
IAA
The Annual Performance Report
2014

The Annual Performance Report

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Chief Executive's Introduction

Annual Performance Report 2014

IT GIVES ME GREAT PLEASURE TO INTRODUCE THE ANNUAL PERFORMANCE REPORT FOR THE IRISH AVIATION AUTHORITY COVERING THE PERFORMANCE OF THE AIR NAVIGATION SERVICES FUNCTION FOR THE YEAR 2014.

The Authority, throughout 2014, continued to deliver safe, efficient and cost-effective air navigation services in Irish controlled airspace and this report sets out our performance, as required under common requirements laid down in Commission Regulation (EC) no.1035/2011.

COMPETITIVE EFFICIENCY:

The IAA's competitive position is amongst the very best in Europe with well below average charges to customers and high levels of operational performance and project delivery. The IAA reported no air traffic management (ATM) attributable delays in 2014 at Cork, Dublin and Shannon airports. Airport slot adherence statistics demonstrate a performance level above the EU standard.

AIR TRAFFIC MANAGEMENT:

The IAA ATM Operations & Strategy Directorate, together with the IAA Technology Directorate, is responsible for the provision of safe, efficient and reliable air traffic services, which meet the needs of its customers in a cost-effective manner. During the year, a number of initiatives promoting safety were implemented including a very successful Operational Safety Week which involved significant stakeholder engagement. There is early evidence that these initiatives have worked well delivering tangible improvements to air traffic services. To meet IAA strategic requirements over the period of the current Corporate Plan and ensure compatibility with the SES RP2 performance requirements (Single European Sky, Reference Period 2 2015-2019), the IAA ATM Operations & Strategy Directorate has been reorganised into two distinct business units: an En-route Business Unit and a Terminal Business Unit.

A KEY ENABLER OF OUR OPERATIONS STRATEGY

is our air traffic management system COOPANS. The successful introduction of the next upgrade of COOPANS, our air traffic management system cooperatively procured by the five air navigation service providers in Austria, Croatia, Denmark, Ireland and Sweden, means that seven operational centres in Europe are now running the exact same version of COOPANS software. No other grouping in Europe is anywhere close to achieving the same levels of technical cooperation.

FAB PERFORMANCE PLAN 2015-2019:

Significant work was undertaken during 2014 to finalise an EC SES operational and related cost plan for the UK-Ireland FAB for 2015-2019. The finalised plan was submitted by the Irish and UK Governments in Q4 2014 and formally approved by the EU in Q1 2015. It contains national and joint FAB-wide targets for safety, capacity (delays), environment (en-route flight efficiency) and cost-efficiency. This FAB Performance Plan commits the FAB to making a significant contribution to the delivery of Single European Sky over the next five years.

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STRATEGIC ALLIANCES: The IAA has agreed to invest US$29.4 million, equivalent to a 6% equity shareholding, in Aireon, developer of the world's first space-based ADS-B (Automatic Dependant Surveillance – Broadcast) global air traffic surveillance system. With this technology, air traffic control services can be provided in nearly all parts of the globe, offering airlines significant fuel savings and fuel efficiencies. It is planned that the Aireon service will be available to air navigation service providers in 2018.

The Aireon Aircraft Locating and Emergency Response Tracking (Aireon ALERT) service will be managed from the IAA's North Atlantic Communications centre in Ballygirreen. This new global service will allow rescue agencies, air traffic control providers or airlines to request the location and last flight track of any ADS-B equipped aircraft flying anywhere in the world. The selection of the IAA to host the service reflects the IAA's experience and long history in the provision of aeronautical communications, our people, location and modern equipment.

In 2014, the IAA entered into a strategic training alliance with Entry Point North Ireland Ltd. Entry Point North (EPN) is one of the largest independent air traffic management training academies in Europe and this alliance ensures that ATM training is of the highest quality, regulatory compliant and cost-effective.

A consortium that includes the IAA, our COOPANS partners and other air navigation service providers, airlines and airports, has successfully secured the contract for the EU **SESAR Deployment Manager.** This consortium is a unique aviation industry partnership which will coordinate and synchronise €3 billion worth of upgrades to Europe's air traffic management infrastructure aimed at modernising European airspace.

The IAA has also continued to support the work of the nine-member **Borealis ANSP alliance** and has used the Alliance to market commercial service opportunities. During 2014, it was agreed that the members should focus on the implementation of Free Route Airspace (FRA) across the entire airspace for the region by 2018 (IAA introduced this operational concept in 2010 but is supporting this wider Borealis initiative).

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STAFF: The focus on cost containment continues and an agreement was reached with staff representatives on an engineering restructuring agreement, which also included the introduction of a graduate engineering programme. Twelve graduate engineers commenced on the programme in 2014. In addition, two intakes to our much sought after student air traffic controller programme also took place in 2014 and a further intake is planned in 2015. The IAA will continue to look for further savings in keeping with our corporate challenge of remaining **cost-effective** in a **performance regulatory regime**.

CUSTOMER CONSULTATION: The IAA will continue to consult regularly with its customers in the evaluation of the quality of service provided. The IAA is dedicated to improving its performance and to greater consultation with our customers, to ensure that our level of service continues to improve. We have made strong progress again in 2014 in positioning the IAA to safely meet these service requirements and also to meet future challenges in what is a dynamic and changing industry.

