A Pathfinder for Irish Aviation

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IRELANDIA
MAY 2025

IRELANDIA

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INTRODUCTION

Irelandia is an Irish aviation investment group. We strongly believe commercial aviation contributes positively to economic, social and income progress across the world, helping both developed and developing economies to create employment and opportunity. Our group has successfully invested in airlines within Europe, Asia, the United States and Latin America. We know the power of air travel to liberate economies, create employment and provide the benefits of travel for everyone.

We also know that Ireland has a special relationship with commercial aviation that stretches back over one hundred years. Today, Ireland is a proven leader in all critical parts of the aviation sector, being home to the world's most significant aircraft leasing companies, Europe's largest airline and a major eco-system of aviation related businesses in airports, maintenance facilities, manufacturing, air traffic control, pilot training, regulation and professional services that collectively employ over 50,000 people.

It is in this context that Irelandia commissioned an analysis to identify a set of policy initiatives which will strengthen the Irish aviation industry. The urgency of this work is underscored by the risks to jobs and incomes associated with fast moving geo-political threats.

We asked the authors to engage with a wide variety of industry leaders, in Ireland and internationally, to elicit ideas and perspectives on how Ireland could optimise its potential from a growing global aviation sector. Together with a concise study of the existing aviation industry across Ireland, these insights were used to distil five key and urgent policy recommendations. They are designed to be realistic, impactful and capable of timely implementation by political and civil service leaders in Ireland.

We believe these recommendations need to be prioritised and enacted by policymakers and stakeholders across the Irish aviation industry. If we are to seize the opportunity offered by a growing aviation sector over coming decades around the globe, Ireland needs leadership now to strengthen and broaden the foundations of this strategically important industry.

I would like to thank the industry leaders consulted (details on page 14) for their time and contributions to this work.

Dr. Dec Ryan
MAY 2025

A Pathfinder for Irish Aviation

SECTION 1

IRISH AVIATION OVERVIEW

Ireland has a deep relationship with the global commercial aviation industry;

The first non-stop flight over the North Atlantic landed in Ireland during 1919. In the 1930s Ireland helped prove commercial air travel between North America and Europe. The first international airport hub and duty-free airport was created in Ireland after World War II. An Irish company – GPA (Guinness Peat Aviation) - was core to inventing the global aircraft leasing industry in the 1970s.

As an island nation and technically defined as a "small, open economy" Ireland is more dependent than any other developed country on air travel connections for its social and economic success. Per capita flights in Ireland, at 4.2x, are higher than in any EU or developed economy worldwide.

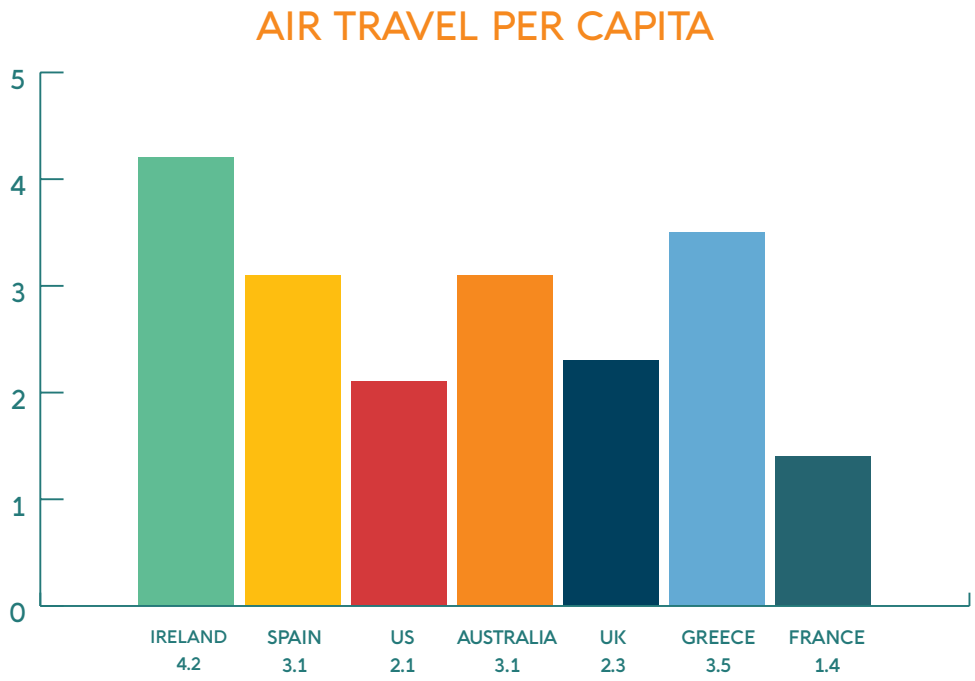
Despite its relative population size across Europe (1.2%) Ireland ranks No. 4 for air connectivity with North America.

Ireland is a global leader in the aircraft leasing sector, home to over 50 aircraft leasing companies and responsible for a combined fleet of 10,000 aircraft, valued at over $300bn and equivalent to 37% of the worldwide commercial aviation fleet. The world's largest aircraft leasing companies are managed and led from Ireland.

Europe's largest airline, and a Top 3 global passenger carrier – Ryanair - is headquartered in Ireland, as is Aer Lingus as part of IAG and a group of other passenger and freight carriers that collectively generate annual revenues in excess of €17bn and employ over 37,000 people. These Irish airlines are leaders in aggressively adopting new technology aircraft and engines that have proven abilities to cut engine emissions and noise pollution.

A significant aircraft parts manufacturing, engineering and Maintenance, Repair and Overhaul (MRO) eco-system exists on the island of Ireland, ranging from the production of aircraft seats, aircraft wings and the servicing of key Airbus and Boeing airplanes. A cluster of valuable Original Equipment Manufacturers (OEMs) and precision engineering companies are centred in Northern Ireland, producing high technology engineering services and parts for aircraft programmes including the Airbus A220.

The Irish aviation industry is a leader in addressing environmental challenges by; acquiring new technology aircraft and engines that sharply cut emissions and noise, and; by adopting and promoting new forms of aviation fuel in the quest to reduce carbon emissions.



2019 Ourworldindata

Irish lessors and airlines have committed to incorporating Sustainable Aviation Fuel (SAF) materially above the 6% mandate in Europe by 2030. Irish Airlines, Lessors and Airports are also major advocates of SESAR Single European Sky proposals to reduce emissions over Europe by 10% through more efficient flight planning and scheduling.

Ten commercial airports provide critical air travel connections across the island of Ireland and handled over 50m passengers during 2024, 70% more than a decade before. Per capita air travel in Ireland is higher than in any other country in Europe, reflecting its island status, location on the periphery of Europe and deep reliance on the global economy.

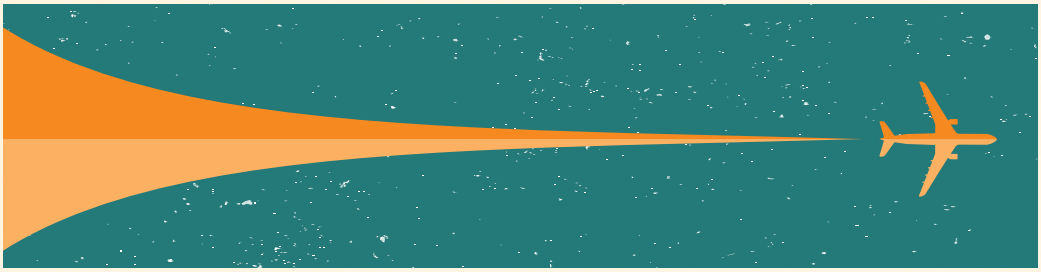
Ireland plays a strategic role in managing air traffic across an area of 450,000 sq kms (over 5x the island of Ireland's geography) in a critical part of Europe and over a significant area of the Eastern Atlantic. Since the inception of transatlantic commercial air services in the 1930s Ireland has been at the core of providing air traffic control support and communications connecting Europe and the Americas.

Ireland has a strong regulatory framework, forged over decades, which adopts and implements global standards set by ICAO, EASA, the European Union, EURCAE and other relevant bodies. This is a critical element in the competitiveness and value of the Irish aviation system's operational and training framework. It has played an important role in building international leadership for Ireland in the airline and leasing sectors.

AVIATION LEADERS CONVERSATIONS

While researching this report, the authors held confidential conversations with 33 industry Chief Executives and Senior Executives to elicit their views and perspectives on the Irish aviation eco-system and how it could be advanced for the benefit of the sector and Ireland. These included discussions with aviation leaders located in Hong Kong, Geneva, Budapest, London and Washington together with Executives across the island of Ireland. A number of common themes surfaced in these engagements which we summarise as follows;

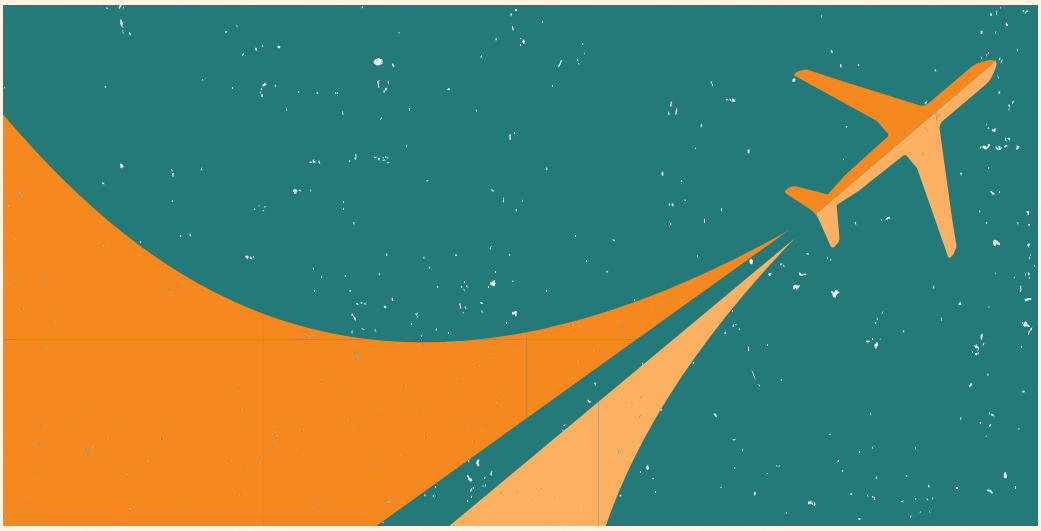
There is great pride in the unique achievements of the Irish aviation eco-system and its role at the heart of the global commercial aviation industry. This position is attributed to decades of entrepreneurship coupled with energetic support across the public service and political system in Ireland. The Departments of Finance and Foreign Affairs were cited as positive examples of how this public and private partnership is effective in aviation. The appointment of a new Government and Minister for Transport affords the opportunity to re-prioritise aviation in the Department of Transport.



A significant appetite to invest in Irish commercial aviation exists among companies that already operate in Ireland or wish to deploy capital here. Collectively, the companies we engaged with generate revenues in excess of €20bn and have over 100,000 employees so they have the financial firepower to increase the scale of the Irish aviation industry if given the appropriate policy supports

There is a widespread opinion that the Irish political, civil service and regulatory system should apply enhanced speed and urgency to fortifying the existing aviation industry and equipping it for future growth. We encountered deep concern that the Irish infrastructure planning process is not fit for purpose and projects take too long to move from inception to completion.

A significant risk exists that investment directed for Ireland will instead go to jurisdictions that are energetically competing for Irish talent and capital in the aviation sector. Many industry leaders are being offered investment packages and incentives to bring their employment and high-income activities to other countries. This competition has stepped up markedly since Covid and is a strategic risk to aviation investments in Ireland.



Government led policy actions, directives and decisions are being sought which will release a wave of investment by Irish airlines, airports, lessors, maintenance and supply chain companies that will deliver additional employment and tax receipts while supporting the strategic FDI, indigenous industry, tourism and diaspora connectivity objectives of the island of Ireland. Such investment will be weighted towards new generation aircraft, equipment and systems in aviation, a critical element in the industry's quest to cut emissions across the air travel sector.

The authors were struck by the willingness of industry leaders to give their time and focus in support of Ireland's aviation industry. This globally unique eco-system of Chief Executives and thought leaders is an asset accessible by Irish policymakers and Government that are intent on advancing aviation as a key enabler for growth in the Irish economy.

