IAA CORPORATE ATM
SAFETY STRATEGY
2016-2020

Enhancing the Resilience and Effectiveness of the SMS
- Utilising Smart Safety Tool Applications and Technology
CONTENTS

IAA Corporate ATM Safety Strategy 2016-2020

1. Foreword 2
2. Introduction 4
3. The Four Thematic Strategy Elements 6
   I. People Create Safety 8
   II. Safety Intelligence 12
   III. Tailored & Proportionate 16
   IV. Challenging & Learning 20
4. Strategy Implementation Guiding Principles 24
5. A Final Word 28
FOREWORD

The ATM organisation has achieved many of the safety goals that we set down in the preceding Corporate Safety Strategy’s plans and as Chief Executive of the IAA I am conscious and complimentary of the significant efforts that were made in the attainment of those goals. We have however more to do, as continuous safety improvement is a dynamic process requiring on-going focus and the development of safety initiatives.

Safety is a core organisational value. Building on the success of the last strategic period we will re-focus on the new safety objectives that we have identified for continual improvement of both the quality and safety of the services that we deliver. This we will achieve, always mindful of Safety not just as the highest priority but as also an integral part of the operational changes and the overall continuing development of our business. This principle is espoused in our Safety policy and in this our strategic plan for 2016-2020.

The essential new ATM and Airport developments that will be introduced during the period of this plan, in particular the New Tower and Parallel Runway projects, highlights our continued commitment to invest in our services so that we can meet efficiently and safely the increasing operational demands. These developments are challenging, however I am confident that our Safety Management System and this strategy will ensure that we will implement these developments both efficiently and safely. In particular the People Create Safety element of this strategy further defines our commitment to our staff, incorporating further enhancements to our professional skills, competency and knowledge assessment processes for frontline staff. This essential element not only contributes to our safety performance and overall safety culture, it also provides us with the capability of effectively meeting the challenges of these operational innovations.

Our commitment to the continuous maturity of our Safety Culture is captured in the strategy. Building on our first 2009 Safety Culture survey we have initiated a second survey which will deliver an action plan with which we will drive the necessary and desired changes. Understanding however, that delivery of these changes bestows collective and individual responsibilities on all of us, professional staff and management alike.

As a Safety focused service provider we are committed to complying with all applicable safety legislation and standards and will strive whenever practical to go beyond compliance and implement international best practice. This strategy supports this commitment and provides the essential roadmap of how we intend to accomplish the defined objectives. In particular, it establishes our strategic safety evolution agenda and defines goals that we intend to pursue.

Safety performance is the responsibility of every single employee of the IAA. No one should think otherwise. Together we will strive to implement safety management to the highest international standards. This is our aspiration and I ask each of you for your continued and proactive support to realise it.

Eamonn Brennan
INTRODUCTION

ATM STRATEGY FOR SAFETY - 2016-2020

The collective endeavours of the staff of IAA ANSP in implementing the 2012-2015 Corporate ATM Safety Strategy goals, have ensured that the intended development of our Safety Management System (SMS) has progressed according to the plan. We now have a strong and effective SMS, which is continuing to mature and progress in a manner that will enable us to achieve the SES (Single European Sky) RP2 (Reference Period 2) target Level ‘4’ of measured maturity. The achievements should not be taken lightly, as they have been made within the constraints of the SES Reference Periods and in a regulatory and operational environment of significant change.

In order to attain, maintain and indeed surpass these safety maturity achievements, the IAA must continue to concentrate our efforts, across a range of development activities, driven by this new strategic plan, its themes and associated Safety Goals. This strategy should also enable our SMS capabilities to meet the operational development challenges and prepare for those associated with the next Reference Period – RP 3 commencing in 2020.

THE EVOLVING SMS PHILOSOPHY

SAFETY I AND SAFETY II

SAFETY-I: the condition where the number of adverse outcomes (accidents / incidents / near misses) is as low as possible. Safety-I is achieved by trying to make sure that things do not go wrong, either by eliminating the causes of malfunctions and hazards, or by containing their effects. (Eurocontrol White Paper ‘From Safety-I to Safety-II; 2013). Safety I activities are essentially centred around understanding what went wrong (Lagging indicators) so as to reinforce the system hazard barriers or defences, to prevent reoccurrence.