I would like to thank all of the staff of the Authority for delivering another successful year. In particular, I would like to express my gratitude to my management colleagues for their hard work and support throughout another challenging year.

I would also like to thank the Chairman, Ms. Anne Nolan and my colleagues on the Board for their guidance and support.

Go raibh míle maith agaibh go léir.

EAMONN BRENNAN

Chief Executive
Irish Aviation Authority

01 Introduction

1 INTRODUCTION

The Irish Aviation Authority is required to produce an annual report on its performance under Single European Sky (SES) regulations.

The Single European Sky regulations provide, inter alia, that the provision of air navigation services within the European Community shall be subject to certification by Member States that they meet the **common requirements laid down in Commission Regulation (EC) no.1035/2011. This imposes an obligation on individual States to certify providers that comply with the common requirements and to subsequently designate air navigation service providers.**

Responsibility for the certification process rests with the National Supervisory Authority (NSA), which is currently within the Aeronautical Services Department (ANSD) unit of the Safety Regulation Division (SRD). The designation process is a matter for the State but in order to be considered for designation, an entity must have prior NSA certification.

Air Navigation Service Providers (ANSPs) must submit to their NSA the following: a five-year Business Plan, an Annual ANS Plan, and audited accounts. In addition, ANSPs must submit an Annual Performance Report at the end of their reporting period. A brief summary of the requirements under each of these areas is outlined below.

1.1. FIVE YEAR BUSINESS PLAN

The IAA's **Business Plan** is required to cover a minimum period of five years and sets out:

- *The overall aims and goals of the provider, and its strategy towards achieving them, in consistency with any overall longer term plans and with relevant Community requirements;*
- *Appropriate performance objectives in terms of quality and level of service, safety and cost effectiveness.*

1.2. ANNUAL ANS PLAN

The Annual ANS Plan specifically relates to the ANSP and should specify further the features of the Business Plan and describe any changes to it. The Annual ANS plan shall cover the following provisions on the level and quality of service such as the expected level of capacity, safety and delays to flights incurred as well as on financial arrangements:

- *Information on the implementation of new infrastructure or other developments and a statement on how they will contribute to improving the level and quality of services;*
- *Indicators of performance against which the level and quality of service may be reasonably assessed;*
- *The air navigation service provider's expected short-term financial position as well as any changes to or impacts on the business plan.*

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1.3. ANNUAL REPORT

The **Annual Report** shall include as a minimum:

- *an assessment of the level and quality of service generated and of the level of safety provided;*
- *the actual performance of the service provider, compared to the performance objectives and indicators established in the Business Plan;*
- *developments in operations and infrastructure;*
- *the financial results, if they are not separately published in accordance with article 12(1) of the Service Provision Regulation;*
- *Information about the formal consultation process with the users of its services, and the human resources policy.*

This publication is primarily concerned with the areas outlined above, and covers the period from **1 January 2014 to 31 December 2014.** It is designed to meet the common requirements laid down in Commission Regulation (EC) no.1035/2011 to: **"provide a description of progress achieved in relation to the business plan, reconciling actual performance for 2014 against planned performance in the IAA's five year corporate plan 2014 -2018".**

The Authority provided forecasts in its five year corporate plan 2014-2018 in the following areas.

- *Safety*
- *Efficiency*
- *Cost effectiveness*
- *Delays*
- *Capacity*

A detailed analysis of actual performance versus planned performance under each of these areas is set out under section 2 to section 12 of this report.

02 Safety

2.1 CORPORATE ATM SAFETY STRATEGY

The Safety Management System (SMS) within the IAA Air Navigation Service Provider (ANSP) provides the vehicle by which we will continue to develop and mature our safety system, while simultaneously meeting the regulatory requirements and safety targets set by EASA for Reference Period 2 (RP2 2015-2019). The IAA has a strong and effective SMS, which is continuing to mature and progress in a manner that will enable us to achieve in the first instance the required maturity level and performance score target.

New regulatory ANSP safety performance measurement requirements, in combination with the civil aviation regulators mandatory requirements to provide a more cost efficient service, pose very significant organisational challenges in the forthcoming EC Performance Reference Period RP2.

The IAA continued to concentrate its efforts on a number of interconnected focus areas, which are driven by associated strategic safety goals, contained in the Corporate Strategic Safety Plan 2012-2015. This plan contains focus areas and strategic safety goals, which are summarized as follows:

2.2 SAFETY PERFORMANCE INDICATORS

The IAA is continuously developing safety performance indicators for all aspects of the ATM system in line with the regulatory requirements of ICAO, EASA, CANSO and EUROCONTROL recommended best practices.

The IAA ANSP is measuring, monitoring and reporting on the three leading Safety Performance Indicators from EC Regulation No.390/2013, which have been monitored since 2012 and measured since 2014 at European, National and FAB levels. These are:

1) Effectiveness of Safety Management (EoSM): the safety maturity survey methodology developed and conducted by EUROCONTROL and CANSO. This survey has been adopted by EASA as a Key Safety Performance Indicator Measurement since 2013. Both surveys are completed by the Safety Management Unit (SMU) annually.