AVIATION LEADERS GROUP

Lynne Embleton	Chief Executive	Aer Lingus
Peter Barrett	Chief Executive	SMBC Aviation
Yvonne Moynihan	Corporate and ESG Officer	Wizzair
Declan Ryan	Founder	Irelandia Aviation
Willie Walsh	Director General	IATA
Keith Glatz	Senior Vice-President	Airlines For America
Domhnal Slattery	Chair	Vertical Aerospace
Denis Collison	Principal	Weston Airport
Conor McCarthy	Founder/Chair	Emerald Airlines/Dublin Aerospace
Mary Considine	Chief Executive	Shannon Airport Group
Patrick Jordan	Founder	Atlantic Aviation
Andy Cronin	Chief Executive	Avolon
Shane O'Neill	Chief Executive	Atlantic Aviation
Michael O'Leary	Chief Executive	Ryanair
Julie Garland	Founder	AvTrain
Donal Handley	Head of Sustainability	AerCap
Declan Fitzpatrick	Chief Executive	Irish Aviation Authority
Alison O' Connor	Chair	ALI Sustainability
Sean Doyle	Chief Executive	British Airways
Leslie Orr	Director	ADS group Northern Ireland
Donal Moriarty	Chief Corporate Officer	Aer Lingus
Diarmuid Hogan	Senior Manager	Collins Aerospace
David Power	Executive Chair/ Director	Aergo Asset Management/AviLease
Kenny Jacobs	Chief Executive	Dublin Airport Authority
Bobby Healy	Founder	Manna Drones
Gerard Cafferty	CEO Designate	AirNav Ireland
John Slattery	Chair	Heart Aerospace
Joe Gilmore	Chief Executive	Knock Airport
Cian Dooley	Founder	Airborne Capital
Dave Andrew	Chief Executive	ASL Group
Capt Mark Casey	Founder	AFTA
Ray Gray	Consultant	Airports
Joe O Meara	Partner	KPMG

FIVE KEY IRISH AVIATION POLICY RECOMMENDATIONS

AN ALL ISLAND STRATEGY FOR AVIATION

Adopt an "all-island" approach to commercial aviation by promoting projects which leverage the world-class manufacturing and engineering cluster in Northern Ireland with the airline, MRO and leasing strengths across the island including; (1) tasking the UK Aerospace Technology Institute, Enterprise Ireland and the Irish Strategic Investment Fund (ISIF) to jointly create an aviation fund to support projects that leverage the sector's network; (2) eliminating Air Passenger Departure tax in NI; (3) enacting promised Public Service Obligations (PSOs) to operate Dublin-Derry and Cork-Belfast routes , and (4) mandating the IDA and Enterprise Ireland to promote the all-island aviation industry.

UNLOCK DUBLIN AS A STRATEGIC ASSET

Introduce a concise legislative amendment which immediately removes the passenger cap at Dublin airport and prevents the application of artificial passenger limits in future, and an urgent return of responsibility for national strategic airport planning to Bord Plennala, with a halving of its planning timescales together with enhanced availability and use of Minister for Transport policy directives. The technical regulation of airport noise should be the responsibility of the IAA, Ireland's aviation regulator, and it should comply with ICAO's "Balanced Approach" methodology.

QUADRUPLE PILOT TRAINING

Create a €40m pilot training loan fund from the Irish Strategic Investment Fund (ISIF) to provide low cost and fully repayable debt finance to train commercial pilots at Irish flight schools, quadrupling the flow of cockpit crews for European airlines and positioning Ireland as a centre of excellence for pilot training with a focus on smaller underutilised airports including Waterford, Sligo, Derry and Weston.

STRATEGICALLY EXPAND MRO

Strategically expand the MRO industry in Ireland by (1) building at least one world class aircraft engine overhaul facility on the island with a focus at either Shannon or Derry airports; (2) apply a 75% reduction in Council rates for air side hangars employed in MRO and aircraft painting activities at Irish airports, and; (3) treble the annual flow of aviation apprentices to 500 by allowing private and state agencies, including SOLAS and Irish third level institutions, to co-operatively train qualified personnel with a focus on supporting activities in Shannon, Knock, Dublin and Derry.

STRENGTHEN AIRCRAFT LEASING FOUNDATIONS

Strengthen the Irish aircraft leasing industry by; (1) extending the existing set of international aircraft asset treaties signed by Ireland to incorporate large markets including Indonesia, Brazil, Australia and Japan where there are substantial growth opportunities but outdated or non-existent treaties; (2) Enhance accelerated depreciation allowances and consider Qualified Refundable Taxation Credits (QRTC) for new technology aircraft and engines with proven capabilities to drive a reduction in environmental emissions and noise, and (3) create and promote a Certified Digital Asset Transfer platform in Ireland which enhances the efficiency of aircraft trading by embracing commonality and digitisation that reduces legal and administrative costs for aircraft owners and users including airlines.

RECOMMENDATION 1:

ADOPT AN "ALL-ISLAND" AVIATION POLICY

Adopt an "all-island" approach to commercial aviation by promoting projects which leverage the world-class manufacturing and engineering cluster in Northern Ireland with the airline, MRO and leasing strengths across the island.

Ireland's aviation supply chain, a key part of the all-Ireland eco-system, is dominated by equipment manufacturers and engineering companies whose focal point is in the north of Ireland. With a rich and long heritage in aircraft manufacturing stretching back to the 1930s, Northern Ireland helped create a lineage of expertise and entrepreneurship connected to aircraft engineering and manufacture.

Northern Ireland is home to Europe's largest aircraft seating manufacturers, the producer of new technology wings for the new generation Airbus A220 short haul aircraft and a group of high precision engineering businesses connected to commercial aviation. Over 85 companies based in Northern Ireland supply and service the aerospace industry across commercial aviation, space and defence. The sector generated £1.5bn in revenue during 2023 and employs over 5,500.

85

COMPANIES BASED IN NORTHERN IRELAND SUPPLY AND SERVICE THE AEROSPACE INDUSTRY

Companies located in Northern Ireland include Thomson Aero and Collins Aerospace. These account for a 40% share of global passenger aircraft seat capacity. Spirit produces advanced wings with environmental advantage for the Airbus A220, an aircraft with a backlog of over 500 orders. A range of specialist aviation engineering businesses supply valuable components and software for the industry globally.

This OEM and Engineering aviation cluster will benefit from an overall expansion in the commercial aviation market as demand for its products and service grows. It has skills applicable to current commercial aircraft, drones, Unmanned Aerial Vehicles (UAVs), satellites and Electrical Vertical Take Off and Landing (EVTOL) vehicles. These technologies offer growth opportunities across the island.

Those companies operating in Northern Ireland have unique market access within both the UK and EU. Coupled with its proximity to a very dynamic aviation industry in the Republic an opportunity exists to encourage co-operation and mutual promotion with the Original Equipment Manufacturing (OEM) focus in Northern Ireland complimenting the finance, airline and MRO emphasis in the Republic.

ACTIONS

Incorporating the aviation sector in Northern Ireland within an all-island framework would provide complimentary benefits across the sector. In this context relevant actions should include;

- Commencing PSO commitments promised in the "New Decade – New Approach" Stormont report to connect Dublin with Derry and Cork with Belfast.
- Tapping the Aerospace Technology Institute, Enterprise Ireland and ISIF to develop world class aviation projects on the island, including a potential strategic engine overhaul facility.
- Abolish APD tax for passengers departing Northern Ireland to provide a uniform cost benefit for tourism and business on an all-island basis.
- Include the Northern Ireland aerospace sector in promotional activities by both the IDA and Enterprise Ireland.

RECOMMENDATION 2:

RESTRUCTURE AIRPORT PLANNING AND NOISE REGULATIONS

Introduce a concise legislative amendment which immediately removes the passenger cap at Dublin airport and prevents the application of artificial passenger limits in future, and an urgent return of responsibility for national strategic airport planning to Bord Plennala, with a halving of its planning timescales together with enhanced availability and use of Minister for Transport policy directives. The technical regulation of airport noise should be the responsibility of the IAA, Ireland's aviation regulator and it should comply with ICAO's "Balanced Approach" methodology.

The cap on passenger volumes at Dublin airport, despite completing a new runway in 2022, is a national embarrassment and a strong indicator that Ireland is closed for new business and adverse towards the aviation sector.

65%

OF AIR PASSENGERS ON THE ISLAND OF IRELAND PASS THROUGH DUBLIN AIRPORT

We believe neither of these factors are true but the signalling effect is extremely damaging. The 2025 programme for Government commits to resolving this issue but actions to date are slow despite the agreement of the Coalition parties. Dublin airport is the largest airport on the island of Ireland and accounted for 65% of air passengers during 2024. In line with the expansion of the Irish economy it has increased its passenger volumes by 60% since 2014. The benefit of airports for economies worldwide is underlined by the construction of 42 new airports worldwide in the past six years, the building of 43 new runways and the fast tracking of airport expansion by the UK Government in 2025 including Luton, Gatwick and Heathrow.

Dublin has a particular opportunity to grow because North American passengers have adjusted their demands post Brexit and now favour an airport gateway within the EU for travel across the European Union, with Dublin being the only English speaking hub within the EU. Dublin has geographic advantages for travel between North America and Europe, the pre-customs clearance at Dublin supports US destined passengers, and Dublin has built one of the newest runways in Europe that can accommodate long and short haul aircraft. Various capital expenditure programmes have been undertaken over the last decade to facilitate larger passenger volumes in terminals and airside at

Dublin airport. Notable investments include Terminal 2 completed in 2010 and a new runway completed in 2022. These allowed the airport to expand to a volume of about 32m without any further material investment. However, a limit of passenger volumes at the airport exists at a time when demand for services is above the volumes currently being managed.

ACTIONS

To resolve this matter with urgency and in order to support economic expansion in Ireland via tourism, FDI and indigenous company growth, we are recommending:

- A concise legislative amendment that removes the cap on passenger volume at Dublin airport.
- An Bord Plenala assumes responsibility for the planning of Dublin Airport subject to halving the timescales for planning approval and enhancing the Minister for Transport's powers to issue mandatory policy directions to the Bord concerning strategic priorities of the State.
- Moving the technical regulation of airport noise to the IAA, Ireland's aviation regulator. This falls in line with key European countries and complying with ICAO's "Balanced Approach" methodology.
- An immediate and urgent review of the nighttime operational restrictions should be conducted given their impact on critical North American and European connectivity.
- Policymakers should fast-track the announced €200m stand and facilities expansion at Cork airpot, facilitate growth using 24/7 operations and pre-clearance advantages in Shannon and encourage further development at regional airports by doubling the existing Tourism Ireland air services marketing fund to €10m.

RECOMMENDATION 3:

QUADRUPLE THE OUTPUT OF QUALIFIED COMMERCIAL PILOTS

Create a €40m pilot training loan fund from the Irish Strategic Investment Fund (ISIF) to provide low cost debt finance to train commercial pilots at Irish flight schools, quadrupling the annual flow of cockpit crews for European airlines and positioning Ireland as a centre of excellence for pilot training with a focus on smaller underutilised airports including Waterford, Sligo, Derry and Weston.

The international airline industry has a large requirement for trained commercial pilots to replace retiring crew and support growth in the aircraft fleet. Across Europe there are over 70,000 qualified commercial pilots at present and estimates suggest a need for over 5,000 newly qualified pilots every year for the next ten years. This creates opportunity for flight training schools that have the capacity to produce pilots.

5,000

PILOTS REQUIRED ANNUALLY IN EUROPE IN THE NEXT DECADE

The cost to be trained as a commercial pilot is high, at approximately €110,000 over 2 years - excluding accommodation. Accessing debt finance for that is extremely challenging and when debt is available it is only at exorbitant interest rates of up to 15%. This limits the supply of cadets as individuals, especially those in lower income cohorts, as they cannot access the required finance.

Our proposal is for ISIF to establish a Pilot Training Debt Fund (PTDF) that is managed via the banking system and offers interest rates backed by a Government guarantee. A similar programme exists in support of Irish SMEs via the Strategic Corporation of Ireland offering loans with interest rates of 4-5%.

