

The future of Australia's aviation sector,  
in the context of COVID-19 and  
conditions post pandemic



Australian Licenced Aircraft  
Engineers Association

## Introduction

We welcome this opportunity to make a short submission to this enquiry. Our focus will be on Aircraft Engineering. Our Association represents Aircraft Maintenance Engineers who hold a CASA licence (LAMEs). I am the Federal Secretary of our Association and have been since 2006. I was formerly an Aircraft Engineer with Australian Airlines 1986-1990 and Qantas 1990-2007. I work full time for the Association.

Writing a submission for this enquiry is difficult. The impact of COVID is not fully realised and the situation for our members alters daily. Aviation has suffered a sudden and devastating blow. It has coincided with an ageing workforce and underestimated global long-term workload projection. The timing could not have been worse.

Two years ago, the ALAEA had 2600 members. The amount of work was generally high with ample overtime. The overtime was needed due to a lack of younger LAMEs entering the profession. As COVID commenced, airlines embarked on redundancy schemes to preserve cash. Many of our members were around the age of 60. The redundancy packages were willingly accepted and often oversubscribed. The table below represents the LAME staff movements at Qantas:

Port	Redundancies Needed	Volunteers
Brisbane	22	47
Sydney	170	175
Melbourne	14	43
Adelaide	12	19
Perth	8	26
Cairns/Darwin	4	10

Qantas approved the redundancy of all volunteers. There were similar well subscribed redundancy programs at Jetstar and Virgin. In total through COVID, we have lost 600 members. Most of these skills are lost to our industry. Lost skills that are not being replaced. LAMEs are leaving the industry for two reasons. Age and lack of short-term work. Each shall be explained in turn.

## Ageing Workforce

Ageing Aircraft Engineers is a global feature. With privatisation, low cost carriers and increased competition, budgets were tightened. Maintenance is usually a preventative

measure. Short-sighted managers saw Engineering as an easy target. This is particularly so at the bottom end where apprentice numbers have plummeted. Boeing say:

Talent pipeline challenges that the industry has been facing for years remain a concern as large numbers of technicians approach retirement age.<sup>1</sup>

The same report projects a need for Technicians, or what we call Aircraft Engineers, to grow rapidly between 2020 and 2039. 253,000 new starters will be needed in the Asia Pacific region. Australia forms about 5% of that market meaning we will need 12,650 more Engineers over 20 years. In my apprenticeship year (1986), there were 250 first year apprentices between Australian Airlines and Qantas (now both Qantas). In 2020 before COVID presented, Qantas added 25 new Apprentices. This is not enough.

In Australia across all maintenance providers, government data shows that in 2017-2018 380 people completed an Aircraft Engineer Apprenticeship.<sup>2</sup> At this rate, even if the numbers of new starters remain stable, we may see 7600 new Engineers across 20 years. If they all stay in the industry this will be just over half the required number.

This picture can be contrasted with ALAEA member demographics. We now have 2000 members. The average age is 49.9. Only 270 members are under 40. In only a few short years the pool of Licenced Aircraft Maintenance Engineers will be dry.

### **Lack of Work**

Many of our members do not want to leave the industry. Some of them are left with little choice. They cannot pay their bills or mortgages whilst employers keep them on hold awaiting a day's work. Some typical arrangements adopted by major employers include:

- Virgin Sydney offering all LAMEs 2 days of work in 14 days.
- Qantas Sydney offering some LAMEs 1 month of work in 12 months.
- Jetstar offering LAMEs 1 month on and 1 month off whilst at the same time recruiting new LAMEs for the same work via a labour hire company.

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<sup>1</sup> Boeing Pilot and Technician Outlook 2020-2039 (attachment 1).

<sup>2</sup> Aircraft Maintenance Engineer (Avionics/Mechanical) Australia ANZSCO 3231-11, 12 (attachment 2).

Offered work within aviation has been sporadic. Our members must be on hold for their primary employer. They often cannot work in other employment because they cannot commit to regular hours. They are in a catch 22 position.

Our members rely on JobKeeper to fill the gaps during the periods they are not offered work. When it ends, so does the LAMEs safety net. Rather than wait for intermittent work from the airlines, they may be forced to take full time jobs in other fields. In doing so many would be lost from aviation, unlikely to return.

## **Conclusion**

A collision force between an ageing workforce, lack of new starters and those forced out of the industry awaits. The result will be a long-term shortage of persons qualified to repair and maintain aircraft. There will be no offshore solution because the same problem is a global one. The industry can ill afford to lose any more of these skills. If it does, recovery will take many years.