SAFETY-II: a condition where the number of successful outcomes is as high as possible. It is the ability to succeed under varying conditions. Safety-II is achieved by trying to make sure that things go right, rather than by preventing them from going wrong …..) ’it is the system’s ability to succeed under varying conditions, so that the number of intended and acceptable outcomes (in other words, everyday activities) is as high as possible. It views the Human as the resource necessary for systems’ flexibility and resilience. (Eurocontrol White Paper ‘From Safety-I to Safety-II; 2013)

Based on traditional SMS framework and methodologies, Safety I, has and continues to, serve us well. The common understanding in the industry now is that the appropriate evolution for Safety Management Systems (SMS) will be best achieved by combining Safety I with the new methodologies and approach of Safety-II, thus ensuring that as we move forward our SMS will feature the combined best elements of both Safety I and II.

The elements contained in this our strategy for 2016-2020 reflects this development going forward, providing the roadmap for the direction of necessary progression that is required to meet both the regulatory and ever increasing demands of evolving ATM operational complexities.
Table 1. IAA Corporate ATM Safety Strategy 2016-2020: Thematic Safety Elements and Strategic Safety Goals.

<table>
<thead>
<tr>
<th>SAFETY THEMATIC ELEMENTS</th>
<th>STRATEGIC SAFETY GOAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEOPLE CREATE SAFETY</td>
<td>Safety Strategy Goal 1: Challenging ourselves as an organisation, we will initiate and complete our second Safety Culture Survey. In the context of providing a Safe and Quality Service, this action will enable us to enhance our Safety Culture by cultivating an organisational wide Safety Ethos, rather than focusing solely on Operational Safety.</td>
</tr>
<tr>
<td></td>
<td>Safety Strategy Goal 2: This goal’s objective is to empower the Team Safety Reps by developing their proficiency and capability through the provision of bespoke SMS Education modules. This will enhance their knowledge as Subject Matter Experts, facilitating and supporting the communication of their valued input to the SMS.</td>
</tr>
<tr>
<td></td>
<td>Safety Strategy Goal 3: We will minimise our operational risks associated with ‘The Human Factor’ to as low as reasonably practicable by application of established and validated Human Factors analysis techniques and methods, while providing resilience within our ATM functional system. We will achieve this by identifying and training HF actors to a sufficiently high standard enabling the and integration of these methods with our currently established and matured SMS processes, while maintaining operational effectiveness.</td>
</tr>
<tr>
<td>SAFETY INTELLIGENCE</td>
<td>Safety Strategy Goal 4: We will acquire and deploy operationally, a range of the latest Smart Safety Tool applications and technology, that will significantly enhance our monitoring, measuring and analysis of the safety performance of our system, while at the same time making the most efficient use of our available resources supporting a Tailored and Proportionate approach to these critical safety performance activities.</td>
</tr>
<tr>
<td>TAILORED &amp; PROPORTIONATE</td>
<td>Safety Strategy Goal 5: To ensure that we apply our resources in as an efficient and focused manner as possible, we will fully utilise our specialist data analytics function and the output of the Safety Tool applications at our disposal to provide the necessary Safety Intelligence to its greatest effect. This aim of this goal is to enable continuous safety performance improvement while simultaneously contributing nationally to the industry’s Total System Safety efforts in a Tailored and Proportioned manner.</td>
</tr>
<tr>
<td>CHALLENGING &amp; LEARNING</td>
<td>Safety Strategy Goal 6: We will implement an ‘E’ Learning process to meet effectively, efficiently and economically our SMS educational and training requirements for all staff appropriate to their level of operational activity i.a.w. RP 2 regulatory requirements. This strategy will be rolled out and implemented in year 1 and 2 of the Strategy Period and will be based on, or similar to, an evolution of the current successful CBT application in use for ATSEP.</td>
</tr>
<tr>
<td></td>
<td>Safety Strategy Goal 7: We will develop processes that will provide us with on-going understanding and assurance of how our system and professional staff perform. This will be achieved by implementing an enhancement of our ATCO standards and competency and standards checking through the employment of a continuous assessment process, supported by the utilisation of an embedded non-jeopardy Normal Operational Safety survey methodology.</td>
</tr>
<tr>
<td></td>
<td>Safety Strategy Goal 8: Through participation in various Safety forums and workgroups, we will by collaboration and proactive engagement with those of whom we share risk, ensure that we can effectively address the issues that affect the total system. This strategy goal will also facilitate the continuous improvement provided our Lessons Learned process.</td>
</tr>
</tbody>
</table>
THIS STRATEGY - OUR 2020 VISION