- *The IAA ANSP scored 81% in the EASA survey (RP2 measurement), which is an improvement on the 2013 performance score and it is also 3% above all SES ANSPs' average scores.*

- *The outcome from the CANSO EUROCONTROL process highlighted an improvement of 4% above our 2013 maturity score, up to 78%. Overall, there has been a 14.5% improvement since 2012.*

CANSO/ Eurocontrol Standard of Excellence/EoSM	2012	2013	2014
Overall maturity score	68.1	74.89	78.04

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2) Application of the severity classification scheme of the **Risk Assessment Tool (RAT) methodology.**

- *This process is well embedded and all occurrences (i.e. Separation Minima Infringements, Runway Incursions and ATM Specific Occurrences) as required by Reference Period 2 (RP2), are reviewed and classified in accordance with this scheme. We are continuing to develop the level of sophistication and effectiveness of our preventative and risk mitigation strategies based on the RAT severity classification outputs, thus facilitating the organisation's drive to meet our safety targets.*

- *The RAT is currently applied to 100% of Separation Minima Infringements and Runway Incursion occurrence events, which already exceeds the RP2 requirement of 80% application by 2017. It is planned to achieve the same level for ATM Specific Occurrences by mid-2016.*

3) Reporting of **Just Culture Implementation**.

- *During 2012, the IAA commenced the development of a Just Culture process and procedures based on our published policy. This process was rolled out in Q4 2013 for and implementation and application to ATM occurrence investigations from Q1 2014.*

- *To further improve the maturity of our reporting culture and to enhance our excellent levels of reporting, the ANSP introduced a Confidential ATM Occurrence Reporting (CAOR) scheme managed independently by the Head of Safety Management in Q4 2012. The operation of the scheme was consolidated during 2013 and is now an embedded component of the SMS. It is functioning satisfactorily and as intended.*

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2.3 OPERATIONAL SAFETY MANAGEMENT

The IAA's ATM **Safety Management Unit (SMU)** is ensuring that in collaboration with local managers, appropriate safety performance improvement plans are being developed and implemented, as follows:

- *The IAA safety management system (SMS) utilises the **Unit Safety Manager (USM)** function to ensure continuous SMS progression and development, so as to attain a higher level of Safety Maturity for the ANSP and for providing the capability to meet RP2 safety requirements. The USM function, since its inception in 2013, has been a significant contributory factor in the steady year on year measured safety maturity improvement. The SMU continues to provide expert advice, support, guidance and training, so as to ensure the USMs attain and maintain the qualification levels necessary to provide the essential Safety Management support to the General Managers of the IAA's en-route and terminal business units.*

- ***The functional airspace block (FAB) safety management 'harmonisation' strategy** provides for wider FAB integration. The UK-Ireland FAB's Safety Management Arrangements Document (SMAD), which was published in 2013, defines this integration. This strategy includes the development of a Joint Just Culture policy, which was agreed and published in both ANSPs underpinning the Just Culture review processes. In addition, the joint "**Day 2 Day**" operational survey project has been completed in 2014 for all units involving both ANSPs' interface units. This Joint FAB safety activity has generated joint reports complete with safety improvement recommendations, accepted and implemented as applicable to each unit.*

- ***SMS Policy Review.** The SMU commenced a policy review of strategic safety management systems arrangements and principles in 2013. This review was conducted in advance of RP2 to provide assurance that the operation of the SMS is consistent with best practice. In particular, the review evaluated the SMS structures and its capabilities, regarding the demands and the requirements of RP2. The review report's recommendations received executive approval in 2014, which included an enhancement of the Safety Specialist capabilities provided by the SMU. The review concluded that the transfer of the responsibility for the management and oversight of Safety Occurrence Investigations from Safety Standards and Procedures (SS&P) to the SMU was appropriate and in line with best SES ANSP practice. The transfer was initiated in November 2014 and completed by end of December 2014.*

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2.4 SAFETY ACHIEVEMENT METRICS

Safety data produced from the IAA's **Mandatory Occurrence Reporting (MOR**) scheme enables analysis of our safety trends. Throughout 2014, the IAA improved its safety reporting arrangements with Operational Units reporting the trends in their top five **Safety Key Performance Indicators (SKPIs)**. The trends are reported quarterly in an Operations Safety Report, which is reviewed by the Operational ATM Safety Committee. These quarterly reports were consolidated in the National 2014 Annual MOR Report.

The reports review our reporting levels, measurement and analyse of the **Safety Key Performance Indicators (SKPIs)**:

- *Separation minima infringement*
- *Runway incursions*
- *Unauthorised penetration of airspace*
- *Deviation from ATC clearance*
- *Level bust*
- *ATM Specific Occurrence (Technical Event)*

The predicted and actual events for 2014 in the SKPIs were within the overall tolerable variance of the target set by IAA **Safety Regulation Division (SRD)** with a continued positive improvement trend in ATM contribution. Continued enhancements are being implemented, such as runway protection measures through the implementation of technical measures (upgrade of ASMGS to Level 2), in addition to the IAA's proactive involvement in the Local Runway Safety Action Teams and Dublin Airport Operational Planning Group (DAOPG). Moreover, in areas where the ATM contribution is low, e.g. level busts and deviations from ATC clearance, there is ongoing dialogue with aircraft operators to highlight these issues.

To enhance capabilities regarding the IAA's ATM Safety Strategy, "Plan, Do, Check, Act" **Operational Safety Improvement process**, the acquisition of the Airspace Performance Factor (APF) tool was completed in Q4 2014, with testing and validation of the tool done in Q1 2015. The tool is utilised to more effectively monitor and analyse trends, so as to focus our safety efforts and resources more efficiently, to ensure that the occurrence trends for the SKPIs do not increase and, where possible, will decrease. Interaction and dialogue with operators and Airport authorities is a key component of this process.