Our members need JobKeeper. We urge the government to extend its operation in aviation.


Steve Purvinas

Australian Licenced Aircraft Engineers Association

Federal Secretary



# Attachment 1

A wide-angle photograph of an airport runway at sunset. The sun is low on the horizon, creating a bright orange and yellow glow that reflects on the runway. The sky is filled with wispy clouds. The runway is dark asphalt with yellow and white markings. In the distance, a city skyline is visible under the sunset sky.

## PILOT AND TECHNICIAN OUTLOOK 2020–2039



## EXECUTIVE SUMMARY

## PILOT AND TECHNICIAN OUTLOOK 2020–2039

The 2020 Boeing Pilot and Technician Outlook projects that 763,000 new civil aviation pilots, 739,000 new maintenance technicians and 903,000 new cabin crew members will be needed to fly and maintain the global fleet over the next 20 years. The forecast is inclusive of the commercial aviation, business aviation and civil helicopter industries and assumes air traffic recovers to 2019 levels within the next few years.



## EXECUTIVE SUMMARY

## PILOT AND TECHNICIAN OUTLOOK 2020–2039

Meeting the projected long-term demand will require a collective effort across the global aviation industry. As tens of thousands of pilots, technicians and cabin crew members reach retirement age over the next decade, educational outreach and career pathway programs will be essential to inspiring and recruiting the next generation.

While the current industry downturn, driven by COVID-19, has resulted in a temporary oversupply of qualified personnel, the long-term need remains robust. In recent decades, aviation has experienced external forces that have affected demand, such as 9/11, SARS and the Great Financial Crisis. Recovery has generally followed several years later, as the fundamentals driving passenger and air traffic demand remain strong.

Prior to the downturn, the commercial aviation industry was poised to experience a shortfall of qualified pilots and technicians. Analysis of new licenses and certificates issued over the past few years had indicated that the number of new personnel entering the industry was lagging demand. The short-term oversupply allows operators

the opportunity to build their pipeline in anticipation of growth returning in the next few years.

Some personnel who are currently furloughed because of the market downturn will find employment in the government and business and general aviation sectors that have previously struggled with shortages amid surging commercial demand. Additionally, as commercial traffic demand returns in upcoming years, aspiring aviators will have the opportunity to fill open positions created by a combination of personnel retirements and fleet growth.

Amid challenges posed by COVID-19, the training industry has begun to adopt increasingly innovative solutions. Many providers have transitioned their offerings to online and virtual formats where possible, allowing students to continue their learning safely. Immersive technologies, adaptive learning and flexible distance learning methods are also being explored to enable optimum learning and knowledge retention. Investments in technology that are being made today will likely lead to a long-term fundamental shift in how training is conducted.

Competency-based training and assessment programs are gaining traction, which enables a shift from prescriptive, task-based training to a more holistic approach. Advances in adaptive learning capabilities, artificial intelligence and learner analytics will further personalize training to the individual student so that greater emphasis can be placed on closing knowledge gaps.

As the industry navigates the market downturn, effective training and an adequate supply of personnel remain critical to maintaining the health, safety and prosperity of the aviation ecosystem.

### Forecast Methodology

New personnel demand is calculated based on a 20-year fleet forecast for commercial aviation aircraft with more than 30 seats, business jets and civil helicopters. Based on fleet growth, aircraft utilization, attrition rates and regional differences in crewing specific to aircraft type, Boeing's Pilot and Technician Outlook estimates the number of new pilots, technicians and cabin crew members needed worldwide.

Slight variations to the forecast can occur on a year-over-year basis as a result of many factors, some of which include changes in regulations, crew productivity and aircraft mix. The forecast does not currently include assumptions for single-pilot commercial operations or autonomous airplanes. We continue to track the market for indications of regulatory movement and will update our forecast accordingly.





## PILOTS

### PILOT AND TECHNICIAN OUTLOOK 2020–2039

Air traffic demand and operator flight-hours have declined significantly over the past year, resulting in large numbers of pilot furloughs and layoffs. Given the current oversupply of qualified pilots, labor shortages may seem a distant memory. However, as the industry positions itself for recovery, adequate qualified pilot supply remains an important consideration as a large contingent of the workforce approaches mandatory retirement age. Positions left vacant because of retirements will need to be filled, which is likely to coincide with industry recovery, fleet growth and efforts by other operators to recruit new pilots for similar purposes.

Prior to the downturn, many airlines had begun utilizing cadet programs to recruit, develop and train aspiring pilots. It generally takes two or more years for an aspiring pilot to achieve a commercial pilot license. Aspiring aviators who begin their training today will be well positioned to take advantage of new job opportunities as the industry recovers.