Our vision for this strategic period coinciding with Reference Period 2 (RP2) reflects the change of our safety focus towards understanding of why everyday performance results in a safe service, applying best practice approach, as published by CANSO, adapted globally and within Europe, as the future framework model for Safety and its development in ATM. What follows mirrors that strategic framework, which we will adapt and utilise as the platform to deliver our vision for the continuing development of the ANSP’s ATM SMS. Essentially, the strategy is based on 4 thematic elements. These themes will provide the framework and direction for how we will meet both the regulatory and operational challenges, as we progress through RP2 and also in preparation for the next development challenge - Reference Period 3. The 4 thematic elements on which our strategic developments are centred, are:

- People Create Safety
- Safety Intelligence
- Tailored & Proportionate
- Challenging & Learning
‘DELIVER OUR VISION FOR THE CONTINUING DEVELOPMENT OF THE ANSP’S ATM SMS. ESSENTIALLY, THE STRATEGY IS BASED ON 4 THEMATIC ELEMENTS’
‘OUR PEOPLE ARE OUR KEY ASSET’
The safety performance of European ANSPs, as judged on past performance is perceived as being among the best in the world. The IAA is no different; our people are our Key Asset, without whose professional knowledge and its application, skills and attitudes we would not have achieved the standards and safety maturity that we have now attained. Not only do People Create Safety but they deliver it!

That said, we cannot depend on past achievements to assure our future safety; with this in mind we must maintain our vigilance, actively monitor activities and adapt appropriately to defend against any Practical Drift toward incipient complacency.

Challenging ourselves, we must continuously and objectively question our performance, revealing the bad news as well as the good. In this regard we will initiate and complete 

**Safety Survey No.2** facilitated by Eurocontrol and supported by the London School of Economics. This process will provide for that challenge in an honest appraisal of our Safety maturity and ethos. The Action Plan derived from the survey will, as an integral element of this Corporate Safety Strategy, support the overall attainment of our strategic safety objectives for the period.

**Safety Strategy Goal 1**

Challenging ourselves as an organisation we will initiate and complete our second Safety Culture Survey. In the context of providing a Safe and Quality Service, this action will enable us to enhance our Safety Culture by cultivating an organisational wide Safety Ethos, rather than focusing solely on Operational Safety.

**SAFETY COMMUNICATION NETWORK**

**Utilising Our Key Assets – Our ‘Field Experts’**; we will continue to evolve and mature our Safety Communication network at operational unit level, empowering an individual capability at all levels to support a bottom up approach that enhances and contributes to our top down Safety Performance improvement measures and assessment of change. Central to this process is the operation of the USMC (Unit Safety Management Committee) of which a key element is the involvement of the Team Safety reps - our Field Experts or SMEs (Subject Matter Experts) and their interaction with the USM (Unit Safety Managers). Their communication and input are an essential element of this improvement strategy.

**Safety Strategy Goal 2**

This goal’s objective is to empower the Team Safety Reps by developing their proficiency and capability through the provision of bespoke SMS Education modules. This will enhance their knowledge as Subject Matter Experts, facilitating and supporting the communication of their valued input to the SMS.
HUMAN PERFORMANCE AND HUMAN FACTORS

Human Factors is a widely used but sometimes little understood term in industry. The application of which is synonymous with human error, poor human performance and often considered a catch all explanation for unwanted outcomes. This is increasingly becoming the old view of Human Factors and human error.

To better understand the hazards and risks posed by the underlying causes of human fallibilities and taking note of human capabilities while making decisions in our increasingly automated and complex ATM environment; the IAA will develop and publish a human factors strategy, policy and safety assurance process. Moreover, the IAA will further develop and evolve our current safety investigation process to consider in greater detail, the Human element by application of Human Factors Analysis and Classification System (HFACS).

Safety Strategy Goal 3

We will minimise our operational risks associated with ‘the human factor’ to as low as reasonably practicable by application of established and validated Human Factors analysis techniques and methods, while providing resilience within our ATM functional system. We will achieve this by identifying and training HF actors to a sufficiently high standard enabling the integration of these methods into our currently established and matured SMS processes, while maintaining operational efficiency and effectiveness.
KNOWING YOUR ANSP’S SAFETY RISKS,
AND ITS SAFETY STRENGTHS AND WEAKNESSES’
SAFETY INTELLIGENCE

Safety Intelligence is about how to retain safety in sharp focus while growing the business, a core element of this is ‘Safety Knowledge’: knowing your ANSP’s safety risks, and its safety strengths and weaknesses. In relation to our Safety Intelligence activities there are two parts to the requirements and our associated activities are:

I. RP2 SAFETY KEY PERFORMANCE INDICATORS.

Effectiveness of Safety Management;

Regarding EASA regulatory EoSM measure, we have achieved an annual score (Fig.1) improvement since the inception of the methodology by EASA in 2013. Our advancing maturity is signified by a 3% year on year increase score, significantly above the SES ANSP average. The scores are subject to validation by regulatory authorities commencing with the 2013 survey.

