduction of our Scope 1 (fuel) emissions over the coming years.

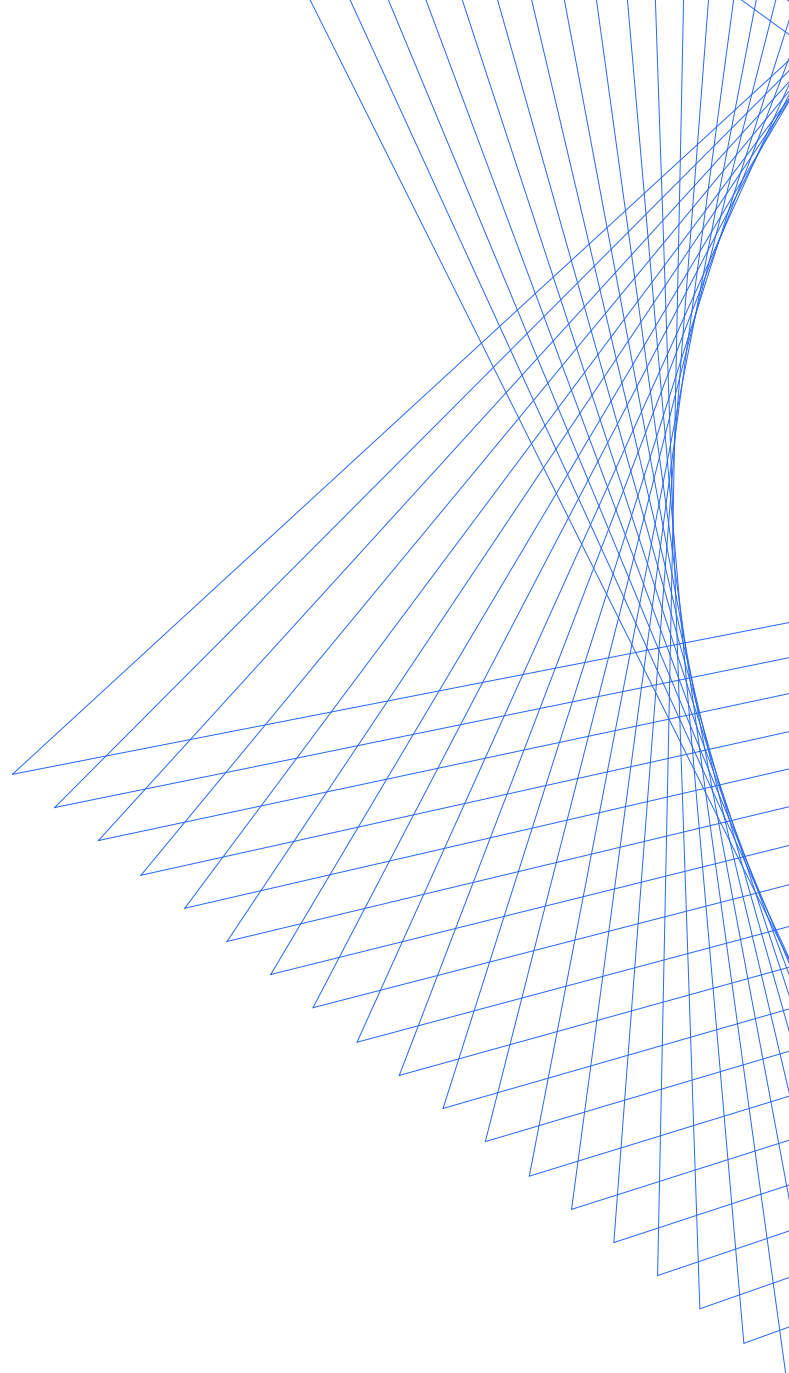
The introduction of a digital ecosystem for Civil Aviation will support the environmental effort of our customers through the optimization of their flight plans, generating significant carbon savings. We also offer refurbished simulators to our customers as an attractive option for them to reduce their carbon footprint and we leverage our innovative culture to develop eco-efficient simulators.

## Aviation careers

Scholarship programs offered by our partners is a tremendous way to entice newcomers to aviation. [CAE.com](https://www.cae.com) hosts multiple pages outlining all the steps needed to follow a career as a pilot, cabin crew member or aircraft maintenance technician. All the information is categorized and presented in steps to allow interested parties to find the exact information they're looking for.

We are committed to using all the resources possible to help recruit, train and shape the future of the aviation industry through various funding programs and sponsorship opportunities.

One of the factors driving retention is professional development within an organization. CAE offers programs like CAE Ready to Lead to aircraft maintenance technicians that encourage professional development strategies to nurture employees by gaining skills to achieve their potential. While other programs provide technical skills development, CAE Ready to Lead helps aircraft maintenance technicians to develop leadership skills to perform better and prepare for positions of greater responsibility.



There are many programs available to candidates interested in becoming a cabin crew member. Starting a career as a cabin crew member or adding it to your career will open doors for any individual. Individuals who have experience as cabin crew members tend to be sought out simply due to their people skills and for being able to perform in an environment where the stakes are high.





# Closing words: Looking ahead

- We need **1.3M** aviation professionals to mitigate retirements, attrition and growth of the market in the coming years.
- Diversity and inclusion will be the key to meeting the demand for aviation talent.
- Sustainability must remain top of mind as we continue to make progress with the electric aircraft and AAM to support sustainable aviation.
- We need to continue to leverage and develop new technologies that will not only work smarter but also create a safer world.
- AAM will be an inevitable part of our future. We cannot ignore the potential of this air travel sector. We should prepare for it.

## Start filling your pipeline

Throughout this forecast, we have showcased the immense demand for civil aviation professionals over the next ten years. The aviation industry is expected to experience aircraft fleet growth across the board and there is a consistently increasing demand to travel. There are extraordinary technological advancements, which makes it the right time to get into aviation.

To maintain this momentum, we need to take action to ensure that we account for the retirement waves and attrition to help avoid any disruption to future operations.

The talent search needs to widen by diversifying the target audience and by showing young professionals entering the workforce that aviation is open to all who desire to be part of this dynamic and evolving industry.

Visit the web version of the forecast at [cae.com/aviation-talent-forecast](https://cae.com/aviation-talent-forecast)

## Footnotes

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Disclaimer: The statements contained herein are provided for general information purposes only. All content in this report consider CAE's perspective on the market as of June 2023. Actual outcomes may vary depending on certain market conditions. CAE provides its forecast based on its models, aircraft and air travel traffic trends, and industry sources.

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