As many aspects of training transition to digital formats, new opportunities to

use data analytics, artificial intelligence and machine learning have emerged, which provides a more personalized and adaptive learning experience. Instruction is evolving to train pilots to proficiencies and competencies rather than a prescriptive, task-based syllabus. Continuous improvement in training technologies and methodologies will ensure pilots are effectively trained to address the most common operational risks, both now and in the future.



This photo was taken before Boeing implemented COVID-19 pandemic safeguards.



## TECHNICIANS

The market downturn has spurred large-scale parking of the global fleet, creating new challenges for the industry. Despite a large number of aircraft in storage, technicians continue to play a vital role in ensuring the aircraft remain airworthy. Improper or incomplete maintenance could lead to corrosion, damaged wires and other issues that lead to more extensive and expensive repairs. The need for continued maintenance of the parked fleet has mitigated the impact on technician employment worldwide.

In the near term, operators are deferring noncritical maintenance to conserve cash, which has led to a decline in maintenance, repair and overhaul (MRO) demand. This has resulted in a temporary decrease in technician demand; however, MRO demand is expected to recover as airlines bring parked aircraft back into service and regular maintenance checks resume. Talent pipeline challenges that the industry has been facing for years remain a concern as large numbers of experienced technicians approach retirement age.

While efforts continue to be made to modernize the aviation technician training curriculum and improve training outcomes, organizations have faced various challenges. The short-term impact of local jurisdictions limiting in-person instruction has served as a catalyst, driving additional investment in modernization and nontraditional instruction platforms such as virtual training. The long-term outlook for these alternative platforms is quite positive as some of the regulatory exemptions issued because of COVID-19 evolve to become industry standards.



This photo was taken before Boeing implemented COVID-19 pandemic safeguards.



## CABIN CREWS

### PILOT AND TECHNICIAN OUTLOOK 2020–2039

While cabin crew members are most visible in their customer service role, their primary purpose is to ensure the safety of passengers. This responsibility has been further emphasized during the past year, as cabin crews have taken extra precautions to strengthen traveler confidence.

In the near term, passengers will experience a modified level of service as cabin crews focus on maintaining hygiene, safety and sanitation throughout the aircraft cabin. Training continues to focus on ensuring cabin crew members have the skills to recognize and mitigate safety risks. Advances in scenario-based training and distance learning technologies support continuous learning and prepare cabin crews for situations that may occur in the cabin.

Over the forecast period, regulatory requirements, attrition replacement and business-model differentiation will continue to drive cabin crew demand across the industry.



This photo was taken before Boeing implemented COVID-19 pandemic safeguards.