To qualify for these loans candidates would have to be approved by registered Flight Schools as suitable candidates. If such a scheme was available pilot training in Ireland could expand significantly, from an output of about 100 at present to approximately 400. This increased activity can be focussed on airports that are currently underutilised including Waterford, Sligo, Derry and Weston. These locations offer ideal and challenging weather conditions to train line ready commercial pilots for airlines around the world.

As part of this initiative, we are recommending communities neighbouring to these airports would consider utilising the €14k per annum tax break for renting a bedroom to cadets of these flight schools, thereby creating a circular solution for accommodating the increased flow of pilots anticipated. The planning system should support the accelerated construction of student accommodation proximate to these airports in support of this initiative.

By combining affordable and accessible debt with willing flight schools and supportive communities we believe a solution exists to sharply grow the number of highly paid commercial pilots trained in Ireland, provide much needed business at underutilised airports and stimulate economic activity in proximate geographies. Moreover, it delivers a flow of cockpit crews that are in multi-year demand from Irish based airlines including Aer Lingus, ASL, Emerald and Ryanair.

ACTIONS

To quadruple the output of commercial pilots in Ireland.

- Establish an ISIF backed Pilot Training Debt Fund of €40 million.
- Focus training activities at under utalised airports, including Waterford, Weston and Sligo.
- Work with communities using €14k per anum tax break to accomodate students.
- Co-ordinate pilot output with demand from airlines in Ireland and abroad.

RECOMMENDATION 4:

STRATEGICALLY EXPAND MRO CAPABILITY ON THE ISLAND

Strategically expand the MRO industry in Ireland by building at least one world class aircraft engine overhaul facility on the island backed by Enterprise Ireland, Airlines, the UK Government and ISIF with a focus at either Shannon or Derry airports. Apply a 75% reduction in Council rates for air side hangars employed in MRO and aircraft painting activities at Irish airports, and; treble the annual flow of aviation apprentices to 500 by allowing private and state agencies, including SOLAS and Irish third level institutions to co-operatively train qualified personnel with a focus on supporting activities in Shannon, Knock and Derry.

MRO is a crucial part of the global commercial aviation industry and Ireland has established critical mass in that market through investments by a number of companies including Atlantic Aviation, Eirtech, IAC and Dublin Aerospace. MROs support airlines, leasing companies and other aircraft owners by providing airframe maintenance (40%), engine overhaul (30%), component maintenance (20%) and line maintenance (10%). Parting out, which involves breaking up aged commercial aircraft, is also part of the MRO market. Ireland does not currently have have a major engine repair facility while demand is high and growing.

11,000
COMMERICAL AIRCRAFT

23,000
ENGINES MANAGED BY IRISH AIRLINES AND LESSORS

In 2023 the European MRO market was valued at over $25bn and growing at 3-5% CAGR. This is set to continue as the global aircraft fleet increases in size and the volume of engines powering those planes expands. These high value assets require maintenance and repair skills from engineers and servicers with skilled knowledge and operational experience. It is a labour-intensive industry optimally suited to locations within regional economies.

Expanding the MRO footprint in Ireland requires an accelerated training of aerospace engineers, a construction of appropriate facilities and incentives to invest in Ireland including on an all-island basis.

Airlines and aircraft leasing companies in Ireland operate a combined fleet of almost 11,000 commercial aircraft and over 23,000 aircraft engines. This is a ready-made feedstock for competitively priced MRO services based in

Ireland. In addition, new technology and environmentally efficient engines including the CFM leap and P+W GTF are requiring intense MRO services as they scale up across the global fleet. This creates an opportunity for OEMs and aircraft owners to be serviced by facilities located in Ireland delivered thorough collaboration between the public and private sectors.

ACTIONS

To stimulate investment and job creation in the Irish MRO industry;

- Establish a world class engine overhaul facility in Ireland, in Shannon or Derry, supported by OEMS, airlines, ISIF, the Aerospace Technology Institute and Enterprise Ireland.
- Sharply reduce rates on hangars located within airfields and dedicated to MRO activities, akin to the relief offered to the agricultural and fishery sectors. It is daft to levy rates applied to shopping centres on hangars used to house aircraft.
- Treble the output of suitably qualified aviation apprentices in Ireland.

RECOMMENDATION 5:

ENHANCE IRISH AIRCRAFT LEASING COMPETITIVENESS

Strengthen the Irish aircraft leasing industry by extending the existing set of international aircraft asset treaties signed by Ireland to include large markets including Indonesia, Brazil, Australia and Japan where there are substantial growth opportunities but outdated or non-existent treaties; Enhance accelerated depreciation allowances for new technology aircraft and engines with proven capabilities to drive a reduction in environmental emissions and noise, and create and promote a Certified Digital Asset Transfer platform in Ireland which enhances the efficiency of aircraft trading by embracing commonality and digitisation that reduces legal and administrative costs for aircraft owners and users including airlines.

IRELAND

IS THE WORLD LEADER IN AIRCRFT LEASING

Through a combination of ambitious private companies and a supportive public sector Ireland has established itself as a global leader in aircraft leasing. This is a powerful position that adds value to the economy through the scale of its activities. However, action is required to further strengthen the foundations of the leasing sector to combat highly competitive offerings from other countries who covet the Irish leasing sector.

The challenges posed by housing, infrastructure and personal taxes were raised in conversations as competitive factors for the leasing sector, but this recommendation focusses on specific actions that can enhance Ireland as a base for aircraft and aviation asset ownership and leasing;

- A well developed history of negotiating detailed aircraft asset tax treaties with countries around the world has helped build a strong framework for aircraft lessors to operate within. However, the pace of such treaties has slowed and it is important to progress discussions with many countries, and especially those that have large populations with strong growth potential in aviation. Brazil, Australia and Japan were identified for attention as was Indonesia where no treaty exists. By concluding treaties with these countries Ireland would underpin the unique set of relationships it has built worldwide for aircraft ownership purposes.

- In order to accelerate investment in aviation assets that have proven abilities to cut environmental emissions and noise we recommend enhancing accelerated depreciation allowances to 120% of costs and and considering Qualified Refundable Tax Credits (QRTCs) for aircraft and engines that have proven environmental benefits. This will aid the industry in shaping asset portfolios that match the environmental ambitions of the Government.

- Outdated paperwork and legal complexities plague the operation of aircraft trading processes which are becoming a key element of success in the aircraft financing environment. We are recommending focus is placed on making Ireland a leader in developing Certified Digital Asset Transfers that make the change of ownership for aircraft more efficient and less costly for aircraft owners and airlines alike. By establishing leadership in Ireland, the archaic and expensive legal and administrative work involved in changing ownership of an aircraft or engine can be solved and bring trading in this asset class closer to what pertains in other important high value asset markets such as property, bonds and equities.

ACTIONS

To strenghten the foundations of Irish aircraft leasing;

- Extend the existing set of international aircraft asset treaties signed by Ireland to include large markets including Indonesia, Brazil, Australia and Japan where there are substantial growth opportunities but outdated or non-existent treaties.

- Enhance accelerated depreciation allowances and consider Qualified Refundable Tax Credits (QRTCs) for new technology aircraft and engines with proven capabilities to drive a reduction in environmental emissions and noise.

- Promote a Certified Digital Asset Transfer platform in Ireland which enhances the efficiency of aircraft trading by embracing commonality and digitisation that reduces legal and administrative costs for aircraft owners and users including airlines.


Aer Lingus
St Finbarr

A Pathfinder for Irish Aviation

SECTION 2

WHY COMMERCIAL AVIATION MATTERS

The global air transport industry is comparable in size to the car manufacturing sector. If air transport were a country, it would rank 20th in the world by GDP.

The world's airlines carried 4.7 billion passengers in 2024, generating revenues of $678bn, and carried record volumes of freight, with revenues of $149bn. Providing these services creates 11.6 million direct jobs and contributes $1.1 trillion to global GDP. Aviation accounts for about 3.9% of the global economy. Between 2013 and 2024 air passenger volumes globally have increased by 51%, underlining the growth characteristics of this dynamic and fast-moving industry.

According to IATA the long-term economic multiplier effect of aviation is 2.1x, implying every 1% advance in GDP drives air travel demand by 2.1%. That positive correlation underlines how aviation responds to economic expansion and has a greater impact on jobs and income than momentum in the broader economy. Having a strong aviation sector helps an economy benefit from its over indexed impact on employment and opportunity.

As an economy expands it creates jobs and stimulates activity that feeds directly in to demand for air travel. Tourism and industry, for example, lean in on air travel as an enabler for their business.

Beyond its direct contributions, aviation has positive impacts on various industries. It enhances supply chain efficiencies, enables international investments, and fosters innovation through effective networking and collaboration. According to ICAO good air transport links are considered essential factors influencing where companies choose to invest, encouraging higher productivity, investment and innovation.

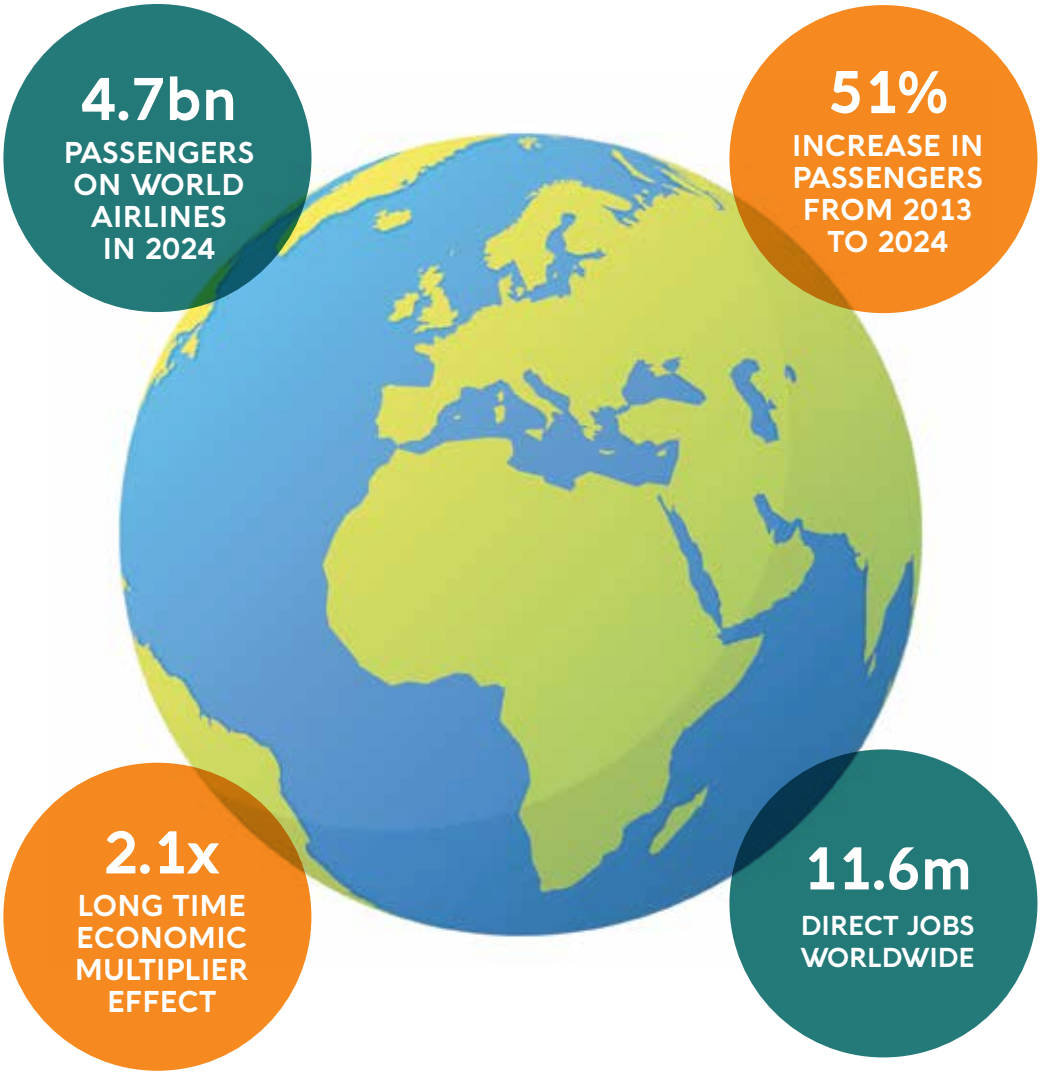
With global GDP growth expected to average 1.8% (US Congressional Budget Office) over the next decade aviation will expand by a CAGR of 3.8% over the same period. This suggests its contribution to the global economy should rise to about $1.6tln from $1.1tln currently. Many Governments will covet a share of that growth and its benefits for their economies and workforce. Ireland's ability to compete for that business will rely on how it positions the aviation sector to have the capacity and capability to exploit the potential from this fast-growing industry.