03 Efficiency

AS THE IRISH ECONOMY GROWS, THE IAA WILL CONTINUE TO SUPPORT THE AIRLINES, THE AIRPORTS AND THE TRAVELLING PUBLIC, THROUGH THE PROVISION OF SAFE, COST-EFFICIENT, AND INDUSTRY LEADING AIR TRAFFIC SERVICES IN THE YEARS AHEAD.

3.1. TRAFFIC 2014

The IAA incorporates EUROCONTROL forecasts, together with local economic knowledge to forecast its traffic growth. This forecast estimated a growth in total IFR traffic for Europe of +1.8% during **2014. However, 2014 was a very positive year for Irish air traffic**, which saw **strong growth at Dublin Airport**. Traffic at the State's largest airport was up +6.2% in 2014, while total flights in Irish airspace were up +2.7%.This growth continues to indicate a strong return to positive territory for almost all sectors of Irish air traffic.

- *Ireland's en-route traffic (flights that pass through Irish airspace but don't land) increased by +1.0% to 301,331 movements;*
- *North Atlantic Communications flights (Europe/North America Flights) increased by +3.8% to 420,423 flights;*
- *On the domestic front, commercial traffic grew by +6.5% in 2014 at the three State airports of Dublin, Shannon and Cork, with a total of 215,783 movements;*
    - *With 81% of the volume at Dublin Airport.*

The IAA welcomes such strong growth in Irish air traffic figures for 2014 and is confident that the years ahead will be even more positive with increased transatlantic capacity and other routes.

3.2. STAFFING

The average staffing in 2014 was 558 (excluding Safety Regulatory Division), which was less than 2013 actual staffing. The reduction in staffing was as a result of a continuous focus on efficient manpower deployment and improved productivity measures.

In addition, the Authority's cost containment programme, which commenced in 2012 continued successfully during 2014.

Arising from an engineering restructuring agreement, the Authority implemented a Graduate Engineering Programme and twelve graduate engineers commenced on the programme in 2014.

Finally, two intakes to our Student Air Traffic Controller Programme took place in 2014.

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3.3. HUMAN RESOURCE POLICY

The Authority continues to implement progressive human resource policies. In particular, 2014 saw a focus on managing attendance, which proved highly successful. Furthermore, the introduction of a Social Media Policy was also agreed with staff representatives and implemented in 2014.

The Authority operates a high performance culture which is driven by a commitment to continuous learning and development for Managers and Staff through our Managing Performance and Development scheme. A Learning and Development Programme was run for managers in 2014, with a further programme scheduled in 2015.

All staff have access to an Employee Assistance Programme. This is a free and confidential service and gives invaluable information, specialist counselling and support to employees and their immediate families.

In addition, a confidential Critical Incident Stress Management (CISM) service is available to staff in the operational area. CISM is a support system to deal with human reaction to an abnormal occurrence/critical event. CISM is an integrated programme with several levels of intervention. The primary support is provided on a voluntary basis by peer supporters, all of whom have received the appropriate professional training and they, in turn, are supported by external health professionals, as required.

The agreement, reached with staff representatives and implemented in 2011 to address our pension fund deficit, suffered a set-back in 2014 arising from falling bond yields. As a result, a decision was taken to apply a 0% increase to pensions in payment until such time as such discretionary increases become affordable. The pension recovery plan is due to be reviewed in 2018.

The 1996 and 2008 Staff Superannuation Schemes are closed to new entrants. All new hires to the Authority with effect from 1 January 2012 join a Hybrid Pension Scheme which comprises a defined benefit and defined contribution arrangement.

04 Financial Results

THE AUTHORITY DOES NOT PROPOSE TO REVIEW ITS FINANCIAL RESULTS IN THIS REPORT AS THE FINANCIAL RESULTS ARE SEPARATELY PUBLISHED AND INDEPENDENTLY AUDITED IN ACCORDANCE WITH ARTICLE 12(1) OF THE SERVICE PROVISION REGULATION. THESE CAN BE ACCESSED ON THE IAA'S WEBSITE WWW.IAA.IE.

Performance Comparison

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The IAA reported no air traffic management attributable delays in 2014 at Cork, Dublin and Shannon airports.

- *Airport slot adherence statistics also demonstrate a performance level well above the EU standard.*

In addition, the 2014 ACE (ATM Cost-Effectiveness) Benchmarking Report, published by EUROCONTROL confirmed that:

- *The IAA's gate-to-gate financial cost effectiveness was reported as €334 per flight hour, compared to a European average of €437.*
- *The IAA's air traffic controllers' (ATCOs) productivity is in excess of 20% higher than the European average. ATCO-hour productivity measures the efficiency with which an Air Navigation Service Provider (ANSP) deploys and makes use of its ATCOs.*

This ACE benchmarking analysis is based on information provided by **37 ANSPs** to the Performance Review Commission (PRC), in compliance with Decision No.88 of the Permanent Commission of EUROCONTROL.

THE IAA'S **COMPETITIVE POSITION** IS AMONGST THE **VERY BEST IN EUROPE** WITH WELL BELOW AVERAGE CHARGES TO CUSTOMERS AND HIGH LEVELS OF OPERATIONAL PERFORMANCE AND PROJECT DELIVERY.