<table>
<thead>
<tr>
<th>IAA ANSP - EASA EoSM Annual (Effectiveness of Safety Management Survey)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>78%</td>
</tr>
<tr>
<td>2014</td>
<td>81%</td>
</tr>
<tr>
<td>2015</td>
<td>84% Management Objectives Level ‘D’ Average SES ANSP Score 79%</td>
</tr>
</tbody>
</table>

Figure 1. Annual EASA EoSM Score.

The Eurocontrol survey graph below Fig.2. shows progress made by the IAA between the baseline results set in 2010 against the 2014 and 2015 results.

This Eurocontrol survey, while not an official regulatory annual EoSM Survey, is however, the originator of and applies the same methodology. The results of these two latest surveys are an accurate benchmark of what our safety maturity performance currently is. The result indicates that we have acquired the necessary EASA regulatory levels of performance well in advance of the RP 2, 2019 compliance deadline i.e. Management Objectives (MO) Level ‘D’ and all other Safety Assessment (SA) Objectives Level ‘C’.

Note: Level ‘A’ is the lowest level and Level ‘E’ the highest attainable.

We excel with regard to these SKPI’s and are in fact in the top performing ECAC ANSP’s achieving a maturity score of 86% and Managing and Measuring - Level (D), significantly above the SES ANSP average of 78% for 2015. The challenge is to maintain this level of excellence and indeed continue to improve as we have done year on year since 2012. The chart (Fig.2) details the performance in all Safety Assessment Areas.

![Average ANSP Maturity Chart](Image Link)
### Study Area

<table>
<thead>
<tr>
<th></th>
<th>2015 Level (%)</th>
<th>2014 Level (%)</th>
<th>2013 Level (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA1 – Safety Culture</td>
<td>86.54</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SA2 – Organisational and Individual Safety Responsibilities</td>
<td>85.71</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>SA3 – Timely Compliance with International Obligations</td>
<td>82.84</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SA4 - Safety Achievement</td>
<td>86.67</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>SA5 – Competency</td>
<td>86.68</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>SA6 – Risk Management</td>
<td>85.67</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SA7 – Safety Interfaces</td>
<td>85.71</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SA8 – Safety Assurance</td>
<td>88.20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SA9 – Safety Performance Monitoring</td>
<td>87.36</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SA10 – Organisational Safety Surveys and SMS Audits</td>
<td>87.21</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Overall Maturity Level and Maturity Score

<table>
<thead>
<tr>
<th></th>
<th>2015 Level (%)</th>
<th>2014 Level (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Maturity Level and Maturity Score</td>
<td>86.47</td>
<td>(3) 78%</td>
</tr>
</tbody>
</table>

**Note:** Level (1)- Initiation represents the lowest Safety maturity level and Level (5) the Highest – Continuous Improvement.

### Risk Analysis Methodology.

The IAA’s goal to fully apply the RAT has been achieved in advance of the required 100% application target set for RP2. We fully apply this classification measurement and analysis, using the data to assess our operational performance and risk as measured by severity. The target set for the RAT application for all Runway Incursions, Separation Minimum occurrences and ASO’s is now achieved. We will however, continue to develop the level of sophistication and effectiveness of our preventative measures and risk mitigation strategies based on the severity classification outputs of the RAT as applied not just to the KPI’s but to all of our occurrences. Supporting our other risk assessment methodologies, this information will also be utilised to identify and prioritise the necessary performance improvement efforts to greatest effect.

### Just Culture.

We have a policy and a well-constructed and balanced procedure, which is now fully supported by all our operational staff Associations and unions. We will continue to monitor, assess in operation and adjust as necessary the process in collaboration with our staff associations. This is to ensure it continues to provide for balanced and just outcomes and as such remains fit for purpose.

These combined SKPI’s deliver Intelligence information in a general sense, providing us with a lens through which we can identify areas of potential weakness, assess our overall risk, and consequently address areas of our activities that may potentially impact our provision of safe ATM services. By conducting Gap Analysis we use the performance markers in the EoSM survey and the RAT to identify the areas where we need to focus our activities and resources.
II. SAFETY PERFORMANCE MEASURING & MONITORING

Safety Strategy Goal 4

We will acquire and deploy operationally, a range of the latest Smart Safety Tool applications and technology, that will significantly enhance our monitoring, measuring and analysis of the safety performance of our system, while at the same time making the most efficient use of our available resources supporting a Tailored and Proportionate approach to these critical safety performance activities.