Growth in aviation will benefit all parts of the sector including airports, airlines, equipment manufacturers, maintenance and repair providers, air

traffic controllers and aircraft lessors. The service sectors that support these elements, including professional services, crew training schools and supply chain companies will also benefit as the scale of air travel expands. Devising a strategy across all these inputs to air travel is key to success for Ireland in aviation.

Aviation is especially important for regional economies as it connects remote and regional areas to major economic hubs, attracts multinational investment, and benefits local businesses from faster and more efficient transport of goods and services.

Commercial aviation provides critical benefits for island economies given their physical separation from major markets. Studies in Ireland, Hawaii, Iceland and Singapore have shown how aviation helped boost their technology, tourism, logistics and financial sectors by providing resilience and economic connectivity.



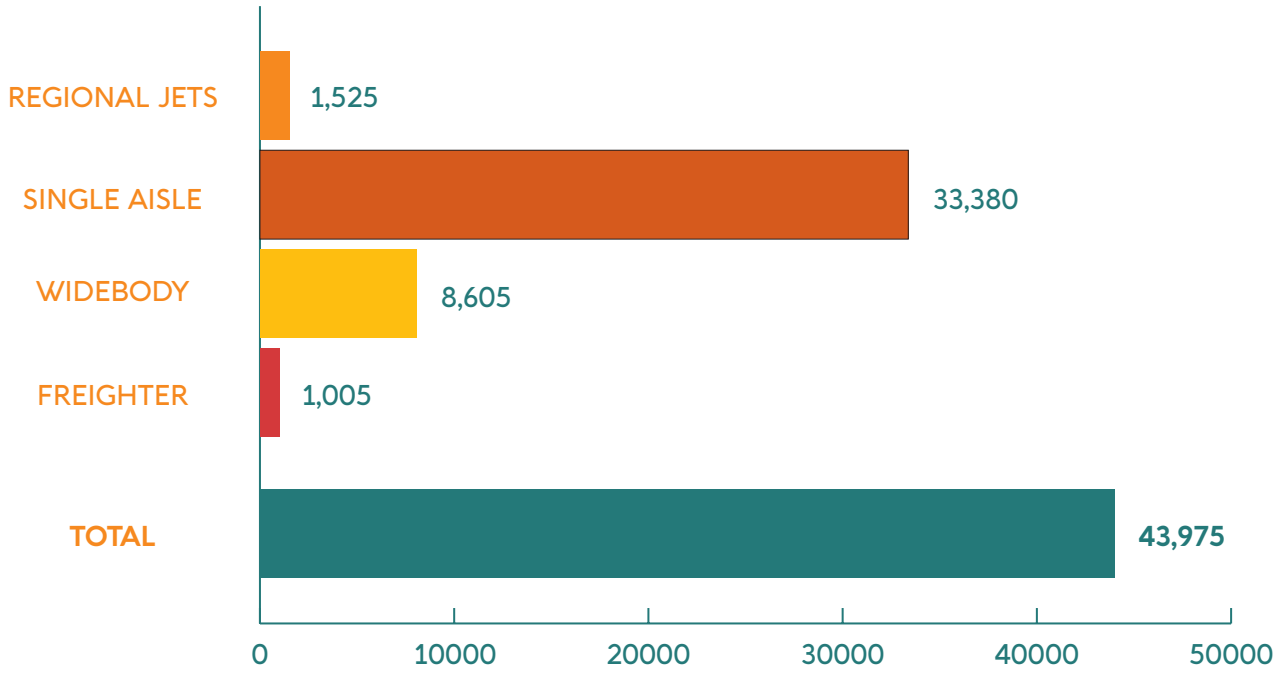
AIR TRAVEL AND FLEET FORECASTS

We outline base case forecasts below for the expected growth in air travel demand and the global commercial aircraft fleet over the twenty-year time period 2024-43. This provides a framework for growth in the industry.

Air travel demand is a function of economic development and grows at various rates depending on the stage of development evident in individual countries. Developing nations, for example, grow aviation demand at a faster rate than developed markets due to the way air travel, especially low cost services, enables mobility and job creation among lower income cohorts.

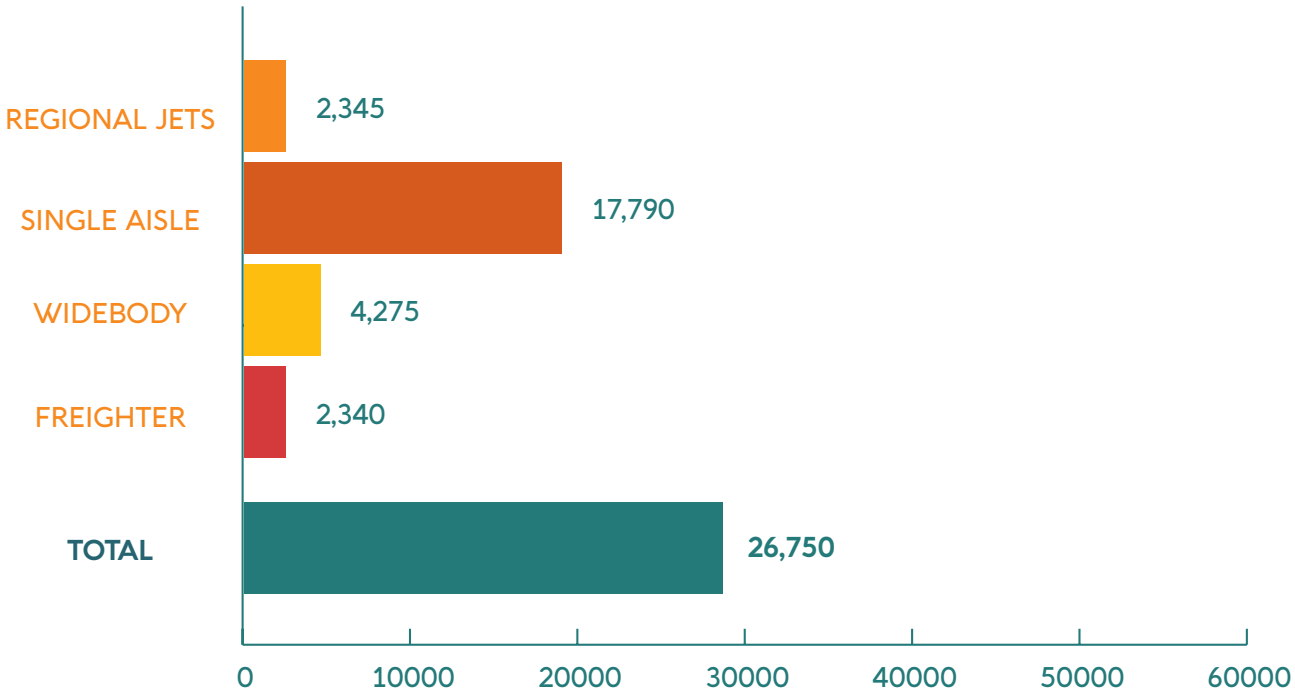
These forecasts are drawn from detailed modelling calculated by Boeing. The 2043 estimate is broadly similar to that of Airbus,expectations by IATA and the aircraft leasing sector. This analysis predicts the global volume of aircraft is set to rise from circa 27,000 presently to on average over 49,000 by 2043, an 81% increase. That growth is core to the opportunities for Ireland laid out in this report.

DELIVERIES (2024-2043)



Source: Boeing

2023 FLEET



Source: Boeing

2043 FLEET

Source: Boeing

SUSTAINABLE AVIATION AND NEW TECHNOLOGY

Commercial aviation creates unique economic benefits and employment in societies where it is harnessed but it also has a responsibility to reduce its impact on the environment. The most effective way to achieve this is to aggressively invest in new technology aircraft and engines that have proven abilities to reduce emissions, and fully implement the EU's Single European Sky (SESAR) air traffic plans.

Aviation is a relatively low 2-3% contributor to carbon emissions compared to other transport modes (eg road transport accounts for 18% of greenhouse emissions) and other industries including Energy (40%), Manufacturing (20%) and Agriculture (12%).

Irish airlines, airports and leasing companies address their environmental responsibilities by adopting new technology aircraft and engines at a faster rate than their global peers, incorporating Sustainable Aviation Fuel (SAF) commitments at rates above the levels mandated in Europe, and advocating the full implementation of the Single European Sky initiative from the European Commissions to streamline air traffic over Europe and cut emissions by 10%.

The average age of aircraft fleets among Irish airlines is circa 10 years, 33% younger than the global fleet and an indicator of heavy investment in environmentally better equipment. The average age of the fleet owned and managed by Irish lessors is also younger than the global average.

Both Aer Lingus (10%) and Ryanair (12.5%), who operate the largest fleets at Irish airports, have committed to SAF incorporation levels by 2030 that are above the levels mandated by the European Commission (6%).

New aircraft, wings and engines deliver up to 20-30% lower fuel emissions, reduce non CO2 effects (contrails, Nox), up to 75% lower noise pollution and provide SAF readiness.

Moreover, all new technologies are being explored in commercial aviation including alternative propulsion, Unmanned Aerial Vehicles (UAV) for freight and passengers and new forms of navigation technology which make safe and more efficient air traffic management possible. These offer potential for the aviation industry to improve its cost efficiency while significantly reducing its environmental impact.

Ireland has OEMs and third level institutions committed to new technology

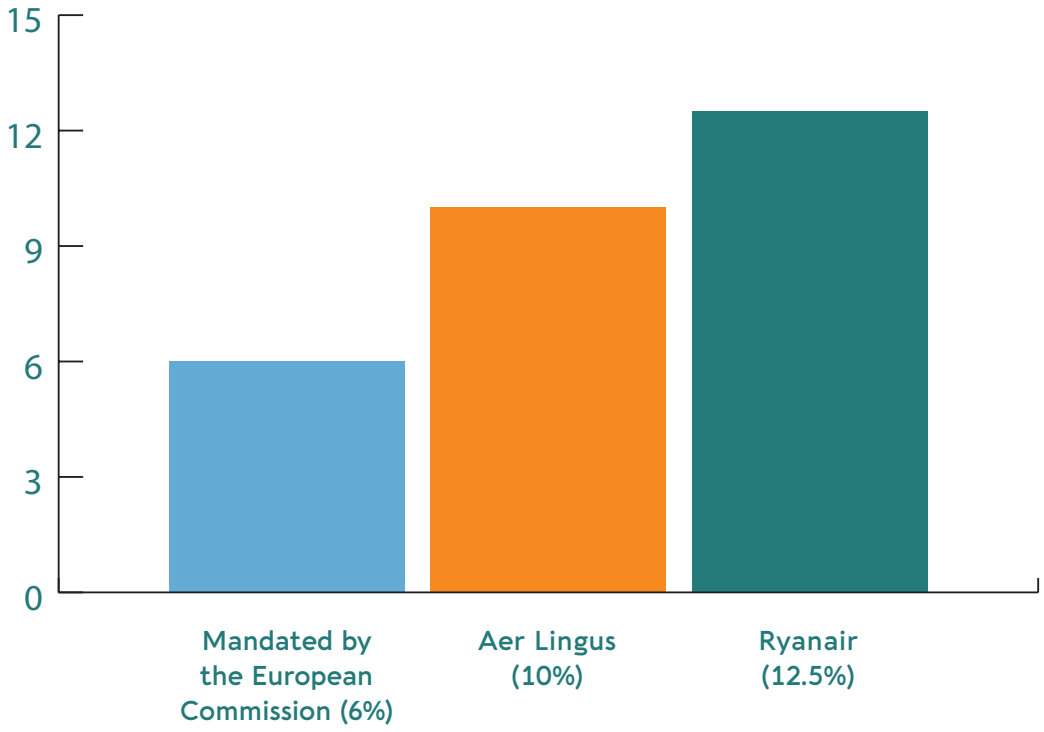
research in aviation that can be enhanced and accelerated with Government support. These include (1) the Bernal and Lero centres in University of Limerick (2) The Smart and Sustainable Aviation Group in Trinity College Dublin; (3) the UCD Energy Institute, and (4) Ulster University's collaborations via NAMRI, Spirit and CATAPULT.