## PILOT AND TECHNICIAN OUTLOOK BY REGION

**PILOT AND TECHNICIAN  
OUTLOOK** 2020–2039

### New Personnel Demand



**763,000**  
Pilots



**739,000**  
Technicians



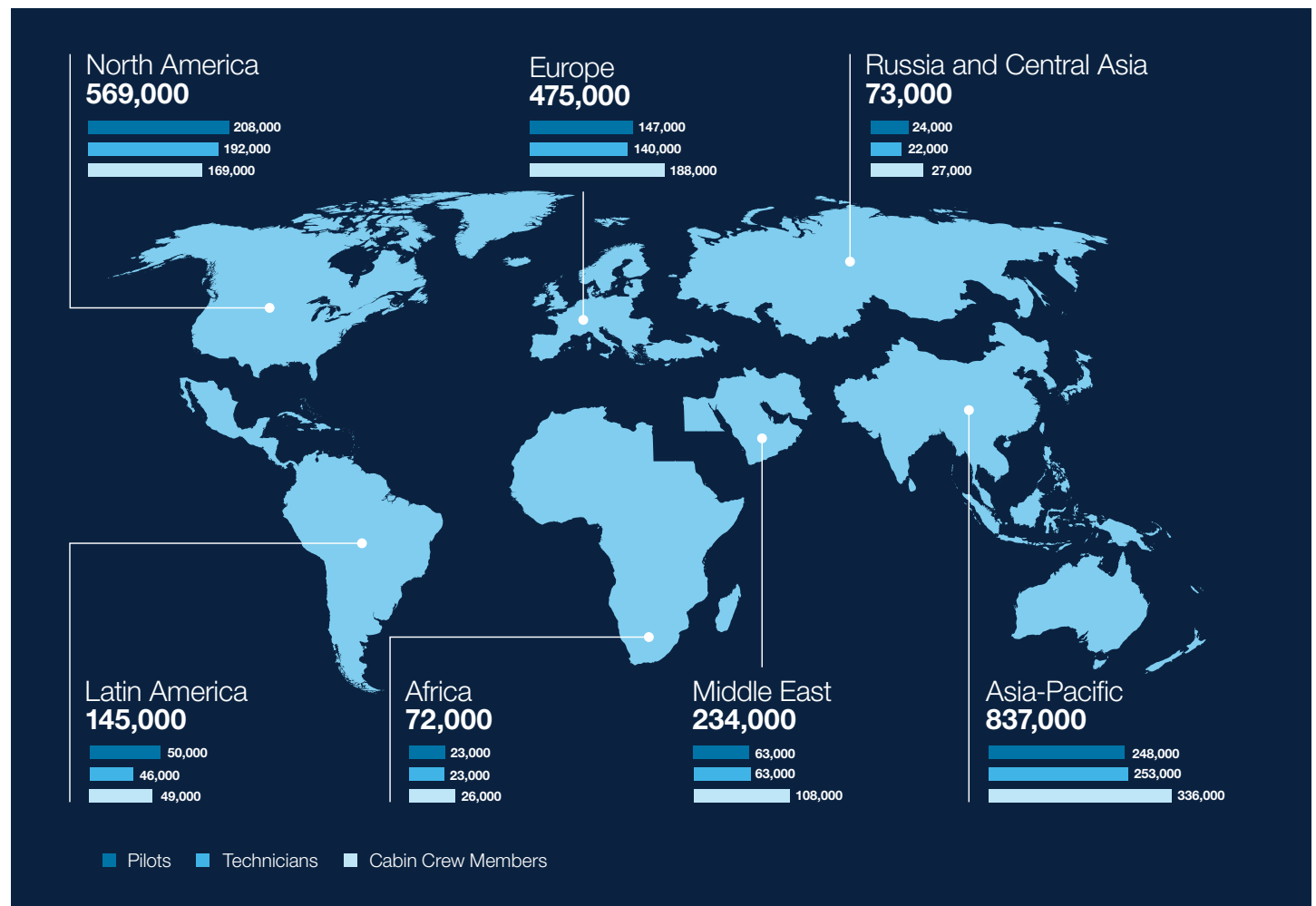
**903,000**  
Cabin Crew  
Members



Commercial Aviation  
**2,086,000**  
New Personnel



Business Aviation  
and Civil Helicopter  
**319,000**  
New Personnel





## OUTLOOK ON A PAGE

### PILOT AND TECHNICIAN OUTLOOK 2020–2039

Region	Asia-Pacific	North America	Europe	Middle East	Latin America	Russia and Central Asia	Africa	World
<b>GROWTH MEASURES</b>								
Economic growth (GDP)	3.6%	1.9%	1.2%	2.3%	2.2%	1.5%	2.6%	2.5%
<b>NEW COMMERCIAL PERSONNEL DEMAND</b>								
Pilots	226,000	129,000	115,000	58,000	36,000	22,000	19,000	605,000
Technicians	237,000	123,000	113,000	59,000	34,000	21,000	20,000	607,000
Cabin crew members	333,000	156,000	181,000	106,000	47,000	26,000	25,000	874,000
<b>Total</b>	<b>796,000</b>	<b>408,000</b>	<b>409,000</b>	<b>223,000</b>	<b>117,000</b>	<b>69,000</b>	<b>64,000</b>	<b>2,086,000</b>
<b>NEW BUSINESS AVIATION AND CIVIL HELICOPTER PERSONNEL DEMAND</b>								
Pilots	22,000	79,000	32,000	5,000	14,000	2,000	4,000	158,000
Technicians	16,000	69,000	27,000	4,000	12,000	1,000	3,000	132,000
Cabin crew members	3,000	13,000	7,000	2,000	2,000	1,000	1,000	29,000
<b>Total</b>	<b>41,000</b>	<b>161,000</b>	<b>66,000</b>	<b>11,000</b>	<b>28,000</b>	<b>4,000</b>	<b>8,000</b>	<b>319,000</b>
<b>TOTAL NEW PERSONNEL DEMAND</b>								
Pilots	248,000	208,000	147,000	63,000	50,000	24,000	23,000	763,000
Technicians	253,000	192,000	140,000	63,000	46,000	22,000	23,000	739,000
Cabin crew members	336,000	169,000	188,000	108,000	49,000	27,000	26,000	903,000
<b>Total</b>	<b>837,000</b>	<b>569,000</b>	<b>475,000</b>	<b>234,000</b>	<b>145,000</b>	<b>73,000</b>	<b>72,000</b>	<b>2,405,000</b>

2020–2039 values, rounded



**PILOT AND TECHNICIAN  
OUTLOOK** 2020–2039

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# Aircraft Maintenance Engineer (Avionics/Mechanical)

ANZSCO 3231-11, 12

Australia

October 2018

## Current labour market rating: Shortage

Employers continue to experience difficulty filling their vacancies. This is particularly evident for Licensed Aircraft Maintenance Engineers (LAMEs). Applicants not holding the correct aircraft ratings and licensing types are the main reason qualified LAMEs applicants are unsuitable.