06 Cost Effectiveness

THE IAA HAS BEEN FOCUSING ON FURTHER IMPROVING **THE QUALITY OF ITS SERVICES,** WHILE MONITORING THE IMPACT OF THE FINAL COSTS FOR ITS CUSTOMERS.

The capacity of the IAA to deliver services to its customers in the most cost-effective manner possible is one of its key strategies, with the IAA continuing to contribute to a European reduction in en-route charges via the implementation of the UK-Ireland FAB Performance Plan for Reference Period 2 (2015-2019).

This plan was submitted by the Irish and UK Governments in Q4 2014 and adopted by the European Commission in Q1 2015.

	2013	2014
Average unit rate (All States)	€57.40	€58.26
IAA unit rate	€28.20	€30.62
Variance in %	-50.9%	-47.4%

In 2014, IAA overflight charges were again amongst the lowest in Europe and the IAA has consistently maintained one of the lowest enroute user charge unit rates, making Irish airspace economically attractive to airspace users. Similarly, Terminal charges at Irish airports remain within the cheapest quartile of European States.

6.1. ESTIMATED COMMERCIAL RATES

The IAA is responsible for the provision of safe, efficient and cost-effective air navigation services in Irish-controlled airspace. The costs of providing these services and facilities are funded by charges levied on airspace users.

6.1.1. ENROUTE CHARGES

The IAA recovers the costs of en-route air navigation facilities and services by means of en-route charges. A charge is levied on airspace users for each flight made under Instrument Flight Rules taking into account the distance flown and the weight of the aircraft (service units).

The IAA establishes its determined en-route cost base for the year, in which the charges are collected. This cost base comprises of operating costs plus depreciation plus interest on capital expenditure plus the State's share of EUROCONTROL costs. Ireland is a member of EUROCONTROL, the European organisation responsible for the safety of navigation and also responsible for helping to develop a coherent and co-ordinated air traffic management system in Europe.

The unit rate charged by the IAA is established by dividing the determined costs by the estimated traffic, measured in terms of service units, to give the en-route service unit rate. An adjustment mechanism is operated so any adjustments such as traffic risk sharing and inflation in a particular year are taken into account in determining the unit rate in future years. The unit rate is applicable from 1 January.

This system allows the IAA to recover only the determined costs, which have been approved by the NSA to provide the en-route service. The enroute rate charged to the IAA's customers in 2014 was €30.62. The submission to the NSA assumed chargeable en-route determined costs for 2014 of €121,704,000 and chargeable service units (CSUs) of 4,004,000. The actual outturn for 2014 was as follows:

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	En-route Costs (Incl. MET)	Chargeable Service units
Actual outturn	€102,688,000	3,922,500
Forecast figure (NSA Submission)	€121,704,000	4,004,000
Variance	-€19,016,000	-81,500
Variance in %	-15.6%	-2.0%

6.1.2. TERMINAL CHARGES

The IAA recovers the costs of terminal navigation facilities and services by means of terminal charges. These charges were previously established within the price cap allowed by the Commission for Aviation Regulation (CAR).

However, going forward from 2015, these terminal charges are determined by the provisions of the European Commission Charging Regulation No.391/2013, operated through the EUROCONTROL bilateral system.

A charge is levied on users for approach, landing and take-off services provided at each of the State airports, Cork, Dublin and Shannon, taking into account the weight of the aircraft, where this weight exceeds two tonnes.

The IAA's terminal cost base comprises of operating costs, depreciation and a regulatory return.

For 2014 and in accordance with EC regulations, the IAA's terminal service charge has been calculated as the maximum take-off weight divided by fifty to the power of 0.7.

The terminal service unit rate for 2014 was €156.92. The actual outturn for 2014 was as follows:

	Terminal Costs (Incl. MET)	Terminal Service units
Actual outturn	€21,775,000	137,659
Forecast figure (NSA Submission)	€24,033,000	137,000
Variance	-€2,258,000	659
Variance in %	-9.4%	0.5%

THE EN-ROUTE AND TERMINAL COST BASES WERE LOWER THAN FORECAST, DUE TO EXCEPTIONAL COST CONTAINMENT MEASURES, RESULTING IN LOWER HEADCOUNT, LOWER OPERATING EXPENSES AND DEPRECIATION COSTS THAN FORECAST.

07 Capacity & Efficiency

THE IAA ATM OPERATIONS & STRATEGY DIRECTORATE, TOGETHER WITH THE IAA TECHNOLOGY DIRECTORATE, IS RESPONSIBLE FOR THE PROVISION OF SAFE, EFFICIENT AND RELIABLE AIR TRAFFIC SERVICES WHICH MEET THE NEEDS OF ITS CUSTOMERS IN A COST-EFFECTIVE MANNER.