Ireland can take a lead role in advocating the benefits of air travel globally while it can also be a strong voice in support of technologies and systems that significantly reduce the environmental impact of air travel. To this end we recommend weaving policies and guidelines into our national aviation strategy that rewards the deployment of new technologies in the air and ground that evidently cut pollution caused by air travel.

Ireland should be a beacon for entrepreneurs and investors pursuing solutions that fundamentally lower air travel environmental impacts.

The prize for an aviation industry that can effectively decarbonise is a major reduction in environmental taxes and charges; a positive effect on the environment and; a license to deploy air travel as a mass transport solution across the globe.

SAF INCORPORATION LEVELS BY 2030



IRISH AIRPORTS

There are ten airports in Ireland supporting scheduled commercial flight operations. These airports service over 200 destinations, primarily across Europe, North America and the Middle East.

Dublin is the largest airport servicing Ireland, close to the capital and handling 65% of all passengers to and from the island of Ireland. The group of airports based on the island managed almost 50m passengers in 2024, a 70% increase relative to a decade earlier in 2014.

Irish airports are owned by a semi-state company or by entities linked to local authorities. The Dublin Airport Authority (DAA) owns Dublin and Cork. Belfast International is owned by VINCI Group while Belfast City is owned by 3I.

Airports provide the gateways for critical elements of the Irish economy that are reliant on air travel connections for passenger and freight traffic. These include the tourism industry, accounting for 4% of GDP, Foreign Direct Investment (FDI) which supports 20% of private sector jobs, and a wide range of indigenous Irish businesses that rely on access to international markets. Moreover, Ireland has a large global diaspora (up to an estimated 80m people) created by decades of structural emigration alongside a mobile workforce that travel across borders. This supports a large volume of visiting friends and relatives (VFR) traffic that use airlines to enter and leave the island.

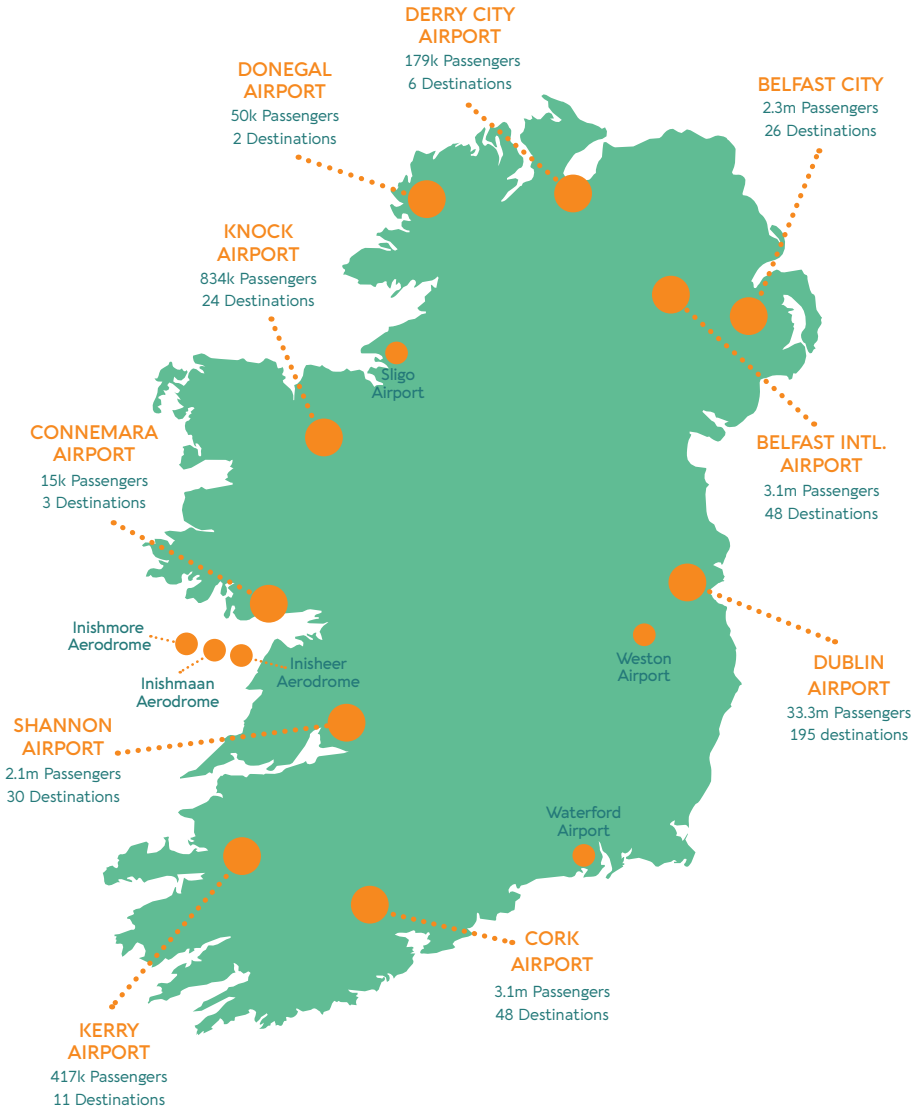
Airports have profound positive effects on their local economies. Alongside direct employment they require a wide number of services that help manage the flow of passengers and operation of retail outlets. Research shows that for every one million passengers, airports can create 2,000 to 4,000 jobs in various roles, from pilots and air traffic controllers to ground crews, security personnel, office staff, maintenance teams and retail workers.

Passenger volumes across Ireland have grown inexorably over recent decades, supporting economic growth and employment by enabling the expansion of the services and manufacturing sectors supplying a global market. Rates of air travel are positively correlated with economic growth so a forecast increase of 2.5% in Irish GDP CAGR over the next decade implies demand for air travel should expand by a CAGR of 5.3%. That equates to an additional 31m passengers utilising Irish airports, assuming there is physical runway and terminal capacity to accommodate them. The construction of a second runway at Dublin airport in 2022 and improvements at various airports on the island suggest capacity exists to manage forecast growth.

Growth at most Irish airports is subject to runway and terminal capacity. Nine airports are managing plans to grow passenger volumes and a notable feature of airports such as Cork, Shannon, Kerry and Knock is the cross community co-operation to drive expansion of air services for the benefit of their communities.

Dublin has a regulatory cap on its passenger volume despite having a new runway and headroom in its terminals. This cap is limiting the potential for growth at Dublin airport despite rising demand from airlines and evident expansion in the Irish economy.

Irish airports, especially Dublin and Shannon, have unique opportunities to exploit growth in demand from North America by passengers seeking gateways that allow free travel within the EU, especially post Brexit. Pre-clearance facilities at Dublin and Shannon, coupled with English speaking and geographic advantage makes Ireland an ideal hub through which US-Europe flows can be grown.



AIRCRAFT LEASING IN IRELAND

Ireland is the global leader in aircraft leasing, a high value sub-set of the international financial services sector. It is estimated over 50% of all commercial aircraft worldwide are leased.

Over 50 leasing companies operate in Ireland, managing a combined fleet of 10,000 airplanes (over 7,000 owned and circa 3,000 managed) with orders for a further 2,600. Eleven of these leasing companies are headquartered in Ireland. The sector leases aircraft to airlines across the world and these companies are positioning to benefit from the forecast 80% increase in commercial aircraft numbers over the next 20 years.

Each year over $120bn of new aircraft are delivered globally and leasing accounts for over 50% of that business. Ireland has developed a unique eco-system of legal, finance and tax advisory firms that compliment a network of tax treaties and international relationships that make Ireland a highly efficient location from which to manage aircraft assets.

Lessors own and manage portfolios of commercial aircraft that are leased with airlines across the world. A typical lease extends for a period of 7-10 years. Management of leasing portfolios involves the purchase of new aircraft from OEMs and used aircraft, re-marketing of aircraft at end of lease and trading of portfolio assets in line with strategies around average age. This activity stimulates a high value and growing volume of trading in aircraft assets in which the Irish leasing sector is highly skilled. Up to 2,000 commercial aircraft are traded annually. As the number of aircraft asset owners rises, and the global fleet of commercial aircraft increases, the scope for more profitable trading of aircraft exists.

A valued set of tax and ownerships treaties relating to aviation assets exists between Ireland and 87 countries around the world. Combined with a law system this provides a highly dependable framework for investors and lessors of aircraft assets. It also satisfies requirements among global banks, legal firms and insurers when supplying finance and ownership surety to the aircraft finance system.

The aircraft leasing sector generates high value employment for teams that rely extensively on specialised professional services in the legal, auditing and taxation spheres in particular. This unique system exists among a group of highly competitive lessors that pursue business opportunities globally, deploying billions of dollars in debt and equity capital to manage and own portfolios of commercial aircraft that are leased to airlines around the world.

The “infrastructure” in place in Ireland, primarily in Dublin and Shannon, to manage aircraft assets provides a beachhead from which to develop leadership in the financing and structuring of other aviation related assets. Satellites, UAV’s for freight or passengers and EVTOL equipment are all potential candidates as assets to be regulated, owned and managed by the Irish aviation leasing sector.

The elements that help make Ireland a world leader in aircraft leasing include a supportive regulator and registry of aviation assets, legal structures that are recognised and respected by global banks, a taxation system conducive to investment and a long term stable political and economic environment suitable to long life aviation assets.

AIRCRAFT LEASING IN IRELAND

AERCAP

AIRCRAFT FLEET
1676

AERGO CAPITAL

AIRCRAFT FLEET
151

AVILEASE

AIRCRAFT FLEET
181

CDB AVIATION

AIRCRAFT FLEET
294

CASTLELAKE

AIRCRAFT FLEET
254

ORIX

AIRCRAFT FLEET
201

SMBC AVIATION CAPITAL

AIRCRAFT FLEET
761

ABL AVIATION

AIRCRAFT FLEET
58

AVOLON

AIRCRAFT FLEET
583

GRIFFIN GLOBAL ASSET MANAGEMENT

AIRCRAFT FLEET
66

MACQUARIE

AIRCRAFT FLEET
241

AIRLINES IN IRELAND

Relative to its population size of 7m, Ireland is home to a number of internationally significant airlines that collectively operate a fleet of over 880 commercial aircraft, generate revenues over €17bn, employ over 37,000 and carried over 215m passengers during 2024. These include Europe's largest airline Ryanair, Aer Lingus as part of the IAG Group, freight and passenger carrier ASL and regional airlines Emerald and Aer Arann. CityJet and SAS Connect are also led from Ireland. In addition, major international airlines operate at Irish airports. Alongside Irish airlines 25 international carriers provide services to and from Ireland.

These carriers provide a key strategic connection for Ireland with destinations primarily across Europe, the Middle East and North America. Their passenger volumes equate to a per capita flying rate of 4.2, the highest of any country in Europe. Freight volumes carried by airlines based in Ireland or serving its airports exceeded 180,000 tonnes during 2024.

The airlines led from Ireland offer a variety of services. These include passenger services on regional, short-haul and long-haul routes together with belly freight long-haul capacity and dedicated freighters. The fleet operated by these airlines include regional turbo-prop aircraft together with short-haul and long-haul jets.

A fleet modernisation programme has helped ensure airlines led from Ireland operate one of the youngest fleets globally, with associated environmental benefits from lower fuel burn, noise and emission levels. The average age of aircraft among key Irish airlines is 10 years, compared to 15 years for the global fleet, underlining the Irish industry's commitment to new technology and lower polluting aircraft.

Growth and employment expansion by airlines in the next decade will be driven by; an overall rise in the volume of air travel internationally as the global economy expands further and the long held positive correlation between GDP and per capita flying continues; an expanding Irish economy and population that will increase demand for air services; the continuing growth in low cost air travel that will stimulate demand through competitive air fare pricing, and planned fleet expansion by those airlines based in Ireland and carriers serving the Irish market.