EASA regulation, monitoring and guidance requires the measurement of mandatory Performance Indicators. Associated with this demanded and essential activity, is the trending and analysis that provides us with more in-depth intelligence through the identification of crucial Leading and Lagging indicators. These activities play a critical role in monitoring the performance of our total system, while in the wider EU regulatory context is moving us towards a Performance-Based Environment and Risk Based Oversight. A true risk based approach to regulation enables targeting of scarce resources appropriately.

A key element of RP2 is to improve and harmonise incident reporting across Europe through regular monitoring of leading and lagging indicators. In consultation with the National Supervisory Authority, we will continue the development and implementation of both the identification and analysis, of our Leading RP 2 Safety Performance Indicators, supported by our ongoing strategy of developing to a high level, the data analytics process of our performance indicators. This information will be used to strive for consistent, robust, appropriate and repeatable levels of performance.

Monitoring of PIs is the key activity that will be measured at European, National and FAB levels, as required by regulation EU 390/2013; they are: Separation Minimum Infringements (SMI), Runway Incursions (RI), Unauthorised Airspace Penetration and technical ATM Specific Occurrences (ASO). We will, in addition continue to monitor and record Deviations from ATC Clearance and Level Busts.

This monitoring and analysis process is an essential and key element of our Safety Intelligence activities and the IAA ANSP will continue to evolve in line with ICAO, EUROCONTROL, CANSO and EASA developments in this area. To achieve this objective, the SMU functions and staff have been expanded to meet this requirement providing the capability to:

- Monitor our own performance through the utilisation and enhancement of our safety data analytics capabilities.
- Benchmark our performance with our industry partners as members of the Standing Safety Committees of CANSO, and Eurocontrol.
- Share and benchmark our performance Safety Metrics, within SES FABs and with our own partners in the Stakeholder Safety Forum.
- Continue to refine and improve our investigation of occurrences supported by our Just Culture Policy and procedure.
‘TARGETING INVESTMENT TO ENSURE THE MOST EFFECTIVE USE OF RESOURCES ARE APPLIED’
TAILORED & PROPORTIONATE

SAFETY MANAGEMENT SYSTEM TOOLS AND APPLICATIONS

Safety Strategy Goal 5

To ensure that we apply our resources in as an efficient and focused manner as possible, we will fully exploit our specialist data analytics function and the output of the Safety Tool applications at our disposal, to provide the necessary Safety Intelligence to its greatest effect. The aim of this goal is to enable continuous and efficient safety performance improvement while simultaneously contributing nationally to the industry’s Total System Safety efforts in a Tailored and Proportionate manner.

We will deploy and utilise the specifically developed Safety Tool applications, mirroring the best practice models recommend by the Eurocontrol Network Managers Safety Division. These tools provide for efficient data gathering and output activities to be conducted in a Tailored and Proportionate manner; thus targeting investment to ensure the most effective use of resources are applied to the functional system for maximum effectiveness. These integrated elements are:

- **APF** (Aerospace Performance Function).
- **ToKAI** (ToolKit for ATM Investigation).
- **RAT** (Risk Assessment Tool).
- **ASMT** (Automatic Safety Monitoring Tool).

INTEGRATED SAFETY TOOL APPLICATIONS
A server/web-based application that provides:

- Strategic Dashboard with Tactical capabilities.
- A graphical overview of the performance of the Operational organisation.
- Visually presents assessment of safety performance trends and its evolution over time.
- Dynamic diagnostic functions Enabling:
  - Targeted safety measures.
  - Seamless integration with the Risk Analysis Tool (RAT).

**ToKAI**

Safety occurrence investigation is a core and a vital activity of ATM safety. Once a safety occurrence has taken place the event must be reported in accordance with regulatory requirements and IAA procedures. This filing of the report is the catalyst that triggers the safety investigation process. The IAA are committed to introducing the EUROCONTROL Toolkit for ATM Occurrence Investigation or TOKAI. This interactive software tool (Fig. 3) consolidates several applications in support of the investigation process including subsequent trend analysis and tracking of recommendations. Its diverse usage is suitable for application in engineering, and operational environments. Additionally, TOKAI will improve our current Occurrence Reporting database user interface, making report filing easier and consistent with user needs. It will provide a means for occurrence notification that will enable a:

- Harmonised application of pertinent safety regulations
- Fully independent administrative control.