The IAA in delivering a safe and efficient service provides the necessary airspace procedures to ensure sufficient capacity. These procedures are designed to ensure an efficient use of airspace for our airline customers. The following are examples of how we achieve this and meet our stakeholder requirements:

- *While the Shannon Area Control Centre (ACC) is a very complex airspace block; the IAA uses **dynamic sectorisation within its free route airspace** to ensure capacity meets current and future demand. Sectors are made of building blocks, which are shaped several times a days, so that the sectorisation best suits the traffic flows. This method, along with the expansion of CPDLC for FANS aircraft and the addition of ATN CPDLC, allows Shannon to ensure Irish airspace is used as efficiently as possible and allows for increased demand. During 2014, the **Shannon ACC fully met its capacity plan of +3%.***

- *The **Dublin ACC fully met its capacity plan of +4%,** which was enabled by the TMA 2012 and Point Merge projects. Both TMA 2012 and Point Merge have enabled a highly flexible and efficient approach to opening and closing sectors to meet demand. The major capacity bottleneck at Dublin Airport, in the short to medium term, is the airport infrastructure, in particular the single runway operation.*

- *The introduction of reduced departure intervals and **High Intensity Runway Operations (HIRO) at Dublin Airport** has created more efficiency for arrivals and departures and helped to maximise the capacity of the existing runways, by increasing slot capacity and reducing average taxi times. Further works will continue with the airlines and the DAA to ensure the proactive promotion of HIRO operations.*

- *The IAA investigated opportunities for increased efficiency and reduced operational expenditure, which can be associated with **Remote Tower operations.** This was done with a view to installing a trial system for Cork and Shannon by end Q2 2016.*

- *The IAA also examined **Electronic Flight Strip system,** which would improve safety and efficiency at Dublin Tower.*

- *The IAA and NATS through their FAB partnership have embarked on a two-phase trial to examine the feasibility of c**ross border dynamic sectorisation (DSOT)**. The first phase of this trial involved the delegation of air traffic services (ATS) to general air traffic (GAT) in a portion of the UK Rathlin airspace from NATS UK to the IAA. This phase required significant cooperation at an ANSP, Regulatory, Military and State levels. Phase 1 saw the Shannon Free Route Concept introduced into a portion of the UK Rathlin west sector. Operational Analysis of the Phase 1 of the trial showed savings in both track miles and time to the customers. This phase of DSOT ended on September 18th 2014, with Phase 2 being completed in late 2015 followed by publication of final report by end of 2015.*

- ***ATN CPDLC and the FANS CPDLC** enhanced 'message sets' were introduced in June 2014.*

DURING 2014, THE IAA CONTINUED TO BE INNOVATIVE BY DELIVERING PLANNED CAPACITY TARGETS, IMPLEMENTING HIGH INTENSITY RUNWAY OPERATIONS AND PLANNING TO IMPLEMENT ELECTRONIC FLIGHT STRIPS, REMOTE TOWER OPERATIONS AND CROSS BORDER DYNAMIC SECTORISATION.

Delays

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IRISH ATFM DELAYS RECORDED BY THE CENTRAL FLOW MANAGEMENT UNIT (CFMU) FOR 2014, AMOUNTED TO ONLY 4,335 MINUTES AND WERE PRIMARILY ATTRIBUTABLE TO THE WEATHER, WITH NO ATM CONTRIBUTION.

THIS IS A 55% REDUCTION IN IRISH DELAYS, COMPARED TO 2013.

IRISH DELAYS ACCOUNTED FOR SIGNIFICANTLY LESS THAN 1% OF TOTAL EUROPEAN DELAYS.

09 Environment

The IAA is currently working on an Energy Management Policy and Plan to ensure the IAA reaches its 2020 target of reducing its CO2 emissions by 33%.

Our strategic objective is to comply with obligations under the Sustainable Energy Authority of Ireland's (SEAI) Public Sector Programme to demonstrate the IAA is implementing energy saving initiatives. The aim is to achieve the required government target for all Public Sector businesses, of reduce energy consumption by 33%, by 2020.

The IAA is also continuing to facilitate significant savings and environmental benefits through innovation in airspace design and efficient operational procedures.

In 2009, our ENSURE project saw the removal of the traditional fixed airways structure from Irish upper airspace, changing our en-route concept of operations to Free Route Airspace (FRA). This allows our airline customers to plan and fly the trajectory through Irish airspace, which best suits their aircraft type, payload and the weather conditions prevailing on the day.

Estimated savings facilitated by FRA will exceed €200 million by 2020, in fuel and in CO2 emissions.

At Dublin Airport, the IAA introduced the Point Merge arrivals procedure for runway 28 in December 2012. Independent analysis confirms that this innovative procedure has resulted in a 17.1% reduction in track miles flown for approaches to runway 28. It also indicates that fuel burn has been reduced by over 19%.

The Point Merge procedure was extended to arrivals to Dublin's runway 10 in April 2015 with similar customer benefits expected.

Airspace changes are planned during 2016, which will facilitate more fuel efficient Continuous Descent Approaches (CDA) at both Cork and Shannon airports. Additionally, the lower airspace will be changed to Free Route Airspace (FRA), extending many of the benefits currently enjoyed by the users of upper airspace.

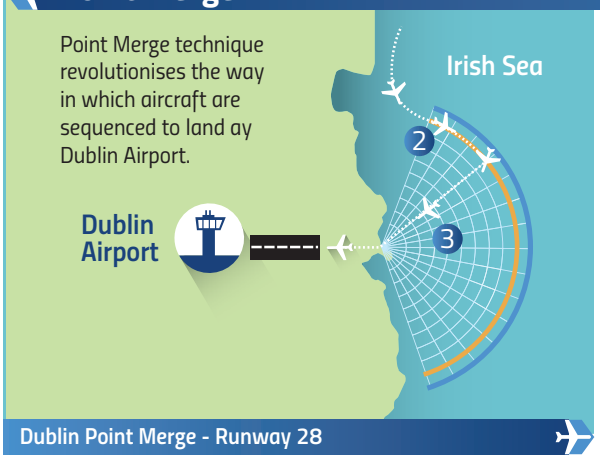
With some projects, including ENSURE and Point Merge, the cooperation of our FAB partners NATS has resulted in a faster and smoother implementation, particularly in the areas on the boundary between Irish and UK airspace. Our strategic objective is to work with our Fab Partners in NATS UK to improve the efficiency of FAB airspace with a view to reducing the level of inefficiency of the UK-Ireland FAB airspace to 2.99% by 2019 in line with the European Commission's RP2 performance targets.