To compete successfully from an Irish base, airlines require a number of enabling factors, being;

- Efficient operation of the Single European Market for aviation, offering unfettered access for point-to-point services across Europe.

AIRLINES BASED IN IRELAND

AIRLINES SERVING IRELAND

- An optimal Air Traffic Control (ATC) environment that delivers the most efficient routing system, critical infrastructure rules regarding strikes and sufficient labour resources to ensure 24/7 provision of ATC across Europe.

- Access to air travel markets agreed by the EU with geographies outside of Europe. While significant parts of the Americas, Middle East and Asia are open access to Latin America and Africa in particular is limited.

- An airport and ground support framework that is highly cost efficient relative to comparable peers internationally, not capacity constrained compared to projected growth in air travel demand and capable of providing optimum turnaround and taxi times for operational aircraft.

MAINTENANCE, REPAIR AND OVERHAUL (MRO)

The MRO of aircraft and engines is a labour intensive and highly valued component of the commercial aviation industry worldwide. It operates in a strongly regulated environment and is set for an extended period of growth in demand as the global commercial fleet expands by a forecast 80% over the next 20 years.

The global MRO market was valued at $89bn in 2024 and is forecast to grow towards $147bn by 2035. Europe accounts for about 27% of the global MRO market. IATA predicts that over 700,000 maintenance technicians will be required to support the development in global MRO facilities over the next decade. Over 200,000 of these will be required in Europe.

Demand for MRO services are expected to grow through activity levels in narrowbody aircraft where utilisation rates are higher,increased maintenance of new technology engines that employ high pressure units needing greater levels of service, and an overall expansion in the global commercial aircraft fleet.

Engine manufacturers like General Electric (GE) and Rolls-Royce are reporting significant challenges in meeting demand for engine repairs. The industry has seen wait times for engine repairs surge by 150% for modern engines, and 35% for older models. This surge is a result of several factors, including ongoing supply chain disruptions, an increase in fleet utilization, and parts shortages.

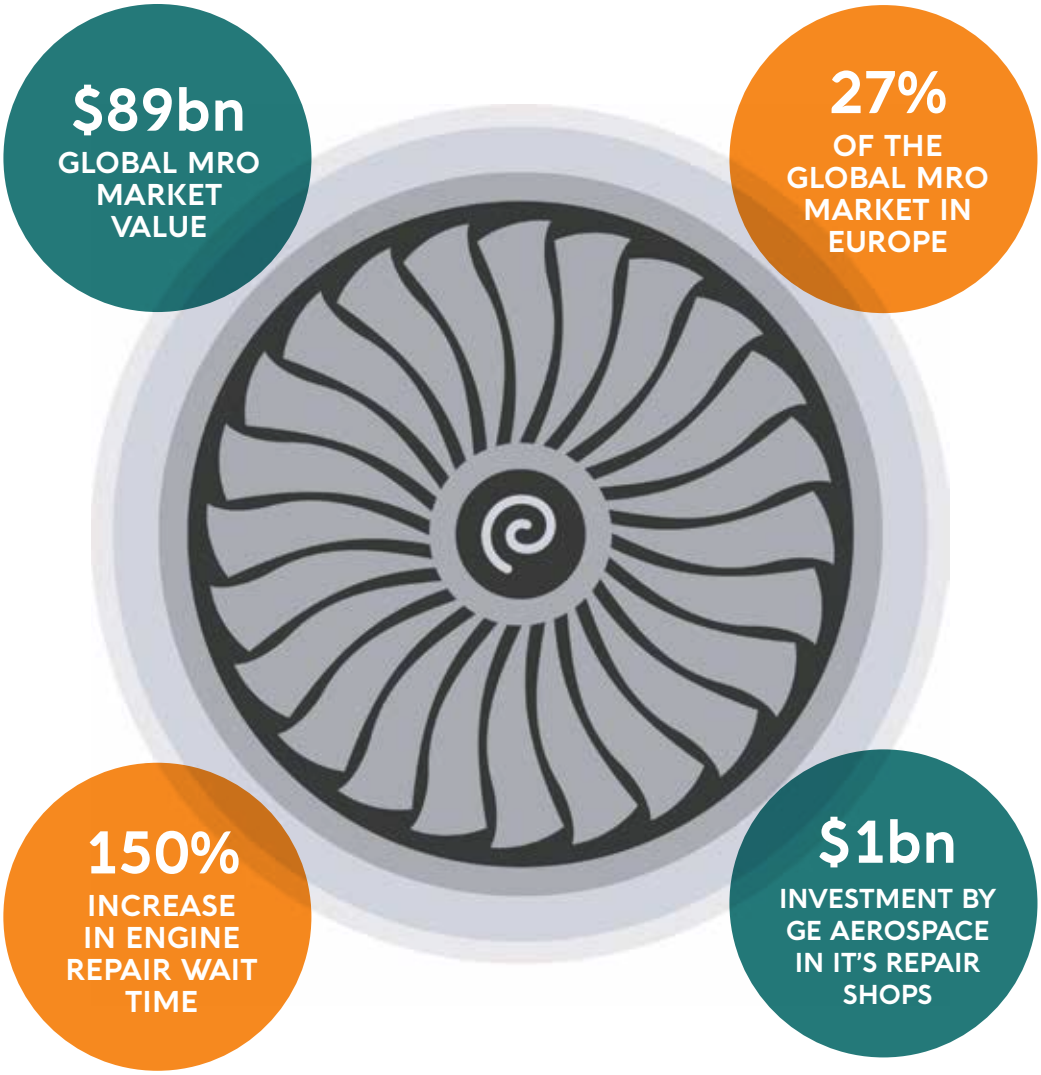
GE Aerospace, for example, is investing over $1 billion in upgrading its engine repair shops to address these challenges and enhance repair capabilities. As more companies invest in expanding capacity, the global MRO sector will need to develop a more resilient approach to supply chain logistics to participate in the growing need for MRO capabilities.

MRO services are evolving in line with new technology aircraft and engines that are designed to lower environmental and noise pollution levels. Irish MRO companies play an important part in that process and operate at a number of airports including Dublin, Shannon and Knock in particular.

MROs are labour intensive activities that rely on access to a pool of qualified mechanics, engineers and servicers. Apprenticeship programmes play a key role in providing a flow of labour for these facilities so a constructive relationship between the private sector and state education institutions are critical to the overall operation of an MRO market. Co-operation

between the Department of Higher Education, the agency responsible for training (SOLAS) and the MRO companies themselves is essential in Ireland to provide a sufficient number of qualified employees for existing and anticipated growth in MRO. Recent progress to escalate the number of qualified apprentices should double output to over 100 but a more aggressive expansion is warranted.

The global MRO market is intensely competitive and efficiency in all parts of the cost chain are essential to success. Irish MRO facilities, mainly comprised of large hangars inside airport perimeters, are levied rates that apply to dense retail buildings in urban locations such as supermarkets. This contrasts with reduced rates that apply for sectors including agriculture and fisheries which utilise large sheds for equipment. Charging lower rates for facilities dedicated to MRO inside airfields would help the sector's competitiveness and encourage further investment in new facilities.



AEROSPACE EQUIPMENT AND ENGINEERING

The aviation equipment manufacturing and engineering strengths in Ireland are centred on a significant cluster of companies located in Northern Ireland (NI). These produce a wide range of products and engineering solutions for the global commercial aviation industry and provide an eco-system of value to aviation across the island of Ireland.

Over 85 aerospace focussed companies exist in Northern Ireland, ranging from large scale equipment manufacturers producing advanced wings and aircraft seats to specialist engineering businesses supporting UAVs and space projects. This collection of skills and capabilities provides a valuable network to develop in line with the all-island industry over coming decades.

Over 5,500 employees work in the NI aerospace sector with £1.5bn of revenues being generated. Global OEMs including Collins Aerospace, Spirit, Thompson Aero and Thales are manufacturing key components including the wings for Airbus' advanced short-haul A220 aircraft. Airbus has aquired the Belfast located manufacturer of it's A220 wings during 2025. Over 40% of all seats in commercial aircraft worldwide are either designed or manufactured in Northern Ireland while a set of precision engineering companies deliver solutions for EVTOLs, unmanned vehicles and drones.

The sector is also a major source of apprentices in aerospace with over 5,000 related employees. These together with engineering and manufacturing skills make NI a valuable asset for any strategic aviation related large-scale project on the island of Ireland.

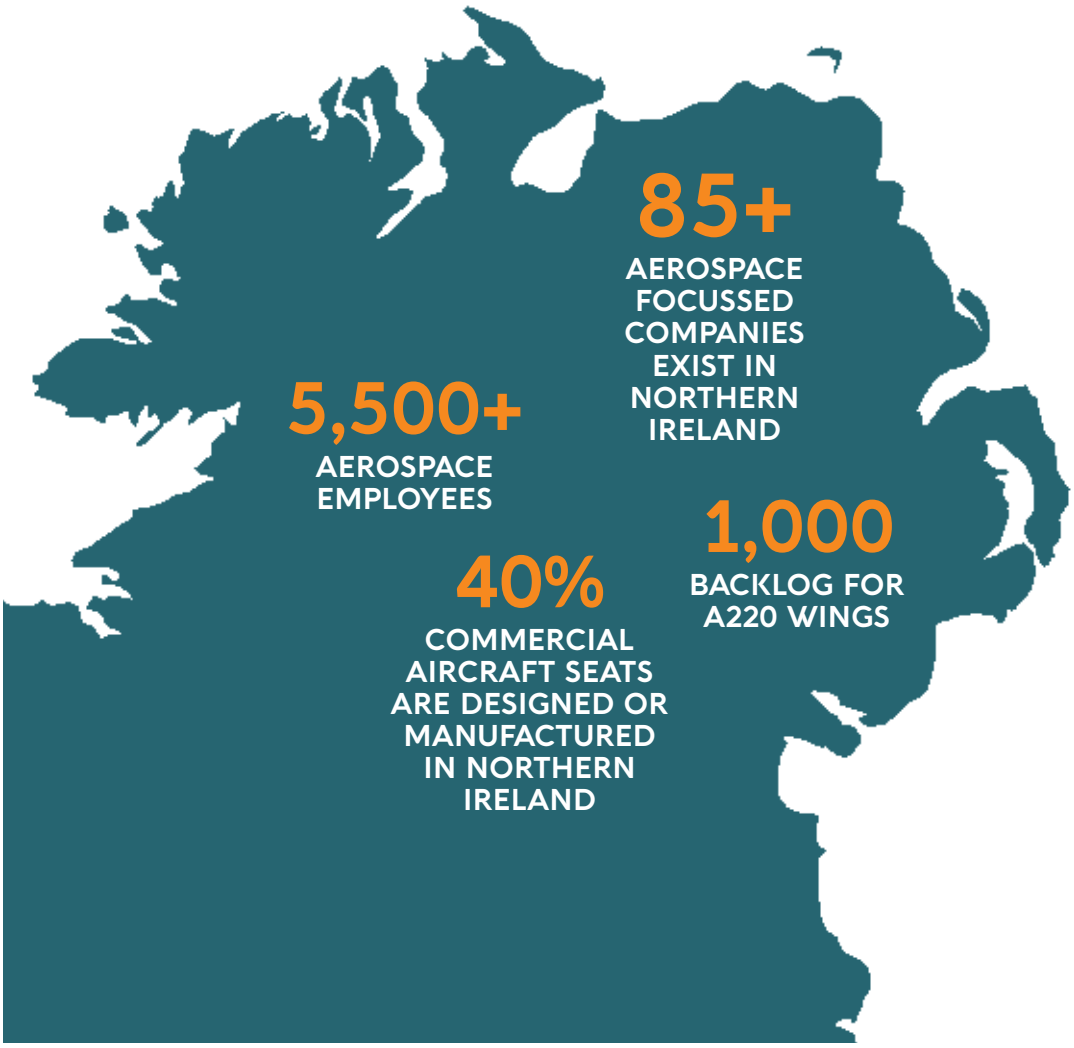
Over 23,000 commercial aircraft engines are operated by aircraft owned or managed by airlines and lessors based in Ireland. Many of these are new technology engines produced by CFM and Pratt & Whitney in operation with the large volume aircraft programmes in place at Airbus, Boeing and COMAC. This volume will grow as the global aircraft fleet expands and these multi million dollar assets require intensive maintenance programmes.