This will enable the Safety Management unit to produce reports in different formats, while safeguarding the protection and security of reporters and third party identities.

Further, it supports the transfer of safety data to the ECCAIRS system (European Coordination Centre for Accidents and Incidents Reporting System) and the European Central Repository (ECR), including the AST (Annual Summary Template), required for the exchange of safety information with EUROCONTROL.

Figure 3. TOKAI Front page Dashboard.
**Risk Analysis Tool (RAT)**

The RAT methodology is applied through a software application that is user friendly and integrated into TOKAI. It quantifies cause effect relationships between actions and consequences and expresses this relationship with a measurable figure. This application facilitates our Safety Intelligence extraction and utilisation of RAT data as described earlier.

**Automatic Safety Monitoring Tool (ASMT)**

Gathering, analysing and exchanging data on aviation incidents or events is a key component of a robust safety management system. ASMT is a means to automatically gather data related to safety events from our operational systems.

ASMT will be installed on our COOPANS system for both Enroute and Terminal Business Units Operations to enable us to:

- automatically monitor and record safety-related events using operational data;
- have easy access to recorded data through a web based replay tool providing a better understanding of the situation;
- better support to safety performance monitoring by use of in integrated analysis tools including geographical and density maps of safety occurrence distribution. Time based series and trend charts to monitor variations in safety levels;
- provide automatic computation the of risk score that feeds into the Risk Analysis Tool.

The information that we obtain from ASMT can assist us in gaining a broader and more objective perspective of current safety issues and safety risk, such as strategic conflict management, separation provision, and acceptable risk level, better understanding of operational hazards and also the quality and level of reporting. Furthermore, the utilisation of the ASMT will enable us to fully meet the automatic recording and reporting requirements for the prescribed Performance Indicators as specified in the National ‘S’ notices and EU 390/2013.

The deployment, implementation and utilisation of these integrated tools will contribute to all SMS activity areas, specifically supporting our Safety Intelligence strategy developments, thus benefitting our overall safety performance improvement.

**Automatic Safety Monitoring Tool**

Recording:

- Date & Time
- Location
- Aircraft involved
- Risk of collision

**Figure 4. ASMT Integration**
‘STRIVE FOR CONSISTENT, VIGOROUS, APPROPRIATE AND REPEATABLE LEVELS OF PERFORMANCE.’
This thematic element of the strategy involves both internal and external activities. Understanding how safety is produced in ATM, we will inculcate an environment where challenge and feedback is encouraged, based on operational realities and learning, from both our own and others experiences.

**Internally;** we will focus on two areas:

I. **Education and Training.** We will focus on Operational Staff Performance improvement, by ensuring that the Lessons Learned process is developed as a fully integrated element of refresher training, and Unit initial training if necessary, in addition to fully meeting the regulatory SMS specific training requirements.

**Safety Strategy Goal 6**

We will implement an ‘E’ Learning process to meet effectively, efficiently and economically our SMS educational and training requirements for all staff appropriate to their level of operational activity i.a.w. RP 2 regulatory requirements. This strategy will be rolled out and implemented in year 1 and 2 of the Strategy Period and will be based on, or similar to, an evolution of the current successful CBT application in use for ATSEP.

II. **Standards, Competency and Assessments.** Event or Occurrence reviews and investigations are an essential and critical SMS activity and are a rich seam of safety indicators, however they are predominately Lagging but are nevertheless a key source from which we learn and improve. Based on negative outcomes, it is an activity that is by necessity resource intensive; moreover it cannot provide us with the full picture.

To do this we need to view, through an additional lens, the professional standards and routine normal performance i.e. understanding what we do well – The Safety II Philosophy. Enabling a better understanding can then be utilised to strive for consistent, vigorous, appropriate and repeatable levels of performance.

The current dilemma of how we measure safety is the inverse relationship between data and frequency (Fig.5.) Safety management receives a lot of information about rare events but only obtains very limited information about daily operations. According to Amalberti (2006), in ultra-safe systems like commercial aviation [risk less than 10^-6], the following is the fundamental constraint on predicting where the next accident is likely to come from 'The next accident has never been seen before. Its decomposition may invoke a series of already seen micro incidents, although most have been deemed inconsequential for safety'. This implies the need to understand the variance of normal operations in order to project rare combinations of factors (individually deemed safe or inconsequential) that could combine to create the potential for a serious incident (Eurocontrol 2012).