09

THE IAA REMAINS COMMITTED TO IMPLEMENTING FUTURE ENVIRONMENTAL PROJECTS.

Point Merge

Point Merge technique revolutionises the way in which aircraft are sequenced to land ay Dublin Airport.



Dublin Point Merge - Runway 28

Dublin Point Merge - Runway 10

How Point Merge Works

1 Point Merge provides for Continuous Descent Approaches (CDA) from the top of descent to the runway, providing substantial savings of CO_2 and fuel.

2 Point Merge arcs are used by air traffic control to sequence aircraft to land. Approaching aircraft enter the arc and intuitive spacing allowss them to be cleared to land more efficiently than traditional holding patterns.

3 Once cleared to final approach, aircraft make fuel efficient continuous descent approach to the runway.

10 Developments in Operations and Infrastructure

The objective of the Authority's Technology Directorate is to develop and deliver the IAA's Technology Strategy. The IAA Technology Strategy is reviewed on an annual basis to ensure it continues to meet the IAA's operational requirements and its obligations under the SES legislation. The IAA current Technology Strategy covers the period 2015-2019.

The methodology used in compiling the Technology Strategy is to:

- *Identify the Communications, Navigation and Surveillance (CNS) goals we wish to achieve;*
- *Review the IAA's on-going commitment to implement SES legislation requirements;*
- *Identify which emerging technologies the IAA must monitor and evaluate in order to position the organisation for the challenges ahead.*

All identified technology projects are subject to approval by the Air Traffic Management Planning Group to ensure that the proposed technology changes meet operational requirements. Projects are also subject to internal scrutiny from the "CAPEX committee" which approves business cases and tracks budgets.

Operational requirements are the driver for technology change, and can be expressed as requirements to increase the system capacity, improve safety, improve performance or remain compatible with changing SES requirements. The most significant developments in Operations and Infrastructure during 2014-2015 were as follows:

- *COOPANS Development: The COOPANS system is at the forefront of European ATM system developments. As part of this commitment Build 2.4 was introduced into operation in 2014, delivering FANS 1/A, ATN Data Linking and ARTAS V8. In Q1 2015, COOPANS deployed Build 2.5 into operation. All five ANSP partners implemented the release in a three week window; this being a significant milestone, as all five COOPANS partners have harmonised single operational COOPANS Build. This latest Build enables the IAA to display aircraft parameters on the controller air situation display. The display of the aircraft Selected Flight Level will reduce the risk of deviations from Cleared Flight Level.*
- ***Surface Movement Radar Replacement:** The replacement of the Surface Movement Radar is ongoing.*

10

- ***SIRP Phase 2:*** *The second phase of SIRP is ongoing. This will enable a higher level of cooperation between the two service providers, as the new TCP IP based voice switches implemented with ISAVIA will enable a* ***virtual centre where all HF resources can be accessed from every controller working position.***

- *The Communications Domain is working with Schmid Telecom on the replacement of the existing* ***Voice Communication System (VCS)*** *replacement program.*

- *SAAB Systems have been selected following a competitive tender for the delivery of a Remote Tower and a Tower Electronic Flight Strip Systems.*

- *The IAA has been selected by the EC's Innovation & Networks Executive Agency for:*

  Funding of the A-CDM (Airport – Collaborative Decision Making) implementation at Dublin Airport.

  Funding for the future development of the COOPANS Build 2.6 and Build 3.0 Releases.

OUR COOPANS SYSTEM CONTINUES TO BE ON THE **LEADING EDGE OF ATM SYSTEMS IN EUROPE** AND IS THE ONLY HARMONISED SYSTEM OF ITS KIND, IMPLEMENTED IN FIVE ANSPS.

11 Innovation in Operations and Infrastructure

STARTING IN 2018, IT IS ESTIMATED, THIS NEW SERVICE WILL SAVE AIRLINES OVER $127 MILLION PER YEAR IN THE NORTH ATLANTIC ALONE WITHOUT REQUIRING ANY ADDITIONAL AVIONICS INVESTMENT.

IT'S A REVOLUTION IN GLOBAL AIR TRAFFIC SURVEILLANCE.

The IAA is one of five partners involved in a $400 million cutting edge technological partnership, including Iridium (USA) and the air navigation service providers NAV CANADA (Canada), ENAV (Italy) and Naviair (Denmark).

- *Aireon is deploying a global space-based ADS-B surveillance capability focused on improving the efficiency and safety of aircraft operations in remote and oceanic airspace.*

CREATES AIRSPACE FLEXIBILITY, REDUCES FUEL COSTS AND INCREASES SAFETY.