Airlines, lessors, MROs and OEMs are flagging the need to build out larger capacity engine overhaul facilities globally that have the technology and sophistication to manage new generation equipment. This creates an opportunity for Ireland to establish at least one major engine overhaul site that taps the needs for airlines, lessors and OEMs.

Such a project would entail capital investment over €200m, employ hundreds of specialist staff and be financed by a combination of public and private investors. The Aerospace Technology Institute (ATI) in the UK and the Irish Strategic Investment Fund (ISIF) have capital to support projects that provide high quality employment, value add activities and economic benefit for communities. In that context a project supported by ATI, ISIF, engine manufacturers and airlines could deliver a facility with multi decade potential.

An engine overhaul facility would also benefit from access to the Northern Ireland eco-system given its scale in manufacturing, engineering and apprenticeships. The location of such a facility should ideally be near an airport where sufficient physical land is available at a competitive cost.

AEROSPACE EQUIPMENT AND ENGINEERING IN IRELAND



AIR TRAFFIC CONTROL (ATC)

Air traffic control (ATC) in the Republic of Ireland provides air traffic management services for 451,000 square kilometres of airspace, 5x greater than the island.

Irish ATC service comprises 300 air traffic controllers operating from six locations. Air traffic control on the North Atlantic has been a core competency of Ireland since the establishment of transatlantic air services in the 1930s and is presently managed by the semi-state company AirNav.

In 2023 Irish air traffic controllers managed 664,000 IFR flights in Irish airspace, 14% higher than in 2022. In addition they managed high frequency voice communications for another 519,000 flights that flew through and over Irish airspace.

Air traffic control in Ireland is the responsibility of AirNav Ireland which was separated from the Irish Aviation Authority in 2022 and is now a stand-alone commercial semi state company.

AirNav is responsible for the provision of (ATC) services in Irish controlled airspace, aeronautical communications on the Eastern North Atlantic and ATC services at the State Airports of Dublin, Shannon and Cork.

ATC services at Ireland West, Kerry and Donegal are provided by those airports and in Belfast and Derry by NATS. ATC at Military airfields is provided by the respective military authorities.

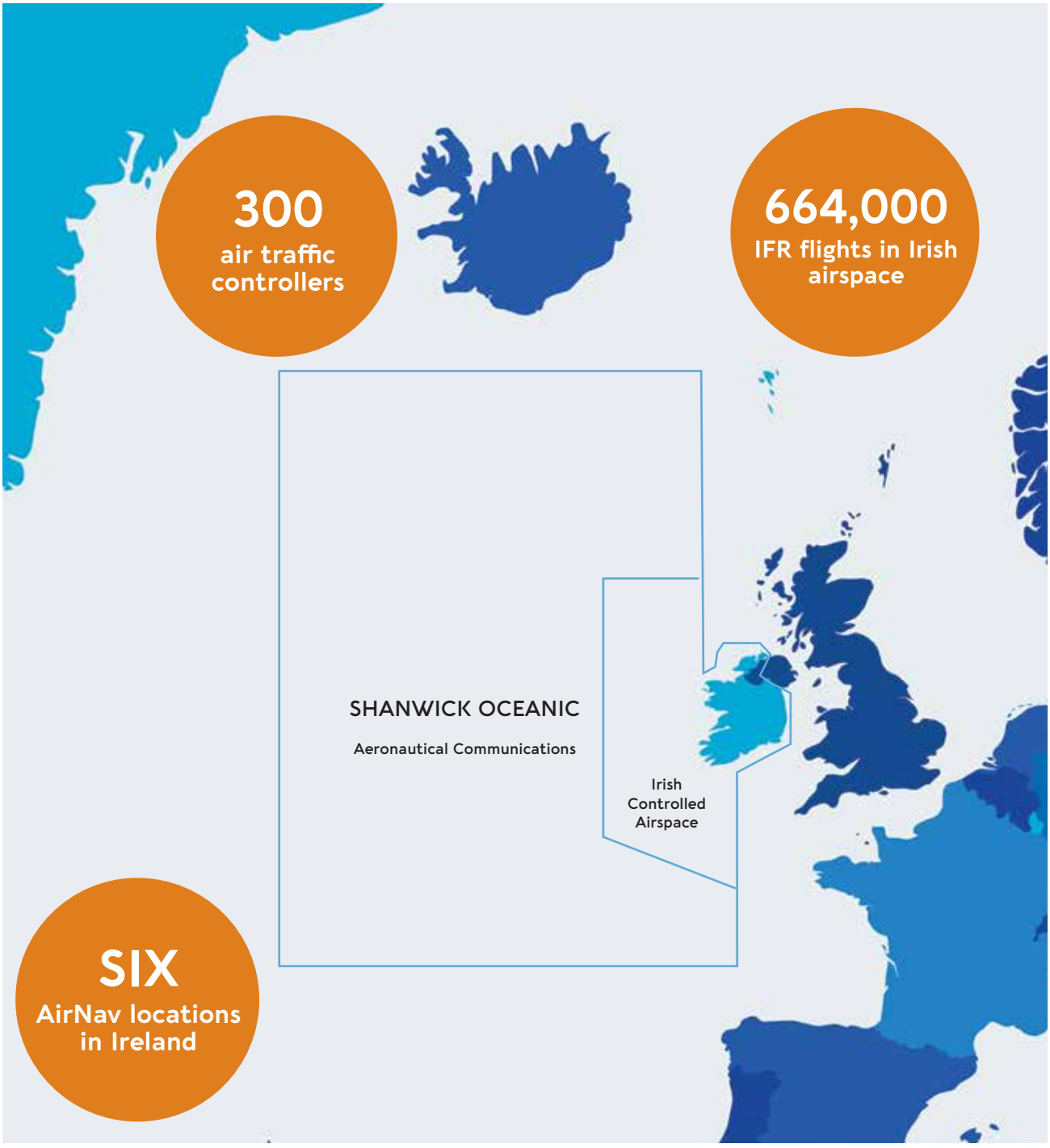
AirNav Ireland provides air traffic management services in the 451,000 km2 of airspace controlled by Ireland. This airspace forms a crucial gateway for air traffic between Europe and North America.

AirNav operates to the highest international safety standards of ICAO, EASA and EUROCONTROL with six locations around Ireland in addition to an extensive range of communications, navigation and surveillance systems. It also has a range of international partnerships for technology with COOPANS and EPN, satellite services with Aireon, a North Atlantic Communications partnership with Iceland and general co-operation with the Borealis group.

Our research encountered an absence of U-space in Ireland and this is restricting the growth of commercial drone operations and highlighting a lack of responsiveness to emerging technologies. Concepts of operation for drones are widely available in Europe, and it would be advantageous to emerging businesses if this was expediated in Ireland and leveraged as a competence within AirNav.

AirNav's primary priority remains to maintain Ireland's gateway status on the North Atlantic and to ensure that provisions of the 1966 and 2005 agreements protect Irelands status as a North Atlantic ATC service provider.

AIR TRAFFIC CONTROL IN IRELAND



PILOT TRAINING IN IRELAND

Pilot training is a key service within the global airline industry. Each year the industry requires over 30,000 qualified commercial pilots to replace retiring cockpit crew and to support sector wide growth. In Europe alone over 5,000 new pilots are needed annually.

Factors driving demand for newly qualified pilots include;

- mandatory retirement at 65 years of age
- expansion of the global commercial fleet
- a rapid rebound in air travel demand post Covid
- new airline launches, especially in emerging markets.

Ireland has established a reputation as a base for pilot training schools due to post Brexit increased reliance on EU schools and especially English speaking locations; weather conditions conducive to the reality of European weather; capacity at a number of airports to facilitate training, and a strong demand from Ireland based airlines for new crews.

Pilot training in Ireland takes place in two schools – Atlantic Flight Training Academy (AFTA) based in Cork and Waterford airports, and National Flight Centre (NFC) located in Weston airport. These schools produce about 100 qualified commercial pilots annually and between them operate a fleet of over 35 single and multi-engine aircraft in addition to a number of simulators.

Training as a commercial pilot costs approximately €110k in Ireland excluding accommodation. That comprises about €20k achieving Private Pilot License status over a period of eight months followed by a commercial license secured after a further ten months ground based and airborne training.

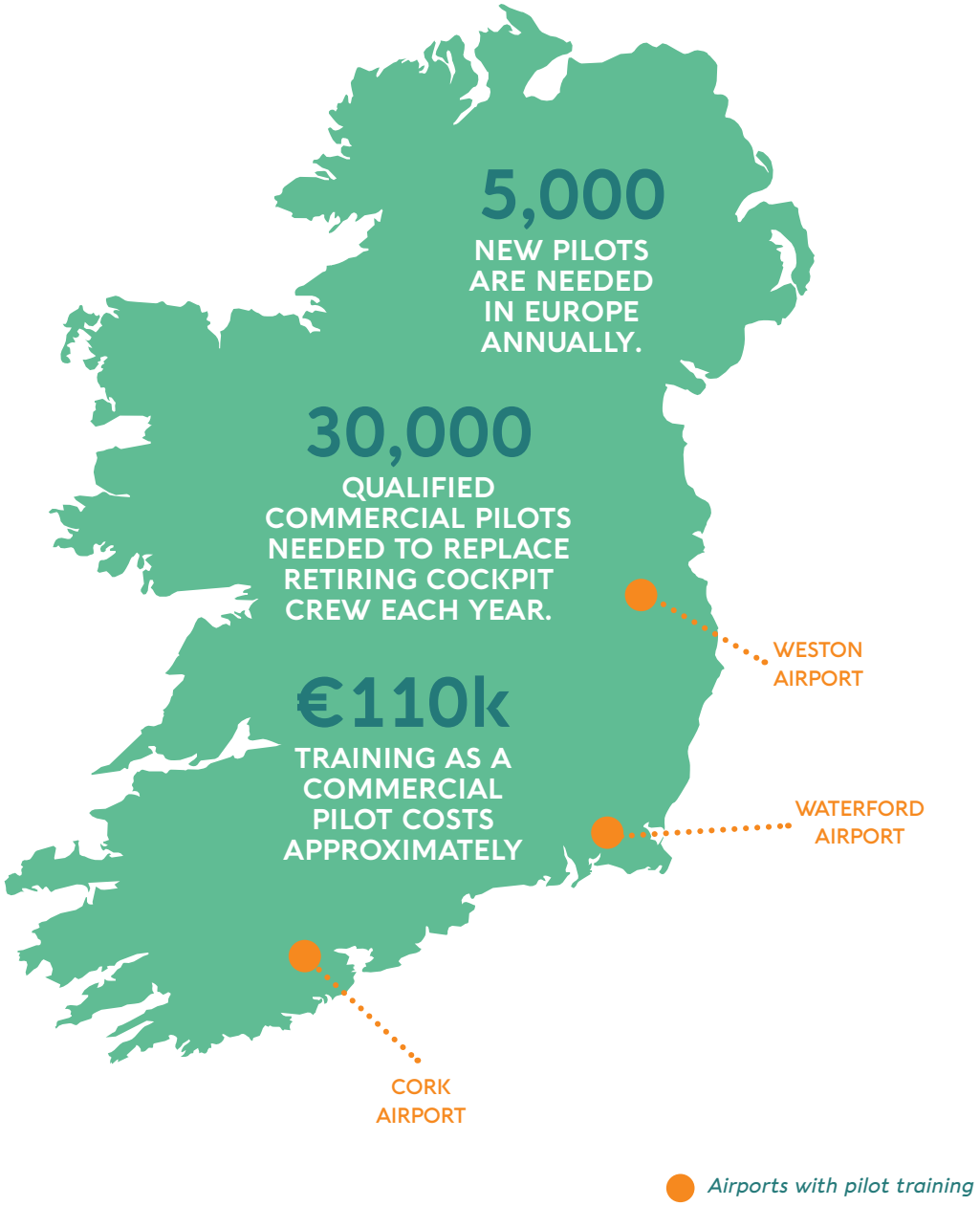
Costs are high for many potential candidates, especially those from lower income cohorts. Access to debt at reasonable interest rates is extremely difficult, and this limits the number of potential cadets available for flights schools.