**Figure 5.** The distribution between wanted and unwanted outcomes (not based on actual numbers) showing the inverse relationship between the level & intensity of analysis of normal ops and serious event/accidents.
As a consequence, there is limited raw data to measure. The information that the safety management system can glean from retrospective data is limited in terms of numbers (quantity) as well as in terms of knowledge (quality) (see Figure 6).

Measuring indicators create quantitative data but do not accurately reflect the actual status of the overall system. Knowledge about how the system works and how resilient or fragile it is remains low when the focus is solely based on negative outcomes or failures.

Accordingly, we will enhance our current process in line with industry aviation wide best practice, to ensure we are fully cognisant of our performance standards on a continuous basis. Such an approach will inform us of not just the absence of things going wrong (the absence of Safety) but indicate what we do well (the presence of safety).

We have chosen two key elements with which to address the above described dilemma; elements that this strategic goal aims to address through enhancement of our standards and competency processes, as follows:

- Implementation of a continuous assessment process for our ATCO’s to enhance our current checking system will be initiated.
- Initiating a non-jeopardy defined process such as Normal Operations Safety Survey (NOSS). This best practice process will provide the data acquired in our operations rooms and towers, to drive improvements in both our training needs and procedures. A process such as this reflecting Safety II, allows us to see Work as Done in contrast to Work as Imagined, thus enabling continuous improvement to the safety of our services.

Safety Strategy Goal 7

We will develop processes that will provide us with ongoing understanding and assurance of how our system and professional staff preform. This will be achieved by implementing an enhancement of our ATCO competency and standards checking through the employment of a continuous assessment process, supported by the utilisation of an embedded non-jeopardy Normal Operational Safety Survey methodology.

Externally

Collaboration with those with whom we share risk in the system is a must, ensuring that these shared risks can be effectively mitigated, internally by ourselves, or indeed by challenging others, including our NSA to do so. This approach, while enabling our own risk mitigation activities, is also our contribution to Total Aviation System safety. The strategy provides a challenge not only to us but to our service users, the cornerstone of which is developing our interactive processes and cooperation with our customers and industry partners.

Safety Strategy Goal 8

Through participation in various Safety fora and workgroups, we will by collaboration and proactive engagement with those of whom we share risk, ensure that we can effectively address the issues that affect the total system. This strategy goal will support our continuous improvement efforts and understanding of the overall system risks.
‘COLLABORATION WITH THOSE WITH WHOM WE SHARE RISK IN THE SYSTEM IS A MUST’
‘WE MUST THEREFORE APPLY OUR KNOWLEDGE, GAINED FROM EXPERIENCE, OBSERVATION AND EVENT ANALYSIS’
STRATEGY IMPLEMENTATION
GUIDING PRINCIPLES

People are our strength, not our weakness

While personal responsibility is an essential, critical and fundamental requirement for our professional operational staff, equally however, is the resilience of the other key elements of our Functional system; Procedures and Equipment. Procedures support and guide the implementation of operational service, therefore they must be regularly reviewed to ensure they remain fit for purpose and provide for flexibility when, in the context of Safety, the situation demands that a departure from Standard Operational Procedure (SOP) is necessary to ensure a safe outcome. The following reference text support this guidance.

‘Using rule-following as a Litmus test for appropriate behaviour is problematic. General rules do not apply to every situation and some rules are inappropriately written in the first place’ (Reason, et al, 1998; Wüpert, 2008).

‘However, the tendency is to investigate only cases when things go wrong. Thus, accident investigations put workers in a double-bind situation: if workers violated the protocol and things went wrong, they are reprimanded for being risk takers; if they did not violate and things went wrong, they are reprimanded for being non-adaptive’ (Dekker, 2003).

We must therefore apply our knowledge, gained from experience, observation and event analysis, to ensure by review and update, that our People, Procedures, Equipment and their utilisation remains fit for purpose; providing resilience and matching the demands of a changing operational environment.

Tailored and Proportionate - knowing when enough is enough

There is a limit to the potential value gained by applying to events classified as severity ‘E’ – ‘No Safety Effects’, the same level of investigation, analysis and implementation of Safety Recommendation as we do the more serious events; severity ‘C’ or above. On the other hand tracking and trending of low severity level events is however, an essential activity that will assist in identifying Leading Indicators that may be precursors to a more serious event in time. In short there should be a reasonable balance of effort mindful of the risk, its severity and the application of our resources to best effect.