- *Anticipated to be fully operational in 2017, Aireon will create a powerful platform capable of tracking ADS-B equipped aircraft around the globe in real-time, which takes advantage of the Iridium NEXT global network of 66 Low Earth Orbit (LEO) low-latency satellites to deliver global, real-time air traffic surveillance.*
- *This space-based ADS-B surveillance capability will save fuel, optimise flight path efficiency and improve safety in remote and oceanic airspace.*

A BREAKTHROUGH IN AVIATION SAFETY

- *Aireon real-time surveillance will allow air traffic controllers to replace procedural control with enhanced airspace management that will provide aircraft with more flexibility in flight plans, including optimal altitudes and routes. The result will be more cost efficient operations for the airlines and safer global aviation.*

Aireon

- *In addition, the new Aireon ALERT service is a global emergency tracking solution that will be provided as a public service to the aviation community, free-of-charge, allowing rescue agencies, air traffic control providers or airlines to request the location and last flight track of any 1090 MHz Automatic Dependent Surveillance – Broadcast (ADS–B) equipped aircraft in distress.*
- *It is expected that approximately 90 percent of the world's commercial fleet will be ADS-B equipped in the near future.*
- *The service will provide a very precise GPS location knowledge and real-time access to tracking data to assist timely coordination with the search and rescue authorities.*
- *It requires no new equipment or investment from airlines and the service will be managed from the IAA's North Atlantic Communications Centre in Ballygirreen, on the west coast of Ireland.*

IAA

Customer Consultation Process

12

OUR ANNUAL CUSTOMER CARE PROGRAMME IS A KEY CONSULTATION TOOL WITH OUR CUSTOMER

DURING 2014, 32 PROGRAMME PARTNERS WERE VISITED WITH 29 CRM SURVEYS COMPLETED

THROUGHOUT 2014 THE CRM TEAM RECEIVED AND RESPONDED TO 405 INDIVIDUAL REQUESTS FROM OUR CUSTOMERS

WE IMPROVED OUR RESPONSE RATE, WITH 92% OF CASES CLOSED WITHIN 24 HOURS

Average Airline Score by CRM Category for 2014

SAFETY 94%

COST EFFECTIVENESS 90%

CUSTOMER RELATIONS 94%

SERVICE DELIVERY 93%

INNOVATION 91%

13 IAA Performance Against Key Identified Actions for 2014

The IAA successfully collaborated on FAB projects, such as the Dynamic Sectorisation Operational Trial (DSOT), the XMAN (Heathrow arrival manager project) and initial work on the Harmonised Transition Altitude.

The IAA introduced ATN and an enhanced message set for FANS 1A equipped aircraft in June 2014. Approximately 54% of FANS equipped aircraft log on with the IAA at Shannon, but, the uptake of ATN is extremely low at this time.

The IAA's FAB Network Management process saved over €1 million p.a. in OPEX, while its' joint procurement of international communications data lines reduced costs by over €100,000 p.a.

The IAA discusses safety issues on key areas with our airline Customers at regular meetings (DAOPG, CAOPG & SAOPG plus the Local Runway Safety Teams).

The IAA is one of the most cost-effective ANSPs in Europe and our joint procurement of the COOPANS FDP system, in partnership with five other ANSPs, resulted in joint savings to our customers of over €50 million to date.

The IAA intends to continue to use innovative technical and procedural solutions, to allow us maintain high levels of safety and customer services, at user charges that are among the lowest in Europe.

The IAA's Point Merge arrivals procedure at Dublin has effectively increased airspace capacity by over 25%, with no increase in staff, while at the same time reducing track miles flown by an average of 17% and fuel burn and CO2 emissions by over 19%.

The IAA's 2014 en-route unit rate was the 4th lowest in the EUROCONTROL area and the terminal rate was in the lowest cost quartile in Europe.

IAA Customer Programme Partners 14

15 Glossary

A

ACC	Area Control Centre
ADS-B	Autonomous Dependent System Broadcast
ANSD	Aeronautical Services Department
ANSP	Air Navigation Services Provider
ATM	Air Traffic Management
ATS	Air Traffic Service
ACE	ATM Cost Effectiveness (Eurocontrol performance benchmarking report)
ATFM	Air Traffic Flow Management
ATCO	Air Traffic Controller

C

CAPEX	Capital Expenditure
COOPANS	Co-operation in the Procurement of ATM Systems
CISM	Critical Incident Stress Management
CPDLC	Controller Pilot Data Link Communications

D

DAA	Dublin Airport Authority
DSOT	Dynamic Sectorisation

E

EASA	European Aviation Safety Agency
EC	European Commmission
ENSURE	Enroute Shannon Upper Airspace Re-Design
EPN	Entry Point North
EoSM	Effectiveness of Safety Management

F

FAB	Functional Airspace Block
FDP	Flight Data Processing
FRA	Free Route Airspace

G

GAT	General Air Traffic

H

HF	High Frequency
HIRO	High Intensity Runway Operations

I

IAA	Irish Aviation Authority
ICAO	International Civil Aviation Organisation

M

MOR	Mandatory Occurrence Reporting

N

NATS UK	National Air Traffic Service UK
NSA	National Supervisory Authority

R

RAT	Risk Assessment Tool
RP2	Reference period 2015-2019

S

SES	Single European Sky
SESAR	Single European Sky ATM Research
SKPI	Safety Key Performance Indicator
SMS	Safety Management System
SMU	Safety Management Unit
SRD	Safety Regulation Division
SS&P	Safety, Standards & Procedures

T

TCPIP	Transmission Control Protocol, Internet Protocol

U

USM	Unit Safety Manager

X

XMAN	Cross Border Arrival Management

Notes

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