## Key research findings

- Limited vacancies were identified during this research period and the large proportion of surveyed employers were seeking to fill vacancies in general aviation.
- Around three quarters of surveyed vacancies were based in metropolitan areas.
- Employers faced difficulties filling their LAMEs vacancies regardless of whether they were recruiting for avionics or mechanical positions.
- Those recruiting for LAMEs filled just over a quarter of their positions.
  - A small number of employers noted that they had resorted to recruiting for additional unlicensed aircraft maintenance engineers (AME) roles because they were unsuccessful in their repeated attempts to recruit for more LAMEs.
- Those recruiting for LAMEs required applicants who had completed formal qualifications as well as further training in order to hold the relevant licensing and aircraft ratings required for their fleet of aircraft.
  - There was a small number of employers who were recruiting for work on a wider variety of aircraft; these employers were more likely to consider a larger proportion of applicants as they had multiple aircraft to match to the candidate's licensing.
- Employers recruiting for AMEs generally required applicants who had completed a recognised qualification and had experience working with their fleet of aircraft.
  - Just under 20 per cent of surveyed vacancies were for AMEs. Employers recruiting for AMEs experienced fewer difficulties and filled a higher proportion of their vacancies.

## 2018 Survey Results<sup>1</sup>

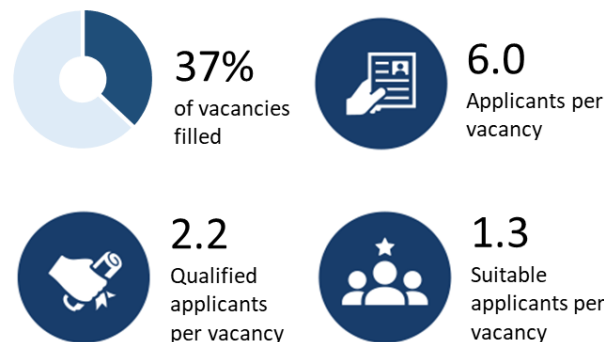
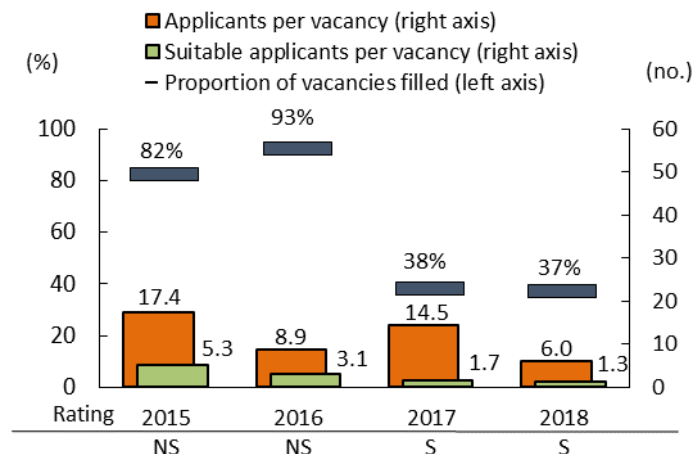


Figure 1: Survey results, Aircraft Maintenance Engineer 2015 to 2018



Key to ratings: NS = No shortage; S = Shortage

## Demand and supply trends

- While demand for aircraft maintenance engineers has been subdued in recent years, employment and internet vacancy numbers have strengthened over the last year.
- Initial entry into this profession is through the completion of an apprenticeship.
  - Apprenticeship commencement numbers have declined over the past decade and stood at around 390 in 2017-18.
  - Completions have also trended downwards since their peak in 2012-13. That said, there was a marginal improvement in completion numbers over the year to 2017-18 when around 380 apprentices completed their training course.

<sup>1</sup> The methodology underpinning this research is outlined at [Skill Shortage Research Methodology](#) | Department of Jobs and Small Business.

Additional Data Sources: ABS, Labour Force Survey, November 2018, trend; Department of Jobs and Small Business, Internet Vacancy Index, 12 month average; NCVER Apprentices and Trainees, June 2018, estimates, includes a small number of 3231-13 (Structures) apprentices.