Beware of perverse incentives

Metrics and measurements should be utilised carefully to ensure they engender the appropriate professional attitudes and that they drive the correct behaviours and system performance. Measuring trends and setting targets against these trends rather than against raw targets, not only supports the correct behaviours, but in conjunction with our safety knowledge and knowledge of the ANSP’s risks, ensures effective safety assurance and performance improvement.

Organisational Safety Consciousness

Consider Safety as a Business or Enterprise process; a strategic philosophy, Operationally applied and tactically implemented, in other words Thinking Safety.

In order to maximise safety and cost effectiveness of IAA ANSP operations and change management to the Functional System we must consider the totality of the change to all our part of our Operational Business and not simply the any one or a combination of some of the elements, i.e. Safety, Environment, Regulation, Operational Efficiency, Capacity and Cost.

The Safety Bubble: An Operational Concept of Safety – Not Simply the No.1 Priority but the essential environment in which the business of ATM Service provision is conducted.
Teamwork and Communication across units, interfaces, attitudes and culture

The SMS is a vital foundation on which operational safety in the IAA is built upon. With traffic in some business units reaching and others approaching record highs, the continued, consistent and systematic application of the SMS is essential. In this regard Teamwork and Communication are of particular and critical importance.

‘An optimum Safety Culture will deliver a clearer and more comprehensive picture of operational risk, one that takes in all aspects of the activities of the organisation. This is possible through the achievement of a better information flow and the maintenance of an effective dialogue’ [Eurocontrol]

In the context of achievement of a better information flow, excellent teamwork and communications across all units are two of these core activities. Our enablers in the IAA ANSP are the Team Safety Reps who are a vital conduit for safety related information, channelling it up, down and across the units. As safety point of contact for their peers, their liaison with the local USM (Unit Safety Manager) and their engagement with the USMC, provides them with real-time operational and safety information. Their role therefore, enables feedback and updates from and to the key unit safety forum that is the Unit Safety Management Committee (USMC).
A FINAL WORD

Our organisation has realised significant maturity and development of our Safety Management System, during the last Corporate ATM Safety Strategy period. This accomplishment is confirmed by our progressive score improvement in Effectiveness of Safety Management annual assessment surveys. This challenging journey has been achieved through the focused endeavours of frontline staff, management and support staff.

Many initiatives have been identified and implemented as a consequence of enhanced communications and teamwork across all staff and management levels, enabled by our Safety education and training programmes. We cannot however, afford to relax these efforts; SMS’s are in themselves dynamic, requiring continuous modifications and developments so as to meet the ever-changing environment within which we operate. This plan with your engagement and support, will contribute to this successful achievement of our objectives.

The new ATM regulatory regime supporting RP2, in combination with the SES mandatory requirements to provide for a more cost efficient service, will continue to pose very significant organisational challenges, in particular the resource constraints that are imposed by the requirements for this reference period.

The challenge therefore, is to continue to ensure that we achieve the necessary balance between the provision of a safe service and the attainment of the commercial objectives. The provision of this service must be delivered within the ‘Safety Bubble’. Everything we do in the provision of the service, either as individuals or groups, is therefore conducted within this concept, conscious of our collective and individual safety responsibilities at all times.

I believe this SMS strategy based, on best and evolving practices and principles, supports the activities necessary for the continuance of our substantial progress to date, while providing the necessary structures to implement our significant operational developments in the period ahead. It affords a high-level roadmap and the directions required to achieve the objectives. The increased level of engagement by you, our professional staff to date is acknowledged and appreciated. Without this engagement we could not have reached the levels of improvement that we have. The objectives in this strategy provide challenges that will require the ongoing support and proactive engagement at all professional staff and management levels.

The Safety Management Unit will rigorously support and enable the necessary efforts through the provision of safety training, promotion and the identification and development of the required improvement strategies. The challenge to successfully attaining and indeed maintaining these goals, in an environment of competing demands and regulatory obligations, will require continued focus, appropriate resources and commitment from the top down and bottom up of our organisation.

I will, as the Head of Safety Management continue to support the development of our SMS structures and the delivery of the necessary SMS education and training, to enable the required understanding that will provide the capabilities necessary to realise our strategic objectives.

Both myself and the SMU specialist staff are looking forward to working with you all, in the implementation of this strategy, confident that through partnership and teamwork we will achieve the aims of this strategy, acquiring the desired ‘Continuous Improvement’ maturity level of our Safety Management System.

Harvey O’Keeffe
Head of ATM Safety Management