Demand from Irish and international airlines for qualified commercial pilots is high. Aer Lingus, ASL, Ryanair and Emerald Airlines are among the carriers seeking new pilots to replace retiring crew or for expanding operations.

Providing a cost-efficient funding solution for pilot training would have a number of positive effects in Ireland;

- it broadens the base of candidates for pilot training to include lower income earners
- it would create additional economic activity and jobs, with a focus at underutilised airports
- it generates an enhanced supply of qualified commercial pilots for Irish and non-Irish airlines.

PILOT TRAINING IN IRELAND



IRISH AVIATION REGULATION

Effective regulation is a critically important component of a well-functioning aviation eco-system that fosters development within a safety led culture.

The Regulation of the Irish civil aviation industry is undertaken by the Irish Aviation Authority (IAA). The IAA is responsible for the safety, security, economic and consumer regulation of the industry. The IAA has been a key factor in building a world class reputation for aviation safety and standards in Ireland.

The IAA is a commercial semi-state company and the single civil aviation regulator for Ireland. The company's responsibilities are set out in the framework of applicable global, European and national legislation/regulation primarily set by ICAO, EASA, EU and National Legislation. Its functions were re-organised by the Air Navigation and Transport Act (2022) where the Air Navigation Services were separated into a separate entity and economic and consumer responsibilities were added. The Minister for Public Expenditure and Reform is the main shareholder in the company, holding all but one share in the company.

The IAA oversees the safety activities of Irish airlines, airports, ATC services, licenses and general safety standards and is subject to EASA standardisation audits which ensure Irish safety standards meet all European protocols.

Challenges in recent years have been (1) rapidly rising costs of Regulation; (2) coping with new and changing new technology, for example drones and U Space and; (3) ensuring Ireland's regulatory system is demonstrably able to meet the evolving changes and responses quickly.

The IAA has no remit to prioritise growth in Aviation and responses to our consultations believed this should be addressed by including an objective of explicitly encouraging growth in its Economic Regulation activities. The IAA is considered resource constrained which limits its ability to respond speedily to developments amid challenges that remain in the area of client services, especially relating to aerodromes and drones.

The IAA handles consumer complaints, travel trade regulations (EU 261) and it provides the economic regulation of Dublin Airport. It is also the National Supervisory Authority (NSA) which ensures all relevant EU aviation related regulations are applied in Ireland.

IRISH REGULATORY APPROVALS

Licensed Pilots	20,000
MRO companies	37
Flight Training Organisations	3
Air Traffic Controllers	350
Commercial Aircraft	488
General Aviation Aircraft	626

A Pathfinder for Irish Aviation

SECTION 3

AVIATION ACTION POINTS LONG LIST

During the preparation for this report the authors encountered a wide range of ideas to consider as ways to boost the Irish aviation industry. Our task was to distil these down to five key policy proposals but we outline below the broader "long list" of 16 ideas to prompt further discussion and debate by policymakers and aviation entrepreneurs.

Strengthen the Irish aircraft leasing industry by developing global leadership in regulating, financing and providing leasing solutions in the fast-evolving **satellite and UAV (unmanned aerial vehicles) asset management market**.

Create a **European Sustainable Aviation Campus at Shannon Airport** that incorporates; incentives for companies producing innovative solutions for pollution free flight; provides free co-working space for entrepreneurs dedicated to cutting pollution in the aviation sector; supports test flights by OEMs producing pollution free solutions for commercial aviation, and; commits to hosting a major annual international conference for a minimum of five years in Shannon, funded by the Department of Transport, focussed on pollution free aviation solutions.

Have Irish Air Traffic Control take **responsibility for ATC across large parts of Europe** by deploying state-of-the-art technologies to enhance efficiency and reduce costs.

Create an **Aviation CyberSecurity Hub** in Ireland, supported by the IDA, Enterprise Ireland and Invest NI to develop and host cyber security world class software companies focussed on aviation related cyber systems.

Deploy the Irish civil service and diplomatic resources to campaign for an **increase in the limit on daily flights across Europe from 39,940 to 50,000,** subject to incremental flights being operated by new technology aircraft.

Create a **Strategic Aviation Investment Fund** within ISIF to deploy capital for new maintenance hangars, a pilot training fund and investment in a European Centre of Sustainable Aviation in Shannon.

Enhance Irish Revenue's "SARP" and "FED" incentives for foreign talent to move to Ireland to increase alignment with the prevailing OECD / global tax focus on profits being taxed in the jurisdiction in which a taxpayer's people are located and Ireland's best-in-class tax treaty network. "SARP" is the Special Assignee Relief Program which offers personal tax incentives to inbound employees. "FED" is the Foreign Earnings Deduction which offers Irish tax relief to Irish based aviation employees who travel and work in certain overseas countries.

nsert an explicit growth mandate in the mission statements for all Irish regulators connected to the aviation sector.

Appoint an **"Aviation Tsar"** within the Taoiseach's office to fast-track initiatives and solutions that grow the Irish aviation industry.

Introduce and regulate **U-space** (digital traffic management) by mandating AirNav Ireland to implement automated services, regulatory compliance and servicing categories in Ireland which facilitates and supports efficient and easy-to-use drone flights below a height of 400 metres. The Department of Transport should mandate AirNav to implement U Space nationally.

Double the Tourism Ireland regional air services marketing fund to €10m to support expansion of passenger services at airports supporting regional economies

Build a **Sustainable Aviation Fuel refinery** in Ireland, utilising future renewable energy sources by locating near the Shannon estuary.

Jointly market the third level airline management courses provided by DCU, University of Limerick, Smurfit Business School and MTU Cork to global graduates and leverage the collective expertise in the Irish aviation system to educate the next generation of aviation leaders.

Develop an **AI centric focus on aviation** solutions across the operational and supply chains by centralising research and investment in a single site and securing Irish Government support to provide leadership around AI research as it applies to aviation.

Advance an initiative to **make all commercial aircraft fully wheelchair accessible.** In particular support the AeroFix project which aims to enable a person to achieve an end-to-end air journey without leaving their assistive device

Develop Weston Airport as a Flight Training and Search and Rescue (SAR) centre of excellence in the Greater Dublin / Leinster area and support investment in the facility's capabilities to expand capacity; centre the runway and; regularise its length to optimise potential for multi engine training and general aviation.

REPORT AUTHORS

EAMONN BRENNAN is the former Director General of Eurocontrol which operationally manages Europe's Air Traffic Network in 41 countries handling 11 million flights per annum at a system cost of €12bn. Prior to that he was the Chief Executive of the Irish Aviation Authority which had oversight of the safety and security of Irelands Civil Aviation sector in addition to providing ATC services in Irish Airspace and at the States airports and North Atlantic Communications.

Eamonn has extensive international aviation experience having worked closely with EASA, ICAO and International agencies. He is a past Director of Satellite Provider Aireon LLC and has pioneered initiatives in technological and training cooperation with COOPANS, Entry Point North and Borealis. He is an adviser to Vertical Aerospace and Cirium Data, and a Non-Executive Director of Ryanair and ANRA Technologies. He is a graduate of University College Galway, a former chartered accountant and a private pilot. He is the Chairman of Foynes Flying Boat and Maritime Museum.

JOE GILL is an Adjunct Professor of Business in the Cork University Business School (CUBS) within University College Cork and a Director of Corporate Advisory with Goodbody Capital Markets. He previously worked as Head of Research in Goodbody, as Head of Equity Research Marketing with ABN AMRO European Equities and as Chief Economist with the Irish Co-operative Organisation Society. He specialised in European airline equity research between 2002 and 2012 and was an award winning analyst in that period. He worked as lead analyst on the 2006 IPO of Aer Lingus and has advised a number of airlines including Ryanair and IAG group. Joe is an Economics graduate of University College Cork.

A Pathfinder for Irish Aviation

APPENDICES

SOURCES AND FURTHER READING

Northern Ireland Aerospace and Defence report. Invest NI
www.investni.com/sites/default/files/documents/static/library/invest-ni/documents/northern-ireland-aerospace.pdf

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GLOBAL AIRCRAFT FLEET FORECAST

BOEING CMO											
	Africa	China	Eurasia	Latin America	Middle East	North America	North-east Asia	Oceania	South Asia	South-east Asia	World
Airline Traffic Growth (RPK) (2023-2043)	6.4%	5.9%	3.8%	5.0%	4.8%	3.4%	3.0%	3.7%	7.4%	7.2%	4.7%
Airline Fleet Growth (2023-2043)	4.4%	4.1%	2.6%	3.1%	4.0%	1.5%	2.2%	2.0%	6.9%	6.4%	3.2%
DELIVERIES (2024-2043)											
Regional Jet	65	365	160	15	30	835	20	15	< 10	20	1,525
Single Aisle	830	6,720	7,890	2,045	1,555	6,815	780	535	2,445	3,765	33,380
Widebody	260	1,575	1,570	225	1,475	885	595	190	370	920	8,065
Freighter	15	170	165	10	85	450	75	< 10	20	15	1,005
Total	1,170	8,830	9,785	2,295	3,145	8,985	1,470	740	2,835	4,720	43,975
2023 FLEET											
Regional Jet	150	150	355	55	40	1,515	45	20	15	< 10	2,345
Single Aisle	370	3,325	4,705	1,305	785	4,740	530	420	590	1,020	17,790
Widebody	130	605	1,015	130	700	665	490	100	95	345	4,275
Freighter	45	265	520	150	85	1,070	80	40	20	65	2,340
Total	695	4,345	6,595	1,640	1,610	7,990	1,145	580	720	1,430	26,750
2043 FLEET											
Regional Jet	85	490	170	15	40	850	< 10	15	< 10	20	1,685
Single Aisle	1,085	6,905	8,390	2,515	1,755	7,660	935	570	2,190	3,830	35,835
Widebody	330	1,630	1,785	275	1,525	995	665	200	410	935	8,750
Freighter	150	715	760	220	185	1,340	170	75	110	175	3,900
Total	1,650	9,740	11,105	3,025	3,505	10,845	1,770	860	2,710	4,960	50,170
								Airbus Forecasts			**48,230**
								Average Airbus/Boeing Forecasts			**49,200**

Source: Boeing

TOP 30 AIRCRAFT LEASING COMPANIES

(Ranked by portfolio size in units)

Rank	Operating Lessor	Single-Aisle	Twin-Aisle	Regional Jet	Turbo-prop	Total Portfolio	Backlog	Indicative CMV (HL$bn)
1	AerCap	1,303	278	79	16	1,676	311	53.5
2	SMBC Aviation Capital	692	69			761	250	28.9
3	Air Lease Corporation	433	140	2		575	275	25.7
4	Avolon	442	128	13		583	408	21.0
5	BOC Aviation	380	83		463	215	18.3	
6	BBAM	351	101			452		17.2
7	ICBC Leasing	418	49	37		504	128	16.4
8	Aviation Capital Group	355	15			370	140	11.7
9	DAE Capital	302	41		67	410	57	10.5
10	Bocom Leasing	267	28	6		301	95	10.5
11	CDB Aviation	242	36	16		294	237	10.2
12	Jackson Square Aviation	206	25		231	20	9.0	
13	Carlyle Aviation Partners	336	36			372	16	8.6
14	AVIC International Leasing	146	24	31	20	221		7.6
15	CMB Financial Leasing	157	19	7		183	67	7.5
16	Castlelake	197	41	8	8	254		7.0
17	CCB Financial Leasing	149	26			175	110	6.6
18	ORIX Aviation	171	30			201		6.3
19	CES International Financial Leasing	117	30	1		148		6.3
20	AviLease	178	3			181		6.2
21	Aircastle	230	14	21	265	9	6.2	
22	China Southern Air Leasing	129	28	8		165		6.0
23	Macquarie AirFinance	220	19	2	241	81	6.0	
24	China Aircraft Leasing Company	173	15	3		191	145	5.7
25	Griffin Global Asset Management	52	14			66	6	4.1
26	JP Lease Products & Services	71	8			79		3.6
27	ABC Financial Leasing	86	12	16		114	65	3.6
28	Aergo Capital	84	39		28	151		3.4
29	ABL Aviation	42	16			58		3.1
30	SKY Leasing	80	4		5	89		3.0

Source: Cirium